D GROUP: KGMXOBDO	507		DIAGNOST TEST GROUP: F		MARY TABLES 4.2088	ECM				EMISSION	IS STDS:	CALULE	V125, FED	BIN12		
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns	,	Time Required	d	MIL IIIu		
Catalyst	P0420	Catalyst System Efficiency Below Threshold Bank 1	Ewma filtered normalized corrected Oxygen Storage Capacity (OSC) of catalyst, bank 1	<	1	Unitless	primary A/F commanded lambda	<=	1.09009	Unitless	Fast Init. Response / Response to Step Change		Once per driving cycle	1 Trip		
					EWMA normalized Oxygen Storage Capacity threshold: (a) / (b) (a) measured OSC		primary A/F commanded lambda engine runs	>= =	0.8501 TRUE	Unitless -	modes: 3 samples over 2 trips Stabilized mode: 1 sample per trip					
			(see Look-Up-Table #P0420-5)  Corrected OSC: ((a) - (b)) * (c) / (d) (a) Measured OSC bank 1 (b) O2 mass for OSC correction using Sec. O2	=	bank 1 0.1 to 0.205	g	Deceleration Fuel Cut-Off (DFCO) for time Vehicle speed engine speed	= >= >= <=	FALSE 3 4.350528278 3520	sec mph rpm						
			(c) Correction map for transition and delayed response time				engine speed	>=	1000	rpm						
			(d) compensation time for OSC correction using Sec. O2 performance diag, results				engine load @ full engine mode (see Look- Up-Table #P0420-4) (engine load of full engine mode / 2) @ half engine mode (see Look-Up-Table #P0420-	>=	12 to 19.992 12 to 19.992	%						
							a)  for time Ratio total charge to charge in cylinder for time Integrated air mass flow measured ambient temperatuer measured ambient pressure measured engine coolant temperature no transmission gear change for time  []		3 1.00024 2 60 -39.8 50 52.06 TRUE 2	sec Unitless sec q deq C kPa deq C						
								( integrated exhaust gas mass flow after the following operation points are in the monitoring window bank 1	>	60	g					
									Change of exhaust gas mass flow bank 1: (a) - (b)	<=	6.94444444	g/sec				
							Change of exhaust gas mass flow bank 1: (a) - (b)	>=	-6.94444444	g/sec						
									(a) exhaust qas mass flow bank 1 (b) filtered exhaust qas mass flow bank 1 PT1 time constant Low window exhaust gas mass flow bank 1 (see Look-Up-Table #P0420-2)	<=	1.20029304 22.2222222222 2 to 27.777777777777	sec g/sec				
							Low window exhaust gas mass flow bank 1	>=	8 3.88888889	g/sec						
							Low window exhaust gas mass flow bank 1	>=	(a) - (b)							
							(a) minimum exhaust gas mass flow bank 1		3.88888889	g/sec						
							(b) offset exhaust gas mass flow bank 1 at tip-out for time	>=	0.833333333	g/sec sec						
							High window exhaust gas mass flow bank 1 (see Look-Up-Table #P0420-1)	<=	22.22222222222 2 to 27.7777777777777							
							High window exhaust gas mass flow bank 1	>=	8 3.888888889	g/sec						
							) ( Modeled catalyst temperature gradient bank 1:	<=	40.0078	deg C						
							(a) - (b) Modeled catalyst temperature gradient bank 1:	>=	-40.0078	deg C						
							(a) - (b) (a) Modeled catalyst temperature bank 1 (b) filtered modeled catalyst temperature bank 1 PT1 time constant	=	4.9989321	sec						

125, FEDB	STDS: CALULEV125,	EMISSIONS S				GMXV04.2088	TEST GROUP: K		1/	D GROUP: KGMXOBDG
М	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		deg C	650.006	<=	Low window modeled catalyst temperature					
		deg C	520.022	>=	Low window Modeled catalyst temperature bank 1					
		deg C	780.014	<=	High window modeled catalyst temperature bank 1					
		deg C	600.014	>=	High window Modeled catalyst temperature bank 1					
		deg C	420.06	>	Modeled catalyst temperature bank 1 after the first engine start and driving					
		sec	12	>=	for time ))					
		g	1.51	>=	(( Integrated purge mass flow after a longer					
		factor	40	>= <=	purge stop  HC concentration factor in chacoal canister					
		Unitless	0.200012	<=	relative fuel portion of canister purge to					
		Unitiess	0.200012		injected fuel mass : (a) / (b)					
					(a) fuel mass supplied by canister purge control					
					(b) fuel mass supplied by injection					
					OR					
		-	TRUE	=	open loop canister purge control OR					
		g/sec	5.55555556	<=	canister purge control mass flow into the manifold					
		g	1600 to 2850	>	(( integrated exhaust gas mass flow bank 1					
					since engine start (see Look-Up-Table #P0420-3)					
		g	40	>	integrated exhaust gas mass flow bank 1 after the following sensors's readiness					
					Secondary O2 sensor readiness bank 1 Primary A/F sensor readiness bank 1					
		deg C deg C	299.991 64.9922	>= <	temperature deviation of Primary A/F sensor					
		deg C	800.006	•	heater control bank 1: (a) - (b)  (a) primary A/F sensor temperature set point					
		deg C	800.000		for heater control					
					(b) measured primary A/F sensor temperature for heater control					
					statemachine = sm					
			FALSE	=	statemachine (sm =0) : inactive a commanded lambda active					
		Unitless	1	=	primary A/F commanded lambda if the following conditions are met,					
		v	0.749512	>=	sm moves to sm = 2 Secondary O2 sensor voltage bank1					
					if the following conditions are met, sm moves to sm = 1					
		V V	0.749512 0.450439	< >=	Secondary O2 sensor voltage bank1 Secondary O2 sensor voltage bank1					
		-	TRUE	=	statemachine (sm=1) - rich mixture in catalyst					
		- Unitless	TRUE 0.91992	=	a commanded lambda active primary A/F commanded lambda bank1					
		sec sec	3 0.2	>= >=	for time for time					
			U.E		if the following conditions are met, sm moves to sm = 2					
		V/s	0.069	>=	(( Secondary O2 sensor voltage gradient over					
		V	0.749512	>=	0.05s Secondary O2 sensor voltage bank1					
		· ]		-	) OR					
		٧	0.749512	>=	Secondary O2 sensor voltage bank1					
		q	0.12	>=	Integrated exhaust mass flow bank 1					
					if the following conditions are met, sm moves to sm = 3					
		v			( · · · · · · · · · · · · · · · · · · ·				1	

D GROUP: KGMXOBD	G07		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES EC GMXV04.2088	∪ IVI			EMISSIONS	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditi	ons	Time Required	MIL II
					( Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over	>= <=	0.749512 0.09944	V V/s		
					0.05s Secondary O2 sensor voltage gradient over	>=	-0.09944	V/s		
					0.05s Integrated Oxygen mass flow bank 1	>	0.15	g		
					( Primary A/F sensor lambda bank 1 (a) Primary lambda control set point bank 1	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean	(b)	0.05005	Unitless		
					mixture Primary A/F sensor lambda bank 1	>=	(a) - (b)			
					(a) Primary lambda control set point     (b) maximum lambda deviation of rich     mixture		0.05005	Unitless		
					for time Integrated rich exhaust gas mass flow bank	>=	0.2	sec		
					1 1 )	>=	15	g		
					( Secondary O2 sensor voltage bank 1	>	(a) + (b)			
					(a) minimum secondary O2 voltage (b) Offset voltage of Secondary O2 sensor	=	0.030518	v		
					) statemachine (sm=2) -					
					Lean mixture in catalyst a commanded lambda active	-	TRUE	_		
					primary A/F commanded lambda for time	= >=	1.08008 3	Unitless sec		
					for time if the following conditions are met,	>=	0.2	sec		
					sm moves to sm = 4					
					Secondary O2 sensor voltage for time	<= >=	0.150146 0.1	V sec		
					OR					
					Secondary O2 sensor voltage Secondary O2 sensor voltage gradient over	<= <=	0.150146 0.09944	V V/s		
					0.05s Secondary O2 sensor voltage gradient over	>=	-0.09944	V/s		
					0.05s Integrated Oxygen mass flow bank 1	>	0.1	q q		
					)) (		0.1	*		
					Primary A/F sensor lambda (a) Primary lambda control set point	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean mixture	(b)	0.05005	Unitless		
					Primary A/F sensor lambda (a) Primary lambda control set point	>=	(a) - (b)			
					(b) maximum lambda deviation of rich		0.05005	Unitless		
					mixture for time	>=	0.2	sec		
					Integrated lean exhaust gas mass flow bank 1 )	>=	15	g		
					statemachine (sm=3) -	=	TRUE			
					Lean mixture in catalyst a commanded lambda active bank 1	=	TRUE	-		
					primary A/F commanded lambda bank 1 for time	= >=	1.08008 3	Unitless sec		
					for time if the following conditions are met,	>=	0.2	sec		
					sm moves to sm = 4 ( Secondary O2 sensor voltage bank 1	<=	0.150146	v		
					for time OR	>=	0.150146	sec		
					( Secondary O2 sensor voltage bank 1	<=	0.150146	V		I
					Secondary O2 sensor voltage gradient over 0.05s	<=	0.09944 -0.09944	V/s V/s		
					Secondary O2 sensor voltage gradient over 0.05s	>=				
					Integrated Oxygen mass flow bank 1 ))	>	0.1	q		

EDBIN	STDS: CALULEV125, FEI	MISSIONS S	Е			FIC SUMMARY TABLES EC KGMXV04.2088	TEST GROUP:		607	D GROUP: KGMXOBDG
MIL	Time Required	s	Enable Conditions		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			(a) + (b)	<=	Primary A/F sensor lambda bank 1					
		Unitless	0.05005	(a) (b)	(a) Primary lambda control set point (b) maximum lambda deviation of lean					
			(a) - (b)	>=	mixture Primary A/F sensor lambda bank 1					
		Unitless	0.05005		(a) Primary lambda control set point (b) maximum lambda deviation of rich					
		sec	0.2	>=	mixture for time					
		g	15	>=	Integrated lean exhaust gas mass flow bank					
		v	0.200195							
		v	0.200195	<=	Measurement Oxygen Storage Capacity bank 1 with Secondary O2 sensor voltage					
		-	TRUE	=	bank 1 done statemachine (sm=4) -					
			TRUE	-	Rich mixture in catalyst a commanded lambda active					
		Unitless	0.91992	=	primary A/F commanded lambda for time					
		sec sec	0.2	>=	for time					
					if the following conditions are met, sm moves to sm = 3					
					Measurement Oxygen Storage Capacity					
		v	0.85083	>=	( Secondary O2 sensor voltage bank 1 OR					
		V V/s	0.749512 0.09944	>= <=	( Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over					
		V/s	-0.09944		0.05s					
				>=	Secondary O2 sensor voltage gradient over 0.05s					
		q	0.15	>	Integrated Oxygen mass flow bank 1 )) (					
			(a) + (b)	<= (a)	Primary A/F sensor lambda bank 1 (a) Primary lambda control set point bank 1					
		Unitless	0.05005	(b)	(b) maximum lambda deviation of lean					
			(a) - (b)	>=	mixture Primary A/F sensor lambda bank 1					
		Unitless	0.05005		(a) Primary lambda control set point (b) maximum lambda deviation of rich					
		sec	0.2	>=	mixture for time					
		g	15	>=	Integrated rich exhaust gas mass flow bank					
					EWMA filter strategy					
		Unitless	TRUE 1.6001	=	Fast initialization mode (FIR) EWMA filter initial value for FIR mode					
		Unitless counts	0.2400055 2	=	EWMA filter constant Maximum number of samples per trip					
		counts	4 TRUE	=	Total number of samples for FIR mode Response to Step Change mode (RSC)					
		-		-						
		-	TRUE (b) * (c)	= >	Response to Step Change mode inactive absolute difference : ABS( (a) - (b) )					
					(a) measured Oxygen Storage Capacity (b) EWMA filtered normalized monitoring					
		Unitless	0.40625		result (c) Step change detection factor					
		Unitless	0.2400055	=	EWMA filter constant  Maximum number of samples per trip		1			
		number counts	2 4	=	Maximum number of samples per trip  Total number of samples for RSC mode					
		Unitless	0.2400055	=	EWMA filter constant					
		counts	1	=	Total number of samples for stablilized mode					
		-	see sheet inhibit	=	No pending or confirmed DTCs					
			table see sheet enable	=	Basic enable conditions met					
			tables							
er 1	Fast Init. Once per	. F	1.09009	<=	primary A/F commanded lambda	< 1 -	Ewma filtered normalized corrected Oxygen	Catalyst System Efficiency Below Threshold Bank 2	P0430	
olo.	esponse / driving cycle				,	· '	Storage Capacity (OSC) of catalyst, bank 2	, ,		

FEDBIN1	NS STDS: CALULEV125, FI	MISSION	E			.ES ECM			TEST GROUP:			D GROUP: KGMXOBDG0
MIL II	Time Required	•	Enable Conditions		Secondary Parameters	ue	Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
	Step Change modes: 3 samples over 2 trips Stabilized		TRUE	=	engine runs	(b)	EWMA normalized Oxygen Storage Capacity threshold: (a) / (b) (a) measured OSC					
	mode: 1 sample per trip	sec mph rpm rpm %	FALSE 3 4.350528278 3520 1000 12 to 19.992 12 to 19.992	= >= >= <= >= >= >=	Deceleration Fuel Cut-Off (DFCO) for time Vehicle speed engine speed engine speed engine speed engine load @ full engine mode (see Look- Up-Table #P0420-4) (engine load of full engine mode / 2) @ half	g	bank 2 0.1 to 0.205	=	(see Look-Up-Table #P0430-1)  Corrected OSC: ((a) - (b)) * (c) / (d) (a) Measured OSC bank 2 (b) O2 mass for OSC correction using Sec. O2 performance diag. results (c) Correction map for transition and delayed response time (d) compensation time for OSC correction using (d) compensation time for OSC correction using			
		sec - sec q deq C kPa deq C - sec	3 1.00024 2 100 -39.8 50 52.06 TRUE	>=	engine road or for engine incer 22 or hail engine mode (see Look-Up-Table #P0420-4) for time Ratio total charge to charge in cylinder for time Integrated air mass flow integrated air mass flow measured ambient temperature measured ambient pressure measured angue coolant temperature no transmission gear change for time of time for time				Sec. 02 performance diag, results			
		9	100	>	( integrated exhaust gas mass flow after the following operation points are in the monitoring window bank 2 (							
		g/sec	6.94444444	<=	Change of exhaust gas mass flow bank 2: (a) - (b)							
		g/sec	-6.94444444	>=	Change of exhaust gas mass flow bank 2: (a) - (b)							
		sec g/sec g/sec	1.20029304 22.22222222222 2 to 27.77777777777 8 3.8888888889		(a) exhaust gas mass flow bank 2 (b) filtered exhaust gas mass flow bank 2 PT1 time constant Low window exhaust gas mass flow bank 2 (see Look-Up-Table #P0420-2) Low window exhaust gas mass flow bank 2							
			(a) - (b)	>=	Low window exhaust gas mass flow bank 2							
		g/sec	3.888888889		(a) minimum exhaust gas mass flow bank 2							
		g/sec	0.833333333		(b) offset exhaust gas mass flow bank 2 at tip-out							
		sec g/sec	3 22.22222222222 2 to 27.77777777777777777777777777777777777		for time High window exhaust gas mass flow bank 2 (see Look-Up-Table #P0420-1)							
		g/sec	8 3.88888889	>=	High window exhaust gas mass flow bank 2							
		deg C	40.0078	<=	( Modeled catalyst temperature gradient bank 2:							
		deg C	-40.0078	>=	(a) - (b) Modeled catalyst temperature gradient bank 2: (a) - (b)							
		sec	4.9989321	=	(a) - (b) (a) Modeled catalyst temperature bank 2 (b) filtered modeled catalyst temperature bank 2 PT1 time constant							
		deg C	650.006	<=	Low window modeled catalyst temperature bank 2							
		deg C deg C	520.022 780.014	>= <=	Low window Modeled catalyst temperature bank 2 High window modeled catalyst temperature							

FEDBIN1	STDS: CALULEV125, F	EMISSIONS S				TIC SUMMARY TABLES EC GMXV04.2088	DIAGNOST TEST GROUP: 1		)7	D GROUP: KGMXOBDG
MIL II	Time Required	ns	Enable Conditio		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		deg C	600.014	>=	High window Modeled catalyst temperature					
		deg C	420.06	>	bank 2 Modeled catalyst temperature bank 2 after					
		sec	12	>=	the first engine start and driving for time					
					))					
		g	1.51	>=	Integrated purge mass flow after a longer					
		-	40	<=	purge stop HC concentration factor in chacoal canister					
		-	0.200012		relative fuel portion of canister purge to					
					injected fuel mass: (a) / (b) (a) fuel mass supplied by canister purge					
					control (b) fuel mass supplied by injection					
					OR					
		-	TRUE	=	open loop canister purge control					
		g/sec	5.55555556	<=	OR canister purge control mass flow into the					
					manifold					
					((					
		g	1600 to 2850	>	integrated exhaust gas mass flow bank 2 since engine start (see Look-Up-Table					
		g	40	>	#P0420-3) integrated exhaust gas mass flow bank 2					
		,			after the following sensors's readiness					
					Secondary O2 sensor readiness bank 2 Primary A/F sensor readiness bank 2					
		deg C	299.991	>=	)					
		deg C	64.9922	<	temperature deviation of Primary A/F sensor heater control bank 2: (a) - (b)					
		deg C	800.006		(a) primary A/F sensor temperature set point					
					for heater control (b) measured primary A/F sensor temperature for heater control					
					temperature for neater control )					
					statemachine = sm					
		-	FALSE	=	statemachine (sm =0) : inactive a commanded lambda active					
		-	1	=	primary A/F commanded lambda if the following conditions are met,					
		V	0.749512	>=	sm moves to sm = 2 Secondary O2 sensor voltage bank 2					
					if the following conditions are met, sm moves to sm = 1					
		V V	0.749512 0.450439	< >=	Secondary O2 sensor voltage bank 2 Secondary O2 sensor voltage bank 2					
		-	TRUE	=	statemachine (sm=1) - rich mixture in catalvst					
		-	TRUE 0.91992	=	a commanded lambda active primary A/F commanded lambda bank 2					
		sec sec	3 0.2	>= >=	for time for time					
					if the following conditions are met, sm moves to sm = 2					
		V/s	0.069	>=	(( Secondary O2 sensor voltage gradient over					
		v	0.749512	>=	0.05s Secondary O2 sensor voltage bank 2					
		•	*** *****	-	) OR					
		V	0.749512	>=	Secondary O2 sensor voltage bank 2					
		q	0.12	>=	Integrated exhaust mass flow bank 2					
					if the following conditions are met, sm moves to sm = 3					
		V	0.85083	>=	( Secondary O2 sensor voltage bank 2 OR					
		v	0.749512	>=	( Secondary O2 sensor voltage bank 2					
		V V/s	0.749512 0.09944	>=	Secondary O2 sensor voltage bank 2 Secondary O2 sensor voltage gradient over 0.05s					

FEDBIN1	STDS: CALULEV125, F	MISSIONS S				TIC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K		7	BD GROUP: KGMXOBDG
MIL II	Time Required	s	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		V/s	-0.09944	>=	Secondary O2 sensor voltage gradient over					
		q	0.15	>	0.05s Integrated Oxygen mass flow bank 2					
			(a) + (b)	<=	( Primary A/F sensor lambda bank 2					
				(a)	(a) Primary lambda control set point bank 2					
		-	0.05005	(b) >=	(b) maximum lambda deviation of lean mixture Primary A/F sensor lambda bank 2					
		_	(a) - (b) 0.05005	>=	(a) Primary lambda control set point (b) maximum lambda deviation of rich					
		sec	0.2	>=	mixture for time					
		g	15	>=	Integrated rich exhaust gas mass flow bank 2					
			(a) + (b)	>	) ( Secondary O2 sensor voltage bank 2					
		v	0.030518	=	(a) minimum secondary O2 voltage (b) Offset voltage of Secondary O2 sensor					
					)					
					statemachine (sm=2) - Lean mixture in catalyst					
		-	TRUE 1.08008	=	a commanded lambda active primary A/F commanded lambda					
		sec sec	3 0.2	>=	for time for time					
					if the following conditions are met, sm moves to sm = 4					
		V sec	0.150146 0.1	<= >=	Secondary O2 sensor voltage					
		360	0.1	7-	) OR					
		V	0.150146	<=	( Secondary O2 sensor voltage bank 2					
		V/s V/s	-0.09944	<= >=	Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage gradient over					
		q	0.1	>	0.05s Integrated Oxygen mass flow bank 2					
					)) (					
			(a) + (b)	<= (a)	Primary A/F sensor lambda (a) Primary lambda control set point					
		-	0.05005	(b)	(b) maximum lambda deviation of lean mixture					
			(a) - (b) 0.05005	>=	Primary A/F sensor lambda (a) Primary lambda control set point (b) maximum lambda deviation of rich					
		-			mixture					
		sec g	0.2 15	>=	for time Integrated lean exhaust gas mass flow bank					
					)					
		-	TRUE	-	statemachine (sm=3) - Lean mixture in catalvst					
		-	TRUE 1.08008	-	a commanded lambda active bank 2 primary A/F commanded lambda bank 2					
		sec sec	3	>= >=	for time for time					
		sec	0.2	>=	if the following conditions are met, sm moves to sm = 4					
		v	0.150146	<=	( Secondary O2 sensor voltage bank 2					
		sec	0.1	>=	for time OR					
		V V/e	0.150146	<=	( Secondary O2 sensor voltage bank 2					
		V/s V/s	0.09944 -0.09944	<= >=	Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage gradient over					
		q q	0.1	>	0.05s Integrated Oxygen mass flow bank 2					
					)) (					
			(a) + (b)	<= (a)	Primary A/F sensor lambda bank 2 (a) Primary lambda control set point					
		- [	0.05005	(b)	(b) maximum lambda deviation of lean mixture					

GROUP: KGMXOBDG	07		TEST GROUP: K	TC SUMMARY TABLES GMXV04.2088				MISSION	IS STDS: CALULEV125, I	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIu
					Primary A/F sensor lambda bank 2	>=	(a) - (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of rich		0.05005			
					mixture for time		0.2	sec		
					Integrated lean exhaust gas mass flow bank	>=	15	g		
					) Measurement Oxygen Storage Capacity bank 2 with Secondary O2 sensor voltage	<=	0.200195	V		
					bank 2 with Secondary O2 sensor voitage bank 2 done statemachine (sm=4) -	=	TRUE	_		
					Rich mixture in catalyst a commanded lambda active		TRUE			
					primary A/F commanded lambda	=	0.91992	-		
					for time for time	>=	3 0.2	sec sec		
					if the following conditions are met,	>=	0.2	Sec		
					sm moves to sm = 3					
					Measurement Oxygen Storage Capacity bank 2 starts					
					Secondary O2 sensor voltage bank 2 OR	>=	0.85083	V		
					( Secondary O2 sensor voltage bank 2	>=	0.749512	٧		
					Secondary O2 sensor voltage gradient over 0.05s	<=	0.09944	V/s		
					Secondary O2 sensor voltage gradient over 0.05s	>=	-0.09944	V/s		
					Integrated Oxygen mass flow bank 2 ))	>	0.15	q		
					( Primary A/F sensor lambda bank 2	<=	(a) + (b)			
					(a) Primary lambda control set point bank 2	(a)				
					<ul><li>(b) maximum lambda deviation of lean mixture</li></ul>	(b)	0.05005	-		
					Primary A/F sensor lambda bank 2	>=	(a) - (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of rich		0.05005	-		
					mixture for time	>=	0.2	sec		
					Integrated rich exhaust gas mass flow bank	>=	15	g		
					)  EWMA filter strategy					
					Fast initialization mode (FIR)	-	TRUE	-		
					EWMA filter initial value for FIR mode EWMA filter constant	=	1.6001 0.2400055	-		
					Maximum number of samples per trip	=	2	counts		
					Total number of samples for FIR mode Response to Step Change mode (RSC)	=	4 TRUE	counts		
					, , , ,					
					Response to Step Change mode inactive absolute difference: ABS( (a) - (b) )	= >	TRUE (b) * (c)	-		
					(a) measured Oxygen Storage Capacity					
					<ul><li>(b) EWMA filtered normalized monitoring result</li></ul>					
					(c) Step change detection factor EWMA filter constant	-	0.40625 0.2400055	-		
					Maximum number of samples per trip	=	2	counts		
					Total number of samples for RSC mode	=	4	counts		
					EWMA filter constant Total number of samples for stablilized mode	=	0.2400055 1	counts		
					No pending or confirmed DTCs	=	see sheet inhibit	-		
					Basic enable conditions met	=	table see sheet enable tables	-		
Misfire	P0300	Indicates that the engine has experienced multiple cylinders misfiring, detected by a crankshaft angle delay that is too	Method 1: Angular acceleration of crankshaft in transmission grip state (clutch is engaged),	> 100 to 1050	rad/s^2 Engine speed	≥	350	rpm	see Fault Paths 1-3	see Fau 1-3 b
		great, caused by a drop in the engine speed;	compared to threshold primarily used to detect						below	51
			single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-							
									Ī.	

GROUP: KGMXOBDG	07		TEST GROUP: K		MARY TABLES .2088	ECIVI			EMISSION	IS STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Enable Condition		Time Required	MIL IIIu
			Method 1: Angular acceleration of crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-10)	>	100 to 1050	rad/s^2					
			Method 1: Angular acceleration of crankshaft in transmission open state (clutch is disengaged), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-	>	100 to 1050	rad/s^2	Engine coolant temperature at engine start OR	> -3549.94	deg C		
			OR  Method 1: Angular acceleration of crankshaft in idle state, compared to threshold primarily used to detect single random mistine as well as single cylinder continuous misfire (see Look-Up Table P0300-1)	>	95 to 180	rad/s^2	(Engine coolant temperature at engine start then monitoring enabled	< -3549.94	deg C		
			Method 1: Angular acceleration of crankshaft in hall-engine mode state, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-14)	>	66 to 2047.938	rad/s^2	Engine coolant temperature] Zero torque detection is not active	> -3549.94 = TRUE	deg C -		
			OR Method 1: Angular acceleration of crankshaft in catalyst heating, compared to threshold primarily used to detect single random mislire as well as single cylinder continuous mislfre (see Look-Up Table #P0300-15)	>	175 to 550	rad/s^2	means [Normalized inner engine torque	> [A] + [B] + [C]	%		
			Method 2: Angular acceleration of cranks hat corrected for cylinders sharing same sensor wheel segments in transmission grip state (clutch is engaged), compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a non-adapted system	>	2047.938	rad/s^2	OR Normalized inner engine torque	> [D] + [B] + [C]	%		
			Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in transmission slip state (clutch is slipping), compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a non- adapted system	>	2047.938	rad/s^2	OR Normalized inner engine torque	> [E]+[B]+[C]	%		
			Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in transmission open state (clutch is disengaged), compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous maffires in a non-adapted system	>	2047.938	rad/s^2	OR Normalized inner engine torque	> [F] + [B] + [C]	% %		
			OR Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in idle state, compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a non-adapted system	>	2047.938	rad/s^2	where [A] Threshold zero torque, driving state (see Look-Up Table #P0300-20)	= 5.32074 to 16.079	%		
			OR  Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in half-engine mode state, compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misifres in a non-adapted	>	2047.938	rad/s^2	[B] Map for zero torque correction, engine speed and allitude dependant [C] Map for zero torque correction, engine speed and engine temperature dependant	5.320/4 to 16.0/9. = 0 = 0	% %		
			system				[D] Threshold zero torque, idle state (see Look-Up Table #P0300-23)]	= 5.32074 to 10.0906	%		

D GROUP: KGMXOBDG	07		TEST GROUP: K		MARY TABLES 4.2088	ECM			Е	MISSION	IS STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	Time Required	MIL III
			Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in catalyst heating, compared to threshold primarly used to detect single cylinder continuous and select paired cylinder continuous misfires in a non-adapted system	>	2047.938	rad/s^2	[E] Threshold zero torque, half-engine mode state, driving (see Look-Up Table #P0300- 24	=	.000405.00057	%		
			OR				[F] Threshold zero torque, half-engine mode state, idle (see Look-Up Table #P0300-25	=	00043 to 5.90057	%		
			Method 3: Filtered angular acceleration of crankshaft in transmission grip state (clutch is engaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous mistres (see Look Up Table #P0300-5)	>	[A]+[B]	rad/s^2	Overrun/fuel cut-off is not active	=	.00043 to 5.90057 TRUE	-		
			where [A] Base continuous misfire threshold in the		60 to 815	rad/s^2	(Combustion delay after engine start has completed	=	TRUE	-		
			[A] base continuous finsille tirreshold in the transmission grip state     [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending	=	measured parameter	rad/s^2	means [Engine speed	>	500	rpm		
			on operating point OR Method 3: Filtered angular acceleration of crankshaft in transmission slip state (clutch is	>	[A]+[B]	rad/s^2	for Number of combustions]	=	0	-		
			slipping), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look- Up Table #P0300-11) where				OR					
			[A] Base continuous misfire threshold in the transmission slip state	=	60 to 815	rad/s^2	[Engine has re-started (start-stop)	=	TRUE			
			[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2	means					
			Method 3: Filtered angular acceleration of crankshaft in transmission open state (clutch is disengaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Lock-Up Table #P0300-8)	>	[A]+[B]	rad/s^2	Number of combustions after re-startl) Calculated EPM segment time is valid	=	8 TRUE	-		
			where				No pending or confirmed DTCs	=	see sheet inhibit	-		
			[A] Base continuous misfire threshold in the transmission open state	=	60 to 815	rad/s^2	Basic enable conditions met	=	see sheet enable tables			
			[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2			tables			
			Method 3: Filtered angular acceleration of crankshaft in idle state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous mistires (see Look-Up Table #P0300-2)	>	[A]+[B]	rad/s^2						
			where [A] Base continuous misfire threshold in the	=	75 to 135	rad/s^2						
			[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2						
			Method 3: Filtered angular acceleration of crankshaft in half-engine mode state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-18)	>	[A]+[B]	rad/s^2						
			where [A] Base continuous misfire threshold in the half-	=	60 to 2047.938	rad/s^2						
			engine mode state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2						
			Method 3: Filtered angular acceleration of crankshaft in catalyst heating state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-19)	>	[A]+[B]	rad/s^2						

D GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K		IMARY TABLES 1.2088	ECM		EMISSION	S STDS: CALULEV125, FE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Enable Conditions	Time Required	MIL IIIu
			where [A] Base continuous misfire threshold in catalyst	_	250 to 335	rad/s^2				
			heating state  [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending	=	measured parameter	rad/s^2				
			on operating point where							
		Fault Path 1: Emission relevant misfire rate within first 1000 crankshaft revolutions after engine start	Total misfire counts across all cylinders within first test frame outside of catalyst heating	>	71	-			1000 revs once per drive cycle	condit
			OR Total misfire counts across all cylinders within first	>	71	-				heali
			test frame during catalyst heating and/or							
			Total misfire counts for cylinder 1 within test frame where	>	[A] x [B]	-				
			<ul> <li>[A] Total misfire counts across all cylinders within test frame</li> </ul>	=	measured parameter	-				
			[B] Minimum ratio of misfire sum for multiple cylinder fault code	=	10.00061	%				
			and/or Total misfire counts for cylinder 2 within test frame	>	[A] x [B]	-				
			where [A] Total misfire counts across all cylinders within	=	measured parameter	-				
			test frame [B] Minimum ratio of misfire sum for multiple cylinder fault code	=	10.00061	%				
			and/or Total misfire counts for cylinder 3 within test frame	>	[A] x [B]	-				
			where [A] Total misfire counts across all cylinders within	=	measured parameter	-				
			test frame [B] Minimum ratio of misfire sum for multiple	=	10.00061	%				
			cylinder fault code and/or Total misfire counts for cylinder 4 within test	>	[A] x [B]	-				
			frame where [A] Total misfire counts across all cylinders within	_	measured parameter	_				
			test frame [B] Minimum ratio of misfire sum for multiple	=	10.00061	%				
			cylinder fault code and/or Total misfire counts for cylinder 5 within test		[A] x [B]					
			frame where	>	[v] x [p]	-				
			<ul> <li>[A] Total misfire counts across all cylinders within test frame</li> </ul>	=	measured parameter	-				
			[B] Minimum ratio of misfire sum for multiple cylinder fault code	=	10.00061	%				
			and/or Total misfire counts for cylinder 6 within test frame	>	[A] x [B]	-				
			where [A] Total misfire counts across all cylinders within	=	measured parameter	-				
			test frame [B] Minimum ratio of misfire sum for multiple	=	10.00061	%				
			cylinder fault code and/or Total misfire counts for cylinder 7 within test	>	[A] x [B]	-				
			frame where							
			[A] Total misfire counts across all cylinders within test frame [B] Minimum ratio of misfire sum for multiple	=	measured parameter 10.00061	%				
			cylinder fault code and/or	-		/0				
			Total misfire counts for cylinder 8 within test frame where	>	[A] x [B]	-				
			[A] Total misfire counts across all cylinders within test frame	=	measured parameter	-				
			[B] Minimum ratio of misfire sum for multiple cylinder fault code	=	10.00061	%				
			with [One test frame defined by: Total number of crankshaft revolutions in first test	=	1000	revolutions				
			fotal number of crankshaft revolutions in first test frame specific to emission relevant misfire rate at engine start	=	1000	revolutions				

D GROUP: KGMXOBDO	<b>307</b>		DIAGNOST TEST GROUP: 1		MARY TABLES 4.2088	ECM		EMISSIO	NS STDS: CALULEV125, FE	<u>DB</u> IN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Enable Conditions	Time Required	MIL IIIu
		Fault Path 2: Emission relevant misfire rate after the first 1000 crankshaft revolutions	Total misfire counts across all cylinders within test frame	>	71	·			4 intervals of revs continuous 1000	simila conditio
			and/or Total misfire counts for cylinder 1 within test frame	>	[A] x [B]	-				healir
			where [A] Total misfire counts across all cylinders within	=	measured parameter	-				
			test frame [B] Minimum ratio of misfire sum for multiple cylinder fault code and/or	=	10.00061	%				
			and/or Total misfire counts for cylinder 2 within test frame where	>	[A] x [B]	-				
			[A] Total misfire counts across all cylinders within test frame	=	measured parameter	-				
			[B] Minimum ratio of misfire sum for multiple cylinder fault code and/or	=	10.00061	%				
			Total misfire counts for cylinder 3 within test frame where	>	[A] x [B]	-				
			<ul> <li>[A] Total misfire counts across all cylinders within test frame</li> </ul>	=	measured parameter	-				
			[B] Minimum ratio of misfire sum for multiple cylinder fault code and/or	=	10.00061	%				
			Total misfire counts for cylinder 4 within test frame where	>	[A] x [B]	-				
			[A] Total misfire counts across all cylinders within test frame [B] Minimum ratio of misfire sum for multiple cylinder fault code	=	measured parameter 10.00061	%				
			Total misfire counts for cylinder 5 within test	>	[A] x [B]	-				
			where [A] Total misfire counts across all cylinders within	-	measured parameter	-				
			test frame [B] Minimum ratio of misfire sum for multiple cylinder fault code	=	10.00061	%				
			and/or Total misfire counts for cylinder 6 within test frame	>	[A] x [B]	-				
			where [A] Total misfire counts across all cylinders within test frame	=	measured parameter	-				
			[B] Minimum ratio of misfire sum for multiple cylinder fault code and/or	=	10.00061	%				
			Total misfire counts for cylinder 7 within test frame where	>	[A] x [B]	-				
			<ul> <li>[A] Total misfire counts across all cylinders within test frame</li> </ul>	=	measured parameter	-				
			[B] Minimum ratio of misfire sum for multiple cylinder fault code and/or	=	10.00061	%				
			Total misfire counts for cylinder 8 within test frame where	>	[A] x [B]	-				
			[A] Total misfire counts across all cylinders within test frame	=	measured parameter	-				
			[B] Minimum ratio of misfire sum for multiple cylinder fault code with	=	10.00061	%				
			[One test frame defined by: Total number of crankshaft revolutions in test	=	1000	revolutions				
			frame for emission relevant misfire rate Misfire test frame counter] OR	=	4	-				<u> </u>
		Fault Path 3: Catalyst damaging misfire rate	Weighted misfire counter for exhaust bank	>	2688	counts			immediately - continuous after catalyst damaging misfire rate is exceeded	1 Trip MIL (wi cond hea
			OR Weighted misfire counter for exhaust bank during first interval after engine start	>	2688	counts				

D GROUP: KGMXOBDG	607		DIAGNOST TEST GROUP: P		MARY TABLES 4.2088	ECM		EMISSION	S STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Enable Conditions	Time Required	MIL III
			Total weighted misfire counts for cylinder 1 within test frame	≥	[A] x [B]	-				
			where [A] Total weighted misfire counts per exhaust	=	measured parameter	-				
			bank within test frame [B] Minimum ratio of weighted misfire sum for		10.00061	%				
			multiple cylinder fault code and/or Total weighted misfire counts for cylinder 2 within	≥	(4)(5)	_				
			test frame	_	[A] x [B]	-				
			<ul> <li>[A] Total weighted misfire counts per exhaust bank within test frame</li> </ul>	=	measured parameter	-				
			[B] Minimum ratio of weighted misfire sum for multiple cylinder fault code	=	10.00061	%				
			and/or Total weighted misfire counts for cylinder 3 within	≥	[A] x [B]	-				
			test frame where [A] Total weighted misfire counts per exhaust	_	measured parameter	_				
			bank within test frame  [B] Minimum ratio of weighted misfire sum for		10.00061	%				
			multiple cylinder fault code	-	10.00061	70				
			Total weighted misfire counts for cylinder 4 within test frame	2	[A] x [B]	-				
			where [A] Total weighted misfire counts per exhaust	=	measured parameter	-				
			bank within test frame [B] Minimum ratio of weighted misfire sum for	-	10.00061	%				
			multiple cylinder fault code and/or Total weighted misfire counts for cylinder 5 within	≥	[A] x [B]					
			test frame	-	[A] X [B]	-				
			[A] Total weighted misfire counts per exhaust bank within test frame	=	measured parameter	-				
			[B] Minimum ratio of weighted misfire sum for multiple cylinder fault code	=	10.00061	%				
			and/or Total weighted misfire counts for cylinder 6 within	≥	[A] x [B]	-				
			test frame where							
			<ul><li>[A] Total weighted misfire counts per exhaust bank within test frame</li></ul>		measured parameter	-				
			[B] Minimum ratio of weighted misfire sum for multiple cylinder fault code	=	10.00061	%				
			and/or Total weighted misfire counts for cylinder 7 within test frame	≥	[A] x [B]	-				
			where [A] Total weighted misfire counts per exhaust	=	measured parameter	_				
			bank within test frame [B] Minimum ratio of weighted misfire sum for		10.00061	%				
			multiple cylinder fault code and/or							
			Total weighted misfire counts for cylinder 8 within test frame	≥	[A] x [B]	-				
			where [A] Total weighted misfire counts per exhaust	=	measured parameter	-				
			bank within test frame [B] Minimum ratio of weighted misfire sum for multiple cylinder fault code	=	10.00061	%				
			with [One test frame defined by:							
			Total number of crankshaft revolutions in test frame for catalyst damaging misfire	=	200	revolutions				
			OR Total number of crankshaft revolutions in first test	=	[A] × [B]	revolutions				
			frame after engine start for catalyst damaging misfire							
			[A] Total number of crankshaft revolutions in test frame for catalyst damaging misfire	=	200	revolutions				
			[B] Test frame extension factor for first interval after engine start]	=	1	-				

GROUP: KGMXOBDO	607		DIAGNOST TEST GROUP: K							EMISSION	NS STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditio	ns	Time Required	MIL III
Misfire	P0301	Indicates that the engine has experienced cylinder 1 misfiring, detected by a crankshaft angle delay that is too great, caused by a drop in the engine speed	Method 1: Angular acceleration of crankshaft in transmission grip state (clutch is engaged), compared to threshold primarily used to detect single random mistrie as well as single cylinder continuous mistrie (see Look-Up Table #P0300	>	100 to 1050	rad/s^2	Engine speed	2	350	rpm	see Fault Paths 1-3 below	
			4).  Method 1: Angular acceleration of crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-10).	>	100 to 1050	rad/s^2	Engine speed	s	6000	rpm		
			OR				Engine coolant temperature at engine start	>	-3549.94	deg C		
			Method 1: Angular acceleration of crankshaft in transmission open state (clutch is disengaged), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-	>	100 to 1050	rad/s^2	OR					
			OR				[Engine coolant temperature at engine start	<	-3549.94	deg C		
			Method 1: Angular acceleration of crankshaft in idle state, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-1)	>	95 to 180	rad/s^2	then monitoring enabled					
			OR Method 1: Angular acceleration of crankshaft in half-engine mode state, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-14)	>	66 to 2047.938	rad/s^2	Engine coolant temperaturel Zero torque detection is not active	> =	-3549.94 TRUE	deq C		
			OR Method 1: Angular acceleration of crankshaft in catalyst heating, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-15)	>	175 to 550	rad/s^2	means [Normalized inner engine torque	>	[A] + [B] + [C]	%		
			Method 2: Angular acceleration of cranksham corrected for cylinders sharing same sensor wheel segments in transmission ging istate (clutch is engaged), compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misffres in a non- adapted system	>	2047.938	rad/s^2	OR Normalized inner engine torque	>	[D] + [B] + [C]	%		
			Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in transmission slip state (clutch is slipping), compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a non-adapted system	>	2047.938	rad/s^2	OR Normalized inner engine torque	>	[E] + [B] + [C]	%		
			OR Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in transmission open state (dutch is disengaged), compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a non-adapted system	>	2047.938	rad/s^2	OR Normalized inner engine torque	>	[F] + [B] + [C]	% %		
			Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in idle state, compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a non-adapted system	>	2047.938	rad/s^2	[A] Threshold zero torque, driving state (see Look-Up Table #P0300-20)	=		%		
			OR				[B] Map for zero torque correction, engine	=	5.32074 to 16.0797	%	I	1

FEDBIN	STDS: CALULEV125, F	MISSIONS	El			ECIVI	MARY TABLES 4.2088		TEST GROUP: N			D GROUP: KGMXOBDG0
MIL	Time Required		Enable Conditions		Secondary Parameters		Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		%	0	=	[C] Map for zero torque correction, engine speed and engine temperature dependant	rad/s^2	2047.938	>	Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in half-engine mode state, compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a non-adapted system			
		%	5.32074 to 10.0906	=	[D] Threshold zero torque, idle state (see Look-Up Table #P0300-23)] [E] Threshold zero torque, half-engine mode state, driving (see Look-Up Table #P0300-24	rad/s^2	2047.938	>	Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in catalyst heating, compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous and select paired cylinder continuous and select paired to the continuous and sel			
		%	2.00043 to 5.90057 2.00043 to 5.90057	=	[F] Threshold zero torque, half-engine mode state, idle (see Look-Up Table #P0300-25				OR			
		-	TRUE TRUE	=	Overrun/fuel cut-off is not active (Combustion delay after engine start has completed	rad/s^2	[A]+[B]	>	Method 3: Filtered angular acceleration of where			
		rpm	500	>	means [Engine speed	rad/s^2 rad/s^2	60 to 815 measured parameter	=	[A] Base continuous misfire threshold in the transmission grip state [B] Smallest (negative) angular acceleration value			
			0	_	for Number of combustions]	rad/s^2	[A]+[B]	>	from a non-misfiring cylinder; limited depending on operating point OR Method 3: Filtered angular acceleration of			
			Ü	_	Number of Combustions	1au/5°2	ניודופו		crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look- Up Table #P0300-11)			
		-	TRUE	=	OR [Engine has re-started (start-stop) means	rad/s^2 rad/s^2	60 to 815 measured parameter	=	[A] Base continuous misfire threshold in the transmission slip state  [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending			
		:	8 TRUE	= =	Number of combustions after re-startly Calculated EPM segment time is valid	rad/s^2	[A]+[B]	>	on operating point OR OR Method 3: Filtered angular acceleration of crankshaff in transmission open state (clutch is disengaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Low-Up Table #P0300-8)			
		-	see sheet inhibit	=	No pending or confirmed DTCs				where			
		-	tables see sheet enable tables	=	Basic enable conditions met	rad/s^2	60 to 815 measured parameter	=	[A] Base continuous misfire threshold in the transmission open state [B] Smallest (negative) angular acceleration value			
						Tau/S-2	measureu parameter	_	from a non-misfiring cylinder; limited depending on operating point OR			
						rad/s^2	[A]+[B]	>	Method 3: Filtered angular acceleration of crankshaft in idle state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-2)			
						rad/s^2	75 to 135	=	where [A] Base continuous misfire threshold in the			
						rad/s^2	measured parameter	=	transmission idle state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point			
						rad/s^2	[A]+[B]	>	O Method 3: Filtered angular acceleration of crankshaft in half-engine mode state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-18)			
						rad/s^2	60 to 2047.938	=	where [A] Base continuous misfire threshold in the half-			
						rad/s^2	measured parameter	=	engine mode state  [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point			

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: P		MARY TABLES 4.2088	ECM		EMISSIO	NS STDS: CA	ALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Enable Conditions	Tim	ne Required	MIL IIIum.
			Method 3: Filtered angular acceleration of crankshaft in catalyst heating state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-19)	>	[A]+[B]	rad/s^2					
			where [A] Base continuous misfire threshold in catalyst heating state	=	250 to 335	rad/s^2					
			[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point where	=	measured parameter	rad/s^2					
		Fault Path 1: Emission relevant misfire rate within first 1000 crankshaft revolutions after engine start	Total misfire counts across all cylinders within first test frame outside of catalyst heating	>	71	-			1000	revs once per drive cycle	
			OR Total misfire counts across all cylinders within first test frame during catalyst heating and/or	>	71	-					
			Total misfire counts for cylinder 1 within test frame where	>	[A] x [B]	-					
			[A] Total misfire counts across all cylinders within test frame [B] Minimum ratio of misfire sum for cylinder-	=	measured parameter 12.5	- %					
			individual fault code with [One test frame defined by: Total number of crankshaft revolutions in first test	=	1000	revolutions					
		Fault Path 2: Emission relevant misfire rate after the first 1000 crankshaft revolutions	frame specific to emission relevant misfire rate at engine start open control of the control of	>	71	-			4 intervals of 1000	revs continuous	s 2 Trip (with
		old illustrative folder to	and/or Total misfire counts for cylinder 1 within test	>	[A] x [B]	_			1000		conditions healing)
			frame where  [A] Total misfire counts across all cylinders within	_	measured parameter	_					
			test frame [B] Minimum ratio of misfire sum for cylinder- individual fault code with	=	12.5	%					
			[One test frame defined by: Total number of crankshaft revolutions in test frame for emission relevant misfire rate	=	1000	revolutions					
		Fault Path 3: Catalyst damaging misfire rate	Misfire test frame counter] OR Weighted misfire counter for exhaust bank	= >	4 2688	counts			immediately	- continuous	s 1 Trip Blinkin
									after catalyst damaging misfire rate is exceeded		MIL (with simil conditions healing)
			OR Weighted misfire counter for exhaust bank during first interval after engine start and/or	>	2688	counts					
			Total weighted misfire counts for cylinder 1 within test frame	2	[A] x [B]	-					
			where [A] Total weighted misfire counts per exhaust bank within test frame [B] Minimum ratio of weighted misfire sum for cylinder-individual fault code	=	measured parameter 12.5	- %					
			with [One test frame defined by: Total number of crankshaft revolutions in test frame for catalyst damaging misfire	=	200	revolutions					
			OR Total number of crankshaft revolutions in first test frame after engine start for catalyst damaging	=	[A] x [B]	revolutions					
			misfire [A] Total number of crankshaft revolutions in test frame for catalyst damaging misfire [B] Test frame extension factor for first interval after engine start]	=	200 1	revolutions					

GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K		MARY TABLES 2088	ECM				EMISSION	IS STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Ena	able Conditio	ns	Time Required	MIL IIIur
Misfire	P0302	Indicates that the engine has experienced cylinder 2 misfiring, detected by a crankshaft angle delay that is too great, caused by a drop in the engine speed	Method 1: Angular acceleration of crankshaft in transmission grip state (clutch is engaged), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-	^	100 to 1050	rad/s^2	Engine speed	2	350	rpm	see Fault Paths 1-3 below	
			OR Method 1: Angular acceleration of crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-10)	>	100 to 1050	rad/s^2	Engine speed	≤	6000	rpm		
			Method 1: Angular acceleration of crankshaft in transmission open state (clutch is disengaged), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-	>	100 to 1050	rad/s^2	Engine coolant temperature at engine start OR	>	-3549.94	deg C		
			OR				[Engine coolant temperature at engine start	<	-3549.94	deg C		
			Method 1: Angular acceleration of crankshaft in idle state, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table P0300-11)	>	95 to 180	rad/s^2	then monitoring enabled					
			Method 1: Angular acceleration of crankshaft in half-engine mode state, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-14)	>	66 to 2047.938	rad/s^2	Enqine coolant temperature) Zero torque detection is not active	> =	-3549.94 TRUE	deq C -		
			OR Method 1: Angular acceleration of crankshaft in catalyst heating, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-15)	>	175 to 550	rad/s^2	means [Normalized inner engine torque	> [A	] + [B] + [C]	%		
			Method 2: Angular acceleration of crankshar corrected for cylinders sharing same sensor wheel segments in transmission grip siate (clutch is engaged), compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a non- adapted system	>	2047.938	rad/s^2	OR Normalized inner engine torque	> [D	] + [B] + [C]	%		
			OR  Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in transmission slip state (clutch is slipping), compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a non- adapted system	>	2047.938	rad/s^2	OR Normalized inner engine torque	> [E	] + [B] + [C]	%		
			Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in transmission open state (clutch is disengaged), compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous made select paired cylinder continuous made select paired cylinder continuous misfires in a non-adapted system	>	2047.938	rad/s^2	OR Normalized inner engine torque	> [F	] + [B] + [C]	% %		
			Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in idle state, compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous mistires in a non-adapted system	>	2047.938	rad/s^2	where [A] Threshold zero torque, driving state (see Look-Up Table #P0300-20)	=		%		
			OR				[B] Map for zero torque correction, engine	5.320	074 to 16.0797 0	%		
			Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in half-engine mode state, compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous mislifers in a non-adapted cylinder continuous mislifers in a non-adapted	>	2047.938	rad/s^2	speed and allitude dependant [C] Map for zero torque correction, engine speed and engine temperature dependant	=	0	%		
			system				[D] Threshold zero torque, idle state (see Look-Up Table #P0300-23)]	=	074 to 10.0906	%		

D GROUP: KGMXOBDG	07		TEST GROUP: K		MARY TABLES 4.2088	ECM			Е	MISSION	IS STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	Time Required	MIL III
			Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in catalyst heating, compared to threshold primarly used to detect single cylinder continuous and select paired cylinder continuous misfires in a non-adapted system	>	2047.938	rad/s^2	[E] Threshold zero torque, half-engine mode state, driving (see Look-Up Table #P0300- 24	=	.000405.00057	%		
			OR				[F] Threshold zero torque, half-engine mode state, idle (see Look-Up Table #P0300-25	=	00043 to 5.90057	%		
			Method 3: Filtered angular acceleration of crankshaft in transmission grip state (clutch is engaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous mistres (see Look Up Table #P0300-5)	>	[A]+[B]	rad/s^2	Overrun/fuel cut-off is not active	=	.00043 to 5.90057 TRUE	-		
			where [A] Base continuous misfire threshold in the		60 to 815	rad/s^2	(Combustion delay after engine start has completed	=	TRUE	-		
			[A] base continuous finsille tirreshold in the transmission grip state     [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending	=	measured parameter	rad/s^2	means [Engine speed	>	500	rpm		
			on operating point OR Method 3: Filtered angular acceleration of crankshaft in transmission slip state (clutch is	>	[A]+[B]	rad/s^2	for Number of combustions]	=	0	-		
			slipping), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look- Up Table #P0300-11) where				OR					
			[A] Base continuous misfire threshold in the transmission slip state	=	60 to 815	rad/s^2	[Engine has re-started (start-stop)	=	TRUE			
			[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2	means					
			Method 3: Filtered angular acceleration of crankshaft in transmission open state (clutch is disengaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Lock-Up Table #P0300-8)	>	[A]+[B]	rad/s^2	Number of combustions after re-startl) Calculated EPM segment time is valid	=	8 TRUE	-		
			where				No pending or confirmed DTCs	=	see sheet inhibit	-		
			[A] Base continuous misfire threshold in the transmission open state	=	60 to 815	rad/s^2	Basic enable conditions met	=	see sheet enable tables			
			[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2			tables			
			Method 3: Filtered angular acceleration of crankshaft in idle state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous mistires (see Look-Up Table #P0300-2)	>	[A]+[B]	rad/s^2						
			where [A] Base continuous misfire threshold in the	=	75 to 135	rad/s^2						
			[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2						
			Method 3: Filtered angular acceleration of crankshaft in half-engine mode state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-18)	>	[A]+[B]	rad/s^2						
			where [A] Base continuous misfire threshold in the half-	=	60 to 2047.938	rad/s^2						
			engine mode state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2						
			Method 3: Filtered angular acceleration of crankshaft in catalyst heating state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-19)	>	[A]+[B]	rad/s^2						

Fall Path 1. Contact makes the feed of a contact of c	LEV125, FEDBIN1	CALULE	STDS: (	EMISSION:					ECM	MARY TABLES .2088		DIAGNOSTI TEST GROUP: KO		<u> </u>	GROUP: KGMXOBDGO
Faul Path 2: Emission retories make within that 100 Total mindre control across of soft control and soft control across of soft control and soft control across of soft control and soft control across of sof	ired MIL III	ime Require	т	ns	Enable Conditio	E	ameters	Secondary Pa		Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
Fault Path 1: Emission relevant mother size within first 1000  Total market course and injuries shall be to task the course of profess within the task thanks asking called the size of paths of the course of profess within the task thanks asking called the size of paths of the size of the									rad/s^2	250 to 335	=	[A] Base continuous misfire threshold in catalyst			
Faul Path 1: Emission relations there against an an article courts across all cylindess within faul to the first mode courts across all cylindess with faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across all cylindess within faul to the first mode courts across al									rad/s^2	measured parameter	=	[B] Smallest (negative) angular acceleration value			
Total mariants occurs across a dyndroder within feet to train and surface across a dyndroder within feet to train and surface across a dyndroder within feet to train and surface across a dyndroder within feet to train and surface across a dyndroder within feet to train and surface across a dyndroder within feet to train and surface across a dyndroder within feet to train and surface across a dyndroder within feet to train and surface across a dyndroder within feet to train and surface across a dyndroder within feet to train and surface across a dyndroder within feet to train and surface across a dyndroder within feet to train and surface across a dyndroder within feet to train and surface across a dyndroder within feet train and surface across a dyndroder within feet train and surface across a dyndroder surface across	once per drive cycle 2 Trip sim	revs	1000						-	71	>	Total misfire counts across all cylinders within first test frame outside of catalyst heating			
Total minifer counts across at dysectes with set of transmit and trans									-	71	>	Total misfire counts across all cylinders within first test frame during catalyst heating			
IA  Total matter counts across all opticides with the state of societies for embourhous matter and societies for embourhous mat									-	[A] x [B]	>	Total misfire counts for cylinder 1 within test frame			
Constitution and contractive care the region of productions in the state of carebath and recording of the state of carebath and recording of the state of carebath and recording of the state of the state of carebath and recording of the state of the state of carebath and recording of the state of the s									-	measured parameter	=	[A] Total misfire counts across all cylinders within			
Fault Path 2: Emission relevant maifer rate after the first 1000  Fault Path 2: Emission relevant maifer rate after the first 1000  Fault Path 2: Emission relevant maifer rate after the first 1000  Fault Path 3: Emission relevant maifer rate after the first 1000  Fault Path 3: Catalyst demaging maifer rate  Fault Path 3: Catalyst demaging maifer rate  Weighted maifer counter for exhaust bank during test starred after exhaust bank during was under catalyst above within test transparent tests and control of the counter for exhaust bank during was under catalyst and within test frame for remains the counter for exhaust bank during was testered after exhaust bank during was under catalyst and within test frame for remains the counter for exhaust bank during was testered after exhaust bank du									%	12.5	=	[B] Minimum ratio of misfire sum for cylinder- individual fault code			
Fault Path 2: Emission relevant melifer rate after the first 1000  Total misfre counts for cylinders within test fame where cannels across all cylinders within test fame where cannels are called the counts for cylinders and counts for cylinders within test fame where cannels are called the counts for cylinders and counts for cylinders within test fame of the cannels of the counts for cylinders where cannels are cannels are counted for counts across all cylinders within test fame where cannels are cannels are cannels are counted for counts across all cylinders within test fame where cannels are canne									revolutions	1000	=	[One test frame defined by: Total number of crankshaft revolutions in first test frame specific to emission relevant misfire rate at engine start			
Total mistine counts for cylinder t within test frame (A) Total mistine counts across all cylinders within (B) Minimum ratio of mistine sum for cylinder within (B) Minimum ratio of mistine sum for cylinder limited ratio delined by the counts of mistine sum for cylinder limited ratio delined by the counts of mistine sum for cylinder limited ratio delined by the counts of crankshart revolutions in test frame for emission learn mistine rate (Mistine test frame counter for exhaust bank during first interval after enous test frame (Mistine counts of counts).  Weighted mistine counter for exhaust bank during first interval after enous test frame (II) and the counts for cylinder 1 with bank within test frame (III) and the counts for cylinder 1 within test frame (III) and the counts for cylinder 1 within test frame (III) and which test frame (III) and the cylinder after counts for cylinder 1 within test frame (III) and the cylinder after counts for cylinder 1 within test frame (III) and the cylinder after counts for cylinder 1 within test frame (III) and the cylinder in the cyl	continuous 2 Tri sii con- hea	revs							-	71	>	Total misfire counts across all cylinders within test frame	Fault Path 2: Emission relevant misfire rate after the first 1000 crankshaft revolutions		
A  Total misfire counts across all cylinders within test frame   email results across all cylinders within test frame   email results across all cylinders   email results									-	[A] x [B]	>	Total misfire counts for cylinder 1 within test frame			
Individual fault code with [One test frame defined by.]  Total number of crani-shall revolutions in test frame for emission relevant mistific rate  Weighted misfire counter for exhaust bank during first interval after oncide test frame counts and for Total weighted misfire counts for cylinder if where [A] Total weighted misfire counts per exhaust bank within test frame [B] Minimum ratio of weighted misfire sum for cylinder individual flat code in [B] Minimum ratio of weighted misfire actions in test frame [B] Minimum ratio of weighted misfire sum for cylinder individual flat code in [B] Minimum ratio of weighted misfire sum for cylinder individual flat code in [B] Minimum ratio of weighted misfire sum for cylinder individual flat code in [B] Minimum ratio of weighted misfire sum for cylinder individual flat code in [B] Minimum ratio of weighted misfire sum for cylinder individual flat code in [B] Minimum ratio of weighted misfire sum for cylinder-individual flat code in [B] Minimum ratio of weighted misfire sum for cylinder-individual flat code in [B] Minimum ratio of weighted misfire sum for cylinder-individual flat code in [B] Minimum ratio of weighted misfire sum for cylinder-individual flat code in [B] Minimum ratio of weighted misfire sum for cylinder-individual flat code in [B] Minimum ratio of weighted misfire sum for cylinder-individual flat code in [B] Minimum ratio of weighted misfire sum for cylinder-individual flat code in [B] Minimum ratio of weighted misfire sum for cylinder in the sum of the cylinder in the c									-	measured parameter	=	[A] Total misfire counts across all cylinders within			
Total number of crankshaft revolutions in test frame for mission relevant misfier rate Misfire test frame counter!  Fault Path 3: Catalyst damaging misfire rate  Weighted misfire counter for exhaust bank  OR Weighted misfire counter for exhaust bank during first interval after enaine start  And/or Total weighted misfire counts for cylinder 1 within test frame  [B] Minimum ratio of weighted misfire sounts per exhaust bank with 1 (One test frame [B]) Minimum ratio of weighted misfire sounts for cylinder during frame (Portional Misfire sounts per exhaust bank with 1 (One test frame defined by 12.5 %  OR  OR  Veighted misfire counter for exhaust bank during > 2688 counts  OR  Veighted misfire counts for cylinder 1 within test frame [B] Minimum ratio of weighted misfire sounts per exhaust bank with 1 (One test frame defined by 12.5 %  OR  OR  Veighted misfire counter for exhaust bank during > 2688 counts  OR  Veighted misfire counts for cylinder 1 within test frame [B] Minimum ratio of weighted misfire counts per exhaust bank during and the counts per exhaust									%	12.5	=	[B] Minimum ratio of misfire sum for cylinder- individual fault code			
Fault Path 3: Catalyst damaging misfire rate  Weighted misfire counter for exhaust bank  Weighted misfire counter for exhaust bank during first interval after engine start  And/or Total weighted misfire counts for cylinder 1 within test frame where [A] Total weighted misfire counts per vahuaus bank within test frame [B] Minimum ratio of weighted misfire evaluate of cylinder-individual fault code with [One test frame defined by: Total number of crankshaft revolutions in test frame for catalyst damaging misfire rate is exceeded    Veighted misfire counts for exhaust bank during first interval after engine start   A] X [B] -     (A] X [B] -   (B]   (A] X [B]   (A] X [B] X									revolutions	1000	=	[One test frame defined by: Total number of crankshaft revolutions in test			
after catalyst damaging misfire rate is exceeded  Weighted misfire counter for exhaust bank during first interval after enqine start and/or Total weighted misfire counts for cylinder 1 within test frame [A] Total weighted misfire counts per exhaust bank within test frame [B] Minimum ratio of weighted misfire sum for cylinder-individual fault code with [One test frame defined by: Total number of crankshaft revolutions in test frame for catalyst damaging misfire counts for cylinder-individual fault code with [One test frame defined by: Total number of crankshaft revolutions in test frame for catalyst damaging misfire counts for exhaust admaging misfire counts for exhaust bank during misfire and counts for catalyst damaging misfire catalyst damaging misfire counts for cylinder should be accounts for catalyst damaging misfire counts for cylinder should be accounts for cylinder should be accounts for counts for cylinder should be accounted by the catalyst damaging misfire catalyst damaging misfire counts for cylinder should be accounted by the counts for catalyst damaging misfire rate is exceeded  [A] Visit (A] X [B] (A] X									-	4	=				
Weighted mistire counter for exhaust bank during first interval after engine start and/or and/or Total weighted misfire counts for cylinder 1 within test frame  where  [A] Total weighted misfire counts per exhaust most frame  [B] Minimum ratio of weighted misfire sum for cylinder-individual fault code with  [One test frame defined by:  Total number of crankshaft revolutions in test frame frame for catalyst damaging misfire  OR	continuous 1 Trip MIL (w con he	-	after catalyst damaging nisfire rate is						counts	2688	>	Weighted misfire counter for exhaust bank	Fault Path 3: Catalyst damaging misfire rate		
Total weighted misfire counts for cylinder 1 within test frame where  [A] Total weighted misfire counts per exhaust where  [B] Minimum ratio of weighted misfire sum for cylinder-individual faut code with  [One test frame defined bv.]  Total number of crankshaft revolutions in test frame for catalyst damaging misfire  [B] Minimum ratio of weighted misfire sum for cylinder-individual faut code with  [One test frame defined bv.]  Total number of crankshaft revolutions in test frame for catalyst damaging misfire  OR									counts	2688	>	Weighted misfire counter for exhaust bank during first interval after engine start			
[A] Total weighted misfire counts per exhaust bank within test frame  [B] Minimum ratio of weighted misfire sum for cyinder-individual fault code with One test frame defined by:  Total number of crankshaft revolutions in test = 200 revolutions frame for catalyst damaging misfire OR									-	[A] x [B]	≥	Total weighted misfire counts for cylinder 1 within test frame			
[B] Minimum ratio of weighted misfire sum for = 12.5 % cylinder-individual fault code with   One test frame defined bv:   Total number of crankshaft revolutions in test = 200 revolutions   Frame for catalyst damaging misfire   OR									-	measured parameter	=	[A] Total weighted misfire counts per exhaust			
One test frame defined by:   Total number of crankshaft revolutions in test = 200 revolutions   frame for catalyst damaging misfree OR									%	12.5	=	[B] Minimum ratio of weighted misfire sum for cylinder-individual fault code			
									revolutions	200	=	[One test frame defined by: Total number of crankshaft revolutions in test frame for catalyst damaging misfire			
Total number of crankshaft revolutions in first test = [A] x [B] revolutions frame after engine start for catalyst damaging									revolutions	[A] x [B]	=	Total number of crankshaft revolutions in first test frame after engine start for catalyst damaging			
[A] Total number of crankshaft revolutions in test = 200 revolutions									revolutions	200	=	[A] Total number of crankshaft revolutions in test			
frame for catalyst damaging misfire  [B] Test frame extension factor for first interval = 1  after engine startl									-	1	=	[B] Test frame extension factor for first interval			
Misfire P0303 Indicates that the engine has experienced cylinder 3 misfiring, detected by a crankshaft angle delay that is too great, caused by a drop in the engine speed by a drop in t			Paths 1-3	rpm	350	≥	Engine speed		rad/s^2	100 to 1050	>	transmission grip state (clutch is engaged), compared to threshold primarily used to detect single random misfire as well as single cylinder	detected by a crankshaft angle delay that is too great, caused	P0303	Misfire

EDBIN	S STDS: CALULEV125, F	<u>EMISSIONS</u>				.2088	KGMX\	TEST GROUP: I		7	D GROUP: KGMXOBDG
MILI	Time Required	ns	Enable Condition	Secondary Parameters		Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		don C	> -3549.94		rad/s^2	100 to 1050	g), ect ler 0- 0)	Method 1: Angular acceleration of crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-001)			
		deg C	> -3549.94	Engine coolant temperature at engine start OR	rad/s^2	100 to 1050	in > d), ect	Method 1: Angular acceleration of crankshaft in transmission open state (clutch is disengaged), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-			
		deg C	< -3549.94	[Engine coolant temperature at engine start then monitoring enabled	rad/s^2	95 to 180	in > to gle	OR  Method 1: Angular acceleration of crankshaft in idle state, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table).			
		deq C	> -3549.94 = TRUE	Enqine coolant temperaturel Zero torque detection is not active	rad/s^2	66 to 2047.938	PR in > old as ee	#P0300-11  Method 1: Angular acceleration of crankshaft in half-engine mode state, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-14)			
		%	> [A] + [B] + [C]	means [Normalized inner engine torque	rad/s^2	175 to 550	in > illy as Jp 5)	OR Method 1: Angular acceleration of crankshaft in catabyst heating, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-15)			
		%	> [D] + [B] + [C]	OR Normalized inner engine torque	rad/s^2	2047.938	aft > oor ch ch rily and on-	Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in transmission grip state (clutch is engaged), compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a non adapted system			
		%	> [E]+[B]+[C]	OR Normalized inner engine torque	rad/s^2	2047.938	aft > or ch ed ect n-	Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in transmission slip state (clutch is slipping), compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a nonadapted system			
		% %	> [F] + [B] + [C]	OR Normalized inner engine torque	rad/s^2	2047.938	aft > or tte old us a	Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in transmission open store (clutch is disengaged), compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous and select paired cylinder continuous misfres in a non-adapted system			
		%	5.32074 to 16.0797	where [A] Threshold zero torque, driving state (see Look-Up Table #P0300-20)	rad/s^2	2047.938	aft >	Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in idle state, compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a non-adapted system			
		%	= 0 = 0	[B] Map for zero torque correction, engine speed and altitude dependant [C] Map for zero torque correction, engine speed and engine temperature dependant	rad/s^2	2047.938	aft > or te, set ed ed	OR  Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in half-engine mode state. compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous and select paired cylinder continuous misfires in a non-adapted system.			
		% %	= 5.32074 to 10.0906	[D] Threshold zero torque, idle state (see Look-Up Table #P0300-23)] [E] Threshold zero torque, half-engine mode state, driving (see Look-Up Table #P0300- 24	rad/s^2	2047.938	aft > or to er	Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in catalyst heating, compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous			

BD GROUP: KGMXOBDG	607		DIAGNOST TEST GROUP: K		MARY TABLES 4.2088	ECM			E	MISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	s	Time Required	MIL IIIu
			OR  Method 3: Filtered angular acceleration of crankshaft in transmission grip state (clutch is engaged), compared to threshold primarily used	>	[A]+[B]	rad/s^2	[F] Threshold zero torque, half-engine mode state, idle (see Look-Up Table #P0300-25 Overrun/fuel cut-off is not active	=	2.00043 to 5.90057 TRUE	%		
			to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look- Up Table #P0300-5) where				(Combustion delay after engine start has completed	=	TRUE	-		
			[A] Base continuous misfire threshold in the transmission grip state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending	=	60 to 815 measured parameter	rad/s^2 rad/s^2	means [Engine speed	>	500	rpm		
			on operating point OR Method 3: Filtered angular acceleration of crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misifres (see Look-	>	[A]+[B]	rad/s^2	for Number of combustions]	=	0	-		
			Up Table #P0300-11) where [A] Base continuous misfire threshold in the transmission slip state	=	60 to 815	rad/s^2	OR [Engine has re-started (start-stop)	=	TRUE	-		
			[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2	means					
			Method 3: Filtered angular acceleration of crankshaft in transmission open state (clutch is disengaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Lock-Up Table #P0300-8)	>	[A]+[B]	rad/s^2	Number of combustions after re-startl) Calculated EPM segment time is valid	=	8 TRUE	-		
			where				No pending or confirmed DTCs	=	see sheet inhibit tables	-		
			[A] Base continuous misfire threshold in the transmission open state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	60 to 815 measured parameter	rad/s^2 rad/s^2	Basic enable conditions met	=	see sheet enable tables	-		
			OR Method 3: Filtered angular acceleration of crankshaft in idle state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-2)	>	[A]+[B]	rad/s^2						
			where [A] Base continuous misfire threshold in the	=	75 to 135	rad/s^2						
			transmission idle state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2						
			Method 3: Filtered angular acceleration of crankshaft in half-engine mode state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-18)	>	[A]+[B]	rad/s^2						
			where [A] Base continuous misfire threshold in the half-	=	60 to 2047.938	rad/s^2						
			engine mode state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2						
			O Method 3: Filtered angular acceleration of crankshaft in catalyst heating state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-19)	>	[A]+[B]	rad/s^2						
			where [A] Base continuous misfire threshold in catalyst	=	250 to 335	rad/s^2						
			[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2						

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: P		MMARY TABLES 4.2088	ECM			EMISSI	ONS STDS:	CALULI	EV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Enable 0	Conditions		Time Requir	ed	MIL IIIum.
		Fault Path 1: Emission relevant misfire rate within first 1000 crankshaft revolutions after engine start	Total misfire counts across all cylinders within first test frame outside of catalyst heating	>	71	-				1000	revs	once per drive cycle	2 Trip (with similar conditions healing)
			OR Total misfire counts across all cylinders within first test frame during catalyst heating	>	71	-							ricalii (q)
			and/or Total misfire counts for cylinder 1 within test frame	>	[A] x [B]	-							
			where [A] Total misfire counts across all cylinders within test frame	=	measured parameter	-							
			[B] Minimum ratio of misfire sum for cylinder- individual fault code with	=	12.5	%							
			[One test frame defined by: Total number of crankshaft revolutions in first test frame specific to emission relevant misfire rate at engine star OR	=	1000	revolutions							
		Fault Path 2: Emission relevant misfire rate after the first 1000 crankshaft revolutions	Total misfire counts across all cylinders within test frame	>	71	-				4 intervals o 1000	f revs	continuous	2 Trip (with similar conditions healing)
			and/or Total misfire counts for cylinder 1 within test frame	>	[A] x [B]	-							
			[A] Total misfire counts across all cylinders within test frame	=	measured parameter	-							
			[B] Minimum ratio of misfire sum for cylinder- individual fault code with	=	12.5	%							
			[One test frame defined by: Total number of crankshaft revolutions in test frame for emission relevant misfire rate Misfire test frame counter]	=	1000 4	revolutions							
		Fault Path 3: Catalyst damaging misfire rate	OR Weighted misfire counter for exhaust bank	>	2688	counts				immediately after catalys	-	continuous	MIL (with sin
			OR							damaging misfire rate i exceeded	S		conditions healing)
			Weighted misfire counter for exhaust bank during first interval after engine start	>	2688	counts							
			and/or Total weighted misfire counts for cylinder 1 within test frame where	≥	[A] × [B]	-							
			[A] Total weighted misfire counts per exhaust bank within test frame	=	measured parameter	-							
			[B] Minimum ratio of weighted misfire sum for cylinder-individual fault code with	=	12.5	%							
			[One test frame defined by: Total number of crankshaft revolutions in test frame for catalyst damaging misfire	=	200	revolutions							
			OR Total number of crankshaft revolutions in first test frame after engine start for catalyst damaging misfire	=	[A] x [B]	revolutions							
			[A] Total number of crankshaft revolutions in test frame for catalyst damaging misfire	=	200	revolutions							
			[B] Test frame extension factor for first interval after engine start]	-	1	-							
Misfire	P0304	Indicates that the engine has experienced cylinder 4 misfiring, detected by a crankshaft angle delay that is too great, caused by a drop in the engine speed	Method 1: Angular acceleration of crankshaft in transmission grip state (clutch is engaged,) compared to threshold primarily used to detect single random misifire as well as single cylinder continuous misifire (see Look-Up Table #P0300-	>	100 to 1050	rad/s^2	Engine speed	≥ 350	) rpm	see Fault Paths 1-3 below			
			Method 1: Angular acceleration of crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-	>	100 to 1050	rad/s^2	Engine speed	≤ 600	nqr 0				

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: N		MARY TABLES 2088	S ECM				EMISSIONS	STDS: CALULEV125,	FEDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Ena	ble Condition	ns	Time Required	MIL IIIu
			OR				Engine coolant temperature at engine start	> -	3549.94	deg C		
			Method 1: Angular acceleration of crankshaft in transmission open state (clutch is disengaged), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-	>	100 to 1050	rad/s^2	OR					
			OR				[Engine coolant temperature at engine start	< .	3549.94	deg C		
			Method 1: Angular acceleration of crankshaft in idle state, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table) #P0300-1)	>	95 to 180	rad/s^2	then monitoring enabled					
			Method 1: Angular acceleration of crankshaft in half-engine mode state, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-14)	>	66 to 2047.938	rad/s^2	Engine coolant temperature] Zero torque detection is not active		-3549.94 TRUE	deg C -		
			OR  Method 1: Angular acceleration of crankshaft in catalyst heating, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #790300-15)  Table #790300-15)	>	175 to 550	rad/s^2	means (Normalized inner engine torque	> [A]	+ [B] + [C]	%		
			OR  Method 2: Angular acceleration of crankbaft corrected for cylinders sharing same sensor wheel segments in transmission grip state (clutch is engaged), compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a non- adapted system	>	2047.938	rad/s^2	OR Normalized inner engine torque	> [D]	+ [B] + [C]	%		
			Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in transmission slip state (clutch is slipping), compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a non-adapted system	>	2047.938	rad/s^2	OR Normalized inner engine torque	> [E]	+ [B] + [C]	%		
			Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in transmission open state (clutch is disengaged), compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a non-adapted system OR	>	2047.938	rad/s^2	OR Normalized inner engine torque	> [F]	+ [B] + [C]	% %		
			Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in idle state, compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misifres in a non-adapted system	>	2047.938	rad/s^2	[A] Threshold zero torque, driving state (see Look-Up Table #P0300-20)	=		%		
			OR				[B] Map for zero torque correction, engine	5.320	74 to 16.0797 0	%		
			Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in half-engine mode state, compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misfires in a non-adapted system	>	2047.938	rad/s^2	speed and altitude dependant [C] Map for zero torque correction, engine speed and engine temperature dependant	=	0	%		
			System				[D] Threshold zero torque, idle state (see Look-Up Table #P0300-23)]	= 520	74 to 10.0906	%		
			Method 2: Angular acceleration of crankshaft corrected for cylinders sharing same sensor wheel segments in catalyst heating, compared to threshold primarily used to detect single cylinder continuous and select paired cylinder continuous misifires in a non-adapted system	>	2047.938	rad/s^2	[E] Threshold zero torque, half-engine mode state, driving (see Look-Up Table #P0300-24	=		%		
			OR				[F] Threshold zero torque, half-engine mode state, idle (see Look-Up Table #P0300-25	2.000	43 to 5.90057	%		

FEDBIN	STDS: CALULEV125, F	MISSIONS	E			ECM	MARY TABLES .2088		DIAGNOS I TEST GROUP: K		07	BD GROUP: KGMXOBDO
MIL	Time Required		Enable Conditions		Secondary Parameters		Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		-	TRUE	=	Overrun/fuel cut-off is not active  (Combustion delay after engine start has	rad/s^2	[A]+[B]	>	Method 3: Filtered angular acceleration of crankshaft in transmission grip state (clutch is engaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look- Up Table #P0300-5) where			
					completed means	rad/s^2	60 to 815	=	[A] Base continuous misfire threshold in the transmission grip state			
		rpm	500	>	[Engine speed	rad/s^2	measured parameter	=	[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder, limited depending on operating point			
		-	0	=	Number of combustions]	rad/s^2	[A]+[B]	>	Method 3: Filtered angular acceleration of crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look- Up Table #P0300-11)			
		-	TRUE	=	OR [Engine has re-started (start-stop)	rad/s^2	60 to 815	=	where [A] Base continuous misfire threshold in the			
					means	rad/s^2	measured parameter	=	transmission slip state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point			
		-	8 TRUE	=======================================	Number of combustions after re-start]) Calculated EPM segment time is valid	rad/s^2	[A]+[B]	>	Method 3: Filtered angular acceleration of crankshaft in transmission open state (clutch is disengaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous mistires (see and multiple cylinder continuous mistires (see			
		-	see sheet inhibit	=	No pending or confirmed DTCs				where			
		-	see sheet enable	=	Basic enable conditions met	rad/s^2	60 to 815	=	[A] Base continuous misfire threshold in the			
			tables			rad/s^2	measured parameter	=	transmission open state  [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point OR			
						rad/s^2	[A]+[B]	>	Method 3: Filtered angular acceleration of crankshaft in idle state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous mistires (see Look-Up Table #P0300-2)			
						rad/s^2	75 to 135	=	where [A] Base continuous misfire threshold in the			
						rad/s^2	measured parameter	=	transmission idle state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point			
						rad/s^2	[A]+[B]	>	On Method 3: Filtered angular acceleration of crankshaft in half-engine mode state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-18)			
						rad/s^2	60 to 2047.938	=	where [A] Base continuous misfire threshold in the half-			
						rad/s^2	measured parameter	=	engine mode state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point			
						rad/s^2	[A]+[B]	>	On Method 3: Filtered angular acceleration of crankshaft in catalyst heating state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-19)			
						rad/s^2	250 to 335	=	where [A] Base continuous misfire threshold in catalyst			
						rad/s^2	measured parameter	=	heating state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point			

c	BD GROUP: KGMXOBDG0	7		DIAGNOS <sup>*</sup> TEST GROUP: I		MMARY TABLES 4.2088	ECM			EMISSIO	NS STDS: (	CALULEV	/125, FED	BIN125
	Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Enable 0	onditions	т	ime Required		MIL IIIum.
			Fault Path 1: Emission relevant misfire rate within first 1000 crankshaft revolutions after engine start	Total misfire counts across all cylinders within first test frame outside of catalyst heating	>	71	-				1000	revs	once per drive cycle	2 Trip (with similar conditions
				OR Total misfire counts across all cylinders within first test frame during catalyst heating and/or	>	71	-							healing)
				Total misfire counts for cylinder 1 within test frame	>	[A] x [B]	-							
				where [A] Total misfire counts across all cylinders within test frame	=	measured parameter								
				[B] Minimum ratio of misfire sum for cylinder- individual fault code with	=	12.5	%							
				[One test frame defined by: Total number of crankshaft revolutions in first test frame specific to emission relevant misfire rate at engine start	=	1000	revolutions							
			Fault Path 2: Emission relevant misfire rate after the first 1000 crankshaft revolutions	OR Total misfire counts across all cylinders within test frame	>	71	-				4 intervals of 1000	revs	continuous	2 Trip (with similar conditions healing)
				and/or Total misfire counts for cylinder 1 within test frame	>	[A] x [B]	-							
				where [A] Total misfire counts across all cylinders within test frame	=	measured parameter	-							
				[B] Minimum ratio of misfire sum for cylinder- individual fault code with	=	12.5	%							
				One test frame defined by: Total number of crankshaft revolutions in test	=	1000	revolutions							
				frame for emission relevant misfire rate Misfire test frame counter	=	4	-							
			Fault Path 3: Catalyst damaging misfire rate	Weighted misfire counter for exhaust bank	>	2688	counts				immediately after catalyst damaging misfire rate is exceeded	-	continuous	1 Trip Blinking MIL (with similar conditions healing)
				OR Weighted misfire counter for exhaust bank during first interval after engine start and/or	>	2688	counts							
				Total weighted misfire counts for cylinder 1 within test frame where	≥	[A] x [B]	-							
				<ul> <li>[A] Total weighted misfire counts per exhaust bank within test frame</li> </ul>	=	measured parameter	-							
				[B] Minimum ratio of weighted misfire sum for cylinder-individual fault code with	=	12.5	%							
				[One test frame defined by: Total number of crankshaft revolutions in test frame for catalyst damaging misfire OR	=	200	revolutions							
				Total number of crankshaft revolutions in first lost frame after engine start for catalyst damaging misfire	=	[A] x [B]	revolutions							
				<ul> <li>[A] Total number of crankshaft revolutions in test frame for catalyst damaging misfire</li> </ul>	=	200	revolutions							
				[B] Test frame extension factor for first interval after engine start]	=	1	-							
	Misfire	P0305	Indicates that the engine has experienced cylinder 5 misfiring, detected by a crankshaft angle delay that is too great, caused by a drop in the engine speed	Method 1: Angular acceleration of crankshaft in transmission grip state (clutch is engaged), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-	>	100 to 1050	rad/s^2	Engine speed	≥ 350	) rpm	see Fault Paths 1-3 below			
				OR Method 1: Angular acceleration of crankshalt in transmission slip state (clutch is slipping), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfires (see Look-Up Table #P0300- 100	>	100 to 1050	rad/s^2	Engine speed	≤ 600	0 rpm				
				OR				Engine coolant temperature at engine start	> -3549	.94 deg C				

FEDBIN	S STDS: CALULEV125, F	MISSIONS	F		S ECIVI	IMARY TABLES		TEST GROUP:		907	BD GROUP: KGMXOBDO
MIL	Time Required		Enable Condition	Secondary Parameters		Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		deg C	< -3549.94	OR	rad/s^2	100 to 1050	ngaged), o detect cylinder	Method 1: Angular acceleration of crankshaft is transmission open state (clutch is disengaged compared to threshold primarily used to detect single random misfire as well as single cylindo continuous misfire (see Look-Up Table #P0300			
				then monitoring enabled	rad/s^2	95 to 180	kshaft in used to as single Ip Table	Method 1: Angular acceleration of crankshaft i idle state, compared to threshold primarily used t detect single random misfire as well as singl cylinder continuous misfire (see Look-Up Tabl #P0300-1			
		deq C	> -3549.94 = TRUE	Engine coolant temperaturel Zero torque detection is not active	rad/s^2	66 to 2047.938	nreshold nisfire as fire (see	Ol Method 1: Angular acceleration of crankshaft half-engine mode state, compared to threshol primarily used to detect single random misfire a well as single cylinder continuous misfire (se Look-Up Table #P0300-14			
		%	> [A] + [B] + [C]	means [Normalized inner engine torque	rad/s^2	175 to 550	primarily s well as _ook-Up  300-15)	Method 1: Angular acceleration of crankshaft i catalyst heating, compared to threshold primari used to detect single random misfire as well a single cylinder continuous misfire (see Look) Table #P0300-15			
		%	> [D] + [B] + [C]	OR Normalized inner engine torque	rad/s^2	2047.938	e sensor e (clutch primarily ous and in a non- d system	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same sens wheel segments in transmission grip state (cluto is engaged), compared to threshold primari used to detect single cylinder continuous select paired cylinder continuous misfires in a no adapted syster			
		%	> [E]+[B]+[C]	OR Normalized inner engine torque	rad/s^2	2047.938	e sensor e (clutch rily used ad select n a non- d system	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same sens: wheel segments in transmission slip state (clute is slipping), compared to threshold primarily use to detect single cylinder continuous and selet paired cylinder continuous misfires in a nor adapted system			
		% %	> [F] + [B] + [C]	OR Normalized inner engine torque	rad/s^2	2047.938	e sensor en state nreshold ntinuous fires in a d system	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same senso wheel segments in transmission open stat (clutch is disengaged), compared to threshol primarily used to detect single cylinder continuou and select paired cylinder continuous misfires in non-adapted syster			
		%	5.32074 to 16.0797	[A] Threshold zero torque, driving state (see Look-Up Table #P0300-20)	rad/s^2	2047.938	e sensor pared to cylinder ntinuous	(O) Method 2: Angular acceleration of cranksha corrected for cylinders sharing same sens: wheel segments in idle state, compared t threshold primarily used to detect single cylinde continuous and select paired cylinder continuou misfires in a non-adapted syster			
		%	= 0	[B] Map for zero torque correction, engine speed and altitude dependant [C] Map for zero torque correction, engine speed and engine temperature dependant	rad/s^2	2047.938	e sensor de state, o detect ct paired adapted	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same senso wheel segments in half-engine mode stata compared to threshold primarily used to detect single cylinder continuous and select paire cylinder continuous misfres in a non-adapte			
		%	= 5.32074 to 10.0906	[D] Threshold zero torque, idle state (see Look-Up Table #P0300-23)] [E] Threshold zero torque, half-engine mode state, driving (see Look-Up Table #P0300-24)	rad/s^2	2047.938	e sensor pared to cylinder ntinuous	syster  Method 2: Angular acceleration of cranksha corrected for cylinders sharing same senso wheel segments in catalyst heating, compared threshold primarily used to detect single cylinde continuous and select paired cylinder continuou misifiers in a non-adapted syster			
		%	2.00043 to 5.90057 = 2.00043 to 5.90057	[F] Threshold zero torque, half-engine mode state, idle (see Look-Up Table #P0300-25			OR	' '			

FEDBIN	S STDS: CALULEV125, F	MISSIONS	E				MARY TABLES .2088		TEST GROUP: K		07	GROUP: KGMXOBDG
MIL	Time Required	3	Enable Conditions		Secondary Parameters		Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			TRUE		Overrun/fuel cut-off is not active  (Combustion delay after engine start has	rad/s^2	[A]+[B]	>	Method 3: Filtered angular acceleration of crankshaft in transmission grip state (clutch is engaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look- Up Table #P0300-5) where			
					completed means	rad/s^2	60 to 815	=	[A] Base continuous misfire threshold in the transmission grip state			
		rpm	500	>	[Engine speed	rad/s^2	measured parameter	=	[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point OR			
		-	0	=	Number of combustions]	rad/s^2	[A]+[B]	>	Method 3: Filtered angular acceleration of crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look- Up Table #P0300-11)			
		-	TRUE	=	OR [Engine has re-started (start-stop)	rad/s^2	60 to 815	=	where [A] Base continuous misfire threshold in the transmission slip state			
					means	rad/s^2	measured parameter	=	[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point			
		-	8 TRUE		Number of combustions after re-startl) Calculated EPM segment time is valid	rad/s^2	[A]+[B]	>	O Method 3: Filtered angular acceleration of crankshaft in transmission open state (clutch is disengaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see and multiple cylinder continuous misfires (see			
		-	see sheet inhibit tables	-	No pending or confirmed DTCs				where			
		-	see sheet enable tables	=	Basic enable conditions met	rad/s^2	60 to 815	=	[A] Base continuous misfire threshold in the transmission open state			
						rad/s^2	measured parameter	=	[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point OR			
						rad/s^2	[A]+[B]	>	Method 3: Filtered angular acceleration of crankshaft in idle state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-2)			
						rad/s^2	75 to 135	=	where [A] Base continuous misfire threshold in the			
						rad/s^2	measured parameter	=	transmission idle state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point			
						rad/s^2	[A]+[B]	>	On Method 3: Filtered angular acceleration of crankshaft in half-engine mode state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-18)			
						rad/s^2	60 to 2047.938	=	where [A] Base continuous misfire threshold in the half-			
						rad/s^2	measured parameter	=	engine mode state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point			
						rad/s^2	[A]+[B]	>	On Method 3: Filtered angular acceleration of crankshaft in catalyst heating state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-19)			
						rad/s^2	250 to 335	=	where [A] Base continuous misfire threshold in catalyst			
						rad/s^2	measured parameter	=	heating state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point			

BD GROUP: KGMXOBDG	07		DIAGNOS' TEST GROUP: 1		MMARY TABLES 4.2088	S ECM			EMISSI	ONS STDS:	CALULI	EV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Enable	• Conditions		Time Requir	ed	MIL IIIum.
		Fault Path 1: Emission relevant misfire rate within first 1000 crankshaft revolutions after engine start	Total misfire counts across all cylinders within first test frame outside of catalyst heating	>	71	-				1000	revs	once per drive cycle	2 Trip (with similar conditions
			OR Total misfire counts across all cylinders within first test frame during catalyst heating	>	71	-							healing)
			and/or Total misfire counts for cylinder 1 within test frame	>	[A] x [B]	-							
			where  [A] Total misfire counts across all cylinders within test frame  [B] Minimum ratio of misfire sum for cylinder-	=	measured parameter	- %							
			individual fault code with [One test frame defined by:										
			Total number of crankshaft revolutions in first test frame specific to emission relevant misfire rate at engine start OR	=	1000	revolutions							
		Fault Path 2: Emission relevant misfire rate after the first 1000 crankshaft revolutions	frame	>	71	-				4 intervals of 1000	revs	continuous	2 Trip (with similar conditions healing)
			and/or Total misfire counts for cylinder 1 within test frame where	>	[A] x [B]	-							
			[A] Total misfire counts across all cylinders within test frame	=	measured parameter	-							
			[B] Minimum ratio of misfire sum for cylinder- individual fault code with	=	12.5	%							
			[One test frame defined by: Total number of crankshaft revolutions in test frame for emission relevant misfire rate Misfire test frame counter!	=	1000 4	revolutions							
		Fault Path 3: Catalyst damaging misfire rate	OR Weighted misfire counter for exhaust bank	>	2688	counts				immediately after catalys damaging		continuous	1 Trip Blinkir MIL (with sim conditions
										misfire rate is exceeded	3		healing)
			OR Weighted misfire counter for exhaust bank during first interval after engine start and/or	>	2688	counts							
			Total weighted misfire counts for cylinder 1 within test frame where	2	[A] x [B]	-							
			[A] Total weighted misfire counts per exhaust bank within test frame [B] Minimum ratio of weighted misfire sum for cylinder-individual fault code	=	measured parameter 12.5	%							
			with [One test frame defined by: Total number of crankshaft revolutions in test frame for catalyst damaging misfire	=	200	revolutions							
			OR Total number of crankshaft revolutions in first test frame after engine start for catalyst damaging misfire	=	[A] x [B]	revolutions							
			[A] Total number of crankshaft revolutions in test frame for catalyst damaging misfire [B] Test frame extension factor for first interval after enoine start!	=	200 1	revolutions -							
Misfire	P0306	Indicates that the engine has experienced cylinder 6 misfiring, detected by a crankshaft angle delay that is too great, caused	after engine start   Method 1: Angular acceleration of crankshaft in transmission grip state (clutch is engaged),	>	100 to 1050	rad/s^2	Engine speed	≥ (	950 rpm	see Fault Paths 1-3			1
		by a drop in the engine speed	compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300- 4)							below			
			Method 1: Angular acceleration of crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-	>	100 to 1050	rad/s^2	Engine speed	≤ 6	000 rpm				
			10) OR				Engine coolant temperature at engine start	> -35	49.94 deg C				

FEDBIN	S STDS: CALULEV125, F	MISSIONS	F		S ECIVI	IMARY TABLES		TEST GROUP:		907	BD GROUP: KGMXOBDO
MIL	Time Required		Enable Condition	Secondary Parameters		Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		deg C	< -3549.94	OR	rad/s^2	100 to 1050	ngaged), o detect cylinder	Method 1: Angular acceleration of crankshaft is transmission open state (clutch is disengaged compared to threshold primarily used to detect single random misfire as well as single cylindo continuous misfire (see Look-Up Table #P0300			
				then monitoring enabled	rad/s^2	95 to 180	kshaft in used to as single Ip Table	Method 1: Angular acceleration of crankshaft i idle state, compared to threshold primarily used t detect single random misfire as well as singl cylinder continuous misfire (see Look-Up Tabl #P0300-1			
		deq C	> -3549.94 = TRUE	Engine coolant temperaturel Zero torque detection is not active	rad/s^2	66 to 2047.938	nreshold nisfire as fire (see	Ol Method 1: Angular acceleration of crankshaft half-engine mode state, compared to threshol primarily used to detect single random misfire a well as single cylinder continuous misfire (se Look-Up Table #P0300-14			
		%	> [A] + [B] + [C]	means [Normalized inner engine torque	rad/s^2	175 to 550	primarily s well as _ook-Up  300-15)	Method 1: Angular acceleration of crankshaft i catalyst heating, compared to threshold primari used to detect single random misfire as well a single cylinder continuous misfire (see Look) Table #P0300-15			
		%	> [D] + [B] + [C]	OR Normalized inner engine torque	rad/s^2	2047.938	e sensor e (clutch primarily ous and in a non- d system	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same sens wheel segments in transmission grip state (cluto is engaged), compared to threshold primari used to detect single cylinder continuous select paired cylinder continuous misfires in a no adapted syster			
		%	> [E]+[B]+[C]	OR Normalized inner engine torque	rad/s^2	2047.938	e sensor e (clutch rily used ad select n a non- d system	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same sens: wheel segments in transmission slip state (clute is slipping), compared to threshold primarily use to detect single cylinder continuous and selet paired cylinder continuous misfires in a nor adapted system			
		% %	> [F] + [B] + [C]	OR Normalized inner engine torque	rad/s^2	2047.938	e sensor en state nreshold ntinuous fires in a d system	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same senso wheel segments in transmission open stat (clutch is disengaged), compared to threshol primarily used to detect single cylinder continuou and select paired cylinder continuous misfires in non-adapted syster			
		%	5.32074 to 16.0797	[A] Threshold zero torque, driving state (see Look-Up Table #P0300-20)	rad/s^2	2047.938	e sensor pared to cylinder ntinuous	(O) Method 2: Angular acceleration of cranksha corrected for cylinders sharing same sens: wheel segments in idle state, compared t threshold primarily used to detect single cylinde continuous and select paired cylinder continuou misfires in a non-adapted syster			
		%	= 0	[B] Map for zero torque correction, engine speed and altitude dependant [C] Map for zero torque correction, engine speed and engine temperature dependant	rad/s^2	2047.938	e sensor de state, o detect ct paired adapted	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same senso wheel segments in half-engine mode stata compared to threshold primarily used to detect single cylinder continuous and select paire cylinder continuous misfres in a non-adapte			
		%	= 5.32074 to 10.0906	[D] Threshold zero torque, idle state (see Look-Up Table #P0300-23)] [E] Threshold zero torque, half-engine mode state, driving (see Look-Up Table #P0300-24)	rad/s^2	2047.938	e sensor pared to cylinder ntinuous	syster  Method 2: Angular acceleration of cranksha corrected for cylinders sharing same senso wheel segments in catalyst heating, compared threshold primarily used to detect single cylinde continuous and select paired cylinder continuou misifiers in a non-adapted syster			
		%	2.00043 to 5.90057 = 2.00043 to 5.90057	[F] Threshold zero torque, half-engine mode state, idle (see Look-Up Table #P0300-25			OR	' '			

FEDBIN	STDS: CALULEV125, F	MISSIONS	E			ECM	MARY TABLES .2088		DIAGNOS I TEST GROUP: K		07	BD GROUP: KGMXOBDO
MIL	Time Required		Enable Conditions		Secondary Parameters		Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		-	TRUE	=	Overrun/fuel cut-off is not active  (Combustion delay after engine start has	rad/s^2	[A]+[B]	>	Method 3: Filtered angular acceleration of crankshaft in transmission grip state (clutch is engaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look- Up Table #P0300-5) where			
					completed means	rad/s^2	60 to 815	=	[A] Base continuous misfire threshold in the transmission grip state			
		rpm	500	>	[Engine speed	rad/s^2	measured parameter	=	[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder, limited depending on operating point			
		-	0	=	Number of combustions]	rad/s^2	[A]+[B]	>	Method 3: Filtered angular acceleration of crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look- Up Table #P0300-11)			
		-	TRUE	=	OR [Engine has re-started (start-stop)	rad/s^2	60 to 815	=	where [A] Base continuous misfire threshold in the			
					means	rad/s^2	measured parameter	=	transmission slip state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point			
		-	8 TRUE	=======================================	Number of combustions after re-start]) Calculated EPM segment time is valid	rad/s^2	[A]+[B]	>	Method 3: Filtered angular acceleration of crankshaft in transmission open state (clutch is disengaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous mistires (see and multiple cylinder continuous mistires (see			
		-	see sheet inhibit	=	No pending or confirmed DTCs				where			
		-	see sheet enable	=	Basic enable conditions met	rad/s^2	60 to 815	=	[A] Base continuous misfire threshold in the			
			tables			rad/s^2	measured parameter	=	transmission open state  [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point OR			
						rad/s^2	[A]+[B]	>	Method 3: Filtered angular acceleration of crankshaft in idle state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous mistires (see Look-Up Table #P0300-2)			
						rad/s^2	75 to 135	=	where [A] Base continuous misfire threshold in the			
						rad/s^2	measured parameter	=	transmission idle state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point			
						rad/s^2	[A]+[B]	>	On Method 3: Filtered angular acceleration of crankshaft in half-engine mode state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-18)			
						rad/s^2	60 to 2047.938	=	where [A] Base continuous misfire threshold in the half-			
						rad/s^2	measured parameter	=	engine mode state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point			
						rad/s^2	[A]+[B]	>	On Method 3: Filtered angular acceleration of crankshaft in catalyst heating state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-19)			
						rad/s^2	250 to 335	=	where [A] Base continuous misfire threshold in catalyst			
						rad/s^2	measured parameter	=	heating state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point			

BD GROUP: KGMXOBDG	07		DIAGNOS' TEST GROUP: 1		MMARY TABLES 4.2088	ECM				EMISSION	S STDS:	CALULE	V125, FED	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Ena	ble Conditio	ns	1	Time Require	ed	MIL IIIum.
		Fault Path 1: Emission relevant misfire rate within first 1000 crankshaft revolutions after engine start	Total misfire counts across all cylinders within first test frame outside of catalyst heating	>	71	-					1000	revs	once per drive cycle	2 Trip (with similar conditions
			OR Total misfire counts across all cylinders within first test frame during catalyst heating	>	71	-								healing)
			and/or Total misfire counts for cylinder 1 within test frame	>	[A] x [B]	-								
			where [A] Total misfire counts across all cylinders within test frame	=	measured parameter	-								
			[B] Minimum ratio of misfire sum for cylinder- individual fault code with	=	12.5	%								
			[One test frame defined by: Total number of crankshaft revolutions in first test frame specific to emission relevant misfire rate at engine start	=	1000	revolutions								
		Fault Path 2: Emission relevant misfire rate after the first 1000 crankshaft revolutions	OR Total misfire counts across all cylinders within test frame	>	71	-					4 intervals of 1000	revs	continuous	2 Trip (with similar conditions healing)
			and/or Total misfire counts for cylinder 1 within test frame where	>	[A] × [B]	-								ricamig
			<ul> <li>[A] Total misfire counts across all cylinders within test frame</li> </ul>	=	measured parameter	-								
			[B] Minimum ratio of misfire sum for cylinder- individual fault code with	=	12.5	%								
			One test frame defined by: Total number of crankshaft revolutions in test	=	1000	revolutions								
			frame for emission relevant misfire rate Misfire test frame counter	=	4	-								
		Fault Path 3: Catalyst damaging misfire rate	OR Weighted misfire counter for exhaust bank	>	2688	counts					immediately after catalyst damaging misfire rate is exceeded	-	continuous	1 Trip Blinkii MIL (with sim conditions healing)
			OR Weighted misfire counter for exhaust bank during first interval after engine start	>	2688	counts								
			and/or Total weighted misfire counts for cylinder 1 within test frame where	≥	[A] x [B]	-								
			[A] Total weighted misfire counts per exhaust bank within test frame	=	measured parameter	-								
			[B] Minimum ratio of weighted misfire sum for cylinder-individual fault code with	=	12.5	%								
			[One test frame defined by: Total number of crankshaft revolutions in test frame for catalyst damaging misfire OR	=	200	revolutions								
			Total number of crankshaft revolutions in first test frame after engine start for catalyst damaging misfire	=	[A] x [B]	revolutions								
			[A] Total number of crankshaft revolutions in test frame for catalyst damaging misfire	=	200	revolutions								
			[B] Test frame extension factor for first interval after engine start]	=	1	-								
Misfire	P0307	Indicates that the engine has experienced cylinder 7 misfiring, detected by a crankshaft angle delay that is too great, caused by a drop in the engine speed	Method 1: Angular acceleration of crankshaft in transmission grip state (clutch is engaged), compared to threshold primarily used to detect single random misifre as well as single cylinder continuous misfire (see Look-Up Table #P0300-	>	100 to 1050	rad/s^2	Engine speed	2	350	rpm	see Fault Paths 1-3 below			
			, 4, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9,	>	100 to 1050	rad/s^2	Engine speed	≤	6000	rpm				
			10) OR				Engine coolant temperature at engine start	>	-3549.94	deg C				

FEDBIN	S STDS: CALULEV125, F	MISSIONS	F		S ECIVI	IMARY TABLES		TEST GROUP:		907	BD GROUP: KGMXOBDO
MIL	Time Required		Enable Condition	Secondary Parameters		Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		deg C	< -3549.94	OR	rad/s^2	100 to 1050	ngaged), o detect cylinder	Method 1: Angular acceleration of crankshaft is transmission open state (clutch is disengaged compared to threshold primarily used to detect single random misfire as well as single cylindo continuous misfire (see Look-Up Table #P0300			
				then monitoring enabled	rad/s^2	95 to 180	kshaft in used to as single Ip Table	Method 1: Angular acceleration of crankshaft i idle state, compared to threshold primarily used t detect single random misfire as well as singl cylinder continuous misfire (see Look-Up Tabl #P0300-1			
		deq C	> -3549.94 = TRUE	Engine coolant temperaturel Zero torque detection is not active	rad/s^2	66 to 2047.938	nreshold nisfire as fire (see	Ol Method 1: Angular acceleration of crankshaft half-engine mode state, compared to threshol primarily used to detect single random misfire a well as single cylinder continuous misfire (se Look-Up Table #P0300-14			
		%	> [A] + [B] + [C]	means [Normalized inner engine torque	rad/s^2	175 to 550	primarily s well as _ook-Up  300-15)	Method 1: Angular acceleration of crankshaft i catalyst heating, compared to threshold primari used to detect single random misfire as well a single cylinder continuous misfire (see Look) Table #P0300-15			
		%	> [D] + [B] + [C]	OR Normalized inner engine torque	rad/s^2	2047.938	e sensor e (clutch primarily ous and in a non- d system	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same sens wheel segments in transmission grip state (cluto is engaged), compared to threshold primari used to detect single cylinder continuous select paired cylinder continuous misfires in a no adapted syster			
		%	> [E]+[B]+[C]	OR Normalized inner engine torque	rad/s^2	2047.938	e sensor e (clutch rily used ad select n a non- d system	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same sens: wheel segments in transmission slip state (clute is slipping), compared to threshold primarily use to detect single cylinder continuous and selet paired cylinder continuous misfires in a nor adapted system			
		% %	> [F] + [B] + [C]	OR Normalized inner engine torque	rad/s^2	2047.938	e sensor en state nreshold ntinuous fires in a d system	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same senso wheel segments in transmission open stat (clutch is disengaged), compared to threshol primarily used to detect single cylinder continuou and select paired cylinder continuous misfires in non-adapted syster			
		%	5.32074 to 16.0797	[A] Threshold zero torque, driving state (see Look-Up Table #P0300-20)	rad/s^2	2047.938	e sensor pared to cylinder ntinuous	(O) Method 2: Angular acceleration of cranksha corrected for cylinders sharing same sens: wheel segments in idle state, compared t threshold primarily used to detect single cylinde continuous and select paired cylinder continuou misfires in a non-adapted syster			
		%	= 0	[B] Map for zero torque correction, engine speed and altitude dependant [C] Map for zero torque correction, engine speed and engine temperature dependant	rad/s^2	2047.938	e sensor de state, o detect ct paired adapted	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same senso wheel segments in half-engine mode stata compared to threshold primarily used to detect single cylinder continuous and select paire cylinder continuous misfres in a non-adapte			
		%	= 5.32074 to 10.0906	[D] Threshold zero torque, idle state (see Look-Up Table #P0300-23)] [E] Threshold zero torque, half-engine mode state, driving (see Look-Up Table #P0300-24)	rad/s^2	2047.938	e sensor pared to cylinder ntinuous	syster  Method 2: Angular acceleration of cranksha corrected for cylinders sharing same senso wheel segments in catalyst heating, compared threshold primarily used to detect single cylinde continuous and select paired cylinder continuou misifiers in a non-adapted syster			
		%	2.00043 to 5.90057 = 2.00043 to 5.90057	[F] Threshold zero torque, half-engine mode state, idle (see Look-Up Table #P0300-25			OR	' '			

BD GROUP: KGMXOBDG	07		DIAGNOS I TEST GROUP: K		MMARY TABLES 4.2088	ECM			E	MISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	s	Time Required	MIL III
			Method 3: Filtered angular acceleration of crankshaft in transmission grip state (clutch is engaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look- Up Table #P0300-5)	>	[A]+[B]	rad/s^2	Overrun/fuel cut-off is not active	=	TRUE			
			where [A] Base continuous misfire threshold in the	=	60 to 815	rad/s^2	(Combustion delay after engine start has completed means	=	TRUE	-		
			[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2	[Engine speed	>	500	rpm		
			O C M Method 3: Filtered angular acceleration of crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misitres (see Look- Up Table #79300-111)	>	[A]+[B]	rad/s^2	for Number of combustions	=	0	-		
			where [A] Base continuous misfire threshold in the	=	60 to 815	rad/s^2	OR [Engine has re-started (start-stop)	=	TRUE	-		
			transmission slip state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2	means					
			OR Method 3: Filtered angular acceleration of crankshaft in transmission open state (clutch is disengaged), compared to threshold primary used to detect various forms of single cylinder and multiple cylinder continuous misfires (see and multiple cylinder continuous misfires (see	>	[A]+[B]	rad/s^2	Number of combustions after re-start) Calculated EPM segment time is valid	= =	8 TRUE			
			where				No pending or confirmed DTCs	=	see sheet inhibit	-		
			[A] Base continuous misfire threshold in the	=	60 to 815	rad/s^2	Basic enable conditions met	=	tables see sheet enable	-		
			transmission open state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2			tables			
			OR Method 3: Filtered angular acceleration of crankshaft in idle state, compared to threshold primarily used to detect vanious forms of single cylinder and multiple cylinder continuous misifires (see Look-Up Table #P0300-2)	>	[A]+[B]	rad/s^2						
			where [A] Base continuous misfire threshold in the	=	75 to 135	rad/s^2						
			transmission idle state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2						
			O C Method 3: Filtered angular acceleration of crankshaft in half-engine mode state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-18)	>	[A]+[B]	rad/s^2						
			where [A] Base continuous misfire threshold in the half-	=	60 to 2047.938	rad/s^2						
			engine mode state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2						
			OR Method 3: Filtered angular acceleration of crankshaft in catalyst heating state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-19)	>	[A]+[B]	rad/s^2						
			where [A] Base continuous misfire threshold in catalyst	=	250 to 335	rad/s^2						
			heating state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2						

ОВП	GROUP: KGMXOBDG0	7		DIAGNOS TEST GROUP: I		MMARY TABLES 4.2088	ECM			EMISSIO	NS STDS:	CALULE\	/125, FED	BIN125
	Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Enable (	Conditions	7	ime Required	1	MIL IIIum.
			Fault Path 1: Emission relevant misfire rate within first 1000 crankshaft revolutions after engine start	Total misfire counts across all cylinders within first test frame outside of catalyst heating	>	71	-				1000	revs	once per drive cycle	2 Trip (with similar conditions
				OR Total misfire counts across all cylinders within first test frame during catalyst heating	>	71	-							healing)
				and/or Total misfire counts for cylinder 1 within test frame	>	[A] x [B]	-							
				where [A] Total misfire counts across all cylinders within test frame	=	measured parameter	-							
				[B] Minimum ratio of misfire sum for cylinder- individual fault code with	=	12.5	%							
				[One test frame defined by: Total number of crankshaft revolutions in first test frame specific to emission relevant misfire rate at engine start	=	1000	revolutions							
			Fault Path 2: Emission relevant misfire rate after the first 1000 crankshaft revolutions	OR Total misfire counts across all cylinders within test frame	>	71	-				4 intervals of 1000	revs	continuous	2 Trip (with similar conditions healing)
				and/or Total misfire counts for cylinder 1 within test frame where	>	[A] x [B]	-							
				[A] Total misfire counts across all cylinders within test frame	=	measured parameter								
				[B] Minimum ratio of misfire sum for cylinder- individual fault code with	=	12.5	%							
				[One test frame defined by: Total number of crankshaft revolutions in test	=	1000	revolutions							
				frame for emission relevant misfire rate Misfire test frame counter		4	-							
			Fault Path 3: Catalyst damaging misfire rate	Weighted misfire counter for exhaust bank	>	2688	counts				immediately after catalyst damaging misfire rate is exceeded	-	continuous	Trip Blinking     MIL (with similar conditions healing)
				OR Weighted misfire counter for exhaust bank during first interval after enqine start and/or	>	2688	counts							
				Total weighted misfire counts for cylinder 1 within test frame where		[A] x [B]	-							
				<ul> <li>[A] Total weighted misfire counts per exhaust bank within test frame</li> </ul>	=	measured parameter	-							
				[B] Minimum ratio of weighted misfire sum for cylinder-individual fault code with	=	12.5	%							
				[One test frame defined by: Total number of crankshaft revolutions in test frame for catalyst damaging misfire OR	=	200	revolutions							
				Total number of crankshaft revolutions in first test frame after engine start for catalyst damaging misfire	=	[A] x [B]	revolutions							
				[A] Total number of crankshaft revolutions in test frame for catalyst damaging misfire [B] Test frame extension factor for first interval	=	200	revolutions -							
				after engine start]	=									
	Misfire	P0308	Indicates that the engine has experienced cylinder 8 misfiring, detected by a crankshaft angle delay that is too great, caused by a drop in the engine speed	transmission grip state (clutch is engaged), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300- 4)	•	100 to 1050	rad/s^2	Engine speed	≥ 35		see Fault Paths 1-3 below			
				Method 1: Angular acceleration of crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire (see Look-Up Table #P0300-101)	>	100 to 1050	rad/s^2	Engine speed	≤ 60	00 rpm				
				OR				Engine coolant temperature at engine start	> -354	9.94 deg C				

FEDBIN	S STDS: CALULEV125, F	MISSIONS	F		S ECIVI	IMARY TABLES		TEST GROUP:		907	BD GROUP: KGMXOBDO
MIL	Time Required		Enable Condition	Secondary Parameters		Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		deg C	< -3549.94	OR	rad/s^2	100 to 1050	ngaged), o detect cylinder	Method 1: Angular acceleration of crankshaft is transmission open state (clutch is disengaged compared to threshold primarily used to detect single random misfire as well as single cylindo continuous misfire (see Look-Up Table #P0300			
				then monitoring enabled	rad/s^2	95 to 180	kshaft in used to as single Ip Table	Method 1: Angular acceleration of crankshaft i idle state, compared to threshold primarily used t detect single random misfire as well as singl cylinder continuous misfire (see Look-Up Tabl #P0300-1			
		deq C	> -3549.94 = TRUE	Engine coolant temperaturel Zero torque detection is not active	rad/s^2	66 to 2047.938	nreshold nisfire as fire (see	Ol Method 1: Angular acceleration of crankshaft half-engine mode state, compared to threshol primarily used to detect single random misfire a well as single cylinder continuous misfire (se Look-Up Table #P0300-14			
		%	> [A] + [B] + [C]	means [Normalized inner engine torque	rad/s^2	175 to 550	primarily s well as _ook-Up  300-15)	Method 1: Angular acceleration of crankshaft i catalyst heating, compared to threshold primari used to detect single random misfire as well a single cylinder continuous misfire (see Look) Table #P0300-15			
		%	> [D] + [B] + [C]	OR Normalized inner engine torque	rad/s^2	2047.938	e sensor e (clutch primarily ous and in a non- d system	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same sens wheel segments in transmission grip state (cluto is engaged), compared to threshold primari used to detect single cylinder continuous select paired cylinder continuous misfires in a no adapted syster			
		%	> [E]+[B]+[C]	OR Normalized inner engine torque	rad/s^2	2047.938	e sensor e (clutch rily used ad select n a non- d system	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same sens: wheel segments in transmission slip state (clute is slipping), compared to threshold primarily use to detect single cylinder continuous and selet paired cylinder continuous misfires in a nor adapted system			
		% %	> [F] + [B] + [C]	OR Normalized inner engine torque	rad/s^2	2047.938	e sensor en state nreshold ntinuous fires in a d system	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same senso wheel segments in transmission open stat (clutch is disengaged), compared to threshol primarily used to detect single cylinder continuou and select paired cylinder continuous misfires in non-adapted syster			
		%	5.32074 to 16.0797	[A] Threshold zero torque, driving state (see Look-Up Table #P0300-20)	rad/s^2	2047.938	e sensor pared to cylinder ntinuous	(O) Method 2: Angular acceleration of cranksha corrected for cylinders sharing same sens: wheel segments in idle state, compared t threshold primarily used to detect single cylinde continuous and select paired cylinder continuou misfires in a non-adapted syster			
		%	= 0	[B] Map for zero torque correction, engine speed and altitude dependant [C] Map for zero torque correction, engine speed and engine temperature dependant	rad/s^2	2047.938	e sensor de state, o detect ct paired adapted	Method 2: Angular acceleration of cranksha corrected for cylinders sharing same senso wheel segments in half-engine mode stata compared to threshold primarily used to detect single cylinder continuous and select paire cylinder continuous misfres in a non-adapte			
		%	= 5.32074 to 10.0906	[D] Threshold zero torque, idle state (see Look-Up Table #P0300-23)] [E] Threshold zero torque, half-engine mode state, driving (see Look-Up Table #P0300-24)	rad/s^2	2047.938	e sensor pared to cylinder ntinuous	syster  Method 2: Angular acceleration of cranksha corrected for cylinders sharing same senso wheel segments in catalyst heating, compared threshold primarily used to detect single cylinde continuous and select paired cylinder continuou misifiers in a non-adapted syster			
		%	2.00043 to 5.90057 = 2.00043 to 5.90057	[F] Threshold zero torque, half-engine mode state, idle (see Look-Up Table #P0300-25			OR	' '			

D GROUP: KGMXOBDO	907		DIAGNOST TEST GROUP: K		MARY TABLES .2088	ECM				EMISSION	IS STDS: CALULEV125, FE	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns	Time Required	MIL II
			Method 3: Filtered angular acceleration of crankshaft in transmission grip state (clutch is engaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look- Up Table #P0300-5)	>	[A]+[B]	rad/s^2	Overrun/fuel cut-off is not active	-	TRUE	-		T
			where [A] Base continuous misfire threshold in the	=	60 to 815	rad/s^2	(Combustion delay after engine start has completed means	=	TRUE	-		
			transmission grip state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2	[Engine speed	>	500	rpm		
			Method 3: Filtered angular acceleration of crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misifres (see Look). Up Table #P0300-11)	>	[A]+[B]	rad/s^2	for Number of combustions]	=	0	-		
			where [A] Base continuous misfire threshold in the	=	60 to 815	rad/s^2	OR [Engine has re-started (start-stop)	=	TRUE	-		
			transmission slip state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2	means					
			Method 3: Filtered angular acceleration OR  Method 3: Filtered angular acceleration of crankshaft in transmission open state (clutch is disengaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see and multiple cylinder continuous misfires (see Lock-Up Table #P0300-8)	>	[A]+[B]	rad/s^2	Number of combustions after re-start]) Calculated EPM segment time is valid	=	8 TRUE	:		
			where				No pending or confirmed DTCs	=	see sheet inhibit tables	-		
			[A] Base continuous misfire threshold in the transmission open state	=	60 to 815	rad/s^2	Basic enable conditions met	=	see sheet enable tables	-		
			[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point OR	=	measured parameter	rad/s^2			tables			
			Method 3: Filtered angular acceleration of crankshaft in idle state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-2)	>	[A]+[B]	rad/s^2						
			where [A] Base continuous misfire threshold in the	=	75 to 135	rad/s^2						
			transmission idle state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2						
			Method 3: Filtered angular acceleration of crankshaft in half-engine mode state, compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires (see Look-Up Table #P0300-18)	>	[A]+[B]	rad/s^2						
			where [A] Base continuous misfire threshold in the half-	=	60 to 2047.938	rad/s^2						
			engine mode state [B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point	=	measured parameter	rad/s^2						
			Method 3: Filtered angular acceleration of crankshaft in catalyst heating state, compared to threshold primarly used to detect various forms of single cyfinder and multiple cyfinder continuous misfires (see Look-Up Table #P0300-19)	>	[A]+[B]	rad/s^2						
			where [A] Base continuous misfire threshold in catalyst heating state	=	250 to 335	rad/s^2						
			[B] Smallest (negative) angular acceleration value from a non-misfiring cylinder; limited depending on operating point where	=	measured parameter	rad/s^2						

OBD GROUP: KGMXOBDG	07		DIAGNOS' TEST GROUP: I		MMARY TABLES 4.2088	ECM				EMISSION	NS STDS:	CALUL	EV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditi	ions		Time Requi	red	MIL IIIum.
		Fault Path 1: Emission relevant misfire rate within first 1000 crankshaft revolutions after engine start	Total misfire counts across all cylinders within first test frame outside of catalyst heating	>	71	-					1000	revs	once per drive cycle	2 Trip (with similar conditions
			OR Total misfire counts across all cylinders within first test frame during catalyst heating	>	71	-								healing)
			and/or Total misfire counts for cylinder 1 within test frame	>	[A] x [B]	-								
			where [A] Total misfire counts across all cylinders within test frame	=	measured parameter	-								
			[B] Minimum ratio of misfire sum for cylinder- individual fault code with	=	12.5	%								
			[One test frame defined by Total number of crankshaft revolutions in first test frame specific to emission relevant misfire rate at engine start		1000	revolutions								
		Fault Path 2: Emission relevant misfire rate after the first 1000 crankshaft revolutions	OR	>	71	-					4 intervals of 1000	revs	continuous	2 Trip (with similar conditions healing)
			and/or Total misfire counts for cylinder 1 within test frame where	>	[A] x [B]	-								ricality)
			[A] Total misfire counts across all cylinders within test frame	=	measured parameter 12.5	- %								
			[B] Minimum ratio of misfire sum for cylinder- individual fault code with	=	12.5	76								
			[One test frame defined by: Total number of crankshaft revolutions in test frame for emission relevant misfire rate	=	1000	revolutions								
			Misfire test frame counter	=	4	-								
		Fault Path 3: Catalyst damaging misfire rate	Weighted misfire counter for exhaust bank	>	2688	counts					immediately after catalyst damaging misfire rate is exceeded	-	continuous	1 Trip Blinkir MIL (with sim conditions healing)
			OR Weighted misfire counter for exhaust bank during first interval after engine start and/or	>	2688	counts								
			Total weighted misfire counts for cylinder 1 within test frame	≥	[A] x [B]	-								
			where [A] Total weighted misfire counts per exhaust bank within test frame	=	measured parameter	-								
			[B] Minimum ratio of weighted misfire sum for cylinder-individual fault code with	=	12.5	%								
			[One test frame defined by: Total number of crankshaft revolutions in test frame for catalyst damaging misfire OR	=	200	revolutions								
			Total number of crankshaft revolutions in first test frame after engine start for catalyst damaging	=	[A] x [B]	revolutions								
			[A] Total number of crankshaft revolutions in test frame for catalyst damaging misfire [B] Test frame extension factor for first interval	=	200	revolutions -								
Evaporative System	P0497	Monitoring of fuel tank pressure while CVV is closed and CPV	after engine start  Difference between low pass filtered tank and	<=	-0.007446	kPa	Basic Enable conditions are fulfilled as	_	TRUE		1	sec	once per	2 Trips
Taporatio Oystoni	1 0 - 37	open (CPV stuck closed)	start pressure for Tank leakage diagnosis		-0.007 440	NI G	following conditions:	_	INOL	-		360	driving cycle	2 11105
			OR				Diagnosis of canister purge system is active	=	TRUE	-	once per driving cycle			
			Integrated CPV mass flow during vacuum build- up	>	0.08993	g	means							
							( Battery Voltage Battery Voltage Fuel Tank Pressure Fuel Tank Pressure Pressure ratio of manifold pressure and ambient pressure	>= <= >= <= <	10.9 16 -3500 1300.049 0.796875	V V Pa Pa				

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: P	TIC SUMMARY TABLES ECM (GMXV04.2088			E	MISSION	S STDS: CAI	LULEV125,	FEDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Ena	able Conditions	s	Time	Required	MIL IIIum
	P0496	Monitoring of fuel tank pressure while CPV and CVV are closed (CPV stuck open)	Difference between low pass filtered tank and start pressure for Tank leakage diagnosis	< -0.060059 kPa	Enqine Coolant Temperature ambient air temperature vehicle speed enqine speed (  Canister close valve check (  Lownsas filtered tank pressure OR Time for measurement (maximum)  Pressure Stabilization Check (  Absolute reference value of differential tank pressure or the company of the compa	> \ <= 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ = 0.0 \ =	69.8 7.5 1.2622747 0 008355556 TRUE -900.024 5 TRUE 0.039917 2 TRUE 3 TRUE sheet enable tables sheet inhibit tables TRUE TRUE 10.9 16 10.9 16 1300.049 0.796875	deq C deq C mph rpm q/sec - Pa sec - kPa sec - V V Pa Pa - deq C deq C deq C deq C		sec once driving	per 2.Trips
					Engine Coolant remperature ambient air temperature vehicle speed (	> <= 0. > = 0.0 = 0.0 = 0.0 = 0.0 >= 0.0 = 0.0 >= 0.0 = 0.0 >= 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0 = 0.0	59.8 7.5 1.2622747 0 008355556 TRUE -900.024 5 TRUE 0.039917 2 TRUE 3 TRUE sheet enable tables sheet inhibit tables	ded C ded C mph mpm  q/sec - Pa sec - kPa sec			
	P04DF	Canister purge valve Bank1 is monitored for further pinpointing of a stuck open pruge valve. The diagnostic evaluates the impact on the MAP pressure bank 1 signal during an intrusively commanded purge valve opening	failing counter results during canister purge valve bank 1 diagnosis	<= 3 ·	integrated purge mass flow bank 2	>=	0	g	1	sec continu	uous 2 Trips

OBD GROUP: KGMXOBDG	)7		DIAGNOS <sup>*</sup> TEST GROUP: I		IARY TABLES	ECM			E	EMISSION	NS STDS: CA	ALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns	Tim	e Required	MIL IIIum.
			Counter is incremented if the following occurs (during intrusive purge valve command): difference in intake manifold pressure bank1 (difference is between intake manifold pressure bank 1 at the beginning of intrusive can	<=	2.1992	kPa	filtered difference of environmental pressure and intake manifold pressure Canister purge valve release conditions met:	<	30 TRUE	kPa -	once per driving cycle		
							engine coolant temperature ambient air pressure correction factor ambient air temperature ) time in between diagnostic events has elapsed. Watking time betwee events	> > >	69.8 0.690002 -7.5	deg C deq C sec			
							Difference in filtered mixture correction Difference in filtered mixture correction Monitor has not completed this drive cycle	> <	0.099976 -0.099976 TRUE	- - -			
							(i.e. monitor runs once per trip) Basic enable conditions met  No pending or confirmed DTCs	=	see sheet enable tables see sheet inhibit tables	-			
	P04AE	Canister purge valve Bank2 is monitored for further pinpointing of a stuck open pruge valve. The diagnostic evaluates the impact on the MAP pressure bank 2 signal during an intrusively commanded purge valve opening	failing counter results during canister purge valve diagnosis	<=	3	-	integrated purge mass flow bank 2	>=	0	g	1	sec continuous	2 Trips
			Counter is incremented if the following occurs (during intrusive purge valve command): difference in intake manifold pressure bank2 (difference is between intake manifold pressure bank2 at the beginning of intrusive can	<=	2	kPa	filtered difference of environmental pressure and intake manifold pressure Canister purge valve release conditions met:	< =	30 TRUE	kPa -	once per driving cycle		
							( enqine coolant temperature ambient air pressure correction factor ambient air temperature	> > >	69.8 0.690002 -7.5	deq C - deg C			
							Itime in between diagnostic events has elapsed. Waiting time betwee events Difference in filtered mixture correction Difference in filtered mixture correction	> <	1 0.099976 -0.099976	sec -			
							Monitor has not completed this drive cycle (i.e. monitor runs once per trip) Basic enable conditions met  No pending or confirmed DTCs	=	TRUE see sheet enable tables see sheet inhibit	- -			
							into pending of confirmed DTCs		tables				
Evaporative Emission System	P0455	Monitoring of tank pressure while CVV closed and CPV open (large leakage / open filler cap)	( Differential tank pressure	>	-0.050049	kPa	Basic Enable conditions are fulfilled as following conditions Diagnosis of canister purge system is active	" "	TRUE TRUE	-		continuous	s 2 Trips
			OR Integrated CPV - mass flow for tank leakage diagnosis )	>	0.2	1	( Purge mass flow for DTEV is active	<=	0.008355556	g/sec			
			OR ( Differential tank pressure	,	A+B		Lowpass filtered tank pressure OR Time for miscellaneous measurements	>=	-900.024 5	Pa sec			
			where A is pressure difference for termination of vacuum built-up and B is pressure difference for further vacuum built up (0.5-mm-check)	=	-0.050049 -0.050049	kPa kPa	) (		-				
			OR Integrated CPV - mass flow for tank leakage diagnosis	>	0.2	g	Absolute reference value of differential tank pressure for time	<= >=	0.039917	kPa sec			
			V				) (Time for miscellaneous measurements OR Difference between low pass filtered tank and start pressure for TLD	>= <	3 -0.060059	sec kPa			

FEDBIN	S STDS: CALULEV125, F	EMISSIONS				IC SUMMARY TABLES GMXV04.2088	TEST GROUP: I		G07	BD GROUP: KGMXOBDO
MIL	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
					OR (					
		kPa	0.039917	<=	Absolute reference value of differential tank pressure					
		sec	2	>=	for time					
		-	TRUE	=	Tank cap open check finished )					
			0	<=	( Reference value of differential tank pressure					
		sec	0	>=	OR Time for miscellaneous measurements )					
		kPa	-0.007446	<=	( Absolute reference value of differential tank pressure					
		g	0.08993	>	OR Integrated CPV - mass flow for tank leakage diagnosis					
					)					
		-	FALSE	=	( Error message for driving distance debounce for DTESK required					
		m	300	>=	OR Distance travelled since rough leak recognized					
		-	TRUE	=	) High canister load detected (0.5mm check)					
					( (					
		-	TRUE	=	Condition for adaptive Lambda pilot control successful					
		sec	900	>	( time counter at first end of start in cycle (16 bit)					
		deg C	143.3	>	OR Engine coolant downstream temperature during the first engine start of the driving					
					cycle.					
		-	40 0	>	) Filtered charcoal canister charge					
			U	>	Inhibition time for tank leakage diagnosis (0.5mm) after high canister load					
		-	TRUE	=	Vehicle conditions for enabling diagnosis:					
		-	TRUE TRUE	=	Condition idle speed control Engine is in running state					
		mph	0.12622747	<=	Vehicle speed )					
		-	TRUE	=	Conditions for 0.5mm tank leak diagnosis fulfilled, which is the following conditions:					
		kPa	1.6016	<=	Absolute difference between current ambient pressure and old value					
		sec	600 TRUE	>=	for time Condition canister purge active					
		sec	20 4	>	for time Integral of purge mass flow after a longer					
		g			purge stop					
		deg C	99.8	<=	Difference between engine coolant downstream temperature during the first engine start of the driving cycle and ambient					
		-	TRUE	=	air temperature Ambient air temperature sensormodel is					
		-	TRUE	=	error free Condition first end of start in cycle					
		deg C	-6.8	>=	) Engine coolant downstream temperature during the first engine start of the driving					
		deg C	100.5	<=	cycle Engine coolant downstream temperature during the first engine start of the driving					
					cycle )					
1		-	see sheet inhibit tables	=	No pending or confirmed DTCs					

BD GROUP: KGMXOBDG	07		TEST GROUP: N		MARY TABLES .2088	ECIVI			Е	MISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIur
							Basic enable conditions met	=	see sheet enable tables	-		
AP System Leak Detected (small leak	) P0442	Phase 1: Monitoring of vacuum decay gradient while CPV and CVV are closed (engine on)	Engine Off Natural Vacuum Test:				Conditions specific to Phase 1(engine running):					1 Trip
		Phase 2: Monitoring of tank pressure while CPV and CVV are closed	EWMA filtered fault index	>	0.5	factor	Tank pressure vacuum decay gradient while CPV and CVV are closed (see Look-Up- Table #P0422-2)	>	0.00701 to 0.029993	hPa/s		
		(engine off).	based on:				Engine coolant temperature at start	>=	-6.8	deg C		
			( Difference between max. tank differential pressure & min. tank differential pressure (A-B)	<	300.049 to 550.049	Pa	Engine coolant temperature at start Ambient temperature	<= <=	100.5 35.3	deg C deg C		
			(see Look-Up-Table #P0422-1) Max. & min differential pressures are observable				Ambient temperature	>=	-7.5	deg C		
			Phase 1 (CPV and CVV are closed):				Fuel tank level Fuel tank level	>	7.7 64	I I		
			( A (Maximum pressure)	>	0	Pa	( Absolute change in barometric pressure	<	1.6016	kPa		
			Stabilization phase (CPV closed and CVV open): Wait for pressure to reach barometric pressure.	=	300	sec	for time )	=	600	sec		
							Canister purge active Minimum purging time of the charcoal	>	TRUE 20	sec		
			Phase 2 (CPV and CVV are closed): (				Time since last charcoal canister purging Load factor of charcoal canister	<	35 40	sec factor		
			Wait for pressure to reach barometric pressure.  B: Minimum pressure	=	0	Pa	for time	>=	30	sec		
			)				Conditions specific to Phase 2 (engine					
							Canister purge valve (CPV) commanded Canister vent valve (CVV) commanded	=	TRUE TRUE	-		
							P0446, P0496, P0455 diagnostics have Ambient temperature	= <=	TRUE -7.5	- deg C		
							Ambient temperature	>=	35.3	deg C		
							Engine coolant temperature at start  Engine coolant temperature at start -	<= <=	100.5 99.8	deg C deg C		
							Engine had been running for time Driving distance covered in current dcy	>=	600 8100	sec m		
							( Load factor of charcoal canister for time	< >	63.99805 30	factor		
							) Barometric pressure	>	70	kPa		
							Engine coolant temperature at engine off	>	60	deg C		
							Battery voltage	>	10.9	V		
							Condition - refueling detected Condition filler cap has been opened	=	FALSE FALSE	-		
							Condition - Sloshing of fuel detected	=	FALSE	-		
							EWMA Filter Normal Mode:			-		
							Filter coefficient for stabilized mode Number of measurements for stabilized	=	0.179688 6	factor		
							EWMA Filter Fast Initial Response (FIR) Filter coefficient for Fast Initial Response	=	0.200012	factor		
							EWMA Filter Rapid Response (RR) Filter coefficient for Rapid Responde mode	_	0.203125	factor		
							,	-				
							No pending or confirmed DTCs	=	see sheet inhibit tables	-		
							Basic enable conditions met	=	see sheet enable tables	-		
Fuel System, Bank 1	P0171	Monitoring of maximum lambda controller deviation when the	Deviation of fast lambda controller mean value	>	0.230011		(				10 sec	2 Tri
. aoi oyotom, bank i	1 . 01/1	lambda controller mean value is greater than the calibrated threshold	from 1.0		5.250011		ľ					''

FEDBIN	STDS: CALULEV125,	EMISSIONS S				GMXV04.2088	TEST GROUP: P		307	GROUP: KGMXOBDG
MIL	Time Required	ons	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			TRUE	=	( ( Unrestricted operation of Upstream closed					
		-	FALSE	=	loop lambda controller is active ( Enleanment protection of lambda					
		-	FALSE	=	controller (     Large deceleration enleanment protection of lambda controller					
		%/seg	-10.0078	>=	( Relative fuel mass transient component threshold for deceleration enleanment					
		%/seg	-10.0078	>=	Relative fuel mass transient component threshold for deceleration enleanment in					
		sec	0.3 to 1	<=	bank 2 ) for time (See-Look Up-table #P2177-5)					
					OR					
		-	FALSE	=	Large acceleration enrichment protection of lambda controller					
		%/seg	19.0078	<=	Relative fuel mass transient componet threshold for acceleration enrichment					
		%/seg	19.0078	<=	and Relative fuel mass transient componet threshold for acceleration enrichment					
		sec	0.5 to 1	<=	) for time (See-Look Up-table #P2177-6)					
		-	TRUE	=	) and Upstream Lambda closed loop control for bank 1					
		-	FALSE	=	Lambda control after injection cut off or fuel cut off is disabled					
		-	TRUE	=	and Lambda swtiched ON after fuel cutoff					
		-	FALSE	=	( Fuel cut off is active and					
		sec	8	>	time counter for after fuel cut off for enabling lambda control OR					
		-	0.1001	<=	( Absolute value of diffence in lambda of bank 1					
		sec	0	>	and Difference of counter time and plant time constant					
					a-(b+c) where a is time counter for after fuel cut off for enabling lambda control b is plant time constant for continuous					
					air/fuel control  c is plant parameter for dead time for lambda control					
					)					
		-	TRUE	=	and LSU sensor upstream to catalyst ready for operation					
			12	<=	( Level of lambda sensor 1 signal quality					
		-	FALSE	=	) and OBDII error flag, lambda control disabled					
		-	FALSE	=	( Injector power stage fault is active					
		-	FALSE	=	and Camshaft fault in critical operating range					
1					present and MAF is main air charge senor				1 1	

BD GROUP: KGMXOBDO	607		DIAGNOST TEST GROUP: 1	FIC SUMMARY TABLES ECM CGMXV04.2088			E	MISSION	S STDS: CALULEV125, FE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions	s	Time Required	MIL IIIur
					and (					
					lambda control is active since warmup is finished	=	TRUE	-		
					and Relative air charge	>	0	%		
					( for time	>=	2	sec		
					)					
					and Lamda control active due to GDI mode change	=	TRUE	-		
					GDI mode homogeneous for time	= >=	TRUE 0.8	- sec		
					)	-	0.0	300		
					and lambda value referred to sensor fitting	>=	0.6499	_		
					location and					
					Minimum injection time limitation for GDI mode is active	=	FALSE	-		
					and Width of dead zone for lambda control	<	0.999969	_		
					deviation in case of scavenging )					
					( Canister purge valve is active and open	=	FALSE	-		
					OR Integral of canister purge mass flow after a longer purge stop	>=	11.32	g		
					OR Condition for limit control	=	TRUE	-		
					( Canister purge rate reduction because of fuel rate controller deviations	>=	0	-		
					and Canister purge mass flow (see Look-Up- Table #P0171-1)	<=	0 to 0.8333333333333	g/sec		
					) for time		33 10			
					) and	>=	10	sec		
					Engine Coolant temperature	>=	0	deq C		
					Number of injections for enabling fuel mixture adaptation diagnosis	>=	700	-		
					and high amount fuel in the oil	=	FALSE			
					( Maximum proportion of evaporating fuel from the engine oil to the fuel demand	<	0.148437	-		
					)					
					for time	>=	100	sec		
					) No pending or confirmed DTCs	=	see sheet inhibit	-		
					Basic enable conditions met	=	tables see sheet enable	-		
							tables			
	P0172	Monitoring of minimum lambda controller deviation when the lambda controller mean value is lesser than the calibrated threshold	Deviation of fast lambda controller mean value from 1.0	< -0.230011 -	(				10 sec	2 Trip
					( ( Unrestricted operation of Upstream closed	=	TRUE	-		
					loop lambda controller is active ( Enleanment protection of lambda	=	FALSE			
					controller (					
					Large deceleration enleanment protection of lambda controller	=	FALSE	-		

D GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EG MXV04.2088	UM			EMISSIONS :	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL IIIu
					Relative fuel mass transient component threshold for deceleration enleanment	>=	-10.0078	%/seg		
					Relative fuel mass transient component threshold for deceleration enleanment in	>=	-10.0078	%/seg		
					bank 2 ) for time (See-Look Up-table #P2177-5)	<=	0.3 to 1	sec		
					OR ( Large acceleration enrichment protection	=	FALSE			
					of lambda controller ( Relative fuel mass transient componet	<=	19.0078	%/seg		
					threshold for acceleration enrichment and					
					Relative fuel mass transient componet threshold for acceleration enrichment	<=	19.0078	%/seg		
					for time (See-Look Up-table #P2177-6)	<=	0.5 to 1	sec		
					and Upstream Lambda closed loop control for bank 1	=	TRUE	-		
					( Lambda control after injection cut off or fuel cut off is disabled	=	FALSE	-		
					and Lambda swtiched ON after fuel cutoff	=	TRUE	-		
					( Fuel cut off is active and	=	FALSE	-		
					time counter for after fuel cut off for enabling lambda control OR	>	8	sec		
					Absolute value of diffence in lambda of bank 1 and	<=	0.1001	-		
					Difference of counter time and plant time constant a-(b+c)	>	0	sec		
					where a is time counter for after fuel cut off for enabling lambda control b is plant time constant for continuous air/fuel control					
					c is plant parameter for dead time for lambda control					
					)					
					and LSU sensor upstream to catalyst ready for operation	=	TRUE	-		
					Level of lambda sensor 1 signal quality	<=	12	-		
					and OBDII error flag, lambda control disabled	=	FALSE	-		
					( Injector power stage fault is active and	=	FALSE	-		
					Camshaft fault in critical operating range present and MAF is main air charge senor	=	FALSE	-		
					) and (					
					lambda control is active since warmup is finished and	=	TRUE	-		
					Relative air charge ( for time	>=	2	% sec		
					)					

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM (GMXV04.2088			E	MISSION	IS STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	Time Required	MIL IIIum.
					Lamda control active due to GDI mode change	=	TRUE			
					GDI mode homogeneous for time	= >=	TRUE 0.8	- sec		
					and lambda value referred to sensor fitting location	>=	0.6499	-		
					and Minimum injection time limitation for GDI mode is active )	=	FALSE	-		
					and Width of dead zone for lambda control deviation in case of scavenging	<	0.999969	-		
I					( Canister purge valve is active and open	=	FALSE			
I					OR Integral of canister purge mass flow after a longer purge stop	>=	11.32	g		
					OR Condition for limit control	=	TRUE	-		
					Canister purge rate reduction because of fuel rate controller deviations	>=	0	-		
					and Canister purge mass flow (see Look-Up- Table #P0171-1)	<=	0 to 0.8333333333333333333333333333333333333	g/sec		
					) for time	>=	10	sec		
					and Engine Coolant temperature	>=	0	deg C		
					and Number of injections for enabling fuel	>=	700	-		
					mixture adaptation diagnosis and high amount fuel in the oil	=	FALSE	-		
					( Maximum proportion of evaporating fuel from the engine oil to the fuel demand	<	0.148437	-		
					) ) for time	>=	100	sec		
1					No pending or confirmed DTCs	=	see sheet inhibit tables	-		
					Basic enable conditions met	=	see sheet enable tables	-		
Fuel System, Bank 2	P0174	Monitoring of maximum lambda controller deviation when the lambda controller mean value is greater than the calibrated threshold	Deviation of fast lambda controller mean value from 1.0 of bank 2	> 0.230011 -	(				10 sec	2 Trips
					( Unrestricted operation of Upstream closed loop lambda controller of bank 2 is active	=	TRUE	-		
					( Enleanment protection of lambda controller of bank 2	=	FALSE	-		
					( Large deceleration enleanment protection of lambda controller (	=	FALSE	-		
					Relative fuel mass transient component threshold for deceleration enleanment	>=	-10.0078	%/seg		
					Relative fuel mass transient component threshold for deceleration enleanment in bank 2	>=	-10.0078	%/seg		
I					) for time (See-Look Up-table #P2177-5) )	<=	0.3 to 1	sec		
I					OR (					

ROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES E 6MXV04.2088				EMISSIONS	STDS: CALULEV125, F	EDBIN1
omponent / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL III
					Large acceleration enrichment protection of lambda controller	-	FALSE	-		
					( Relative fuel mass transient componet threshold for acceleration enrichment	<=	19.0078	%/seg		
					and					
					Relative fuel mass transient componet threshold for acceleration enrichment	<=	19.0078	%/seg		
					) for time (See-Look Up-table #P2177-6)	<=	0.5 to 1	sec		
					) and Upstream Lambda closed loop control for	=	TRUE	-		
					bank 2 (					
					Lambda control after injection cut off or fuel cut off of bank 2 is disabled and	=	FALSE	-		
					Lambda swtiched ON after fuel cutoff of bank 2	=	TRUE	-		
					Fuel cut off is active and	=	FALSE	-		
					time counter for after fuel cut off for enabling lambda control OR	>	8	sec		
					( Absolute value of diffence in lambda of bank 2	<=	0.1001	-		
					and Difference of counter time and plant time constant	>	0	sec		
					a-(b+c) where a is time counter for after fuel cut off for enabling lambda control b is plant time constant for continuous					
					air/fuel control c is plant parameter for dead time for lambda control					
					) ) and LSU sensor upstream to catalyst ready for	=	TRUE	-		
					operation in bank 2 ( Level of lambda sensor 1 signal quality of bank 2	<=	12	-		
					) and OBDII error flag, lambda control of bank 2 disabled	=	FALSE	-		
					( Injector power stage fault is active	=	FALSE	-		
					and Camshaft fault in critical operating range present and MAF is main air charge senor	=	FALSE	-		
					) and					
					( lambda control is active since warmup is finished	=	TRUE	-		
					and Relative air charge	>	0	%		
					( for time )	>=	2	sec		
					) and Lamda control active due to GDI mode change	=	TRUE	-		
					( GDI mode homogeneous for time	= >=	TRUE 0.8	- sec		
					)	>=	U.O	sec		
					and lambda value referred to sensor fitting location of bank 2	>=	0.6499	-		

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM GMXV04.2088				EMISSION	S STDS: CALULEV	125, FEDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIum
					and Minimum injection time limitation for GDI mode of bank 2 is active	=	FALSE	-		
					and Width of dead zone for lambda control deviation in case of scavenging )	<	0.999969	-		
					( Canister purge valve is active and open	=	FALSE			
					OR Integral of canister purge mass flow after a longer purge stop OR	>=	11.32	g		
					Condition for limit control	=	TRUE	-		
					`( Canister purge rate reduction because of fuel rate controller deviations	>=	0	-		
					and Canister purge mass flow (see Look-Up- Table #P0171-1)	<=	0 to 0.8333333333333333333333333333333333333	g/sec		
					) for time	>=	10	sec		
					and Engine Coolant temperature	>=	0	deg C		
					and Number of injections for enabling fuel mixture adaptation diagnosis and	>=	700	-		
					high amount fuel in the oil	=	FALSE	-		
					Maximum proportion of evaporating fuel from the engine oil to the fuel demand	<	0.148437	-		
					) for time )	>=	100	sec		
					No pending or confirmed DTCs	=	see sheet inhibit tables	-		
					Basic enable conditions met	=	see sheet enable tables	-		
	P0175	Monitoring of fast lambda controller mean value against Minimum rationality threshold	Deviation of fast lambda controller mean value from 1.0 corrected with P-part controller, bank 2	< -0.230011 -	(				10 sec	2 Trips
					(					
					Unrestricted operation of Upstream closed loop lambda controller of bank 2 is active	=	TRUE	-		
					( Enleanment protection of lambda controller of bank 2	=	FALSE	-		
					Large deceleration enleanment protection of lambda controller	=	FALSE	-		
					Relative fuel mass transient component threshold for deceleration enleanment	>=	-10.0078	%/seg		
					Relative fuel mass transient component threshold for deceleration enleanment in bank 2	>=	-10.0078	%/seg		
					for time (See-Look Up-table #P2177-5) ) OR	<=	0.3 to 1	sec		
					( Large acceleration enrichment protection of lambda controller	=	FALSE	-		
					( Relative fuel mass transient componet threshold for acceleration enrichment	<=	19.0078	%/seg		
					and Relative fuel mass transient componet threshold for acceleration enrichment	<=	19.0078	%/seg		

GROUP: KGMXOBDO	307		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES E	CIVI			EMISSIONS S	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ns	Time Required	MIL III
					) for time (See-Look Up-table #P2177-6)	<=	0.5 to 1	sec		
					) and Upstream Lambda closed loop control for bank 2	=	TRUE	-		
					( Lambda control after injection cut off or fuel cut off of bank 2 is disabled	=	FALSE	-		
					and Lambda swtiched ON after fuel cutoff of bank 2	=	TRUE	-		
					( Fuel cut off is active and	=	FALSE			
					( time counter for after fuel cut off for enabling lambda control	>	8	sec		
					OR ( Absolute value of diffence in lambda	<=	0.1001	_		
					of bank 2 and Difference of counter time and plant	>	0	sec		
					time constant a-(b+c) where a is time counter for after fuel cut off for enabling lambda control					
					b is plant time constant for continuous air/fuel control c is plant parameter for dead time for lambda control					
					)					
					and LSU sensor upstream to catalyst ready for operation in bank 2	=	TRUE	-		
					( Level of lambda sensor 1 signal quality of bank 2	<=	12			
					and OBDII error flag, lambda control of bank 2 disabled	=	FALSE			
					( Injector power stage fault is active and	=	FALSE	-		
					Camshaft fault in critical operating range present and MAF is main air charge senor	=	FALSE	-		
					) and (					
					lambda control is active since warmup is finished and	=	TRUE	-		
					Relative air charge	>	0	%		
					for time ) )	>=	2	sec		
					and Lamda control active due to GDI mode change	=	TRUE	-		
					GDI mode homogeneous for time	= >=	TRUE 0.8	- sec		
					) ) and lambda value referred to sensor fitting	>=	0.6499			
					location of bank 2 and Minimum injection time limitation for GDI	=	FALSE			
					mode of bank 2 is active ) and	_	. ALUE			
					Width of dead zone for lambda control deviation in case of scavenging	<	0.999969	-		
					( Canister purge valve is active and open	=	FALSE			

IS STDS: CALULEV125, F	MISSIONS	E			TC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: 1		)7	GROUP: KGMXOBDG
Time Required	s	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
	g	11.32	>=	OR Integral of canister purge mass flow after a longer purge stop					
	-	TRUE	-	OR Condition for limit control					
	-	0	>=	Canister purge rate reduction because of fuel rate controller deviations					
	g/sec	0 to 0.8333333333333333333333333333333333333	<=	and Canister purge mass flow (see Look-Up- Table #P0171-1)					
	sec	10	>=	) for time					
	deg C	0	>=	) and Engine Coolant temperature					
	-	700	>=	and Number of injections for enabling fuel mixture adaptation diagnosis					
	-	FALSE	=	and high amount fuel in the oil					
	-	0.148437	<	Maximum proportion of evaporating fuel from the engine oil to the fuel demand					
	sec	100	>=	) ) for time					
	-	see sheet inhibit tables	=	No pending or confirmed DTCs					
	-	see sheet enable tables	=	Basic enable conditions met					
multiple		TRUE	=	LTFT Multiplicative mixture adaptation bank 1 is active	> 1.230011 -	Multiplicative part of LTFT, Bank 1	Multiplicative part of the Long Term Fuel Trim for Bank 1 in gasoline mode is greater than a calibrated threshold.	P2177	Fuel Trim Bank 1
	-	TRUE	=	( LTFT multiplicative part Bank 1 Integrator is stable which is of the following conditions					
	-	TRUE	=	( ( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 1 is stable					
	-	1.230011	>	Multiplicative part of LTFT for bank 1 OR					
	-	0.769989	<	Multiplicative part of LTFT for bank 1 )					
	-	TRUE	=	Similar conditions for multiplicative fuel adaptation fulfilled					
	rpm	375 375	<=	Difference between Measured and reference Engine speed					
	rpm -	20	<=	Difference between reference and measured Engine speed Difference between measured load value to					
	-	20	<=	reference load Difference between reference load value to measured load					
	sec	10	>=	) ) LTFT multiplicative part Bank 1 is stable, which is the following conditions for time					
	-	TRUE	=	( ( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 1 is stable					
	-	1.999969	<=	( Absolute change of LTFT multiplicative part, Bank 1					
		0.029999	<=	) OR Absolute change of LTFT multiplicative part, Bank 1					

FEDBIN1	S STDS: CALULEV125, I	EMISSIONS				TIC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K		7	BD GROUP: KGMXOBDG
MIL II	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		·	TRUE	=	Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 1 is stable					
		-	0.049988	<=	OR Change in short term fuel trim, Bank 1					
		%	0.75	<=	) Absolute difference between LTFT additive part, Bank 1 and its fixed value at beginning of multiplicative steady					
		-	TRUE	=	state phase Multiplicative mixture adaptation is active					
		-	TRUE	=	Multiplicative mixture adaptation is active, which is the following conditions:					
		sec	2	>=	Fra operational readiness independent of the operating mode is active, which is the following conditions for time					
		-	TRUE	=	Fundamental operating mode independent operation readiness of mixture adaption					
		-	TRUE	=	( ( Condition error suspicion in mixture adaptation					
		deg C	Min(C, D) 54.8	>=	Coolant Engine Temperature where C - cut-in temperature adaptive					
		deg C	54.8	=	precontrol for lambda closed-loop control where D - cut-in temperature fuel mixture adaptation in case of error suspicion					
		deg C	54.8	>=	OR Coolant Engine Temperature					
		-	TRUE	=	) Basic willingness of fuel mixture adaptation, except engine temperature					
		deq C	90 FALSE	< =	Intake air temperature Conditiion of Wide Open Throttle					
		Nm	3276.7	<	Propulsion torque after driving assistance coordination					
		-	FALSE 0	= <=	Increased tolerances of air charge determination expected Maximum proportion of evaporating fuel from the engine oil to the fuel demand					
		-	15	<	(model based) Ratio total charge to charge in cylinder					
		-	1200	>=	( Number of injections since start					
		-	1000	>=	OR Number of injections since start )					
		-	TRUE	=	FRA adaption physically enabled					
		%	8.00018 to 99.98932 0 to 44.99969	>= <=	Torque commanded to charge control (see Look-Up-Table #P2177-2) Torque commanded to charge control (see Look-Up-Table #P2177-1)					
		-	TRUE	=	) ) Operating mode dependent Readiness LRA					
		-	TRUE	=	( ( Lambda closed loop control upstream catalyst, bank 1					
		-	FALSE	=	( Enleanment protection of lambda controller					
		-	FALSE	=	( ( Large deceleration enleanment protection of lambda controller					
		%/seg	-10.0078	>=	( Relative fuel mass transient component threshold for deceleration enleanment					

GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES EC	VIII			EMISSIONS S	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL III
					Relative fuel mass transient component threshold for deceleration enleanment in bank 2	>=	-10.0078	%/seg		
					) for time (see Look-Up-Table #P2177-6) ) OR	>=	0.5 to 1	sec		
					( Large acceleration enrichment protection of lambda controller	=	FALSE	-		
					( Relative fuel mass transient componet threshold for acceleration enrichment	<=	19.0078	%/seg		
					Relative fuel mass transient componet threshold for acceleration enrichment	<=	19.0078	%/seg		
					) for time (see Look-Up-Table #P2177-5) )	>=	0.3 to 1	sec		
					) Upstream Lambda closed loop control for bank 1	=	TRUE	-		
					( Lambda control disabled during after	=	FALSE	-		
					cylinder cut-off Lambda swtiched ON after fuel cutoff	=	TRUE	-		
					Fuel cut off is active	=	FALSE	-		
					Time running down after fuel cut-off for enabling lambda control OR	>	8	sec		
					( Absolute value of diffence in lambda of bank	<=	0.1001	-		
					Difference of counter time and plant time constant	>	0	sec		
					a-(0+c) where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous air/fuel control c is plant parameter for dead time for lambda control )					
					) LSU sensor upstream to catalyst ready for operation	=	TRUE	-		
					Level of lambda sensor 1 signal quality	<=	12	-		
					Lambda control disabled by a fault	=	FALSE	-		
					Catalyst damaging misfire rate exceeded	=	FALSE	-		
					and Injector power stage fault is active Camshaft fault in critical operating range present and MAF is main air charge sensor	=	FALSE FALSE	-		
					) lambda control is active since warmup is	=	TRUE	-		
					finished Relative air charge	>	0	%		
					for time	>=	2	sec		
					Lamda control active due to GDI mode change	=	TRUE	-		
					GDI mode homogeneous for time	= >=	TRUE 0.8	- sec		
					) Lambda set point	>=	0.6499	-		
					Minimum injection time limitation for GDI mode is active Width of dead zone for lambda control deviation	= <	FALSE 0.999969	-		
					deviation ( Width of dead zone for lambda control deviation	<	0	-		
					oeviation OR Lambda control continuos error	>	0	_		

i, FEDBIN	S STDS: CALULEV125, I	EMISSIONS			ECM	TIC SUMMARY TABL KGMXV04.2088	DIAGNOS TEST GROUP:		7	BD GROUP: KGMXOBDG
MIL I	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Val	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
					)					
		-	TRUE	=	OR ( Unrestricted operation of Upstream closed loop lambda controller of bank 2 is active					
		-	FALSE	=	( Enleanment protection of lambda controller					
		-	FALSE	=	( ( Large deceleration enleanment protection of lambda controller					
		%/seg	-10.0078	>=	( Relative fuel mass transient component					
		%/seg	-10.0078	>=	threshold for deceleration enleanment Relative fuel mass transient component threshold for deceleration enleanment in bank 2					
		sec	0.5 to 1	<=	) for time (see Look-Up-Table #P2177-6) )					
		-	FALSE	=	OR ( Large acceleration enrichment protection of lambda controller					
		%/seg	19.0078	<=	( Relative fuel mass transient componet threshold for acceleration enrichment					
		%/seg sec	19.0078 0.3 to 1	<=	Relative fuel mass transient componet threshold for acceleration enrichment ) for time (see Look-Up-Table #P2177-5)					
		-	TRUE	=	) ) Upstream Lambda closed loop control for					
		-	FALSE	=	bank 2 ( Lambda control disabled during after cylinder cut-off					
		-	TRUE	=	Lambda swtiched ON after fuel cutoff					
		-	FALSE	=	Fuel cut off is active					
		sec	8	>	Time running down after fuel cut-off for enabling lambda control OR					
		-	0.1001	<=	Absolute value of diffence in lambda of bank					
		sec	0	>	Difference of counter time and plant time constant a-(b+c)					
					where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant of bank 2 for continuous airfuel control c is plant parameter of bank 2 for dead time for lambda control ]					
		-	TRUE	=	) ) LSU sensor upstream to catalyst ready for operation					
		-	12	<=	( Level of lambda sensor 1, bank 2 signal quality					
		-	FALSE	=	) Lambda control disabled by a fault					
		-	FALSE	-	( Catalyst damaging misfire rate exceeded					
		-	FALSE FALSE	=	Injector power stage fault is active Camshaft fault in critical operating range present and MAF is main air charge sensor					
		_	TRUE	=	) lambda control is active since warmup is					
		%	0	>	iamboa control is active since warmup is finished Relative air charge					
		sec	2	>=	( for time					

OBD GROUP: KGMXOBDO	i07		DIAGNOST TEST GROUP: 1	FIC SUMMARY TABLES ECM KGMXV04.2088			E	MISSION	S STDS: CALULEV125,	FEDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions	s	Time Required	MIL IIIum.
					Lamda control active due to GDI mode change	=	TRUE	-		
					GDI mode homogeneous for time )	= >=	TRUE 0.8	sec		
					Lambda set point Minimum injection time limitation for GDI	>=	0.6499 FALSE	-		
					mode of bank 2 is active Width of dead zone for Width of dead zone for lambda control deviation	<	0.999969	-		
					( Width of dead zone for lambda control deviation OR	=	0	-		
					Lambda control continuos error )	>	0	-		
					) for time )	>=	3	sec		
					( Difference between lambda value referenced to sensor fitting of bank 1 and bank 2	>=	0	-		
					Lambda set point (	<	1.04004	-		
					Detection of fuel mixture adaption ( Lambda set point of bank 2	= >	TRUE 0.8999	-		
					OR Lambda set point of bank 2	>	0.95996	_		
					) for time	>=	Max(A,B)	sec		
					where A - delay time for lambda fuel adaption (rich condition) where B - delay time for lambda fuel adaption (lean condition)		0	sec		
					) Limitation due to fuel in oil is deactivated Limitation due to fuel in oil is deactivated for bank 2	=	TRUE TRUE	:		
					( Half Engine mode is deactivated for time	= >=	TRUE 10	- sec		
					Lambda closed loop control upstream catalyst, bank 1	=	TRUE	-		
					) Multiplicative adaptation correction factor )	>	0	-		
					) ) No pending or confirmed DTCs	=	see sheet inhibit tables	-		
					Basic enable conditions met	=	see sheet enable tables	-		
Fuel Trim Bank 1	P2178	Multiplicative part of the Long Term Fuel Trim for Bank 1 in gasoline mode is less than a calibrated threshold.	Multiplicative part of LTFT for bank 1	< 0.769989 -	LTFT Multiplicative mixture adaptation bank 1 is active	=	TRUE	-	multi	ole 2 Trips
					( LTFT multiplicative part Bank 1 Integrator is stable which is of the following conditions	=	TRUE	-		
					( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 1 is stable	=	TRUE	-		
					( Multiplicative part of LTFT for bank 1 OR	>	1.230011	-		
					Multiplicative part of LTFT for bank 1 )	<	0.769989	-		
					OR Similar conditions for multiplicative fuel adaptation fulfilled (	=	TRUE	-		
					Difference between Measured and reference Engine speed	<=	375	rpm	-	

FEDBIN	STDS: CALULEV125, I	EMISSIONS S				GMXV04.2088	TEST GROUP: K		507	GROUP: KGMXOBDG
MIL	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		rpm	375	<=	Difference between reference and measured					
		-	20	<=	Engine speed Difference between measured load value to					
		-	20	<=	reference load Difference between reference load value to measured load					
		sec	10	>=	) ) LTFT multiplicative part Bank 1 is stable, which is the following conditions for time					
		-	TRUE	=	( ( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 1 is stable					
		-	1.999969	<=	( Absolute change of LTFT multiplicative part, Bank 1					
		-	0.029999	<=	) OR Absolute change of LTFT multiplicative part,					
					Bank 1					
		-	TRUE	=	( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 1 is stable					
		-	0.049988	<=	OR Change in short term fuel trim, Bank 1					
		%	0.75	<=	Absolute difference between LTFT additive part, Bank 1 and its fixed value at beginning of multiplicative steady					
		-	TRUE	=	state phase Multiplicative mixture adaptation is active					
			TRUE	=	( Multiplicative mixture adaptation is active, which is the following conditions:					
		sec	2	>=	Fra operational readiness independent of the operating mode is active, which is the following conditions for time					
			TRUE	=	( Fundamental operating mode independent operation readiness of mixture adaption ,					
		-	TRUE	=	( ( Condition error suspicion in mixture adaptation					
		dea C	Min(C, D)	>=	Coolant Engine Temperature					
		deg C	54.8 54.8	=	where C - cut-in temperature adaptive precontrol for lambda closed-loop control where D - cut-in temperature fuel mixture adaptation in case of error suspicion					
		deg C	54.8	>=	) OR Coolant Engine Temperature					
		-	TRUE	=	) Basic willingness of fuel mixture adaptation, except engine temperature					
		deq C	90 FALSE	< =	( Intake air temperature Condition of Wide Open Throttle					
		Nm	3276.7	<	(     Propulsion torque after driving assistance coordination					
		-	FALSE	=	) Increased tolerances of air charge					
		-	0	<=	determination expected Maximum proportion of evaporating fuel from the engine oil to the fuel demand					
		-	15	<	(model based) Ratio total charge to charge in cylinder )					
		-	1200	>=	( Number of injections since start OR					
		-	1000	>=	Number of injections since start				1 1	

FEDBIN1	S STDS: CALULEV125, F	EMISSIONS S				GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDG
MIL I	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			TRUE	-	FRA adaption physically enabled					
		%	8.00018 to 99.98932 0 to 44.99969	>= <=	( Torque commanded to charge control (see Look-Up-Table #P2177-2) Torque commanded to charge control (see Look-Up-Table #P2177-1)					
		-	TRUE	=	) Operating mode dependent Readiness LRA					
		-	TRUE	=	( ( Lambda closed loop control upstream catalyst, bank 1					
		-	FALSE	=	Enleanment protection of lambda controller					
		-	FALSE	=	( Large deceleration enleanment protection of lambda controller					
		%/seg	-10.0078	>=	( Relative fuel mass transient component					
		%/seg	-10.0078	>=	threshold for deceleration enleanment Relative fuel mass transient component threshold for deceleration enleanment in bank 2					
		sec	0.5 to 1	>=	) for time (see Look-Up-Table #P2177-6) ) OR					
		-	FALSE	=	( Large acceleration enrichment protection of lambda controller					
		%/seg	19.0078	<=	( Relative fuel mass transient componet					
		%/seg	19.0078	<=	threshold for acceleration enrichment Relative fuel mass transient componet threshold for acceleration enrichment					
		sec	0.3 to 1	>=	for time (see Look-Up-Table #P2177-5)					
		-	TRUE	=	Upstream Lambda closed loop control for bank 1					
		-	FALSE	=	Lambda control disabled during after cylinder cut-off					
		-	TRUE	=	Lambda swtiched ON after fuel cutoff					
		-	FALSE	=	Fuel cut off is active					
		sec	8	>	Time running down after fuel cut-off for enabling lambda control OR					
		-	0.1001	<=	( Absolute value of diffence in lambda of bank					
		sec	0	>	1 Difference of counter time and plant time constant a-(b+c)					
					where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous air/fuel control c is plant parameter for dead time for lambda control )					
		-	TRUE	=	) ) LSU sensor upstream to catalyst ready for operation					
		-	12	<=	( Level of lambda sensor 1 signal quality					
		-	FALSE	=	) Lambda control disabled by a fault					
		-	FALSE	-	( Catalyst damaging misfire rate exceeded					
		-	FALSE FALSE	=	and Injector power stage fault is active Camshaft fault in critical operating range					

BD GROUP: KGMXOBDO	07		DIAGNOSTIC TEST GROUP: KG	MXV04.2088				EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	ı	Enable Conditio	ons	Time Required	MIL IIIu
					) lambda control is active since warmup is	=	TRUE			
					finished Relative air charge	>	0	%		
					( for time	>=	2	sec		
					) Lamda control active due to GDI mode	=	TRUE	-		
					change	-	IKUL			
					GDI mode homogeneous for time	=	TRUE	-		
					)	>=	8.0	sec		
					Lambda set point	>=	0.6499	-		
					Minimum injection time limitation for GDI mode is active	=	FALSE			
					Width of dead zone for lambda control deviation	<	0.999969	-		
					( Width of dead zone for lambda control	<	0	-		
					deviation OR					
					Lambda control continuos error )	>	0	-		
					) OR					
					( Unrestricted operation of Upstream closed	-	TRUE	-		
					loop lambda controller of bank 2 is active					
					( Enleanment protection of lambda controller	_	FALSE	-		
					( Large deceleration enleanment protection of	-	FALSE	_		
					lambda controller	_	171202			
					Relative fuel mass transient component threshold for deceleration enleanment	>=	-10.0078	%/seg		
					Relative fuel mass transient component threshold for deceleration enleanment in	>=	-10.0078	%/seg		
					bank 2					
					) for time (see Look-Up-Table #P2177-6)	<=	0.5 to 1	sec		
					OR					
					Large acceleration enrichment protection of	=	FALSE	-		
					lambda controller					
					Relative fuel mass transient componet threshold for acceleration enrichment	<=	19.0078	%/seg		
					Relative fuel mass transient componet threshold for acceleration enrichment	<=	19.0078	%/seg		
					) for time (see Look-Up-Table #P2177-5)	<=	0.3 to 1	sec		
					) )					
					Upstream Lambda closed loop control for bank 2	=	TRUE	-		
					( Lambda control disabled during after	_	FALSE	-		
					cylinder cut-off Lambda swtiched ON after fuel cutoff	-	TRUE	-		
					( Fuel cut off is active	=	FALSE	-		
					( Time running down after fuel cut-off for	>	8	sec		
					enabling lambda control		-			I
					( Absolute value of diffence in lambda of bank	<=	0.1001			
					2 Difference of counter time and plant time	>	0.1001			
					constant	>	U	sec		
			1		a-(b+c) where a is Time running down after fuel					
					cut-off for enabling lambda control b is plant time constant of bank 2 for					
					continuous air/fuel control					1

O GROUP: KGMXOBDO	307		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES E0 MXV04.2088	CIVI		E	MISSIONS	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	Time Required	MIL III
					) ) ) LSU sensor upstream to catalyst ready for	=	TRUE	_		
					operation ( Level of lambda sensor 1, bank 2 signal	<=	12			
					quality )					
					Lambda control disabled by a fault ( Catalyst damaging misfire rate exceeded	=	FALSE FALSE			
					and					
					Injector power stage fault is active Camshaft fault in critical operating range present and MAF is main air charge sensor	=	FALSE FALSE	-		
					) lambda control is active since warmup is	=	TRUE	-		
					finished Relative air charge	>	0	%		
					for time	>=	2	sec		
					Lamda control active due to GDI mode change	=	TRUE	-		
					( GDI mode homogeneous for time )	= >=	TRUE 0.8	sec		
					) Lambda set point Minimum injection time limitation for GDI mode of bank 2 is active	>= =	0.6499 FALSE	Ī		
					Width of dead zone for Width of dead zone for lambda control deviation	<	0.999969	-		
					( Width of dead zone for lambda control deviation OR	=	0	-		
					Lambda control continuos error )	>	0	-		
					for time	>=	3	sec		
					( Difference between lambda value referenced to sensor fitting of bank 1 and bank 2	>=	0	-		
					Lambda set point (	<	1.04004	-		
					Detection of fuel mixture adaption	=	TRUE	-		
					Lambda set point of bank 2 ) OR	>	0.8999	-		
					Lambda set point of bank 2	>	0.95996	-		
					for time where A - delay time for lambda fuel	>=	Max(A,B) 0	sec sec		
					adaption (rich condition) where B - delay time for lambda fuel adaption (lean condition)		0	sec		
					Limitation due to fuel in oil is deactivated Limitation due to fuel in oil is deactivated for bank 2	=	TRUE TRUE	-		
					) ( Half Engine mode is deactivated for time	= >=	TRUE 10	- sec		
					) ) Lambda closed loop control upstream catalyst, bank 1	=	TRUE	-		
					) Multiplicative adaptation correction factor )	>	0	-		
					) ) No pending or confirmed DTCs	=	see sheet inhibit tables	-		

DBIN	S STDS: CALULEV125, FEI	EMISSIONS				KGMXV04.2088	TEST GROUP:		07	GROUP: KGMXOBDG
MIL	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
Т			see sheet enable tables	-	Basic enable conditions met					
2	multiple	-	TRUE	=	LTFT Multiplicative mixture adaptation bank 2 is active	> 1.230011 -	Multiplicative part of LTFT, Bank 2	Multiplicative part of the Long Term Fuel Trim for Bank 2 in qasoline mode is greater than a calibrated threshold.	P2179	Fuel Trim Bank 2
		-	TRUE	=	( LTFT multiplicative part Bank 2 Integrator is stable which is of the following conditions					
		-	TRUE	=	( ( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 2 is stable					
		-	1.230011	>	( Multiplicative part of LTFT for bank 2					
		-	0.769989	<	OR Multiplicative part of LTFT for bank 2					
			TRUE	=	) OR Similar conditions for multiplicative fuel adaptation fulfilled for bank 2					
		rpm	375	<=	( Difference between Measured and reference					
		rpm	375	<=	Engine speed, bank 2 Difference between reference and measured					
		-	20	<=	Engine speed, bank 2 Difference between measured load value to					
		-	20	<=	reference load, bank 2 Difference between reference load value to measured load, bank 2					
		sec	10	>=	) LTFT multiplicative part Bank 2 is stable, which is the following conditions for time					
		-	TRUE	=	( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 2 is stable					
		-	1.999969	<=	Absolute change of LTFT multiplicative part, Bank 2					
		-	0.029999	<=	OR Absolute change of LTFT multiplicative part, Bank 2					
		-	TRUE	=	( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 2 is stable					
		-	0.049988	<=	OR Change in short term fuel trim, Bank 2					
		%	0.75	<=	)  Absolute difference between LTFT additive part, Bank 1 and its fixed value at beginning of multiplicative steady					
		-	TRUE	=	state phase Multiplicative mixture adaptation is active, bank 2 (					
		-	TRUE	=	( Multiplicative mixture adaptation is active, which is the following conditions:					
		sec	2	>=	Fra operational readiness independent of the operating mode is active, which is the following conditions for time					
		-	TRUE	=	( Fundamental operating mode independent operation readiness of mixture adaption					
		-	TRUE	=	( ( Condition error suspicion in mixture adaptation					
		deg C deg C	Min(C, D) 54.8	>= =	( Coolant Engine Temperature where C - cut-in temperature adaptive precontrol for lambda closed-loop control					

STDS: CALULEV125, F	EMISSIONS				GMXV04.2088	TEST GROUP: K		7	BD GROUP: KGMXOBDG
Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
	deg C	54.8	-	where D - cut-in temperature fuel mixture adaptation in case of error suspicion )					
	deq C	54.8	>=	OR Coolant Engine Temperature					
	-	TRUE	=	) Basic willingness of fuel mixture adaptation, except engine temperature					
	deq C	90 FALSE	< =	Intake air temperature Conditiion of Wide Open Throttle					
	Nm	3276.7	<	( Propulsion torque after driving assistance coordination					
	-	FALSE	=	) Increased tolerances of air charge					
	-	0	<=	Maximum proportion of evaporating fuel from the engine oil to the fuel demand					
	-	15	<	Ratio total charge to charge in cylinder )					
	-	1200	>=	( Number of injections since start					
	-	1000	>=	OR Number of injections since start )					
	-	TRUE	=	FRA adaption physically enabled					
	%	8.00018 to 99.98932	>=	Torque commanded to charge control (see Look-Up-Table #P2177-2)					
	%	0 to 44.99969	<=	Torque commanded to charge control (see Look-Up-Table #P2177-1)					
	-	TRUE	=	) Operating mode dependent Readiness LRA					
	-	TRUE	=	( ( Lambda closed loop control upstream					
	-	FALSE	=	( Enleanment protection of lambda controller					
	-	FALSE	=	( ( Large deceleration enleanment protection of lambda controller					
	%/seg	-10.0078	>=	( Relative fuel mass transient component					
	%/seg	-10.0078	>=	Relative fuel mass transient component threshold for deceleration enleanment in					
	sec	0.5 to 1	>=	for time (see Look-Up-Table #P2177-6)					
				OR (					
	-	FALSE	=	Large acceleration enrichment protection of lambda controller					
	%/seg	19.0078	<=	Relative fuel mass transient componet threshold for acceleration enrichment					
	%/seg	19.0078	<=	Relative fuel mass transient componet threshold for acceleration enrichmen					
	sec	0.3 to 1	>=	for time (see Look-Up-Table #P2177-5)					
	-	TRUE	=	) Upstream Lambda closed loop control for bank 1					
	-	FALSE	=	( Lambda control disabled during after					
	-	TRUE	=	cylinder cut-off Lambda swtiched ON after fuel cutoff					
	-	FALSE	=	Fuel cut off is active					
	sec	8	>	Time running down after fuel cut-off for enabling lambda control		1			
		deg C   deg	Enable Conditions         Time Required           54.8         deg C           54.8         dea C           TRUE         -           90         dea C           FALSE         -           3276.7         Nm           FALSE         -           0         -           15         -           1200         -           1000         -           TRUE         -           8.00018 to 99.98932 /r/20 to 44.99969         %           TRUE         -           FALSE         -           -10.0078         %/seg           -10.0078         %/seg           0.5 to 1         sec           FALSE         -           19.0078         %/seg           19.0078         %/seg           0.3 to 1         sec           TRUE         -           FALSE         -           TRUE         -           FALSE         -           TRUE         -           FALSE         -           TRUE         -           FALSE         -           TRUE         -	= 54.8 deg C  >= 54.8 deg C  = TRUE -  < 90 deg C = FALSE -  < 3276.7 Nm  = FALSE -  < 0 -  < 15 -  >= 1200 -  >= 1000 -  = TRUE -  >= 8.00018 to 99.98932 <= 0 to 44.99969 %  = TRUE -  = TRUE -  = FALSE -  = FALSE -  = FALSE -  = FALSE -  >= 10.0078 %/seg  >= 10.0078 %/seg  >= 19.0078 %/seg  >= 19.0078 %/seg  >= 19.0078 %/seg  >= TRUE -  = FALSE -  = TRUE -  = FALSE -	where D - cut-in temperature fuel minuture adaptation in case of error suscicion   Coclamit Engine Temperature   S4.8   deg C   Coclamit Engine Temperature   S54.8   deg C   Coclamit Engine Temperature   S54.8   deg C   Saste willingness of fuel minuture adaptation, exocut engine temperature   S54.8   deg C   Condition of Wide Ceen Throttle   TRUE   S6.8   S6.0   deg C   Condition of Wide Ceen Throttle   FALSE   S6.0   deg C   Condition of Wide Ceen Throttle   FALSE   S6.0   deg C   Condition of Wide Ceen Throttle   FALSE   S6.0   deg C   Condition of Wide Ceen Throttle   FALSE   S6.0   deg C   Condition of Wide Ceen Throttle   FALSE   S6.0   deg C   Condition of Wide Ceen Throttle   FALSE   S6.0   deg C   Condition of Wide Ceen Throttle   S6.0   deg C   Condition of Ceen Throttle   S6.0   deg C   Condition of	Threshold Value  Secondary Parameters  ### S48	Mathematical Criteria  Secondary Parameters  Anter Co-cain interpretative but missing section of the control of	Number Strategy Description   Multimation Crimina   Trestricted Value   Security Prevaments   Enable Conditions   Time Regulared	Paid Code

FEDBIN	S STDS: CALULEV125, F	EMISSIONS S				IC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDG
MIL	Time Required	ons	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		-	0.1001	<=	Absolute value of diffence in lambda of bank					
		sec	0	>	Difference of counter time and plant time constant a-t0+c) where a is Time running down after fuel cut-off for enabling lembda control b is plant time constant for continuous airfuel control c is plant parameter for dead time for lambda control					
		-	TRUE	=	) ) LSU sensor upstream to catalyst ready for operation					
		-	12	<=	( Level of lambda sensor 1 signal quality					
		-	FALSE	=	) Lambda control disabled by a fault					
		-	FALSE	=	Catalyst damaging misfire rate exceeded					
		:	FALSE FALSE	= =	and Injector power stage fault is active Camshaft fault in critical operating range present and MAF is main air charge sensor					
		-	TRUE	=	) lambda control is active since warmup is					
		%	0	>	finished Relative air charge					
		sec	2	>=	( for time					
		-	TRUE	=	) Lamda control active due to GDI mode change					
		- sec	TRUE 0.8	= >=	( GDI mode homogeneous for time					
		:	0.6499 FALSE	>= =	) Lambda set point Minimum injection time limitation for GDI					
		-	0.999969	<	mode is active Width of dead zone for lambda control deviation					
		-	0	<	( Width of dead zone for lambda control deviation OR					
		-	0	>	Lambda control continuos error )					
					) OR					
		-	TRUE	=	( Unrestricted operation of Upstream closed loop lambda controller of bank 2 is active					
		-	FALSE	=	( Enleanment protection of lambda controller					
			FALSE	=	( ( Large deceleration enleanment protection of lambda controller					
		%/seg	-10.0078	>=	( Relative fuel mass transient component					
		%/seg	-10.0078	>=	threshold for deceleration enleanment Relative fuel mass transient component threshold for deceleration enleanment in bank 2					
		sec	0.5 to 1	<=	) for time (see Look-Up-Table #P2177-6)					
		-	FALSE	=	OR ( Large acceleration enrichment protection of lambda controller					
		%/seg	19.0078	<=	( Relative fuel mass transient componet					
		%/seg	19.0078	<=	threshold for acceleration enrichment Relative fuel mass transient componet					

FEDBIN	STDS: CALULEV125, F	MISSIONS S				IC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K			GROUP: KGMXOBDGO
MIL	Time Required	ıs	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		sec	0.3 to 1	<=	) for time (see Look-Up-Table #P2177-5)					
		-	TRUE	=	) ) Upstream Lambda closed loop control for bank 2					
		-	FALSE	=	( Lambda control disabled during after					
		-	TRUE	_	cylinder cut-off Lambda swtiched ON after fuel cutoff					
		-	FALSE	_	( Fuel cut off is active					
					(					
		sec	8	>	Time running down after fuel cut-off for enabling lambda control OR					
		-	0.1001	<=	( Absolute value of diffence in lambda of bank 2					
		sec	0	>	Difference of counter time and plant time constant a-(b+c)					
					where a is Time running down after fuel cut-off for enabling lambda control					
					b is plant time constant of bank 2 for					
					continuous air/fuel control c is plant parameter of bank 2 for dead time for lambda control					
					) )					
		-	TRUE	=	LSU sensor upstream to catalyst ready for operation					
		-	12	<=	( Level of lambda sensor 1, bank 2 signal quality					
		-	FALSE	=	) Lambda control disabled by a fault					
		-	FALSE	=	Catalyst damaging misfire rate exceeded					
		-	FALSE	=	and Injector power stage fault is active					
		-	FALSE	=	Camshaft fault in critical operating range present and MAF is main air charge sensor					
		-	TRUE	=	) lambda control is active since warmup is					
		%	0	>	finished Relative air charge					
		sec	2	>=	( for time					
		-	TRUE	=	) Lamda control active due to GDI mode change					
		-	TRUE	=	( GDI mode homogeneous					
		sec	8.0	>=	for time )					
		-	0.6499	>=	Lambda set point					
		-	FALSE 0.999969	= <	Minimum injection time limitation for GDI mode of bank 2 is active Width of dead zone for Width of dead zone					
		_	0	=	for lambda control deviation ( Width of dead zone for lambda control					
					deviation OR					
		-	0	>	Lambda control continuos error ) )					
		sec	3	>=	for time ) (					
		-	0	>=	Difference between lambda value referenced to sensor fitting of bank 1 and bank 2					
		-	1.04004	<	Lambda set point					
		-	TRUE	=	( Detection of fuel mixture adaption					
			0.8999	>	( Lambda set point of bank 2				1	

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM (GMXV04.2088			E	MISSION	IS STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions	•	Time Required	MIL IIIum.
					OR Lambda set point of bank 2 )	>	0.95996	-		
					for time where A - delay time for lambda fuel adaption (rich condition) where B - delay time for lambda fuel adaption (lean condition)	>=	Max(A,B) 0	sec sec		
					Limitation due to fuel in oil is deactivated Limitation due to fuel in oil is deactivated for bank 2	=	TRUE TRUE	- -		
					( Half Engine mode is deactivated for time	= >=	TRUE 10	- sec		
					Lambda closed loop control upstream catalyst, bank 2	=	TRUE	-		
					Multiplicative adaptation correction factor of bank 2 )	>	0	-		
					) No pending or confirmed DTCs Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-		
Fuel Trim Bank 2	P2180	Multiplicative part of the Long Term Fuel Trim for Bank 2 in gasoline mode is less than a calibrated threshold.	Multiplicative part of LTFT for bank 2	< 0.769989 -	LTFT Multiplicative mixture adaptation bank 2 is active	=	TRUE	-	multiple	2 Trips
					( LTFT multiplicative part Bank 2 Integrator is stable which is of the following conditions	=	TRUE	-		
					( ( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 2 is stable	=	TRUE	-		
					( Multiplicative part of LTFT for bank 2	>	1.230011	-		
					OR Multiplicative part of LTFT for bank 2 ) OR	<	0.769989	-		
					Similar conditions for multiplicative fuel adaptation fulfilled for bank 2	=	TRUE	-		
					Difference between Measured and reference Engine speed, bank 2	<=	375	rpm		
					Difference between reference and measured Engine speed, bank 2	<=	375	rpm		
					Difference between measured load value to reference load, bank 2	<=	20	-		
					Difference between reference load value to measured load, bank 2 )	<=	20	-		
					) LTFT multiplicative part Bank 2 is stable, which is the following conditions for time (	>=	10	sec		
					( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 2 is stable	=	TRUE	-		
					( Absolute change of LTFT multiplicative part, Bank 2 )	<=	1.999969	-		
					OR Absolute change of LTFT multiplicative part, Bank 2 )	<=	0.029999	-		
					( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 2 is stable	=	TRUE	-		
					OR Change in short term fuel trim, Bank 2 )	<=	0.049988	-		

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES ECI MXV04.2088	VI			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIc
					Absolute difference between LTFT additive part, Bank 1 and its fixed value at beginning of multiplicative steady state phase Multiplicative mixture adaptation is active,	<=	0.75	%		
					bank 2 ( (					
					Multiplicative mixture adaptation is active, which is the following conditions: (	=	TRUE	-		
					Fra operational readiness independent of the operating mode is active, which is the following conditions for time	>=	2	sec		
					( Fundamental operating mode independent operation readiness of mixture adaption	=	TRUE	-		
					( ( Condition error suspicion in mixture adaptation	=	TRUE	-		
					( Coolant Engine Temperature where C - cut-in temperature adaptive	>= =	Min(C, D) 54.8	deg C deg C		
					precontrol for lambda closed-loop control where D - cut-in temperature fuel mixture adaptation in case of error suspicion	=	54.8	deg C		
					OR Coolant Engine Temperature	>=	54.8	deg C		
					Basic willingness of fuel mixture adaptation, except engine temperature	=	TRUE	-		
					( Intake air temperature Conditiion of Wide Open Throttle	< =	90 FALSE	deg C		
					Propulsion torque after driving assistance coordination	<	3276.7	Nm		
					) Increased tolerances of air charge determination expected	=	FALSE	-		
					Maximum proportion of evaporating fuel from the engine oil to the fuel demand (model based)	<=	0	-		
					Ratio total charge to charge in cylinder ) (	<	15			
					Number of injections since start OR Number of injections since start	>= >=	1200 1000	-		
					) ) FRA adaption physically enabled	=	TRUE	-		
					( Torque commanded to charge control (see Look-Up-Table #P2177-2)	>=	8.00018 to 99.98932	%		
					Look-Up-1able #P2177-2) Torque commanded to charge control (see Look-Up-Table #P2177-1)	<=	99.98932 0 to 44.99969	%		
					) Operating mode dependent Readiness LRA	=	TRUE	-		
					( ( Lambda closed loop control upstream catalyst, bank 1	=	TRUE	-		
					( Enleanment protection of lambda controller	=	FALSE	-		
					( ( Large deceleration enleanment protection of lambda controller	=	FALSE	-		
					( Relative fuel mass transient component	>=	-10.0078	%/seg		
					threshold for deceleration enleanment Relative fuel mass transient component threshold for deceleration enleanment in bank 2	>=	-10.0078	%/seg		
					) for time (see Look-Up-Table #P2177-6)	>=	0.5 to 1	sec		

V125, FED	S STDS: CALULEV125	EMISSIONS				GMXV04.2088	TEST GROUP: K		307	D GROUP: KGMXOBDO
d	Time Required	ons	Enable Conditi		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
					) OR					
		-	FALSE	=	( Large acceleration enrichment protection of lambda controller					
		%/seg	19.0078	<=	( Relative fuel mass transient componet threshold for acceleration enrichment					
		%/seg	19.0078	<=	Relative fuel mass transient componet threshold for acceleration enrichmen )					
		sec	0.3 to 1	>=	for time (see Look-Up-Table #P2177-5) )					
		-	TRUE	=	Upstream Lambda closed loop control for bank 1					
		-	FALSE TRUE	=	Lambda control disabled during after cylinder cut-off Lambda swtiched ON after fuel cutoff					
		-	FALSE	=	( Fuel cut off is active					
		sec	8	>	( Time running down after fuel cut-off for enabling lambda control OR					
		-	0.1001	<=	( Absolute value of diffence in lambda of bank					
		sec	0	>	Difference of counter time and plant time constant a=(b+c) where a is Time running down after fuel cut-off for enabing lambda control b is plant time constant for continuous airfuel control c is plant parameter for dead time for lambda control )					
		-	TRUE	=	) LSU sensor upstream to catalyst ready for operation (					
		-	12 FALSE	<=	Level of lambda sensor 1 signal quality ) Lambda control disabled by a fault					
			FALSE	=	( Catalyst damaging misfire rate exceeded					
		-	FALSE FALSE	= =	and Injector power stage fault is active Camshaft fault in critical operating range present and MAF is main air charge sensor					
		-	TRUE	=	) lambda control is active since warmup is finished					
		%	0	>	Relative air charge (					
		sec -	2 TRUE	>=	for time ) Lamda control active due to GDI mode					
			TRUE	=	change ( GDI mode homogeneous					
		sec	8.0	>=	for time ) )					
		:	0.6499 FALSE	>=	Lambda set point Minimum injection time limitation for GDI mode is active					
		-	0.999969	<	Width of dead zone for lambda control deviation					
		-	0	<	( Width of dead zone for lambda control deviation OR					
		-	0	>	Lambda control continuos error )					
					) OR				1 1	

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES ECN MXV04.2088	1			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL IIIu
					Unrestricted operation of Upstream closed loop lambda controller of bank 2 is active	=	TRUE	·		
					( Enleanment protection of lambda controller	=	FALSE	-		
					( ( Large deceleration enleanment protection of lambda controller	=	FALSE	-		
					( Relative fuel mass transient component	>=	-10.0078	%/seg		
					threshold for deceleration enleanment Relative fuel mass transient component threshold for deceleration enleanment in bank 2	>=	-10.0078	%/seg		
					) for time (see Look-Up-Table #P2177-6) )	<=	0.5 to 1	sec		
					OR ( Large acceleration enrichment protection of lambda controller	=	FALSE	-		
					( Relative fuel mass transient componet	<=	19.0078	%/seg		
					threshold for acceleration enrichment Relative fuel mass transient componet threshold for acceleration enrichmen	<=	19.0078	%/seg		
					) for time (see Look-Up-Table #P2177-5) )	<=	0.3 to 1	sec		
					, Upstream Lambda closed loop control for bank 2 (	=	TRUE	-		
					Lambda control disabled during after cylinder cut-off	=	FALSE	-		
					Lambda swtiched ON after fuel cutoff	=	TRUE	-		
					( Fuel cut off is active	=	FALSE	-		
					( Time running down after fuel cut-off for enabling lambda control OR	>	8	sec		
					( Absolute value of diffence in lambda of bank	<=	0.1001	-		
					2 Difference of counter time and plant time constant	>	0	sec		
					a-(b+c) where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant of bank 2 for continuous air/fuel control c is plant parameter of bank 2 for dead time for lambda control					
					) ) ) LSU sensor upstream to catalyst ready for	=	TRUE	-		
					operation ( Level of lambda sensor 1, bank 2 signal quality	<=	12	-		
					) Lambda control disabled by a fault	-	FALSE	_		
					( Catalyst damaging misfire rate exceeded	=	FALSE			
					Injector power stage fault is active Camshaft fault in critical operating range present and MAF is main air charge sensor	=	FALSE FALSE	-		
					) lambda control is active since warmup is	=	TRUE			
					finished Relative air charge	>	0	%		
					for time	>=	2	sec		
					) Lamda control active due to GDI mode change (	=	TRUE	-		
					GDI mode homogeneous	=	TRUE	-		

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM (GMXV04.2088			E	MISSION	IS STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions	<b>.</b>	Time Required	MIL IIIum.
					) ) Lambda set point Minimum injection time limitation for GDI mode of bank 2 is active Width of dead zone for Width of dead zone for lambda control deviation	>= = <	0.6499 FALSE 0.999969	:		
					( Width of dead zone for lambda control deviation	=	0	-		
					OR Lambda control continuos error )	>	0	-		
					) for time )	>=	3	sec		
					( Difference between lambda value referenced to sensor fitting of bank 1 and bank 2	>=	0	-		
					Lambda set point	<	1.04004	-		
					Detection of fuel mixture adaption	=	TRUE	-		
					Lambda set point of bank 2	>	0.8999	-		
					OR Lambda set point of bank 2	>	0.95996	-		
					for time where A - delay time for lambda fuel	>=	Max(A,B) 0	sec sec		
					adaption (rich condition) where B - delay time for lambda fuel adaption (lean condition)		0	sec		
					) Limitation due to fuel in oil is deactivated Limitation due to fuel in oil is deactivated for bank 2	=	TRUE TRUE	-		
					) ( Half Engine mode is deactivated for time	= >=	TRUE 10	- sec		
					) ) Lambda closed loop control upstream catalyst, bank 2	=	TRUE	-		
					) Multiplicative adaptation correction factor of bank 2 )	>	0	-		
					) No pending or confirmed DTCs	=	see sheet inhibit tables			
					Basic enable conditions met	=	see sheet enable tables	-		
Fuel Trim Bank 1	P2E68	Multiplicative part of the Long Term Fuel Trim for Bank 1 in ZAS mode is greater than a calibrated threshold.	Multiplicative part of LTFT for bank 1 in ZAS mode	> 1.230011 -	LTFT Multiplicative mixture adaptation bank 1 in ZAS operation mode is active	=	TRUE	-	multiple	2 Trips
					( LTFT multiplicative part Bank 1 Integrator is stable which is of the following conditions	=	TRUE	-		
					( Condition diagnostic thresholds of multiplicative correction in ZAS mode currently exceeded of bank 1 is stable	=	TRUE	-		
					( Multiplicative part of LTFT for bank 1 in ZAS mode	>	1.230011	-		
					OR Multiplicative part of LTFT for bank 1 in ZAS mode	<	0.769989	-		
					) OR Similar conditions for multiplicative fuel adaptation fulfilled	=	TRUE	-		
					( Difference between Measured and reference	<=	375	rpm		
1					Engine speed Difference between reference and measured Engine speed	<=	375	rpm		

FEDBIN	STDS: CALULEV125, I	EMISSIONS S				GMXV04.2088	TEST GROUP: K		507	GROUP: KGMXOBDG
MIL	Time Required	ons	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		-	20 20	<= <=	Difference between measured load value to reference load Difference between reference load value to measured load					
		sec	10	>=	) LTFT multiplicative part Bank 1 is stable, which is the following conditions for time					
		-	TRUE	=	( Condition diagnostic thresholds of multiplicative correction in ZAS mode currently exceeded					
		-	1.999969	<=	( Absolute change of LTFT multiplicative part, Bank 1					
		-	0.029999	<=	OR Absolute change of LTFT multiplicative part, Bank 1					
		-	TRUE	=	( Condition diagnostic thresholds of multiplicative correction in ZAS mode currently exceeded					
		-	0.049988	<=	OR Change in short term fuel trim, Bank 1					
		%	0.75	<=	)  Absolute difference between LTFT additive part, Bank 1 and its fixed value at beginning of multiplicative steady					
		-	TRUE	=	Multiplicative steaty  State phase  Multiplicative mixture adaptation in ZAS  mode is active					
		-	TRUE	=	( Multiplicative mixture adaptation is active, which is the following conditions:					
		sec	2	>=	( Fraz operational readiness independent of the operating mode is active, which is the following conditions for time					
		-	TRUE	=	( Fundamental operating mode independent operation readiness of mixture adaption					
		-	TRUE	=	( ( Condition error suspicion in mixture adaptation					
		deg C	Min(C, D)	>=	Coolant Engine Temperature					
		deg C	54.8 54.8	=	where C - cut-in temperature adaptive precontrol for lambda closed-loop control where D - cut-in temperature fuel mixture					
		ucy O	34.0	-	adaptation in case of error suspicion )					
		deg C	54.8	>=	OR Coolant Engine Temperature					
		-	TRUE	=	Basic willingness of fuel mixture adaptation, except engine temperature					
		deg C	90 FALSE	< =	( Intake air temperature Conditiion of Wide Open Throttle					
		Nm	3276.7	<	( Propulsion torque after driving assistance coordination					
		-	FALSE	=	) Increased tolerances of air charge					
		-	0	<=	determination expected  Maximum proportion of evaporating fuel from the engine oil to the fuel demand					
		-	15	<	(model based) Ratio total charge to charge in cylinder					
			1200	>=	) ( Number of injections since start					
		-	1000	>=	OR Number of injections since start					
			TRUE		К				1 1	

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES ECI 3MXV04.2088	VI			EMISSIONS	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL III
					Torque commanded to charge control (see Look-Up-Table #P2E68-2) Torque commanded to charge control (see Look-Up-Table #P2E68-1)	>= <=	3.99933 to 99.98932 0 to 30.00031	%		
					) Operating mode dependent Readiness LRA	=	TRUE	-		
					( ( Lambda closed loop control upstream catalyst, bank 1	=	TRUE	-		
					( Enleanment protection of lambda controller	=	FALSE	-		
					Large deceleration enleanment protection of lambda controller	=	FALSE	-		
					Relative fuel mass transient component	>=	-10.0078	%/seg		
					threshold for deceleration enleanment Relative fuel mass transient component threshold for deceleration enleanment in bank 2	>=	-10.0078	%/seg		
					) for time (see Look-Up-Table #P2177-6) ) OR	>=	0.5 to 1	sec		
					Large acceleration enrichment protection of lambda controller	=	FALSE	-		
					Relative fuel mass transient componet	<=	19.0078	%/seg		
					threshold for acceleration enrichment Relative fuel mass transient componet threshold for acceleration enrichmen	<=	19.0078	%/seg		
					for time (see Look-Up-Table #P2177-5)	>=	0.3 to 1	sec		
					) Upstream Lambda closed loop control for bank 1	=	TRUE	-		
					Lambda control disabled during after	=	FALSE	-		
					cylinder cut-off Lambda swtiched ON after fuel cutoff	=	TRUE	-		
					Fuel cut off is active	=	FALSE	-		
					t Time running down after fuel cut−off for enabling lambda control OR	>	8	sec		
					( Absolute value of diffence in lambda of bank	<=	0.1001	-		
					Difference of counter time and plant time constant a-(b+c)	>	0	sec		
					where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous airfuel control c is plant parameter for dead time for lambda control }					
					) ) LSU sensor upstream to catalyst ready for operation	=	TRUE	-		
	1				( Level of lambda sensor 1 signal quality	<=	12	-		
	1				) Lambda control disabled by a fault	=	FALSE	-		
	1				( Catalyst damaging misfire rate exceeded	=	FALSE	-		
					Injector power stage fault is active Camshaft fault in critical operating range present and MAF is main air charge sensor	=	FALSE FALSE	-		
					) lambda control is active since warmup is finished	=	TRUE	-		

TEST GROUP: KGMXV04.2088	TEST GROUP: KGMXV04.2088			Enable Conditions  Enable Conditions  Enable Conditions  Enable Conditions  Enable Conditions	STDS: CALULEV125, F	EDBIN1	
Malfunction Criteria Th	Malfunction Criteria Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL II
		Relative air charge for time	> =	0 2	% sec		
		) Lamda control active due to GDI mode change	=	TRUE	-		
		( GDI mode homogeneous for time	= >=	TRUE 0.8	- sec		
		) ) Lambda set point		0.6499			
		Minimum injection time limitation for GDI mode is active	>=	FALSE			
		Width of dead zone for lambda control deviation	<	0.999969	-		
		( Width of dead zone for lambda control deviation	<	0	-		
		OR Lambda control continuos error )	>	0	-		
		) OR					
		( Unrestricted operation of Upstream closed loop lambda controller of bank 2 is active	=	TRUE	-		
		( Enleanment protection of lambda controller	=	FALSE	-		
		( ( Large deceleration enleanment protection of lambda controller	=	FALSE	-		
		( Relative fuel mass transient component	>=	-10.0078	%/seg		
		threshold for deceleration enleanment Relative fuel mass transient component threshold for deceleration enleanment in bank 2	>=	-10.0078	%/seg		
		) for time (see Look-Up-Table #P2177-6)	<=	0.5 to 1	sec		
		OR (					
		Large acceleration enrichment protection of lambda controller	=	FALSE	-		
		Relative fuel mass transient componet threshold for acceleration enrichment	<=	19.0078	%/seg		
		Relative fuel mass transient componet threshold for acceleration enrichmen	<=	19.0078	%/seg		
		for time (see Look-Up-Table #P2177-5)	<=	0.3 to 1	sec		
		Upstream Lambda closed loop control for bank 2	=	TRUE	-		
		Lambda control disabled during after	=	FALSE	-		
		cylinder cut-off Lambda swtiched ON after fuel cutoff	=	TRUE	-		
		Fuel cut off is active	=	FALSE	-		
		Time running down after fuel cut-off for enabling lambda control OR	>	8	sec		
		( Absolute value of diffence in lambda of bank	<=	0.1001	-		
		Difference of counter time and plant time constant a-(b+c) where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant of bank 2 for continuous air/fuel control c is plant plant earlier of bank 2 for dead time for lambda control	>	0	sec		

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM (GMXV04.2088			E	MISSION	IS STDS: CALULEV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions	<b>s</b>	Time Required	MIL IIIum.
					LSU sensor upstream to catalyst ready for operation	=	TRUE	-		
					( Level of lambda sensor 1, bank 2 signal quality	<=	12	-		
					) Lambda control disabled by a fault	=	FALSE	-		
					Catalyst damaging misfire rate exceeded	=	FALSE	-		
					Injector power stage fault is active Camshaft fault in critical operating range present and MAF is main air charge sensor	=	FALSE FALSE	-		
					) lambda control is active since warmup is finished	=	TRUE	-		
					Relative air charge ( for time	>	0	% sec		
					) Lamda control active due to GDI mode	=	TRUE	sec -		
					change ( GDI mode homogeneous for time	= >=	TRUE 0.8	- sec		
					) ) Lambda set point Minimum injection time limitation for GDI	>= =	0.6499 FALSE	-		
					mode of bank 2 is active Width of dead zone for Width of dead zone for lambda control deviation	<	0.999969	-		
					( Width of dead zone for lambda control deviation OR	=	0	-		
					Lambda control continuos error )	>	0	-		
					) for time )	>=	3	sec		
					( Difference between lambda value referenced to sensor fitting of bank 1 and bank 2	>=	0	-		
					Lambda set point	<	1.04004	-		
					Detection of fuel mixture adaption (	=	TRUE	-		
					Lambda set point of bank 2 ) OR	>	0.8999	-		
					Lambda set point of bank 2	>	0.95996	-		
					for time where A - delay time for lambda fuel adaption (rich condition) where B - delay time for lambda fuel	>=	Max(A,B) 0	sec sec		
					adaption (lean condition) ) Limitation due to fuel in oil is deactivated Limitation due to fuel in oil is deactivated for	=	TRUE TRUE	-		
					bank 2 ) Lambda closed loop control upstream catalyst, bank 1	=	TRUE	-		
					) Multiplicative adaptation correction factor )	>	0	-		
					) ) No pending or confirmed DTCs	=	see sheet inhibit			
					Basic enable conditions met	=	tables see sheet enable tables	-		
Fuel Trim Bank 1	P2E69	Multiplicative part of the Long Term Fuel Trim for Bank 1 in ZAS mode is less than a calibrated threshold.	Multiplicative part of LTFT for bank 1 in ZAS mode	< 0.769989 -	LTFT Multiplicative mixture adaptation bank 1 in ZAS operation mode is active	=	TRUE	-	multiple	2 Trips
		- 12 man a described wronged.			( LTFT multiplicative part Bank 1 Integrator is stable which is of the following conditions	=	TRUE	-		

O GROUP: KGMXOBD	G07		TEST GROUP: K	IC SUMMARY TABLES EO GMXV04.2088	CIVI			EMISSIONS	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ons	Time Required	MIL II
					( ( Condition diagnostic thresholds of multiplicative correction in ZAS mode currently exceeded of bank 1 is stable	=	TRUE	-		
					( Multiplicative part of LTFT for bank 1 in ZAS mode	>	1.230011	-		
					OR Multiplicative part of LTFT for bank 1 in ZAS mode	<	0.769989	-		
					) OR Similar conditions for multiplicative fuel adaptation fulfilled	=	TRUE	-		
					( Difference between Measured and reference	<=	375	rpm		
					Engine speed Difference between reference and measured	<=	375	rpm		
					Engine speed Difference between measured load value to	<=	20	-		
					reference load Difference between reference load value to measured load	<=	20	-		
					) ) LTFT multiplicative part Bank 1 is stable, which is the following conditions for time	>=	10	sec		
					( ( Condition diagnostic thresholds of multiplicative correction in ZAS mode currently exceeded	=	TRUE	-		
					( Absolute change of LTFT multiplicative part, Bank 1	<=	1.999969	-		
					OR Absolute change of LTFT multiplicative part, Bank 1	<=	0.029999	-		
					( Condition diagnostic thresholds of multiplicative correction in ZAS mode currently exceeded	=	TRUE	-		
					OR Change in short term fuel trim, Bank 1	<=	0.049988	-		
					) Absolute difference between LTFT additive part, Bank 1	<=	0.75	%		
					and its fixed value at beginning of multiplicative steady state phase					
					Multiplicative mixture adaptation in ZAS mode is active ( Multiplicative mixture adaptation is active,	=	TRUE	-		
					which is the following conditions: ( Fraz operational readiness independent of	= >=	2	sec		
					the operating mode is active, which is the following conditions for time		-	333		
					Fundamental operating mode independent operation readiness of mixture adaption	=	TRUE	-		
					( ( Condition error suspicion in mixture adaptation	=	TRUE	-		
					( Coolant Engine Temperature	>=	Min(C, D)	deg C		
					where C - cut-in temperature adaptive precontrol for lambda closed-loop control	=	54.8	deg C		
					where D - cut-in temperature fuel mixture adaptation in case of error suspicion )	=	54.8	deg C		
					OR Coolant Engine Temperature	>=	54.8	dea C		
					) Basic willingness of fuel mixture adaptation, except engine temperature	=	TRUE	-		
					( Intake air temperature	<	90	deg C		

EDBIN	STDS: CALULEV125, F	MISSIONS S	E		YI	TC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDG
MILI	Time Required	s	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			FALSE	=	Conditiion of Wide Open Throttle					
		Nm	3276.7	<	( Propulsion torque after driving assistance coordination					
		-	FALSE	=	) Increased tolerances of air charge					
		-	0	<=	determination expected  Maximum proportion of evaporating fuel					
		_	15	<	from the engine oil to the fuel demand (model based) Ratio total charge to charge in cylinder					
		-	15	<	) (					
		-	1200	>=	Number of injections since start OR					
		-	1000	>=	Number of injections since start )					
		-	TRUE	=	FRAZ adaption physically enabled					
		%	3.99933 to 99.98932	>=	Torque commanded to charge control (see Look-Up-Table #P2E68-2)					
		%	0 to 30.00031	<=	Torque commanded to charge control (see Look-Up-Table #P2E68-1)					
		-	TRUE	=	) ) Operating mode dependent Readiness LRA					
			11102		(					
		-	TRUE	=	( Lambda closed loop control upstream					
		_	FALSE	_	catalyst, bank 1 ( Enleanment protection of lambda controller					
					(					
		-	FALSE	=	( Large deceleration enleanment protection of					
		%/seg	-10.0078	>=	lambda controller ( Relative fuel mass transient component					
		%/seg	-10.0078	>=	threshold for deceleration enleanment Relative fuel mass transient component					
					threshold for deceleration enleanment in bank 2					
		sec	0.5 to 1	>=	) for time (see Look-Up-Table #P2177-6)					
					OR (					
		-	FALSE	=	Large acceleration enrichment protection of lambda controller					
		%/seg	19.0078	<=	( Relative fuel mass transient componet threshold for acceleration enrichment					
		%/seg	19.0078	<=	Relative fuel mass transient componet threshold for acceleration enrichmen					
		sec	0.3 to 1	>=	) for time (see Look-Up-Table #P2177-5)					
		_	TRUE	_	) ) 					
		·		=	Upstream Lambda closed loop control for bank 1 (					
		-	FALSE	=	Lambda control disabled during after cylinder cut-off					
		-	TRUE FALSE	=	Lambda swtiched ON after fuel cutoff ( Fuel cut off is active					
		- sec	FALSE 8	= >	fuel cut off is active ( Time running down after fuel cut-off for					
			-	-	enabling lambda control OR					
		-	0.1001	<=	( Absolute value of diffence in lambda of bank					
		sec	0	>	Difference of counter time and plant time constant					
					a-(b+c) where a is Time running down after fuel					
					cut-off for enabling lambda control b is plant time constant for continuous air/fuel control					

BD GROUP: KGMXOBDG	607		DIAGNOSTIC TEST GROUP: KG	SUMMARY TABLES EC MXV04.2088	IVI			EMISSIONS	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	E	nable Conditio	ons	Time Required	MIL III
					c is plant parameter for dead time for lambda control					
					) ) LSU sensor upstream to catalyst ready for operation	=	TRUE	-		
					( Level of lambda sensor 1 signal quality	<=	12	_		
					) Lambda control disabled by a fault	=	FALSE	_		
					( Catalyst damaging misfire rate exceeded	=	FALSE	_		
					Injector power stage fault is active	=	FALSE	_		
					Camshaft fault in critical operating range present and MAF is main air charge sensor	=	FALSE	-		
					) lambda control is active since warmup is	=	TRUE	-		
					finished Relative air charge	>	0	%		
					for time )	>=	2	sec		
					Lamda control active due to GDI mode change	=	TRUE	-		
					( GDI mode homogeneous	=	TRUE	-		
					for time	>=	0.8	sec		
					) Lambda set point	>=	0.6499	-		
					Minimum injection time limitation for GDI mode is active	=	FALSE	-		
					Width of dead zone for lambda control deviation	<	0.999969	-		
					( Width of dead zone for lambda control deviation OR	<	0	-		
					Lambda control continuos error	>	0	-		
					) ) OR					
					(		TOUE	_		
					Unrestricted operation of Upstream closed loop lambda controller of bank 2 is active	=	TRUE	-		
					( Enleanment protection of lambda controller	=	FALSE	-		
					( ( Large deceleration enleanment protection of lambda controller	=	FALSE	-		
					( Relative fuel mass transient component	>=	-10.0078	%/seg		
					threshold for deceleration enleanment Relative fuel mass transient component	>=	-10.0078	%/seg		
					threshold for deceleration enleanment in bank 2					
					) for time (see Look-Up-Table #P2177-6)	<=	0.5 to 1	sec		
					) OR					
					( Large acceleration enrichment protection of	=	FALSE	-		
					lambda controller (					
					Relative fuel mass transient componet threshold for acceleration enrichment	<=	19.0078	%/seg		
					Relative fuel mass transient componet threshold for acceleration enrichmen	<=	19.0078	%/seg		
					) for time (see Look-Up-Table #P2177-5)	<=	0.3 to 1	sec		
					) ) Upstream Lambda closed loop control for bank 2	=	TRUE	-		
					( Lambda control disabled during after	=	FALSE	_		
					cylinder cut-off		TRUE			
					Lambda swtiched ON after fuel cutoff	=	INUE	-		

GROUP: KGMXOBDG07	7		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES ECI GMXV04.2088	IVI			EMISSIONS	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ns	Time Required	MIL IIIc
					Fuel cut off is active	-	FALSE			
					( Time running down after fuel cut-off for enabling lambda control OR	>	8	sec		
					( Absolute value of diffence in lambda of bank	<=	0.1001	-		
					2 Difference of counter time and plant time	>	0	sec		
					constant a-(b+c) where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant of bank 2 for continuous airfuel control c is plant parameter of bank 2 for dead time for lambda control					
					) LSU sensor upstream to catalyst ready for operation	=	TRUE	-		
					( Level of lambda sensor 1, bank 2 signal quality )	<=	12	-		
					Lambda control disabled by a fault	=	FALSE	-		
					Catalyst damaging misfire rate exceeded	=	FALSE	-		
					Injector power stage fault is active Camshaft fault in critical operating range present and MAF is main air charge sensor	=	FALSE FALSE	-		
					) lambda control is active since warmup is	=	TRUE	-		
					finished Relative air charge	>	0	%		
					( for time	>=	2	sec		
					) Lamda control active due to GDI mode change (	=	TRUE	-		
					GDI mode homogeneous for time )	= >=	TRUE 0.8	sec		
					) Lambda set point	>=	0.6499	-		
					Minimum injection time limitation for GDI mode of bank 2 is active Width of dead zone for Width of dead zone for lambda control deviation	= <	FALSE 0.999969	-		
					( Width of dead zone for lambda control deviation OR	=	0	-		
					Lambda control continuos error )	>	0	-		
					) for time )	>=	3	sec		
					( Difference between lambda value referenced to sensor fitting of bank 1 and bank 2	>=	0	-		
					Lambda set point	<	1.04004	-		
					Detection of fuel mixture adaption	=	TRUE	-		
					Lambda set point of bank 2	>	0.8999	-		
					OR Lambda set point of bank 2	>	0.95996	-		
					) for time	>=	Max(A,B)	sec		
					where A - delay time for lambda fuel adaption (rich condition)		0	sec		
					where B - delay time for lambda fuel adaption (lean condition)		0	sec		
					) Limitation due to fuel in oil is deactivated Limitation due to fuel in oil is deactivated for bank 2	=	TRUE TRUE	-		

EDBIN	STDS: CALULEV125, FE	MISSIONS				GMXV04.2088	TEST GROUP: K		0/	GROUP: KGMXOBDG
MIL	Time Required	s	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		-	TRUE	=	) Lambda closed loop control upstream catalyst, bank 1					
		-	0	>	) Multiplicative adaptation correction factor					
		_	see sheet inhibit	=	) ) ) No pending or confirmed DTCs					
		-	tables see sheet enable tables	=	Basic enable conditions met					
2	multiple		TRUE	-	LTFT Multiplicative mixture adaptation bank	> 1.230011 -	Multiplicative part of LTFT for bank 2 in ZAS	Multiplicative part of the Long Term Fuel Trim for Bank 2 in	P2E6A	Fuel Trim Bank 2
		-	TRUE	=	2 in ZAS operation mode is active ( LTFT multiplicative part Bank 2 Integrator is stable which is of the following conditions		mode	ZAS mode is greater than a calibrated threshold.		
					(					
		-	TRUE	=	Condition diagnostic thresholds of multiplicative correction in ZAS mode currently exceeded of bank 2 is stable					
		-	1.230011	>	( Multiplicative part of LTFT for bank 2 in ZAS mode					
		-	0.769989	<	OR Multiplicative part of LTFT for bank 2 in ZAS mode					
		-	TRUE	=	OR Similar conditions for multiplicative fuel adaptation fulfilled for bank 2					
		rpm	375	<=	( Difference between Measured and reference Engine speed, bank 2					
		rpm	375	<=	and Difference between reference and measured Engine speed, bank 2					
		-	20	<=	and Difference between measured load value to reference load, bank 2 and					
		-	20	<=	Difference between reference load value to measured load, bank 2					
		sec	10	>=	) and LTFT multiplicative part Bank 2 is stable, which is the following conditions for time					
		-	TRUE	=	( Condition diagnostic thresholds of multiplicative correction in ZAS mode currently exceeded of bank 2 is stable					
		-	1.999969	<=	( Absolute change of LTFT multiplicative part, Bank 2 )					
		-	0.029999	<=	OR Absolute change of LTFT multiplicative part, Bank 2					
		_	TRUE	=	) and ( Condition diagnostic thresholds of					
					multiplicative correction in ZAS mode currently exceeded of bank 2 is stable OR					
		-	0.049988	<=	Change in short term fuel trim, Bank 2 ) and					
		%	0.75	<=	Absolute difference between LTFT additive part, Bank 2 and its fixed value at beginning of multiplicative steady state phase					
		-	TRUE	=	and Multiplicative mixture adaptation in ZAS mode is active, bank 2					

OBD GROUP: KGMXOBDG	607		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM GMXV04.2088				EMISSION	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIum
					Multiplicative mixture adaptation is active, which is the following conditions:	=	TRUE	-		
					( Fraz operational readiness independent of the operating mode is active, which is the following conditions for time	>=	2	sec		
					( Fundamental operating mode independent operation readiness of mixture adaption	=	TRUE	-		
					( ( Condition error suspicion in mixture adaptation	=	TRUE	-		
					( Coolant Engine Temperature where C - cut-in temperature adaptive	>= =	Min(C, D) 54.8	deq C deg C		
					precontrol for lambda closed-loop control where D - cut-in temperature fuel mixture adaptation in case of error suspicion )	=	54.8	deg C		
					OR Coolant Engine Temperature ) and	>=	54.8	deg C		
					Basic willingness of fuel mixture adaptation, except engine temperature (	=	TRUE	-		
					Intake air temperature and	<	90	deg C		
					Conditiion of Wide Open Throttle (	=	FALSE	-		
					Propulsion torque after driving assistance coordination ) and	<	3276.7	Nm		
					Increased tolerances of air charge determination expected and	=	FALSE	-		
					Maximum proportion of evaporating fuel from the engine oil to the fuel demand (model based)	<=	0	-		
					and Ratio total charge to charge in cylinder ) and	<	15	-		
					( Number of injections since start	>=	1200	-		
					OR Number of injections since start )	>=	1000	-		
					and FRAZ adaption physically enabled (	=	TRUE	-		
					Torque commanded to charge control (see Look-Up-Table #P2E68-2)	>=	3.99933 to 99.98932	%		
					and Torque commanded to charge control (see Look-Up-Table #P2E68-1) )	<=	0 to 30.00031	%		
					) and Operating mode dependent Readiness LRA	=	TRUE	-		
					( ( Lambda closed loop control upstream catalyst, bank 1	=	TRUE	-		
					( Enleanment protection of lambda controller	=	FALSE	-		
					( ( Large deceleration enleanment protection of lambda controller	=	FALSE	-		
					( Relative fuel mass transient component	>=	-10.0078	%/seg		
					threshold for deceleration enleanment Relative fuel mass transient component threshold for deceleration enleanment in bank 2	>=	-10.0078	%/seg		
					) for time(see Look-Up-Table #P2177-6)	>=	0.5 to 1	sec		

FEDBIN	STDS: CALULEV125, I	EMISSIONS S				IC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K		607	GROUP: KGMXOBDG
MIL	Time Required	ons	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
					)					
			FALSE	=	OR ( Large acceleration enrichment protection of					
					lambda controller					
		%/seg %/seg	19.0078 19.0078	<=	Relative fuel mass transient componet threshold for acceleration enrichment Relative fuel mass transient componet					
		/a/seg	19.0076	ζ=	threshold for acceleration enrichmen					
		sec	0.3 to 1	>=	for time (see Look-Up-Table #P2177-5)					
		-	TRUE	=	) and Upstream Lambda closed loop control for bank 1					
		-	FALSE	=	( Lambda control disabled during after					
		_	TRUE	=	cylinder cut-off and Lambda swtiched ON after fuel cutoff					
		-	FALSE	=	( Fuel cut off is active					
					and (					
		sec	8	>	Time running down after fuel cut-off for enabling lambda control OR					
		-	0.1001	<=	Absolute value of diffence in lambda of bank					
		sec	0	>	and Difference of counter time and plant time					
					constant a-(b+c) where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous air/fuel control c is plant parameter for dead time for lambda control					
					) ) )					
		-	TRUE	=	and LSU sensor upstream to catalyst ready for operation					
		-	12	<=	Level of lambda sensor 1 signal quality )					
		-	FALSE	=	and Lambda control disabled by a fault					
		-	FALSE	=	( Catalyst damaging misfire rate exceeded					
		_	FALSE	=	and Injector power stage fault is active					
		-	FALSE	=	and Camshaft fault in critical operating range present and MAF is main air charge sensor					
		-	TRUE	=	) and lambda control is active since warmup is finished					
		%	0	>	and Relative air charge					
		sec	2	>=	for time )					
		-	TRUE	=	and Lamda control active due to GDI mode change					
		- sec	TRUE 0.8	= >=	( GDI mode homogeneous for time					
			3.0		)					
		-	0.6499	>=	and Lambda set point					
		-	FALSE	=	and Minimum injection time limitation for GDI mode is active and					

D GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	IVI			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ons	Time Required	MIL III
					Width of dead zone for lambda control deviation and	<	0.999969	-		
					( Width of dead zone for lambda control deviation	<	0	-		
					OR Lambda control continuos error )	>	0	-		
					OR ( Unrestricted operation of Upstream closed loop lambda controller of bank 2 is active	=	TRUE	-		
					( Enleanment protection of lambda controller	=	FALSE	-		
					( ( Large deceleration enleanment protection of lambda controller	=	FALSE	-		
					( Relative fuel mass transient component	>=	-10.0078	%/seg		
					threshold for deceleration enleanment Relative fuel mass transient component threshold for deceleration enleanment in bank 2	>=	-10.0078	%/seg		
					) for time(see Look-Up-Table #P2177-6) ) OR	<=	0.5 to 1	sec		
					( Large acceleration enrichment protection of lambda controller	=	FALSE	-		
					Relative fuel mass transient componet threshold for acceleration enrichment Relative fuel mass transient componet	<=	19.0078 19.0078	%/seg %/seg		
					threshold for acceleration enrichmen ) for time (see Look-Up-Table #P2177-5) )	<=	0.3 to 1	sec		
					) and Upstream Lambda closed loop control for bank 2	=	TRUE	-		
					( Lambda control disabled during after cylinder cut-off	=	FALSE	-		
					and Lambda swtiched ON after fuel cutoff (	=	TRUE	-		
					Fuel cut off is active and	=	FALSE	-		
					( Time running down after fuel cut-off for enabling lambda control OR	>	8	sec		
					( Absolute value of diffence in lambda of bank 2 and	<=	0.1001	-		
					Difference of counter time and plant time constant a-(b+c) where a is Time running down after fuel cut-off for enabling lambda control	>	0	sec		
					b is plant time constant of bank 2 for continuous air/fuel control c is plant parameter of bank 2 for dead time for lambda control )					
					) and LSU sensor upstream to catalyst ready for operation	=	TRUE	-		
					( Level of lambda sensor 1, bank 2 signal quality	<=	12	-		
					) and Lambda control disabled by a fault	_	FALSE			

BD GROUP: KGMXOBDG	)7		TEST GROUP: K	IC SUMMARY TABLES EG GMXV04.2088	- 1		EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditi	ons	Time Required	MIL IIIu
					( Catalyst damaging misfire rate exceeded	= FALSE	-		
					and Injector power stage fault is active	= FALSE	-		
					and Camshaft fault in critical operating range present and MAF is main air charge sensor	= FALSE	-		
					) and lambda control is active since warmup is finished	= TRUE	-		
					and Relative air charge for time	> 0 >= 2	% sec		
					) and Lamda control active due to GDI mode	= TRUE	-		
					change ( GDI mode homogeneous for time	= TRUE >= 0.8	- sec		
					) ) and	>= 0.6	Sec		
					Lambda set point and	>= 0.6499	-		
					Minimum injection time limitation for GDI mode of bank 2 is active and	= FALSE	-		
					Width of dead zone for Width of dead zone for lambda control deviation and	< 0.999969	-		
					( Width of dead zone for lambda control deviation	= 0	-		
					OR Lambda control continuos error )	> 0	-		
					for time ) and	>= 3	sec		
					( Difference between lambda value referenced to sensor fitting of bank 1 and bank 2	>= 0	-		
					and Lambda set point and	< 1.04004	-		
					( Detection of fuel mixture adaption	= TRUE	-		
					( Lambda set point of bank 2 )	> 0.8999	-		
					OR Lambda set point of bank 2 )	> 0.95996	-		
					for time where A - delay time for lambda fuel adaption (rich condition)	>= Max(A,B) 0	sec sec		
					where B - delay time for lambda fuel adaption (lean condition) )	0	sec		
					and Limitation due to fuel in oil is deactivated and	= TRUE	-		
					Limitation due to fuel in oil is deactivated for bank 2 )	= TRUE	-		
					and Lambda closed loop control upstream catalyst, bank 2	= TRUE	-		
					) Multiplicative adaptation correction factor, bank 2	> 0	-		
					) ) ) No pending or confirmed DTCs	= see sheet inhibit	_		
					no pending of committed DTCs	tables	-		

GROUP: KGMXOBDO	607		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM GMXV04.2088				EMISSION	IS STDS: CALULEV125, FED	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ns	Time Required	MIL IIIum.
Fuel Trim Bank 2	P2E6B	Multiplicative part of the Long Term Fuel Trim for Bank 2 in ZAS mode is less than a calibrated threshold.	Multiplicative part of LTFT for bank 2 in ZAS mode	< 0.769989 -	LTFT Multiplicative mixture adaptation bank 2 in ZAS operation mode is active	=	TRUE	-	multiple	2 Trips
					( LTFT multiplicative part Bank 2 Integrator is stable which is of the following conditions	=	TRUE	-		
					( ( Condition diagnostic thresholds of multiplicative correction in ZAS mode currently exceeded of bank 2 is stable	=	TRUE	-		
					( Multiplicative part of LTFT for bank 2 in ZAS mode	>	1.230011	-		
					OR Multiplicative part of LTFT for bank 2 in ZAS mode	<	0.769989	-		
					OR Similar conditions for multiplicative fuel adaptation fulfilled for bank 2	=	TRUE	-		
					Difference between Measured and reference Engine speed, bank 2	<=	375	rpm		
					and Difference between reference and measured Engine speed, bank 2	<=	375	rpm		
					and Difference between measured load value to reference load, bank 2 and	<=	20	-		
					and Difference between reference load value to measured load, bank 2 )	<=	20	-		
					) and LTFT multiplicative part Bank 2 is stable, which is the following conditions for time (	>=	10	sec		
					( Condition diagnostic thresholds of multiplicative correction in ZAS mode currently exceeded of bank 2 is stable	=	TRUE	-		
					( Absolute change of LTFT multiplicative part, Bank 2 )	<=	1.999969	-		
					OR Absolute change of LTFT multiplicative part, Bank 2	<=	0.029999	-		
					and					
					Condition diagnostic thresholds of multiplicative correction in ZAS mode currently exceeded of bank 2 is stable	=	TRUE	-		
					OR Change in short term fuel trim, Bank 2 )	<=	0.049988	-		
					and Absolute difference between LTFT additive part, Bank 2 and its fixed value at beginning of multiplicative steady state phase	<=	0.75	%		
					and Multiplicative mixture adaptation in ZAS mode is active, bank 2 (	=	TRUE	-		
					Multiplicative mixture adaptation is active, which is the following conditions:	=	TRUE	-		
					Fraz operational readiness independent of the operating mode is active, which is the following conditions for time	>=	2	sec		
					( Fundamental operating mode independent operation readiness of mixture adaption	=	TRUE	-		
					(					

FEDBIN1	S STDS: CALULEV125, F	EMISSIONS				GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDG
MIL I	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			TRUE	=	Condition error suspicion in mixture adaptation					
		deg C deg C	Min(C, D) 54.8	>=	( Coolant Engine Temperature where C - cut-in temperature adaptive					
		deg C	54.8	=	precontrol for lambda closed-loop control where D - cut-in temperature fuel mixture adaptation in case of error suspicion					
		deg C	54.8	>=	OR Coolant Engine Temperature					
		-	TRUE	=	and Basic willingness of fuel mixture adaptation, except engine temperature					
		deg C	90	<	( Intake air temperature					
		-	FALSE	=	and Conditiion of Wide Open Throttle					
		Nm	3276.7	<	Propulsion torque after driving assistance coordination					
		-	FALSE	=	and Increased tolerances of air charge determination expected					
		-	0	<=	and Maximum proportion of evaporating fuel from the engine oil to the fuel demand (model based)					
		-	15	<	and Ratio total charge to charge in cylinder )					
					and (					
		-	1200	>=	Number of injections since start OR					
		-	1000	>=	Number of injections since start ) )					
		-	TRUE	=	and FRAZ adaption physically enabled					
		%	3.99933 to 99.98932	>=	Torque commanded to charge control (see Look-Up-Table #P2E68-2) and					
		%	0 to 30.00031	<=	Torque commanded to charge control (see Look-Up-Table #P2E68-1)					
		-	TRUE	=	) and Operating mode dependent Readiness LRA					
		-	TRUE	=	( Lambda closed loop control upstream catalyst, bank 1					
		-	FALSE	=	Enleanment protection of lambda controller					
		-	FALSE	=	( Large deceleration enleanment protection of lambda controller					
		%/seg	-10.0078	>=	Relative fuel mass transient component threshold for deceleration enleanment					
		%/seg	-10.0078	>=	threshold for deceleration enleanment Relative fuel mass transient component threshold for deceleration enleanment in bank 2					
		sec	0.5 to 1	>=	) for time(see Look-Up-Table #P2177-6) )					
		-	FALSE	=	OR ( Large acceleration enrichment protection of lambda controller					
		%/seg	19.0078	<=	lambda controller ( Relative fuel mass transient componet					
		%/seg	19.0078	<= <=	threshold for acceleration enrichment Relative fuel mass transient componet					
		,woog	10.0010		threshold for acceleration enrichmen					

FEDBIN'	S STDS: CALULEV125, F	MISSIONS S			'	IC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K		7	BD GROUP: KGMXOBDG
MIL II	Time Required	IS	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
					)					
		-	TRUE	=	and Upstream Lambda closed loop control for bank 1					
		-	FALSE	=	( Lambda control disabled during after cylinder cut-off					
		-	TRUE	=	and Lambda swtiched ON after fuel cutoff					
		-	FALSE	=	Fuel cut off is active and					
		sec	8	>	( Time running down after fuel cut-off for enabling lambda control OR					
		-	0.1001	<=	( Absolute value of diffence in lambda of bank 1					
		sec	0	>	and Difference of counter time and plant time constant a-(b+c)					
					where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous air/fuel control					
					c is plant parameter for dead time for lambda control )					
		-	TRUE	=	) and LSU sensor upstream to catalyst ready for operation					
		-	12	<=	( Level of lambda sensor 1 signal quality					
		-	FALSE	=	and Lambda control disabled by a fault					
		-	FALSE	=	( Catalyst damaging misfire rate exceeded					
		-	FALSE	=	and Injector power stage fault is active					
		-	FALSE	=	and Camshaft fault in critical operating range present and MAF is main air charge sensor					
		-	TRUE	=	) and lambda control is active since warmup is finished					
		% sec	0 2	>=	and Relative air charge for time					
		-	TRUE	=	and Lamda control active due to GDI mode change					
		- sec	TRUE 0.8	= >=	( GDI mode homogeneous for time )					
		-	0.6499	>=	) and Lambda set point					
			FALSE	=	and Minimum injection time limitation for GDI mode is active					
		-	0.999969	<	and Width of dead zone for lambda control deviation and					
		-	0	<	( Width of dead zone for lambda control deviation					
		-	0	>	OR Lambda control continuos error					
					) OR				1 1	

Ornational quereants of instance and instanc	GROUP: KGMXOBDG	07		TEST GROUP: KG	MXV04.2088				EMISSIONS S	STDS: CALULEV125, F	EDBIN1
Comparison of the process of the p	Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ens	Time Required	MIL III
						Unrestricted operation of Upstream closed loop lambda controller of bank 2 is active	=	TRUE			
Each concentrate on extraction of the contract						(	_	FALSE	_		
In the contract of the contrac						(					
Standard St. Management and contractions of the standard St. Management and the standard St. M							=	FALSE	-		
missis for the missis consequence of the missis of the mis						Relative fuel mass transient component	>=	-10.0078	%/seg		
comments of the control of production of the control of the contro						Relative fuel mass transient component threshold for deceleration enleanment in	>=	-10.0078	%/seg		
supple accentation contributed protection of symbols composed.  Status of last must increased composed.  Status of last must increased composed.  Status of last must increase composed.  Status of last must						)	<=	0.5 to 1	sec		
Season and extending translated for continuous temporal production of the continuous temporal production for continuous temporal production of the						OR (					
the standard of the acceleration contributions of the contribution						Large acceleration enrichment protection of lambda controller	=	FALSE	-		
Relation to the mass transmiss transmiss. The contract of the contract							<=	19.0078	%/seg		
and Uppreasan Lambda closed loop corrent for Uppreasan Lambda closed loop corrent for Uppreasan Lambda closed loop corrent for Uppreasan Lambda closed loop correct for Uppreasan Lambda loop correct for Uppreasan Lamb						Relative fuel mass transient componet	<=	19.0078	%/seg		
Lipstream Laminda doctode loop control for bank 2  Lambda control disabled during after cycletic curval?  Lambda servicind ON after fuel cutoff = FALSE - cycletic curval?  Lambda servicind ON after fuel cutoff = FALSE - cycletic cutoff for the service of cutoff for cycletic cutoff for						for time (see Look-Up-Table #P2177-5)	<=	0.3 to 1	sec		
Collection of the control of the collection of t						Upstream Lambda closed loop control for	=	TRUE	-		
Lamida switched ON affect fuel cut-off for grade and fuel cut-off for grade fuel cut-off fu						cylinder cut-off	=	FALSE	-		
and Time numming down after fuel cut-off for enable turnded control QR  Absolute value of diffence in lambda or bank 2 and Differences of counter time and plant time Differences of the counter time and plant time Differences of the counter time and plant time Differences of the counter time Differences of time and Differences of the counter time Differences of the counter time Differences of time and Differences of the counter time Differences of time and Differences of the counter time Differences of time and Differences of the counter time Differences of time and Differences of the counter time Differences of time and Differences of time and Differences of the Counter time Differences of time and Diffe						and Lambda swtiched ON after fuel cutoff	=	TRUE	-		
emahine lambda control  OR  Absolute value of difference in ismbda of bank and  Difference of counter time and plant time constant and and  Difference of counter time and plant time constant and and cut-off or making lambda control b is plant time constant and the cut-off or making lambda control b is plant time constant of bank 2 for construous adhust control c is plant parameter of bank 2 for dead time for lambda control  I and LSU sensor upstream to catalyst ready for construous cut-off or making lambda sensor 1, bank 2 signal quality and and Lambda control disabled by a fault Catalyst danaging misfire rate exceeded and and liceutor power stage fault is active constant and and selector power stage fault is active constant and and selector power stage fault is active constant and and selector power stage fault is active constant and and selector power stage fault is active constant and and selector power stage fault is active constant and and and control disabled by a fault control power stage fault is active constant and and control disabled by a fault control power stage fault is active constant and and control disabled by a fault control power stage fault is active constant and control disabled by a fault control power stage fault is active constant and control disabled by a fault control power stage fault is active constant and control disabled by a fault control power stage fault is active constant and control power stage fault						Fuel cut off is active and	=	FALSE	-		
2 and Difference of counter time and plant time constant A-the-s A-the						enabling lambda control	>	8	sec		
Difference of counter time and plant time constant  8-(b+c) where a Time numing down after fuel where a Time numing down after fuel and a time constant of bank 2 for continuous airfuel control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 signal						2	<=	0.1001	-		
where a is Time running down after fuel cut-off for enabhing lambda control b is plant time constant of bank 2 for continuous airfuel control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 for dead time for lambda control c is plant parameter of bank 2 for dead time for lambda control disabled by a fault						Difference of counter time and plant time constant	>	0	sec		
c is plant parameter of bank 2 for dead time for lambda control ) ) ) ) and LSU sensor upstream to catalyst ready for operation ( Level of lambda sensor 1, bank 2 signal quality ) and Lambda control disabled by a fault = FALSE - ( Catalyst damaging misfire rate exceeded = FALSE - and lniector power stage fault is active = FALSE - and Camshaff fault in critical operating range = FALSE -						where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant of bank 2 for					
LSU sensor upstream to catalyst ready for operation  (						c is plant parameter of bank 2 for dead time					
Level of lambda sensor 1, bank 2 signal <= 12 - quality   ) and						LSU sensor upstream to catalyst ready for	=	TRUE	-		
) and Lambda control disabled by a fault = FALSE -  ( Catalyst damaging misfire rate exceeded = FALSE -  and Injector power stage fault is active = FALSE -  and Camshaft fault in critical operating range = FALSE -						( Level of lambda sensor 1, bank 2 signal	<=	12			
( Catalyst damaging misfire rate exceeded = FALSE -  and Injector power stage fault is active = FALSE -  and Camshaft fault in critical operating range = FALSE -						) and					
and Injector power stage fault is active = FALSE - and Camshaft fault in critical operating range = FALSE -						(					
and Camshaft fault in critical operating range = FALSE -						and					
						and					

OBD GROUP: KGMXOBDG	07		DIAGNOS <sup>*</sup> TEST GROUP: 1	FIC SUMMARY TABLES ECM (GMXV04.2088			E	MISSION	NS STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions	•	Time Required	MIL IIIum.
					lambda control is active since warmup is finished and Relative air charge	= >	TRUE 0	- %		
					for time ) and Lamda control active due to GDI mode	>=	2 TRUE	sec		
					change ( GDI mode homogeneous for time	= >=	TRUE 0.8	- sec		
					) ) and Lambda set point	>=	0.6499	-		
					and Minimum injection time limitation for GDI mode of bank 2 is active and	=	FALSE	-		
					Width of dead zone for Width of dead zone for lambda control deviation and	<	0.999969	-		
					Width of dead zone for lambda control deviation OR Lambda control continuos error	= >	0	-		
					for time	>=	3	sec		
					and ( Difference between lambda value referenced to sensor fitting of bank 1 and bank 2	>=	0	-		
					and Lambda set point and	<	1.04004	-		
					Detection of fuel mixture adaption ( Lambda set point of bank 2	= >	TRUE 0.8999	-		
					OR Lambda set point of bank 2	>	0.95996	-		
					for time where A - delay time for lambda fuel adaption (rich condition) where B - delay time for lambda fuel adaption (lean condition)	>=	Max(A,B) 0	sec sec		
					) and Limitation due to fuel in oil is deactivated and Limitation due to fuel in oil is deactivated for bank 2	=	TRUE TRUE			
					banta 2 ) and Lambda closed loop control upstream catalyst, bank 2	=	TRUE	-		
					Multiplicative adaptation correction factor, bank 2	>	0	-		
					) ) No pending or confirmed DTCs Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-		
Fuel Trim Bank 1	P2187	Additive part of the Long Term Fuel Trim for Bank 1 in gasoline mode is greater than a calibrated threshold	Additive part of LTFT, Bank 1	> 5.484 %	LTFT Additive mixture adaptation bank 1 is active	=	TRUE	-	multiple	2 Trips
					( LTFT multiplicative part Bank 1 Integrator is stable which is of the following conditions	=	TRUE	-		

BD GROUP: KGMXOBDO	507		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECN GMXV04.2088	М			EMISSIONS	STDS: CALULEV125, FI	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL IIIur
					Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 1 is stable	=	TRUE	-		
					( Multiplicative part of LTFT for bank 1 OR	>	1.230011	-		
					Multiplicative part of LTFT for bank 1	<	0.769989	-		
					OR Similar conditions for multiplicative fuel adaptation fulfilled	=	TRUE	-		
					( Difference between Measured and reference Engine speed	<=	375	rpm		
					and Difference between reference and measured Engine speed	<=	375	rpm		
					and Difference between measured load value to reference load	<=	20	-		
					and Difference between reference load value to measured load )	<=	20	-		
					) and LTFT multiplicative part Bank 1 is stable, which is the following conditions for time (	>=	10	sec		
					( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 1 is stable	=	TRUE	-		
					( Absolute change of LTFT multiplicative part, Bank 1	<=	1.999969	-		
					OR Absolute change of LTFT multiplicative part, Bank 1	<=	0.029999	-		
					and ( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 1 is stable	=	TRUE	-		
					OR Change in short term fuel trim, Bank 1	<=	0.049988	-		
					and Absolute difference between LTFT additive part, Bank 1 and its fixed value at beginning of multiplicative steady state phase	<=	0.75	%		
					and Multiplicative mixture adaptation is active (	=	TRUE	-		
					( Multiplicative mixture adaptation is active, which is the following conditions:	=	TRUE	-		
					( Fra operational readiness independent of the operating mode is active, which is the following conditions for time	>=	2	sec		
					( Fundamental operating mode independent operation readiness of mixture adaption	=	TRUE	-		
					( ( Condition error suspicion in mixture adaptation	=	TRUE	-		
					( Coolant Engine Temperature where C - cut-in temperature adaptive precontrol for lambda closed-loop control	>= =	Min(C, D) 54.8	deg C deg C		
					where D - cut-in temperature fuel mixture adaptation in case of error suspicion )	=	54.8	deg C		
					OR Coolant Engine Temperature	>=	54.8	deg C		
			1		) and					

D GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES E SMXV04.2088	CIVI			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIc
					Basic willingness of fuel mixture adaptation, except engine temperature	=	TRUE	-		
					( Intake air temperature	<	90	deg C		
					and Condition of Wide Open Throttle	=	FALSE	-		
					( Propulsion torque after driving assistance	<	3276.7	Nm		
					coordination					
					and Increased tolerances of air charge determination expected	=	FALSE	-		
					and Maximum proportion of evaporating fuel from the engine oil to the fuel demand (model based)	<=	0	-		
					and Ratio total charge to charge in cylinder	<	15	-		
					) and					
					( Number of injections since start	>=	1200	-		
					OR Number of injections since start	>=	1000	-		
					and FRA adaption physically enabled	=	TRUE	-		
					Torque commanded to charge control (see Look-Up-Table #P2177-2) and	>=	8.00018 to 99.98932	%		
					Torque commanded to charge control (see Look-Up-Table #P2177-1)	<=	0 to 44.99969	%		
					) and Operating mode dependent Readiness LRA	=	TRUE	-		
					( ( Lambda closed loop control upstream catalyst, bank 1	=	TRUE	-		
					( Enleanment protection of lambda controller	=	FALSE	-		
					( ( Large deceleration enleanment protection of lambda controller	=	FALSE	-		
					Relative fuel mass transient component threshold for deceleration enleanment	>=	-10.0078	%/seg		
					Relative fuel mass transient component threshold for deceleration enleanment in bank 2	>=	-10.0078	%/seg		
					) for time (see Look-Up-Table #P2177-6) ) OR	>=	0.5 to 1	sec		
					( Large acceleration enrichment protection of lambda controller	=	FALSE	-		
					( Relative fuel mass transient componet	<=	19.0078	%/seg		
					threshold for acceleration enrichment Relative fuel mass transient componet	<=	19.0078	%/seg		
					threshold for acceleration enrichmen ) for time (see Leek Lin Table #P2477.5)		0.2 to 1			
					for time (see Look-Up-Table #P2177-5) )	>=	0.3 to 1	sec		
					and Upstream Lambda closed loop control for bank 1	=	TRUE	-		
					( Lambda control disabled during after cylinder cut-off	=	FALSE	-		
					and Lambda swtiched ON after fuel cutoff	=	TRUE	-		
					( Fuel cut off is active and	=	FALSE			

BD GROUP: KGMXOBDG	)7		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES EC GMXV04.2088	M			EMISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enab	le Condition	ns	Time Required	MIL IIIur
					( Time running down after fuel cut-off for enabling lambda control	>	8	sec		
					( Absolute value of diffence in lambda of bank	<= (	0.1001	-		
					and Difference of counter time and plant time constant a-(b+c) where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous air/fuel control c is plant parameter for dead time for lambda control )	>	0	sec		
					) ) and LSU sensor upstream to catalyst ready for operation	=	TRUE	-		
					( Level of lambda sensor 1 signal quality )	<=	12	-		
					and Lambda control disabled by a fault (	= F	ALSE	-		
					Catalyst damaging misfire rate exceeded	= F	FALSE	-		
					and Injector power stage fault is active and	= f	FALSE	-		
					Camshaft fault in critical operating range present and MAF is main air charge sensor	= f	FALSE	-		
					) and lambda control is active since warmup is finished	=	TRUE	-		
					and Relative air charge for time	> >=	0 2	% sec		
					)) and Lamda control active due to GDI mode change	=	TRUE	-		
					( GDI mode homogeneous for time )		TRUE 0.8	- sec		
					and Lambda set point	>= (	0.6499	-		
					and Minimum injection time limitation for GDI mode is active	= F	FALSE	-		
					and Width of dead zone for lambda control deviation and	< 0.	999969	-		
					( Width of dead zone for lambda control deviation	<	0	-		
					OR Lambda control continuos error )	>	0	-		
					) OR ( Unrestricted operation of Upstream closed loop lambda controller of bank 2 is active	=	TRUE	-		
					( Enleanment protection of lambda controller	= f	FALSE	-		
					( ( Large deceleration enleanment protection of lambda controller	= f	FALSE	-		
					( Relative fuel mass transient component threshold for deceleration enleanment	>= -1	0.0078	%/seg		

FEDBIN	STDS: CALULEV125, F	EMISSIONS S				GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDG
MIL	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		%/seg	-10.0078	>=	Relative fuel mass transient component threshold for deceleration enleanment in bank 2					
		sec	0.5 to 1	<=	) for time (see Look-Up-Table #P2177-6) )					
		-	FALSE	=	( Large acceleration enrichment protection of lambda controller					
		%/seg	19.0078	<=	( Relative fuel mass transient componet					
		%/seg	19.0078	<=	threshold for acceleration enrichment Relative fuel mass transient componet threshold for acceleration enrichmen					
		sec	0.3 to 1	<=	) for time (see Look-Up-Table #P2177-5) )					
		-	TRUE	=	and Upstream Lambda closed loop control for bank 2					
		-	FALSE	=	( Lambda control disabled during after cylinder cut-off					
		-	TRUE	-	and Lambda swtiched ON after fuel cutoff					
		-	FALSE	=	( Fuel cut off is active and					
		sec	8	>	( Time running down after fuel cut−off for enabling lambda control OR					
		-	0.1001	<=	( Absolute value of diffence in lambda of bank 2					
		sec	0	>	and Difference of counter time and plant time constant a-(b+c) where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant of bank 2 for continuous air/fuel control c is plant parameter of bank 2 for dead time for lambda control					
		-	TRUE	=	and LSU sensor upstream to catalyst ready for operation					
		-	12	<=	( Level of lambda sensor 1, bank 2 signal quality					
		-	FALSE	=	and Lambda control disabled by a fault					
			FALSE	=	( Catalyst damaging misfire rate exceeded					
					and					
		-	FALSE	=	Injector power stage fault is active and					
		-	FALSE	=	Camshaft fault in critical operating range present and MAF is main air charge sensor					
		-	TRUE	=	) and lambda control is active since warmup is finished					
		%	0	>	and Relative air charge					
		sec -	2 TRUE	>=	for time ) and Lamda control active due to GDI mode					
			TRUE	_	change ( GDI mode homogeoccus					
		sec	0.8	= >=	GDI mode homogeneous for time				1	

FEDBIN	STDS: CALULEV125, F	EMISSIONS S				GMXV04.2088	TEST GROUP: K		7	GROUP: KGMXOBDG
MIL	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		-	0.6499	>=	and Lambda set point					
		-	FALSE	=	and Minimum injection time limitation for GDI mode of bank 2 is active					
		-	0.999969	<	and Width of dead zone for Width of dead zone for lambda control deviation and					
		-	0	=	( Width of dead zone for lambda control deviation					
		-	0	>	OR Lambda control continuos error )					
		sec	3	>=	) for time )					
		_	0	>=	and ( Difference between lambda value referenced					
			Ü	~-	to sensor fitting of bank 1 and bank 2					
		-	1.04004	<	and Lambda set point and					
		-	TRUE	=	( Detection of fuel mixture adaption					
		-	0.8999	>	Lambda set point of bank 2					
		-	0.95996	>	OR Lambda set point of bank 2					
		sec sec	Max(A,B) 0	>=	for time where A - delay time for lambda fuel					
		sec	0		adaption (rich condition) where B - delay time for lambda fuel adaption (lean condition)					
		-	TRUE	=	) and Limitation due to fuel in oil is deactivated					
		-	TRUE	=	and Limitation due to fuel in oil is deactivated for bank 2					
					and					
		- sec	TRUE 10	= >=	( Half Engine mode is deactivated for time					
					)					
		-	TRUE	=	and Lambda closed loop control upstream catalyst, bank 1					
		-	0	>	) Multiplicative adaptation correction factor, bank 1					
					)					
		-	TRUE	=	and ( LTFT additive part Bank 1 Integrator is					
					stable which is of the following conditions ( (					
		-	TRUE	=	Condition diagnostic thresholds of additive correction currently exceeded of bank 1 is stable					
		%	5.484	>	( Additive part of LTFT for bank 1 OR					
		%	-5.484	<	Additive part of LTFT for bank 1 ) OR					
		-	TRUE	=	OR Similar conditions for additive fuel adaptation fulfilled					
		rpm	375	<=	( Difference between Measured and reference Engine speed					
		rpm	375	<=	and Difference between reference and measured				1	

OBD GROUP: KGMXOBDG	07		DIAGNOS TEST GROUP:	TIC SUMMARY TABLES ECI KGMXV04.2088	М			MISSION	S STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	Time Required	MIL IIIum
					Difference between measured load value to reference load and Difference between reference load value to measured load	<= <=	20 20	-		
					) and LTFT additive part Bank 1 is stable, which is the following conditions for time (	>=	10	sec		
					( Condition diagnostic thresholds of additive correction currently exceeded of bank 1 is stable	=	TRUE	-		
					( Absolute change of LTFT additive part, Bank 1	<=	0.188	%		
					OR Absolute change of LTFT additive part, Bank 1	<=	0.188	%		
					and ( Condition diagnostic thresholds of additive correction currently exceeded of bank 1 is stable	=	TRUE	-		
					OR Change in short term fuel trim, Bank 1 )	<=	0.049988	-		
					and Absolute difference between LTFT multiplicative part, Bank 1 and its fixed value at beginning of additive steady state phase	<=	0.049988	%		
					and Additive mixture adaptation is active (	=	TRUE	-		
					( Additive mixture adaptation is active, which is the following conditions:	=	TRUE	-		
					( Ora operational readiness independent of the operating mode is active, which is the following conditions for time	>=	0	sec		
					( Fundamental operating mode independent operation readiness of mixture adaption	=	TRUE	-		
					and ORA adaption physically enabled	=	TRUE	-		
					Torque commanded to charge control (see Look-Up-Table #P2187-2)	>=	3.99933 to 99.98932	%		
					and Torque commanded to charge control (see Look-Up-Table #P2187-1) )	<=	0 to 14.99939	%		
					) and Operating mode dependent Readiness LRA	=	TRUE	-		
					) and Lambda closed loop control upstream catalyst, bank 1	=	TRUE	-		
					) and Additive adaptation correction factor, bank 1	>	0	-		
					) ) No pending or confirmed DTCs	=	see sheet inhibit	-		
					Basic enable conditions met	=	tables see sheet enable tables	-		
Fuel Trim Bank 1	P2188	Additive part of the Long Term Fuel Trim for Bank 1 in gasoline mode is less than a calibrated threshold	Additive part of LTFT, Bank 1	< -5.484 %	LTFT Additive mixture adaptation bank 1 is active	=	TRUE	-	multiple	2 Trips

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	IVI		EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Cond	itions	Time Required	MIL IIIu
					LTFT multiplicative part Bank 1 Integrator is stable which is of the following conditions	= TRUE			
					( ( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 1 is stable	= TRUE			
					( Multiplicative part of LTFT for bank 1	> 1.230011	-		
					OR Multiplicative part of LTFT for bank 1	< 0.769989	-		
					) OR Similar conditions for multiplicative fuel adaptation fulfilled	= TRUE	-		
					( Difference between Measured and reference Engine speed	<= 375	rpm		
					and Difference between reference and measured Engine speed	<= 375	rpm		
					and Difference between measured load value to reference load	<= 20	-		
					and Difference between reference load value to measured load )	<= 20	-		
					) and LTFT multiplicative part Bank 1 is stable, which is the following conditions for time	>= 10	sec		
					( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 1 is stable	= TRUE	-		
					( Absolute change of LTFT multiplicative part, Bank 1	<= 1.999969	-		
					) OR Absolute change of LTFT multiplicative part, Bank 1	<= 0.029999	-		
					) and				
					( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 1 is stable	= TRUE	-		
					OR Change in short term fuel trim, Bank 1 )	<= 0.049988	-		
					and Absolute difference between LTFT additive part, Bank 1 and its fixed value at beginning of multiplicative steady state phase	<= 0.75	%		
					and Multiplicative mixture adaptation is active	= TRUE	-		
					( Multiplicative mixture adaptation is active, which is the following conditions:	= TRUE	-		
					( Fra operational readiness independent of the operating mode is active, which is the following conditions for time	>= 2	sec		
					( Fundamental operating mode independent operation readiness of mixture adaption	= TRUE			
					( ( Condition error suspicion in mixture adaptation	= TRUE	-		
					( Coolant Engine Temperature where C - cut-in temperature adaptive	>= Min(C, D) = 54.8	deq C deg C		
					precontrol for lambda closed-loop control where D - cut-in temperature fuel mixture adaptation in case of error suspicion	= 54.8	deg C		

FEDBIN	STDS: CALULEV125, F	EMISSIONS S				GMXV04.2088	TEST GROUP: K		607	GROUP: KGMXOBDG
MIL	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		deg C	54.8	>=	OR Coolant Engine Temperature					
		-	TRUE	=	and Basic willingness of fuel mixture adaptation, except engine temperature					
		deg C	90	<	( Intake air temperature					
		-	FALSE	=	and Conditiion of Wide Open Throttle					
		Nm	3276.7	<	Propulsion torque after driving assistance coordination					
		-	FALSE	=	and Increased tolerances of air charge determination expected					
		-	0	<=	and Maximum proportion of evaporating fuel from the engine oil to the fuel demand (model based)					
		-	15	<	and Ratio total charge to charge in cylinder					
					) and					
		-	1200	>=	( Number of injections since start					
		-	1000	>=	OR Number of injections since start					
					)					
		-	TRUE	=	and FRA adaption physically enabled					
		%	8.00018 to 99.98932	>=	Torque commanded to charge control (see Look-Up-Table #P2177-2) and					
		%	0 to 44.99969	<=	Torque commanded to charge control (see Look-Up-Table #P2177-1)					
		-	TRUE	=	) and Operating mode dependent Readiness LRA					
		-	TRUE	=	( ( Lambda closed loop control upstream catalyst, bank 1					
		-	FALSE	=	( Enleanment protection of lambda controller					
			FALSE	=	( ( Large deceleration enleanment protection of lambda controller					
		%/seg	-10.0078	>=	( Relative fuel mass transient component					
		%/seg	-10.0078	>=	threshold for deceleration enleanment Relative fuel mass transient component threshold for deceleration enleanment in bank 2					
		sec	0.5 to 1	>=	) for time (see Look-Up-Table #P2177-6) )					
		-	FALSE	=	OR ( Large acceleration enrichment protection of lambda controller					
		%/seg	19.0078	<=	( Relative fuel mass transient componet					
		%/seg	19.0078	<=	threshold for acceleration enrichment Relative fuel mass transient componet threshold for acceleration enrichmen					
		sec	0.3 to 1	>=	) for time (see Look-Up-Table #P2177-5)					
		-	TRUE	=	) and Upstream Lambda closed loop control for bank 1					
		-	FALSE	=	( Lambda control disabled during after					

FEDBIN	STDS: CALULEV125, F	MISSIONS S				GMXV04.2088	TEST GROUP: K		7	BD GROUP: KGMXOBDGO
MIL	Time Required	s	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		-	TRUE	-	Lambda swtiched ON after fuel cutoff					
		-	FALSE	=	( Fuel cut off is active and					
		sec	8	>	( Time running down after fuel cut-off for enabling lambda control OR					
		-	0.1001	<=	( Absolute value of diffence in lambda of bank					
		sec	0	>	and Difference of counter time and plant time constant a-(b+c)					
					where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous air/fuel control c is plant parameter for dead time for lambda					
					control ) )					
			TRUE	=	and LSU sensor upstream to catalyst ready for operation					
		-	12	<=	( Level of lambda sensor 1 signal quality )					
		-	FALSE	=	and Lambda control disabled by a fault					
		-	FALSE	=	Catalyst damaging misfire rate exceeded					
		-	FALSE	=	and Injector power stage fault is active					
		-	FALSE	=	and Camshaft fault in critical operating range present and MAF is main air charge sensor					
		-	TRUE	=	) and lambda control is active since warmup is finished					
		% sec	0 2	>=	and Relative air charge for time					
		-	TRUE	=	and Lamda control active due to GDI mode change					
		- sec	TRUE 0.8	= >=	( GDI mode homogeneous for time					
		-	0.6499	>=	) ) and Lambda set point					
		-	FALSE	=	and Minimum injection time limitation for GDI mode is active					
		-	0.999969	<	and Width of dead zone for lambda control deviation					
		-	0	<	and ( Width of dead zone for lambda control deviation					
		-	0	>	OR  Lambda control continuos error					
					) OR					
		-	TRUE	=	( Unrestricted operation of Upstream closed loop lambda controller of bank 2 is active					
		-	FALSE	=	( Enleanment protection of lambda controller					

BD GROUP: KGMXOBDG	607		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECM GMXV04.2088				EMISSION	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL IIIum
					Large deceleration enleanment protection of lambda controller	=	FALSE			
					( Relative fuel mass transient component	>=	-10.0078	%/seg		
					threshold for deceleration enleanment Relative fuel mass transient component	>=	-10.0078	%/seg		
					threshold for deceleration enleanment in bank 2					
					for time (see Look-Up-Table #P2177-6)	<=	0.5 to 1	sec		
					OR (					
					Large acceleration enrichment protection of lambda controller	=	FALSE	-		
					Relative fuel mass transient componet threshold for acceleration enrichment	<=	19.0078	%/seg		
					Relative fuel mass transient componet threshold for acceleration enrichmen	<=	19.0078	%/seg		
					) for time (see Look-Up-Table #P2177-5)	<=	0.3 to 1	sec		
					) )					
					and Upstream Lambda closed loop control for bank 2	=	TRUE	-		
					( Lambda control disabled during after cylinder cut-off	=	FALSE	-		
					and Lambda swtiched ON after fuel cutoff	=	TRUE	-		
					( Fuel cut off is active	=	FALSE	-		
					and ( Time running down after fuel cut-off for	>	8	sec		
					enabling lambda control OR		٥	sec		
					( Absolute value of diffence in lambda of bank	<=	0.1001	-		
					2 and Difference of counter time and plant time	>	0	sec		
					constant a-(b+c)					
					where a is Time running down after fuel cut-off for enabling lambda control					
					b is plant time constant of bank 2 for continuous air/fuel control c is plant parameter of bank 2 for dead time					
					c is plant parameter of bank 2 for dead time for lambda control )					
					) )					
					and LSU sensor upstream to catalyst ready for operation	=	TRUE	-		
					( Level of lambda sensor 1, bank 2 signal	<=	12	-		
					quality )					
					and Lambda control disabled by a fault	=	FALSE	-		
					Catalyst damaging misfire rate exceeded	=	FALSE	-		
					and Injector power stage fault is active	=	FALSE	-		
					and Camshaft fault in critical operating range	=	FALSE	-		
					present and MAF is main air charge sensor					
					) and lambda control is active since warmup is	_	TRUE			
					lambda control is active since warmup is finished and	=	IKUE	-		
					and Relative air charge for time	>=	0 2	% sec		
					) and			300		
					Lamda control active due to GDI mode change	=	TRUE	-		

BD GROUP: KGMXOBD	G07		DIAGNOSTI TEST GROUP: KO	IC SUMMARY TABLES EC GMXV04.2088	CM			EMISSIONS	STDS: CALULEV125, FI	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ons	Time Required	MIL IIIu
					( GDI mode homogeneous	=	TRUE	-		
					for time )	>=	0.8	sec		
					and Lambda set point	>=	0.6499	-		
					and Minimum injection time limitation for GDI	=	FALSE	-		
					mode of bank 2 is active and Width of dead zone for Width of dead zone for lambda control deviation	<	0.999969	-		
					and ( Width of dead zone for lambda control	=	0	-		
					deviation OR Lambda control continuos error		0	_		
					) )	>	U	-		
					for time )	>=	3	sec		
					and (					
					Difference between lambda value referenced to sensor fitting of bank 1 and bank 2	>=	0	-		
					and Lambda set point and	<	1.04004	-		
					( Detection of fuel mixture adaption	=	TRUE	-		
					Lambda set point of bank 2	>	0.8999	-		
					OR Lambda set point of bank 2	>	0.95996	-		
					) for time	>=	Max(A,B)	sec		
					where A - delay time for lambda fuel adaption (rich condition) where B - delay time for lambda fuel adaption (lean condition)		0	sec		
					) and Limitation due to fuel in oil is deactivated		TDUE			
					Limitation due to fuel in oil is deactivated and Limitation due to fuel in oil is deactivated for	=	TRUE TRUE	-		
					bank 2	_	11102			
					and (					
					Half Engine mode is deactivated for time )	= >=	TRUE 10	sec		
					) and Lambda closed loop control upstream catalyst, bank 1	=	TRUE	-		
					) Multiplicative adaptation correction factor, bank 1	>	0	-		
					) ) and					
					( LTFT additive part Bank 1 Integrator is stable which is of the following conditions	=	TRUE	-		
					( ( Condition diagnostic thresholds of additive correction currently exceeded of bank 1 is	=	TRUE	-		
					stable ( Additive part of LTFT for bank 1		5.484	%		
					OR Additive part of LTFT for bank 1 Additive part of LTFT for bank 1	> <	-5.484	%		
					) OR					
					Similar conditions for additive fuel adaptation fulfilled	=	TRUE	-		

O GROUP: KGMXOBDG	)7		TEST GROUP: KG	C SUMMARY TABLES EC 6MXV04.2088	IVI			MISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL III
					Difference between Measured and reference Engine speed	<=	375	rpm		
					and Difference between reference and measured Engine speed	<=	375	rpm		
					and Difference between measured load value to reference load	<=	20	-		
					and Difference between reference load value to measured load )	<=	20	-		
					) and LTFT additive part Bank 1 is stable, which is the following conditions for time	>=	10	sec		
					Condition diagnostic thresholds of additive correction currently exceeded of bank 1 is stable	=	TRUE	-		
					Absolute change of LTFT additive part, Bank 1	<=	0.188	%		
					OR Absolute change of LTFT additive part, Bank 1	<=	0.188	%		
					and ( Condition diagnostic thresholds of additive correction currently exceeded of bank 1 is stable	=	TRUE	-		
					OR Change in short term fuel trim, Bank 1 )	<=	0.049988	-		
					and Absolute difference between LTFT multiplicative part, Bank 1 and its fixed value at beginning of additive steady state phase	<=	0.049988	%		
					and Additive mixture adaptation is active (	=	TRUE	-		
					( Additive mixture adaptation is active, which is the following conditions:	=	TRUE	-		
					( Ora operational readiness independent of the operating mode is active, which is the following conditions for time	>=	0	sec		
					( Fundamental operating mode independent operation readiness of mixture adaption	=	TRUE	-		
					and ORA adaption physically enabled	=	TRUE	-		
					Torque commanded to charge control (see Look-Up-Table #P2187-2) and	>=	3.99933 to 99.98932	%		
					Torque commanded to charge control (see Look-Up-Table #P2187-1)	<=	0 to 14.99939	%		
					) and Operating mode dependent Readiness LRA	=	TRUE	-		
					) and Lambda closed loop control upstream catalyst, bank 1	=	TRUE	-		
					and Additive adaptation correction factor, bank 1	>	0	-		
					) ) No pending or confirmed DTCs	=	see sheet inhibit tables	-		
			[		Basic enable conditions met	=	tables see sheet enable tables	-		

GROUP: KGMXOBDG	07		TEST GROUP:	FIC SUMMARY TABLES ECM KGMXV04.2088			EMISSION	S STDS: CALULEV125, FED	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable	Conditions	Time Required	MIL IIIu
Fuel Trim Bank 2	P2189	Additive part of the Long Term Fuel Trim for Bank 2 in gasoline mode is greater than a calibrated threshold	Additive part of LTFT, Bank 2	> 5.484 %	LTFT Additive mixture adaptation bank 2 is active	= TR	RUE -	multiple	2 Trip
					( LTFT multiplicative part Bank 2 Integrator is stable which is of the following conditions	= TR	tUE -		
					( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 2 is stable	= TR	tUE -		
					( Multiplicative part of LTFT for bank 2	> 1.230	0011 -		
					OR Multiplicative part of LTFT for bank 2	< 0.769	9989 -		
					OR Similar conditions for multiplicative fuel adaptation fulfilled for bank 2	= TR	RUE -		
					Difference between Measured and reference Engine speed, bank 2 and	<= 37	75 rpm		
					Difference between reference and measured Engine speed, bank 2	<= 37	75 rpm		
					and Difference between measured load value to reference load, bank 2 and	<= 2			
					Difference between reference load value to measured load, bank 2	<= 2	20 -		
					and LTFT multiplicative part Bank 2 is stable, which is the following conditions for time	>= 1	0 sec		
					( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 2 is stable	= TR	RUE -		
					( Absolute change of LTFT multiplicative part, Bank 2 )	<= 1.999	9969 -		
					OR Absolute change of LTFT multiplicative part, Bank 2 )	<= 0.029	9999 -		
					and (				
					Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 2 is stable OR		EUE -		
					Change in short term fuel trim, Bank 2 ) and	<= 0.049	9988 -		
					Absolute difference between LTFT additive part, Bank 1 and its fixed value at beginning of multiplicative steady state phase	<= 0.3	75 %		
					and Multiplicative steady state phase and Multiplicative mixture adaptation is active, bank 2	= TR	RUE -		
					(  Multiplicative mixture adaptation is active, which is the following conditions:	= TR	UE -		
					( Fra operational readiness independent of the operating mode is active, which is the following conditions for time	>= 2	2 sec		
					( Fundamental operating mode independent operation readiness of mixture adaption	= TR	RUE -		
					(				
	1				Condition error suspicion in mixture adaptation	= TR	RUE -	1	1

FEDBIN	STDS: CALULEV125, F	EMISSIONS S				GMXV04.2088	TEST GROUP: K		507	GROUP: KGMXOBDG
MIL	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		deg C	Min(C, D)	>=	( Coolant Engine Temperature					
		deg C deg C	54.8 54.8	=	where C - cut-in temperature adaptive precontrol for lambda closed-loop control where D - cut-in temperature fuel mixture adaptation in case of error suspicion					
		deg C	54.8	>=	OR Coolant Engine Temperature					
		-	TRUE	=	) and Basic willingness of fuel mixture adaptation,					
		deg C	90	<	except engine temperature ( Intake air temperature					
		-	FALSE	=	and Condition of Wide Open Throttle					
		Nm	3276.7	<	( Propulsion torque after driving assistance					
			22.5		coordination )					
		-	FALSE	=	and Increased tolerances of air charge determination expected					
		-	0	<=	and Maximum proportion of evaporating fuel from the engine oil to the fuel demand (model based)					
		-	15	<	and Ratio total charge to charge in cylinder )					
					and (					
		-	1200	>=	Number of injections since start OR					
		-	1000	>=	Number of injections since start )					
		-	TRUE	=	and FRA adaption physically enabled					
		%	8.00018 to 99.98932	>=	Torque commanded to charge control (see Look-Up-Table #P2177-2)					
		%	0 to 44.99969	<=	and Torque commanded to charge control (see Look-Up-Table #P2177-1)					
		-	TRUE	=	) and Operating mode dependent Readiness LRA					
					(					
		-	TRUE	=	Lambda closed loop control upstream catalyst, bank 1					
		-	FALSE	=	Enleanment protection of lambda controller					
		-	FALSE	=	( ( Large deceleration enleanment protection of lambda controller					
		%/seg	-10.0078	>=	( Relative fuel mass transient component					
		%/seg	-10.0078	>=	threshold for deceleration enlearment Relative fuel mass transient component threshold for deceleration enlearment in bank 2					
		sec	0.5 to 1	>=	) for time (see Look-Up-Table #P2177-6)					
					) OR					
		-	FALSE	=	( Large acceleration enrichment protection of lambda controller					
		%/seg	19.0078	<=	( Relative fuel mass transient componet					
		%/seg	19.0078	<=	threshold for acceleration enrichment Relative fuel mass transient componet threshold for acceleration enrichmen					
		sec	0.3 to 1	>=	) for time (see Look-Up-Table #P2177-5)				1 1	

BD GROUP: KGMXOBDO	G07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECI GMXV04.2088	М			EMISSIONS	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIu
					and Upstream Lambda closed loop control for bank 1	=	TRUE	-		
					( Lambda control disabled during after cylinder cut-off	=	FALSE	-		
					and Lambda swtiched ON after fuel cutoff	=	TRUE	-		
					( Fuel cut off is active and	=	FALSE	-		
					( Time running down after fuel cut-off for enabling lambda control OR	>	8	sec		
					( Absolute value of diffence in lambda of bank 1	<=	0.1001	-		
					and Difference of counter time and plant time constant a-(b-c) where a is Time running down after fuel	>	0	sec		
					where a is ime running down after tuel cut-off for enabling lambda control b is plant time constant for continuous air/fuel control c is plant parameter for dead time for lambda control )					
					) ) and LSU sensor upstream to catalyst ready for operation	=	TRUE	-		
					( Level of lambda sensor 1 signal quality	<=	12	-		
					and					
					Lambda control disabled by a fault ( Catalyst damaging misfire rate exceeded	=	FALSE FALSE	-		
					and Injector power stage fault is active	=	FALSE	-		
					and Camshaft fault in critical operating range present and MAF is main air charge sensor	=	FALSE	-		
					) and lambda control is active since warmup is finished	=	TRUE	-		
					and Relative air charge for time	>=	0 2	% sec		
					)) and Lamda control active due to GDI mode change	=	TRUE	-		
					( GDI mode homogeneous for time )	= >=	TRUE 0.8	- sec		
					) and Lambda set point	>=	0.6499	_		
					and Minimum injection time limitation for GDI mode is active	=	FALSE	-		
					and Width of dead zone for lambda control deviation and	<	0.999969	-		
					( Width of dead zone for lambda control deviation	<	0	-		
					OR Lambda control continuos error )	>	0	-		
					) OR					

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	М		EI	MISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enal	ole Conditions		Time Required	MIL IIIu
					Unrestricted operation of Upstream closed loop lambda controller of bank 2 is active	=	TRUE	-		
					( Enleanment protection of lambda controller	=	FALSE	-		
					( ( Large deceleration enleanment protection of lambda controller	=	FALSE	-		
					( Relative fuel mass transient component	>= -	10.0078	%/seg		
					threshold for deceleration enleanment Relative fuel mass transient component threshold for deceleration enleanment in bank 2	>= -	10.0078	%/seg		
					) for time (see Look-Up-Table #P2177-6) ) OR	<=	0.5 to 1	sec		
					( Large acceleration enrichment protection of lambda controller	=	FALSE	-		
					Relative fuel mass transient componet	<=	19.0078	%/seg		
					threshold for acceleration enrichment Relative fuel mass transient componet threshold for acceleration enrichmen )	<=	19.0078	%/seg		
					for time (see Look-Up-Table #P2177-5) ) )	<=	0.3 to 1	sec		
					and Upstream Lambda closed loop control for bank 2 (	=	TRUE	-		
					Lambda control disabled during after cylinder cut-off and		FALSE	-		
					Lambda swtiched ON after fuel cutoff	=	TRUE	-		
					Fuel cut off is active and		FALSE	-		
					Time running down after fuel cut-off for enabling lambda control OR (	>	8	sec		
					Absolute value of diffence in lambda of bank	<=	0.1001	-		
					and Difference of counter time and plant time constant a-(b+c) where a is Time running down after fuel	>	0	sec		
					cut-off for enabling lambda control b is plant time constant of bank 2 for continuous air/fuel control c is plant parameter of bank 2 for dead time for lambda control					
					) ) ) and					
					LSU sensor upstream to catalyst ready for operation ( Level of lambda sensor 1, bank 2 signal	= <=	TRUE	-		
					quality ) and					
					Lambda control disabled by a fault (		FALSE	-		I
					Catalyst damaging misfire rate exceeded and		FALSE	-		
					Injector power stage fault is active and Camshaft fault in critical operating range present and MAF is main air charge sensor		FALSE FALSE	-		
					) and					

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES ECM GMXV04.2088	M			EMISSIONS	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ens	Time Required	MIL IIIu
					lambda control is active since warmup is finished	=	TRUE	-		
					and Relative air charge	>	0	%		
					for time	>=	2	sec		
					) and Lamda control active due to GDI mode	=	TRUE	_		
					change (	-				
					GDI mode homogeneous for time	= >=	TRUE 0.8	- sec		
					) ) and					
					Lambda set point and	>=	0.6499	-		
					Minimum injection time limitation for GDI mode of bank 2 is active	=	FALSE	-		
					and Width of dead zone for Width of dead zone for lambda control deviation	<	0.999969	-		
					and					
					Width of dead zone for lambda control deviation	=	0	-		
					OR Lambda control continuos error	>	0	-		
					) for time	>=	3	sec		
					) and					
					( Difference between lambda value referenced to sensor fitting of bank 1 and bank 2	>=	0	-		
					and Lambda set point and	<	1.04004	-		
					and ( Detection of fuel mixture adaption	=	TRUE	_		
					( Lambda set point of bank 2	>	0.8999	-		
					) OR Lambda set point of bank 2		0.95996			
					) for time	> >=	0.95996 Max(A,B)	sec		
					where A - delay time for lambda fuel adaption (rich condition)		0	sec		
					where B - delay time for lambda fuel adaption (lean condition)		0	sec		
					) and Limitation due to fuel in oil is deactivated	=	TRUE	_		
					and Limitation due to fuel in oil is deactivated for	=	TRUE			
					bank 2					
					and ( Half Engine mode is deactivated	=	TRUE			
					for time )	>=	10	sec		
					) and					
					Lambda closed loop control upstream catalyst, bank 2	=	TRUE	-		
					Multiplicative adaptation correction factor, bank 2	>	0	-		
					) )					
					and (		TDUE			
					LTFT additive part Bank 2 Integrator is stable which is of the following conditions	=	TRUE	-		
					( Condition diagnostic thresholds of additive	=	TRUE	-		
					correction currently exceeded of bank 2 is stable					I

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	FIC SUMMARY TABLES ECM (GMXV04.2088			Е	MISSIONS	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	Time Required	MIL IIIum
					( Additive part of LTFT for bank 2	>	5.484	%		
					OR Additive part of LTFT for bank 2	<	-5.484	%		
					OR Similar conditions for additive fuel adaptation fulfilled, bank 2	=	TRUE	-		
					( Difference between Measured and reference Engine speed, bank 2 and	<=	375	rpm		
					Difference between reference and measured Engine speed, bank 2	<=	375	rpm		
					and Difference between measured load value to reference load, bank 2	<=	20	-		
					and Difference between reference load value to measured load, bank 2 )	<=	20	-		
					) and LTFT additive part Bank 2 is stable, which is the following conditions for time	>=	10	sec		
					( Condition diagnostic thresholds of additive correction currently exceeded of bank 2 is stable	=	TRUE	-		
					( Absolute change of LTFT additive part, Bank 2	<=	0.188	%		
					OR Absolute change of LTFT additive part, Bank 2	<=	0.188	%		
					) and					
					Condition diagnostic thresholds of additive correction currently exceeded of bank 2 is stable	=	TRUE	-		
					OR Change in short term fuel trim, Bank 2 )	<=	0.049988	-		
					and Absolute difference between LTFT multiplicative part, Bank 2 and its fixed value at beginning of additive steady state phase	<=	0.049988	%		
					and Additive mixture adaptation is active, bank2	=	TRUE	-		
					( ( Additive mixture adaptation is active, which is the following conditions:	=	TRUE	-		
					( Ora operational readiness independent of the operating mode is active, which is the following conditions for time	>=	0	sec		
					( Fundamental operating mode independent operation readiness of mixture adaption	=	TRUE	-		
					and ORA adaption physically enabled	=	TRUE	-		
					( Torque commanded to charge control (see Look-Up-Table #P2187-2)	>=	3.99933 to 99.98932	%		
					and Torque commanded to charge control (see Look-Up-Table #P2187-1) )	<=	0 to 14.99939	%		
					and Operating mode dependent Readiness LRA	=	TRUE	-		
					) and Lambda closed loop control upstream catalyst, bank 2	=	TRUE	-		

GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: N	FIC SUMMARY TABLES ECM GMXV04.2088	1		E	MISSION	S STDS: CALULEV125, FEI	DBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs	Time Required	MIL III
					and Additive adaptation correction factor, bank 2	>	0	-		
					) ) No pending or confirmed DTCs Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-		
Fuel Trim Bank 2	P2190	Additive part of the Long Term Fuel Trim for Bank 2 in gasoline mode is less than a calibrated threshold	Additive part of LTFT, Bank 2	< -5.484 %	LTFT Additive mixture adaptation bank 2 is active	=	TRUE		multiple	2 T
					( LTFT multiplicative part Bank 2 Integrator is stable which is of the following conditions	=	TRUE			
					( ( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 2 is stable	=	TRUE	-		
					( Multiplicative part of LTFT for bank 2	>	1.230011	-		
					OR Multiplicative part of LTFT for bank 2	<	0.769989	-		
					) OR Similar conditions for multiplicative fuel adaptation fulfilled for bank 2	=	TRUE	-		
					( Difference between Measured and reference Engine speed, bank 2	<=	375	rpm		
					and Difference between reference and measured Engine speed, bank 2	<=	375	rpm		
					and Difference between measured load value to reference load, bank 2	<=	20	-		
					and Difference between reference load value to measured load, bank 2	<=	20	-		
					and LTFT multiplicative part Bank 2 is stable, which is the following conditions for time	>=	10	sec		
					( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 2 is stable	=	TRUE	-		
					( Absolute change of LTFT multiplicative part, Bank 2 )	<=	1.999969	-		
					OR Absolute change of LTFT multiplicative part, Bank 2	<=	0.029999			
					and ( Condition diagnostic thresholds of multiplicative correction currently exceeded of bank 2 is stable	=	TRUE	-		
					OR Change in short term fuel trim, Bank 2	<=	0.049988	-		
					)  Absolute difference between LTFT additive part, Bank 1 and its fixed value at beginning of multiplicative steady state phase	<b>&lt;=</b>	0.75	%		
					and Multiplicative mixture adaptation is active, bank 2	=	TRUE			
					( ( Multiplicative mixture adaptation is active, which is the following conditions:	=	TRUE	-		

D GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088				EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIu
					Fra operational readiness independent of the operating mode is active, which is the following conditions for time	>=	2	sec		
					( Fundamental operating mode independent operation readiness of mixture adaption	=	TRUE	-		
					( ( Condition error suspicion in mixture adaptation	=	TRUE	-		
					Coolant Engine Temperature	>=	Min(C, D)	dea C		
					where C - cut-in temperature adaptive precontrol for lambda closed-loop control where D - cut-in temperature fuel mixture adaptation in case of error suspicion	=	54.8 54.8	deg C		
					) OR Coolant Engine Temperature )	>=	54.8	deg C		
					and Basic willingness of fuel mixture adaptation, except engine temperature	=	TRUE	-		
					Intake air temperature	<	90	deg C		
					and Condition of Wide Open Throttle	=	FALSE	-		
					Propulsion torque after driving assistance coordination	<	3276.7	Nm		
					and Increased tolerances of air charge determination expected and	=	FALSE	-		
					Maximum proportion of evaporating fuel from the engine oil to the fuel demand (model based)	<=	0	-		
					and Ratio total charge to charge in cylinder	<	15	-		
					) and					
					( Number of injections since start	>=	1200	-		
					Number of injections since start ) )	>=	1000	-		
					and FRA adaption physically enabled	=	TRUE	-		
					( Torque commanded to charge control (see Look-Up-Table #P2177-2) and	>=	8.00018 to 99.98932	%		
					Torque commanded to charge control (see Look-Up-Table #P2177-1)	<=	0 to 44.99969	%		
					and Operating mode dependent Readiness LRA	=	TRUE	-		
					( ( Lambda closed loop control upstream catalyst, bank 1	=	TRUE	-		
					( Enleanment protection of lambda controller	=	FALSE	-		
					( ( Large deceleration enleanment protection of lambda controller	=	FALSE	-		
					( Relative fuel mass transient component	>=	-10.0078	%/seg		
					threshold for deceleration enleanment Relative fuel mass transient component threshold for deceleration enleanment in bank 2	>=	-10.0078	%/seg		
					) for time (see Look-Up-Table #P2177-6)	>=	0.5 to 1	sec		

FEDBIN1	STDS: CALULEV125, F	MISSIONS S				GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDG
MIL III	Time Required	ns	Enable Conditio		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			FALSE	=	Large acceleration enrichment protection of lambda controller					
		%/seg	19.0078	<=	Relative fuel mass transient componet threshold for acceleration enrichment					
		%/seg	19.0078	<=	Relative fuel mass transient componet threshold for acceleration enrichmen					
		sec	0.3 to 1	>=	) for time (see Look-Up-Table #P2177-5) )					
		-	TRUE	=	) and Upstream Lambda closed loop control for bank 1					
		-	FALSE	=	( Lambda control disabled during after cylinder cut-off					
		-	TRUE	=	and Lambda swtiched ON after fuel cutoff					
		-	FALSE	=	( Fuel cut off is active and					
		sec	8	>	( Time running down after fuel cut-off for enabling lambda control OR					
		-	0.1001	<=	( Absolute value of diffence in lambda of bank					
		sec	0	>	and Difference of counter time and plant time constant a-(b+c) where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous air/fuel control c is plant parameter for dead time for lambda control ) )					
		-	TRUE	=	and LSU sensor upstream to catalyst ready for operation					
		-	12	<=	Level of lambda sensor 1 signal quality					
		-	FALSE	=	and Lambda control disabled by a fault					
		-	FALSE	=	Catalyst damaging misfire rate exceeded					
		-	FALSE	=	and Injector power stage fault is active					
		-	FALSE	=	and Camshaft fault in critical operating range present and MAF is main air charge sensor					
		-	TRUE	=	and lambda control is active since warmup is finished					
		%	0	>	and Relative air charge					
		sec	2	>=	for time					
		-	TRUE	=	and Lamda control active due to GDI mode change (					
		- sec	TRUE 0.8	= >=	GDI mode homogeneous for time					
			0.6499	>=	) ) and Lambda set point					
		-	FALSE	=	and Minimum injection time limitation for GDI					
					mode is active and		I		1	

FEDBIN	S STDS: CALULEV125, F	EMISSIONS				IC SUMMARY TABLES EC GMXV04.2088	DIAGNOST TEST GROUP: F		7	BD GROUP: KGMXOBDG
MILI	Time Required	ons	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			0	<	and ( Width of dead zone for lambda control					
		_	0	>	deviation OR Lambda control continuos error					
					) ) OR					
		-	TRUE	=	( Unrestricted operation of Upstream closed loop lambda controller of bank 2 is active					
					(					
		-	FALSE	=	Enleanment protection of lambda controller					
		-	FALSE	=	( Large deceleration enleanment protection of lambda controller					
		%/seg	-10.0078	>=	( Relative fuel mass transient component threshold for deceleration enleanment					
		%/seg	-10.0078	>=	Relative fuel mass transient component threshold for deceleration enleanment in bank 2					
		sec	0.5 to 1	<=	) for time (see Look-Up-Table #P2177-6) )					
		-	FALSE	=	OR ( Large acceleration enrichment protection of lambda controller					
		%/seg	19.0078	<=	( Relative fuel mass transient componet					
		%/seg	19.0078	<=	threshold for acceleration enrichment Relative fuel mass transient componet threshold for acceleration enrichmen					
		sec	0.3 to 1	<=	) for time (see Look-Up-Table #P2177-5)					
					) and					
		-	TRUE	=	Upstream Lambda closed loop control for bank 2 (					
		-	FALSE	=	Lambda control disabled during after cylinder cut-off and					
		-	TRUE	=	Lambda swtiched ON after fuel cutoff (					
		-	FALSE	=	Fuel cut off is active and (					
		sec	8	>	Time running down after fuel cut-off for enabling lambda control OR					
		-	0.1001	<=	( Absolute value of diffence in lambda of bank 2					
		sec	0	>	and Difference of counter time and plant time constant a-(b+c)					
					where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant of bank 2 for continuous air/fuel control c is plant parameter of bank 2 for dead time for lambda control					
					) ) )					
		-	TRUE	=	and LSU sensor upstream to catalyst ready for operation					
		-	12	<=	( Level of lambda sensor 1, bank 2 signal quality					
			FALSE	=	) and Lambda control disabled by a fault					

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECM GMXV04.2088				EMISSION	IS STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ns	Time Required	MIL IIIum
					Catalyst damaging misfire rate exceeded	=	FALSE	-		
					and Injector power stage fault is active	=	FALSE	-		
					and Camshaft fault in critical operating range present and MAF is main air charge sensor	=	FALSE	-		
					) and lambda control is active since warmup is finished	=	TRUE	-		
					and Relative air charge for time	> >=	0 2	% sec		
					) and Lamda control active due to GDI mode	=	TRUE	-		
					change ( GDI mode homogeneous	_	TRUE	-		
					for time ) )	>=	0.8	sec		
					and Lambda set point and	>=	0.6499	-		
					Minimum injection time limitation for GDI mode of bank 2 is active and	=	FALSE	-		
					Width of dead zone for Width of dead zone for lambda control deviation and	<	0.999969	-		
					( Width of dead zone for lambda control deviation	=	0	-		
					OR Lambda control continuos error )	>	0	-		
					) for time )	>=	3	sec		
					and ( Difference between lambda value referenced to sensor fitting of bank 1 and bank 2	>=	0	-		
					and Lambda set point and	<	1.04004	-		
					( Detection of fuel mixture adaption	=	TRUE	-		
					( Lambda set point of bank 2 )	>	0.8999	-		
					OR Lambda set point of bank 2	>	0.95996	-		
					for time where A - delay time for lambda fuel	>=	Max(A,B) 0	sec sec		
					adaption (rich condition) where B - delay time for lambda fuel adaption (lean condition) )		0	sec		
					and Limitation due to fuel in oil is deactivated	=	TRUE	-		
					and Limitation due to fuel in oil is deactivated for bank 2	=	TRUE	-		
					) and (					
					Half Engine mode is deactivated for time )	>=	TRUE 10	sec		
					) and Lambda closed loop control upstream catalyst, bank 2	=	TRUE			
					) Multiplicative adaptation correction factor, bank 2	>	0	-		
					)					

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC 3MXV04.2088	M		EMISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Co	onditions	Time Required	MIL IIIu
					and ( LTFT additive part Bank 2 Integrator is stable which is of the following conditions	= TRUE	· -		
					( ( Condition diagnostic thresholds of additive correction currently exceeded of bank 2 is stable	= TRUE	· -		
					( Additive part of LTFT for bank 2	> 5.484	1 %		
					OR Additive part of LTFT for bank 2	< -5.484	4 %		
					) OR Similar conditions for additive fuel adaptation fulfilled, bank 2	= TRUE			
					( Difference between Measured and reference Engine speed, bank 2 and	<= 375	rpm		
					Difference between reference and measured Engine speed, bank 2 and	<= 375			
					Difference between measured load value to reference load, bank 2	<= 20	-		
					and Difference between reference load value to measured load, bank 2 )	<= 20	-		
					) and LTFT additive part Bank 2 is stable, which is the following conditions for time	>= 10	sec		
					( Condition diagnostic thresholds of additive correction currently exceeded of bank 2 is stable	= TRUE	-		
					( Absolute change of LTFT additive part, Bank 2 )	<= 0.188	3 %		
					OR Absolute change of LTFT additive part, Bank 2	<= 0.188	3 %		
					and ( Condition diagnostic thresholds of additive correction currently exceeded of bank 2 is stable	= TRUE	· -		
					OR Change in short term fuel trim, Bank 2	<= 0.04998	88 -		
					and Absolute difference between LTFT multiplicative part, Bank 2 and its fixed value at beginning of additive steady state phase	<= 0.04998	88 %		
					and Additive mixture adaptation is active, bank2	= TRUE			
					( ( ( Additive mixture adaptation is active, which is the following conditions:	= TRUE	· -		
					( Ora operational readiness independent of the operating mode is active, which is the following conditions for time	>= 0	sec		
					( Fundamental operating mode independent operation readiness of mixture adaption	= TRUE			
					and ORA adaption physically enabled	= TRUE			
					( Torque commanded to charge control (see Look-Up-Table #P2187-2) and	>= 3.99933 99.9893			
					Torque commanded to charge control (see Look-Up-Table #P2187-1)	<= 0 to 14.99	9939 %		

DBIN	S STDS: CALULEV125, FED	MISSIONS	E		-		.2088	KGMXV04.	TEST GROUP: N			D GROUP: KGMXOBDG07
MIL	Time Required	3	Enable Conditions		Secondary Parameters	ue	Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
					) and							
		-	TRUE	=	Operating mode dependent Readiness LRA							
		-	TRUE	=	) and Lambda closed loop control upstream catalyst, bank 2							
		-	0	>	) and Additive adaptation correction factor, bank 2							
					) ) )							
		-	see sheet inhibit tables		No pending or confirmed DTCs							
		-	see sheet enable tables	=	Basic enable conditions met							
2 7	once per	-	TRUE	=	Debounce condition for fault confirmation by				(	Fuel trim fault diagnosis of upstream exhaust gas sensor when	P2096	eam Exhaust Gas sensor, Bank 1
1	driving cycle				offset adaptation (sensor 1, bank 1)					the lambda offset is not within the calibrated threshold range out of range low		
			TDUE		(	-	-0.03009	<	Lambda offset of upstream exhaust gas sensor			
		-	TRUE	=	Debouncing of offset fault by slow offset adaptation	-	-0.059998 0.002991	>= <	Lambda offset of upstream exhaust gas sensor  Difference between lambda offset of the sensor			
					(	-	0.002991	<	and lambda offset at the beginning of the driving cycle			
		-	TRUE	=	Slow offset adaptation (				(			
		-	TRUE	=	Bit p-part controlability primary control enable	-	TRUE	=	Maximum offset fault is healed in the current driving cycle			
					(	-	TRUE	=	Minimum offset fault is healed in the current driving cycle			
		-	TRUE	=	Lambda regulator setpoint active				OR			
		-	0.999969	>=	Width of dead zone for lambda control deviation OR	-	TRUE	=	Maximum offset fault is set in the previous driving cycle OR			
					(	-	TRUE	=	Minimum offset fault is set in the previous driving cycle			
		-	TRUE	=	Lambda closed loop control (upstream catalyst), bank 1 OR				) OR			
		-	TRUE	=	Lambda setpoint for sensor after addition of trim control action is not eqaul to 0	-	TRUE	=	( Fuel trim maximum fault is set in the previous driving cycle			
		-	0	>=	limit control action is into equal to object the polymer of the po				OR			
		-	0	>=	Difference between temporary value before test for enleanment protection and lower bound of dfr during enleanmant protection	-	TRUE	=	Fuel trim minimum fault is set in the previous driving cycle			
		-	FALSE	=	Lambda (measured and setpoint) is below minimal measurable lambda (bank 1)				)			
		-	FALSE	=	TEMIN-limitation active, bench 1 )				) ) OR			
		%	0	>	) Current lowpass value of p-part control				( (			
		-	TRUE	=	upstream primary control enable Lambda closed loop control (upstream catalyst), bank 1	-	TRUE	=	Fuel trim maximum fault is set in the previous driving cycle			
		.	FALSE	=	( Lambda control disabled during or after cylinder cut-off	-	TRUE	=	OR Fuel trim minimum fault is set in the previous driving cycle			
		-	TRUE	=	Lambda swtiched ON after fuel cutoff (	-	0.059998	<	) Lambda offset of upstream exhaust gas sensor			
		-	FALSE	=	Fuel cut off is active				)			
		sec	8	>	( Time running down after fuel cut-off for enabling lambda control OR							
1					i			I		i	i	

D GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC	JIVI			EMISSIONS	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Ena	able Condition	ons	Time Required	MIL III
					Difference of counter time and plant time constant a-(0+c) where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous air/fuel control c is plant parameter for dead time for lambda control )	>	0	sec		
					) ) LSU sensor upstream to catalyst ready for operation	=	TRUE	-		
					( lambda sensor 1 temperature, bank 1	>=	654.998	deg C		
					, Lambda control disabled by a fault lambda control is active since warmup is finished	=	FALSE TRUE	-		
					Relative air charge for time	> >=	0 2	% sec		
					) HEM condition to block lambda closed loop control upstream catalyst	=	FALSE	-		
					Lamda control active due to GDI mode change	=	TRUE	-		
					( GDI mode homogeneous for time )	= >=	TRUE 0.8	sec		
					) ( Lambda control enabled for Cold operation sensor 2 bank 1	=	TRUE	-		
					OR HEGO sensor 2 bank 1, signal valid	=	TRUE	-		
					( Status of heating enable conditions for the sensor operating readiness	=	TRUE	-		
					( Protective heating is finished for time	= >=	TRUE 15	sec .		
					OR Internal resistance OK for operating readiness	=	TRUE	-		
					( Unfiltered internal resistance of HEGO sensor	<=	2000	Ohm		
					sensor Protective heating is finished Counter for valid internal resistance measurements	= >=	TRUE 3	- counts		
					) ) Status of sensor signal enable conditions for the sensor operating readiness	=	TRUE	-		
					(Internal resistance OK for operating readiness OR	=	TRUE	-		
					( Output voltage of HEGO Sensor Output voltage of HEGO Sensor		0.551758 1.201172	V V		
					OR Output voltage of HEGO Sensor	<=	0.322266	v		
					OR Sensor voltage stuck in countervoltage band	=	TRUE	-		
					( ( ( Output voltage of HEGO Sensor Output voltage of HEGO Sensor	<	0.551758 0.322266	V		
					Output voitage of nEGO Sensor	>	U.32220b	v		
					( Sensor open circuit fault existed in previous	=	TRUE	-		

, FEDBIN	IS STDS: CALULEV125, F	EMISSIONS				IC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: F		7	BD GROUP: KGMXOBDG0
MIL II	Time Required	ons	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			TRUE	=	OR Sensor open circuit fault currently not detected					
		-	TRUE	=	) Electrical diagnostics enabled					
		sec	20	>=	) for time					
		sec	0.2	>=	) ) for time					
			TRUE	=	) ) Bit p-part system balanced primary control enable					
		-	TRUE	=	( ( Lambda setpoint for sensor is set equal to 1					
		-	FALSE	=	OR Lambda setpoint for sensor is set equal to 1					
		sec	10	>=	for time					
		- q	FALSE 25	= >	Rich catalyst purge Mass flow of exhaust gas, sensor 2					
		-	TRUE	=	) P-part active from temperature and dynamic diagnosis					
		deg C deg C	349.96 899.96	>= <	Temperature of catalyst 1 Temperature of catalyst 1					
		-	TRUE	=	) Bit I-part global primary control enable					
		%	-1.5938	>	( Current lowpass value of I-part load primary					
		%	1.5938	<=	control enable Current lowpass value of I-part load primary control enable					
		-	FALSE	=	) Diagnosis of canister purge system is active					
		-	1 0	<= =	Ratio total charge to charge in cylinder Width of dead zone for lambda control deviation					
		deg C	34.96	>	deviation  Maximum value among the engine coolant temperature and model-based substitute value for engine temperature signal in case of error					
		-	TRUE	=	( Bit I-part global load and engine speed control enable					
		rpm rpm	2600 1000	< >=	( Engine speed with low resolution Engine speed with low resolution					
		-	TRUE	=	( Half engine mode active					
		%	30 to 90	<	Relative air mass during half engine mode (see Look-Up table #P2096-2)					
		%	15 to 20.3	>=	Relative air mass during half engine mode (see Look-Up table #P2096-3)					
		-	FALSE	=	OR Half engine mode active					
		%	30 to 90	<	( Relative air mass (see Look-Up table					
		%	15 to 20.3	>=	#P2096-4) Relative air mass (see Look-Up table #P2096-5)					
					) ) )					
		-	TRUE	=	) ( Bit i-part system primary control enable					
		g	150	>	( Current integrator value of P-part balanced primary control enable					

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TC SUMMARY TABLES ECN GMXV04.2088	1			EMISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	E	nable Condition	ons	Time Required	MIL IIIu
					( ( Dew point end of sensor 2 Bank1 is reached	_	TRUE			
					· ·			-		
					End of start is reached Exhaust gas mass flow sensor 2 Bank 1	>	TRUE 179.91	q		
					OR					
					( Dew point end of sensor 2 reached	_	FALSE	_		
					OR End of start is reached	=	FALSE	-		
					) Exhaust gas mass flow sensor 2	>	199.82	q		
					)					
					) Bit i-part system temperature primary control enable	=	TRUE	-		
					( Temperature of catalyst 1	>	349.96	deg C		
					Temperature of catalyst 1	<	869.96	deg C		
					) Cumulated time in which slow offset	>=	150	sec		
					adaptation was active ) Debounce condition for fault confirmation by	=	TRUE	-		
					fast offset adaptation (sensor 1, bank 1)  General enabling condition of fast offset					
					adaptation (					
					Enabling condition of fast offset adaptation due to catalyst conditioning	=	TRUE	-		
					( Bit signal valid, HEGO sensor 2 bank 1	=	TRUE TRUE	-		
					Flag lambda setpoint for sensor equal to 1	=	FALSE	-		
					Rich catalyst purge Bank-independent disabling conditions of fast offset adaptation	=	FALSE	-		
					( Fuel cut-off	=	TRUE	-		
					Mass flow exhaust gas catalyst 1 )	>	300	q		
					OR ( Fuel cut-off	_	FALSE	_		
					Mass flow exhaust gas catalyst 1	>	180	q		
					) (					
					( Parallelization done at least once from LSU	=	TRUE	-		
					plausibility diagnosis point of view (sensor 1, bank 1)					
					( ( Target sensor voltage for rich during active	=	TRUE	_		
					parallelisation reached once, sensor 1, bank 2	_	INOL			
					Oil gas mass flow by active lambda shifting minus the maximal possible influence of LSU offset part, segment 1, bank 1	>=	1.5	g		
					for time	>=	1	sec		
					) OR		•			
					( Lean target sensor voltage during active	=	TRUE	-		
					parallelisation reached once, sensor 1, bank 2		4.6			
					Oxygen mass flow in catalyst 1, deduct from maximum present LSU Offset in a fault free	>=	1.2	g		
					system for time	>=	1	sec		
	1				) ) OR					

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM				EMISSION	S STDS: CALULEV125, FEE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIum.
					Dynamic diagnosis error of upstream exhaust gas sensor is not set ) OR	=	TRUE	-		
					( ( lambda control is set when lambda controller reaches lower limit FRMIN Lambda actual value sensor 1 bank 1	= <	TRUE	-		
					Output voltage of HEGO sensor 2 bank 1 ) OR ( lambda control is set when lambda controller	<	0.4 TRUE			
					reaches lower limit FRMAX Lambda actual value sensor 1 bank 1 Output voltage of HEGO sensor 2 bank 1 )	>	1 0.6			
					for time Condition for Lambda closed loop control upstream catalyst; bank 1 ) for time	>= =	2 TRUE 1	sec -		
					) ( ( Temperature of catalyst 1	>=	499.96	deq C		
					Temperature of catalyst 1 ) for time )	=	899.96 0	deq C sec		
					( Mass flow exhaust gas catalyst 1 Mass flow exhaust gas catalyst 1 )	> <	3.88888889 69.4444444	g/sec g/sec		
					OR ( ( ( Mass flow exhaust gas catalyst 1	>	2.083333333 3.888888889	g/sec		
					Mass flow exhaust gas catalyst 1 ) for time ) )	>=	4	g/sec sec		
					Condition for upstream cat LSU ready for operation f(lamsons w) ( lambda sensor 1 temperature, bank 1	>=	TRUE 654.998	deq C		
					Hydrogen-correction-voltage, HEGO sensor 2 bank 1 with high resolution ( CAT damage during past interval	<=	0.08057 FALSE	V -		
					( Ratio total charge to charge in cylinder Width of dead zone for lambda control deviation )	<= =	1.02002 0	-		
					) Mass flow of exhaust gas catalyst 1 Difference betweeen Lambda offset (sensor 1, bank 1) and Lambda offset (delayed by one calculation raster)	>= <=	200 0.0079956	g -		
					Counter for no step in offset or increasing offset in a row OR	>=	2	counts		
					Counter for exhaust masses to debounce fault with fast offset adaptation ) )	>=	4	counts		
					Basic enable conditions met	=	see sheet inhibit table see sheet enable tables	-		
Upstream Exhaust Gas sensor, Bank 1	P2097	Fuel trim fault diagnosis of upstream exhaust gas sensor when the lambda offset is not within the calibrated threshold rangeout of range high	(		Debounce condition for fault confirmation by offset adaptation (sensor 1, bank 1)	=	TRUE	·	once per driving cycle	2 Trips

GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K							EMISSION	S STDS: CALULEV125, F	FEDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ons	Time Required	MIL III
			Lambda offset of upstream exhaust gas sensor	>	0.03009	-	(					
			Lambda offset of upstream exhaust gas sensor	<=	0.059998		Debouncing of offset fault by slow offset	=	TRUE	-		
			Difference between lambda offset at the beginning of the driving cycle and lambda offset	<	0.002991	-	adaptation (					
			of the sensor				Slow offset adaptation	=	TRUE	-		
			( Maximum offset fault is healed in the current	=	TRUE	-	( Bit p-part controlability primary control	=	TRUE	-		
			driving cycle Minimum offset fault is healed in the current driving cycle	=	TRUE	-	enable (					
			) OR				( Lambda regulator setpoint active	=	TRUE	-		
			( Maximum offset fault is set in the previous driving cycle	=	TRUE		( Width of dead zone for lambda control deviation	>=	0.999969	-		
			OR Minimum offset fault is set in the previous driving	=	TRUE		OR (					
			cycle )				Lambda closed loop control (upstream catalyst), bank 1	=	TRUE	-		
			OR (				OR (					
			Fuel trim maximum fault is set in the previous driving cycle OR	=	TRUE	•	Lambda setpoint for sensor after addition of trim control action is not eqaul to 0 Difference between upper limit action value	= >=	TRUE 0	-		
							lambda control and temporary value before test for enleanment protection					
			Fuel trim minimum fault is set in the previous driving cycle	=	TRUE	-	Difference between temporary value before test for enleanment protection and lower bound of dfr during enleanmant protection	>=	0	-		
			)				Lambda (measured and setpoint) is below minimal measurable lambda (bank 1)	=	FALSE	-		
			2				TEMIN-limitation active, bench 1	=	FALSE	-		
			) OR				)					
			(				) Current lowpass value of p-part control	>	0	%		
			Fuel trim maximum fault is set in the previous driving cycle	=	TRUE	-	upstream primary control enable Lambda closed loop control (upstream catalyst), bank 1	=	TRUE	-		
			OR Fuel trim minimum fault is set in the previous	=	TRUE		( Lambda control disabled during or after	=	FALSE	-		
			driving cycle ) Lambda offset of upstream exhaust gas sensor	>	0.059998		cylinder cut-off Lambda swtiched ON after fuel cutoff (	=	TRUE	-		
			)				Fuel cut off is active	=	FALSE	-		
							( Time running down after fuel cut-off for enabling lambda control OR	>	8	sec		
							OK ( Absolute value of control difference in lambda, bank 1	<=	0.1001	-		
							Difference of counter time and plant time constant a-(b+c)	>	0	sec		
							where a is Time running down after fuel cut-off for enabling lambda control					
							b is plant time constant for continuous air/fuel control c is plant parameter for dead time for lambda control					
							) )					
							LSU sensor upstream to catalyst ready for operation	=	TRUE	-		
							lambda sensor 1 temperature, bank 1	>=	654.998	deg C		
							) Lambda control disabled by a fault lambda control is active since warmup is finished	=	FALSE TRUE	-		
							Relative air charge for time	>=	0 2	% sec		
	1						) HEM condition to block lambda closed loop	=	FALSE		I	ı

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC 3MXV04.2088	W			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	E	nable Conditio	ons	Time Required	MIL IIIu
					Lamda control active due to GDI mode change	=	TRUE	-		
					( GDI mode homogeneous for time	= >=	TRUE 0.8	- sec		
					)					
					Lambda control enabled for Cold operation sensor 2 bank 1 OR HEGO sensor 2 bank 1, signal valid	=	TRUE	-		
					(					
					Status of heating enable conditions for the sensor operating readiness ( Protective heating is finished	=	TRUE			
					for time	>=	15	sec		
					OR Internal resistance OK for operating readiness	=	TRUE	-		
					Unfiltered internal resistance of HEGO sensor Protective heating is finished	<=	2000 TRUE	Ohm		
					Counter for valid internal resistance measurements	>=	3	counts		
					) Status of sensor signal enable conditions for the sensor operating readiness	=	TRUE	-		
					( Internal resistance OK for operating readiness	=	TRUE	-		
					OR ( ( Output voltage of HEGO Sensor Output voltage of HEGO Sensor	>=	0.551758 1.201172	v v		
					Output voltage of HEGO Sensor  OR Output voltage of HEGO Sensor	<= <=	0.322266	v		
					) OR Sensor voltage stuck in countervoltage band	=	TRUE	_		
					( (					
					Output voltage of HEGO Sensor Output voltage of HEGO Sensor	< >	0.551758 0.322266	V V		
					) (					
					Sensor open circuit fault existed in previous trip	=	TRUE	-		
					OR Sensor open circuit fault currently not detected	=	TRUE	-		
					) Electrical diagnostics enabled	=	TRUE	-		
					) for time )	>=	20	sec		
					) for time )	>=	0.2	sec		
					) ) ) Bit p-part system balanced primary control	=	TRUE	_		
					enable ( (					
					Lambda setpoint for sensor is set equal to 1 OR	=	TRUE	-		
					Lambda setpoint for sensor is set equal to 1 for time	= >=	FALSE 10	- sec		

FEDBIN	S STDS: CALULEV125, F	EMISSIONS				GMXV04.2088	TEST GROUP: K			D GROUP: KGMXOBDG0
MIL I	Time Required	ons	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		- g	FALSE 25	= >	) Rich catalyst purqe Mass flow of exhaust gas, sensor 2					
		-	TRUE	=	) P-part active from temperature and dynamic diagnosis					
		deg C deg C	349.96 899.96	>= <	( Temperature of catalyst 1 Temperature of catalyst 1					
		-	TRUE	=	) ) Bit I-part global primary control enable					
		%	-1.5938	>	( ( Current lowpass value of I-part load primary					
		%	1.5938	<=	control enable Current lowpass value of I-part load primary control enable					
		-	FALSE	=	) Diagnosis of canister purge system is active					
		-	1 0	<= =	Ratio total charge to charge in cylinder Width of dead zone for lambda control					
		deg C	34.96	>	deviation Maximum value among the engine coolant temperature and model-based substitute value for engine temperature signal in case of error					
		-	TRUE	=	( Bit I-part global load and engine speed control enable					
		rpm rpm	2600 1000	< >=	( Engine speed with low resolution Engine speed with low resolution					
		-	TRUE	=	( Half engine mode active					
		%	30 to 90	<	Relative air mass during half engine mode (see Look-Up table #P2096-2)					
		%	15 to 20.3	>=	Relative air mass during half engine mode (see Look-Up table #P2096-3)					
		-	FALSE	=	OR Half engine mode active					
		%	30 to 90	<	( Relative air mass (see Look-Up table #P2096-4)					
		%	15 to 20.3	>=	##2096-4) Relative air mass (see Look-Up table #P2096-5) ) )					
		-	TRUE	=	) ( Bit i-part system primary control enable (					
		g	150	>	Current integrator value of P-part balanced primary control enable					
		-	TRUE	=	Dew point end of sensor 2 Bank1 is reached					
		g g	TRUE 179.91	= >	End of start is reached Exhaust gas mass flow sensor 2 Bank 1					
					OR ( (					
		-	FALSE	=	Dew point end of sensor 2 reached OR					
		-	FALSE 199.82	= >	End of start is reached ) Exhaust gas mass flow sensor 2					
		q	199.02	>	) )					
		-	TRUE	=	Bit i-part system temperature primary control enable					
		deg C deg C	349.96 869.96	> <	( Temperature of catalyst 1 Temperature of catalyst 1					

BD GROUP: KGMXOBDG	07		TEST GROUP: K	IC SUMMARY TABLES ECN GMXV04.2088	· · · · · · · · · · · · · · · · · · ·			EMISSION	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL IIIun
					) Cumulated time in which slow offset adaptation was active	>=	150	sec		
					) Debounce condition for fault confirmation by fast offset adaptation (sensor 1, bank 1)	=	TRUE	-		
					General enabling condition of fast offset adaptation					
					( Enabling condition of fast offset adaptation due to catalyst conditioning	=	TRUE	-		
					( Bit signal valid, HEGO sensor 2 bank 1 Flag lambda setpoint for sensor equal to 1	= =	TRUE TRUE	-		
					Rich catalyst purge Bank-independent disabling conditions of fast offset adaptation	=	FALSE FALSE	-		
					( Fuel cut-off Mass flow exhaust gas catalyst 1	= >	TRUE 300	- q		
					) OR (					
					Fuel cut-off Mass flow exhaust gas catalyst 1 )	>	FALSE 180	g g		
					( ( ( Parallelization done at least once from LSU plausibility diagnosis point of view (sensor 1, bank 1)	=	TRUE	-		
					( Target sensor voltage for rich during active parallelisation reached once, sensor 1, bank	=	TRUE	-		
					2 Oil gas mass flow by active lambda shifting minus the maximal possible influence of LSU offset part, segment 1, bank 1	>=	1.5	g		
					for time ) OR	>=	1	sec		
					( Lean target sensor voltage during active parallelisation reached once, sensor 1, bank	=	TRUE	-		
					2 Oxygen mass flow in catalyst 1, deduct from maximum present LSU Offset in a fault free	>=	1.2	g		
					system for time )	>=	1	sec		
					OR Dynamic diagnosis error of upstream exhaust gas sensor is not set	=	TRUE	-		
					OR (					
					( lambda control is set when lambda controller reaches lower limit FRMIN Lambda actual value sensor 1 bank 1	= <	TRUE	-		
					Output voltage of HEGO sensor 2 bank 1 ) OR	<	0.4	-		
					( lambda control is set when lambda controller reaches lower limit FRMAX	=	TRUE	-		
					Lambda actual value sensor 1 bank 1 Output voltage of HEGO sensor 2 bank 1 )	>	1 0.6			
					for time Condition for Lambda closed loop control upstream catalyst; bank 1	>= =	2 TRUE	sec -		
					for time	>=	1	sec		

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: #		ARY TABLES	ECM				EMISSION	NS STDS: CALULEV125,	FEDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIum.
							Temperature of catalyst 1 Temperature of catalyst 1	> <	499.96 899.96	deg C deg C		
							) for time )	=	0	sec		
							( (Mass flow exhaust qas catalyst 1 Mass flow exhaust qas catalyst 1 ) OR	> <	3.888888889 69.44444444	q/sec q/sec		
							( ( Mass flow exhaust gas catalyst 1	>	2.083333333	a/sec		
							Mass flow exhaust gas catalyst 1 ) for time	<= >=	3.888888889	g/sec sec		
							) ) Condition for upstream cat LSU ready for	=	TRUE	-		
							operation f(lamsons w) ( lambda sensor 1 temperature, bank 1	>=	654.998	deg C		
							) Hydrogen-correction-voltage, HEGO sensor 2 bank 1 with high resolution	<=	0.08057	٧		
							( CAT damage during past interval	=	FALSE	-		
							Ratio total charge to charge in cylinder Width of dead zone for lambda control deviation	<= =	1.02002	:		
							) Mass flow of exhaust qas catalyst 1 Difference betweeen Lambda offset (sensor 1, bank 1) and Lambda offset (delayed by one calculation raster)	>= <=	200 0.0079956	q -		
							Counter for no step in offset or increasing offset in a row	>=	2	counts		
							OR Counter for exhaust masses to debounce fault with fast offset adaptation )	>=	4	counts		
							) ) ) ) No pending or confirmed DTCs	=	see sheet inhibit	-		
							Basic enable conditions met	Ш	see sheet enable tables	-		
Upstream Exhaust Gas sensor, Bank 2	P2098	Fuel trim fault diagnosis of upstream exhaust gas sensor when the lambda offset is not within the calibrated threshold range -	(				Debounce condition for fault confirmation by offset adaptation (sensor 1, bank 2)	=	TRUE	-	once driving	
		out of range low	Lambda offset of upstream exhaust gas sensor, bank 2	<	-0.03009	-	(					
			Lambda offset of upstream exhaust gas sensor, bank 2 Difference between lambda offset of the sensor,	>= <	-0.059998 0.002991	-	Debouncing of offset fault by slow offset adaptation, bank 2	=	TRUE	-		
			bank 2 and lambda offset at the beginning of the driving cycle, bank 2				Slow offset adaptation, bank 2	=	TRUE			
			( ( Maximum offset fault of the bank 2 sensor is	=	TRUE	-	( Bit p-part controlability primary control	=	TRUE	-		
			healed in the current driving cycle Minimum offset fault of the bank 2 sensor is healed in the current driving cycle	=	TRUE	-	enable 2 (					
			OR (				Lambda regulator setpoint active, bank 2	=	TRUE	-		
			Maximum offset fault of the bank 2 sensor is set in the previous driving cycle OR	=	TRUE	-	Width of dead zone for lambda control deviation OR	>=	0.999969	-		
			Minimum offset fault of the bank 2 sensor is set in the previous driving cycle	=	TRUE	-	Lambda closed loop control (upstream	=	TRUE			
			OR (				catalyst), bank 2 OR (					

D GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES EC GMXV04.2088	M		EMISSIONS	STDS: CALULEV125, I	FEDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Cor	nditions	Time Required	MIL III
			Fuel trim maximum fault of the bank 2 sensor is set in the previous driving cycle	= TRUE -	Lambda setpoint for sensor after addition of trim control action, bank 2 is not equal to 0	= TRUE	•		
			OR		Difference between upper limit action value lambda control and temporary value before test for enleanment protection, bank 2	>= 0	-		
			Fuel trim minimum fault of the bank 2 sensor is set in the previous driving cycle	= TRUE -	Difference between temporary value before test for enleanment protection, bank 2 and lower bound of dfr during enleanmant protection	>= 0	-		
			)		Lambda (measured and setpoint) is below minimal measurable lambda (bank 2)	= FALSE			
			) ) OR		TEMIN-limitation active, bench 2 ) )	= FALSE	-		
			(		Current lowpass value of p-part control upstream primary control enable 2	> 0	%		
			Fuel trim maximum fault of the bank 2 sensor is set in the previous driving cycle OR	= TRUE -	Lambda closed loop control (upstream catalyst), bank 2	= TRUE	-		
			Fuel trim minimum fault of the bank 2 sensor is set in the previous driving cycle )	= TRUE -	Lambda control disabled during or after cylinder cut-off, bank 2 Lambda swtiched ON after fuel cutoff, bank	= FALSE = TRUE			
			Lambda offset of upstream exhaust gas sensor, bank 2	> 0.059998 -	2				
			)		Fuel cut off is active, bank 2	= FALSE	-		
					Time running down after fuel cut-off for enabling lambda control OR	> 8	sec		
					( Absolute value of control difference in lambda, bank 2	<= 0.1001	-		
					Difference of counter time and plant time constant a-(b+c) where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous air/fuel control, bank 2 c is plant parameter for dead time for lambda control, bank 2)	> 0	sec		
					) ) LSU sensor upstream to catalyst ready for operation, bank 2	= TRUE	-		
					lambda sensor 1 temperature, bank 2	>= 654.998	_		
					Lambda control disabled by a fault, bank 2 lambda control is active since warmup is	= FALSE = TRUE			
					finished Relative air charge	> 0	%		
					for time ) HEM condition to block lambda closed loop	>= 2 = FALSE	sec -		
					control upstream catalyst, bank 2 Lamda control active due to GDI mode change	= TRUE			
					( GDI mode homogeneous for time	= TRUE >= 0.8	- sec		
					) ) ( Lambda control enabled for Cold operation	= TRUE	-		
					sensor 2 bank 2 OR HEGO sensor 2 bank 2, signal valid	= TRUE	-		
					( Status of heating enable conditions for the sensor operating readiness	= TRUE	-		
					( Protective heating is finished, bank 2 for time	= TRUE >= 15	- sec		
					or time	>= 15	Sec		

BD GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES EC BMXV04.2088	, IVI			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	E	Enable Condition	ons	Time Required	MIL III
					Internal resistance OK for operating readiness, bank 2		TRUE	·		
					( Unfiltered internal resistance of HEGO	<=	2000	Ohm		
					sensor, bank 2 Protective heating is finished, bank 2 Counter for valid internal resistance measurements, bank 2	= >=	TRUE 3	counts		
					) ) Status of sensor signal enable conditions for the sensor operating readiness, bank 2	=	TRUE	-		
					( Internal resistance OK for operating readiness OR	=	TRUE	-		
					( Output voltage of HEGO Sensor, bank 2 Output voltage of HEGO Sensor, bank 2 )	>= <=	0.551758 1.201172	V V		
					OR Output voltae of HEGO Sensor, bank 2	<=	0.322266	V		
					OR Sensor voltage stuck in countervoltage band	=	TRUE	-		
					( ( Output voltage of HEGO Sensor, bank 2 Output voltage of HEGO Sensor, bank 2	< >	0.551758 0.322266	V V		
					) ( Sensor open circuit fault existed in previous trip	=	TRUE	-		
					OR Sensor open circuit fault currently not detected	=	TRUE	-		
					) Electrical diagnostics enabled, bank 2	=	TRUE	-		
					) for time )	>=	20	sec		
					) for time )	>=	0.2	sec		
					) ) Bit p-part system balanced primary control enable 2 (	=	TRUE	-		
					( Lambda setpoint for sensor is set equal to 1, bank 2 OR	=	TRUE	-		
					Lambda setpoint for sensor is set equal to 1, bank 2	=	FALSE	-		
					for time ) Rich catalyst purge, bank 2	>=	10 FALSE	sec		
					Mass flow of exhaust gas, sensor 1, bank 2	>	25	g		
					P-part active from temperature and dynamic diagnosis, bank 2 (	=	TRUE	-		
					Temperature of catalyst 1, bank 2 Temperature of catalyst 1, bank 2	>= <	349.96 899.96	deg C deg C		
					) Bit I-part global primary control enable (	=	TRUE	-		
					Current lowpass value of I-part load primary control enable	>	-1.5938	%		
					Current lowpass value of I-part load primary control enable	<=	1.5938	%		

FEDBIN1	STDS: CALULEV125, F	EMISSIONS S				IC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K		7	BD GROUP: KGMXOBDG
MIL III	Time Required	ons	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
_		-	FALSE	=	Diagnosis of canister purge system is active					
		-	1 0	<= =	Ratio total charge to charge in cylinder Width of dead zone for lambda control					
		deg C	34.96	>	deviation  Maximum value among the engine coolant temperature and model-based substitute value for engine temperature signal in case of error					
		-	TRUE	=	( Bit I-part global load and engine speed control enable					
		rpm rpm	2600 1000	< >=	( Engine speed with low resolution Engine speed with low resolution					
		-	TRUE	=	( Half engine mode active					
		%	30 to 90	<	( Relative air mass during half engine mode					
		%	15 to 20.3	>=	(see Look-Up table #P2096-2) Relative air mass during half engine mode (see Look-Up table #P2096-3)					
		-	FALSE	=	OR Half engine mode active					
		%	30 to 90	<	( Relative air mass (see Look-Up table #P2096-4)					
		%	15 to 20.3	>=	#P2090-4] Relative air mass (see Look-Up table  #P2096-5) )					
		-	TRUE	=	) ) ( Bit i-part system primary control enable, bank 2					
		g	150	>	( Current integrator value of P-part balanced primary control enable, bank 2					
		-	TRUE	=	( Dew point end of sensor 1 Bank 2 is					
		g	TRUE 179.91	= >	reached End of start is reached Exhaust gas mass flow sensor 1 Bank 2 ) OR					
		-	FALSE	=	( ( Dew point end of sensor 2 reached, bank 2					
		-	FALSE	=	OR End of start is reached					
		q	199.82	>	) Exhaust gas mass flow sensor 1 Bank 2					
			TRUE	=	) ) Bit i-part system temperature primary control enable, bank 2					
		deq C deq C	349.96 869.96	> <	( Temperature of catalyst 1, bank 2 Temperature of catalyst 1, bank 2					
		sec	150	>=	) ) ) Cumulated time in which slow offset					
		sec			adaptation was active, bank 2 )					
		·	TRUE	=	Debounce condition for fault confirmation by fast offset adaptation (sensor 1, bank 2)  General enabling condition of fast offset					
			T0.15		adaptation, bank 2					
		-	TRUE	=	Enabling condition of fast offset adaptation due to catalyst conditioning, bank 2					
			TRUE	=	( ( Bit signal valid, HEGO sensor 2 bank 2					

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EG MXV04.2088	UNI		EMISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Co	onditions	Time Required	MIL IIIu
					Flag lambda setpoint for sensor equal to 1, bank 2 and	= TRUE			
					Rich catalyst purge, bank 2 Bank-independent disabling conditions of fast offset adaptation	= FALS = FALS			
					Fuel cut-off, bank Mass flow exhaust gas catalyst 1, bank 2	= TRUE > 300			
					OR ( Fuel cut-off Mass flow exhaust gas catalyst 1, bank 2	= FALS > 180			
					) ) (				
					Parallelization done at least once from LSU plausibility diagnosis point of view (sensor 1, bank 2)	= TRUE	-		
					( ( Target sensor voltage for rich during active parallelisation reached once, sensor 1, bank 2	= TRUE	: -		
					Oil gas mass flow by active lambda shifting minus the maximal possible influence of LSU offset part, segment 1, bank 2	>= 1500			
					for time	>= 1	sec		
					OR ( Lean target sensor voltage during active parallelisation reached once, sensor 1, bank 2	= TRUE	: -		
					Oxygen mass flow in catalyst 1, deduct from maximum present LSU Offset in a fault free system, bank 2	>= 1.2	g		
					for time	>= 1	sec		
					OR Dynamic diagnosis error of upstream exhaust gas sensor is not set	= FALS	-		
					) OR (				
					lambda control is set when lambda controller reaches lower limit FRMIN, bank 2 Lambda actual value sensor 1 bank 2	= TRUE	-		
					Output voltage of HEGO sensor 2 bank 2 ) OR ( lambda control is set when lambda controller	< 0.4 = TRUE			
					reaches lower limit FRMAX, bank 2  Lambda actual value sensor 1 bank 2	> 1			
					Output voltage of HEGO sensor 2 bank 2 ) for time	> 0.6 >= 2	sec		

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM (GMXV04.2088			ı	EMISSION	IS STDS: CALULEV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	E	Enable Condition	ns	Time Required	MIL IIIum.
					Condition for Lambda closed loop control upstream catalyst; bank 2	=	TRUE	-		
					) for time	>=	1	sec		
					( (					
					Temperature of catalyst 1, bank 2 Temperature of catalyst 1, bank 2	> <	499.96 899.96	deg C deg C		
					for time )	=	0	sec		
					( ( Macc flow exhaust age establist 1, bank 2	>	3.888888889	a/coc		
					Mass flow exhaust gas catalyst 1, bank 2  Mass flow exhaust gas catalyst 1, bank 2		69.4444444	g/sec g/sec		
					)			•		
					OR (					
					Mass flow exhaust gas catalyst 1, bank 2	>	2.083333333	g/sec		
					Mass flow exhaust gas catalyst 1, bank 2	<=	3.88888889	g/sec		
					) for time	>=	4	sec		
					) Condition for upstream cat LSU ready for operation f(lamsons w), bank 2	=	TRUE	-		
					( lambda sensor 1 temperature, bank 2	>=	654.998	deg C		
					) Hydrogen-correction-voltage, HEGO sensor 2 bank 2 with high resolution	<=	0.08057	V		
					( CAT damage during past interval	=	FALSE	-		
					Ratio total charge to charge in cylinder Width of dead zone for lambda control deviation	<= =	1.02002	-		
					) Mass flow of exhaust gas catalyst 1, bank 2	>=	200	g		
					Difference betweeen Lambda offset (sensor 1, bank 2) and Lambda offset (delayed by one calculation raster)	<=	0.0079956	-		
					( Counter for no step in offset or increasing offset in a row, bank 2	>=	2	counts		
					OR Counter for exhaust masses to debounce fault with fast offset adaptation, bank 2 )	>=	4	counts		
					No pending or confirmed DTCs		see sheet inhibit table	-		
					Basic enable conditions met	= S6	ee sheet enable tables	-		
Upstream Exhaust Gas sensor, Bank 2	P2099	Fuel trim fault diagnosis of upstream exhaust gas sensor when the lambda offset is not within the calibrated threshold range -	(		Debounce condition for fault confirmation by offset adaptation (sensor 1, bank 2)	=	TRUE	-	once per driving cycle	2 Trips
		out of range high	Lambda offset of upstream exhaust gas sensor, bank 2	> 0.03009 -	(					
			Lambda offset of upstream exhaust gas sensor, bank 2	<= 0.059998 -	Debouncing of offset fault by slow offset adaptation, bank 2	=	TRUE	-		
			Difference between lambda offset at the beginning of the driving cycle, bank 2 and lambda	< 0.002991 -	(					
			offset of the sensor, bank 2 (		Slow offset adaptation, bank 2	=	TRUE	-		
			Maximum offset fault of the bank 2 sensor is healed in the current driving cycle	= TRUE -	Bit p-part controlability primary control enable 2	=	TRUE	-		

Comparison   Part Comment   Part C	EDBIN	S STDS: CALULEV125, F	EMISSIONS :					2088	GMXV04.	TEST GROUP: K			GROUP: KGMXOBDG0
Headed in the current of the bank of the second and processes of the control of the bank of the least of amount of the bank of amount of the least of amount o	MIL	Time Required	ns	Enable Condition		Secondary Parameters		Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
TRUE  TOTAL  TOT						(	-	TRUE	-				
The growth of Minky Code  Warrant and Carbon and Code  Warrant of Carbon and Code  Warrant of Carbon and Carbo		•	-	TRUE	=	( Lambda regulator setpoint active, bank 2	l			) OR			
Were more direction and of the black 2 centers or early control to the black 2 centers or early control to the black 2 centers or early control direction of the black 2 centers or early control direction of the black 2 centers or early control to		1	-	0.999969	>=	deviation		TRUE	=	in the previous driving cycle			
Set in the measurement bust of the banks 2 sensor in our file and the measurement bust of the banks 2 sensor in our file and the set in the measurement bust of the banks 2 sensor in our file and the set in the sensor in the set in		1		TOUE		(	-	TRUE	=	Minimum offset fault of the bank 2 sensor is set in			
Set in the previous divines gode  DOS  DOS  Difference between pages of interval to subject to the set of the		1	-	IKUE	=					OR			
which common and bridge you what bother were from the restrict production, they are continued and special production for the production of		1	-	TRUE	=	Lambda setpoint for sensor after addition of trim control action, bank 2 is not eqaul to 0	-	TRUE	=	Fuel trim maximum fault of the bank 2 sensor is set in the previous driving cycle			
the first elementary processors and the part control of the processors of the part control of the part con			-	0	>=	lambda control and temporary value before				OR			
Lumbda critical foliage and services and ser			-	0	>=	test for enleanment protection, bank 2 and lower bound of dfr during enleanmant	1	TRUE	=	Fuel trim minimum fault of the bank 2 sensor is set in the previous driving cycle			
TENNA invalidation activate, branch 2 = FALSE -   Faul trim maximum faulul of the bank 2 acessor is and the services defined color.			-	FALSE	=	Lambda (measured and setpoint) is below				)			
with the provious defining cycle  Foul from maintain that of the bank 2 sentor is at in the previous defining cycle  Lembda offset of systemam enhausis gias sentor, bonk 2  Lembda offset of systemam enhausis gias sentor, bonk 2  Lembda offset of systemam enhausis gias sentor, bonk 2  Lembda offset of systemam enhausis gias sentor, bonk 2  Lembda offset of systemam enhausis gias sentor, bonk 2  Foul cut off is active, bank 2  Lembda offset of systemam enhausis gias sentor, bonk 2  Foul cut off is active, bank 2  Lembda offset of systemam enhausis gias sentor, bonk 2  Foul cut off is active, bank 2  Lembda offset of systemam enhausis gias sentor, bonk 2  Foul cut off is active, bank 2  Lembda offset of systemam enhausis gias sentor, bonk 2  Experience of counter from and plant time substitutions of systemam enhals control of sentor definence in sentor of systemam enhals control of systemam enhals control of sentor of systemam enhals control of sentor of systemam enhals control of systemam enhals e			-	FALSE	=					) ) OR			
Interesting of the provision of finite operation of principles of the principl		1	9/-	0		) Current lowness value of p-part control	_	TRUE	_	( ( Fuel trim maximum fault of the bank 2 sensor is			
Filed from minimum based of the bearies 2 sensor is not in the processor, of stimps.  It is not not to processor, of stimps.  Lambda content disabled during or after cylinder or Levi Chi bank 2.  Lambda offset of upstream exhaust gas sensor.  Lambda offset off upstream exhaust gas sensor.  Lambda offset offset upstream exhaust gas sensor.  Lambda offset offset upstream exhaust gas sensor.  L		1	-			upstream primary control enable 2 Lambda closed loop control (upstream	ļ	TRUE	-	set in the previous driving cycle			
Lambda offiser of upstream exhaust gas sensor, bank 2    Comment		i		FALSE	_	(	-	TRUE	=	Fuel trim minimum fault of the bank 2 sensor is set in the previous driving cycle			
Fuel cut off is active. bank 2 = FALSE -  Time running down after fuel cut-off for enablina lambda control OR  Absolute value of control difference in among a plant time constant or as in Time running down after fuel cut-off for absolute value of control and time as in time running down after fuel cut-off for analysis and the control off time as in time running down after fuel cut-off for analysis and time constant for continuous air/fuel court-off for analysis and time constant for continuous air/fuel court, bank 2 and time constant for continuous air/fuel court, bank 2 and time constant for continuous air/fuel court, bank 2 and time for lambda control on the court of the control disabled by a fault, bank 2 and bank		i	-			cylinder cut-off, bank 2		0.059998	>	Lambda offset of upstream exhaust gas sensor, bank 2			
emakino lambda control OR  (Aboulse value of control difference in section of the control of the		1	-	FALSE	=	( Fuel cut off is active, bank 2	ĺ			)			
lambda, bank 2 Difference of counter time and plant time constant a-(b-c) where a si Time unning down after fuel uni-off for enabling lambda control b is plant time constant for continuous arifuel control, bank 2 c is pain parameter for dead time for lambda control, bank 2    LSU sensor upstream to catalyst ready for operation, bank 2 (   tambda sensor 1 temperature, bank 1 )   Lambda control disabled by a fault, bank 2   tambda control disabled by a fault, bank 2   tambda control is active since warmup is   tambda control is active si			sec	8	>								
Difference of counter time and plant time constant a (b+c) where a is Time running down after fuel cut-off for enabling tembods control is a plant time constant for continuous control, bank 2 (is plant parameter for dead time for lambda control, bank 2 (is plant parameter for dead time for lambda control, bank 2 (is plant parameter for dead time for lambda control, bank 2 (is plant parameter for dead time for lambda control, bank 2 (is plant parameter for dead time for lambda control bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operation, bank 2 (is plant parameter for dead time for lambda control operat		i	-	0.1001	<=	( Absolute value of control difference in	ļ						
where a is Time running down after fuel cut—off for enabling lambda control b is plant time constant for continuous air/fuel control, bank 2 c is plant parameter for dead time for lambda control, bank 2 )    Substantial Control Co		1	sec	0	>	Difference of counter time and plant time constant	ļ						
LSU sensor upstream to catalyst ready for operation, bank 2 (   tambda sensor 1 temperature, bank 1   >= 654.998   deq C     tambda control disabled by a fault, bank 2   = FALSE   -   tambda control is active since warmup is   trinshed   TRUE   -   trinshed   Relative air charge   > 0 %     to trite air charge   > 0 %     the modition to block lambda closed loop   = FALSE   -   the modition to block lambda closed loop   = FALSE   -   tamda control pustream catalyst, bank 2   tamda control active due to GOII mode   = TRUE   -						where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous air/fuel control, bank 2 c is plant parameter for dead time for lambda							
operation, bank 2  (lambda sensor 1 temperature, bank 1			_	TRUE	=	) ) )							
lambda control disabled by a fault, bank 2 = FALSE -  lambda control is active since warmup is		i				operation, bank 2 (							
lambda control is active since warmup is		1				)							
finished Relative air charge Relative air charge  > 0 % for time >= 2 sec    HEM condition to block lambda closed loop control upstream catalyst, bank 2 Lamda control active due to GOI mode = TRUE -		1											
for time >= 2 sec )  HEM condition to block lambda closed loop = FALSE - control upstream catalyst, bank 2 Lamda control active due to GDI mode = TRUE -		1				finished	t						
control upstream catalyst, bank 2 Lamda control active due to GDI mode = TRUE -				2	>=	for time	1						
Change I						control upstream catalyst, bank 2 Lamda control active due to GDI mode	ľ						
(			-			( GDI mode homogeneous							

25, FEDBI	S STDS: CALULEV125,	EMISSIONS				GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDG
МІ	Time Required	ons	Enable Conditi		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			TRUE	_	) ( Lambda control enabled for Cold operation					
		_	TRUE	=	sensor 2 bank 2 OR HEGO sensor 2 bank 2, signal valid					
		-	TRUE	=	( Status of heating enable conditions for the					
		-	TRUE	=	sensor operating readiness ( Protective heating is finished, bank 2					
		sec	15	>=	for time OR					
		-	TRUE	=	Internal resistance OK for operating readiness, bank 2 (					
		Ohm -	2000 TRUE	<=	Unfiltered internal resistance of HEGO sensor, bank 2 Protective heating is finished, bank 2					
		counts	3	>=	Counter for valid internal resistance measurements, bank 2					
		-	TRUE	=	Status of sensor signal enable conditions for the sensor operating readiness, bank 2					
		-	TRUE	=	( Internal resistance OK for operating readiness OR (					
		V	0.551758 1.201172	>= <=	( Output voltage of HEGO Sensor, bank 2 Output voltae of HEGO Sensor, bank 2 )					
		v	0.322266	<=	OR Output voltae of HEGO Sensor, bank 2 )					
		-	TRUE	=	OR Sensor voltage stuck in countervoltage band (					
		V V	0.551758 0.322266	< >	( ( Output voltage of HEGO Sensor, bank 2 Output voltage of HEGO Sensor, bank 2					
			TRUE	=	) ( Sensor open circuit fault existed in previous trip					
		-	TRUE	=	OR Sensor open circuit fault currently not detected					
		-	TRUE	=	) Electrical diagnostics enabled, bank 2					
		sec	20	>=	) for time )					
		sec	0.2	>=	) for time )					
		-	TRUE	=	) ) Bit p-part system balanced primary control enable 2					
		-	TRUE	=	( ( Lambda setpoint for sensor is set equal to 1, bank 2 OR					
		-	FALSE	=	Lambda setpoint for sensor is set equal to 1, bank 2					
		sec -	10 FALSE	>=	for time ) Rich catalyst purge, bank 2					
		g	25	>	Mass flow of exhaust gas, sensor 1, bank 2					

EDBIN1	STDS: CALULEV125, F	EMISSIONS S				GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDG
MILI	Time Required	ons	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			TRUE	=	P-part active from temperature and dynamic diagnosis, bank 2					
		dea C dea C	349.96 899.96	>= <	( Temperature of catalyst 1, bank 2 Temperature of catalyst 1, bank 2					
		-	TRUE	=	) ) Bit I-part qlobal primary control enable (					
		%	-1.5938	>	( Current lowpass value of I-part load primary					
		%	1.5938	<=	control enable Current lowpass value of I-part load primary control enable					
		-	FALSE	=	Diagnosis of canister purge system is active					
		-	1 0	<= =	Ratio total charge to charge in cylinder Width of dead zone for lambda control					
		deg C	34.96	>	deviation Maximum value among the engine coolant temperature and model-based substitute value for engine temperature signal in case of error					
		-	TRUE	=	( Bit I-part global load and engine speed control enable					
		rpm rpm	2600 1000	< >=	( Engine speed with low resolution Engine speed with low resolution					
		-	TRUE	=	Half engine mode active					
		%	30 to 90	<	Relative air mass during half engine mode (see Look-Up table #P2096-2)					
		%	15 to 20.3	>=	Relative air mass during half engine mode (see Look-Up table #P2096-3) )					
		-	FALSE	=	OR Half engine mode active					
		%	30 to 90	<	( Relative air mass (see Look-Up table #P2096-4)					
		%	15 to 20.3	>=	Relative air mass (see Look-Up table #P2096-5) ) ) )					
		-	TRUE	=	) ( Bit i-part system primary control enable, bank 2					
		g	150	>	Current integrator value of P-part balanced primary control enable, bank 2					
		-	TRUE	=	( Dew point end of sensor 1 Bank 2 is reached					
		- g	TRUE 179.91	= >	End of start is reached Exhaust gas mass flow sensor 1 Bank 2					
					OR (					
		-	FALSE	=	( Dew point end of sensor 2 reached, bank 2					
		-	FALSE	=	OR End of start is reached					
		q	199.82	>	) Exhaust gas mass flow sensor 1 Bank 2 )					
			TRUE	=,	) Bit i-part system temperature primary control enable, bank 2					
		deg C deg C	349.96 869.96	> <	( Temperature of catalyst 1, bank 2 Temperature of catalyst 1, bank 2					

FEDBIN	STDS: CALULEV125, F	EMISSIONS S				GMXV04.2088	TEST GROUP: K		507	GROUP: KGMXOBDG
MIL	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		sec	150	>=	Cumulated time in which slow offset adaptation was active, bank 2					
		-	TRUE	=	) Debounce condition for fault confirmation by fast offset adaptation (sensor 1, bank 2)					
					General enabling condition of fast offset adaptation, bank 2					
		-	TRUE	=	( Enabling condition of fast offset adaptation due to catalyst conditioning, bank 2					
			TRUE TRUE	=	( ( Bit signal valid, HEGO sensor 2 bank 2 Flag lambda setpoint for sensor equal to 1,					
		-	FALSE FALSE	=	bank 2 Rich catalyst purge, bank 2 Bank-independent disabling conditions of					
		-	TRUE	=	fast offset adaptation ( Fuel cut-off, bank					
		g	300	>	Mass flow exhaust gas catalyst 1, bank 2					
		-	FALSE	=	OR ( Fuel cut-off					
		g	180	>	Mass flow exhaust gas catalyst 1, bank 2 )					
		-	TRUE	=	( ( Parallelization done at least once from LSU plausibility diagnosis point of view (sensor 1, bank 2)					
		-	TRUE	=	Target sensor voltage for rich during active parallelisation reached once, sensor 1, bank					
		g	1.5	>=	2 Oil gas mass flow by active lambda shifting minus the maximal possible influence of LSU offset part, segment 1, bank 2					
		sec	1	>=	for time					
		-	TRUE	=	OR ( Lean target sensor voltage during active					
		g	1.2	>=	parallelisation reached once, sensor 1, bank 2 Oxygen mass flow in catalyst 1, deduct from					
		sec	1	>=	maximum present LSU Offset in a fault free system, bank 2 for time					
					) ) OR					
		-	FALSE	=	Dynamic diagnosis error of upstream exhaust gas sensor is not set ) OR					
			TRUE		( ( ( lambda control is set when lambda controller					
			IRUE	=	reaches lower limit FRMIN, bank 2  Lambda actual value sensor 1 bank 2					
			0.4	<	Cambda actual value sensor 1 bank 2 Output voltage of HEGO sensor 2 bank 2 ) OR					
		-	TRUE	=	( lambda control is set when lambda controller reaches lower limit FRMAX, bank 2					
			1 0.6	> >	Lambda actual value sensor 1 bank 2 Output voltage of HEGO sensor 2 bank 2					
		sec	2 TRUE	>= =	) for time Condition for Lambda closed loop control					

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: P	TIC SUMMARY TABLES ECM KGMXV04.2088				EMISSION	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIum.
					for time	>=	1	sec		
					( ( Temperature of catalyst 1, bank 2 Temperature of catalyst 1, bank 2	> <	499.96 899.96	deg C deg C		
					) for time	=	0	sec		
					( (		2 00000000	-/		
					Mass flow exhaust gas catalyst 1, bank 2  Mass flow exhaust gas catalyst 1, bank 2	> <	3.88888889 69.4444444	g/sec g/sec		
					) OR			<b>3</b>		
					( ( Mass flow exhaust gas catalyst 1, bank 2	>	2.083333333	g/sec		
					Mass flow exhaust gas catalyst 1, bank 2	<=	3.888888889	g/sec		
					) for time	>=	4	sec		
					) ) Condition for upstream cat LSU ready for operation f(lamsons w), bank 2	=	TRUE	-		
					( lambda sensor 1 temperature, bank 2	>=	654.998	deg C		
					) Hydrogen-correction-voltage, HEGO sensor 2 bank 2 with high resolution	<=	0.08057	٧		
					( CAT damage during past interval	=	FALSE			
					Ratio total charge to charge in cylinder Width of dead zone for lambda control deviation	=	1.02002 0	-		
					) ) Mass flow of exhaust gas catalyst 1, bank 2	>=	200	g		
					Difference betweeen Lambda offset (sensor 1, bank 2) and Lambda offset (delayed by one calculation raster)	<=	0.0079956			
					( Counter for no step in offset or increasing offset in a row, bank 2	>=	2	counts		
					OR Counter for exhaust masses to debounce fault with fast offset adaptation, bank 2	>=	4	counts		
					) ) )					
					) No pending or confirmed DTCs	=	see sheet inhibit	-		
					Basic enable conditions met	=	see sheet enable tables	-		
Air Fuel Imbalance Monitor	P219C	Cylinder Specific air-fuel imbalance detection too lean	Cylinder individual air-fuel ratio considering deviation from bank average air-fuel ratio	> 1.179993 -	Enable conditions for lambda imbalance diagnosis	=	TRUE	-	once pe driving cyt	
					(					
					(					
	P219D				Basic enable conditions	=	TRUE	-		
					(					
	P219E				Engine roughness signal is valid, which is the following conditions:	=	TRUE	-		

D GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC 3MXV04.2088	M			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Er	nable Conditio	ons	Time Required	MIL IIIu
					(					
	P219F				Status of trigger wheel adaptation for segment time correction for cylinder individual lambda control function	=	TRUE	-		
	P21A0				and Condition segment duration plausible	=	TRUE	-		
	P21A1				and Active rough road detection	=	FALSE	-		
	P21A2				and Clutch operator is active	=	FALSE	-		
	P21A3				and Engine synchronisation is completed and engine is in normal operation mode )	=	TRUE	-		
					and Engine operation point is within calibrated range (low or high operating range), as decribed below:	=	TRUE	-		
					( Relative air charge (with AT)	<	A-B	%		
					where A is Upper threshold for the relative air charge in order to determine the operating range LOW depending on the engine speed nmot for automatic transmission	=	60	%		
					B is the upper thresholds of the relative air charge for determining the operating ranges LOW and HIGH for automatic transmission and	=	0.8	%		
					Relative air charge (with AT)	>	24.8	%		
					and Engine speed (with AT) where	<	A-B	rpm		
					A is Upper engine speed threshold for determining for operating range LOW, AT	=	2160	rpm		
					(See Look-Up-Table #1)  B is the hystersis for upper thresholds of the relative air charge for determining the operating ranges LOW and HIGH for automatic transmission and	=	40	rpm		
					Engine speed (with AT) )	>	1280	rpm		
					OR					
					( High operation range is released and	=	TRUE	-		
					Relative air charge (with AT)	<	A-B	%		
					where A is Upper threshold for the relative air charge in order to determine the operating range LOW depending on the engine speed nmot for automatic transmission	=	0	%		
					B is the upper thresholds of the relative air charge for determining the operating ranges LOW and HIGH for automatic transmission	=	0.8	%		
					and Relative air charge (with AT)	>	191.3	%		
					and Engine speed (with AT)	<	A-B	rpm		
					where A is Upper engine speed threshold for	=	0	rpm		
					determining for operating range HIGH, AT B is the hysterisis for upper engine speed thresholds for determining the operating	=	40	rpm		
					ranges LOW and HIGH for automatic transmission and					
					and Engine speed (with AT)	>	10200	rpm		

BD GROUP: KGMXOBDG	07		DIAGNOSTI TEST GROUP: KO	C SUMMARY TABLES ECM GMXV04.2088	W			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL IIIc
					) for time	>=	0.5	sec		
					and Environmental conditions are within calibrated range:	=	TRUE	-		
					( Ambient pressure	>	50	kPa		
					and Environment temperature	>	-40.04	deg C		
					) and					
					Engine coolant temperature is within calibrated range:	=	TRUE	-		
					Engine coolant temperature and	>	57.96	deg C		
					Engine coolant temperature	<	143.26	deg C		
					and Catalyst temperature is within calibrated range, which is the following conditions:	=	TRUE	-		
					( max(a,b) Where:	<	949.96	deg C		
					a is Maximum catalyst 1 temperature at bank 1					
					b is Maximum catalyst 1 temperature at bank 2 and					
					max(a,b) Where:	>	399.96	deg C		
					a is Minimum catalyst 1 temperature at bank					
					b is Minimum catalyst 1 temperature at bank					
					and Inlet/outlet camshaft adjustment is released as follows:	=	TRUE	-		
					( Condition release of intake camshaft control is valid	=	TRUE	-		
					and State of camshaftw control is not in ready	=	TRUE	-		
					state and					
					Condition release of outlet camshaft control is valid and	=	TRUE	-		
					State of camshaftw control is not in ready state and	=	TRUE	-		
					) and					
					The following combustion conditions are fulfilled:	=	TRUE	-		
					( Closed loop lambda control is active for bank 1	=	TRUE	-		
					and Flag lambda setpoint for sensor equal to 1	=	TRUE	-		
					and Closed loop lambda control is active for	=	TRUE	-		
					bank 2 and Flag lambda setpoint for sensor equal to 1,	=	TRUE	-		
					bank 2 and Catalyst heating is active	=	FALSE	-		
					and Homogenous mode is activated	-	1	-		
					and Air fuel ratio commanded rich for component	=	FALSE	-		
					protection is active )					
					and Current gear position and	>=	6	-		
					and Current gear position and	<=	10	-		

BD GROUP: KGMXOBDO	07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES EC GMXV04.2088	;M			MISSION	S STDS: CALULEV125, FE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIu
					Waiting time after first end of start in a driving cycle	>	0	sec		
					) and Sum of high and low range adaptions in current driving cycle	>=	1	-		
					and Deviation of the worst test cylinder	<=	0.999969	-		
					) for time and	>=	15	sec		
					( Switching state of intake camshaft position for the diagnosis for AFIM has been reached	=	TRUE	-		
					and Switching state of outlet camshaft position for the diagnosis for AFIM has been reached	=	TRUE	-		
					and					
					Actual rail pressure is adjusted to set point	=	TRUE	-		
					and Actual value of fuel part purge control and	<	0.008	-		
					Half Engine Mode is active and	=	FALSE	-		
					Switching of half engine mode is in instationary state and	=	FALSE	-		
					Engine roughness signal is released	=	TRUE	-		
					for time	>=	0.1	sec		
					Counter for adaption time and	>=	4294967295			
					Maximum number of cylinder enrichment is achieved	=	FALSE	-		
					No pending or confirmed DTCs	=	see sheet inhibit	-		
					Basic enable conditions met	=	tables see sheet enable tables	-		
	P219C	Cylinder Specific air-fuel imbalance detection too rich	Cylinder individual air-fuel ratio considering	< 0.829987 -	Enable conditions for lambda imbalance	=	TRUE		once per	2 Tri
			deviation from bank average air-fuel ratio		diagnosis ( (				driving cycle	е
	P219D				Basic enable conditions	=	TRUE	-		
	P219E				( Engine roughness signal is valid, which is the following conditions:	=	TRUE	-		
	P219F				Status of trigger wheel adaptation for segment time correction for cylinder individual lambda control function	=	TRUE	-		
	P21A0				and Condition segment duration plausible	=	TRUE	-		
	P21A1				and Active rough road detection	=	FALSE	-		
	P21A2				and Clutch operator is active	=	FALSE	-		
	P21A3				and Engine synchronisation is completed and engine is in normal operation mode	=	TRUE	-		
					)					

Component   System   Paul Code   Manufacture   Mathematical Calculus   Threshold Volume   Security Pre-invasion   Security Pr	D GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	IVI			EMISSIONS	STDS: CALULEV125, F	EDBIN12
month on the Control of Control o	Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	E	Enable Condition	ons	Time Required	MIL III
A						range (low or high operating range), as	=	TRUE	-		
A A Signer minumater international continues and any any and a series of the animater international continues and any any any and a series of the animater international continues and any any and animater international continues and a							<	A-B	%		
Security of the control of the contr						A is Upper threshold for the relative air charge in order to determine the operating range LOW depending on the engine speed	=	60	%		
Modern and an Abrona Anni Anni Anni Anni Anni Anni Anni An						charge for determining the operating ranges LOW and HIGH for automatic transmission	=	0.8	%		
Concess consists of the ATI						Relative air charge (with AT)	>	24.8	%		
A is bugger compressed products for A register   10 miles   10 m						Engine speed (with AT)	<	A-B	rpm		
section are charged for the manufacture of the content of the cont						A is Upper engine speed threshold for determining for operating range LOW, AT (See Look-Up-Table #1)			·		
Excesses recorded related ATT						relative air charge for determining the operating ranges LOW and HIGH for	=	40	rpm		
infant, oceration remote is released and and control of the contro						Engine speed (with AT)	>	1280	rpm		
where A has per per internal of the pre-trainer or all per						( High operation range is released	=	TRUE	-		
A la Upper threshold for the relative as a properties of the content of the operating properties of the content of the operating properties of the content o							<	A-B	%		
charge for determining the operating ranges (LOW and Info automatic transmission and and and and and and and and and an						A is Upper threshold for the relative air charge in order to determine the operating range LOW depending on the engine speed	=	0	%		
Relative air Charlos (with AT) > 191.3 %  and and and Engine speed (with AT) <						charge for determining the operating ranges LOW and HIGH for automatic transmission	=	0.8	%		
Engine speed (with AT) < A-B rpm  where A is Upper engine speed threshold for determining for operating range HIGH, AT B is the hyberise for upper engine speed thresholds for determining for operating range HIGH, AT B is the hyberise for upper engine speed thresholds for determining for operating range LOW and HIGH for automatic and HIGH for automatic and the second with AT)						Relative air charge (with AT)	>	191.3	%		
A is Upon engine speed threshold for determining for operating range HIGH, AT B is the hysteriss for otpener engine speed thresholds for determining the operating ranges LOW and HIGH for automatic transmission and seed (with AT) Charles seed (with AT)  for time  and Environmental conditions are within calibrated range:  { Ambient pressure and Environment temperature and Environment temperature is within calibrated range:  { Engine coolant temperature and Engine coolant temperature and Engine coolant temperature and Engine coolant temperature and Engine coolant temperature is within calibrated range:  { Engine coolant temperature and Engine coolant temperature is within albrated and Engine coolant temperature is within calibrated and Engine coolant temperature is within calibrated and Engine coolant temperature is within calibrated is and Engine Coolant temperature is and Engine Coolant							<	A-B	rpm		
determining for operating range HIGH, 4T  B is the hysteristics for determining the operating ranges LOW and HIGH for automatic transmission and Endine and Endine Collars and Endine Collars temperature is within calibrated and Endine coolant temperature is within calibrated and Endine coolant temperature is within calibrated and Endine coolant temperature is within calibrated = TRUE - Calibrated range:  ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolant temperature = TRUE - Calibrated range: ( Endine coolan						A is Upper engine speed threshold for	=	0	rpm		
Engine speed (wth AT)						determining for operating range HIGH, AT B is the hysterisis for upper engine speed thresholds for determining the operating ranges LOW and HIGH for automatic transmission	=	40			
and Environmental conditions are within = TRUE - calibrated range:  ( Ambient pressure > 50 kPa and Environment temperature > -40.04 deq C ) and Engine coolant temperature is within calibrated range: ( Engine coolant temperature > 57.96 deq C and Engine coolant temperature > 57.96 deq C and Engine coolant temperature = TRUE - calibrated range: ( Engine coolant temperature = TRUE - calibrated = TRUE - calibrated range = TRUE - calibrated range = TRUE - calibrated range = TRUE - calibrated = TRUE - calibrated = TRUE - calibrated = TRUE - calibrated range = TRUE - calibrated = TRUE							>	10200	rpm		
Environmental conditions are within calibrated range:  ( Ambient pressure							>=	0.5	sec		
and Environment temperature > -40.04 deq C ) and Engine coolant temperature is within = TRUE - calibrated range: ( Engine coolant temperature = 57.96 deq C and Engine coolant temperature = 143.26 deq C ) and Catalyst temperature is within calibrated = TRUE -						Environmental conditions are within	=	TRUE	-		
Environment temperature > -40.04 deq C ) and Engine coolant temperature is within calibrated range: ( Engine coolant temperature and Engine coolant temperature > 57.96 deq C and Engine coolant temperature   143.26 deq C   143.26 deq C   243.26 deq C   3 deq C   443.26 deq C   443.26 deq C   443.26 deq C							>	50	kPa		
Engine coolant temperature is within all the calibrated range:  ( Engine coolant temperature						Environment temperature	>	-40.04	deq C		
and Engine coolant temperature < 143.26 deg C ) and Catalyst temperature is within calibrated = TRUE -						Engine coolant temperature is within	=		-		
) and Catalyst temperature is within calibrated = TRUE -						and					
Catalyst temperature is within calibrated = TRUE - range, which is the following conditions:						Engine coolant temperature ) and					
						Catalyst temperature is within calibrated range, which is the following conditions:	=	TRUE	-		

BD GROUP: KGMXOBDG	07		DIAGNOSTI TEST GROUP: KG	C SUMMARY TABLES EC 3MXV04.2088	M		EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditi	ons	Time Required	MIL IIIu
					Where: a is Maximum catalyst 1 temperature at bank				
					1 b is Maximum catalyst 1 temperature at				
					bank 2 and max(a,b) Where:	> 399.96	deg C		
					a is Minimum catalyst 1 temperature at bank 1				
					b is Minimum catalyst 1 temperature at bank 2				
					and Inlet/outlet camshaft adjustment is released as follows:	= TRUE	-		
					( Condition release of intake camshaft control is valid	= TRUE	-		
					and State of camshaftw control is not in ready state	= TRUE	-		
					and Condition release of outlet camshaft control is valid	= TRUE	-		
					and State of camshaftw control is not in ready state	= TRUE	-		
					and and	TOUE			
					The following combustion conditions are fulfilled: (	= TRUE	-		
					Closed loop lambda control is active for bank 1 and	= TRUE	-		
					Flag lambda setpoint for sensor equal to 1	= TRUE	-		
					and Closed loop lambda control is active for bank 2	= TRUE	-		
					and Flag lambda setpoint for sensor equal to 1, bank 2	= TRUE	-		
					and Catalyst heating is active and	= FALSE	-		
					Homogenous mode is activated and	= 1	-		
					Air fuel ratio commanded rich for component protection is active )	= FALSE	-		
					and Current gear position and	>= 6	-		
					Current gear position and	>= 10	-		
					Waiting time after first end of start in a driving cycle )	> 0	sec		
					and Sum of high and low range adaptions in current driving cycle	>= 1	-		
					and Deviation of the worst test cylinder	<= 0.999969	-		
					for time and	>= 15	sec		
					( Switching state of intake camshaft position for the diagnosis for AFIM has been reached	= TRUE	-		
					and Switching state of outlet camshaft position for the diagnosis for AFIM has been reached	= TRUE	-		
					and Actual rail pressure is adjusted to set point	= TRUE	-		
					and				
					Actual value of fuel part purge control and	< 0.008	-		

GROUP: KGMXOBDO	907		DIAGNOST TEST GROUP: N		ARY TABLE 88	S ECM			E	MISSION	NS STDS:	CALULE\	/125, FED	)BIN1:
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Т	Threshold Value		Secondary Parameters		Enable Conditions	s		Time Required	_	MIL III
							Half Engine Mode is active and Switching of half engine mode is in instationary state and Engine roughness signal is released	=	FALSE FALSE TRUE	-				
							) for time ) Counter for adaption time	>=	0.1 4294967295	sec				
							and Maximum number of cylinder enrichment is achieved No pending or confirmed DTCs	=	FALSE see sheet inhibit tables	-				
							Basic enable conditions met	=	see sheet enable tables	-				
Fuel System	P10A4 P10A6	Monitor 1: Rationality check of valve opening time delay (tantot) against default value	Difference between current opening time delay and default opening time delay	>	100	us	Base Adaption is active No pending or confirmed DTCs	=	TRUE see sheet inhibit tables	-	2	events	continuous	21
	P10A8 P10AA						Basic enable conditions met	=	see sheet enable tables					2
	P10AC P10AE	Monitor 4: Rationality check of the total calculated injection time correction (dti) value	( Desired Open time(ti) on ballisitic area for CVO base adaption	>=	200	us	Pulse type of current injection is ballistic and	=	0	-	20	events		2
	P10B0 P10B2		and Total calculated injection time correction (dti) ) OR	>	79	us	Base Adaption is active and ( Pause time	=	FALSE 0	-				2
			( Desired Open time(ti) on ballisitic area for CVO base adaption and	<	200	us	OR Pause time	>=	0.003	sec				
			Total calculated injection time correction (dti)	>	39	us	No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-				
		Monitor 5: Rationality check of the Full-Lift closing time	Current Full-Lift closing time (tab)	<	620	us	Base Adaption is active No pending or confirmed DTCs Basic enable conditions met	= =	FALSE see sheet inhibit tables see sheet enable	-	20	events		
		Monitor 7: Rationality check of the ballistic dTi at the adjustment–point	Integrated dti value after the controller is stable during base adaption	>	39	us	Base Adaption is active	=	TRUE	-				
							No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-				
Fuel System	P10A3	Monitor 1: Rationality check of valve opening time delay (tantot) against default value	Difference between current opening time delay and default opening time delay OR	<	-100	us	Base Adaption is active  No pending or confirmed DTCs	=	TRUE see sheet inhibit		2	events	continuous	2
	P10A7		Opening time delay is found	=	FALSE	-	Basic enable conditions met	=	tables see sheet enable tables	-				2
	P10AB P10AD	Monitor 4: Rationality check of the total calculated injection time correction (dti) value	( Desired Open time(ti) on ballisitic area for CVO	>=	200	us	Pulse type of current injection is ballistic and	=	0	-	20	events		2 2
	P10AF P10B1		base adaption and Total calculated injection time correction (dti) )	<	-79	us	Base Adaption is active and (	=	FALSE	-				2
			( Desired Open time(ti) on ballisitic area for CVO base adaption	<	200	us	Pause time OR Pause time	>=	0.003	sec				
			and Total calculated injection time correction (dti) )	<	-39	us	) No pending or confirmed DTCs Basic enable conditions met	=	see sheet inhibit tables see sheet enable	-				
		Monitor 5: Rationality check of the Full-Lift closing time	Current Full-Lift closing time (tab)	>	200	us	Base Adaption is active	=	tables FALSE		20	events		

EDBIN1	CALULEV125, FEI	IS STDS:	MISSION	E				088	GMXV04.2	TEST GROUP: 1			D GROUP: KGMXOBDG0
MIL III	Fime Required			Enable Conditions		Secondary Parameters		Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
_			-	see sheet enable tables	-	Basic enable conditions met							
	events	20		FALSE		Base Adaption is active		TRUE	=	CVO controller is faulty and full lift closing could	Monitor 6: Detection of Full-lift closing time		
				see sheet inhibit	=	No pending or confirmed DTCs				not be detected			
				tables see sheet enable	=	Basic enable conditions met							
				tables									
			-	TRUE	=	Base Adaption is active	us	-39	<	Integrated dti value after the controller is stable during base adaption	Monitor 7: Rationality check of the ballistic dTi at the adjustment-point		
			-	see sheet inhibit tables	=	No pending or confirmed DTCs							
			-	see sheet enable tables	=	Basic enable conditions met							
sly 2 Tr	sec continuously	0.01	-	TRUE	-	Diagnosis register of the ASIC is valid				Monitoring of ASIC power supply:	ECU: Self Check for Sensor ASIC of UEGO Sensor 1 Bank 1	P064D	n Exhaust Gas Sensor
										Undervoltage at UB: Battery voltage < 6V	An error is reported if the ASIC detects it or it delivers unplausible measurement values		
			V	655.34	<=	(	_	TRUE	=	ASIC has shut off due to low battery voltage			
			V	10.9	>=	Battery voltage Battery voltage				(failure transition into IDLE state) OR			
			sec	0.1	>=	) for time				Tests for production checks are active			
			-	see sheet enable tables	=	Basic enable conditions met	-	TRUE	=	SPI test access port active			
			-	see sheet inhibit tables	=	No pending or confirmed DTCs				OR			
							-	TRUE	=	Built-in self-test failed OR			
								TRUE	=	Monitoring of ASIC internal sequencing Internal sequencing does not work Error of watchdog signal of the sequencer			
								TRUE	=	OR Watchdog signal of the SP-unit Interrupt to close			
								11102		OR			
							-	TRUE	=	Watchdog signal of the SP-unit reading error of the Program rom if set without Over- or Undervoltage Flags OR			
							-	TRUE	=	Check ASIC Chip ASIC chip ID is lower than BA-step			
				TRUE	_	Validity of IRQ diagnosis information				Monitoring of ASIC interrupt handling			
				INOL	-	validity of integral diagnosis information				Interrupt handling at ASIC base software does not work			
			٧	655.34	<=	( Battery voltage				not work			
			V	10.9	>=	Battery voltage )	-	TRUE	=	Bidirectional interrupt signal between ASIC and ECU-Microcontroller: too slow- or too fast			
			sec	0.1	>=	for time				response or no response			
			-	see sheet enable tables see sheet inhibit	-	Basic enable conditions met							
			-	tables	=	No pending or confirmed DTCs							
			-	TRUE	=	Cj135 is neither in IDLE nor in SWITCHON		_		Monitoring of quantification of the analog			
						mode				digital converter Causes for error: ADC defect, 3,3V source not operational, low-pass defect			
			V	655.34	<=	( Battery voltage							
			V	10.9	>=	Battery voltage )	V	0.00040007	<	Conversion value of the analog digital converter (amplifier mode 1)			
			sec -	0.1 see sheet enable tables see sheet inhibit	=	for time Basic enable conditions met No pending or confirmed DTCs	V	0.0007	>	OR Conversion value of the analog digital converter (amplifier mode 1) OR			
			-	tables	-	no pending of committee DTCs	V	0.00110006	<	Conversion value of the analog digital converter (amplifier mode 2)			
						1				OR	i .		

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: P		MARY TABLES 2088	ECM			E	MISSION	NS STDS: CAL	-ULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	Time F	equired	MIL IIIum.
			OR Conversion value of the analog digital converter (amplifier mode 3) OR	<	0.00309992	٧							
			Conversion value of the analog digital converter (amplifier mode 3)	>	0.00539994	٧							
			Current source Isq/ Rgnd resistance check Causes for error: Isq defect, Rgnd damaged or wrong calibration value of Rgnd				Cj135 is not in IDLE mode	=	TRUE	-			
			Ratio of requested amplitude of the pump current source and measured pump current source  OR	<	0.807447	-	Adjustment bits ISQ reference of sensor 1 bank 1 is same as register value of desired Isq sensor 1 bank 1	= <=	TRUE 655.34	- V			
			Ratio of requested amplitude of the pump current source and measured pump current source	>	1.192553	-	Battery voltage Battery voltage )	>=	10.9	٧			
							for time Basic enable conditions met No pending or confirmed DTCs	>= =	0.1 see sheet enable tables see sheet inhibit	sec -			
									tables	•			
			Current source Isqr/ Rcal resistance check Causes for error: Isor defect. Rcal damaced Ratio of requested amplitude of the pump current source and measured pump current source	<	0.807447	-	Cj135 is neither in IDLE nor in SWITCHON mode ( Battery voltage	= <=	TRUE 655.34	v			
			OR  Ratio of requested amplitude of the pump current	>	1.192553	-	Battery voltage ) for time	>=	10.9 0.1	V sec			
			source and measured pump current source				Basic enable conditions met  No pending or confirmed DTCs	=	see sheet enable tables see sheet inhibit	-			
								=	tables	•			
			Rmeas resistance check Since Rmeas cannot be alone measured by ECU, then the entire resistance between pin APE and MES (Rparl) will be checked here				Cj135 is in SWITCHON mode	=	TRUE	-			
			Calculated parallel resistance between APE and MES Calculated parallel resistance between APE and	< >	24 360	Ohm Ohm	Calculated parallel resistance is valid ( Battery voltage Battery voltage	= <= >=	TRUE 655.34 10.9	v			
			MES				for time Basic enable conditions met	>= =	0.1 see sheet enable tables	sec -			
							No pending or confirmed DTCs	-	see sheet inhibit tables	-			
			Monitoring of ASIC supply voltage deviations from 3.3V Measured reference voltage VCC3	<	2.96992	V	( Battery voltage Battery voltage )	<= >=	655.34 10.9	v			
			Measured reference voltage VCC3	>	3.66656	V	for time Basic enable conditions met No pending or confirmed DTCs	>= =	0.1 see sheet enable tables see sheet inhibit	sec -			
	DOCAE	FCU Salk Charleian Sanara ASIC of HIFCO Sanara A	Manitaring of ASIC payers aurably						tables		0.01	a antinuouslu	2 Trins
	P064E	ECU: Self Check for Sensor ASIC of UEGO Sensor 1 Bank 2 An error is reported if the ASIC detects it or it delivers unplausible measurement values	Monitoring of ASIC power supply:				Diagnosis register of the ASIC is valid	=	TRUE	-	0.01 s	ec continuously	2 Trips
			Undervoltage at UB: Battery voltage < 6V. ASIC has shut off due to low battery voltage (failure transition into IDLE state)	=	TRUE	-	( Battery voltage	<=	655.34	v			
			OR Tests for production checks are active SPI test access port active	=	TRUE	-	Battery voltage ) for time Basic enable conditions met	>= >= =	0.1 see sheet enable tables	V sec			

D GROUP: KGMXOBD	607		DIAGNOST TEST GROUP: N		MARY TABLES 2088	ECM			E	MISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	•	Time Required	MIL IIIu
			OR				No pending or confirmed DTCs	-	see sheet inhibit			
			Built-in self-test failed	=	TRUE	-			tables			
			OR Monitoring of ASIC internal sequencing									
			Internal sequencing does not work Error of watchdog signal of the sequencer	=	TRUE	-						
			OR Watchdog signal of the SP-unit Interrupt to close	=	TRUE	-						
			OR Watchdog signal of the SP-unit reading error of the Program rom if set without Over- or Undervoltage Flags	=	TRUE	-						
			OR Check ASIC Chip ASIC chip ID is lower than BA-step	=	TRUE	-						
			Monitoring of ASIC interrupt handling Interrupt handling at ASIC base software does not work				Validity of IRQ diagnosis information	=	TRUE	V		
			Different and Security Securit		TDUE		Battery voltage	<=	655.34	-		
			Bidirectional interrupt signal between ASIC and ECU-Microcontroller: too slow- or too fast response or no response	=	TRUE	-	Battery voltage )	>=	10.9	V		
							for time Basic enable conditions met	>=	0.1 see sheet enable	sec -		
							No pending or confirmed DTCs	=	tables see sheet inhibit tables	-		
			Monitoring of quantification of the analog digital converter Causes for error: ADC defect, 3,3V source not				Cj135 is neither in IDLE nor in SWITCHON mode	=	TRUE	-		
			operational. low-pass defect				( Battery voltage	<=	655.34	V		
			Conversion value of the analog digital converter (amplifier mode 1)	<	0.00040007	٧	Battery voltage )	>=	10.9	V		
			OR Conversion value of the analog digital converter (amplifier mode 1) OR	>	0.0007	V	for time Basic enable conditions met No pending or confirmed DTCs	=	0.1 see sheet enable tables see sheet inhibit	sec -		
			Conversion value of the analog digital converter (amplifier mode 2)	<	0.00110006	V	No perioring of committee D Tos	_	tables			
			OR Conversion value of the analog digital converter (amplifier mode 2)	>	0.00189996	V						
			OR Conversion value of the analog digital converter (amplifier mode 3) OR	<	0.00309992	V						
			Conversion value of the analog digital converter (amplifier mode 3)	>	0.00539994	V						
			Current source Isq/ Rgnd resistance check				Cj135 is not in IDLE mode	-	TRUE			
			Causes for error: Isq defect, Rgnd damaged or wrong calibration value of Rgnd Ratio of requested amplitude of the pump current	<	0.807447	_	Adjustment bits ISQ reference of sensor 1	_	TRUE	-		
			source and measured pump current source	Ì			bank 2 is same as register value of desired lsq sensor 1 bank 2					
			OR				( Battery voltage	<=	655.34	V		
			Ratio of requested amplitude of the pump current source and measured pump current source	>	1.192553	-	Battery voltage )	>=	10.9	V		
							for time	>=	0.1	sec		
							Basic enable conditions met  No pending or confirmed DTCs	=	see sheet enable tables see sheet inhibit			
							no penang or commined of Cs	_	tables	-		
			Current source Isqr/ Rcal resistance check				Cj135 is neither in IDLE nor in SWITCHON	=	TRUE		•	
			Causes for error: Isor defect. Rcal damaged Ratio of requested amplitude of the pump current	<	0.807447	_	mode (	<=	655.34	V		
			source and measured pump current source	`	0.007447	-	Battery voltage	·-	000.04	*		

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: N		MARY TABLES 2088	ECM			<u>_</u>	MISSION	IS STDS: C	ALULEV12	5, FEDB	3IN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	Tir	ne Required	м	MIL IIIur
			OR				Battery voltage	>=	10.9	V				
			Ratio of requested amplitude of the pump current source and measured pump current source	>	1.192553	-	) for time	>=	0.1	sec				
			source and measured pump current source				Basic enable conditions met	=	see sheet enable					
							No pending or confirmed DTCs	-	tables see sheet inhibit					
									tables					
			Rmeas resistance check Since Rmeas cannot be alone measured by ECU, then the entire resistance between pin APE and MES (Rparl) will be checked here				Cj135 is in SWITCHON mode	=	TRUE	-				
			Calculated parallel resistance between APE and	<	24	Ohm	Calculated parallel resistance is valid	= <=	TRUE 655.34	- V				
			MES Calculated parallel resistance between APE and	>	360	Ohm	Battery voltage Battery voltage	>=	10.9	V				
			MES				) for time	>=	0.1	sec				
							Basic enable conditions met	=	see sheet enable tables see sheet inhibit	-				
							No pending or confirmed DTCs	=	tables	-				
			Monitoring of ASIC supply voltage deviations				(	<=	655.34	V				
			from 3.3V Measured reference voltage VCC3	<	2.96992	V	Battery voltage Battery voltage	>=	10.9	V				
			Measured reference voltage VCC3	>	3.66656	V	for time Basic enable conditions met	>=	0.1 see sheet enable	sec				
							No pending or confirmed DTCs	_	tables see sheet inhibit					
							, ,		tables					
nsor Heater Circuit Bank 1 Senso	1 P0130	Path 1: Start diagnosis  Monitoring of ceramic temperature after engine start from end of dew point onwards	Ceramic temperature of upstream O2 sensor	<	719.991	deg C	Engine start has finished	=	TRUE	-	28 to 28		ice per ng cycle	2 Tr
							Dew point end for O2 sensor 1 bank 1 has reached (heating up is released) and	=	TRUE	-				
							Engine is running	=	TRUE	-				
							Coolant temperature at engine start	>=	-40.04	deg C				
							OR Engine is running	=	FALSE	-				
							Coolant temperature at engine output	>=	-40.04	deg C				
							) and							
							( Battery voltage	>=	10.9	V				
							and Battery voltage	<=	655.34	V				
							) for time and	>=	0.1	sec				
							Deactivation after release of Start Check Start Check will be aborted and deactivated for the rest of the driving cycle if any of the following conditions is not fulfilled for integrated sum time:	>	10	sec				
							( Battery voltage and	<=	655.34	٧				
							All injectors active in operation by running engine	=	TRUE	-				
							OR Engine is running	=	FALSE	-				
							\'							

25, FED	CALULE	S STDS:	MISSION					88	GMXV04.2	TEST GROUP: K			GROUP: KGMXOBDG0
	Time Require		S	Enable Condition		Secondary Parameters		Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			-	see sheet inhibit tables	=	No pending or confirmed DTCs							
ontinuous	sec	60	V	10.9	<=	( Battery voltage	deg C	719.991	<	Ceramic temperature of upstream O2 sensor	Path 2: Permanent diagnosis Monitoring of ceramic temperature against low rationality threshold		
			٧	655.34	>=	and Battery voltage					iow rationality tritestroid		
			sec	0.1	>=	) for time							
			-	TRUE	=	and Engine is running and							
			deg C	349.96	>=	Modelled exhaust gas temperature at upstream O2 sensor bank 1 and							
			- sec	FALSE 50	= >=	Fuel cut off is active for time							
			sec	50	>=	and HO2S closed loop heating control (inaccurate), which is the following condition for time:							
			deg C	64.9922	>	( Deviation between actual temperature value and set point							
			-	see sheet enable tables	=	and Basic enable conditions met							
			-	see sheet inhibit tables	=	and No pending or confirmed DTCs							
ontinuous	sec	10	V	10.9	<=	(	deg C	639.998	<	Temperature of ceramic upstream O2 sensor	Path 3: Low Temperature Diagnosis		
						Battery voltage					Monitoring of ceramic temperature against very low rationality threshold (drops quickly to a critical low level)		
			V	655.34	>=	and Battery voltage							
			sec	0.1	>=	) for time							
				TRUE	=	and Engine is running							
			deg C	349.96	>=	and Modelled exhaust gas temperature at upstream O2 sensor bank 1							
			- sec	FALSE 50	= >=	and Fuel cut off is active for time							
			sec	50	>=	and HO2S closed loop heating control (inaccurate), which is the following condition for time:							
			deg C	64.9922	>	( Deviation between temperature value and set point							
			-	see sheet enable tables	=	and Basic enable conditions met							
			-	see sheet inhibit tables	=	and No pending or confirmed DTCs							
ontinuous			V	655.34	<=	(				Aborted RAM check at ASIC shut-off when	Lambda sensor wire diagnosis	P0130	
			V	10.9	>=	Battery voltage  Battery voltage	-	FALSE	=	CJ135 in WARMUP mode Open load at pin RE detected if countinuity measurement was done before ASIC abort Short circuit to battery fault is detected at sensor	Circuit countinuity - open load at pin RE detected by means of aborted RAM check at WARMUP mode		
			sec	0.1	>=	) for time				lines IPE/APE/MES as per last accessed ASIC diagnostic register, means			
		1	-	TRUE	=	Requested mode of UEGO sensor 1 Bank 1 is in WARMUP mode	V	9.1 to 10.3	<=	Voltage at least at one of the sensor lines IPE/APE/MES			
			-	TRUE	=	IS IN WARKING Mode Upstream HO2S Sensor is heated up, which is the following conditions:	-	TRUE	=	Result of continuity measurement of sensor pumpcell using current source ISQ (in a state, where the ASIC-internal current source ISQr is connected to the sensor line "RE" via internal switches and the sensor line "IPE" is directly connected to RGnd) is available in RAM			

GROUP: KGMXOBDO	07		TEST GROUP: N	TC SUMMARY TABLES ECM GMXV04.2088			E	MISSION	S STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	Time Required	MIL III
					Upstream HO2S Sensor ceramic temperature	>	789.998	deg C		
					OR Heating-up phase of the sensor is completed	=	TRUE	-		
					) Basic enable conditions met	=	see sheet enable	-		
					No pending or confirmed DTCs	=	tables see sheet inhibit	-		
							tables			
		Lambda sensor wire diagnosis Circuit countinuity - open load at pin RE detected by means of aborted RAM check at NORMAL mode	Aborted RAM check at ASIC shut-off when CJ135 in NORMAL mode Open load at pin RE detected if current via Nernst		( Battery voltage	<=	655.34	٧		
			cell is not OK Current source ISQr is active: current via Nernst cell is OK	= FALSE -	Battery voltage	>=	10.9	٧		
			Cell IS OX		for time Upstream HO2S Sensor is heated up, which is the following conditions:	>=	0.1 TRUE	sec -		
					( Upstream HO2S Sensor ceramic temperature OR	>	789.998	deg C		
					OR Heating-up phase of the sensor is completed	=	TRUE	-		
					UEGO Signal ASIC mode request of sensor 1 bank 1 is in NORMAL operation mode	=	TRUE	-		
					Validity of REFPAT register sensor 1 bank 1	=	TRUE	-		
					Basic enable conditions met	=	see sheet enable tables	-		
					No pending or confirmed DTCs	=	see sheet inhibit tables	-		
		Circuit continuity check - open circuit by means of nernst voltage monitoring during pump current operation	Monitoring of abnormalities at sensor line IPE during normal ASIC operation		( Battery voltage	<=	655.34	٧		
			Open load at pin RE detected by means of nernst voltage monitoring Electrically corrected nernst voltage	> 1.8 V	Battery voltage	>=	10.9	V		
					for time Upstream HO2S Sensor is heated up, which is the following conditions:	>=	0.1 TRUE	sec -		
					( Upstream HO2S Sensor ceramic temperature	>	789.998	deg C		
					OR Heating-up phase of the sensor is completed	=	TRUE	-		
					UEGO Signal ASIC mode request of sensor 1 bank 1 is not in IDLE mode (pumping current is active)	=	TRUE	-		
					Counter of verifications of the actual mode of the ASIC for sensor 1 bank 1	>=	10	-		
					Basic enable conditions met	=	see sheet enable tables	-		
					No pending or confirmed DTCs	=	see sheet inhibit tables	-		
		Circuit continuity check - open circuit by means of continuity	Monitoring of abnormalities at sensor line RE		(	<=	655.34	V		
		measurements of sensor pumpsell respectively nemst cell during normal or aborted ASIC operation in WARMUP mode	during normal ASIC operation when CJ135 is in WARMUP mode Open load at pin RE detected by means of continuity measurements of sensor pumpcell and sensor nemst cell using current source ISQr		Battery voltage					
			Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISQr is connected to the sensor line "APE" and the sensor line "IPE" is directly	>= E*F	Battery voltage )	>=	10.9	V		
			connected to RGnd and voltage drop at ECU- internal resistor RG in a state, where all sensor lines are opened							

DBD GROUP: KGMXOBDO	07		DIAGNOS TEST GROUP: P		MARY TABLES .2088	ECM			E	EMISSION	IS STDS: C	ALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns	Tir	ne Required	MIL IIIum.
			Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISQr is connected to the sensor line "RE" is directly connected to RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened (Ugoliei - UgO)	<	E*F		Upstream HO2S Sensor is heated up, which is the following conditions:	=	TRUE	-			
			(E) Measured amplitude of the reference pump	=	measured value		(						
			current source (F) Minimum sensitivity of the continuiuity measurements to resistance RGnd	=	66	Ohm	Upstream HO2S Sensor ceramic temperature OR	>	789.998	deg C			
							Heating-up phase of the sensor is completed	=	TRUE	-			
							) Requested mode of UEGO sensor 1 Bank 1 is in WARMUP mode and	=	TRUE	-			
							( Last packet transfer aborted of sensor 1	=	FALSE	-			
							bank 1 Counter of verifications of the actual mode	>=	10	counts			
							of the ASIC for sensor 1 bank 2 Display for the validity of Isqr for UEGO sensor 1 Bank 1	=	TRUE	-			
							) OR (	_	TRUE				
							Last packet transfer aborted of sensor 1 bank 1 Result of continuity measurement of sensor	=	TRUE	-			
							pumpcell using current source ISQ (in a state, where the ASIC-internal current source ISQr is connected to the sensor line "APE" via internal switches and the sensor line "IPE" is directly connected to RGnd) is available in RAM						
							Short circuit to battery fault is detected at sensor lines RE/IPE/APE/MES as per last accessed ASIC diagnostic register, means	=	TRUE	-			
							Voltage at least at one of the sensor lines (RE/IPE/APE/MES)	>	9.1 to 10.3	٧			
							) Basic enable conditions met	=	see sheet enable tables	-			
							No pending or confirmed DTCs	=	see sheet inhibit tables	-			
2 Sensor Heater Circuit Bank 2 Senso	r 1 P0150	Path 1: Start diagnosis  Monitoring of ceramic temperature after engine start from end of dew point onwards	Ceramic temperature of upstream O2 sensor	<	719.991	deg C	Engine start has finished	=	TRUE	-	28 to 28	sec once p	
							and Dew point end for O2 sensor 1 bank 2 has reached (heating up is released) and	=	TRUE	-			
							( Engine is running	=	TRUE	-			
							Coolant temperature at engine start	>=	-40.04	deq C			
							OR Engine is running	=	FALSE	-			
							( Coolant temperature at engine output )	>=	-40.04	deg C			
							) and (						
							Battery voltage and	>=	10.9	٧			
							Battery voltage )	<=	655.34	٧			
							for time and	>=	0.1	sec			

BD GROUP: KGMXOBDO	607		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM (GMXV04.2088			E	MISSION	IS STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	Time Required	MIL IIIum
					Deactivation after release of Start Check Start Check will be aborted and deactivated for the rest of the driving cycle if any of the following conditions is not fulfilled for integrated sum time:	>	10	sec		
					( Battery voltage and	<=	655.34	V		
					( All injectors active in operation by running engine	=	TRUE	-		
					OR Engine is running	=	FALSE	-		
					Basic enable conditions met	=	see sheet enable tables	-		
					and No pending or confirmed DTCs	=	see sheet inhibit tables	-		
		Path 2: Permanent diagnosis Monitoring of ceramic temperature against	Ceramic temperature of upstream O2 sensor	< 719.991 deg C	( Battery voltage	<=	10.9	V	60 sec continuou	s 2 Trips
		low rationality threshold			and Battery voltage	>=	655.34	V		
					) for time	>=	0.1	sec		
					and Engine is running	=	TRUE	-		
					and Modelled exhaust gas temperature at upstream O2 sensor bank 2	>=	349.96	deg C		
					and Fuel cut off is active for time	= >=	FALSE 50	- sec		
					and HO2S closed loop heating control (inaccurate), which is the following condition for time:	>=	50	sec		
					( Deviation between actual temperature value and set point	>	64.9922	deg C		
					and Basic enable conditions met	=	see sheet enable tables	-		
					and No pending or confirmed DTCs	=	see sheet inhibit tables			
		Path 3: Low Temperature Diagnosis	Temperature of ceramic upstream O2 sensor	< 639.998 deg C	(	<=	10.9	V	10 sec continuou	s 2 Trip
		Monitoring of ceramic temperature against very low rationality threshold (drops quickly to a critical low level)			Battery voltage					
					Battery voltage ) for time	>=	655.34 0.1	V sec		
					and Engine is running	=	TRUE	-		
					and Modelled exhaust gas temperature at upstream O2 sensor bank 2	>=	349.96	deg C		
					and Fuel cut off is active for time	= >=	FALSE 50	- sec		
					for time and HO2S closed loop heating control (inaccurate), which is the following condition	>=	50	sec		
					for time: ( Deviation between temperature value and	>	64.9922	deg C		
					set point ) and Resis enable conditions met	=	see sheet on ship			
					Basic enable conditions met		see sheet enable tables	-		
		1			No pending or confirmed DTCs	=	see sheet inhibit tables	-		

GROUP: KGMXOBDG	07		TEST GROUP: F	FIC SUMMARY TABLES ECN GMXV04.2088				EMISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIc
	P0150	Lambda sensor wire diagnosis Circuit countinuity - open load at pin RE detected by means of aborted RAM check at WARMUP mode	Aborted RAM check at ASIC shut-off when CJ135 in WARMUP mode Open load at pin RE detected if countinuiuty measurement was done before ASIC abort	54.05	( Battery voltage	<=	655.34	V		2 Tri
			Short circuit to battery fault is detected at sensor lines IPE/APE/MES as per last accessed ASIC diagnostic register, means	= FALSE -	Battery voltage ) for time	>=	10.9			
			Voltage at least at one of the sensor lines IPE/APE/MES	<= 9.1 to 10.3 V	Requested mode of UEGO sensor 1 Bank 2 is in WARMUP mode	=	TRUE	sec -		
			Result of continuity measurement of sensor pumpcell using current source ISQ (in a state, where the ASIC-internal current source ISOr is connected to the sensor line "RE" via internal switches and the sensor line "IPE" is directly connected to RGnd) is available in RAM	= TRUE -	Upstream HO2S Sensor is heated up, which is the following conditions:	=	TRUE	-		
					Upstream HO2S Sensor ceramic temperature OR	>	789.998	deg C		
					Heating-up phase of the sensor is completed	=	TRUE	-		
					Basic enable conditions met	=	see sheet enable tables	-		
					No pending or confirmed DTCs	=	see sheet inhibit tables	-		
		Lambda sensor wire diagnosis Circuit countinuity - open load at pin RE detected by means of aborted RAM check at NORMAL mode	Aborted RAM check at ASIC shut-off when CJ135 in NORMAL mode Open load at pin RE detected if current via Nemst		( Battery voltage	<=	655.34	V		
			cell is not OK Current source ISQr is active: current via Nernst cell is OK	= FALSE -	Battery voltage	>=	10.9	V		
					for time Upstream HO2S Sensor is heated up, which is the following conditions:	>=	0.1 TRUE	sec -		
					Upstream HO2S Sensor ceramic temperature OR	>	789.998	deg C		
					Heating-up phase of the sensor is completed	=	TRUE	-		
					UEGO Signal ASIC mode request of sensor 1 bank 2 is in NORMAL operation mode	=	TRUE	-		
					Validity of REFPAT register sensor 1 bank 2	=	TRUE	-		
					Basic enable conditions met  No pending or confirmed DTCs	-	see sheet enable tables see sheet inhibit			
					no ponding of committee 5 100		tables			
		Circuit continuity check - open circuit by means of nernst voltage monitoring during pump current operation	Monitoring of abnormalities at sensor line IPE during normal ASIC operation Open load at pin RE detected by means of nemst		( Battery voltage	<=	655.34	V		
			voltage monitoring Electrically corrected nernst voltage	> 1.8 V	Battery voltage	>=	10.9	٧		
					for time Upstream HO2S Sensor is heated up, which is the following conditions:	>=	0.1 TRUE	sec -		
					( Upstream HO2S Sensor ceramic temperature OR	>	789.998	deg C		
					Heating-up phase of the sensor is completed	=	TRUE	-		
					UEGO Signal ASIC mode request of sensor 1 bank 2 is not in IDLE mode (pumping current is active) Counter of verifications of the actual mode of	=	TRUE	-		

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM KGMXV04.2088			E	MISSION	NS STDS: CALULEV125,	FEDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions	s	Time Required	MIL IIIum.
					Basic enable conditions met  No pending or confirmed DTCs	=	see sheet enable tables see sheet inhibit tables	-		
		Circuit continuity check - open circuit by means of continuity measurements of sensor pumpsel respectively nemst cell during normal or aborted ASIC operation in WARMUP mode	Monitoring of abnormalities at sensor line RE during normal ASIC operation when CJ135 is in WARMUP mode Open load at pin RE detected by means of continuity measurements of sensor pumpcell and sensor nems cell using current source ISOr		( Battery voltage	<=	655.34	V		
			Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISOr is connected to the sensor line "APE" and the sensor line "IPE" is directly connected to RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened (Uqolai - Uqol)	r >= E'F	Battery voltage )	>=	10.9	V		
			Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISOr is connected to the sensor line "RE" and the sensor line "RE" idencity connected to RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened (Ug0iei - Ug0)	c E*F	for time Upstream HO2S Sensor is heated up, which is the following conditions:	>=	0.1 TRUE	sec -		
			(E) Measured amplitude of the reference pump current source (F) Minimum sensitivity of the continuiuity measurements to resistance RGnd	= measured value = 66 Ohm	( Upstream HO2S Sensor ceramic temperature OR	>	789.998	deg C		
					Heating-up phase of the sensor is completed ) Requested mode of UEGO sensor 1 Bank 2	=	TRUE			
					is in WARMUP mode and ( (	=	FAI SF	_		
					Last packet transfer aborted of sensor 1 bank 2 Counter of verifications of the actual mode	>=	10	counts		
					of the ASIC for sensor 1 bank 2 Display for the validity of Isqr for UEGO sensor 1 Bank 2	=	TRUE	-		
					) OR ( Last packet transfer aborted of sensor 1	=	TRUE	-		
					Last placket utaristic abortiou of serisor in bank 2 Result of continuity measurement of sensor pumpcell using current source ISQ (in a state, where the ASIC-internal current source ISQr is connected to the sensor line "APE" via internal switches and the sensor line "IPE" is directly connected to RGnd) is	=	TRUE	-		
					available in RAM Short circuit to battery fault is detected at sensor lines RE/IPE/APE/MES as per last accessed ASIC diagnostic register, means	=	TRUE	-		
					Voltage at least at one of the sensor lines (RE/IPE/APE/MES)	>	9.1 to 10.3	٧		
					Basic enable conditions met  No pending or confirmed DTCs	=	see sheet enable tables see sheet inhibit tables	-		
UEGO Heater Control Powerstage	P0032	Diagnoses the UEGO heater control powerstage of bank 1 sensor 1 for short circuit to battery fault at the low side of the driver circuit	Voltage high during driver ON state (indicates short-to-power)	- Short to power: ≤ 0.5 Ω impedance between signal and controller power	Release condition of heater powerstage diagnosis is enabled	=	TRUE	-	0.5 sec continu	uous 2 Trips
					The following release condition of diagnosis report of bank 1 sensor 1 is satisfied	=	TRUE	-		

OBD GROUP: KGMXOBDGG	7		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM KGMXV04.2088		EMISSION	IS STDS: CALULEV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					( Battery Voltage for time Battery Voltage ) for time ) Jouty cycle control powerstage heater sensor 1 bank 1 Basic enable conditions met No Pending or Confirmed DTCs	>= 10.9 V = 1.5 sec <= 655.34 V >= 0.1 sec >= 4.0009 % = see sheet enable tables = see sheet inhibit tables		
UEGO Heater Control Powerstage	P0031	Diagnoses the UEGO heater control powerstage of bank 1 sensor 1 for short circuit to ground fault at the low side of the driver circuit	Voltage low during driver OFF state (indicates short-to-ground)	= Short to ground: ≤ 0.5 - Ω impedance between signal and controller ground	Release condition of heater powerstage diagnosis is enabled  The following release condition of diagnosis report of bank 1 sensor 1 is satisfied	= TRUE -	2 sec continuous	2 Trips
					Battery Voltage for time  Battery Voltage ) for time ) Basic enable conditions met  No Pending or Confirmed DTCs	>= 10.9 V = 1.5 sec <= 655.34 V >= 0.1 sec = see sheet enable tables = see sheet inhibit tables		
UEGO Heater Control Powerstage	P0030	Diagnoses the UEGO heater control powerstage of bank 1 sensor 1 for open circuit faults	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit:≥ 200 K Ω - impedance between ECU pin and load	Release condition of heater powerstage diagnosis is enabled  The following release condition of diagnosis report of bank 1 sensor 1 is satisfied	= TRUE -	0.5 sec continuous	2 Trips
					( Battery Voltage for time Battery Voltage ) for time ) for time ) Basic enable conditions met No Pending or Confirmed DTCs	>= 10.9 V = 1.5 sec <= 655.34 V >= 0.1 sec = see sheet enable - tables = see sheet inhbit - tables		
UEGO Heater Control Powerstage	P0052	Diagnoses the UEGO heater control powerstage of bank 1 sensor 2 for short circuit to battery fault at the low side of the driver circuit	Voltage high during driver ON state (indicates short-to-power)	Short to power: ≤ 0.5 Ω impedance between signal and controller power	Release condition of heater powerstage diagnosis is enabled  The following release condition of diagnosis report of bank 2 sensor 1 is satisfied	= TRUE -	2 sec continuous	2 Trips
					( Battery Voltage for time Sattery Voltage ) for time ) Duty cycle control powerstage heater sensor 1 bank 2 Basic enable conditions met No Pending or Confirmed DTCs	>= 10.9 V = 1.5 sec <= 655.34 V >= 0.1 sec >= 4.0009 % = see sheet enable tables = see sheet inhibit tables		

OBD GROUP: KGMXOBDO	907		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES (GMXV04.2088	ECM			E	MISSION	NS STDS	: CALUL	EV125, FE	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters		Enable Condition			Time Requi		MIL IIIum.
EGO Heater Control Powerstage	P0051	Diagnoses the UEGO heater control powerstage of bank 2 sensor 1 for short circuit to ground fault at the low side of the driver circuit	Voltage low during driver OFF state (indicates short-to-ground)	= Short to ground: ≤ 0.5 Ω impedance between signal and controller ground	-	Release condition of heater powerstage diagnosis is enabled  The following release condition of diagnosis report of bank 2 sensor 1 is satisfied	=	TRUE	-	0.5	sec	continuous	2 Trips
						( Battery Voltage for time Battery Voltage ) for time	>= = <= >=	10.9 1.5 655.34 0.1	V sec V				
						) Basic enable conditions met No Pending or Confirmed DTCs	=	see sheet enable tables see sheet inhibit tables	-				
GO Heater Control Powerstage	P0050	Diagnoses the UEGO heater control powerstage of bank 2 sensor 1 for open circuit faults	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit:≥ 200 K Ω impedance between ECU pin and load	-	Release condition of heater powerstage diagnosis is enabled	=	TRUE	-	0.5	sec	continuous	2 Trips
						The following release condition of diagnosis report of bank 2 sensor 1 is satisfied	=	TRUE	-				
						{ Battery Voltage for time Battery Voltage }	>= = <=	10.9 1.5 655.34	V sec V				
						for time ) Basic enable conditions met No Pending or Confirmed DTCs	=	0.1 see sheet enable tables see sheet inhibit tables	sec -				
Upstream Exhaust Gas Sensor	P2237	Lambda sensor wire diagnosis for UEGO sensor 1 bank 1 Circuit continuity - open circuit at pin Apes	Monitoring of abnormalities at sensor line Apes during normal ASIC operation when CJ135 in WARMUP mode Open load at pin Apes detected by means of continuity measurements of sensor pumpell and sensor nemst cell using current source ISOr			( Battery voltage	<=	655.34	V			continuous	2 Trips
			Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISOr is connected to the sensor line "APE" and the sensor line "IPE" is directly connected to RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened	< E'F	٧	Battery voltage )	>=	10.9	V				
			(Ug0iai - Ug0)  Olfference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISOr is connected to the sensor line 'RE' and the sensor line 'IPE' is directly connected to RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened (Ug0iei - Ug0)	>= E*F	٧	for time	>=	0.1	sec				
			(E) Measured amplitude of the reference pump current source (F) Minimum sensitivity of the continuiuity measurements to resistance RGnd	= measured value = 66	A Ohm	Upstream HO2S Sensor is heated up, which is the following conditions:	=	TRUE	-				
			Aborted RAM check at ASIC shut-off when CJ135 in WARMUP mode Open load at pin Apes detected by means of continuity measurements of sensor pumpcell and sensor nemst cell using current source ISQr			Upstream HO2S Sensor ceramic temperature OR	>	789.998	deg C				

OBD GROUP: KGMXOBDO	07		DIAGNOST TEST GROUP: 1		MARY TABLES .2088	ECM				EMISSION	IS STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditio	ns	Time Required	MIL IIIum.
			Result of continuity measurement of sensor pumpcell using current source ISQ (in a state, where the ASIC-internal current source ISQr is connected to the sensor line "APE" via internal switches and the sensor line "IPE" is directly connected to RGn(s) is available in RAM	=	TRUE	·	Heating-up phase of the sensor is completed	=	TRUE			
			Short circuit to battery fault is detected at sensor lines RE/IPE/APE/MES as per last accessed ASIC diagnostic register, means Voltage at least at one of the sensor lines	= >	TRUE 9.1 to 10.3	- V	)  Basic enable conditions met	_	see sheet enable			
			REI/PEI/APE/MES Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISOr is connected to the sensor line "APE" and the sensor line "IPE" is directly connected to RGnd and voltage drop at ECU-	<	D*F	V	No pending or confirmed DTCs	=	tables see sheet inhibit tables	-		
			internal resistor RG in a state, where all sensor lines are opened (Ug0iai - Ug0) Offference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current souther state of the state of the state of the state and the sensor line "IPE" is directly connected to RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened	>=	D°F	V						
			(Ug0iei - Ug0)  (D) Requested amplitude of the reference pump current source (F) Minimum sensitivity of the continuiuity	=	commanded value	A Ohm						
			measurements to resistance RGnd  Aborted RAM Check at ASIC shut-off when CJ135 in NORMAL mode Open load at pin Apes detected if countinuiturly measurement was done before abort Result of continuity measurement of sensor pumpcell using current source ISQ (in a state, where the ASIC-internal current source ISQ'r is	=	TRUE	-						
			connected to the sensor line "APE" via internal switches and the sensor line "IPE" is directly connected to RGnd) is available in RAM									
Exhaust gas sensor, Bank 1	P2237	Path 1: Monitoring of prolonged activation of the blackening protection	Blackening protection is active for at least number of 16 successive checks for time	>=	5 2.55	counts	( Release of diagnosis report sensor 1 bank 1	=	TRUE	-	10 - Continuou	s 2 Trips
							( Battery voltage for time Battery voltage )	>= >= <=	10.9 1.5 655.34	V sec V		
							for time ) Sensor in hot state ( Sensor operation release, Sensor 1 Bank 1	>= =	0.1 TRUE TRUE	sec -		
							( Battery voltage for time	<= >=	655.34 0.06	V sec		
							( ( ( End of start reached OR	=	FALSE	-		
							Engine operation in stopping and finish state ( Heat quantity to dew-point end exceeds heat quantity threshold for dew-point end	=	TRUE	-		
							) ) OR					
							Counter for repeated cold starts dew-point end not reached sensor 1	= <=	FALSE 2	- counts		

FEDBIN	STDS: CALULEV125, F	MISSIONS				SMXV04.2088	TEST GROUP: K			GROUP: KGMXOBDG0
MIL	Time Required	ıs	Enable Conditio		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			TRUE	=	( Catalyst heating request by cold engine					
		-	TRUE	=	and Catalyst heating request in connection with					
		-	0 to 0.40625	>=	engine speed  Ratio of heat quantity for dew-point end detection sensor 1 and heat quantity threshold for dew-point end detection sensor 1 bank 1 (see Look-Up Table #P2237-1)					
		-	1	>=	) OR Ratio of heat quantity for dew-point end detection sensor 1 and heat quantity threshold for dew-point end detection sensor 1 bank 1					
		_	TRUE	_	) ) ) ) ( ( Engine is stopping					
			TRUE	-	OR Engine in stop phase					
		sec	2	>=	) for time					
		-	TRUE	=	) OR Engine in running state					
		_	TRUE	=	) OR ( Status of fast light-off for Lambda sensor					
		-	TRUE	=	OR Function demand for oxygen sensor heating before start					
			TRUE	=	) OR Dew point release requested by service tester					
		v	10.9	>=	( Battery voltage					
		sec -	1.5 TRUE	>=	for time OR Heating up of open loop completed, sensor					
			FALSE 0	=	bank 1     Tror with heater, sensor 1, bank 1     UEGO Signal ASIC mode request of sensor					
		v	9.8	>	1 bank 1 Battery voltage					
		sec V	0.5 8	>= >	for time Battery voltage					
		sec	0.05 TRUE	>=	for time Status auxillary power relay					
		-	TRUE	=	ECU in drive state )					
		-	TRUE	=	Evaluation temperature is valid, sensor 1 bank 1					
		deg C	A - B	>	( Temperature of ceramic sensor 1 bank 1					
		deg C	800.006	=	where (A) temperature set point for heater control					
		deg C	64.9922	=	(B) large temperature threshold of the control deviation of heater control					
		-	TRUE	=	OR Heating up open loop is completed, sensor 1, bank 1					
		- sec	TRUE 0	= >=	( Open loop ramp phase finished for time					
		deg C	789.998	>=	OR Temperature of ceramic sensor 1 bank 1				I	

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TC SUMMARY TABLES ECM GMXV04.2088			EMISS	SIONS STDS: CALULE	V125, FEDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable	Conditions	Time Require	d MIL IIIur
					) for time Pump current operation for sensor 1 bank 1	>= 0 = TR	.1 se UE -		
					is active Counter of verifications of the actual mode of		0 cour	nts	
					the ASIC for sensor 1 bank 1 UEGO Signal ASIC mode request of sensor		) -		
					1 bank 1 Current pump package is valid		UE -		
					) No pending or confirmed DTCs	= see she			
					Basic enable conditions met	= see shee	ole et enable -		
						tab	iles		
		Path 2: Monitoring of negative voltage drop deviation at ECU- internal resistor Rgnd by means of continuity measurements of sensor pumpcell	Negative voltage drop deviation, sensor 1 bank 1	<= -0.15008 V	Common conditions for voltage drop deviation:				
			and Negative voltage drop deviation, sensor 1 bank 1	>= 0.15008 V	( Release of diagnosis report sensor 1 bank 1	= TR	UE -		
					( ( Battery voltage for time		0.9 V .5 se		
					and Battery voltage		5.34 V		
					) for time	>= 0	.1 se		
					) Sensor in hot state	= TR	UE -		
					( Sensor operation release, Sensor 1 Bank 1	= TR	UE -		
					( Battery voltage for time		5.34 V 06 se		
					( ( (				
					End of start reached OR		SE -		
					Engine operation in stopping and finish state	= FAI	-SE -		
					Heat quantity to dew-point end exceeds heat quantity threshold for dew-point end	= TR	UE -		
					) ) OR				
					( Dew point end is reset for TSP sensor 1 Counter for repeated cold starts dew-point end not reached sensor 1	= FAI	_SE - 2 cour	nts	
					( Catalyst heating request by cold engine Catalyst heating request in connection with engine speed		UE - UE -		
					( Ratio of heat quantity for dew-point end detection sensor 1 and heat quantity threshold for dew-point end detection sensor 1 bank 1 (see Look-Up Table #P2237-1)	>= 0 to 0	40625 -		
					) OR Ratio of heat quantity for dew-point end detection sensor 1 and heat quantity threshold for dew-point end detection sensor 1 bank 1	>=	1 -		
					) ) ( (				
					( Engine is stopping OR	= TR	UE -		

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABL	ES ECM			E	MISSION	NS STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Valu	e	Secondary Parameters		Enable Condition	s	Time Required	MIL IIIun
					E	Engine in stop phase	-	TRUE	-		
					f	for time	>=	2	sec		
						OR Engine in running state	=	TRUE			
					)	) OR					
					(	( Status of fast light-off for Lambda sensor	-	TRUE	-		
					F	OR Function demand for oxygen sensor heating before start	=	TRUE	-		
					) ( !	) OR Dew point release requested by service tester	=	TRUE	-		
					ò	) (					
					f	Battery voltage for time	>= >=	10.9 1.5	V sec		
					i	OR Heating up of open loop completed, sensor 1, bank 1	=	TRUE	-		
					L	) Error with heater, sensor 1, bank 1 UEGO Signal ASIC mode request of sensor	=	FALSE 0	-		
					E	1 bank 1 Battery voltage for time	>=	9.8 0.5	V sec		
					E	Battery voltage	>	8	V		
					f	for time Status auxillary power relay	>=	0.05 TRUE	sec -		
					)	ECU in drive state ) Evaluation temperature is valid, sensor 1	=	TRUE TRUE	-		
					k	bank 1	-	IRUE	-		
						( Temperature of ceramic sensor 1 bank 1	>	A - B	deg C		
						where (A) temperature set point for heater control	=	800.006	deg C		
					d	(B) large temperature threshold of the control deviation of heater control	=	64.9922	deg C		
					i	OR Heating up open loop is completed, sensor 1, bank 1	=	TRUE	-		
						Open loop ramp phase finished for time	= >=	TRUE 0	- sec		
						OR Temperature of ceramic sensor 1 bank 1	>=	789.998	deg C		
					Ś	)					
					F	for time Pump current operation for sensor 1 bank 1	>=	0.1 TRUE	sec -		
					C	is active Counter of verifications of the actual mode of the ASIC for sensor 1 bank 1	>	30	counts		
					l	UEGO Signal ASIC mode request of sensor 1 bank 1	!=	0	-		
					Ġ	Current pump package is valid )	=	TRUE	-		
						No pending or confirmed DTCs	=	see sheet inhibit table	-		
					E	Basic enable conditions met	=	see sheet enable tables	-		
		Path 3: Monitoring of positive voltage drop deviation at ECU-	Positive voltage drop deviation, sensor 1 bank 1	<= -0.15008	V	Common conditions for voltage drop	=	TRUE		1	
		internal resistor Rgnd by means of continuity measurements of sensor pumpcell	Positive voltage drop deviation, sensor 1 bank 1	>= 0.15008	V	deviation  Basic enable conditions met	=	see sheet enable	-		
								tables			
		Path 4: Monitoring of the non-availability of the sensor signals for a prolonged duration	(		(	(				]	
			Physical release conditions for oxygen sensor are fulfilled	= FALSE	- F	Release of diagnosis report sensor 1 bank 1	=	TRUE	-		

BD GROUP: KGMXOBDG	07		DIAGNOS <sup>*</sup> TEST GROUP: I	TIC SUMMARY TABLES ECM GMXV04.2088			EMISSION	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditi	ions	Time Required	MIL IIIun
			Oxygen sensor signals are of high precision ) for time	= FALSE - >= 10 sec	( Battery voltage for time Battery voltage	>= 10.9 >= 1.5 <= 655.34	V sec V		
					) for time	>= 0.1	sec		
					Sensor in hot state	= TRUE	-		
					Sensor operation release, Sensor 1 Bank 1	= TRUE	-		
					( Battery voltage for time (	<= 655.34 >= 0.06	V sec		
					( ( End of start reached OR	= FALSE	-		
					Engine operation in stopping and finish state	= FALSE	-		
					Heat quantity to dew-point end exceeds heat quantity threshold for dew-point end	= TRUE	-		
					) ) OR				
					Dew point end is reset for TSP sensor 1 Counter for repeated cold starts dew-point end not reached sensor 1	= FALSE <= 2	counts		
					( Catalyst heating request by cold engine Catalyst heating request in connection with engine speed	= TRUE = TRUE	-		
					( Ratio of heat quantity for dew-point end detection sensor 1 and heat quantity threshold for dew-point end detection sensor 1 bank 1 (see Look-Up Table #P2237-1)	>= 0 to 0.40625	-		
					) OR Ratio of heat quantity for dew-point end detection sensor 1 and heat quantity threshold for dew-point end detection sensor 1 bank 1	>= 1	-		
					) ) (				
					( Engine is stopping	= TRUE	-		
					OR Engine in stop phase )	= TRUE	-		
					for time )	>= 2	sec		
					OR Engine in running state ) OR	= TRUE	-		
					( Status of fast light-off for Lambda sensor	= TRUE	-		
					OR Function demand for oxygen sensor heating before start )	= TRUE	-		
					OR Dew point release requested by service tester )	= TRUE	-		
					( Battery voltage for time OR	>= 10.9 >= 1.5	V sec		

OBD GROUP: KGMXOBDO	07		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLE	S ECM				EMISSION	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	•	Secondary Parameters		Enable Conditio	ns	Time Required	MIL IIIum.
						Heating up of open loop completed, sensor 1, bank 1 Error with heater, sensor 1, bank 1 UEGO Signal ASIC mode request of sensor 1 bank 1 Battery voltage for time Battery voltage for time Battery voltage for time Status auxillary power relay ECU in drive state ) Laudition temperature is valid, sensor 1 bank 1 ( Temperature of ceramic sensor 1 bank 1 where (A) temperature set point for heater control (B) large temperature threshold of the control deviation of heater control OR Heating up open loop is completed, sensor 1, bank 1 ( Open loop ramp phase finished for time OR Temperature of ceramic sensor 1 bank 1 ) In of time Current of verifications of the actual mode of the ASIC for sensor 1 bank 1 UEGO Signal ASIC mode request of sensor 1 bank 1 UEGO Signal ASIC mode request of sensor 1 bank 1 UEGO Signal ASIC mode request of sensor 1 bank 1 UEGO Signal ASIC mode request of sensor 1 bank 1 UEGO Signal ASIC mode request of sensor 1 bank 1 UEGO Signal ASIC mode request of sensor 1 bank 1 UEGO Signal ASIC mode request of sensor 1 bank 1 UEGO Signal ASIC mode request of sensor 1 bank 1 Successive the sensor 1 bank 1 UEGO Signal ASIC mode request of sensor 1 bank 1 Successive the sensor 1 bank 1 UEGO Signal ASIC mode request of sensor 1 bank 1 Successive the	=	TRUE  FALSE 0  9.8 0.5 8 0.05 TRUE TRUE TRUE TRUE  TRUE  A - B  800.006 64.9922  TRUE  TRUE 0  789.998  0.1 TRUE 30 0 TRUE See sheet inhibit table see sheet inhibit table	deq C deg C deg C deg C . sec		
	P2240	Lambda sensor wire diagnosis for UEGO sensor 1 bank 2 Circuit continiuity - open circuit at pin Apes	Monitoring of abnormalities at sensor line Apes during normal ASIC operation when CJ135 in WARMUP mode Open load at pin Apes detected by means of continuity measurements of sensor pumpcell and sensor nemst cell using current source ISCr Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISCr is connected to the sensor line "APE" and the sensor line "IPE" is directly connected to RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened (IgQ6ia - IgQ6) Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISCr is connected to the sensor line "RE" and the sensor line "IPE" is directly connected to RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened (IgQ6ia - IgQ6)  (E) Measured amplitude of the reference pump current source (F) Minimum sensitivity of the continuiuity measurements to resistance RGnd	< E*F >= E*F = measured value = 66	V V A Ohm	Battery voltage  Battery voltage  )  for time  Upstream HO2S Sensor is heated up, which is the following conditions:	<= >≡ >=	0.1 TRUE	V V sec	continuo	us 2 Trips
			Aborted RAM check at ASIC shut-off when CJ135 in WARMUP mode Open load at pin Apes detected by means of continuity measurements of sensor pumpcell and sensor nernst cell using current source ISQr			Upstream HO2S Sensor ceramic temperature OR	>	789.998	deg C		

OBD GROUP: KGMXOBDO	07		DIAGNOS' TEST GROUP: I		MARY TABLES	ECM				EMISSION	IS STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIum.
			Result of continuity measurement of sensor pumpcell using current source ISQ (in a state, where the ASIC-internal current source ISQr is connected to the sensor line "APE" via internal switches and the sensor line "IPE" is directly connected to RGn(s) a svalidable in RAM	=	TRUE		Heating-up phase of the sensor is completed	=	TRUE			
			Short circuit to battery fault is detected at sensor lines RE/IPE/APE/MES as per last accessed ASIC diagnostic register, means	=	TRUE	- V		_				
			Voltage at least at one of the sensor lines REIPE/APEMES Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISOr is connected to the sensor line "APE" and the sensor line "IPE" is directly connected to RGnd and voltage drop at ECU-	>	9.1 to 10.3 D * F	V	Basic enable conditions met  No pending or confirmed DTCs	=	see sheet enable tables see sheet inhibit tables	-		
			internal resistor RG in a state, where all sensor lines are opened (UgOsia - UgO) Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISQr is connected to the sensor line "RE" and the sensor line "IPE" is directly connected to	>=	D⁺F	٧						
			RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened (Ug0iei - Ug0)									
			(D) Requested amplitude of the reference pump current source (F) Minimum sensitivity of the continuiuity measurements to resistance RGnd	=	commanded value 66	A Ohm						
			Aborted RAM check at ASIC shut-off when CJ135 in NORMAL mode Open load at pin Apes detected if countinuluty measurement was done before abort Result of continuity measurement of sensor pumpcell using current source ISQ (in a state, where the ASIC-internal current source ISQ ris	=	TRUE	-						
			connected to the sensor line "APE" via internal switches and the sensor line "IPE" is directly connected to RGnd) is available in RAM									
Exhaust gas sensor, Bank 2	P2240	Path 1: Monitoring of prolonged activation of the blackening protection	Blackening protection is active for at least number of 16 successive checks for time	>=	5 2.55	counts	( Release of diagnosis report sensor 1 bank 2	=	TRUE	÷	10 - Continuo	us 2 Trips
							( Battery voltage for time and	>= >=	10.9 1.5	V sec		
							Battery voltage ) for time	<= >=	655.34 0.1	V sec		
							Sensor in hot state ( Sensor operation release, Sensor 1 Bank 2	=	TRUE TRUE	-		
							( Battery voltage for time (	<= >=	655.34 0.06	V sec		
							( ( End of start reached OR Engine operation in stopping and finish state	=	FALSE FALSE	-		
							( Heat quantity to dew-point end exceeds heat quantity threshold for dew-point end	=	TRUE	-		
							) ) OR					
							( Dew point end is reset for TSP sensor 1 Counter for repeated cold starts dew-point end not reached sensor 1	= <=	FALSE 2	counts		

FEDBIN	S STDS: CALULEV125, I	EMISSIONS S				IC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDG
MIL	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			TRUE	_	( ( Catalyst heating request by cold engine					
			TRUE	=	and Catalyst heating request in connection with					
		-	0 to 0.40625	>=	engine speed  Ratio of heat quantity for dew-point end detection sensor 1 and heat quantity threshold for dew-point end detection sensor 1 bank 2 (see Look-Up Table #P2240-1)					
		-	1	>=	) OR Ratio of heat quantity for dew-point end detection sensor 1 and heat quantity threshold for dew-point end detection sensor 1 bank 2					
			TRUE	=	) ) ( ( ( Engine is stopping					
		-	TRUE	=	OR Engine in stop phase					
		sec	2	>=	) for time					
		-	TRUE	=	OR Engine in running state )					
		-	TRUE	=	OR ( Status of fast light-off for Lambda sensor					
		-	TRUE	=	OR Function demand for oxygen sensor heating before start					
		-	TRUE	=	OR Dew point release requested by service tester )					
		V sec	10.9 1.5	>= >=	( Battery voltage for time					
		-	TRUE	=	OR Heating up of open loop completed, sensor 1, bank 2					
		-	FALSE 0	=	Pror with heater, sensor 1, bank 2 UEGO Signal ASIC mode request of sensor 1 bank 2					
		V sec	9.8 0.5	>=	Battery voltage for time					
		V sec	8 0.05	>=	Battery voltage for time					
		-	TRUE TRUE	=	Status auxillary power relay ECU in drive state					
		-	TRUE	=	Evaluation temperature is valid, sensor 1 bank 2					
		deq C	A - B	>	( Temperature of ceramic sensor 1 bank 2 where					
		deg C	800.006	=	(A) temperature set point for heater control					
		deg C	64.9922	=	(B) large temperature threshold of the control deviation of heater control OR					
		-	TRUE	=	Heating up open loop is completed, sensor 1, bank 2					
		- sec	TRUE 0	= >=	( Open loop ramp phase finished for time					
		deg C	789.998	>=	OR Temperature of ceramic sensor 1 bank 2				1 1	

BD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM GMXV04.2088			EMISSION	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Cond	litions	Time Required	MIL IIIum
					) ) tor time Pump current operation for sensor 1 bank 2 is active Counter of verifications of the actual mode of the ASiC for sensor 1 bank 2 UEGO Signal ASiC mode request of sensor 1 bank 2 Current pump package is valid ) No pending or confirmed DTCs Basic enable conditions met	>= 0.1 = TRUE > 30 = 0 = TRUE = see sheet inhitable = see sheet and tables			
		Path 2: Monitoring of negative voltage drop deviation at ECU- internal resistor Rgnd by means of continuity measurements of	Negative voltage drop deviation, sensor 1 bank 2	<= -0.15008 V	Common conditions for voltage drop deviation:				
		sensor pumpcell	and Negative voltage drop deviation, sensor 1 bank 2	>= 0.15008 V	( Release of diagnosis report sensor 1 bank 2	= TRUE	-		
					(     Battery voltage     for time     Battery voltage     for time     Sensor in hot state	>= 10.9 >= 1.5 <= 655.34 >= 0.1 = TRUE	V sec V sec		
					Sensor in hot state ( Sensor operation release, Sensor 1 bank 2	= TRUE	-		
					( Battery voltage for time (	<= 655.34 >= 0.06	V sec		
					( ( End of start reached OR Engine operation in stopping and finish state	= FALSE = FALSE	-		
					( Heat quantity to dew-point end exceeds heat quantity threshold for dew-point end	= TRUE	-		
					) ) OR				
					Dew point end is reset for TSP sensor 1 Counter for repeated cold starts dew-point end not reached sensor 1	= FALSE <= 2	counts		
					Catalyst heating request by cold engine Catalyst heating request in connection with engine speed	= TRUE = TRUE	-		
					( Ratio of heat quantity for dew-point end detection sensor 1 and heat quantity threshold for dew-point end detection sensor 1 bank 2 (see Look-Up Table #P2240-1)	>= 0 to 0.40625	5 -		
					) OR Ratio of heat quantity for dew-point end detection sensor 1 and heat quantity threshold for dew-point end detection sensor 1 bank 2 )	>= 1	-		
					) ( ( ( Engine is stopping OR	= TRUE	-		

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TIC SUMMARY T GMXV04.2088	ABLES ECM			E	MISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresho	ld Value	Secondary Parameters		Enable Condition	ıs	Time Required	MIL III
						Engine in stop phase	-	TRUE	-		
						for time	>=	2	sec		
						OR Engine in running state ) OR	=	TRUE	-		
						( Status of fast light-off for Lambda sensor	=	TRUE	-		
						OR Function demand for oxygen sensor heating before start	=	TRUE	-		
						OR Dew point release requested by service tester	=	TRUE	-		
						, ( Battery voltage	>=	10.9	V		
						for time OR	>=	1.5	sec		
						Heating up of open loop completed, sensor 1, bank 2	=	TRUE	-		
						Error with heater, sensor 1, bank 2 UEGO Signal ASIC mode request of sensor 1 bank 2	=	FALSE 0	-		
						Battery voltage for time	>=	9.8 0.5	V sec		
						Battery voltage for time	> >=	8 0.05	V sec		
						Status auxillary power relay ECU in drive state	=	TRUE TRUE	-		
						) Evaluation temperature is valid, sensor 1 bank 2	=	TRUE	-		
						( Temperature of ceramic sensor 1 bank 2	>	A - B	deg C		
						where (A) temperature set point for heater control	-	800.006	deg C		
						(B) large temperature threshold of the control deviation of heater control	=	64.9922	deg C		
						OR Heating up open loop is completed, sensor 1, bank 2	=	TRUE	-		
						Open loop ramp phase finished for time	= >=	TRUE 0	- sec		
						Temperature of ceramic sensor 1 bank 2	>=	789.998	deg C		
						for time Pump current operation for sensor 1 bank 2	>=	0.1 TRUE	sec		
						is active  Counter of verifications of the actual mode of	=	30	counts		
						the ASIC for sensor 1 bank 2	>		counts		
						UEGO Signal ASIC mode request of sensor 1 bank 2 Current pump package is valid	!=	0 TRUE	-		
						)			-		
						No pending or confirmed DTCs	=	see sheet inhibit table	-		
						Basic enable conditions met	=	see sheet enable tables	-		
		Path 3: Monitoring of positive voltage drop deviation at ECU- internal resistor Rgnd by means of continuity measurements of	Positive voltage drop deviation, sensor 1 bank 2	<= -0.15	008 V	Common conditions for voltage drop deviation	=	TRUE	-		
		sensor pumpcell	Positive voltage drop deviation, sensor 1 bank 2	>= 0.15	008 V	Basic enable conditions met	=	see sheet enable tables	-		
		Path 4: Monitoring of the non-availability of the sensor signals	(			(				1	
		for a prolonged duration	Physical release conditions for oxygen sensor are	= FAL	SE -	Release of diagnosis report sensor 1 bank 2	=	TRUE	-		
			fulfilled OR			,					

BD GROUP: KGMXOBDG	07		DIAGNOS <sup>*</sup> TEST GROUP: I	TIC SUMMARY TABLES ECM KGMXV04.2088			EMISSION	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condit	ions	Time Required	MIL IIIum
			Oxygen sensor signals are of high precision ) for time	= FALSE - >= 10 sec	( Battery voltage for time Battery voltage	>= 10.9 >= 1.5 <= 655.34	V sec V		
					) for time	>= 0.1	sec		
					Sensor in hot state	= TRUE	-		
					Sensor operation release, Sensor 1 bank 2	= TRUE	-		
					( Battery voltage for time (	<= 655.34 >= 0.06	V sec		
					( ( End of start reached OR	= FALSE	-		
					Engine operation in stopping and finish state	= FALSE	-		
					Heat quantity to dew-point end exceeds heat quantity threshold for dew-point end	= TRUE	-		
					) ) OR				
					Dew point end is reset for TSP sensor 1 Counter for repeated cold starts dew-point end not reached sensor 1	= FALSE <= 2	counts		
					( Catalyst heating request by cold engine Catalyst heating request in connection with engine speed	= TRUE = TRUE	-		
					( Ratio of heat quantity for dew-point end detection sensor 1 and heat quantity threshold for dew-point end detection sensor 1 bank 2 (see Look-Up Table #P2240-1)	>= 0 to 0.40625	-		
					) OR Ratio of heat quantity for dew-point end detection sensor 1 and heat quantity threshold for dew-point end detection sensor 1 bank 2	>= 1	-		
					) ) ) (				
					( Engine is stopping OR	= TRUE	-		
					Engine in stop phase	= TRUE	-		
					for time ) OR	>= 2	sec		
					Engine in running state ) OR	= TRUE	-		
					( Status of fast light-off for Lambda sensor OR	= TRUE	-		
					Function demand for oxygen sensor heating before start )	= TRUE	-		
					OR Dew point release requested by service tester )	= TRUE	-		
					( Battery voltage for time OR	>= 10.9 >= 1.5	V sec		

BD GROUP: KGMXOBDO	607		DIAGNOST TEST GROUP: N		RY TABLE:	ECM				MISSION	S STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	,	Threshold Value		Secondary Parameters		Enable Condition	s	Time Required	MIL IIIum.
							Heating up of open loop completed, sensor 1, bank 2	=	TRUE	-		
							) Error with heater, sensor 1, bank 2 UEGO Signal ASIC mode request of sensor	=	FALSE 0	-		
							1 bank 2 Battery voltage	>	9.8	v		
							for time	>=	0.5	sec		
							Battery voltage for time	>=	8 0.05	V sec		
							Status auxillary power relay	=	TRUE	-		
							ECU in drive state )	=	TRUE	-		
							Evaluation temperature is valid, sensor 1 bank 2	=	IRUE	-		
							( Temperature of ceramic sensor 1 bank 2 where	>	A - B	deq C		
							(A) temperature set point for heater control	=	800.006	deg C		
							(B) large temperature threshold of the control deviation of heater control	=	64.9922	deg C		
							Heating up open loop is completed, sensor 1, bank 2	=	TRUE	-		
							( Open loop ramp phase finished for time	= >=	TRUE 0	- sec		
							OR Temperature of ceramic sensor 1 bank 2	>=	789.998	deg C		
							) ) )					
							for time Pump current operation for sensor 1 bank 2	>= =	0.1 TRUE	sec -		
							is active Counter of verifications of the actual mode of the ASIC for sensor 1 bank 2	>	30	-		
							UEGO Signal ASIC mode request of sensor 1 bank 2	=	0	-		
							Current pump package is valid ) No pending or confirmed DTCs	-	TRUE see sheet inhibit	-		
							Basic enable conditions met	=	table see sheet enable			
									tables			
	P2251	Lambda sensor wire diagnosis for UEGO sensor 1 bank 1 Circuit countinuiuty - open circuit at pin IPE	Monitoring of abnormalities at sensor line IPE during normal ASIC operation when CJ135 is in NORMAL mode Open load at pin IPE detected by means of continuity measurements of sensor pumpcell				( Battery voltage	<=	655.34	٧	continuous	2 Trips
			during negative nume current nulse. Result of continuity measurement of sensor pumpcell using current source ISQ (in a state, where the ASIC-internal current source ISQr is connected to the sensor line "APE" via internal switches and the sensor line "IPE" is directly connected to RGn(s) is available in RAM	=	FALSE	-	Battery voltage )	>=	10.9	V		
			( If control deviation of heater control of upstream HO2S Sensor (HO2S Sensor heater control is inaccurate)	>=	64.9922	deg C	for time Upstream HO2S Sensor is heated up, which is the following conditions:	>= =	0.1 TRUE	sec -		
			for time	>=	0.1	sec	( Upstream HO2S Sensor ceramic	>	789.998	deg C		
			Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line "APE" is directly connected to RGnd and woltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0 - Uga)	>	0.5008	V	temperature OR					
			for time	>=	0.1	sec	Heating-up phase of the sensor is	=	TRUE	-		
					-		completed		-			

D GROUP: KGMXOBDG	607		DIAGNOST TEST GROUP: K		IMARY TABLES 1.2088	ECM		EMISSIONS	S STDS: CALULEV125, F	FEDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Enable Conditions	Time Required	MIL III
			Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line "IPE" is directly connected to RGnd and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0 - Ugi)	>	0.5008	V	Basic enable conditions met	= see sheet enable - tables		
			for time	>=	0.1	sec	No pending or confirmed DTCs	= see sheet inhibit - tables		
			OR If control deviation of heater control of upstream HO2S Sensor (HO2S Sensor heater control is accurate)	<	64.9922	deg C				
			( Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line "APE" is directly connected to RGnd and voltage drop at ECU- internal resistor RGnd in a state, where all sensor lines are opened	>	A + (B * C)					
			(Ug0 - Uga) for time	>=	0.1	sec				
			OR Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line "IPE" is directly connected to RGnd and voltage drop at ECU- internal resistor RGnd in a state, where all sensor	>	0.1 A + (B * C)	361				
			internal resistor Kond in a state, where all sensor lines are opened (Ug0 - Ugi) for time	>=	0.1	sec				
			) (A) Initial threshold for negative voltage deviation	-	0.08992	V				
			during Delta Ugx check  (B) Voltage step for negative voltage deviation in		0.08	V				
			delta Ugx check (C) Number of negative overshoots of continuity measurement values Ugx		measured value	v				
			Monitoring of abnormalities at sensor line IPE during normal ASIC operation when CJ135 is in WARMUP mode Open load at pin IPE detected by means of continuity measurements of sensor pumpcell and sensor nemst cell using current source ISCar							
			Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISGr is connected to the sensor line "APE" and the sensor line "IPE" is directly connected to RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened	<	E*F					
			(UgDiai - UgO) Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISOr is connected to the sensor line "RE" and the sensor line "IPE" is directly connected to RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened (UgDiai - UgO)	<	E*F					
			(E) Measured amplitude of the reference pump	_	measured value					
			current source (F) Minimum sensitivity of the continuiuity measurements to resistance RGnd	=	66	Ohm				
			Aborted RAM check at ASIC shut-off when CJ135 in WARMUP mode Open load at pin IPE detected by means of continuity measurements of sensor pumpcell and sensor nernst cell using current source ISQr							
			Result of continuity measurement of sensor pumpcell using current source ISQ (in a state, where the ASIC-internal current source ISQr is connected to the sensor line "APE" via internal switches and the sensor line "IPE" is directly connected to RGnd) is available	=	TRUE	-				
			in RAM Voltage at least at one of the sensor lines (REI/PE/APE/MES)	>	9.1 to 10.3	٧				

BD GROUP: KGMXOBDO	607		DIAGNOST TEST GROUP: P		MARY TABLES .2088	ECM			E	MISSION	IS STDS: CALULEV125, FED	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	Time Required	MIL IIIu
			Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISQr is connected to the sensor line "APE" and the sensor line "PE" is directly connected to RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened	<	D*F							
			(Ug0ia: -Ug0) Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISOr is connected to the sensor line 'RE' and the sensor line 'IRE' is directly connected to RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened (Ug0iei - Ug0)	<	D*F							
			(D) Requested amplitude of the reference pump current source (F) Minimum sensitivity of the continuiuity measurements to resistance RGnd	=	commanded value	Ohm						
			Aborted RAM check at ASIC shut-off when CJ135 in NORMAL mode Open load at pin IPE detected if no countinuity measurement was done before ASIC abort									
			Result of continuity measurement of sensor pumpcell using current source ISQ (in a state, where the ASIC-internal current source ISQr is connected to the sensor line "APE" will intend switches and the sensor line "IPE" is directly connected to RGnd) is available in RAM	=	FALSE	-						
	P2254	Lambda sensor wire diagnosis for UEGO sensor 1 bank 2 Circuit countinuluty - open circuit at pin IPE	Monitoring of abnormalities at sensor line IPE during normal ASIC operation when CJ135 is in NORMAL mode Open load at pin IPE detected by means of				( Battery voltage	<=	655.34	V	continuous	2 Tri
			continuity measurements of sensor pumpcell during negative pumpcell during negative pumpcell states and sensor pumpcell using current source ISQ (in a state, where the ASIC-internal current source ISQ is connected to the sensor line "APE" will intend switches and the sensor line "IPE" is directly connected to RGnd) is available in RAM	=	FALSE	-	Battery voltage )	>=	10.9	V		
			( If control deviation of heater control of upstream HO2S Sensor (HO2S Sensor heater control is inaccurate)	>=	64.9922	deg C	for time Upstream HO2S Sensor is heated up, which is the following conditions:	>=	0.1 TRUE	sec -		
			for time ( Negated difference of voltage drop at ECU-	>=	0.1	sec V	( Upstream HO2S Sensor ceramic temperature OR	>	789.998	deg C		
			internal resistor RGnd in a state, where only the sensor line "APE" is directly connected to RGnd and voltage drop a ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0 - Uga)		0.5008	v	UN.					
			for time	>=	0.1	sec	Heating-up phase of the sensor is completed	=	TRUE	-		
			OR Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line "IPE" is directly connected to RGnd and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0 - Ug0)	>	0.5008	V	) Basic enable conditions met	=	see sheet enable tables	-		
			for time ) OR	>=	0.1	sec	No pending or confirmed DTCs	=	see sheet inhibit tables	-		
			If control deviation of heater control of upstream HO2S Sensor (HO2S Sensor heater control is accurate)	<	64.9922	deg C						

GROUP: KGMXOBDG	07		TEST GROUP: N		IMARY TABLES 1.2088	ECIVI		EMISSION	S STDS: CALULEV125, I	FEDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Enable Conditions	Time Required	MIL III
			Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line 'APE' is directly connected to RGnd and voltage drop at ECU- internal resistor RGnd in a state, where all sensor lines are opened	>	A + (B * C)					
			(Ug0 - Uga) for time OR	>=	0.1	sec				
			Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line 'IPE' is directly connected to RGnd and voltage drop at ECU- internal resistor RGnd in a state, where all sensor lines are opened	>	A + (B * C)					
			(Ug0 - Ugi) for time	>=	0.1	sec				
			) (A) Initial threshold for negative voltage deviation		0.08992	V				
			during Delta Ugx check (B) Voltage step for negative voltage deviation in		0.08	٧				
			delta Ugx check (C) Number of negative overshoots of continuity measurement values Ugx		measured value					
			Monitoring of abnormalities at sensor line IPE during normal ASIC operation when CJ135 is in WARMUP mode Open load at pin IPE detected by means of continuity measurements of sensor pumpcell and sensor nemst cell using current source ISOr							
			Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISCr is connected to the sensor line 'APE' and the sensor line 'IPE' is directly connected to RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened	<	E*F					
			(Ug0iai - Úg0)  Idirerence of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISQr is connected to the sensor line "RE" and the sensor line "IPE" is directly connected to RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened (Ug0iei - Ug0)	<	E*F					
			(E) Measured amplitude of the reference pump	=	measured value	Α				
			current source (F) Minimum sensitivity of the continuiuity measurements to resistance RGnd	=	66	Ohm				
			Aborted RAM check at ASIC shut-off when CJ135 in WARMUP mode Open load at pin IPE detected by means of continuity measurements of sensor pumpcell and sensor nemst cell using current source ISOr							
			Result of continuity measurement of sensor pumpcell using current source ISQ (in a state, where the ASIC-internal current source ISOr is connected to the sensor line "APE" via internal switches and the sensor line "IPE" is directly connected to RGnd) is available	=	TRUE	-				
			in RAM Voltage at least at one of the sensor lines	>	9.1 to 10.3	v				
			(RE/IPE/APE/MES) Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current	<	D*F					
			source ISOr is connected to the sensor line "APE" and the sensor line "IPE" is directly connected to RGnd and voltage drop at ECU- internal resistor RG in a state, where all sensor lines are opened (Uq0ai - Uq0)							
			(uguar - ugu) Difference of voltage drop at ECU-internal resistor RG in a state, where the ASIC-internal current source ISQr is connected to the sensor line "RE" and the sensor line "IPE" is directly connected to RGnd and voltage drop at ECU-internal resistor RG in a state, where all sensor lines are opened	<	D*F					

DBD GROUP: KGMXOBDG	07		DIAGNOS' TEST GROUP: I		MARY TABLES .2088	ECM			E	MISSION	S STDS: CALULEV125, FEE	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIum.
			(D) Requested amplitude of the reference pump current source (F) Minimum sensitivity of the continuiuity measurements to resistance RGnd Aborted RAM check at ASIC shut-off when CJ135 in NGRMAL mode Open load at pin IPE detected if no countinuity measurement was done before ASIC abort	=	commanded value 66	Ohm						
			Result of continuity measurement of sensor pumpcell using current source ISQ (in a state, where the ASIC-internal current source ISQ ris connected to the sensor line "APE" via internal switches and the sensor line "IPE" is directly connected to RGnd) is available in RAM	=	FALSE	-						
	P2626	Lambda sensor wire diagnosis for UEGO sensor 1 bank 1 Circuit countinuity - open circuit at Rcmp (compensation resistor)	Calculated parallel resistance between APE and MES for UEGO sensor 1 bank 1	>	240	Ohm	( Battery voltage Battery voltage ) for time Upstream HO2S Sensor is heated up, which is the following conditions: ( Upstream HO2S Sensor ceramic temperature OR Heating-up phase of the sensor is completed ) Last packet transfer aborted of sensor 1 bank 1 is in SWITCHON mode Counter of venifications of the actual mode of the ASIC for sensor 1 bank 1 Basic enable conditions met No pending or confirmed DTCs	<= >= > = = > = = = = = = = = = = = = =	655.34  10.9  0.1  TRUE  789.998  TRUE  FALSE  TRUE  10  see sheet enable tables see sheet inhibit tables	V V sec - deg C counts -	continuous	2 Trips
	P2629	Lambda sensor wire diagnosis for UEGO sensor 1 bank 2 Circuit countinuity - open circuit at Rcmp (compensation resistor)	Calculated parallel resistance between APE and MES for UEGO sensor 1 bank 2	>	240	Ohm	Battery voltage Battery voltage  Battery voltage ) for time Upstream HO2S Sensor is heated up, which is the following conditions: ( Upstream HO2S Sensor ceramic temperature OR Heating-up phase of the sensor is completed ) Last packet transfer aborted of sensor 1 bank 2 Requested mode of UEGO sensor 1 Bank 2 is in SWITCHON mode Counter of verifications of the actual mode of the ASIC for sensor 1 bank 2 Basic enable conditions met	\= \rightarrow =	655.34  10.9  0.1  TRUE  789.998  TRUE  FALSE  TRUE  10  see sheet enable tables see sheet inhibit tables	V Sec - deg C counts -	continuous	2 Trips
Upstream Exhaust Gas Sensor	P0132	Lambda sensor wire diagnosis for sensor 1 bank 1 Circuit continuity - short circuit to battery	Path1: Monitoring of abnormalities at sensor lines RE/IPE/APE/MES during the normal ASIC operation when CJ135 is in IDLE mode Short circuit to battery detected by means of voltage monitoring at sensor lines RE/IPE/APE/MES as per last accessed ASIC diagnostic register  Voltage at least at one of the sensor lines RE/IPE/APE/MES	>	9.1 to 10.3	v	( Battery voltage	<=	655.34	V	continuous	2 Trips

Compound of System	FEDB	STDS: CALULEV125, F	MISSIONS S	E			.2088	KGMX	TEST GROUP:	ROUP: KGMXOBDG07			
Solver Company and Company (Company Company Co	N					Secondary Parameters				Monitor Strategy Description	Fault Code	Component / System	
Figure 1 and authorized statement 1 and 1			٧	10.9	>=	Battery voltage							
Table 1  Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section 1 Section			sec										
The state of the s			-			bank 1							
Figure 2:  Figure 2:  Figure 3:  Figure 3:  Figure 4:  Figure 4:  Figure 4:  Figure 5:  Figure 5:  Figure 6:  Figure 7:  Figure 6:  Figure 6:  Figure 7:  Figure 6:  Figure 6:  Figure 7:			-	TRUE	=	Validity of the diagnosis register of the ASIC							
Paulaz : water and a state of the common of			-		=	of sensor 1 bank 1 Basic enable conditions met							
Page 2:  Market Per Burger of element ACC operation when CLTS is an BMTCHOCK of AMABUP Per Burger of the control ACC operation when CLTS is an BMTCHOCK of AMABUP Per Burger of the CLTS is an BMTCHOCK of AMABUP Per Burger of the CLTS is an BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Per Burger of the CLTS is a BMTCHOCK of AMABUP Pe			-	see sheet inhibit	=	No pending or confirmed DTCs							
Monitoring of attenumentalities at sensor threat ARPORT exhibiting to command ARPORT exhibiting to command ARPORT exhibiting to the command ARPORT exhibiting the command ARPORT exhibiting the command are sensor threat ARPORT exhibiting the command are sensor than a sensor that are sensor than a sensor that are sensor than a sensor that are sensor than a sensor t				tables									
Monitoring of absorbandilities a sensor linear ARPER entire for a second ARIA operation of the ARPER entire for a second ARIA operation of the ARPER entire for a second ARIA operation of the ARPER entire for a second ARIA operation of the ARPER entire for a second ARIA operation of the ARPER entire for a second ARIA operation of the ARPER entire for a second area of the second area of the ARPER entire for a s													
APPERE during the normal ARC opposition hand CT 21 as a MITCHON or TANABORD Short cround to bitative detection by moore of Difference of valence during of the ST CU-letteral entirests FAPE in detection of the states of the sta			V	655.34	<=	( Batton voltage							
Since circuit to belately decided by more of content content enterested according of the part APC (FE)  Collegeror of challege drop at ECU - remark alreating and the content to the part of the content of the content to the content to the content to the part of the content to						Datiety voltage			APE/IPE during the normal ASIC operation when CJ135 is in SWITCHON or WARMUP				
Richard in a state, where only the servoir free investor free in the control of t									Short circuit to battery detected by means of				
ECU-internal resident ROnd in a state, where all aspects from the series of periods as a specific five state of the series of the series of the SEC of the state of the series of the SEC of the state of the series of the SEC of the state of the series of the SEC of the state of the series of the SEC of the state of the series of the SEC of the state of the series of the SEC of the state of the series of the SEC of the state of the series of the SEC of the state of the series of the SEC of the state of the series of						and	0.07008 V		RGnd in a state, where only the sensor line "APE" is directly connected to RGnd (no current				
Difference of voltage drop at ECU-imment resistor Richide in a state, where only the sensor line "PE" among the sensor line are opened (Uga" - Ugh)  OR  Last packet transfer aborted of sensor 1 bank in the sensor line are									ECU-internal resistor RGnd in a state, where all sensor lines are opened				
Ronding a state, where only the sensor line "IPE" is directly connected to RGrd for current flows as the state of the stat			v	10.9	>=	Battery voltage							
Clamping structure of the nerst cell active for sensor 1 bank 1  Clamping structure of the nerst cell active for sensor 1 bank 1  Difference of voltage drop at ECU-internal resistor (And in a state, where only the sensor sensor 1 bank 1  Difference of voltage drop at ECU-internal resistor (And in a state, where only the sensor sensor) and voltage drop at ECU-internal sensor internal sensor inter			sec	0.1	>=	for time	0.07008 V		RGnd in a state, where only the sensor line "IPE" is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU- internal resistor RGnd in a state, where all sensor lines are opened				
Clamping structure of the nest cell active for sensor 1 bank 1  Difference of voltage drop at ECU-internal resistor RGnd in a state, where only the sensor line "RE" is directly connected to RGnd (no current strong at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0e - Ug0)  No pending or confirmed DTCs = see sheet inhibit at tables  Path 3:  Aborted RAM check at ASIC shut-off when Cu1135 not in IDLE mode Short to battery detected by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by			-	FALSE	=				OR				
Clamping structure of the nerst cell active for sensor I bank 1 Difference of voltage drop at ECU-internal resistor RGnd in a state, where only the sensor internations of the actual mode of the ASIC for sensor 1 bank 1 Difference of voltage drop at ECU-internal resistor RGnd in a state, where only the sensor internations of the actual mode of the ASIC for sensor 1 bank 1 Difference of voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ugge - Ugg)  No pending or confirmed DTCs  Path 3:  Aborted RAM check at ASIC shut-off when CL135 not in IDLE mode Short circuit to battery detected by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of solutage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd re			-	TRUE	=	1 is in SWITCHON mode or WARMUP			(				
Difference of voltage drop at ECU-internal resistor RGnd in a state, where only the sensor line "RE" is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0e - Ug0)  No pending or confirmed DTCs = see sheet inhibit - tables  Path 3:  Aborted RAM check at ASIC shut-off when C-U135 not in IDLE mode Short circuit to battey detected by means of voltage monitoring at RGnd resistor or by means of voltage monitoring at RGnd resistor or by means of contact measurements at sensor lines			counts	10	>=	Counter of verifications of the actual mode of	TRUE -		Clamping structure of the nerst cell active for				
Path 3:  Aborted RAM check at ASIC shut-off when CJ135 not in IDLE mode Short circuit to battery detected by means of voltage monitoring at RCnd resistor or by means of or contact measurements at sensor lines			-		=		0.07008 V	;	Difference of voltage drop at ECU-internal resistor RGnd in a state, where only the sensor line "RE" is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened				
Aborted RAM check at ASIC shut-off when C.1135 not in IDLE mode Short circuit to battery detected by means of voltage monitoring at RGnd resistor or by means of contact measurements at sensor lines			-	see sheet inhibit tables	=	No pending or confirmed DTCs			)				
			V	655.34	<=	( Battery voltage		3	Aborted RAM check at ASIC shut-off when CJ135 not in IDLE mode Short circuit to battery detected by means of voltage monitoring at RGnd resistor or by means				
register Voltage at RGnd resistor > 4 V and									APE/IPE as per last accessed ASIC diagnostic register				

BD GROUP: KGMXOBDG	607		DIAGNOS I TEST GROUP: K		MARY TABLES 2088	ECM			E	MISSION	S STDS: CALULEV125, FE	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	s	Time Required	MIL IIIu
			Difference of voltage drop at ECU-internal resistor RGnd in a state, where only the sensor line "APE" is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0a - Ug0)	>	0.0438	V	)					
			OR Difference of voltage drop at ECU-internal resistor RGnd in a state, where only the sensor line "IPE" is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU- internal resistor RGnd in a state, where all sensor lines are opened (Ug0i - Ug0)	>	0.0438	٧	for time Measured CJ135 Mode sensor 1 bank 1 is not in IDLE mode	>=	0.1 TRUE	sec -		
			OR Short circuit to battery detected at sensor lines IPE/APE/MES or by checking availability of continuity measurements in last accessed ASIC				Last packet transfer aborted of sensor 1 bank Basic enable conditions met	=	TRUE see sheet enable tables	-		
			diagnostic register Voltage at least at one of the sensor lines RE/IPE/APE/MES	>	9.1 to 10.3	V	No pending or confirmed DTCs	=	see sheet inhibit tables	-		
			Path 4: Aborted RAM check at ASIC shut-off when CJ135 in WARMUP mode Short circuit to battery detected at sensor lines IPE/APE/MES or by checking availability of continuity measurements in last accessed ASIC				( Battery voltage	<=	655.34	V		
			diagnostic register Voltage at least at one of the sensor lines IPE/APE/MES	>	9.1 to 10.3	٧	and					
			OR (	=	TRUE	_	Battery voltage )	>=	10.9	V		
			Upstream HO2S Sensor is heated up, means ( Upstream HO2S Sensor ceramic temperature	>	789.998	deg C	for time Measured CJ135 Mode sensor 1 bank 1 is in WARMUP mode	>= =	0.1 TRUE	sec -		
			OR Heating-up phase of the sensor is completed	=	TRUE		Last packet transfer aborted of sensor 1 bank 1 Basic enable conditions met	=	TRUE see sheet enable	-		
			)	=	TRUE	-	No pending or confirmed DTCs	=	tables see sheet inhibit tables	-		
			AND ( Results of both continuity measurements of sensor pumpcell using current source ISQr are available in RAM accessed ASIC diagnostic register OR Aborted RAM check at ASIC shut-off when CJ135 in WARMUP mode Short circuit to battery detected as per last	=	FALSE	-						
			accessed ASIC diagnostic register Results of both continuity measurement of sensor pumpcell using current source ISQr are available in RAM accessed ASIC diagnistic register	=	TRUE	-						
			Voltage at least at one of the sensor lines (RE/IPE/APE/MES) AND	>	9.1 to 10.3	V						
			Difference of voltage drop at ECU-internal resistor RGnd in a state, where the ASIC-internal current source ISCr is connected to the sensor ine "APE" and the sensor line "IPE" is directly connected to RGnd (current flows through the sensor and RGnd) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ud0ia-Ud0)	>=	D*F	V						

D GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K			LCIVI			E	MISSION	IS STDS:	CALULI	EV125, FED	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition			Time Requir		MIL IIIu
			Difference of voltage drop at ECU-internal resistor RGnd in a state, where the ASIC -internal current source ISQr is connected to the sensor line "RE" and the sensor line "IPE" is directly connected to RGnd (current flows through the sensor and RGnd) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (UgOiei-UgO) (D) Requested amplitude of the reference pump	>=	D*F	V								
			current source ISQr (F) Minimum sensitivity of the continuiuity measurements to resistance RGnd ) )	=	66	Ohm								
	P0152	Lambda sensor wire diagnosis for sensor 1 bank 2	Path1:				(	<=	655.34	V	0.5	sec	continuous	2 Trip
	70.02	Circuit continuity - short circuit to battery	Monitoring of abnormalities at sensor lines RE/IPE/APE/MES during the normal ASIC operation when CJ135 is in IDLE mode Short circuit to battery detected by means of voltage monitoring at sensor lines RE/IPE/APE/MES as per last accessed ASIC diagnostic register				Battery voltage	-	000.01	·	0.0	333	03/11/10/00	2 11,
			Voltage at least at one of the sensor lines RE/IPE/APE/MES	>	9.1 to 10.3	V	and							
							Battery voltage )	>=	10.9	٧				
							for time Last packet transfer aborted of sensor 1 bank 2	>=	0.1 FALSE	sec -				
							Requested mode of UEGO sensor 1 bank 2 i Validity of the diagnosis register of the ASIC	=	TRUE TRUE					
							of sensor 1 bank 2 Basic enable conditions met	=	see sheet enable					
							No pending or confirmed DTCs	=	tables see sheet inhibit tables	-				
			Path2 : Monitoring of abnormalities at sensor lines APE/IPE during the normal ASIC operation when CJ135 is in SWITCHON or WARMUP mode				( Battery voltage	<=	655.34	V				
			Short circuit to battery detected by means of contact measurements at sensor lines APE/IPE											
			Difference of voltage drop at ECU-internal resistor RGnd in a state, where only the sensor line "APE" is directly connected to RGnd and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0a - Ug0)	>	0.07008	V	and							
			OR				Battery voltage	>=	10.9	٧				
			Difference of voltage drop at ECU-internal resistor RGnd in a state, where only the sensor line "IPE" is directly connected to RGnd and voltage drop ECU-internal resistor RGnd in a state, where all sensor lines are opened	>	0.07008	V	for time	>=	0.1	sec				
							Last packet transfer aborted of sensor 1	=	FALSE	-				
			OR				bank 2 Requested mode of UEGO Sensor 1 Bank 2 is in SWITCHON or WARMUP mode	=	TRUE	-				
			Clamping structure of the nerst cell active for	=	TRUE	-	Counter of verifications of the actual mode of	>=	10	counts				
			sensor 1 bank 2 Difference of voltage drop at ECU-internal resistor RGnd in a state, where only the sensor line "RE" is directly connected to RGnd and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ugoe - Ugo).	>	0.07008	V	the ASIC for sensor 1 bank 2 Basic enable conditions met	=	see sheet enable tables	-				
			(-55-)				]							

D GROUP: KGMXOBD	G07		TEST GROUP: K		ARY TABLES				E	MISSIONS	S STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	5	Time Required	MIL II
			Path 3: Aborted RAM check at ASIC shut-off when CJ135 not in IDLE mode Short circuit to battery detected by means of voltage monitoring at RGnd resistor or by means of contact measurements at sensor lines APE/IPE as per last accessed ASIC diagnostic				( Battery voltage	<=	655.34	V		
			register Voltage at RGnd resistor	>	4	٧	and Battery voltage	<=	10.9	v		
			OR Difference of voltage drop at ECU-internal resistor RGnd in a state, where only the sensor line 'APE' is directly connected to RGnd (no current tlows through the sensor) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0a - Ug0)	>	0.0438	V	for time Measured CJ135 Mode sensor 1 bank 2 is not in IDLE mode	>= =	0.1 TRUE	sec -		
			OR				Last packet transfer aborted of sensor 1 bank 2	=	TRUE	-		
			Difference of voltage drop at ECU-internal resistor RGnd in a state, where only the sensor line "IPE" is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0i - Ug0)	>	0.0438	V	Basic enable conditions met	=	see sheet enable tables			
			OR				No pending or confirmed DTCs	=	see sheet inhibit tables	-		
			Short circuit to battery detected at sensor lines IPE/APE/MES or by checking availability of continuity measurements in last accessed ASIC diagnostic register Voltage at least at one of the sensor lines	>	9.1 to 10.3	٧						
			RE/IPE/APE/MES Path4:				(	<=	655.34	V		
			Aborted RAM check at ASIC shut-off when CJ135 in WARMUP mode Short circuit to battery detected at sensor lines IPE/APE/MES or by checking availability of continuity measurements in last accessed ASIC diamostic redister Voltage at least at one of the sensor lines IPE/APE/MES OR	>	9.1 to 10.3	v	Battery voltage and Battery voltage	>=	10.9	V		
			( Upstream HO2S Sensor is heated up, means	=	TRUE	-	for time Measured CJ135 Mode sensor 1 bank 2 is	>=	0.1 TRUE	sec		
			Upstream HO2S Sensor ceramic temperature	>	789.998	deg C	in WARMUP mode Last packet transfer aborted of sensor 1	-	TRUE	-		
			OR				bank 2 Basic enable conditions met	=	see sheet enable tables	-		
			Heating-up phase of the sensor is completed )	=	TRUE	-	No pending or confirmed DTCs	=	see sheet inhibit tables	-		
			AND ( Results of both continuity measurements of sensor pumpcell using current source ISQr are available in RAM accessed ASIC diagnostic resister OR Aborted RAM check at ASIC shut-off when	=	FALSE	-						
			CJ135 in WARMUP mode Short circuit to battery detected as per last accessed ASIC diagnostic register Results of both continuity measurement of sensor pumpcell using current source ISOr are available in RAM accessed ASIC diagnistic register	=	TRUE	-						
			Voltage at least at one of the sensor lines (RE/IPE/APE/MES)	>	9.1 to 10.3	V						

BD GROUP: KGMXOBD	307		TEST GROUP: N		MARY TABLES .2088	ECIVI				EMISSION	IS STDS: CALULEV125,	FEDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition		Time Required	MIL IIIu
			Difference of voltage drop at ECU-internal resistor RGnd in a state, where the ASIC -internal current source ISQr is connected to the sensor line "APE" and the sensor line "IPE" is directly connected to RGnd (current flows through the sensor and RGnd) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0ia-Ug0)	>=	D*F	V						
			OR  Difference of voltage drop at ECU-internal resistor RGnd in a state, where the ASIC -internal current source ISOr is connected to the sensor line "RE" and the sensor line "IPE" is directly connected to RGnd (current flows through the sensor and RGnd) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0iei-Ug0) (D) Requested amplitude of the reference pump	>=	D*F	V						
			(F) Minimum sensitivity of the continuinity measurements to resistance RGnd	=	66	Ohm						
			)									
Upstream Exhaust Gas Sensor	P0131	Lambda sensor wire diagnosis for sensor 1 bank 1 Circuit continuity - short circuit to ground	Path 1:  Monitoring of abnormalities at sensor lines RE/APE/IPE during the normal ASIC operation when CJ135 in IDLE mode Short circuit to ground detected at sensor lines RE/IPE/IAPE/IMES by means of voltage monitorino Voltage at least at one of the sensor lines RE/IPE/APE/IMES where RE: Nemst voltage (reference voltage) IPE: Virtual ground (inner electrode) APE: Pumping current (external electrode) MES: Trim current (output sensor line trim resistance)	<	-0.15	V	Battery voltage and Battery voltage )  for time Requested mode of UEGO Sensor 1 bank 1 in IDLE mode	>= <= <= >= =	10.9 655.34 0.1 TRUE	V V	continu	ous 3rd cy
							In IDLE mode Validity of the diagnosis register of the ASIC of Last packet transfer aborted of sensor 1 bank Internal Control Module O2 Sensor Processor Performance Bank 1 Control Module Processor Serial Peripheral Interface Bus 3 Basic enable conditions met No pending or confirmed DTCs	= = = =	TRUE FALSE FALSE FALSE see sheet enable tables see sheet inhibit tables			
			Path 2: Aborted RAM check at ASIC shut-off when CJ135 in SWITCHON or WARMUP mode Short circuit to ground detected by means of voltage monitoring at sensor lines REI/PE/APE/MES or by means of contact measurements at sensor line APE/I/PE as per last accessed ASIC diagnostic redister				(					
			( Voltage at least at one of the sensor lines RE/IPE/APE/MES OR Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line "APE" is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0 - Ug0a)	>	-0.15 0.0438	V	Battery voltage and Battery voltage	>= <=	10.9 655.34	v		

GROUP: KGMXOBDO	607		TEST GROUP: N		ARY TABLES	LOW				MISSION	S STDS: CALULEV125, FE	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns	Time Required	MIL III
			Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line "IPE" is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0 - Ug0i)	>	0.0438	V	for time	>=	0.1	sec		
							Requested mode of UEGO Sensor 1 bank 1 in SWITCH ON mode or WARM UP mode	=	TRUE	-		
							Last packet transfer aborted of sensor 1 bank Internal Control Module Q2 Sensor Processor Performance Bank 1 Control Module Processor Serial Peripheral Interface Bus 3 Basic enable conditions met No pending or conf		TRUE FALSE FALSE see sheet enable tables see sheet inhibit tables			
									tabloo			
			Path 3: Monitoring of abnormalities at sensor lines REIAPE/IPE during the normal ASIC operation when CJ135 is in SWITCHON or WARMUP mode Short circuit to ground detected by means of contact measurements at sensor lines APE/RE/IPEF		0.075-5		(			v		
			Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line 'APE' is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0 - Ug0a)	^	0.07008	V	Battery voltage	\= 	10.9	V		
			OR Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line 'RE' is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0 - Ug0e)	>	0.07008	V	and Battery voltage	<=	655.34	V		
			OR Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line "IPE" is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0 - Ug0))	>	0.07008	V	) for time	>=	0.1	sec		
			)				( Requested mode of UEGO Sensor 1 bank 1 in SWITCHON mode or WARMUP mode	=	TRUE	-		
							for number of counts	>=	10	counts		
							Last backet transfer aborted of sensor 1 bank Internal Control Module O2 Sensor Processor Performance Bank 1	=	FALSE FALSE	-		
							Control Module Processor Serial Peripheral Interface Bus 3 Basic enable conditions met	=	FALSE see sheet enable	-		
							No pending or confirmed DTCs	=	tables see sheet inhibit tables	-		
	P0151	Lambda sensor wire diagnosis for sensor 1 bank 2 Circuit continuity - short circuit to ground	Path 1: Monitoring of abnormalities at sensor lines				(				continuou	s 3rd
			RE/APE/APE during the normal ASIC operation when CJ135 in IDLE mode Short circuit to ground detected at sensor lines RE/IPE/APE/MES by means of voltage									
			monitoring				Battery voltage	>=	10.9	V		

BD GROUP: KGMXOBDO	G07		DIAGNOST TEST GROUP: N		MARY TABLES 2088	ECM			E	EMISSION	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIun
			Voltage at least at one of the sensor lines RE/IPE/APE/MES where RE: Nemst voltage (reference voltage) IPE: Virtual ground (inner electrode) APE: Pumping current (external electrode) MES: Trim current (output sensor line trim resistance)	<	-0.15	V	and Battery voltage )  for time Requested mode of UEGO Sensor 1 bank 2	<= >= =	655.34 0.1 TRUE	V sec		
							in IDLE mode Validity of the diagnosis register of the ASIC of Last packet transfer aborted of sensor 1 bank Internal Control Module OZ Sensor Processor Performance Bank 2 Control Module Processor Serial Peripheral Interface Bus 4 Basic enable conditions met No pending or confirmed DTCs	= = =	TRUE FALSE FALSE FALSE see sheet enable tables see sheet inhibit tables	-		
			Path 2: Aborted RAM check at ASIC shut-off when CJ135 in SWITCHON or WARMUP mode Short circuit to ground detected by means of voltage monitoring at sensor lines REI/PE/APE/MES or by means of contact measurements at sensor line APE/IPE as per last accessed ASIC diagnostic register ( Voltage at least at one of the sensor lines	<	-0.15	V	( Battery voltage	>=	10.9	V		
			RE/IPE/APE/MES OR Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line 'APE' is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0 - Ug0a)	>	0.0438	V	and Battery voltage	<=	655.34	V		
			OR Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line "IPE" is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0 - Ug0))	>	0.0438	V	) for time	>=	0.1	sec		
							Requested mode of UEGO Sensor 1 bank 2 in SWITCH ON mode or WARM UP mode	=	TRUE	-		
							Last packet transfer aborted of sensor 1 bank Internal Control Module O2 Sensor Processor Performance Bank 2 Control Module Processor Serial Peripheral Interface Bus 4 Basic enable conditions met	= = =	TRUE FALSE FALSE see sheet enable tables see sheet inhibit tables	-		
			Path 3: Monitoring of abnormalities at sensor lines REI/APE/IPE during the normal ASIC operation when CJ135 is in SWITCHON or WARMUP mode Shot circuit to ground detected by means of contact measurements at sensor lines APF/RE/IPEP				(					

OBD GROUP: KGMXOBDO	307		DIAGNOST TEST GROUP: 1		IARY TABLES	S ECM			E	MISSION	S STDS: CALULEV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	Time Required	MIL IIIum.
			Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line "APE" is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ugo - Ugo).	>	0.07008	V	Battery voltage	>=	10.9	V		
			OR Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line "RE" is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0 - Ug0e)	>	0.07008	V	and Battery voltage	<=	655.34	V		
			OR Negated difference of voltage drop at ECU- internal resistor RGnd in a state, where only the sensor line "IPE" is directly connected to RGnd (no current flows through the sensor) and voltage drop at ECU-internal resistor RGnd in a state, where all sensor lines are opened (Ug0 - Ug0i)	>	0.07008	V	) for time	>=	0.1	sec		
			)				( Requested mode of UEGO Sensor 1 bank 2 in SWITCHON mode or WARMUP mode for number of counts	= >=	TRUE	counts		
							Last backet transfer aborted of sensor 1 bank Internal Control Module O2 Sensor Processor Performance Bank 2 Control Module Processor Serial Peripheral Interface Bus 4 Basic enable conditions met	= =	FALSE FALSE FALSE	-		
							No pending or confirmed DTCs	=	tables see sheet inhibit tables	-		
	P30D8	ECU: Self Check for Sensor ASIC of UEGO Sensor 1 Bank 1 An error is reported if the ASIC detects it or if it is not reacting	Monitoring of diagnosis register, working registers and RAM values:				( Battery voltage	<=	655.34	٧	continuously	2 Trips
		to requests	SPI error during transmission of diagnosis registers for time	>=	0.05	sec	Battery voltage	>=	10.9	٧		
			OR SPI error during transmission of data registers for time OR	>=	0.05	sec	for time Flag locking the fault report due to currently requested Idle mode External reset request	= =	0.1 FALSE FALSE	sec -		
			SPI error during transmission of RAM data for time OR	>=	0.05	sec	Basic enable conditions met  No pending or confirmed DTCs	=	see sheet enable tables see sheet inhibit	-		
			Monitoring ASIC (Chip) response/error Availability of diagnostic register	=	TRUE	-			tables			
			ASIC initialization wasn't successful OR	=	TRUE	-						
			Respond/actual state of the ASIC wasn't as expected of base software OR	=	TRUE	-						
			The bank wasn't switched between interrupt change )	=	TRUE	-						
			OR Monitoring setting register and operation mode									
			Register could not be set Number of rejected requests OR	>	TRUE 200	counts						
ĺ			No values found in diagnosis register OR	=	TRUE	-						

BD GROUP: KGMXOBDG	07		DIAGNOS <sup>*</sup> TEST GROUP: 1		MARY TABLES 2088	ECM			E	MISSION	S STDS: CALULEV125, FED	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition		Time Required	MIL IIIum
	P30D9	ECU: Self Check for Sensor ASIC of UEGO Sensor 1 Bank 2 An error is reported if the ASIC detects it or if it is not reacting	Monitoring of diagnosis register, working registers and RAM values:				( Battery voltage	<=	655.34	V	continuously	2 Trips
		to requests	SPI error during transmission of diagnosis registers for time	>=	0.05	sec	Battery voltage	>=	10.9	V		
			OR SPI error during transmission of data registers for time	>=	0.05	sec	for time Flag locking the fault report due to currently requested Idle mode	=	0.1 FALSE	sec -		
			OR SPI error during transmission of RAM data for time	>=	0.05	sec	External reset request Basic enable conditions met	=	FALSE see sheet enable tables	-		
			or				No pending or confirmed DTCs	=	see sheet inhibit tables	-		
			Monitoring ASIC (Chip) response/error Availability of diagnostic register	=	TRUE	-						
			( ASIC initialization wasn't successful OR	=	TRUE	-						
			Respond/actual state of the ASIC wasn't as expected of base software	=	TRUE	-						
			The bank wasn't switched between interrupt change	=	TRUE	-						
			OR Monitoring setting register and operation									
			Register could not be set Number of rejected requests	= >	TRUE 200	- counts						
			OR No values found in diagnosis register OR	=	TRUE	-						
			The ASIC does not switch to the requested mode for time	>	2	sec						
Upstream Exhaust Gas Sensor	P0133	Path 1: Step response/identification measurement of Oxygen sensor and pattern has been detected with Step-response measurement within parallelization	Step response measurement:				Non bank-specific enabling conditions for continuous identification	=	TRUE	-		2 Trip
			( Arithmetical average value of delay time from step response measurement in lean-rich direction	>	0.6	sec	( Vehicle speed	>=	3.107520199	mph		
			OR Arithmetical average value of transition time from step response measurement in lean-rich direction	>	0.8	sec	Fuel purge adaptation factor (	<=	40	-		
			OR				Integral of purge mass flow after a longer purge stop	>=	1.02	g		
			Arithmetical average value of delay time from step response measurement in rich-lean direction	>	0.6	sec	OR					
			OR Arithmetical average value of transition time from step response measurement in rich-lean direction	>	0.8	sec	Purge mass flow for DTEV )	<	0.027777778	g/sec		
			) OR Identification measurement:				( Condition gear-shift in process Condition instationary state during half engine mode switching	=	FALSE FALSE	-		
			( Status of step response measurement (detected pattern, bank 1)	>	0	-	) End of start is reached	=	TRUE	-		
	1		( Identified delay time in lean-rich direction	>	0.9	sec	for time	=	7	sec		
	1		OR Identified transition time in lean-rich direction	>	1.2	sec	Absolute value of filling gradient for time	<= =	12 1	% sec		
	1		OR Identified delay time in rich-lean direction	>	0.9	sec	(					
	1		OR Identified transition time in rich-lean direction	>	1.2	sec	Condition half engine mode (HEM) active	=	TRUE	- 01		
			6				Relative air mass / 2 for time	> =	0	% sec		
	1						OR Condition half engine mode (HEM) active	=	FALSE	-		

FEDBIN	S STDS: CALULEV125, F	EMISSIONS S				FIC SUMMARY TABLES EC (GMXV04.2088	DIAGNOST TEST GROUP: F		7	BD GROUP: KGMXOBDG
MIL I	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		kPa	0	>	) Ambient pressure					
		-	TRUE	-	) Bank-specific enabling conditions for continuous identification					
					( Enabling conditions for lambda stability					
		_	TDUE		( (					
		-	TRUE FALSE	=	Lambda closed loop control, Bank 1 ( Lambda control disabled during after					
		-	TRUE	-	cylinder cut-off					
		-	FALSE	-	Lambda swtiched ON after fuel cutoff ( Fuel cut off is active					
		sec	8	>	( Time running down after fuel cut-off for					
		360	0		enabling lambda control OR					
		-	0.1001	<=	( Absolute value of diffence in lambda of bank					
		sec	0	>	Difference of counter time and plant time     constant					
					a-(b+c)					
					where a is Time running down after fuel cut-off for enabling lambda control					
					b is plant time constant for continuous air/fuel control					
					c is plant parameter for dead time for lambda control					
					)					
		-	TRUE	=	LSU sensor upstream to catalyst ready for operation					
		deg C	654.998	>=	lambda sensor 1 temperature					
		-	FALSE	=	Lambda control disabled by a fault (					
		-	FALSE FALSE	=	Catalyst damaging misfire rate exceeded Injector power stage fault is active					
		-	FALSE	=	Camshaft fault in critical operating range present and MAF is main air charge sensor					
		_	TRUE		) lambda control is active since warmup is					
		%	0	>	finished Relative air charge					
		sec	2 TRUE	>=	for time Lamda control active due to GDI mode					
			INOL	-	change					
		- sec	TRUE 0.8	= >=	GDI mode homogeneous for time					
					)					
		-	TRUE	=	) Rich catalyst purge is active					
		-	FALSE	=	Lambda for component protection is active					
		-	5	!=	OR Number of the lambda requests determining the lambda setpoint					
		sec	2	_	) for time					
		sec	0.25	<=	) Plant time constant of continuous af control,					
					base value, linear quantization (					
		q/sec	55.5555556	<=	Exhaust gas mass flow Cat 1, Bank 1					
		g/sec g/sec	-910.2222222 910.1944444	>= <=	Difference between exhaust gas mass flow Cat 1, Bank 1 with its filtered value Difference between exhaust gas mass flow Cat 1.					
		sec	0.01	_	Cat 1, Bank 1 with its filtered value ) for time					
ĺ		sec	0.01	=	)					
		-	TRUE	=	) Sensor LSU upstream cat ready for operation					

GROUP: KGMXOBDG0	7		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES ECN MXV04.2088	1			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ons	Time Required	MIL IIIu
					for time Enable LSU dynamic diagnosis w.r.t. scavenging	:	10 TRUE	sec -		
					( Ratio of total air mass to mass in cylinder	<=	1.02002	-		
					Filtered air mass )	>=	50	g		
					( ( Transition time from step response	<	0.2	sec		
					measurement in rich-lean direction Transition time from step response	<	0.2	sec		
					measurement in lean-rich direction )					
					Transition time from step response measurement in rich-lean direction	<	0.1	sec		
					Transition time from step response measurement in lean-rich direction	<	0.1	sec		
					) Injection valve cut-off on Bank 1	=	FALSE	-		
					) Identification trigger: rate of change of modeled lambda in lean to rich direction,	>=	0.019989	-		
					bank 2 Identification trigger: rate of change of modeled lambda in rich to lean direction, bank 2	>=	0.019989	-		
					( Number of step response measurements in lean-rich direction for driving cylce (sensor 1, bank 1)	=	0	-		
					( Time to evaluate loss function	>=	30	sec		
					OR Square of difference between band pass filtered reciprocal lambda and modelled reciprocal lambda values	>=	100	-		
					) ) OR Enabling conditions for step response measurement (					
					( ( ( Lean lambda is requested and the cat is filled with oxygen gas	=	TRUE	-		
					a commanded lambda active primary A/F commanded lambda for time	=	TRUE 1.08008	- - sec		
					for time for time Secondary O2 sensor voltage	>= >= <=	3 0.2 0.200195	sec sec V		
					( Rich lambda is requested and the cat is filled with rich gas due to low sensor voltage	=	TRUE	-		
					a commanded lambda active primary A/F commanded lambda	=	TRUE 0.91992	-		
					bank1 for time	>=	3	sec		
					for time OR Rich lamda is requested to empty the	>=	0.2 TRUE	sec -		
					oxygen gas from the cat a commanded lambda active	=	TRUE	-		
					primary A/F commanded lambda for time	= >=	0.91992 3	sec		
					for time (	>=	0.2 0.85083	sec V		
					Secondary O2 sensor voltage Or (	>=				
					Secondary O2 sensor voltage Secondary O2 sensor voltage Secondary O2 sensor voltage Integrated Oxygen mass flow bank 1	>= <= >= >	0.749512 0.09944 -0.09944 0.15	V V/s V/s g		
					integrated Oxygen mass flow bank 1	_	0.15	9		

BD GROUP: KGMXOBDG	607		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES E MXV04.2088	CM			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ons	Time Required	MIL IIIu
					Primary A/F sensor lambda (a) Primary lambda control set point	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean	(b)	0.05005	-		
					mixture Primary A/F sensor lambda (a) Primary lambda control set point	>=	(a) - (b)			
					(b) maximum lambda deviation of rich		0.05005	-		
					mixture for time Integrated rich exhaust gas mass flow bank 1	>= >=	0.2 15	sec g		
					) ) for time where in (A) LRS-plantparameter deadtime and	=	A * 0.8	sec		
					( Reciprocal of actual lambda value where in	>	(A + (B*C))	-		
					(A) Minimal or maximal value of reciprocal lambda after step (B) Fraction of step height to end step response measurement (C) Step height in reciprocal lambda	=	0.3000031	-		
					OR Difference between time after step measurement and LRS-plantparameter deadtime	>	2.5	sec		
					) ) OR (					
					Rich lamda is requested to empty the oxygen gas from the cat a commanded lambda active	=	TRUE	-		
					primary A/F commanded lambda	=	0.91992	-		
					for time for time	>= >=	3 0.2	sec sec		
					Secondary O2 sensor voltage Or	>=	0.85083	٧		
					Secondary O2 sensor voltage Secondary O2 sensor voltage	>= <=	0.749512 0.09944	V V/s		
					Secondary O2 sensor voltage Integrated Oxygen mass flow bank 1	>= >	-0.09944 0.15	V/s g		
					)) ( Primary A/F sensor lambda (a) Primary lambda control set point	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean	(b)	0.05005	-		
					mixture Primary A/F sensor lambda (a) Primary lambda control set point	>=	(a) - (b)			
					(b) maximum lambda deviation of rich mixture		0.05005	-		
					for time Integrated rich exhaust gas mass flow bank 1	>= >=	0.2 15	sec g		
					and ( Lean lambda is requested and the cat is filled with oxygen gas due to high sensor	=	TRUE	-		
					voltage a commanded lambda active	=	TRUE	-		
					primary A/F commanded lambda for time	>=	1.08008	sec		
					for time ((	>=	0.2	sec V		
					Secondary O2 sensor voltage for time ) Or	<= >=	0.150146 0.1	V sec		
					( Secondary O2 sensor voltage	<=	0.150146	v		

ROUP: KGMXOBDG0	7		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EO	O IVI		<u>E</u>	MISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition		Time Required	MIL IIIc
					Secondary O2 sensor voltage gradient	<=	0.09944	V/s		
					over 0.05s Secondary O2 sensor voltage gradient	>=	-0.09944	V/s		
					over 0.05s Integrated Oxygen mass flow bank 1	>	0.1	g		
					))			3		
					(" Primary A/F sensor lambda	<=	(a) + (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of lean	(a)	0.05005			
					mixture	(b)		-		
					Primary A/F sensor lambda (a) Primary lambda control set point	>=	(a) - (b)			
					(b) maximum lambda deviation of rich mixture		0.05005	-		
					for time Integrated lean exhaust gas mass flow	>= >=	0.2 15	sec g		
					bank 1	/-	15	g		
					OR )					
					Lean lambda is requested and the cat is filled with oxygen gas	=	TRUE	-		
					a commanded lambda active primary A/F commanded lambda	=	TRUE 1.08008			
					for time for time	>= >=	3 0.2	sec sec		
					Secondary O2 sensor voltage	<=	0.200195	V		
					) for time	=	A * 0.8			
					for time where in	=	A 0.6	sec		
					(A) LRS-plantparameter deadtime					
					Reciprocal of actual lambda value where in	<	(A - (B*C))	-		
					(A) Minimal or maximal value of reciprocal lambda after step					
					(B) Fraction of step height to end step response measurement	=	0.3000031	-		
					(C) Step height in reciprocal lambda OR					
					Difference between time after step	>	2.5	sec		
					measurement and LRS-plantparameter deadtime )					
					)					
					Absolute difference between reciprocal of desired lamda limitation and reciprocal	>	0.05	-		
					lambda setpoint in combustion chamber for time	=	A * 0.8	sec		
					where in (A) LRS-plantparameter deadtime					
					)					
					( Number of evaluated steps in lean-rich	<	2	counts		
					direction (sensor 1, bank 1) Number of evaluated steps in lean-rich	>	0	-		
					direction (sensor 1, bank 1)					
					( Delay time from step response	<=	A - (( A - B )* ( C /	sec		
					measurement in lean-rich direction (sensor 1, bank 1)		D))			
					where in	_	0			
					(A) Delay time of best part unacceptable     (B) Fault threshold of delay time (step	=	0.6	sec sec		
					response, lean to rich) (C) Necessary number of measurements for	-	2	counts		
					fault-confirmation (D) Number of evaluated steps in lean-rich					
					direction (sensor 1, bank 1) Transition time from step response	<=	A - (( A - B )* ( C /	sec		
					measurement in lean-rich direction (sensor 1, bank 1)		D))			
					where in	_	0			
					(A) Transition time of best part unacceptable		0	sec		
					(B) Fault threshold of transition time (step response, lean to rich)	=	0.8	sec		
					(C) Necessary number of measurements for fault-confirmation	-	2	counts		

OBD GROUP: KGMXOBDG0	)7		DIAGNOST TEST GROUP: K		Y TABLES E	СМ			E	MISSION	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thr	eshold Value		Secondary Parameters		Enable Condition	s	Time Required	MIL IIIum.
							(D) Number of evaluated steps in lean-rich direction (sensor 1, bank 1) OR Number of evaluated steps in lean-rich direction (sensor 1, bank 1)	>=	2	counts		
							OR ( Number of evaluated steps in rich-lean direction (sensor 1, bank 1) Number of evaluated steps in rich-lean direction (sensor 1, bank 1) ( ( )	< >	2	counts -		
							Delay time from step response measurement in rich-lean direction (sensor 1, bank 1) where in (A) Delay time of best part unacceptable (B) Fault threshold of delay time (step response, rich to lean)	= =	A - (( A - B )* ( C / D )) 0 0.6	sec sec sec		
							(C) Necessary number of measurements for tault-confirmation (D) Number of evaluated steps in rich-lean direction (sensor 1, bank 1) Transition time from step response measurement in rich-lean direction (sensor 1, bank 1)	= <=	2 A - (( A - B )* ( C / D ))	counts		
							where in (A) Transition time of best part unacceptable (B) Fault threshold of transition time (step	=	0	sec		
							response.rich to lean) (C) Necessary number of measurements for fault-confirmation (D) Number of evaluated steps in rich-lean direction (sensor 1, bank 1)	=	2	counts		
							OR Number of evaluated steps in rich-lean direction (sensor 1, bank 1) )	>=	2	counts		
		Path 2: Step response/identification measurement of Oxygen sensor and pattern not detected with Step-response measurement within parallelization	Step response measurement:				Non bank-specific enabling conditions for continuous identification	=	TRUE	-		
			( Arithmetical average value of delay time from step response measurement in lean-rich direction	>	0.6 s	sec	( Vehicle speed	>=	3.107520199	mph		
			OR Arithmetical average value of transition time from step response measurement in lean-rich direction	>	0.8 s	sec	and Factor fuel purge adaptation factor	<=	40			
			OR Arithmetical average value of delay time from step response measurement in rich-lean direction OR	>	0.6 s	sec	and ( Integral of purge mass flow after a longer	>=	1.02	g		
			Arithmetical average value of transition time from step response measurement in rich-lean direction	>	0.8 s	sec	purge stop OR					
			) OR Identification measurement: ( Status of step response measurement (pattern is	-	0	_	Purge mass flow for DTEV ) ( Condition gear-shift in process Condition instationary state during half	= =	0.027777778  FALSE FALSE	a/sec - -		
			not detected bank 1) ( Sum time of identification in lean-rich direction OR	>	1.5 s	sec	engine mode switching ) End of start is reached for time	=	TRUE 7	- sec		
			Sum time of identification in rich-lean direction )	>	1.5 s	sec	( Fault suspicion reported by continuous identification (	=	TRUE	-		
							Sum of identified delay time and transition time in lean to rich direction OR	>	0.2	sec		

BD GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	· IVI			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL III
					Sum of identified delay time and transition time in rich to lean direction	>	0.2	sec		
					OR Difference between sum of delay times and transition times in lean to rich and rich to lean directions respectively where in (A) Identified transition time in lean-rich	>	0.2	sec		
					direction (bank 1) (B)dentified delay time in lean-rich direction (bank 1) (C) Identified transition time in rich-lean direction (bank 1) (D) Identified delay time in rich-lean direction (bank 1)					
					OR Negative value of the sum of delay times and transition times in rich to lean and lean to rich directions respectively where in (A) Identified transition time in lean-rich direction (bank 1)	>	0.2	sec		
					direction (balls 1) (B)Identified delay time in lean-rich direction (bank 1) (C) Identified transition time in rich-lean direction (bank 1) (D) Identified delay time in rich-lean direction (bank 1)					
					( Absolute value of filling gradient for time )	<= =	12 3	% sec		
					OR Fault suspicion reported by continuous identification	=	FALSE	-		
					( Absolute value of filling gradient for time )	<= =	12 1	% sec		
					) ( Condition half engine mode (HEM) active (	=	TRUE	-		
					Relative air mass / 2 for time ) OR	> =	0	% sec		
					Condition half engine mode (HEM) active ( Relative air mass for time	= > =	FALSE 0 0	- % sec		
					) ) Ambient pressure	>	0	kPa		
					) Bank-specific enabling conditions for continuous identification	=	TRUE	-		
					( Enabling conditions for lambda stability (					
					( Lambda closed loop control, Bank 1 (	=	TRUE	-		
					Lambda control disabled during after cylinder cut-off and	=	FALSE	-		
					Lambda swtiched ON after fuel cutoff ( Fuel cut off is active	-	TRUE FALSE	-		
					( Time running down after fuel cut-off for enabling lambda control OR	>	8	sec		
					( Absolute value of diffence in lambda of bank	<=	0.1001	-		
					1 Difference of counter time and plant time constant a-(b+c) where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous airfuel control	>	0	sec		

GROUP: KGMXOBDG	)7		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	<b>√</b> IVI			EMISSIONS :	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL III
					c is plant parameter for dead time for lambda control					
					) ) ) LSU sensor upstream to catalyst ready for	=	TRUE	-		
					operation (		054.000	40		
					lambda sensor 1 temperature ) Lambda control disabled by a fault	>=	654.998 FALSE	deg C		
					( Catalyst damaging misfire rate exceeded		FALSE			
					Injector power stage fault is active Camshaft fault in critical operating range present and MAF is main air charge sensor	=	FALSE FALSE	-		
					) lambda control is active since warmup is finished	=	TRUE	-		
					Relative air charge for time	>=	0 2	%		
					Lamda control active due to GDI mode change	=	TRUE	sec -		
					( GDI mode homogeneous for time	= >=	TRUE 0.8	- sec		
					)	~-	0.0	360		
					Rich catalyst purge is active	=	TRUE	-		
					Lambda for component protection is active	=	FALSE	-		
					Number of the lambda requests determining the lambda setpoint	!=	5	-		
					) for time	=	2	sec		
					Plant time constant of continuous af control, base value, linear quantization	<=	0.25	sec		
					( Exhaust gas mass flow Cat 1, Bank 1 (	<=	55.5555556	g/sec		
					Difference between exhaust gas mass flow Cat 1, Bank 1 with its filtered value	>=	-910.2222222	g/sec		
					Difference between exhaust gas mass flow Cat 1, Bank 1 with its filtered value	<=	910.1944444	g/sec		
					for time	=	0.01	sec		
					Sensor LSU upstream cat ready for operation	=	TRUE	-		
					for time Enable LSU dynamic diagnosis w.r.t. scavenging (	=	10 TRUE	sec -		
					Ratio of total air mass to mass in cylinder	<=	1.02002	-		
					Filtered air mass )	>=	50	q		
					( Transition time from step response	<	0.2	sec		
					measurement in rich-lean direction Transition time from step response measurement in lean-rich direction	<	0.2	sec		
					) ( Transition time from step response	<	0.1	sec		
					measurement in rich-lean direction Transition time from step response	<	0.1	sec		
					measurement in lean-rich direction	-	5.1			
					) Injection valve cut-off on Bank 1 )	=	FALSE	- sec		
					Identification trigger: rate of change of modeled lambda in lean to rich direction,	>=	0.019989	-		
					bank 2 Identification trigger: rate of change of modeled lambda in rich to lean direction,	>=	0.019989	-		

BD GROUP: KGMXOBDG	07		DIAGNOSTI TEST GROUP: KO	C SUMMARY TABLES EG GMXV04.2088	СМ		EMISSIONS	STDS: CALULEV125, I	FEDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable C	onditions	Time Required	MIL IIIu
					( Number of step response measurements in lean-rich direction for driving cylce (sensor 1, bank 1)	= 0	-		
					( Time to evaluate loss function	>= 30	sec		
					OR Square of difference between band pass	>= 100			
					filtered reciprocal lambda and modelled reciprocal lambda values ) )				
					OR Enabling conditions for step response measurement ( (				
					( ( Lean lambda is requested and the cat is filled with oxygen gas	= TRUI			
					a commanded lambda active primary A/F commanded lambda	= TRUI = 1.080	- 8		
					for time for time	>= 3 >= 0.2	sec sec		
					Secondary O2 sensor voltage	<= 0.2001	sec 95 V		
					Rich lambda is requested and the cat is filled with rich gas due to low sensor voltage	= TRUI			
					a commanded lambda active primary A/F commanded lambda bank1	= TRUI = 0.9199			
					for time for time OR	>= 3 >= 0.2	sec sec		
					Rich lamda is requested to empty the oxygen gas from the cat a commanded lambda active	= TRU			
					primary A/F commanded lambda	= 0.9199	92 -		
					for time for time	>= 3 >= 0.2			
					Secondary O2 sensor voltage Or	>= 0.850	33 V		
					Secondary O2 sensor voltage Secondary O2 sensor voltage	>= 0.7495 <= 0.099			
					Secondary O2 sensor voltage Integrated Oxygen mass flow bank 1	>= -0.099	44 V/s		
					)) ( Primary A/F sensor lambda	<= (a) + (	b)		
					(a) Primary lambda control set point     (b) maximum lambda deviation of lean	(a) (b) 0.050			
					mixture Primary A/F sensor lambda (a) Primary lambda control set point	>= (a) - (l			
					(b) maximum lambda deviation of rich	0.050	05 -		
					mixture for time Integrated rich exhaust gas mass flow	>= 0.2 >= 15			
					bank 1		-		
					) for time where in (A) LRS-plantparameter deadtime	= A * 0.	8 sec		
					and ( Reciprocal of actual lambda value	> (A + (B)	C)) -		
					where in (A) Minimal or maximal value of reciprocal lambda after step				
					(B) Fraction of step height to end step response measurement     (C) Step height in reciprocal lambda	= 0.3000			

Difference between the measurement and Life difference and Life di	time after step >	Enable Conditions  2.5 sec	Time Required	MIL III
measurement and Efficient in the second of t		2.5 sec		
(Ruch lamda is required oxygen gas from the sor time.  Secondary Of Or				
oxygen gais from the a commande primary AF c for time for time ( Sacondary C Secondary C S				
primary AF c for time for time {	e cat	TRUE -		
for time ( Secondary Cor Cor Secondary Cor Secondary Cor Secondary Cor Secondary Cor Secondary Cor Integrated Cort Integr	commanded lambda =	TRUE - 0.91992 -		
Or ( Secondary O: O: Secondary O: O: Secondary O: O: Secondary O: O: O: Secondary O: O: Secondary O: O: Secondary O: Secon	>= >=	3 sec 0.2 sec 0.85083 V		
Secondary Of Secondary Of Secondary Of Integrated Ox Secondary Of Integrated Ox Integr		0.85083 V 0.749512 V		
Integrated Ox  ()  ()  ()  ()  ()  ()  ()  ()  ()  (	O2 sensor voltage <=	0.09944 V/s		
() () () () () () () () () () () () () (	O2 sensor voltage >= Oxygen mass flow bank 1 >	-0.09944 V/s		
(a) Primary lami (b) maximum la mixture Primary A/F ser (a) Primary lami (b) maximum la mixture Tor time Integrated rich is bank 1 and ( Lean lambda is requi filled with oxygen gas voltage a commande primary A/F or for time for time ((( Secondary Oz. for time) ) Or ( Secondary Oz. Secondary Oz. Secondary Oz. Secondary Oz. Secondary Oz. Over 0.05s	Ayyon mass now bank 1 >	0.15 g		
mixture Primary AF ser (a) Primary Iam (b) maximum la mixture Tor time Integrated rich is bank 1 and ( (Lean lambda is requi filled with oxygen gas voltage a command primary AF co for time for time (( Secondary O2 for time) ) Or ( Secondary O2 Secondary O2 over 0.05s Secondary O2 over 0.05s	sensor lambda <= mbda control set point (a)	(a) + (b)		
(a) Primary lami (b) maximum la mixture for time integrated rich i bank 1 and ( ( Lean lambda is requi filled with oxygen gas voltage a commande primary A/F cc for time for time ( ( Secondary O2 for time) ) Or ( Secondary O2 Secondary O2 over 0.05s Secondary O2	lambda deviation of lean (b)	0.05005 -		
mixture for time Integrated rich bank 1 and ( Lean lambda is requifilled with oxygen gas voltage a command primary AF or for time (for time (for time) ) Or ( Secondary O2 for time ) Secondary O2 secondary O2 secondary O2 secondary O2 over 0.05 Secondary O2 over 0.05 Secondary O2	ensor lambda >= mbda control set point	(a) - (b)		
Integrated rich bank 1 and ( Lean lambda is required with oxygen gas voltage a commande primary AF or for time for time (() Secondary O2 for time ) ) Or ( Secondary O2 Secondary O2 Secondary O2 over 0.05s Secondary O2 over	lambda deviation of rich	0.05005 -		
filled with oxygen gas voltage  a commande primary AF or for time for time for time (() Secondary O2 for time ) ) Or ( ( Secondary O2 S	n exhaust gas mass flow >= >=	0.2 sec 15 g		
a command primary A/F co for time for time (// Secondary O2 for time ) Or (// Secondary O2 Secondary O2 Secondary O2 over 0.05s	uested and the cat is = as due to high sensor	TRUE -		
for time for time (( Secondary O2 for time ) Or ( Secondary O2 Secondary O2 over 0.05s Secondary O2	ded lambda active =	TRUE -		
for time ) ) Or ( Secondary O2 Secondary O2 over 0.055 Secondary O2:	commanded lambda = >= >= >=	1.08008 - 3 sec 0.2 sec		
( Secondary O2- Secondary O2- over 0.05s Secondary O2-	2 sensor voltage <= >=	0.150146 V 0.1 sec		
Secondary O2 over 0.055 Secondary O2				
Secondary O2	2 sensor voltage <= 2 sensor voltage gradient <=	0.150146 V 0.09944 V/s		
over 0.05e	2 sensor voltage gradient >=	-0.09944 V/s		
	ygen mass flow bank 1 >	0.1 g		
)) ( Primary A/F ser		(a) + (b)		
	nbda control set point (a) ambda deviation of lean (b)	0.05005 -		
Primary A/F sen	ensor lambda >=	(a) - (b)		
(b) maximum lar mixture	ambda deviation of rich	0.05005 -		
bank 1	>= >= >= >= >=	0.2 sec 15 g		
OR Lean lambda is requi	uested and the cat is =	TRUE -		
filled with oxygen qas a commanded	d lambda active =	TRUE -		
for time		1.08008 - 3 sec 0.2 sec		
for time Secondary O2	ommanded lambda = >=			

Component   System   Fault Code   Monitor Strategy Description   Matturction Criteria   Threshold Value   Securicary Parameters   Endote Conditions	SSIONS STDS: CALULEV125, FEDBIN12	EMISSION		1	TIC SUMMARY TABLES ECI KGMXV04.2088	DIAGNOST TEST GROUP: K		07	OBD GROUP: KGMXOBDG
where in A LL Miss plur grounded chaldrine Reciprocal of Archite Immobilished State Reciprocal of Archite Immobilished State Reciprocal of Architecture Immobilished State Reciprocal of Collegence Debetween Immobilished State Reciprocal of State Reciprocal of Architecture Immobilished State Reciprocal of State Reciprocal of Architecture Immobilished State Reciprocal of Reciprocal of Reciprocal Architecture Immediated Reciprocal Reciproca	Time Required MIL IIIu	Conditions	Enable Conditio	Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
where p is a contract of maintained such soft reciprocal surround and enter dates on (IR) Praction of desp height to end step (IR) and the contract of the processor between the reciprocal surround and the contract of the processor between the processor and the contract of the processor between the processor and the contract of the processor between the processor and the contract of the processor and the contract of the processor and the pro	sec	).8 sec	= A * 0.8	where in					
(B) Fraction of base plant (a most deep sections or measurement processor in measurement processor in most and processor in commontant or most and processor in most and processor in most and processor in most and processor in commontant or most processor in most and processor in commontant or most processor in most and processor in commontant or most processor in commontant or most processor in mo		.°C)) -	< (A - (B*C))	( Reciprocal of actual lambda value where in (A) Minimal or maximal value of reciprocal					
resusuments and LRS-plantparameter observation of clearly and settlement increases in construction of clearly and settlement of construction (service)	-	)031 -	= 0.3000031	(B) Fraction of step height to end step response measurement     (C) Step height in reciprocal lambda					
desired lamids astigoni in combision chamber for time  In A 1 LRS-ciliantnammeter deadstime  (	sec	; sec	> 2.5	measurement and LRS-plantparameter					
for time where is n where is n I/I LRS obstitutionameter deadtime I/I LRS obstitutionameter of contained steps in losen-rich distriction (sensor 1, bank 1) Number of evaluated steps in losen-rich direction (sensor 1, bank 1)  (	-	5 -	> 0.05	desired lamda limitation and reciprocal					
direction (sensor 1, bank 1)  Number of evaluated steps in lear-rich direction (sensor 1, bank 1)  (	sec	1.8 sec	= A*0.8	for time where in					
direction (sensor 1, bank 1)  (				direction (sensor 1, bank 1)					
1. bank 1) where in (A) Delay time of best part unacceptable (B) Fault threshold of delay time (step ressonse, lean to rich) (C) Necessary number of measurements for fault-confirmation (D) Number of evaluated steps in lean-rich direction (sensor 1, bank 1) Transition time from step response measurement in lean-rich direction (sensor 1, bank 1) where in (A) Transition time for best part unacceptable (B) Fault threshold of transition time (step response, lean to rich) (C) Necessary number of measurements for fault-confirmation (D) Number of evaluated steps in lean-rich direction (sensor 1, bank 1) ) OR Number of evaluated steps in lean-rich >= 2 counts		B)*(C/ sec	<= A - (( A - B )* ( C /	direction (sensor 1, bank 1) ( ( Delay time from step response					
response, lean to rich)  (C) Necessary number of evaluated steps in lean-rich direction (sensor 1, bank 1)  (B) Fault threshold of transition time (step response, lean to rich)  (C) Necessary number of evaluated steps in lean-rich direction (sensor 1, bank 1)  (C) Necessary number of evaluated steps in lean-rich direction (sensor 1, bank 1)  (C) Necessary number of measurements for tault-confirmation  (D) Number of evaluated steps in lean-rich direction (sensor 1, bank 1)  (C) Necessary number of measurements for tault-confirmation  (D) Number of evaluated steps in lean-rich direction (sensor 1, bank 1)  (C) Reposer of measurements for tault-confirmation  (D) Number of evaluated steps in lean-rich direction (sensor 1, bank 1)  (C) Reposer of measurements for tault-confirmation  (D) Number of evaluated steps in lean-rich direction (sensor 1, bank 1)  (C) Reposer of measurements for tault-confirmation  (D) Number of evaluated steps in lean-rich direction (sensor 1, bank 1)  (C) Reposer of measurements for tault-confirmation  (D) Number of evaluated steps in lean-rich direction (sensor 1, bank 1)  (C) Reposer of measurements for tault-confirmation  (D) Number of evaluated steps in lean-rich direction (sensor 1, bank 1)  (C) Reposer of measurements for tault-confirmation  (D) Number of evaluated steps in lean-rich direction (sensor 1, bank 1)  (C) Reposer of measurements for tault-confirmation  (E) Repo		sec	= 0	(A) Delay time of best part unacceptable					
direction (sensor 1, bank 1) Transition time from step response measurement in lean-rich direction (sensor 1, bank 1) Where in (A) Transition time of best part unacceptable (B) Fault threshold of transition time (step response, lean to rich) (C) Necessary number of measurements for tartub-confirmation (D) Number of evaluated steps in lean-rich direction (sensor 1, bank 1) ) OR Number of evaluated steps in lean-rich  Transition time (step = 0.8 sec = 0.8 sec = 2 counts				response, lean to rich) (C) Necessary number of measurements for fault-confirmation (D) Number of evaluated steps in lean-rich					
(A) Transition time of best part unacceptable = 0 sec  (B) Fault threshold of transition time (step response, lean to rich of transition time (step response, lean to rich of transition time)  (C) Necessary number of measurements for statute-confirmation  (D) Number of evaluated steps in lean-rich direction (sensor 1, bank 1)  ) OR  Number of evaluated steps in lean-rich >= 2 counts	sec			direction (sensor 1, bank 1) Transition time from step response measurement in lean-rich direction (sensor 1, bank 1)					
response, lean to rich)  (C) Necessary number of measurements for a counts fault-confirmation  (D) Number of evaluated steps in lean-rich direction (sensor 1, bank 1)  )  OR  Number of evaluated steps in lean-rich >= 2 counts				(A) Transition time of best part unacceptable					
Number of evaluated steps in lean-rich >= 2 counts				response, lean to rich) (C) Necessary number of measurements for fault-confirmation (D) Number of evaluated steps in lean-rich					
direction (sensor 1, bank 1)	ounts	counts	>= 2						
) OR ( Number of evaluated steps in rich-lean < 2 counts direction (sensor 1, bank 1)				( Number of evaluated steps in rich-lean direction (sensor 1, bank 1)					
Numer of evaluated steps in rich-lean	·	-	> 0						
Delay time from step response measurement in rich-lean direction (sensor 1, bank 1) where in		))	D ))	measurement in rich-lean direction (sensor 1, bank 1) where in					
(A) Delay time of best part unacceptable = 0 sec (B) Fault threshold of delay time (step = 0.6 sec response, rich to lean) (C) Necessary number of measurements for = 2 counts fault-unconfirmation	sec	6 sec	= 0.6	(B) Fault threshold of delay time (step response rich to lean)     (C) Necessary number of measurements for					

D GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K			S ECM				EMISSIONS	S STDS: CALULEV125, FE	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	1	Threshold Value		Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIu
							Transition time from step response measurement in rich-lean direction (sensor 1, bank 1) where in	<=	A - (( A - B )* ( C / D ))	sec		
							(A) Transition time of best part unacceptable	=	0	sec		
							(B) Fault threshold of transition time (step response rich to lean) (C) Necessary number of measurements for	=	0.8	sec counts		
							fault-confirmation (D) Number of evaluated steps in rich-lean direction (sensor 1, bank 1)		-	Courte		
							OR Number of evaluated steps in rich-lean direction (sensor 1, bank 1)	>=	2	counts		
							) ) No pending or confirmed DTCs	=	see sheet inhibit table	-		
							Basic enable conditions met	=	see sheet enable tables	-		
ostream Exhaust Gas Sensor	P0153	Path 1: Step response/identification measurement of Oxygen sensor of bank 2 and pattern has been detected with Step-response measurement within parallelization	Step response measurement:				Non bank-specific enabling conditions for continuous identification	=	TRUE	-		2 -
			( Arithmetical average value of delay time from step response measurement in lean-rich direction (sensor 1, bank 2)	>	0.6	sec	( Vehicle speed	>=	3.107520199	mph		
			OR Arithmetical average value of transition time from step response measurement in lean-rich direction, (sensor 1, bank 2)	>	0.8	sec	Fuel purge adaptation factor (	<=	40	-		
			OR  Arithmetical average value of delay time from step response measurement in rich-lean direction, (sensor 1, bank 2)	>	0.6	sec	Integral of purge mass flow after a longer purge stop OR	>=	1.02	g		
			(serisor 1, bank 2) OR Arithmetical average value of transition time from step response measurement in rich-lean direction, (sensor 1, bank 2)	>	0.8	sec	Purge mass flow for DTEV )	<	0.027777778	q/sec		
			) OR				( Condition gear-shift in process	=	FALSE	-		
			Identification measurement:			_	and Condition instationary state during half engine mode switching	=	FALSE	-		
			Status of step response measurement (detected pattern, bank 2)	>	0	-	) End of start is reached	=	TRUE			
			Identified delay time in lean-rich direction, bank 2	>	0.9	sec	for time	=	7	sec		
			Identified transition time in lean-rich direction, bank 2	>	1.2	sec	Absolute value of filling gradient	<=	12	%		
			OR Identified delay time in rich-lean direction, bank 2	>	0.9	sec	for time )	=	1	sec		
			OR Identified transition time in rich-lean direction, bank 2	>	1.2	sec	( Condition half engine mode (HEM) active	=	TRUE	-		
			6				( Relative air mass / 2 for time	> =	0	% sec		
							OR Condition half engine mode (HEM) active	=	FALSE	-		
							Relative air mass for time )	> =	0	% sec		
							) Ambient pressure )	>	0	kPa		
							Bank-specific enabling conditions for continuous identification, bank 2 (	=	TRUE	-		
	1						( Enabling conditions for lambda stability	l				

FEDBIN	STDS: CALULEV125, F	MISSIONS S				GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDG
MIL	Time Required	ıs	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			TRUE	_	( Lambda closed loop control, Bank 2					
		_	FALSE	_	( Lambda control disabled during after					
		-	TRUE	=	cylinder cut-off, bank 2 Lambda swtiched ON after fuel cutoff, bank 2					
		-	FALSE	=	( Fuel cut off is active					
		sec	8	>	( Time running down after fuel cut-off for enabling lambda control OR					
		-	0.1001	<=	( Absolute value of diffence in lambda of bank					
		sec	0	>	Difference of counter time and plant time constant					
					a-(b+c) where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous					
					air/fuel control, bank 2 c is plant parameter for dead time for lambda control, bank 2 )					
		-	TRUE	=	) ) LSU sensor upstream to catalyst ready for operation, bank 2					
		deq C	654.998	>=	( lambda sensor 1 temperature, bank 2					
		-	FALSE	=	Lambda control disabled by a fault, bank 2					
		:	FALSE FALSE FALSE	= = =	( Catalyst damaging misfire rate exceeded Injector power stage fault is active  Camshaft fault in critical operating range  present and MAF is main air charge sensor					
		-	TRUE	=	) lambda control is active since warmup is finished					
		% sec	0 2	> >=	Relative air charge for time					
		-	TRUE	=	Lamda control active due to GDI mode change					
		- sec	TRUE 0.8	= >=	( GDI mode homogeneous for time )					
		_	TRUE	_	) ) Rich catalyst purge is active, bank 2					
		-	FALSE	=	( Lambda for component protection is active					
		-	5	!=	OR Number of the lambda requests determining the lambda setpoint					
		sec	2	=	) for time					
		sec	0.25	<=	Plant time constant of continuous af control, base value, bank 2, linear quantization					
		g/sec	55.5555556	<=	( Exhaust gas mass flow Cat 1, Bank 2					
		g/sec	-910.2222222	>=	( Difference between exhaust gas mass flow Cat 1. Bank 2 with its filtered value					
		g/sec	910.1944444	<=	Cat 1, Bank 2 with its filtered value Difference between exhaust gas mass flow Cat 1, Bank 2 with its filtered value					
		sec	0.01	=	) for time					
		-	TRUE	=	) Sensor LSU upstream cat ready for					
		sec -	10 TRUE	=	operation for time Enable LSU dynamic diagnosis w.r.t. scavenging					

D GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES E	JIVI			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL III
					Ratio of total air mass to mass in cylinder	<=	1.02002	-		
					Filtered air mass	>=	50	q		
					)					
					( Transition time from step response	<	0.2	sec		
					measurement in rich-lean direction (sensor 1, bank 2)					
					Transition time from step response measurement in lean-rich direction (sensor	<	0.2	sec		
					1, bank 2)					
					Transition time from step response measurement in rich-lean direction (sensor	<	0.1	sec		
					tank 2)  Transition time from step response	<	0.1	sec		
					measurement in lean-rich direction (sensor 1, bank 2)	•	0.1	sec		
					) )					
					Injection valve cut-off on Bank 2	=	FALSE	-		
					Identification trigger: rate of change of modeled lambda in lean to rich direction,	>=	0.019989	-		
					bank 2 Identification trigger: rate of change of	>=	0.019989	_		
					modeled lambda in rich to lean direction, bank 2	/-	0.019909			
					( Number of step response measurements in	=	0	_		
					lean-rich direction for driving cylce (sensor 1, bank 2)	-	U			
					( Time to evaluate loss function, bank 2	>=	30	sec		
					OR Square of difference between band pass	>=	100	sec -		
					filtered reciprocal lambda and modelled	>=	100	-		
					reciprocal lambda values (sensor 1, bank 2)					
					) )					
					Enabling conditions for step response measurement					
					(					
					(					
					Lean lambda is requested and the cat is filled with oxygen gas	=	TRUE	-		
					a commanded lambda active primary A/F commanded lambda	=	TRUE 1.08008	-		
					for time for time	>= >=	3	sec		
					Secondary O2 sensor voltage	<=	0.200195	sec V		
					Rich lambda is requested and the cat is filled with rich gas due to low sensor voltage,	=	TRUE	-		
					bank 2 a commanded lambda active	=	TRUE	-		
					primary A/F commanded lambda bank2	=	0.91992	-		
					for time for time	>= >=	3 0.2	sec sec		
					OR Rich lamda is requested to empty the	=	TRUE	-		
					oxygen gas from the cat a commanded lambda active	=	TRUE	_		
					primary A/F commanded lambda	=	0.91992	-		
					for time for time	>= >=	3 0.2	sec sec		
					( Secondary O2 sensor voltage	>=	0.85083	V		
					Or (			· I		
					Secondary O2 sensor voltage Secondary O2 sensor voltage	>= <=	0.749512 0.09944	V V/s		
					Secondary O2 sensor voltage Integrated Oxygen mass flow bank 2	>= >	-0.09944 0.15	V/s g		
	1				integrated Oxygen mass now Dank 2	-	0.10	9		

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EO MXV04.2088	OIVI			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIu
					( Primary A/F sensor lambda	<=	(a) + (b)			
					(a) Primary lambda control set point	(a)				
					(b) maximum lambda deviation of lean mixture Primary A/F sensor lambda	(b) >=	0.05005 (a) - (b)	-		
					(a) Primary lambda control set point     (b) maximum lambda deviation of rich		0.05005			
					mixture for time	>=	0.2	sec		
					Integrated rich exhaust gas mass flow bank 2 )	>=	15	g		
					) for time where in	=	A * 0.8	sec		
					(A) LRS-plantparameter deadtime, bank 2					
					Reciprocal of actual lambda value, sensor 1, bank 2 where in	>	(A + (B*C))	-		
					(A) Minimal or maximal value of reciprocal lambda after step, bank 2		0.0000004			
					(B) Fraction of step height to end step response measurement     (C) Step height in reciprocal lambda, bank 2	=	0.3000031	•		
					OR Difference between time after step measurement and LRS-plantparameter	>	2.5	sec		
					measurement and LRS-plantparameter deadtime, bank 2					
					) OR					
					( ( Rich lambda is requested to empty the	=	TRUE	-		
					oxygen gas from the cat, bank 2 a commanded lambda active	=	TRUE	-		
					primary A/F commanded lambda for time	= >=	0.91992	- sec		
					for time (	>=	0.2	sec		
					Secondary O2 sensor voltage Or	>=	0.85083	V		
					Secondary O2 sensor voltage Secondary O2 sensor voltage	>= <=	0.749512 0.09944	V V/s		
					Secondary O2 sensor voltage Integrated Oxygen mass flow bank 2	>= >	-0.09944 0.15	V/s		
					))		0.13	g		
					(' Primary A/F sensor lambda (a) Primary lambda control set point	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean	(a) (b)	0.05005	-		
					mixture Primary A/F sensor lambda (a) Primary lambda control set point	>=	(a) - (b)			
					(b) maximum lambda deviation of rich		0.05005	-		
					mixture for time	>=	0.2	sec		
					Integrated rich exhaust gas mass flow bank 2 (	>=	15	g		
					Lean lambda is requested and the cat is filled with oxygen gas due to high sensor voltage, bank 2	=	TRUE	-		
					a commanded lambda active	-	TRUE	-		
					primary A/F commanded lambda for time	= >=	1.08008 3	- sec		
					for time	>=	0.2	sec		
					Secondary O2 sensor voltage for time	<= >=	0.150146 0.1	V sec		
					) Or					
	1				( Secondary O2 sensor voltage	<=	0.150146	V		

FEDBIN	STDS: CALULEV125, F	MISSIONS S	Е			IC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K		)7	BD GROUP: KGMXOBDG
MIL	Time Required	s	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		V/s	0.09944	<=	Secondary O2 sensor voltage gradient					
		V/s	-0.09944	>=	over 0.05s Secondary O2 sensor voltage gradient					
		g	0.1	>	over 0.05s Integrated Oxygen mass flow bank 2					
					))					
			(a) + (b)	<=	( Primary A/F sensor lambda					
		-	0.05005	(a) (b)	<ul><li>(a) Primary lambda control set point</li><li>(b) maximum lambda deviation of lean</li></ul>					
			(a) - (b)	>=	mixture Primary A/F sensor lambda					
		-	0.05005		<ul><li>(a) Primary lambda control set point</li><li>(b) maximum lambda deviation of rich</li></ul>					
		sec	0.2	>=	mixture for time					
		g	15	>=	Integrated lean exhaust gas mass flow bank 2					
					OR					
		-	TRUE	=	Lean lambda is requested and the cat is filled with oxygen gas, bank 2					
		:	TRUE 1.08008	=	a commanded lambda active primary A/F commanded lambda					
		sec sec	3 0.2	>= >=	for time for time					
		V	0.200195	>= <=	Secondary O2 sensor voltage					
		sec	A * 0.8	=	for time where in					
					(A) LRS-plantparameter deadtime, bank 2					
		-	(A - (B*C))	<	Reciprocal of actual lambda value, bank 2 where in					
					(A) Minimal or maximal value of reciprocal lambda after step, bank 2					
		-	0.3000031	=	(B) Fraction of step height to end step response measurement					
					(C) Step height in reciprocal lambda, bank 2					
		sec	2.5	>	OR Difference between time after step					
					measurement and LRS-plantparameter deadtime, bank 2					
					)					
		_	0.05	>	) Absolute difference between reciprocal of					
			0.03		desired lamda limitation of sensor 1, bank 2 and reciprocal lambda setpoint in					
		sec	A * 0.8	_	combustion chamber					
		Sec	A 0.6	-	where in (A) LRS-plantparameter deadtime, bank 2					
					(A) LRS-plantparameter deadurne, bank 2					
		counts	2	<	Number of evaluated steps in lean-rich direction (sensor 1, bank 2)					
		-	0	>	Number of evaluated steps in lean-rich direction (sensor 1, bank 2)					
		sec	A - (( A - B )* ( C /	<=	( Delay time from step response					
			D ))		measurement in lean-rich direction (sensor 1, bank 2)					
		sec	0	=	where in (A) Delay time of best part unacceptable					
		sec	0.6	=	(B) Fault threshold of delay time (step response, lean to rich)					
		counts	2	=	(C) Necessary number of measurements for fault-confirmation					
					(D) Number of evaluated steps in lean-rich direction (sensor 1, bank 2)					
		sec	A - (( A - B )* ( C / D ))	<=	Transition time from step response measurement in lean-rich direction (sensor					
			5 ,,		1, bank 2) where in					
		sec	0	=	(A) Transition time of best part unacceptable					
		sec	0.8	-	(B) Fault threshold of transition time (step response, lean to rich)					

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLE	S ECM				MISSION	IS STDS: CALULEV125, FI	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters		Enable Condition	s	Time Required	MIL IIIum.
						(C) Necessary number of measurements for fault-confirmation (D) Number of evaluated steps in lean-rich direction (sensor 1, bank 2)	=	2	counts		
						OR Number of evaluated steps in lean-rich direction (sensor 1, bank 2) ) OR	>=	2	counts		
						( Number of evaluated steps in rich-lean direction (sensor 1, bank 2)	<	2	counts		
						Number of evaluated steps in rich-lean direction (sensor 1, bank 2)	>	0	-		
						( Delay time from step response measurement in rich-lean direction (sensor 1, bank 2)	<=	A - (( A - B )* ( C / D ))	sec		
						where in (A) Delay time of best part unacceptable (B) Fault threshold of delay time (step	=	0 0.6	sec		
						response,rich to lean) (C) Necessary number of measurements for	=	2	counts		
						fault-confirmation (D) Number of evaluated steps in rich-lean direction (sensor 1, bank 2) Transition time from step response	<=	A - (( A - B )* ( C /	sec		
						measurement in rich-lean direction (sensor 1, bank 2) where in		D ))			
						(A) Transition time of best part unacceptable	=	0	sec		
						(B) Fault threshold of transition time (step response, rich to lean)     (C) Necessary number of measurements for	=	0.8	sec		
						(D) Number of evaluated steps in rich-lean direction (sensor 1, bank 2)	_	2	counts		
						) OR Number of evaluated steps in rich-lean direction (sensor 1, bank 2) )	>=	2	counts		
		Path 2:	Step response measurement:			Non bank-specific enabling conditions for	=	TRUE	_		
		Step response/identifcation measurement of Oxygen sensor of bank 2 and pattern not detected with Step-response measurement within parallelization	otep response measurement.			continuous identification	-	INGE			
			( Arithmetical average value of delay time from step response measurement in lean-rich direction (sensor 1, bank 2)	> 0.6	sec	( Vehicle speed	>=	3.107520199	mph		
			OR Arithmetical average value of transition time from step response measurement in lean-rich	> 0.8	sec	Factor fuel purge adaptation factor (	<=	40			
			direction, (sensor 1, bank 2) OR			Integral of purge mass flow after a longer purge stop	>=	1.02	g		
			Arithmetical average value of delay time from step response measurement in rich-lean direction, (sensor 1, bank 2) OR	> 0.6	sec	OR		0.00777770	-1		
			Arithmetical average value of transition time from step response measurement in rich-lean direction, (sensor 1, bank 2)	> 0.8	sec	Purge mass flow for DTEV )	<	0.027777778	g/sec		
			) OR Identification measurement:			Condition gear-shift in process Condition instationary state during half engine mode switching	=	FALSE FALSE	-		
			( Status of step response measurement (pattern is not detected bank 2)	= 0	-	) End of start is reached	=	TRUE	-		
			( Sum time of identification in lean-rich direction (sensor 1, bank 2)	> 1.5	sec	for time (	=	7	sec		
			OR			Fault suspicion reported by continuous identification	=	TRUE	-		
			Sum time of identification in rich-lean direction (sensor 1, bank 2)	> 1.5	sec	(					

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECM GMXV04.2088				EMISSION	S STDS: CALULEV125, FI	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL IIIum
			)		Sum of identified delay time and transition time in lean to rich direction, bank 2	>	0.2	sec		
			)		OR Sum of identified delay time and transition time in rich to lean direction, bank 2	>	0.2	sec		
					OR Difference between sum of delay times and transition times in lean to rich and rich to lean directions respectively where in (A) Identified transition time in lean-rich	>	0.2	sec		
					direction (bank 2) (B)ldentified delay time in lean-rich direction (bank 2) (C) Identified transition time in rich-lean direction (bank 2) (D) Identified delay time in rich-lean direction (bank 2)					
					OR Negative value of the sum of delay times and transition times in rich to lean and lean to rich directions respectively where in (A) Identified transition time in lean-rich	>	0.2	sec		
					direction (bank 1) (B)ldentified delay time in lean-rich direction (bank 1) (C) Identified transition time in rich-lean direction (bank 1) (D) Identified delay time in rich-lean direction (bank 1)					
					( Absolute value of filling gradient for time )	<= =	12 3	% sec		
					) OR Fault suspicion reported by continuous identification	=	FALSE	-		
					( Absolute value of filling gradient for time )	<= =	12 1	% sec		
					( Condition half engine mode (HEM) active ( Relative air mass / 2	= >	TRUE 0	- %		
					for time ) OR Condition half engine mode (HEM) active	=	0 FALSE	sec -		
					( Relative air mass for time	> =	0 0	% sec		
					) Ambient pressure	>	0	kPa		
					) Bank-specific enabling conditions for continuous identification, bank 2	=	TRUE	-		
					Enabling conditions for lambda stability (					
					( Lambda closed loop control, Bank 2	=	TRUE	-		
					( Lambda control disabled during after cylinder cut-off, bank 2	=	FALSE	-		
					Lambda swtiched ON after fuel cutoff, bank	=	TRUE	-		
					( Fuel cut off is active	=	FALSE	-		
					( Time running down after fuel cut-off for enabling lambda control OR	>	8	sec		
					( Absolute value of diffence in lambda of bank 2	<=	0.1001	-		

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC BMXV04.2088	IVI			MISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIu
					Difference of counter time and plant time constant a-(b-x-c). If the country is the constant for continuous air/fuel control, bank 2 or is plant parameter for dead time for lambda control, bank 2 }	>	0	sec		
					) ) LSU sensor upstream to catalyst ready for operation, bank 2	=	TRUE	-		
					( lambda sensor 1 temperature	>=	654.998	deg C		
					) Lambda control disabled by a fault, bank 2	=	FALSE	-		
					( Catalyst damaging misfire rate exceeded  Injector power stage fault is active  Camshaft fault in critical operating range  present and MAF is main air charge sensor	= = =	FALSE FALSE FALSE	:		
					) lambda control is active since warmup is	=	TRUE	-		
					finished Relative air charge	>	0	%		
					for time Lamda control active due to GDI mode change	>=	2 TRUE	sec -		
					( GDI mode homogeneous for time )	= >=	TRUE 0.8	sec		
					) ) Rich catalyst purge is active, bank 2 (	=	TRUE	-		
					Lambda for component protection is active	=	FALSE	-		
					OR Number of the lambda requests determining the lambda setpoint	!=	5	-		
					for time	=	2	sec		
					Plant time constant of continuous af control, base value, bank 2, linear quantization	<=	0.25	sec		
					( Exhaust gas mass flow Cat 1, Bank 2	<=	55.5555556	q/sec		
					( Difference between exhaust gas mass flow	>=	-910.2222222	g/sec		
					Cat 1, Bank 2 with its filtered value Difference between exhaust gas mass flow Cat 1, Bank 2 with its filtered value	<=	910.1944444	g/sec		
					) for time	=	0.01	sec		
					) Sensor LSU upstream cat ready for operation	=	TRUE	-		
					for time Enable LSU dynamic diagnosis w.r.t. scavenging	=	10 TRUE	sec -		
					( Ratio of total air mass to mass in cylinder	<=	1.02002			
					Filtered air mass	>=	50	q		
					( ( Transition time from step response measurement in rich-lean direction (sensor	<	0.2	sec		
					nneasurement in rich-lean direction (sensor 1, bank 2) Transition time from step response measurement in lean-rich direction (sensor 1, bank 2)	<	0.2	sec		
					) ( Transition time from step response measurement in rich-lean direction (sensor 1, bank 2)	<	0.1	sec		

D GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	;NI			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ons	Time Required	MIL IIIu
					Transition time from step response measurement in lean-rich direction (sensor 1, bank 2)	<	0.1	sec		
					) Injection valve cut-off on Bank 2	=	FALSE	-		
					ldentification trigger: rate of change of modeled lambda in lean to rich direction,	>=	0.019989	sec -		
					bank 2 Identification trigger: rate of change of modeled lambda in rich to lean direction,	>=	0.019989	-		
					bank 2 ( Number of step response measurements in lean-rich direction for driving cylce (sensor 1, bank 2)	=	0	-		
					( Time to evaluate loss function, bank 2	>=	30	sec		
					OR Square of difference between band pass	>=	100	-		
					filtered reciprocal lambda and modelled reciprocal lambda values (sensor 1, bank 2)					
					) OR Enabling conditions for step response measurement (					
					( ( ( Lean lambda is requested and the cat is filled with oxygen gas, bank 2	=	TRUE	-		
					a commanded lambda active primary A/F commanded lambda	=	TRUE 1.08008	-		
					for time for time Secondary O2 sensor voltage	>= >= <=	3 0.2 0.200195	sec v		
					( Rich lambda is requested and the cat is filled with rich gas due to low sensor voltage,	=	TRUE	-		
					bank 2 a commanded lambda active primary A/F commanded lambda bank2	=	TRUE 0.91992	-		
					for time for time	>= >=	3 0.2	sec sec		
					OR Rich lambda is requested to empty the	=	TRUE	-		
					oxygen gas from the cat, bank 2 a commanded lambda active primary A/F commanded lambda	=	TRUE 0.91992	-		
					for time for time	>= >=	3 0.2	sec sec		
					( Secondary O2 sensor voltage Or	>=	0.85083	٧		
					( Secondary O2 sensor voltage	>=	0.749512	V		
					Secondary O2 sensor voltage Secondary O2 sensor voltage	<= >=	0.09944 -0.09944	V/s V/s		
					Integrated Oxygen mass flow bank 2	>	0.15	g		
					( Primary A/F sensor lambda (a) Primary lambda control set point	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean	(b)	0.05005	-		
					mixture Primary A/F sensor lambda (a) Primary lambda control set point	>=	(a) - (b)			
					(b) maximum lambda deviation of rich mixture		0.05005	-		
					for time Integrated rich exhaust gas mass flow bank 2	>= >=	0.2 15	sec g		
					k l					

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	CM		EN	IISSIONS	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable	e Conditions		Time Required	MIL IIIu
					where in (A) LRS-plantparameter deadtime, bank 2 and					
					( Reciprocal of actual lambda value, sensor 1, bank 2 where in	> (A +	(B*C))	-		
					(A) Minimal or maximal value of reciprocal lambda after step, bank 2 (B) Fraction of step height to end step response measurement (C) Step height in reciprocal lambda, bank 2	= 0.30	000031	-		
					OR Difference between time after step measurement and LRS-plantparameter deadtime, bank 2 )	>	2.5	sec		
					) OR (					
					( Rich lambda is requested to empty the oxygen gas from the cat, bank 2		RUE	-		
					a commanded lambda active primary A/F commanded lambda		RUE 91992	-		
					for time for time		3 0.2	sec sec		
					Secondary O2 sensor voltage Or	>= 0.8	35083	٧		
					Secondary O2 sensor voltage Secondary O2 sensor voltage	<= 0.0	49512 19944	V V/s		
					Secondary O2 sensor voltage Integrated Oxygen mass flow bank 2	>= -0.	09944 ).15	V/s g		
					)) ( Primary A/F sensor lambda (a) Primary lambda control set point	<= (a)	+ (b)			
					(b) maximum lambda deviation of lean mixture		05005	-		
					Primary A/F sensor lambda (a) Primary lambda control set point	>= (a	) - (b)			
					(b) maximum lambda deviation of rich mixture		05005	-		
					for time Integrated rich exhaust gas mass flow bank 2		0.2 15	sec g		
					Lean lambda is requested and the cat is filled with oxygen gas due to high sensor	= T	RUE	-		
					voltage, bank 2 a commanded lambda active		RUE	-		
					primary A/F commanded lambda for time	>=	3	- sec		
					for time (( Secondary O2 sensor voltage		0.2 50146	sec V		
					for time ) Or	>=	0.1	sec		
					( Secondary O2 sensor voltage		50146	V		
					Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage		09944	V/s V/s		
					gradient over 0.05s Integrated Oxygen mass flow bank 2	>	0.1	g		
					)) ( Primary A/F sensor lambda (a) Primary lambda control set	<= (a)	+ (b)			
					point (b) maximum lambda deviation of		05005			
					lean mixture Primary A/F sensor lambda	>= (a	) - (b)			

GROUP: KGMXOBD	G07		TEST GROUP: KGI	MXV04.2088				MISSIONS	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	Time Required	MIL III
					(a) Primary lambda control set					
					point (b) maximum lambda deviation of		0.05005	-		
					rich mixture for time	>=	0.2	sec		
					Integrated lean exhaust gas mass flow bank 2 OR	>=	15	g		
					Lean lambda is requested and the cat is	=	TRUE	-		
					filled with oxygen gas, bank 2 a commanded lambda active	=	TRUE	-		
					primary A/F commanded lambda for time	= >=	1.08008 3	- sec		
					for time Secondary O2 sensor voltage	>= <=	0.2 0.200195	sec V		
					)					
					for time where in	=	A * 0.8	sec		
					(A) LRS-plantparameter deadtime, bank 2					
					Reciprocal of actual lambda value, bank 2 where in	<	(A - (B*C))	-		
					(A) Minimal or maximal value of reciprocal lambda after step, bank 2					
					(B) Fraction of step height to end step	=	0.3000031	-		
					response measurement (C) Step height in reciprocal lambda, bank 2					
					OR					
					Difference between time after step measurement and LRS-plantparameter	>	2.5	sec		
					deadtime, bank 2					
					)					
					Absolute difference between reciprocal of desired lamda limitation of sensor 1, bank 2	>	0.05	-		
					and reciprocal lambda setpoint in combustion chamber					
					for time where in	=	A * 0.8	sec		
					(A) LRS-plantparameter deadtime, bank 2					
					( (					
					Number of evaluated steps in lean-rich direction (sensor 1, bank 2)	<	2	counts		
					Number of evaluated steps in lean-rich direction (sensor 1, bank 2)	>	0	-		
					( Delay time from step response	<=	A - (( A - B )* ( C /	sec		
					measurement in lean-rich direction (sensor 1, bank 2)	~-	D))	360		
					where in		0			
					(A) Delay time of best part unacceptable     (B) Fault threshold of delay time (step	=	0.6	sec sec		
					response, lean to rich) (C) Necessary number of measurements for	=	2	counts		
					fault-confirmation (D) Number of evaluated steps in lean-rich					
					direction (sensor 1, bank 2) Transition time from step response	<=	A - (( A - B )* ( C /	sec		
					measurement in lean-rich direction (sensor 1, bank 2)		" D))			
					where in (A) Transition time of best part unacceptable	_	0	sec		
					(B) Fault threshold of transition time (step	-	0.8	sec		
					response, lean to rich)		0.8			
					(C) Necessary number of measurements for fault-confirmation	=	2	counts		
					(D) Number of evaluated steps in lean-rich direction (sensor 1, bank 2)					
					) OR					
					Number of evaluated steps in lean-rich direction (sensor 1, bank 2)	>=	2	counts		
					) OR					
					/					1

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: F	TIC SUMMARY TABLES EC GMXV04.2088	М		Е	MISSION	S STDS: CALULEV125, FEE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	En	able Condition	ıs	Time Required	MIL IIIu
					Number of evaluated steps in rich-lean direction (sensor 1, bank 2)	>	0			
					( Delay time from step response measurement in rich-lean direction (sensor	<= A -	(( A - B )* ( C / D ))	sec		
					bank 2) where in     (A) Delay time of best part unacceptable	=	0	sec		
					(B) Fault threshold of delay time (step response, rich to lean) (C) Necessary number of measurements for	=	0.6	sec counts		
					fault-confirmation (D) Number of evaluated steps in rich-lean direction (sensor 1, bank 2)					
					Transition time from step response measurement in rich-lean direction (sensor 1, bank 2)	<= A -	(( A - B )* ( C / D ))	sec		
					where in (A) Transition time of best part unacceptable	=	0	sec		
					(B) Fault threshold of transition time (step response, rich to lean)     (C) Necessary number of measurements for	=	0.8	sec		
					(C) Necessary number of measurements for fault-confirmation (D) Number of evaluated steps in rich-lean direction (sensor 1, bank 2)	=	2	counts		
					) OR Number of evaluated steps in rich-lean direction (sensor 1, bank 2)	>=	2	counts		
					) ) No pending or confirmed DTCs	= se	e sheet inhibit table	-		
					Basic enable conditions met	= see	sheet enable tables	-		
stream Exhaust Gas sensor, Bank	P2196	Plausibility check of upstream exhaust gas sensor when the lambda offset is lesser than the calibrated threshold	Lambda offset of upstream exhaust gas sensor	< -0.059998 -	Debounce condition for fault confirmation by offset adaptation (sensor 1, bank 1)	-	TRUE	-	once per driving cycle	2 T
					( Debouncing of offset fault by slow offset adaptation	=	TRUE	-		
					Slow offset adaptation	=	TRUE	-		
					Bit p-part controlability primary control enable (	=	TRUE	-		
					Lambda regulator setpoint active	=	TRUE	-		
					Width of dead zone for lambda control deviation OR	>=	0.999969	-		
					Lambda closed loop control (upstream catalyst), bank 1 OR	=	TRUE	-		
					(			_		
					Lambda setpoint for sensor after addition of trim control action is not equal to 0	=	TRUE	-		
					trim control action is not eqaul to 0 Difference between upper limit action value lambda control and temporary value before	= >=	TRUE 0	-		
					trim control action is not eqaul to 0 Difference between upper limit action value					
					trim control action is not eaaul to 0 Difference between upper limit action value lambda control and temporary value before test for enleamment protection Difference between temporary value before test for enleamment protection and lower	>=	0	-		
					trim control action is not equal to 0 Difference between upper limit action value lambda control and temporary value before test for enleanment protection Difference between temporary value before test for enleanment protection and lower bound of fird during enleanmant protection Lambda (measured and setpoint) is below	>=	0	-		
					trim control action is not equal to 0 Difference between upper limit action value lambda control and temporary value before test for enleanment protection Difference between temporary value before test for enleanment protection and lower bound of dir during enleanmant protection Lambda (measured and setpoint) is below minimal measurable lambda (bank 1)  TEMIN-limitation active, bench 1 ) ) Current lowpass value of p-part control	>= >=	0 0 FALSE			
					trim control action is not equal to 0 Difference between upper limit action value lambda control and temporary value before test for enleanment protection Difference between temporary value before test for enleanment protection and lower bound of dir during enleanment protection Lambda (measured and setpoint) is below minimal measurable lambda (bank 1) TEMIN-limitation active, bench 1 ) )	>= >= = =	0 0 FALSE			

D GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	JM			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	E	Enable Condition	ons	Time Required	MIL IIIu
					( Fuel cut off is active	=	FALSE	-		
					( Time running down after fuel cut–off for enabling lambda control OR	>	8	sec		
					( Absolute value of control difference in	<=	0.1001			
					lambda, bank 1 Difference of counter time and plant time	>	0	sec		
					constant a-(b+c)					
					where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous air/fuel control c is plant parameter for dead time for lambda					
					control ) )					
					) LSU sensor upstream to catalyst ready for operation (	=	TRUE	-		
					lambda sensor 1 temperature, bank 1	>=	654.998	deg C		
					Lambda control disabled by a fault lambda control is active since warmup is finished	=	FALSE TRUE	-		
					Relative air charge for time	> >=	0 2	% sec		
					) HEM condition to block lambda closed loop	=	FALSE	-		
					control upstream catalyst Lamda control active due to GDI mode change	=	TRUE	-		
					( GDI mode homogeneous for time )	= >=	TRUE 0.8	- sec		
					) ( Lambda control enabled for Cold operation sensor 2 bank 1	=	TRUE	-		
					OR HEGO sensor 2 bank 1, signal valid	=	TRUE	-		
					( Status of heating enable conditions for the sensor operating readiness	=	TRUE	-		
					( Protective heating is finished for time	= >=	TRUE 15	- sec		
					OR Internal resistance OK for operating readiness	=	TRUE			
					( Unfiltered internal resistance of HEGO	<=	2000	Ohm		
					sensor Protective heating is finished Counter for valid internal resistance measurements	= >=	TRUE 3	- counts		
					) ) Status of sensor signal enable conditions for the sensor operating readiness	=	TRUE	-		
					( Internal resistance OK for operating readiness OR	=	TRUE	-		
					(					
					Output voltage of HEGO Sensor	>=	0.551758	V		
					Output voltage of HEGO Sensor )	<=	1.201172	V		
					OR Output voltage of HEGO Sensor	<=	0.322266	V		
					) OR					

FEDBIN1	STDS: CALULEV125, F	EMISSIONS S			:М	TC SUMMARY TABLES EC GMXV04.2088	DIAGNOST TEST GROUP: K		7	BD GROUP: KGMXOBDG
MIL II	Time Required	ns	Enable Conditio		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		-	TRUE	=	Sensor voltage stuck in countervoltage band					
		v v	0.551758 0.322266	< >	( ( ( Output voltage of HEGO Sensor Output voltage of HEGO Sensor					
		-	TRUE	=	) ( Sensor open circuit fault existed in previous trip					
		-	TRUE	=	OR Sensor open circuit fault currently not detected					
		-	TRUE	=	) Electrical diagnostics enabled					
		sec	20	>=	) for time )					
		sec	0.2	>=	) for time )					
		-	TRUE	=	)) ) Bit p-part system balanced primary control enable (					
		-	TRUE	=	( Lambda setpoint for sensor is set equal to 1					
		-	FALSE	=	OR Lambda setpoint for sensor is set equal to 1					
		sec	10 FALSE	>=	for time ) Plack cotablet cures					
		g	25	>	Rich catalyst purge Mass flow of exhaust gas, sensor 2					
		-	TRUE	=	P-part active from temperature and dynamic diagnosis					
		deg C deg C	349.96 899.96	>= <	Temperature of catalyst 1 Temperature of catalyst 1					
		-	TRUE	=	) Bit I-part global primary control enable (					
		%	-1.5938	>	( Current lowpass value of I-part load primary control enable					
		%	1.5938	<=	Current lowpass value of I-part load primary control enable					
		-	FALSE	=	Diagnosis of canister purge system is active					
		-	1 0	<= =	Ratio total charge to charge in cylinder Width of dead zone for lambda control					
		deg C	34.96	>	deviation Maximum value among the engine coolant temperature and model-based substitute value for engine temperature signal in case of error					
		-	TRUE	=	( Bit I-part global load and engine speed control enable					
		rpm rpm	2600 1000	< >=	( Engine speed with low resolution Engine speed with low resolution					
		-	TRUE	=	( Half engine mode active (					
		%	30 to 90	<	Relative air mass during half engine mode (see Look-Up table #P2096-2)					
		%	15 to 20.3	>=	Relative air mass during half engine mode (see Look-Up table #P2096-3) )					
		-	FALSE	-	OR Half engine mode active					

FEDBIN12	STDS: CALULEV125, F	EMISSIONS S				C SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDGO
MIL III	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		%	30 to 90 15 to 20.3	< >=	Relative air mass (see Look-Up Table #P2096-4) Relative air mass (see Look-Up Table #P2096-5) )) ))					
		- g	TRUE 150	= >	) ( Bit i-part system primary control enable ( Current integrator value of P-part balanced primary control enable					
		- - q	TRUE TRUE 179.91	= = >	Dew point end of sensor 2 Bank1 is reached End of start is reached Exhaust gas mass flow sensor 2 Bank 1 OR					
		- - q	FALSE FALSE 199.82	= = >	( Dew point end of sensor 2 reached OR End of start is reached ) Exhaust gas mass flow sensor 2					
		- deg C deg C	TRUE 349.96 869.96	= > <	) ) Bit i-part system temperature primary control enable ( Temperature of catalyst 1 Temperature of catalyst 1					
		sec -	100 TRUE	>=	) ) ) Cumulated time in which slow offset adaptation was active ) Debounce condition for fault confirmation by					
		-	TRUE	=	fast offset adaptation (sensor 1, bank 1) General enabling condition of fast offset adaptation ( Enabling condition of fast offset adaptation due to catalyst conditioning					
		:	TRUE TRUE FALSE	= =	( Bit signal valid, HEGO sensor 2 bank 1 Flag lambda setpoint for sensor equal to 1 Rich catalyst purge					
		- g	TRUE 300	= = >	Bank-independent disabling conditions of fast offset adaptation ( Fuel cut-off Mass flow exhaust gas catalyst 1 ) OR					
		- g	FALSE 180	= >	Fuel cut-off Mass flow exhaust gas catalyst 1 )					
			TRUE	=	Parallelization done at least once from LSU plausbillity diagnosis point of view (sensor 1, bank 1) ( { Target sensor voltage for rich during active					
		g	1.5	>=	l arget sensor voltage for fich during active parallelisation reached once, sensor 1, bank 2 Oil gas mass flow by active lambda shifting minus the maximal possible influence of LSU offset part, segment 1, bank 1					

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES ECM MXV04.2088	vi 			EMISSIONS	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIu
					) OR					
					( Lean target sensor voltage during active parallelisation reached once, sensor 1, bank	=	TRUE	-		
					Oxygen mass flow in catalyst 1, deduct from maximum present LSU Offset in a fault free	>=	1.2	g		
					system for time )	>=	1	sec		
					) OR Dynamic diagnosis error of upstream	=	TRUE	-		
					exhaust gas sensor is not set ) OR					
					( ( ( lambda control is set when lambda controller reaches lower limit FRMIN	=	TRUE	-		
					Lambda actual value sensor 1 bank 1 Output voltage of HEGO sensor 2 bank 1	< <	1 0.4	-		
					OR ( lambda control is set when lambda controller	=	TRUE	_		
					reaches lower limit FRMAX Lambda actual value sensor 1 bank 1 Output voltage of HEGO sensor 2 bank 1	> >	1 0.6			
					) for time Condition for Lambda closed loop control	>=	2 TRUE	sec		
					upstream catalyst; bank 1 ) for time	>=	1	sec		
					) ( (					
					Temperature of catalyst 1 Temperature of catalyst 1 )	> <	499.96 899.96	deg C deg C		
					for time ) (	=	0	sec		
					Mass flow exhaust gas catalyst 1 Mass flow exhaust gas catalyst 1	> <	3.888888889 69.44444444	g/sec g/sec		
					OR (					
					Mass flow exhaust gas catalyst 1 Mass flow exhaust gas catalyst 1	> <=	2.083333333 3.888888889	q/sec q/sec		
					for time )	>=	4	sec		
					Condition for upstream cat LSU ready for operation f(lamsons w)	=	TRUE	-		
					Sensor type sensor 1 bank 1 Lambda signal quality sensor 1 bank 1 )	> <=	0 12	-		
					Hydrogen-correction-voltage, HEGO sensor 2 bank 1 with high resolution (	<=	0.08057	٧		
					CAT damage during past interval ( Ratio total charge to charge in cylinder	= <=	1.02002			
					Width of dead zone for lambda control deviation	=	0			
					) Mass flow of exhaust qas catalyst 1 Difference betweeen Lambda offset (sensor 1, bank 1) and Lambda offset (delayed by one calculation raster)	>= <=	200 0.0079956	q -		
					( Counter for no step in offset or increasing offset in a row	>=	2	counts		
					OR Counter for exhaust masses to debounce fault with fast offset adaptation	>=	4	counts		

GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TC SUMMARY TABLES ECN GMXV04.2088	л		MISSIONS	STDS: CALULEV125, FEE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	ns	Time Required	MIL III
					)				
					No pending or confirmed DTCs	see sheet inhibit table	-		
					Basic enable conditions met	= see sheet enable tables	-		
eam Exhaust Gas sensor, Bank 1	P2195	Plausibility check of upstream exhaust gas sensor when the lambda offset is greater than the calibrated threshold	Lambda offset of upstream exhaust gas sensor	> 0.059998 -	Debounce condition for fault confirmation by offset adaptation (sensor 1, bank 1)	= TRUE	-	once per driving cycle	2 T
					( Debouncing of offset fault by slow offset adaptation	= TRUE	-	3.7.	
					( Slow offset adaptation	= TRUE	-		
					( Bit p-part controlability primary control enable	= TRUE	-		
					( Lambda regulator setpoint active	= TRUE			
					( Width of dead zone for lambda control deviation	>= 0.999969	-		
					OR ( Lambda closed loop control (upstream catalyst), bank 1	= TRUE	-		
					OR ( Lambda setpoint for sensor after addition of	= TRUE	-		
					trim control action is not eqaul to 0 Difference between upper limit action value lambda control and temporary value before	>= 0	-		
					test for enleanment protection Difference between temporary value before test for enleanment protection and lower bound of dfr during enleanmant protection	>= 0	-		
					Lambda (measured and setpoint) is below minimal measurable lambda (bank 1)	= FALSE	-		
					TEMIN-limitation active, bench 1	= FALSE	-		
					) ) Current lowpass value of p-part control upstream primary control enable	> 0	%		
					Lambda closed loop control (upstream catalyst), bank 1	= TRUE	-		
					Lambda control disabled during or after cylinder cut-off	= FALSE	-		
					Lambda swtiched ON after fuel cutoff ( Fuel cut off is active	= TRUE = FALSE	-		
					( Time running down after fuel cut-off for enabling lambda control	> 8	sec		
					OR ( Absolute value of control difference in	<= 0.1001	_		
					lambda, bank 1 Difference of counter time and plant time constant	> 0	sec		
					a-(b+c) where a is Time running down after fuel cut-off for enabling lambda control				
					b is plant time constant for continuous air/fuel control c is plant parameter for dead time for lambda control				
					) ) ) LSU sensor upstream to catalyst ready for	= TRUE	-		
					operation (				
					lambda sensor 1 temperature, bank 1 ) Lambda control disabled by a fault	>= 654.998 = FALSE	deg C		1

FEDBIN1	S STDS: CALULEV125, F	EMISSIONS S			И	GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDG
MIL III	Time Required	ons	Enable Condition	1	Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		-	TRUE	-	lambda control is active since warmup is finished					
		% sec	0 2	> >=	Relative air charge for time					
		-	FALSE	=	) HEM condition to block lambda closed loop					
		-	TRUE	=	control upstream catalyst Lamda control active due to GDI mode change					
		- sec	TRUE 0.8	= >=	( GDI mode homogeneous for time					
					)					
		-	TRUE	=	Lambda control enabled for Cold operation sensor 2 bank 1					
		-	TRUE	=	OR HEGO sensor 2 bank 1, signal valid					
		-	TRUE	=	( Status of heating enable conditions for the sensor operating readiness					
		- sec	TRUE 15	= >=	( Protective heating is finished for time					
		360		~-	OR					
		-	TRUE	=	Internal resistance OK for operating readiness					
		Ohm	2000	<=	( Unfiltered internal resistance of HEGO sensor					
		counts	TRUE 3	= >=	Protective heating is finished Counter for valid internal resistance measurements					
			TRUE	=	) ) Status of sensor signal enable conditions for the sensor operating readiness					
		-	TRUE	=	( Internal resistance OK for operating readiness					
					OR (					
		V	0.551758	>=	( Output voltage of HEGO Sensor					
		V	1.201172	<=	Output voltage of HEGO Sensor					
		v	0.322266	<=	) OR Output voltage of HEGO Sensor					
					) OR					
		-	TRUE	=	Sensor voltage stuck in countervoltage band					
		v	0.554750		( ( Output voltage of HEGO Sensor					
		V	0.551758 0.322266	>	Output voltage of HEGO Sensor					
		-	TRUE	=	(					
					Sensor open circuit fault existed in previous trip					
		-	TRUE	=	OR Sensor open circuit fault currently not detected					
		-	TRUE	=	) Electrical diagnostics enabled					
		sec	20	>=	) for time					
		sec	0.2	>=	) ) for time					
		Sec	0.2	>=	)		1		1 I	

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES ECM GMXV04.2088	vi			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	En	nable Condition	ons	Time Required	MIL IIIu
					Bit p-part system balanced primary control enable	=	TRUE			
					( ( Lambda setpoint for sensor is set equal to 1	=	TRUE	-		
					OR Lambda setpoint for sensor is set equal to 1	=	FALSE	-		
					for time	>=	10	sec		
					Rich catalyst purge	=	FALSE	-		
					Mass flow of exhaust gas, sensor 2 ) P-part active from temperature and dynamic	> =	25 TRUE	g -		
					diagnosis ( Temperature of catalyst 1	>=	349.96	deg C		
					Temperature of catalyst 1 ) )	<	899.96	deg C		
					Bit I-part global primary control enable (	=	TRUE	-		
					Current lowpass value of I-part load primary control enable	>	-1.5938	%		
					Current lowpass value of I-part load primary control enable )	<=	1.5938	%		
					Diagnosis of canister purge system is active	=	FALSE	-		
					Ratio total charge to charge in cylinder Width of dead zone for lambda control	<= =	1 0	-		
					deviation  Maximum value among the engine coolant temperature and model-based substitute value for engine temperature signal in case of error	>	34.96	deg C		
					( Bit I-part global load and engine speed control enable	=	TRUE	-		
					Engine speed with low resolution Engine speed with low resolution	< >=	2600 1000	rpm rpm		
					( Half engine mode active	=	TRUE	-		
					( Relative air mass during half engine mode	<	30 to 90	%		
					(see Look-Up table #P2096-2) Relative air mass during half engine mode (see Look-Up table #P2096-3)	>=	15 to 20.3	%		
					OR Half engine mode active	=	FALSE	-		
					Relative air mass (see Look-Up Table	<	30 to 90	%		
					#P2096-4) Relative air mass (see Look-Up Table #P2096-5) ) ) )	>=	15 to 20.3	%		
					) ) ( Bit i-part system primary control enable	=	TRUE	-		
					( Current integrator value of P-part balanced primary control enable	>	150	g		
					( ( Dew point end of sensor 2 Bank1 is reached	=	TRUE	-		
					End of start is reached	=	TRUE	-		
					Exhaust gas mass flow sensor 2 Bank 1 ) OR (	>	179.91	g		
					( Dew point end of sensor 2 reached	=	FALSE	-		
					OR End of start is reached	=	FALSE	-		
					) Exhaust gas mass flow sensor 2	>	199.82	q		

D GROUP: KGMXOBDG0	7		DIAGNOSTI TEST GROUP: KO	C SUMMARY TABLES ECM SMXV04.2088	М			EMISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	E	Enable Conditi	ons	Time Required	MIL IIIu
					Bit i-part system temperature primary control enable	=	TRUE	-		
					Temperature of catalyst 1 Temperature of catalyst 1 )	> <	349.96 869.96	deg C deg C		
					) ) Cumulated time in which slow offset adaptation was active	>=	100	sec		
					) Debounce condition for fault confirmation by fast offset adaptation (sensor 1, bank 1)	=	TRUE	-		
					General enabling condition of fast offset adaptation					
					( Enabling condition of fast offset adaptation due to catalyst conditioning (	=	TRUE	-		
					( Bit signal valid, HEGO sensor 2 bank 1 Flag lambda setpoint for sensor equal to 1	=	TRUE TRUE	:		
					Rich catalyst purge Bank-independent disabling conditions of fast offset adaptation	=	FALSE FALSE	-		
					( Fuel cut-off Mass flow exhaust gas catalyst 1	= >	TRUE 300	- q		
					OR (		FALSE			
					Fuel cut-off Mass flow exhaust gas catalyst 1 )	>	180	q		
					( ( ( Parallelization done at least once from LSU plausibility diagnosis point of view (sensor 1, bank 1)	=	TRUE	-		
					( Target sensor voltage for rich during active parallelisation reached once, sensor 1, bank	=	TRUE	-		
					Oil gas mass flow by active lambda shifting minus the maximal possible influence of LSU offset part, segment 1, bank 1	>=	1500			
					for time ) OR	>=	1	sec		
					( Lean target sensor voltage during active parallelisation reached once, sensor 1, bank	=	TRUE	-		
					2 Oxygen mass flow in catalyst 1, deduct from maximum present LSU Offset in a fault free	>=	1.2	g		
					system for time )	>=	1	sec		
					) OR Dynamic diagnosis error of upstream exhaust gas sensor is not set	=	TRUE	-		
					OR					
					( lambda control is set when lambda controller reaches lower limit FRMIN	=	TRUE	-		
					Lambda actual value sensor 1 bank 1 Output voltage of HEGO sensor 2 bank 1 )	< <	1 0.4	-		
					OR ( lambda control is set when lambda controller reaches lower limit FRMAX Lambda actual value sensor 1 bank 1	=	TRUE	-		

D GROUP: KGMXOBDG	07		TEST GROUP: K	TIC SUMMARY TABLES EC GMXV04.2088				EMISSIONS	STDS: CALULEV125, FEI	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL III
					Output voltage of HEGO sensor 2 bank 1	>	0.6			
					for time Condition for Lambda closed loop control upstream catalyst; bank 1	>=	2 TRUE	sec -		
					) for time )	>=	1	sec		
					( ( Temperature of catalyst 1 Temperature of catalyst 1	> <	499.96 899.96	deg C deg C		
					) for time )	=	0	sec		
					( ( Mass flow exhaust gas catalyst 1 Mass flow exhaust gas catalyst 1	> <	3.88888889 69.4444444	q/sec q/sec		
					OR (					
					Mass flow exhaust gas catalyst 1 Mass flow exhaust gas catalyst 1	> <=	2.083333333 3.888888889	q/sec q/sec		
					for time )	>=	4	sec		
					) Condition for upstream cat LSU ready for operation f(lamsons w)	=	TRUE	-		
					Sensor type sensor 1 bank 1 Lambda signal quality sensor 1 bank 1	> <=	0 12	-		
					Hydrogen-correction-voltage, HEGO sensor 2 bank 1 with high resolution	<=	0.08057	V		
					CAT damage during past interval	-	FALSE	-		
					Ratio total charge to charge in cylinder Width of dead zone for lambda control deviation	=	1.02002 0	-		
					) Mass flow of exhaust gas catalyst 1 Difference betweeen Lambda offset (sensor 1, bank 1) and Lambda offset (delayed by one calculation raster)	>= <=	200 0.0079956	q -		
					( Counter for no step in offset or increasing offset in a row OR	>=	2	counts		
					Counter for exhaust masses to debounce fault with fast offset adaptation	>=	4	counts		
					No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit table see sheet enable tables	-		
am Exhaust Gas sensor, Bank 2	P2198	Plausibility check of upstream exhaust gas sensor when the		< -0.059998 -	Debounce condition for fault confirmation by	=	TRUE		once per	21
		lambda offset is lesser than the calibrated threshold	bank 2		offset adaptation (sensor 1, bank 2) ( Debouncing of offset fault by slow offset adaptation, bank 2	=	TRUE	-	driving cycle	
					( Slow offset adaptation, bank 2	-	TRUE			
					( Bit p-part controlability primary control enable 2 (	=	TRUE			
					( Lambda regulator setpoint active, bank 2	=	TRUE	-		
					Width of dead zone for lambda control deviation	>=	0.999969	-		

BD GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	·IVI			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Eı	nable Conditio	ons	Time Required	MIL III
					Lambda closed loop control (upstream catalyst), bank 2 OR	=	TRUE	-		
					( Lambda setpoint for sensor after addition of trim control action, bank 2 is not eqaul to 0	=	TRUE	-		
					Difference between upper limit action value lambda control and temporary value before test for enleanment protection, bank 2	>=	0	-		
					Difference between temporary value before test for enleanment protection, bank 2 and lower bound of dfr during enleanmant	>=	0	-		
					protection Lambda (measured and setpoint) is below minimal measurable lambda (bank 2)	=	FALSE	-		
					TEMIN-limitation active, bench 2	=	FALSE	-		
					) Current lowpass value of p-part control upstream primary control enable 2	>	0	%		
					Lambda closed loop control (upstream catalyst), bank 2	=	TRUE	-		
					Lambda control disabled during or after cylinder cut-off, bank 2 Lambda swtiched ON after fuel cutoff, bank 2	=	FALSE TRUE	-		
					( Fuel cut off is active, bank 2	=	FALSE	-		
					t Time running down after fuel cut-off for enabling lambda control OR	>	8	sec		
					( Absolute value of control difference in lambda, bank 2 Difference of counter time and plant time	<= >	0.1001	- sec		
					constant a-(b+c) where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous airfuel control, bank 2 c is plant parameter for dead time for lambda control, bank 2		v			
					) ) LSU sensor upstream to catalyst ready for operation, bank 2	=	TRUE	-		
					( lambda sensor 1 temperature, bank 2 )	>=	654.998	deq C		
					Lambda control disabled by a fault, bank 2 lambda control is active since warmup is	-	FALSE TRUE	-		
					finished Relative air charge for time	= > >=	0 2	% sec		
					) HEM condition to block lambda closed loop control upstream catalyst, bank 2	=	FALSE	-		
					Lamda control active due to GDI mode change	=	TRUE	-		
					GDI mode homogeneous for time )	= >=	TRUE 0.8	sec		
					) ( Lambda control enabled for Cold operation sensor 2 bank 2	=	TRUE	-		
					OR HEGO sensor 2 bank 2, signal valid	=	TRUE	-		
					( Status of heating enable conditions for the sensor operating readiness	=	TRUE	-		
	Ĭ				( Protective heating is finished, bank 2	=	TRUE			I

BD GROUP: KGMXOBDG	07		DIAGNOSTI TEST GROUP: KG	C SUMMARY TABLES ECN GMXV04.2088	1			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditi	ons	Time Required	MIL IIIu
					for time	>=	15	sec		
					OR Internal resistance OK for operating readiness, bank 2	=	TRUE	-		
					( Unfiltered internal resistance of HEGO	<=	2000	Ohm		
					sensor, bank 2 Protective heating is finished, bank 2 Counter for valid internal resistance	= >=	TRUE 3	counts		
					measurements, bank 2	-	3	Courts		
					) Status of sensor signal enable conditions for the sensor operating readiness, bank 2	=	TRUE	-		
					( Internal resistance OK for operating	=	TRUE	_		
					readiness OR	-	INOL			
					( Output voltage of HEGO Sensor, bank 2	>=	0.551758	v		
					Output voltae of HEGO Sensor, bank 2 ) OR	<=	1.201172	V		
					Output voltae of HEGO Sensor, bank 2	<=	0.322266	V		
					OR Sensor voltage stuck in countervoltage band	=	TRUE	-		
					( (					
					Output voltage of HEGO Sensor, bank 2 Output voltage of HEGO Sensor, bank 2	>	0.551758 0.322266	v		
					) (		TRUE			
					Sensor open circuit fault existed in previous trip	=	IRUE	-		
					OR Sensor open circuit fault currently not detected	=	TRUE	-		
					) Electrical diagnostics enabled, bank 2	=	TRUE	_		
					)					
					for time ) )	>=	20	sec		
					for time )	>=	0.2	sec		
					) Bit p-part system balanced primary control	=	TRUE	-		
					enable 2 ( (					
					Lambda setpoint for sensor is set equal to 1, bank 2 OR	=	TRUE	-		
					Lambda setpoint for sensor is set equal to 1, bank 2	=	FALSE	-		
					for time ) Rich catalyst purge, bank 2	>=	10 FALSE	sec		
					Mass flow of exhaust gas, sensor 1, bank 2	>	25	g		
					) P-part active from temperature and dynamic diagnosis, bank 2	=	TRUE	-		
					( Temperature of catalyst 1, bank 2 Temperature of catalyst 1, bank 2	>= <	349.96 899.96	deg C deg C		
					)	=	TRUE	-		
					Bit I-part global primary control enable ( (					
					Current lowpass value of I-part load primary control enable	>	-1.5938	%		

EDBIN	STDS: CALULEV125, F	EMISSIONS S				GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDG
MIL	Time Required	ons	Enable Conditi		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		%	1.5938	<=	Current lowpass value of I-part load primary control enable					
		-	FALSE	=	) Diagnosis of canister purge system is active					
		-	1	<= =	Ratio total charge to charge in cylinder Width of dead zone for lambda control					
		deg C	34.96	>	deviation  Maximum value among the engine coolant					
		33g O	000		temperature and model-based substitute value for engine temperature signal in case of error					
		-	TRUE	=	( Bit I-part global load and engine speed control enable					
		rpm rpm	2600 1000	< >=	Engine speed with low resolution Engine speed with low resolution					
		-	TRUE	=	( Half engine mode active					
		%	30 to 90	<	( Relative air mass during half engine mode (see Look-Up table #P2096-2)					
		%	15 to 20.3	>=	Relative air mass during half engine mode (see Look-Up table #P2096-3)					
		-	FALSE	=	OR Half engine mode active					
		%	30 to 90	<	( Relative air mass (see Look-Up Table					
		%	15 to 20.3	>=	#P2096-4) Relative air mass (see Look-Up Table #P2096-5) )					
		-	TRUE	=	) ) ) ( liti-part system primary control enable, bank 2					
		g	150	>	Current integrator value of P-part balanced primary control enable, bank 2					
		-	TRUE	=	( Dew point end of sensor 1 Bank 2 is reached					
		- q	TRUE 179.91	= >	End of start is reached Exhaust gas mass flow sensor 1 Bank 2 )					
					OR (					
		-	FALSE	=	Dew point end of sensor 2 reached, bank 2					
		-	FALSE	=	End of start is reached					
		q	199.82	>	Exhaust gas mass flow sensor 1 Bank 2 )					
		-	TRUE	=	) Bit i-part system temperature primary control enable, bank 2					
		deg C deg C	349.96 869.96	> <	Temperature of catalyst 1, bank 2 Temperature of catalyst 1, bank 2 )					
		sec	100	>=	) ) Cumulated time in which slow offset adaptation was active, bank 2					
		-	TRUE	=	)  Debounce condition for fault confirmation by fast offset adaptation (sensor 1, bank 2)					
					General enabling condition of fast offset adaptation, bank 2					
		-	TRUE	-	Enabling condition of fast offset adaptation due to catalyst conditioning, bank 2					

BD GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	IVI		EMISSIO	NS STDS: CALULEV125,	FEDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable (	Conditions	Time Required	MIL IIIu
					( Bit signal valid, HEGO sensor 2 bank 2 Flag lambda setpoint for sensor equal to 1,	= TRI = TRI	JE - JE -		
					bank 2 Rich catalyst purge, bank 2 Bank-independent disabling conditions of fast offset adaptation	= FAL = FAL	SE -		
					( Fuel cut-off, bank Mass flow exhaust gas catalyst 1, bank 2	= TRI > 30			
					) OR (				
					Fuel cut-off Mass flow exhaust gas catalyst 1, bank 2 )	= FAL > 18			
					) ( ( Parallelization done at least once from LSU plausibility diagnosis point of view (sensor 1, bank 2)	= TRI	JE -		
					( ( Target sensor voltage for rich during active parallelisation reached once, sensor 1, bank	= TRI	JE -		
					2 Oil gas mass flow by active lambda shifting minus the maximal possible influence of LSU offset part, segment 1, bank 2	>= 150	0		
					for time ) OR	>= 1	sec		
					( Lean target sensor voltage during active parallelisation reached once, sensor 1, bank	= TRI	JE -		
					Oxygen mass flow in catalyst 1, deduct from maximum present LSU Offset in a fault free system, bank 2	>= 1.	2 g		
					for time ) )	>= 1	sec		
					OR Dynamic diagnosis error of upstream exhaust gas sensor is not set )	= TRI	JE -		
					OR ( ( lambda control is set when lambda controller	= TRI	JE -		
					reaches lower limit FRMIN, bank 2  Lambda actual value sensor 1 bank 2  Output voltage of HEGO sensor 2 bank 2	< 1 < 0.			
					) OR (				
					lambda control is set when lambda controller reaches lower limit FRMAX, bank 2 Lambda actual value sensor 1 bank 2	= TRI			
					Output voltage of HEGO sensor 2 bank 2 ) for time	> 0.	3		
					Condition for Lambda closed loop control upstream catalyst; bank 2	= TRI	JE -		
					for time ) (	>= 1	sec		
					Temperature of catalyst 1, bank 2 Temperature of catalyst 1, bank 2 )	> 499 < 899	96 deg C		
					for time ) (	= 0	sec		
					( Mass flow exhaust gas catalyst 1, bank 2	> 3.8888	38889 g/sec		

OBD GROUP: KGMXOBDO	607		DIAGNOST TEST GROUP: 1	FIC SUMMARY TABLES ECM (GMXV04.2088				MISSION	S STDS: CALULEV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIum.
					Mass flow exhaust gas catalyst 1, bank 2	<	69.4444444	g/sec		
					) OR (					
					( Mass flow exhaust gas catalyst 1, bank 2	>	2.083333333	g/sec		
					Mass flow exhaust gas catalyst 1, bank 2	<=	3.88888889	g/sec		
					) for time )	>=	4	sec		
					) Condition for upstream cat LSU ready for operation f(lamsons w), bank 2	=	TRUE	-		
					( Sensor type sensor 1 bank 2 Lambda signal quality sensor 1 bank 2	> <=	0 12	-		
					) Hydrogen-correction-voltage, HEGO sensor 2 bank 2 with high resolution	<=	0.08057	V		
					( CAT damage during past interval	=	FALSE	-		
					Ratio total charge to charge in cylinder Width of dead zone for lambda control deviation	<= =	1.02002 0	-		
					) Mass flow of exhaust gas catalyst 1, bank 2	>=	200	g		
					Difference betweeen Lambda offset (sensor 1, bank 2) and Lambda offset (delayed by one calculation raster)	<=	0.0079956			
					( Counter for no step in offset or increasing offset in a row, bank 2	>=	2	counts		
					OR Counter for exhaust masses to debounce fault with fast offset adaptation, bank 2 )	>=	4	counts		
					) ) )					
					No pending or confirmed DTCs	=	see sheet inhibit table	-		
					Basic enable conditions met	=	see sheet enable tables	-		
Upstream Exhaust Gas sensor, bank	P2197	Plausibility check of upstream exhaust gas sensor when the lambda offset is greater than the calibrated threshold	Lambda offset of upstream exhaust gas sensor, bank 2	> 0.059998 -	Debounce condition for fault confirmation by offset adaptation (sensor 1, bank 2)	-	TRUE		once per driving cycle	2 Trips
					( Debouncing of offset fault by slow offset adaptation, bank 2	=	TRUE	-		
					( Slow offset adaptation, bank 2	-	TRUE	-		
					Bit p-part controlability primary control enable 2	=	TRUE	-		
					( ( Lambda regulator setpoint active, bank 2	=	TRUE	-		
					( Width of dead zone for lambda control deviation OR	>=	0.999969	-		
					( Lambda closed loop control (upstream catalyst), bank 2 OR	=	TRUE	-		
					( Lambda setpoint for sensor after addition of trim control action, bank 2 is not eqaul to 0	=	TRUE	-		
					Difference between upper limit action value lambda control and temporary value before test for enleanment protection, bank 2	>=	0	-		

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC 6MXV04.2088	IVI		EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Cond	itions	Time Required	MIL IIIu
					Difference between temporary value before test for enleanment protection, bank 2 and lower bound of dfr during enleanmant	>= 0	-		
					protection Lambda (measured and setpoint) is below minimal measurable lambda (bank 2)	= FALSE	-		
					TEMIN-limitation active, bench 2	= FALSE	-		
					) ) Current lowpass value of p-part control	> 0	%		
					upstream primary control enable 2 Lambda closed loop control (upstream catalyst), bank 2	= TRUE	-		
					( Lambda control disabled during or after cylinder cut–off, bank 2	= FALSE	-		
					Lambda swtiched ON after fuel cutoff, bank 2	= TRUE	-		
					Fuel cut off is active, bank 2 ( Time running down after fuel cut-off for	= FALSE	-		
					enabling lambda control	> 8	sec		
					Absolute value of control difference in lambda, bank 2	<= 0.1001 > 0	-		
					Difference of counter time and plant time constant a-(b+c)	> 0	sec		
					where a is Time running down after fuel cut-off for enabling lambda control b is plant time constant for continuous air/fuel control. bank 2 c is plant parameter for dead time for lambda control. bank 2				
					) ) LSU sensor upstream to catalyst ready for operation, bank 2	= TRUE	-		
					lambda sensor 1 temperature, bank 2	>= 654.998	deg C		
					Lambda control disabled by a fault, bank 2 lambda control is active since warmup is	= FALSE = TRUE	-		
					finished Relative air charge for time	> 0	% sec		
					HEM condition to block lambda closed loop	= FALSE	-		
					control upstream catalyst, bank 2 Lamda control active due to GDI mode change	= TRUE	-		
					GDI mode homogeneous for time	= TRUE >= 0.8	- sec		
					) ( Lambda control enabled for Cold operation	= TRUE	-		
					sensor 2 bank 2 OR HEGO sensor 2 bank 2, signal valid	= TRUE	-		
					( Status of heating enable conditions for the	= TRUE	-		
					sensor operating readiness				
					Protective heating is finished, bank 2 for time	= TRUE >= 15	sec		
					OR Internal resistance OK for operating readiness, bank 2	= TRUE	-		
					( Unfiltered internal resistance of HEGO sensor, bank 2	<= 2000	Ohm		
					Protective heating is finished, bank 2 Counter for valid internal resistance measurements, bank 2	= TRUE >= 3	counts		

OBD GROUP: KGMXOBDG	)7		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECM GMXV04.2088				EMISSION	S STDS: CALULEV125, FI	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL IIIum.
					) ) Status of sensor signal enable conditions for the sensor operating readiness, bank 2	=	TRUE	-		
					( Internal resistance OK for operating readiness OR	=	TRUE	-		
					( Output voltage of HEGO Sensor, bank 2 Output voltae of HEGO Sensor, bank 2 )	>= <=	0.551758 1.201172	V V		
					OR Output voltae of HEGO Sensor, bank 2 )	<=	0.322266	٧		
					OR Sensor voltage stuck in countervoltage band (	=	TRUE	-		
					( Output voltage of HEGO Sensor, bank 2 Output voltage of HEGO Sensor, bank 2	< >	0.551758 0.322266	v v		
					( Sensor open circuit fault existed in previous trip	=	TRUE	-		
					OR Sensor open circuit fault currently not detected	=	TRUE	-		
					) Electrical diagnostics enabled, bank 2	=	TRUE	-		
					) for time )	>=	20	sec		
					) for time ) )	>=	0.2	sec		
					) Bit p-part system balanced primary control enable 2 (	=	TRUE	-		
					( Lambda setpoint for sensor is set equal to 1, bank 2	=	TRUE	-		
					OR Lambda setpoint for sensor is set equal to 1, bank 2	=	FALSE	-		
					for time ) Rich catalyst purge, bank 2	>=	10 FALSE	sec		
					Mass flow of exhaust gas, sensor 1, bank 2	>	25	g		
					) P-part active from temperature and dynamic diagnosis, bank 2	=	TRUE	-		
					( Temperature of catalyst 1, bank 2 Temperature of catalyst 1, bank 2 )	>= <	349.96 899.96	deq C deg C		
					) Bit I-part global primary control enable	=	TRUE	-		
					Current lowpass value of I-part load primary	>	-1.5938	%		
					control enable Current lowpass value of I-part load primary control enable	<=	1.5938	%		
					) Diagnosis of canister purge system is active	=	FALSE	-		
					Ratio total charge to charge in cylinder Width of dead zone for lambda control deviation	<= =	1	:		

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES ECN MXV04.2088	VI			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL III
					Maximum value among the engine coolant temperature and model-based substitute value for engine temperature signal in case of error	>	34.96	deg C		
					( Bit I-part global load and engine speed control enable	=	TRUE	-		
					( Engine speed with low resolution Engine speed with low resolution	< >=	2600 1000	rpm rpm		
					( Half engine mode active	=	TRUE	-		
					( Relative air mass during half engine mode	<	30 to 90	%		
					(see Look-Up table #P2096-2) Relative air mass during half engine mode (see Look-Up table #P2096-3)	>=	15 to 20.3	%		
					OR Half engine mode active	=	FALSE	-		
					( Relative air mass (see Look-Up Table	<	30 to 90	%		
					#P2096-4) Relative air mass (see Look-Up Table #P2096-5) ) ) )	>=	15 to 20.3	%		
					) ( Bit i-part system primary control enable, bank 2	=	TRUE			
					Current integrator value of P-part balanced primary control enable, bank 2	>	150	g		
					( ( Dew point end of sensor 1 Bank 2 is reached	=	TRUE	-		
					End of start is reached Exhaust gas mass flow sensor 1 Bank 2 ) OR	>	TRUE 179.91	q q		
					( ( Dew point end of sensor 2 reached, bank 2	=	FALSE	-		
					OR End of start is reached	=	FALSE	-		
					) Exhaust gas mass flow sensor 1 Bank 2 )	>	199.82	q		
					) ) Bit i-part system temperature primary control enable, bank 2	=	TRUE	-		
					( Temperature of catalyst 1, bank 2 Temperature of catalyst 1, bank 2 )	> <	349.96 869.96	deq C deq C		
					) Cumulated time in which slow offset adaptation was active, bank 2	>=	100	sec		
					) Debounce condition for fault confirmation by fast offset adaptation (sensor 1, bank 2)	=	TRUE	-		
					General enabling condition of fast offset adaptation, bank 2					
					( Enabling condition of fast offset adaptation due to catalyst conditioning, bank 2	=	TRUE	-		
					( ( Bit signal valid, HEGO sensor 2 bank 2 Flag lambda setpoint for sensor equal to 1, bank 2	=	TRUE TRUE	-		
					pank 2 Rich catalyst purge, bank 2 Bank-independent disabling conditions of fast offset adaptation	=	FALSE FALSE	:		

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC	INI .			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	E	Enable Condition	ns	Time Required	MIL IIIc
					Fuel cut-off, bank Mass flow exhaust gas catalyst 1, bank 2	= >	TRUE 300	- g		
					) OR			•		
					( Fuel cut-off	=	FALSE	-		
					Mass flow exhaust gas catalyst 1, bank 2	>	180	g		
					) ( (					
					Parallelization done at least once from LSU plausibility diagnosis point of view (sensor 1, bank 2)	=	TRUE	-		
					Target sensor voltage for rich during active parallelisation reached once, sensor 1, bank	=	TRUE	-		
					Oil gas mass flow by active lambda shifting minus the maximal possible influence of LSU offset part, segment 1, bank 2	>=	1500			
					for time )	>=	1	sec		
					OR ( Lean target sensor voltage during active	=	TRUE	-		
					parallelisation reached once, sensor 1, bank 2 Oxygen mass flow in catalyst 1, deduct from	>=	1.2	g		
					maximum present LSU Offset in a fault free system, bank 2 for time	>=	1	sec		
					)	>=	'	sec		
					OR Dynamic diagnosis error of upstream exhaust gas sensor is not set	=	TRUE	-		
					OR (					
					( lambda control is set when lambda controller reaches lower limit FRMIN, bank 2	=	TRUE	-		
					Lambda actual value sensor 1 bank 2 Output voltage of HEGO sensor 2 bank 2	< <	1 0.4	-		
					) OR (					
					lambda control is set when lambda controller reaches lower limit FRMAX, bank 2	=	TRUE	-		
					Lambda actual value sensor 1 bank 2 Output voltage of HEGO sensor 2 bank 2	> >	1 0.6			
					) for time Condition for Lambda closed loop control	>= =	2 TRUE	sec -		
					upstream catalyst; bank 2 ) for time	>=	1	sec		
					) ( (					
					Temperature of catalyst 1, bank 2 Temperature of catalyst 1, bank 2	> <	499.96 899.96	deg C deg C		
					for time ) (	=	0	sec		
					( Mass flow exhaust gas catalyst 1, bank 2	>	3.88888889	g/sec		
					Mass flow exhaust gas catalyst 1, bank 2	<	69.4444444	g/sec		
					) OR (					
					( Mass flow exhaust gas catalyst 1, bank 2	>	2.083333333	g/sec		

OBD GROUP: KGMXOBDG	07		DIAGNOSTEST GROUP: 1	TIC SUMMARY TABLES ECM KGMXV04.2088			ı	EMISSION	S STDS: C	ALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Ti	me Required	MIL IIIum.
					Mass flow exhaust gas catalyst 1, bank 2	<=	3.88888889	g/sec			
					) for time )	>=	4	sec			
					) Condition for upstream cat LSU ready for operation f(lamsons w), bank 2	=	TRUE	-			
					Sensor type sensor 1 bank 2 Lambda signal quality sensor 1 bank 2	> <=	0 12	-			
					Hydrogen-correction-voltage, HEGO sensor 2 bank 2 with high resolution	<=	0.08057	V			
					( CAT damage during past interval	=	FALSE				
					Ratio total charge to charge in cylinder Width of dead zone for lambda control deviation )	<= =	1.02002	-			
					) Mass flow of exhaust gas catalyst 1, bank 2	>=	200	g			
					Difference betweeen Lambda offset (sensor 1, bank 2) and Lambda offset (delayed by one calculation raster)	<=	0.0079956	-			
					Counter for no step in offset or increasing offset in a row, bank 2	>=	2	counts			
					Counter for exhaust masses to debounce fault with fast offset adaptation, bank 2	>=	4	counts			
					) ) )						
					No pending or confirmed DTCs  Basic enable conditions met	-	see sheet inhibit table see sheet enable	-			
							tables				
Oxygen Sensors before front catalyst	P2297	Air fuel ratio signal check for oxygen sensor 1 bank 1	Lambda equivalent value based on electrically corrected pump current sensor 1 bank 1	> 12 -	UEGO Release condition for O2 signal is fulfilled under following condition for sensor1 bank1:	=	TRUE	-	10	sec continuous	s 2 Trips
					( Temperature of ceramic Sensor 1,Bank 1	>	654.998	deg C			
					Calculation of reverse charge sensor 1 bank	=	TRUE	-			
					Condition for pump current calculation in sync started	=	TRUE	-			
					Reference pump current for pump current correction status Valid status of correction	=	TRUE TRUE				
					for time ) Validity of Reverse Pump Current Mode	=	0.5 FALSE	sec			
					Sensor 1 Bank 1	_					
					Condition for evaluation temperature valid sensor 1 bank 1 for time	=	TRUE	-			
					) Condition of UN0 for sensor 1 and bank 1	=	1 TRUE	sec -			
					regulated )						
					Injection valves are activated End of start is reached and combustion engine runs on its own power	=	TRUE TRUE	-			
					Required lambda referring to lambda sensor fitting location	<	1.19995 see sheet inhibit	-			
					No pending or confirmed DTCs  Basic enable conditions met	=	tables see sheet enable	-			
							tables				

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM GMXV04.2088				EMISSION	IS STDS	: CALUL	EV125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ns		Time Requi	red	MIL IIIum.
	P2298	Air fuel ratio signal check for oxygen sensor 1 bank 2	Lambda equivalent value based on electrically corrected pump current sensor 1 bank 2	> 12 -	UEGO Release condition for O2 signal is fulfilled under following condition for sensor1 bank2:	=	TRUE	-	10	sec	continuous	2 Trips
					( Temperature of ceramic Sensor 1,Bank 2	>	654.998	deg C				
					Calculation of reverse charge sensor 1 bank	=	TRUE	-				
					Condition for pump current calculation in	-	TRUE	-				
					sync started Reference pump current for pump current correction status	=	TRUE	-				
					Valid status of correction for time	=	TRUE 0.5	- sec				
					)  Validity of Reverse Pump Current Mode Sensor 1 Bank 2	=	FALSE	-				
					( Condition for evaluation temperature valid	-	TRUE					
					sensor 1 bank 2 for time	=	1	sec				
					) Condition of UN0 for sensor 1 and bank 2 regulated	=	TRUE	-				
					Injection valves are activated End of start is reached and combustion	=	TRUE TRUE	-				
					engine runs on its own power Required lambda referring to lambda sensor	=	1.19995					
					fitting location  No pending or confirmed DTCs	`	see sheet inhibit	_				
					Basic enable conditions met	_	tables see sheet enable	-				
							tables					
Downstream Exhaust Gas Sensor	P013A	Compares measured transition response time of Seconday O2 sensor 2 bank 1 with the calibrated threshold when the sensor voltage changes Rich to Lean	arithmetic filtered delay response time of Secondary O2 sensor 2, bank 1, Rich to Lean: tiArth	> 0.5 sec	primary A/F commanded lambda	<=	1.09009	Unitless	2			2 Trip
			tiArth = old tiArth + ((((a) - (b)) - old tiArth) * 1/		primary A/F commanded lambda	>=	0.8501	Unitless				
			sample order) (a) Raw transition response time of secondary O2 S2B1 Rich to Lean		engine runs	=	TRUE	-				
			S2B1 Rich to Lean (b) Exhaust mass flow dependent correction for transition response time of secondary O2 S2B1 Rich to Lean (see Look-Up-Table #P013A-2)	0.05 to 0.1 sec	Vehicle speed	>=	4.350528278	mph				
					engine speed engine speed engine load @ full engine mode (see Look- Up-Table #P0420-4)	<= >= >=	3520 1000 12 to 19.992	rpm rpm %				
					(engine load of full engine mode / 2) @ half engine mode (see Look-Up-Table #P0420- 4)	>=	12 to 19.992	%				
					for time Ratio total charge to charge in cylinder	>= <	1.00024	sec Unitless				
					for time Integrated air mass flow	>=	2 100 -39.8	sec q				
					measured ambient temperatuer measured ambient pressure	>=	50	deg C kPa				
					measured engine coolant temperature no transmission gear change for time	>= = >=	52.06 TRUE 2	deg C - sec				
					)	>=	2	sec				
					( integrated exhaust gas mass flow after the following operation points are in the monitoring window Bank 2 (	>	100	g				
					Change of exhaust gas mass flow Bank 2: (a) - (b)	<=	6.94444444	g/sec				
					Change of exhaust gas mass flow Bank 2: (a) - (b)	>=	-6.94444444	g/sec				
					(a) exhaust gas mass flow Bank 2 (b) filtered exhaust gas mass flow Bank 2 PT1 time constant		1.20029304	sec				

D GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES E			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	ons	Time Required	MIL IIIu
					Low window exhaust gas mass flow Bank 2 (see Look-Up-Table #P0420-2)	<= 22.2222222222222222222222222222222222	g/sec		
						2 to 27.77777777777 8			
					Low window exhaust gas mass flow Bank 2	>= 3.888888889	g/sec		
					Low window exhaust gas mass flow bank 1	>= (a) - (b)			
					(a) minimum exhaust gas mass flow bank 1	3.888888889	g/sec		
					(b) offset exhaust gas mass flow bank 1 at tip-out	0.833333333	g/sec		
					for time	>= 3	sec		
					High window exhaust gas mass flow bank 1 (see Look-Up-Table #P0420-1)	<= 22.222222222222 2 to 27.77777777777777777777777777777777777			
					High window exhaust gas mass flow bank 1	8 >= 3.888888889	g/sec		
					)				
					( Modeled catalyst temperature gradient bank	<= 40.0078	deg C		
					1: (a) - (b) Modeled catalyst temperature gradient bank	>= -40.0078	deg C		
					1: (a) - (b)	7= -40.0070	deg o		
					(a) Modeled catalyst temperature bank 1 (b) filtered modeled catalyst temperature	= 4.9989321	sec		
					bank 1 PT1 time constant				
					Low window modeled catalyst temperature Low window Modeled catalyst temperature bank 1	<= 650.006 >= 520.022	deg C deg C		
					High window modeled catalyst temperature bank 1	<= 780.014	deg C		
					High window Modeled catalyst temperature bank 1	>= 600.014	deg C		
					Modeled catalyst temperature bank 1 after the first engine start and driving	> 420.06	deg C		
					for time ))	>= 12	sec		
					(( Integrated purge mass flow after a longer	>= 1.51	g		
					purge stop  HC concentration factor in chacoal canister	<= 40	factor		
					relative fuel portion of canister purge to	0.200012	Unitless		
					injected fuel mass: (a) / (b) (a) fuel mass supplied by canister purge				
					control (b) fuel mass supplied by injection				
					OR				
					open loop canister purge control OR	= TRUE	-		
					canister purge control mass flow into the manifold	<= 5.55555556	g/sec		
					(( integrated exhaust gas mass flow bank 1	> 1600 to 2850	g		
					since engine start (see Look-Up-Table #P0420-3)	. 40			
					integrated exhaust gas mass flow bank 1 after the following sensors's readiness	> 40	g		
					Secondary O2 sensor readiness bank 1 Primary A/F sensor readiness bank 1				
					)	>= 299.991	dea C		
					temperature deviation of Primary A/F sensor heater control bank 1: (a) - (b)	< 64.9922	deg C		
					(a) primary A/F sensor temperature set point for heater control (b) measured primary A/F sensor	800.006	deg C		
					(b) measured primary A/F sensor temperature for heater control				

O GROUP: KGMXOBDG	)7		TEST GROUP: KG	IC SUMMARY TABLES E0 GMXV04.2088	JIVI			EMISSIONS S	STDS: CALULEV125, I	FEDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condit	ions	Time Required	MIL II
					statemachine = sm					
					statemachine (sm =0) : inactive a commanded lambda active	=	FALSE			
					primary A/F commanded lambda	=	1	Unitless		
					if the following conditions are met,	_		Officess		
					sm moves to sm = 2					
					Secondary O2 sensor voltage bank1	>=	0.749512	V		
					if the following conditions are met,					
					sm moves to sm = 1 Secondary O2 sensor voltage bank1	<	0.749512	v		
					Secondary O2 sensor voltage bank1	>=	0.450439	v		
					statemachine (sm=1) - rich mixture in	=	TRUE	-		
					catalyst					
					a commanded lambda active	=	TRUE	-		
					primary A/F commanded lambda bank1	=	0.91992	Unitless		
					for time	>=	3	sec		
					for time if the following conditions are met, sm	>=	0.2	sec		
					moves to sm = 2					
	1				((			1		
	1				Secondary O2 sensor voltage gradient over	>=	0.069	V/s		
					0.05s Secondary O2 sensor voltage bank1	>=	0.749512	v		
	1				)		J., 13312	· 1		
					OR					
					Secondary O2 sensor voltage bank1	>=	0.749512	V		
					Integrated exhaust mass flow bank 1	>=	0.12	q		
							0.12	4		
					if the following conditions are met,					
					sm moves to sm = 3					
					( Secondary O2 sensor voltage bank 1	>=	0.85083	V		
					OR	~-	0.03003	*		
					Č.					
					Secondary O2 sensor voltage bank 1	>=	0.749512	V		
					Secondary O2 sensor voltage gradient over 0.05s	<=	0.09944	V/s		
					Secondary O2 sensor voltage gradient over	>=	-0.09944	V/s		
					0.05s	~-	-0.03344	V/3		
					Integrated Oxygen mass flow bank 1	>	0.15	q		
					))					
					( Primary A/F sensor lambda bank 1	<=	(a) + (b)			
					(a) Primary lambda control set point bank 1	(a)	(a) + (b)			
					(b) maximum lambda deviation of lean	(b)	0.05005	Unitless		
					mixture		(a) (b)			
					Primary A/F sensor lambda bank 1 (a) Primary lambda control set point	>=	(a) - (b)			
					(b) maximum lambda deviation of rich		0.05005	Unitless		
					mixture					
					for time	>=	0.2	sec		
					Integrated rich exhaust gas mass flow bank	>=	15	g		
					Б <sup>°</sup>			ļ		
	1				And			1		
	1				( Secondary O2 sensor voltage bank 1		(a) + (b)	1		
	1				(a) minimum secondary O2 voltage	>	(a) + (D)	1		
	1				(b) Offset voltage of Secondary O2 sensor	=	0.030518	V		
	1				_ [			1		
					) statemachine (sm=2) -			ļ		
	1				tatemachine (sm=2) - Lean mixture in catalyst			1		
	1				a commanded lambda active	=	TRUE	. 1		
	1				primary A/F commanded lambda	=	1.08008	Unitless		
	1				for time	>=	3	sec		
					for time	>=	0.2	sec		
	1				if the following conditions are met, sm moves to sm = 4			1		
					((					
	1				Secondary O2 sensor voltage	<=	0.150146	V		
					for time	>=	0.1	sec		
	1				)			1		
					OR (					
	1				Secondary O2 sensor voltage	<=	0.150146	V		
	1				Secondary O2 sensor voltage gradient over	<=	0.09944	V/s		
	1				0.05s		0.0004:			
	1 1				Secondary O2 sensor voltage gradient over 0.05s	>=	-0.09944	V/s		ı

EDBIN	STDS: CALULEV125, F	EMISSIONS S				GMXV04.2088	TEST GROUP: K		7	GROUP: KGMXOBDG
MIL	Time Required	ions	Enable Conditi		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
					))					
		I	(a) + (b)	<=	( Primary A/F sensor lambda					
		Unitless	0.05005	(a)	(a) Primary lambda control set point (b) maximum lambda deviation of lean					
		Unitiess		(b)	mixture					
			(a) - (b)	>=	Primary A/F sensor lambda					
		Unitless	0.05005		(a) Primary lambda control set point (b) maximum lambda deviation of rich					
					mixture					
		sec g	0.2 15	>=	for time Integrated lean exhaust gas mass flow bank 1					
					)					
		-	TRUE	-	statemachine (sm=3) - Lean mixture in catalyst					
		-	TRUE	=	a commanded lambda active bank 1					
		Unitless sec	1.08008	= >=	primary A/F commanded lambda bank 1 for time					
		sec	0.2	>=	for time					
					if the following conditions are met, sm moves to sm = 4					
1		V	0.150146	<=	( Secondary O2 sensor voltage bank 1					
		sec	0.1	>=	for time OR					
		V	0.150146	<=	( Secondary O2 sensor voltage bank 1					
		V/s	0.09944	<=	Secondary O2 sensor voltage gradient over 0.05s					
		V/s	-0.09944	>=	Secondary O2 sensor voltage gradient over 0.05s					
		q	0.1	>	Integrated Oxygen mass flow bank 1 ))					
			(a) + (b)	<=	( Primary A/F sensor lambda bank 1					
		Unitless	0.05005	(a) (b)	(a) Primary lambda control set point (b) maximum lambda deviation of lean					
		Onnoo			mixture					
			(a) - (b)	>=	Primary A/F sensor lambda bank 1 (a) Primary lambda control set point					
		Unitless	0.05005		(b) maximum lambda deviation of rich					
		sec	0.2	>=	mixture for time					
		g	15	>=	Integrated lean exhaust gas mass flow bank					
					) (					
		V	0.014648	<	Secondary O2 sensor voltage difference: (a)					
1		1			(a) old Secondary O2 sensor voltage bank 1					
1		I			(b) Secondary O2 sensor voltage bank 1					
		V sec	0.202637 2.5	<= >=	Secondary O2 sensor voltage bank 1 for time					
1					)					
1		-	TRUE	=	statemachine (sm=4) - Rich mixture in catalyst					
			TRUE	=	a commanded lambda active					
1		Unitless sec	0.91992 3	= >=	primary A/F commanded lambda for time					
		sec	0.2	>=	for time					
					if the following conditions are met, sm moves to sm = 3					
		V	0.85083	>=	( Secondary O2 sensor voltage bank 1					
					OR (					
		V V/s	0.749512 0.09944	>= <=	Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over					
1		V/s	-0.09944	>=	0.05s Secondary O2 sensor voltage gradient over					
		q	0.15	>	0.05s Integrated Oxygen mass flow bank 1					
					)) (					
			(a) + (b)	<= (a)	Primary A/F sensor lambda bank 1 (a) Primary lambda control set point bank 1					
		Unitless	0.05005	(b)	(b) maximum lambda deviation of lean					

BD GROUP: KGMXOBDG0	7		DIAGNOS <sup>*</sup> TEST GROUP: I	TIC SUMMARY TABLES ECM GMXV04.2088		EN	MISSION	S STDS: CALULEV125, FE	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions		Time Required	MIL IIIum.
					(a) Primary lambda control set point (b) maximum lambda deviation of rich mixture for time Integrated rich exhaust gas mass flow bank 1 ) And	0.05005 >= 0.2 >= 15	Unitless sec g		
					No pending or confirmed DTCs  Basic enable conditions met	= see sheet inhibit table = see sheet enable tables	-		
Downstream Exhaust Gas Sensor	P013B	Compares measured transition response time of Seconday O2 sensor 2 bank 1 with the calibrated threshold when the sensor voltage changes Lean to Rich	arithmetic filtered delay response time of Secondary O2 sensor 2, bank 1, Lean to Rich: tiArth	> 0.5 sec	primary A/F commanded lambda	<= 1.09009	Unitless	2 counts	2 Trip
			tiArth = old tiArth + ((((a) - (b)) - old tiArth) * 1/ sample order) (a) Raw transition response time of secondary O2 SZB1 Lean to Rich (b) Exhaust mass flow dependent correction for transition response time of secondary O2 SZB1 Lean to Rich (see Look-Up-Table #P013A-1)	0.06 to 0.07 sec	primary A/F commanded lambda engine runs Vehicle speed	>= 0.8501 = TRUE >= 4.350528278	Unitless - mph		
					enaine speed enaine speed enaine load @ full engine mode (see Look- Up-Table #P0420-4) (engine load of full engine mode / 2) @ half engine mode (see Look-Up-Table #P0420-	<= 3520 >= 1000 >= 12 to 19.992 >= 12 to 19.992	rpm rpm %		
					for time Ratio total charge to charge in cylinder for time Integrated air mass flow measured ambient temperatuer measured ambient pressure measured engine coolant temperature no transmission gear change for time	>= 3 < 1.00024 >= 2 > 60 >= -39.8 >= 50 >= 52.06 = TRUE >= 2	sec Unitless sec q deq C kPa deq C - sec		
					( integrated exhaust gas mass flow after the following operation points are in the monitoring window bank 1	> 60	g		
					Change of exhaust gas mass flow bank 1: (a) - (b)	<= 6.944444444	g/sec		
					Change of exhaust gas mass flow bank 1: (a) - (b)	>= -6.944444444	g/sec		
					(a) exhaust gas mass flow bank 1 (b) filtered exhaust gas mass flow bank 1 PT1 time constant Low window exhaust gas mass flow bank 1 (see Look-Up-Table #P0420-2)	1.20029304 <= 22.22222222222 2 to 27.77777777777	sec g/sec		
					Low window exhaust gas mass flow bank 1	>= 3.88888889	g/sec		
					Low window exhaust gas mass flow bank 1  (a) minimum exhaust gas mass flow bank 1	>= (a) - (b) 3.888888889	a/sec		
					(b) offset exhaust gas mass flow bank 1 at tip-out for time	0.833333333	g/sec sec		
					High window exhaust gas mass flow bank 1 (see Look-Up-Table #P0420-1)	<= 22.22222222222 2 to 27.77777777777777777777777777777777777	g/sec		
					High window exhaust gas mass flow bank 1	21.777777777777777777777777777777777777	g/sec		

FEDBIN1	S STDS: CALULEV125, F	EMISSIONS				TC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K		7	BD GROUP: KGMXOBDG
MIL II	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
					)					
		deg C	40.0078	<=	Modeled catalyst temperature gradient bank 1:					
		deg C	-40.0078	>=	(a) - (b) Modeled catalyst temperature gradient bank					
		sec	4.9989321	=	(a) - (b) (a) Modeled catalyst temperature bank 1 (b) filtered modeled catalyst temperature bank 1					
		deg C	650.006	<=	PT1 time constant Low window modeled catalyst temperature					
		deg C	520.022 780.014	>= <=	Low window Modeled catalyst temperature bank 1 High window modeled catalyst temperature					
		deg C deg C	600.014	>=	bank 1 High window Modeled catalyst temperature					
		deg C	420.06	>	bank 1 Modeled catalyst temperature bank 1 after					
		sec	12	>=	the first engine start and driving for time					
					))					
		g	1.51	>=	(( Integrated purge mass flow after a longer					
		factor	40	<=	purge stop HC concentration factor in chacoal canister					
		Unitless	0.200012		relative fuel portion of canister purge to injected fuel mass : (a) / (b) (a) fuel mass supplied by canister purge					
					control (b) fuel mass supplied by injection					
					OR					
		-	TRUE	=	open loop canister purge control OR					
		g/sec	5.55555556	<=	canister purge control mass flow into the manifold					
		g	1600 to 2850	>	(( integrated exhaust gas mass flow bank 1 since engine start (see Look-Up-Table #P0420-3)					
		g	40	>	integrated exhaust gas mass flow bank 1 after the following sensors's readiness					
					( Secondary O2 sensor readiness bank 1 Primary A/F sensor readiness bank 1					
		deq C	299.991	>=	)					
		deg C	64.9922 800.006	<	temperature deviation of Primary A/F sensor heater control bank 1: (a) - (b) (a) primary A/F sensor temperature set point					
		deg C	800.006		(a) primary A/F sensor temperature set point for heater control (b) measured primary A/F sensor					
					temperature for heater control					
					statemachine = sm					
		-	FALSE	=	statemachine (sm =0) : inactive a commanded lambda active					
		Unitless	1	=	primary A/F commanded lambda if the following conditions are met,					
		V	0.749512	>=	sm moves to sm = 2 Secondary O2 sensor voltage bank1 if the following conditions are met,					
		٧	0.749512	<	sm moves to sm = 1 Secondary O2 sensor voltage bank1					
		· ·	0.450439 TRUE	>= =	Secondary O2 sensor voltage bank1 statemachine (sm=1) - rich mixture in catalyst					
		- Unitless	TRUE 0.91992	=	a commanded lambda active primary A/F commanded lambda bank1					
		sec sec	3 0.2	= >= >=	for time for time					
					if the following conditions are met, sm moves to sm = 2		1			

FEDBIN	STDS: CALULEV125, F	EMISSIONS				IC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDG
MILI	Time Required	ons	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		V/s	0.069	>=	Secondary O2 sensor voltage gradient over					
		V	0.749512	>=	0.05s Secondary O2 sensor voltage bank1					
		V	0.749512	>=	OR Secondary O2 sensor voltage bank1					
		q	0.12	>=	) Integrated exhaust mass flow bank 1					
					if the following conditions are met, sm moves to sm = 3					
		v	0.85083	>=	( Secondary O2 sensor voltage bank 1 OR					
		V V/s	0.749512 0.09944	>= <=	( Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over					
		V/s	-0.09944	>=	0.05s Secondary O2 sensor voltage gradient over					
		q	0.15	>	0.05s Integrated Oxygen mass flow bank 1					
			(a) + (b)	<= (a)	() ( Primary A/F sensor lambda bank 1 (a) Primary lambda control set point bank 1					
		Unitless	0.05005	(b)	(b) maximum lambda deviation of lean					
			(a) - (b)	>=	mixture Primary A/F sensor lambda bank 1 (a) Primary lambda control set point					
		Unitless	0.05005		(b) maximum lambda deviation of rich mixture					
		sec g	0.2 15	>= >=	for time Integrated rich exhaust gas mass flow bank					
					) And					
			(a) + (b)	>	Secondary O2 sensor voltage bank 1 (a) minimum secondary O2 voltage					
		V	0.030518	=	(b) Offset voltage of Secondary O2 sensor					
					statemachine (sm=2) - Lean mixture in catalvst					
		- Unitless	TRUE 1.08008	=	a commanded lambda active primary A/F commanded lambda					
		sec sec	3 0.2	>= >=	for time for time					
					if the following conditions are met, sm moves to sm = 4					
		V sec	0.150146 0.1	<= >=	(( Secondary O2 sensor voltage for time					
		sec	0.1	>=	) OR					
		V V/s	0.150146 0.09944	<= <=	( Secondary O2 sensor voltage Secondary O2 sensor voltage gradient over					
		V/s V/s	-0.09944	<= >=	0.05s Secondary O2 sensor voltage gradient over					
		q	0.1	>	0.05s Integrated Oxygen mass flow bank 1					
			(a) + (b)	<=	)) ( Primary A/F sensor lambda					
		Unitless	0.05005	(a) (b)	(a) Primary lambda control set point (b) maximum lambda deviation of lean					
			(a) - (b)	>=	mixture Primary A/F sensor lambda					
		Unitless	0.05005		(a) Primary lambda control set point (b) maximum lambda deviation of rich					
		sec g	0.2 15	>= >=	mixture for time Integrated lean exhaust gas mass flow bank					
		·			1					
		-	TRUE	=	statemachine (sm=3) -					
			TRUE	=	Lean mixture in catalyst a commanded lambda active bank 1					
		Unitless sec	1.08008 3 0.2	= >=	primary A/F commanded lambda bank 1 for time					

GROUP: KGMXOBDG	507		DIAGNOST TEST GROUP: K					EMISSION	S STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ns	Time Required	MIL III
					if the following conditions are met, sm moves to sm = 4					
					( Secondary O2 sensor voltage bank 1 for time OR	<= >=	0.150146 0.1	V sec		
					( Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over	<= <=	0.150146 0.09944	V V/s		
					0.05s Secondary O2 sensor voltage gradient over	>=	-0.09944	V/s		
					0.05s Integrated Oxygen mass flow bank 1	>	0.1	g		
					)) (	<b>–</b>	0.1	ч		
					Primary A/F sensor lambda bank 1	<= (e)	(a) + (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of lean	(a) (b)	0.05005	Unitless		
					mixture Primary A/F sensor lambda bank 1	>=	(a) - (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of rich	1	0.05005	Unitless		
					mixture for time	>=	0.2	sec		
					Integrated lean exhaust gas mass flow bank 1	>=	15	g		
					) statemachine (sm=4) -	=	TRUE	-		
					Rich mixture in catalyst a commanded lambda active	=	TRUE	-		
					primary A/F commanded lambda for time	= >=	0.91992 3	Unitless sec		
					for time if the following conditions are met,	>=	0.2	sec		
					sm moves to sm = 3	1				
					Secondary O2 sensor voltage bank 1 OR	>=	0.85083	V		
					Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over	>= <=	0.749512 0.09944	V V/s		
					0.05s Secondary O2 sensor voltage gradient over	>=	-0.09944	V/s		
					0.05s Integrated Oxygen mass flow bank 1	>	0.15	a		
					)) ( Primary A/F sensor lambda bank 1	<=	(a) + (b)			
					(a) Primary lambda control set point bank 1	(a)				
					(b) maximum lambda deviation of lean mixture	(b)	0.05005	Unitless		
					Primary A/F sensor lambda bank 1 (a) Primary lambda control set point	>=	(a) - (b)			
					<ul> <li>(b) maximum lambda deviation of rich mixture</li> </ul>	1	0.05005	Unitless		
					for time Integrated rich exhaust gas mass flow bank	>= >=	0.2 15	sec g		
					1	1		-		
					And (	1				
					Secondary O2 sensor voltage difference: (a) - (b)	>	0.014648	V		
					(a) old Secondary O2 sensor voltage bank 1	1				
					(b) Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage bank 1	>=	0.650635	V		
					No pending or confirmed DTCs	=	see sheet inhibit			
					Basic enable conditions met	=	table see sheet enable	-		
							tables			
nstream Exhaust Gas Sensor	P013C	Compares measured transition response time of Seconday O2 sensor 2 bank 2 with the calibrated threshold when the sensor voltage changes Rich to Lean	arithmetic filtered delay response time of Secondary O2 sensor 2, bank 2, Rich to Lean: tlArth	> 0.5 sec	primary A/F commanded lambda	<=	1.09009	Unitless	2	2
						l				
		1	tiArth = old tiArth + ((((a) - (b)) - old tiArth) * 1/ sample order)		primary A/F commanded lambda	>=	0.8501	Unitless		

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KGI	C SUMMARY TABLES ECM MXV04.2088			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	ons	Time Required	MIL IIIc
			(a) Raw transition response time of secondary O2 SZB2 Rich to Lean (b) Exhaust mass flow dependent correction for transition response time of secondary O2 SZB2 Rich to Lean (see Look-Up-Table #P013A-2)	0.05 to 0.1 sec	engine runs Vehicle speed	= TRUE >= 4.350528278	- mph		
					enqine speed enqine speed engine load @ full engine mode (see Look- Up-Table #P0420-4) (engine load of full engine mode / 2) @ half engine mode (see Look-Up-Table #P0420-	<= 3520 >= 1000 >= 12 to 19.992 >= 12 to 19.992	rpm rpm %		
					4) for time Ratio total charge to charge in cylinder for time Integrated air mass flow measured ambient temperatuer measured ambient pressure measured engine coolant temperature no transmission gear change for time	>= 3 < 1.00024 >= 2 > 100 >= 39.8 >= 50.06 = TRUE >= 2	sec Unitless sec q deq C kPa deq C		
					( integrated exhaust gas mass flow after the following operation points are in the monitoring window Bank 2	> 100	g		
					Change of exhaust gas mass flow Bank 2: (a) - (b)	<= 6.944444444	g/sec		
					Change of exhaust gas mass flow Bank 2: (a) - (b)	>= -6.94444444	g/sec		
					(a) exhaust gas mass flow Bank 2 (b) filtered exhaust gas mass flow Bank 2 PT1 time constant Low window exhaust gas mass flow Bank 2 (see Look-Up-Table #P0420-2)	1.20029304 <= 22.22222222222 2 to 27.777777777777			
					Low window exhaust gas mass flow Bank 2	>= 3.888888889	g/sec		
					Low window exhaust gas mass flow bank 2	>= (a) - (b)			
					(a) minimum exhaust gas mass flow bank 2 (b) offset exhaust gas mass flow bank 2 at	3.888888889 0.833333333	g/sec g/sec		
					tip-out for time	>= 3	sec		
					High window exhaust gas mass flow bank 2 (see Look-Up-Table #P0420-1)	<= 22.222222222222 2 to 27.77777777777777777777777777777777777	-		
					High window exhaust gas mass flow bank 2	>= 3.888888889	g/sec		
					) ( Modeled catalyst temperature gradient bank 2-	<= 40.0078	deg C		
					(a) - (b) Modeled catalyst temperature gradient bank	>= -40.0078	deg C		
					(a) - (b) (a) Modeled catalyst temperature bank 2 (b) filtered modeled catalyst temperature bank 2 PT1 time constant	= 4.9989321	sec		
					Low window modeled catalyst temperature Low window Modeled catalyst temperature	<= 650.006 >= 520.022	dea C deg C		
					bank 2 High window modeled catalyst temperature	<= 780.014	deg C		
					bank 2 High window Modeled catalyst temperature bank 2	>= 600.014	deg C		
					Modeled catalyst temperature bank 2 after the first engine start and driving	> 420.06	deg C		
					for time	>= 12	sec		

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES ECM GMXV04.2088	М			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL IIIur
					((					
					Integrated purge mass flow after a longer purge stop	>=	1.51	g		
					HC concentration factor in chacoal canister relative fuel portion of canister purge to injected fuel mass: (a) / (b) (a) fuel mass supplied by canister purge	<=	40 0.200012	factor Unitless		
					(a) their mass supplied by carrister purge control (b) fuel mass supplied by injection OR					
					open loop canister purge control		TRUE			
					OR canister purge control mass flow into the manifold	<=	5.55555556	g/sec		
					(( integrated exhaust gas mass flow bank 2 since engine start (see Look-Up-Table	>	1600 to 2850	g		
					#P0420-3) integrated exhaust gas mass flow bank 2 after the following sensors's readiness	>	40	g		
					( Secondary O2 sensor readiness bank 2 Primary A/F sensor readiness bank 2					
					) temperature deviation of Primary A/F sensor	>= <	299.991 64.9922	deq C deg C		
					heater control bank 2: (a) - (b) (a) primary A/F sensor temperature set point for heater control (b) measured primary A/F sensor		800.006	deg C		
					statemachine = sm statemachine (sm =0) : inactive a commanded lambda active primary A/F commanded lambda if the following conditions are met, sm moves to sm = 2	=	FALSE 1	- Unitless		
					Secondary O2 sensor voltage bank1 if the following conditions are met, sm moves to sm = 1 Secondary O2 sensor voltage bank1 Secondary O2 sensor voltage bank1 statemachine (sm=1) - rich mixture in	>= < >= =	0.749512 0.749512 0.450439 TRUE	V V V		
					catalyst a commanded lambda active	-	TRUE	_		
					primary A/F commanded lambda bank1 for time	= >=	0.91992 3	Unitless sec		
					for time if the following conditions are met, sm moves to sm = 2	>=	0.2	sec		
					Secondary O2 sensor voltage gradient over 0.05s	>=	0.069	V/s		
					0.05s Secondary O2 sensor voltage bank1 )	>=	0.749512	V		
					Secondary O2 sensor voltage bank1	>=	0.749512	V		
					Integrated exhaust mass flow bank 2	>=	0.12	а		
					if the following conditions are met, sm moves to sm = 3 (					
					Secondary O2 sensor voltage bank 2 OR	>=	0.85083	V		
					Secondary O2 sensor voltage bank 2 Secondary O2 sensor voltage gradient over	>= <=	0.749512 0.09944	V V/s		
					0.05s Secondary O2 sensor voltage gradient over	>=	-0.09944	V/s		
					0.05s Integrated Oxygen mass flow bank 2	>	0.15	q		
					( Primary A/F sensor lambda bank 2	<=	(a) + (b)			

Component / System										FEDBIN12
	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditi	ons	Time Required	MIL IIIc
<u>'</u>					(a) Primary lambda control set point bank 2	(a)				
					(b) maximum lambda deviation of lean	(b)	0.05005	Unitless		
					mixture Primary A/F sensor lambda bank 2	>=	(a) - (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of rich		0.05005	Unitless		
					mixture					
					for time Integrated rich exhaust gas mass flow bank	>=	0.2 15	sec g		
					2					
					And (					
					Secondary O2 sensor voltage bank 2 (a) minimum secondary O2 voltage	>	(a) + (b)			
					(b) Offset voltage of Secondary O2 sensor	=	0.030518	V		
					) statemachine (sm=2) -					
					Lean mixture in catalyst		TP			
					a commanded lambda active primary A/F commanded lambda	=	TRUE 1.08008	Unitless		
					for time for time	>= >=	3 0.2	sec sec		
					if the following conditions are met, sm moves to sm = 4		0.2	555		
					(( Secondary O2 sensor voltage	<=	0.150146	v		
					for time	>=	0.130140	sec		
					OR					
					( Secondary O2 sensor voltage	<=	0.150146	٧		
					Secondary O2 sensor voltage gradient over 0.05s	<=	0.09944	V/s		
					Secondary O2 sensor voltage gradient over 0.05s	>=	-0.09944	V/s		
					Integrated Oxygen mass flow bank 2	>	0.1	q		
					() Drimon: A/F consequent de		(a) . (b)			
					Primary A/F sensor lambda (a) Primary lambda control set point	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean mixture	(b)	0.05005	Unitless		
					Primary A/F sensor lambda (a) Primary lambda control set point	>=	(a) - (b)			
					(b) maximum lambda deviation of rich		0.05005	Unitless		
					mixture for time	>=	0.2	sec		
					Integrated lean exhaust gas mass flow bank 2	>=	15	g		
					)					
					statemachine (sm=3) - Lean mixture in catalyst	=	TRUE	-		
					a commanded lambda active bank 2	=	TRUE	-		
					primary A/F commanded lambda bank 2 for time	=	1.08008	Unitless sec		
					for time	>= >=	0.2	sec		
					if the following conditions are met, sm moves to sm = 4					
					( Secondary O2 sensor voltage bank 2	<=	0.150146	V		
					for time OR	>=	0.1	sec		
					( Secondary O2 sensor voltage bank 2	<=	0.150146	v		
					Secondary O2 sensor voltage gradient over	<=	0.09944	V/s		
					0.05s Secondary O2 sensor voltage gradient over	>=	-0.09944	V/s		
					0.05s Integrated Oxygen mass flow bank 2	>	0.1	q		
					)) (					
					Primary A/F sensor lambda bank 2 (a) Primary lambda control set point	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean	(b)	0.05005	Unitless		
					Primary A/F sensor lambda bank 2	>=	(a) - (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of rich		0.05005	Unitless		

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: K	FIC SUMMARY TABLES	- ECM				EMISSION	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIum.
						for time Integrated lean exhaust gas mass flow bank 2	>= >=	0.2 15	sec g		
						) ( Secondary O2 sensor voltage difference: (a) - (b) (a) old Secondary O2 sensor voltage bank 2	<	0.014648	V		
						(b) Secondary O2 sensor voltage bank 2 Secondary O2 sensor voltage bank 2 for time	<= >=	0.202637 2.5	V sec		
						statemachine (sm=4) - Rich mixture in catalvst a commanded lambda active primary A/F commanded lambda for time for time if the following conditions are met, sm moves to sm = 3	= = >= >= >=	TRUE TRUE 0.91992 3 0.2	- Unitless sec sec		
						( Secondary O2 sensor voltage bank 2 OR	>=	0.85083	٧		
						Secondary O2 sensor voltage bank 2 Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage gradient over 0.05s	>= <= >=	0.749512 0.09944 -0.09944	V V/s V/s		
						Integrated Oxygen mass flow bank 2 )) ( Primary A/F sensor lambda bank 2	> =	0.15 (a) + (b)	q		
						(a) Primary lambda control set point bank 2      (b) maximum lambda deviation of lean mixture     Primary A/F sensor lambda bank 2	(a) (b) >=	0.05005 (a) - (b)	Unitless		
						(a) Primary lambda control set point (b) maximum lambda deviation of rich mixture for time Integrated rich exhaust gas mass flow bank	>= >=	0.05005 0.2 15	Unitless sec g		
						2 ) ( No pending or confirmed DTCs Basic enable conditions met	=	see sheet inhibit table see sheet enable tables	-		
Downstream Exhaust Gas Sensor	P013D	Compares measured transition response time of Seconday O2 sensor 2 bank 2 with the calibrated threshold when the sensor voltage changes Lean to Rich	arithmetic filtered delay response time of Secondary O2 sensor 2, bank 2, Lean to Rich: tiArth	> 0.5	sec	primary A/F commanded lambda	<=	1.09009	Unitless	2 counts	2 Trip
			tiArth = old tiArth + ((((a) - (b)) - old tiArth) * 1/ sample order) (a) Raw transition response time of secondary O2 SZB2 Lean to Rich (b) Exhaust mass flow dependent correction for transition response time of secondary O2 SZB2 Lean to Rich (see Look-Up-Table #P013A-1)	0.06 to 0.07	sec	primary A/F commanded lambda engine runs Vehicle speed	>= = >=	0.8501 TRUE 4.350528278	Unitless - mph		
						enqine speed enqine speed enqine speed engine load @ full engine mode (see Look-Up-Table #P0420-4) (engine load of full engine mode / 2) @ half engine mode (see Look-Up-Table #P0420-4)	<= >= >= >=	3520 1000 12 to 19.992 12 to 19.992	rpm rpm %		
						for time Ratio total charge to charge in cylinder for time Integrated air mass flow measured ambient temperatuer measured ambient pressure measured amnie coolant temperature no transmission gear change for time	V   N   N   N   N   N   N   N   N   N	3 1.00024 2 100 -39.8 50 52.06 TRUE 2	sec Unitless sec g deq C kPa deq C - sec		

FEDBIN1	IS STDS: CALULEV125, F	MISSIONS			TIC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: P		7	BD GROUP: KGMXOBDG0
MIL II	Time Required	s	Enable Condition	Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		g	100	) ( integrated exhaust gas mass flow after the following operation points are in the monitoring window bank 2					
		g/sec	6.94444444	Change of exhaust gas mass flow bank 2: (a) - (b)					
		g/sec	-6.94444444	Change of exhaust gas mass flow bank 2: (a) - (b)					
		sec g/sec	1.20029304 22.22222222222 2 to 27.777777777777	(a) exhaust qas mass flow bank 2 (b) filtered exhaust gas mass flow bank 2 PT1 time constant Low window exhaust gas mass flow bank 2 (see Look-Up-Table #P0420-2)					
		g/sec	8 3.88888889	Low window exhaust gas mass flow bank 2					
		g/sec	(a) - (b) 3.888888889	Low window exhaust gas mass flow bank 2  (a) minimum exhaust gas mass flow bank 2					
		g/sec	0.833333333	(b) offset exhaust gas mass flow bank 2 at tip-out					
		sec g/sec	3 22.22222222222 2 to	for time  High window exhaust gas mass flow bank 2 (see Look-Up-Table #P0420-1)					
		g/sec	27.7777777777 8 3.888888888	High window exhaust gas mass flow bank 2					
		deg C	40.0078	) ( Modeled catalyst temperature gradient bank 2:					
		deg C	-40.0078	(a) - (b) Modeled catalyst temperature gradient bank 2:					
		sec	4.9989321	(a) - (b) (a) Modeled catalyst temperature bank 2 (b) filtered modeled catalyst temperature bank 2					
		deg C deg C	650.006 520.022	PT1 time constant  Low window modeled catalyst temperature  Low window Modeled catalyst temperature  bank 2					
		deg C deg C	780.014 600.014	High window modeled catalyst temperature bank 2 High window Modeled catalyst temperature					
		deg C	420.06 12	bank 2 Modeled catalyst temperature bank 2 after the first engine start and driving for time					
		g	1.51	(( Integrated purge mass flow after a longer purge stop					
		factor Unitless	40 0.200012	HC concentration factor in chacoal canister relative fuel portion of canister purge to injected fuel mass: (a) / (b) (a) fuel mass supplied by canister purge					
				(a) rule mass supplied by carrister purge control (b) fuel mass supplied by injection OR					
		-	TRUE	open loop canister purge control OR					
		g/sec	5.55555556	canister purge control mass flow into the manifold					

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES ECI MXV04.2088	IVI			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ons	Time Required	MIL IIIu
					integrated exhaust gas mass flow bank 2 since engine start (see Look-Up-Table #P0420-3) integrated exhaust gas mass flow bank 2	>	1600 to 2850	g g		
					after the following sensors's readiness ( Secondary O2 sensor readiness bank 2 Primary A/F sensor readiness bank 2					
					temperature deviation of Primary A/F sensor	>= <	299.991 64.9922	deq C deg C		
					heater control bank 2: (a) - (b) (a) primary A/F sensor temperature set point for heater control (b) measured primary A/F sensor temperature for heater control )		800.006	deg C		
					statemachine = sm statemachine (sm =0) : inactive a commanded lambda active primary A/F commanded lambda	= = =	FALSE 1	- Unitless		
					if the following conditions are met, sm moves to sm = 2 Secondary O2 sensor voltage bank1 if the following conditions are met,	>=	0.749512	v		
					sm moves to sm = 1 Secondary O2 sensor voltage bank1 Secondary O2 sensor voltage bank1 statemachine (sm=1) - rich mixture in	< >= =	0.749512 0.450439 TRUE	V V -		
					catalvst a commanded lambda active primary A/F commanded lambda bank1	=	TRUE 0.91992	Unitless		
					for time for time if the following conditions are met, sm moves to sm = 2	>=	3 0.2	sec sec		
					(( Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage bank1	>= >=	0.069 0.749512	V/s V		
					) OR Secondary O2 sensor voltage bank1	>=	0.749512	v		
					) Integrated exhaust mass flow bank 2	>=	0.12	g		
					if the following conditions are met, sm moves to sm = 3 ( Secondary O2 sensor voltage bank 2	>=	0.85083	v		
					OR ( Secondary O2 sensor voltage bank 2	>=	0.749512	V		
					Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage gradient over 0.05s	>=	0.09944	V/s V/s		
					Integrated Oxygen mass flow bank 2 )) (	>	0.15	q		
					Primary A/F sensor lambda bank 2 (a) Primary lambda control set point bank 2	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean mixture Primary A/F sensor lambda bank 2 (a) Primary lambda control set point	(b) >=	0.05005 (a) - (b)	Unitless		
					(b) maximum lambda deviation of rich mixture for time	>=	0.05005	Unitless		
					Integrated rich exhaust gas mass flow bank 2 )	>=	15	g		
					Secondary O2 sensor voltage bank 2 (a) minimum secondary O2 voltage (b) Offset voltage of Secondary O2 sensor	> =	(a) + (b) 0.030518	v		
					) statemachine (sm=2) - Lean mixture in catalvst a commanded lambda active primary A/F commanded lambda	=	TRUE 1.08008	- Unitless		

GROUP: KGMXOBDG	07		TEST GROUP: KG	GMXV04.2088				EMISSIONS S	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL III
					for time	>= >=	3 0.2	sec sec		
					if the following conditions are met, sm moves to sm = 4		0.2	555		
					(( Secondary O2 sensor voltage	<=	0.150146	v		
					for time	>=	0.1	sec		
					OR (					
					Secondary O2 sensor voltage Secondary O2 sensor voltage gradient over	<= <=	0.150146 0.09944	V V/s		
					0.05s Secondary O2 sensor voltage gradient over	>=	-0.09944	V/s V/s		
					0.05s					
					Integrated Oxygen mass flow bank 2 ))	>	0.1	g		
					Primary A/F sensor lambda	<=	(a) + (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of lean	(a) (b)	0.05005	Unitless		
					mixture Primary A/F sensor lambda	>=	(a) - (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of rich		0.05005	Unitless		
					mixture for time	>=	0.2	sec		
					Integrated lean exhaust gas mass flow bank 2	>=	15	g		
					)					
					statemachine (sm=3) - Lean mixture in catalvst	-	TRUE	-		
					a commanded lambda active bank 2 primary A/F commanded lambda bank 2	-	TRUE 1.08008	Unitless		
					for time for time	>= >=	3 0.2	sec sec		
					if the following conditions are met, sm moves to sm = 4					
					( Secondary O2 sensor voltage bank 2	<=	0.150146	v		
					for time OR	>=	0.1	sec		
					( Secondary O2 sensor voltage bank 2	<=	0.150146	v		
					Secondary O2 sensor voltage gradient over 0.05s	<=	0.09944	V/s		
					Secondary O2 sensor voltage gradient over 0.05s	>=	-0.09944	V/s		
					Integrated Oxygen mass flow bank 2	>	0.1	q		
					( Primary A/F sensor lambda bank 2	<=	(a) + (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of lean	(a) (b)	0.05005	Unitless		
					mixture Primary A/F sensor lambda bank 2	>=	(a) - (b)	Onniooo		
					(a) Primary lambda control set point (b) maximum lambda deviation of rich		0.05005	Unitless		
					mixture for time	>=	0.2	sec		
					Integrated lean exhaust gas mass flow bank	>=	15	g		
					) statemachine (sm=4) -	=	TRUE	_		
					Rich mixture in catalyst a commanded lambda active	=	TRUE			
					primary A/F commanded lambda for time	= =	0.91992	Unitless		
					for time	>=	0.2	sec		
					if the following conditions are met, sm moves to sm = 3					
					( Secondary O2 sensor voltage bank 2	>=	0.85083	٧		
					OR (					
					Secondary O2 sensor voltage bank 2 Secondary O2 sensor voltage gradient over	>= <=	0.749512 0.09944	V V/s		
					0.05s Secondary O2 sensor voltage gradient over	>=	-0.09944	V/s		
					0.05s Integrated Oxygen mass flow bank 2	>	0.15	q		ı

BD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: K	TC SUMMARY TABLES ECI GMXV04.2088	л 			EMISSION	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIun
					Primary A/F sensor lambda bank 2 (a) Primary lambda control set point bank 2	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean	(b)	0.05005	Unitless		
					mixture Primary A/F sensor lambda bank 2	>=	(a) - (b)			
					(a) Primary lambda control set point     (b) maximum lambda deviation of rich mixture		0.05005	Unitless		
					for time Integrated rich exhaust gas mass flow bank	>= >=	0.2 15	sec g		
					) ( Secondary O2 sensor voltage difference: (a)	>	0.014648	V		
					(b)     (a) old Secondary O2 sensor voltage bank 2		0.014040	·		
					(b) Secondary O2 sensor voltage bank 2 Secondary O2 sensor voltage bank 2	>=	0.650635	V		
					No pending or confirmed DTCs	=	see sheet inhibit table			
					Basic enable conditions met	=	see sheet enable tables	-		
Downstream Exhaust Gas Sensor	P013E	Compares measured delayed response time of Seconday O2 sensor 2 bank 1 with the calibrated threshold when the sensor voltage changes Rich to Lean	Ewma filtered delay response time of Secondary O2 sensor 2, bank 1, Rich to Lean	> 0.75 sec	primary A/F commanded lambda	<=	1.09009	Unitless	2 Once pe driving cy	er 1 Trip
			(a) Raw delay response time of secondary O2		primary A/F commanded lambda	>=	0.8501	Unitless		
			S2B1 Rich to Lean (b) Exhaust mass flow dependent correction for delay response time of secondary O2 sensor	0 sec	engine runs	=	TRUE	-		
			Rich to Lean		Vehicle speed	>=	4.350528278	mph		
					engine speed engine speed engine load @ full engine mode (see Look-	<= >= >=	3520 1000 12 to 19.992	rpm rpm %		
					Up-Table #P0420-4) (engine load of full engine mode / 2) @ half engine mode (see Look-Up-Table #P0420-	>=	12 to 19.992	%		
					4) for time	>=	3	sec		
					Ratio total charge to charge in cylinder for time	< >=	1.00024	Unitless sec		
					Integrated air mass flow measured ambient temperatuer	>=	60 -39.8	q deq C		
					measured ambient pressure measured engine coolant temperature	>= >=	50 52.06	kPa deg C		
					no transmission gear change for time	= >=	TRUE 2	sec		
					( integrated exhaust gas mass flow after the following operation points are in the monitoring window bank 1	>	60	g		
					Change of exhaust gas mass flow bank 1: (a) - (b)	<=	6.94444444	g/sec		
					Change of exhaust gas mass flow bank 1: (a) - (b)	>=	-6.94444444	g/sec		
					(a) exhaust gas mass flow bank 1 (b) filtered exhaust gas mass flow bank 1 PT1 time constant Low window exhaust gas mass flow bank 1 (see Look-Up-Table #P0420-2)	<=	1.20029304 22.2222222222 2 to	sec g/sec		
					Low window exhaust gas mass flow bank 1	>=	27.77777777777 8 3.8888888889	g/sec		
					Low window exhaust gas mass flow bank 1	>=	(a) - (b)			
					(a) minimum exhaust gas mass flow bank 1		3.88888889	g/sec		
	1				i -					

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	M			MISSIONS	S STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL III
					for time High window exhaust gas mass flow bank 1 (see Look-Up-Table #P0420-1)	>= <=	3 22.22222222222 2 to	sec g/sec		
					High window exhaust gas mass flow bank 1	>=	27.77777777777 8 3.8888888889	g/sec		
					, ( Modeled catalyst temperature gradient bank 1:	<=	40.0078	deg C		
					(a) - (b) Modeled catalyst temperature gradient bank 1:	>=	-40.0078	deg C		
					(a) - (b) (a) Modeled catalyst temperature bank 1 (b) filtered modeled catalyst temperature bank 1	=	4.9989321	sec		
					PT1 time constant Low window modeled catalyst temperature Low window Modeled catalyst temperature bank 1	<= >=	650.006 520.022	deg C deg C		
					High window modeled catalyst temperature bank 1	<=	780.014	deg C		
					High window Modeled catalyst temperature bank 1	>=	600.014	deg C		
					Modeled catalyst temperature bank 1 after the first engine start and driving for time ))	>=	420.06 12	deg C sec		
					(( Integrated purge mass flow after a longer purge stop	>=	1.51	g		
					HC concentration factor in chacoal canister	<=	40	factor		
					relative fuel portion of canister purge to injected fuel mass : (a) / (b) (a) fuel mass supplied by canister purge control (b) fuel mass supplied by injection OR		0.200012	Unitless		
					open loop canister purge control	=	TRUE	-		
					OR canister purge control mass flow into the manifold	<=	5.55555556	g/sec		
					(( integrated exhaust gas mass flow bank 1 since engine start (see Look-Up-Table #P0420-3)	>	1600 to 2850	g		
					integrated exhaust gas mass flow bank 1 after the following sensors's readiness	>	40	g		
					Secondary O2 sensor readiness bank 1 Primary A/F sensor readiness bank 1					
					temperature deviation of Primary A/F sensor	>= <	299.991 64.9922	deg C deg C		
					heater control bank 1: (a) - (b)  (a) primary A/F sensor temperature set point for heater control  (b) measured primary A/F sensor temperature for heater control		800.006	deg C		
					) statemachine = sm statemachine (sm =0): inactive					
					a commanded lambda active primary A/F commanded lambda if the following conditions are met,	=	FALSE 1	- Unitless		
					sm moves to sm = 2 Secondary O2 sensor voltage Bank 1 if the following conditions are met, sm moves to sm = 1	>=	0.749512	V		
					Secondary O2 sensor voltage Bank 1 Secondary O2 sensor voltage Bank 1 statemachine (sm=1) - rich mixture in	< >= =	0.749512 0.450439 TRUE	V V -		
					catalvst a commanded lambda active	-	TRUE			

D GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES EG SMXV04.2088	J.I.			EMISSIONS	STDS: CALULEV125, I	FEDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL IIIc
					primary A/F commanded lambda Bank 1	=	0.91992	Unitless		
					for time for time	>=	3 0.2	sec sec		
					if the following conditions are met, sm moves to sm = 2					
					(( Secondary O2 sensor voltage gradient over	>=	0.069	V/s		
					0.05s Secondary O2 sensor voltage Bank 1	>=	0.749512	v		
					) OR					
					Secondary O2 sensor voltage Bank 1	>=	0.749512	V		
					Integrated exhaust mass flow bank 1	>=	0.12	q		
					if the following conditions are met, sm moves to sm = 3					
					Secondary O2 sensor voltage bank 1 OR	>=	0.85083	V		
					( Secondary O2 sensor voltage bank 1 Secondary O2 concer voltage gradient over	>=	0.749512	V V/e		
					Secondary O2 sensor voltage gradient over 0.05s	<=	0.09944 -0.09944	V/s V/s		
					Secondary O2 sensor voltage gradient over 0.05s	>=				
					Integrated Oxygen mass flow bank 1 )) (	>	0.15	q		
					Primary A/F sensor lambda bank 1 (a) Primary lambda control set point bank 1	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean	(b)	0.05005	Unitless		
					mixture Primary A/F sensor lambda bank 1	>=	(a) - (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of rich		0.05005	Unitless		
					mixture for time	>=	0.2	sec		
					Integrated rich exhaust gas mass flow bank	>=	15	g		
					) And (					
					Secondary O2 sensor voltage bank 1	>	(a) + (b)			
					(a) minimum secondary O2 voltage (b) Offset voltage of Secondary O2 sensor	=	0.030518	٧		
					) statemachine (sm=2) -					
					Lean mixture in catalvst a commanded lambda active	-	TRUE			
					primary A/F commanded lambda for time	= >=	1.08008 3	Unitless sec		
					for time if the following conditions are met, sm moves to sm = 4	>=	0.2	sec		
					(( Secondary O2 sensor voltage	<=	0.150146	v		
					for time ) OR	>=	0.1	sec		
					( Secondary O2 sensor voltage Secondary O2 sensor voltage gradient over	<= <=	0.150146 0.09944	V V/s		
					0.05s Secondary O2 sensor voltage gradient over	>=	-0.09944	V/s		
					0.05s Integrated Oxygen mass flow bank 1	>	0.1	g		
					)) (	-	J.1	я		
					Primary A/F sensor lambda (a) Primary lambda control set point	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean	(b)	0.05005	Unitless		
					Primary A/F sensor lambda	>=	(a) - (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of rich mixture		0.05005	Unitless		
					for time Integrated lean exhaust gas mass flow bank	>=	0.2 15	sec g		
	1				1		15	9		1

D GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES EC			EMISSIONS S	STDS: CALULEV125, F	ED-BIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Cor	ditions	Time Required	MIL III
					statemachine (sm=3) -	= TRUE			
					Lean mixture in catalvst a commanded lambda active bank 1	= TRUE	_		
					primary A/F commanded lambda bank 1	= 1.08008			
					for time for time	>= 3 >= 0.2	sec sec		
					if the following conditions are met, sm moves to sm = 4	>= 0.2	Sec		
					( Secondary O2 sensor voltage bank 1	<= 0.150146			
					for time OR	>= 0.1	sec		
					Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over	<= 0.150146 <= 0.09944			
					0.05s Secondary O2 sensor voltage gradient over	>= -0.09944			
					0.05s Integrated Oxygen mass flow bank 1	> 0.1	q		
					)) (				
					Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of lean	<= (a) + (b) (a) (b) 0.05005			
					(b) maximum lambda deviation of lean mixture Primary A/F sensor lambda bank 1	(b) 0.05005 >= (a) - (b)	Unitiess		
					(a) Primary lambda control set point (b) maximum lambda deviation of rich	0.05005	Unitless		
					mixture for time	>= 0.2	sec		
					Integrated lean exhaust gas mass flow bank 1 )	>= 15	g		
					( Primary A/F commanded lambda bank 1 (a) Primary A/F commanded lambda bank 1	<= (a) + (b)			
					(b) offset to the commanded lambda bank 1	0.06006			
					Secondary O2 sensor voltage bank 1	> (a) + (b)			
					(a) minimum secondary O2 voltage Bank 1 (b) Offset voltage of Secondary O2 sensor	= 0.030518	s v		
					)		, ,		
					statemachine (sm=4) - Rich mixture in catalyst	= TRUE	-		
					a commanded lambda active	= TRUE	Linitions		
					primary A/F commanded lambda for time	= 0.91992 >= 3	Unitless sec		
					for time	>= 0.2	sec		
					if the following conditions are met, sm moves to sm = 3				
					Secondary O2 sensor voltage bank 1 OR	>= 0.85083	٧		
					( Secondary O2 sensor voltage bank 1	>= 0.749512			
					Secondary O2 sensor voltage gradient over 0.05s	<= 0.09944 >= -0.09944			
					Secondary O2 sensor voltage gradient over 0.05s Integrated Oxygen mass flow bank 1	>= -0.09944	V/s		
					)) (				
					Primary A/F sensor lambda bank 1 (a) Primary lambda control set point bank 1	<= (a) + (b) (a)			
					(b) maximum lambda deviation of lean mixture	(b) 0.05005	Unitless		
					Primary A/F sensor lambda bank 1 (a) Primary lambda control set point	>= (a) - (b)			
					(b) maximum lambda deviation of rich mixture	0.05005			
					for time Integrated rich exhaust gas mass flow bank 1	>= 0.2 >= 15	sec g		
					) EWMA filter strategy				
					Fast initialization mode (FIR) EWMA filter initial value for FIR mode	= TRUE = 0.4	- sec		
	1				EWMA filter constant		Unitless		

OBD GROUP: KGMXOBDG0	)7		DIAGNOST TEST GROUP: k	IC SUMMARY TABLES ECM GMXV04.2088				EMISSION	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIum.
					Total number of samples for FIR mode Response to Step Change mode (RSC)	=	4 TRUE	counts -		
					Response to Step Change mode inactive absolute difference: ABS( (a) - (b) ) (a) measured delayed response time (b) EWMA filtered normalized monitoring	= >	TRUE (b) * (c)	-		
					result (c) Step change detection factor EWMA filter constant Maximum number of samples per trip Total number of samples for RSC mode	= =	0.45 0.3594 2 4	sec Unitless counts counts		
					EWMA filter constant Total number of samples for stablilized mode	=	0.3594 1	Unitless counts		
					No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit table see sheet enable tables	-		
	P013F	Compares measured delay response time of Seconday O2	arithmetic filtered delay response time tiArth of	> 0.65 sec	primary A/F commanded lambda	<=	1.09009	Unitless	2 counts	2 Trip
		sensor 2 bank 1 with the calibrated threshold when the sensor voltage changes Lean to Rich	Secondary U2 sensor 2, bank 1, Lean to Rich: tiArth  tiArth = old tiArth + ((((a) - (b)) - old tiArth) * 1/		primary A/F commanded lambda	>=	0.8501	Unitless		
			sample order) (a) Raw delay response time of secondary O2		engine runs	=	TRUE	-		
			S2B1 Lean to Rich (b) Exhaust mass flow dependent correction for delay response time of secondary O2 sensor	0 sec	Vehicle speed	>=	4.350528278	mph		
			Lean to Rich		engine speed	<=	3520	rpm		
					engine speed engine load @ full engine mode (see Look- Up-Table #P0420-4) (engine load of full engine mode / 2) @ half engine mode (see Look-Up-Table #P0420-	>= >=	1000 12 to 19.992 12 to 19.992	rpm % %		
					for time     Ratio total charge to charge in cylinder	>= <	3 1.00024	sec Unitless		
					for time Integrated air mass flow	>= >	2 100	sec q		
					measured ambient temperatuer measured ambient pressure	>=	-39.8 50	deq C kPa		
					measured engine coolant temperature no transmission gear change for time )	>= = >=	52.06 TRUE 2	deq C - sec		
					( integrated exhaust gas mass flow after the following operation points are in the monitoring window bank 1 (	>	100	g		
					Change of exhaust gas mass flow bank 1: (a) - (b)	<=	6.94444444	g/sec		
					Change of exhaust gas mass flow bank 1: (a) - (b)	>=	-6.94444444	g/sec		
					(a) exhaust gas mass flow bank 1 (b) filtered exhaust gas mass flow bank 1 PT1 time constant		1.20029304	sec		
					Low window exhaust gas mass flow bank 1 (see Look-Up-Table #P0420-2)	<=	22.22222222222 2 to 27.7777777777777			
					Low window exhaust gas mass flow bank 1	>=	8 3.88888889	g/sec		
					Low window exhaust gas mass flow bank 1	>=	(a) - (b)			
					(a) minimum exhaust gas mass flow bank 1		3.88888889	g/sec		
					(b) offset exhaust gas mass flow bank 1 at tip-out		0.833333333	g/sec		
					for time	>=	3	sec		

BD GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	IVI			EMISSIONS	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL III
					High window exhaust gas mass flow bank 1 (see Look-Up-Table #P0420-1)	<=	22.2222222222 2 to 27.77777777777777	g/sec		
					High window exhaust gas mass flow bank 1	>=	8 3.888888889	g/sec		
					) ( Modeled catalyst temperature gradient bank	<=	40.0078	deg C		
					(a) - (b)  Modeled catalyst temperature gradient bank 1:	>=	-40.0078	deg C		
					(a) - (b) (a) Modeled catalyst temperature bank 1 (b) filtered modeled catalyst temperature bank 1	=	4.9989321	sec		
					PT1 time constant Low window modeled catalyst temperature	<=	650.006	deg C		
					bank 1 Low window Modeled catalyst temperature	>=	520.022	deg C		
					bank 1 High window modeled catalyst temperature	<=	780.014	deg C		
					bank 1 High window Modeled catalyst temperature	>=	600.014	deg C		
					bank 1 Modeled catalyst temperature bank 1 after the first engine start and driving	>	420.06	deg C		
					for time ))	>=	12	sec		
					(( Integrated purge mass flow after a longer	>=	1.51	g		
					purge stop  HC concentration factor in chacoal canister	<=	40	factor		
					relative fuel portion of canister purge to injected fuel mass : (a) / (b) (a) fuel mass supplied by canister purge		0.200012	Unitless		
					control (b) fuel mass supplied by injection					
					OR					
					open loop canister purge control OR	=	TRUE	-		
					canister purge control mass flow into the manifold	<=	5.55555556	g/sec		
					(( integrated exhaust gas mass flow bank 1 since engine start (see Look-Up-Table	>	1600 to 2850	g		
					#P0420-3) integrated exhaust gas mass flow bank 1 after the following sensors's readiness	>	40	g		
					Secondary O2 sensor readiness bank 1 Primary A/F sensor readiness bank 1					
					temperature deviation of Primary A/F sensor	>= <	299.991 64.9922	deg C deg C		
					heater control bank 1: (a) - (b) (a) primary A/F sensor temperature set point		800.006	deg C		
					for heater control (b) measured primary A/F sensor temperature for heater control					
					) statemachine = sm					
					statemachine (sm =0) : inactive a commanded lambda active	= =	FALSE	-		
					primary A/F commanded lambda if the following conditions are met,	=	1	Unitless		
					sm moves to sm = 2 Secondary O2 sensor voltage Bank 1 if the following conditions are met,	>=	0.749512	٧		
					sm moves to sm = 1 Secondary O2 sensor voltage Bank 1	<	0.749512	v		
					Secondary O2 sensor voltage Bank 1 statemachine (sm=1) - rich mixture in	>=	0.450439 TRUE	· ·		
					catalyst a commanded lambda active primary A/F commanded lambda Bank 1	=	TRUE	- Unitless		

FEDBIN	STDS: CALULEV125, I	EMISSIONS S				GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDG
MIL	Time Required	ons	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		sec	3	>=	for time					
		sec	0.2	>=	for time if the following conditions are met, sm moves to sm = 2					
		V/s	0.069	>=	(( Secondary O2 sensor voltage gradient over					
		V	0.749512	>=	0.05s Secondary O2 sensor voltage Bank 1					
		•			) OR					
		V	0.749512	>=	Secondary O2 sensor voltage Bank 1					
		q	0.12	>=	Integrated exhaust mass flow bank 1					
					if the following conditions are met, sm moves to sm = 3					
		V	0.85083	>=	( Secondary O2 sensor voltage bank 1					
		•	0.03003	-	OR					
		V V/s	0.749512 0.09944	>= <=	Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over					
		V/s V/s	-0.09944	>=	0.05s					
					Secondary O2 sensor voltage gradient over 0.05s					
		q	0.15	>	Integrated Oxygen mass flow bank 1 ))					
			(a) + (b)	<=	Primary A/F sensor lambda bank 1					
				(a)	(a) Primary lambda control set point bank 1					
		Unitless	0.05005	(b)	(b) maximum lambda deviation of lean mixture					
			(a) - (b)	>=	Primary A/F sensor lambda bank 1 (a) Primary lambda control set point					
		Unitless	0.05005		<ul> <li>(b) maximum lambda deviation of rich mixture</li> </ul>					
		sec g	0.2 15	>=	for time Integrated rich exhaust gas mass flow bank					
					1					
			(a) + (b)	>	( Secondary O2 sensor voltage bank 1					
		V	0.030518	-	(a) minimum secondary O2 voltage (b) Offset voltage of Secondary O2 sensor					
					)					
					statemachine (sm=2) - Lean mixture in catalyst					
		- Unitless	TRUE 1.08008	=	a commanded lambda active primary A/F commanded lambda					
		sec sec	3	>=	for time					
		Sec	0.2	>=	if the following conditions are met,					
		V	0.450446		sm moves to sm = 4					
		V sec	0.150146 0.1	<= >=	Secondary O2 sensor voltage for time					
					OR					
		V V/o	0.150146	<=	Secondary O2 sensor voltage					
		V/s	0.09944	<=	Secondary O2 sensor voltage gradient over 0.05s					
I		V/s	-0.09944	>=	Secondary O2 sensor voltage gradient over 0.05s					
		g	0.1	>	Integrated Oxygen mass flow bank 1 ))					
			(a) + (b)	<=	( Primary A/F sensor lambda					
		Unitless	0.05005	(a) (b)	(a) Primary lambda control set point (b) maximum lambda deviation of lean					
			(a) - (b)	>=	mixture Primary A/F sensor lambda					
		Unitless	0.05005		(a) Primary lambda control set point (b) maximum lambda deviation of rich					
		sec	0.2	>=	mixture for time					
I		g	15	>=	Integrated lean exhaust gas mass flow bank 1					
					)					
		-	TRUE	=	statemachine (sm=3) - Lean mixture in catalyst					

OBD GROUP: KGMXOBDO	07		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM (GMXV04.2088				EMISSION	S STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL IIIum.
					a commanded lambda active bank 1 primary A/F commanded lambda bank 1 for time for time if the following conditions are met, sm moves to sm = 4	= = >= >=	TRUE 1.08008 3 0.2	- Unitless sec sec		
					( Secondary O2 sensor voltage bank 1 for time OR	<= >=	0.150146 0.1	V sec		
					Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage gradient over	<= <= >=	0.150146 0.09944 -0.09944	V V/s V/s		
					0.05s Integrated Oxygen mass flow bank 1	>=	0.1	q q		
					Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of lean mixture	<= (a) (b)	(a) + (b) 0.05005	Unitless		
					Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of rich mixture	>=	(a) - (b) 0.05005	Unitless		
					for time Integrated lean exhaust gas mass flow bank 1 )	>= >=	0.2 15	sec g		
					statemachine (sm=4) - Rich mixture in catalyst a commanded lambda active primary A/F commanded lambda	=	TRUE TRUE 0.91992	- Unitless		
					for time for time if the following conditions are met, sm moves to sm = 3	>=	3 0.2	sec sec		
					( Secondary O2 sensor voltage bank 1 OR ( Secondary O2 sensor voltage bank 1	>=	0.85083 0.749512	v		
					Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage gradient over 0.05s	>= <= >=	0.749512 0.09944 -0.09944	V V/s V/s		
					Integrated Oxygen mass flow bank 1 )) ( Primary A/F sensor lambda bank 1	> <=	0.15 (a) + (b)	q		
					(a) Primary lambda control set point bank 1 (b) maximum lambda deviation of lean mixture	(a) (b)	0.05005	Unitless		
					Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of rich mixture	>=	(a) - (b) 0.05005	Unitless		
					for time Integrated rich exhaust gas mass flow bank 1	>= >=	0.2 15	sec g		
					Primary A/F commanded lambda bank 1 (a) Primary A/F commanded lambda bank 1 (b) offset to the commanded lambda bank 1	<=	(a) + (b) 0.1001			
					Secondary O2 sensor voltage bank 1 (a) minimum secondary O2 voltage Bank 1	>	(a) + (b)			
					(b) Offset voltage of Secondary O2 sensor ) No pending or confirmed DTCs	-	0.030518 see sheet inhibit	V		
					Basic enable conditions met	=	table see sheet enable tables	-		

BD GROUP: KGMXOBDGO	)7		DIAGNOST TEST GROUP: N		MARY TABLES - 2088	- ECM				EMISSION	IS STDS	: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns		Time Required	MIL IIIun
Downstream Exhaust Gas Sensor	P014A	Compares measured delay response time of Seconday O2 sensor 2 bank 2 with the calibrated threshold when the sensor voltage changes Rich to Lean	Ewma filtered delay response time of Secondary 02 sensor 2, bank 2, Rich to Lean	>	0.75	sec	primary A/F commanded lambda Bank 2	<=	1.09009	Unitless	2	Once per driving cyc	1 Trip
			(a) Raw delay response time of secondary O2 S2B2 Rich to Lean (b) Exhaust mass flow dependent correction for	=	0	sec	primary A/F commanded lambda Bank 2 engine runs	>=	0.8501 TRUE	Unitless			
			delay response time of secondary O2 sensor Rich to Lean				Vehicle speed engine speed engine speed engine load @ full engine mode (see Look-	>= <= >= >=	4.350528278 3520 1000 12 to 19.992	mph rpm rpm %			
							Up-Table #P0420-4) (engine load of full engine mode / 2) @ half engine mode (see Look-Up-Table #P0420- 4)	>=	12 to 19.992	%			
							for time Ratio total charge to charge in cylinder for time Integrated air mass flow	>=	3 1.00024 2 60	sec Unitless sec q			
							measured ambient temperatuer measured ambient pressure measured engine coolant temperature no transmission gear change for time	>= >= = >=	-39.8 50 52.06 TRUE 2	deq C kPa deq C - sec			
							( integrated exhaust gas mass flow after the following operation points are in the monitoring window bank 2	>	60	g			
							( Change of exhaust gas mass flow bank 2: (a) - (b)	<=	6.94444444	g/sec			
							Change of exhaust gas mass flow bank 2: (a) - (b)	>=	-6.94444444	g/sec			
							(a) exhaust gas mass flow bank 2 (b) filtered exhaust usa mass flow bank 2 PT1 time constant Low window exhaust gas mass flow bank 2 (see Look-Up-Table #P0420-2)	<=	1.20029304 22.22222222222 2 to 27.7777777777777	sec g/sec			
							Low window exhaust gas mass flow bank 2	>=	8 3.88888889	g/sec			
							Low window exhaust gas mass flow bank 2  (a) minimum exhaust gas mass flow bank 2	>=	(a) - (b) 3.88888889	g/sec			
							(b) offset exhaust gas mass flow bank 2 at tip-out for time	>=	0.833333333	g/sec sec			
							High window exhaust gas mass flow bank 2 (see Look-Up-Table #P0420-1)	<=	22.22222222222 2 to 27.777777777777	g/sec			
							High window exhaust gas mass flow bank 2	>=	8 3.88888889	g/sec			
							( Modeled catalyst temperature gradient bank 2: (a) - (b)	<=	40.0078	deg C			
							Modeled catalyst temperature gradient bank 2: (a) - (b) (a) Modeled catalyst temperature bank 2	>=	-40.0078	deg C			
							(b) filtered modeled catalyst temperature bank 2 PT1 time constant Low window modeled catalyst temperature	= <=	4.9989321 650.006	sec deg C			
							Low window Modeled catalyst temperature bank 2 High window modeled catalyst temperature bank 2	>= <=	520.022 780.014	deg C			
							bank 2 High window Modeled catalyst temperature bank 2	>=	600.014	deg C			

D GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES EC SMXV04.2088	· IVI			EMISSIONS	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ons	Time Required	MIL III
					Modeled catalyst temperature bank 2 after the first engine start and driving for time	> >=	420.06 12	deg C		
					(( Integrated purge mass flow after a longer	>=	1.51	q		
					purge stop HC concentration factor in chacoal canister	<=	40	factor		
					relative fuel portion of canister purge to injected fuel mass : (a) / (b)	-	0.200012	Unitless		
					(a) fuel mass supplied by canister purge control (b) fuel mass supplied by injection					
					OR					
					open loop canister purge control OR canister purge control mass flow into the	= <=	TRUE 5.55555556	g/sec		
					manifold	ζ=	3.3333333	g/sec		
					(( integrated exhaust gas mass flow bank 2 since engine start (see Look-Up-Table #P0420-3)	>	1600 to 2850	g		
					integrated exhaust gas mass flow bank 2 after the following sensors's readiness	>	40	g		
					Secondary O2 sensor readiness bank 2 Primary A/F sensor readiness bank 2					
					temperature deviation of Primary A/F sensor heater control bank 2: (a) - (b)	>= <	299.991 64.9922	deg C deg C		
					(a) primary A/F sensor temperature set point for heater control (b) measured primary A/F sensor temperature for heater control		800.006	deg C		
					statemachine = sm statemachine (sm =0): inactive a commanded lambda active primary A/F commanded lambda	= = =	FALSE	- Unitless		
					if the following conditions are met, sm moves to sm = 2 Secondary O2 sensor voltage Bank 2	>=	0.749512	V		
					if the following conditions are met, sm moves to sm = 1 Secondary O2 sensor voltage Bank 2	<	0.749512	V		
					Secondary O2 sensor voltage Bank 2 statemachine (sm=1) - rich mixture in catalyst a commanded lambda active	>= =	0.450439 TRUE	V -		
					primary A/F commanded lambda Bank 2 for time	= >=	0.91992	Unitless sec		
					for time  if the following conditions are met, sm  moves to sm = 2	>=	0.2	sec		
					(( Secondary O2 sensor voltage gradient over 0.05s	>=	0.069	V/s		
					Secondary O2 sensor voltage Bank 2 ) OR Secondary O2 sensor voltage Bank 2	>=	0.749512 0.749512	v		
					Secondary O2 sensor voltage Bank 2 ) Integrated exhaust mass flow bank 2	>=	0.749512	v a		
					if the following conditions are met, sm moves to sm = 3	~=	0.12	*		
					( Secondary O2 sensor voltage bank 2 OR	>=	0.85083	V		
					( Secondary O2 sensor voltage bank 2 Secondary O2 sensor voltage gradient over	>= <=	0.749512 0.09944	V V/s		
					0.05s Secondary O2 sensor voltage gradient over	>=	-0.09944	V/s		
	1				0.05s Integrated Oxygen mass flow bank 2	>	0.15	q		

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES EC GMXV04.2088	CM			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditi	ons	Time Required	MIL IIIu
					)) ( Primary A/F sensor lambda bank 2		(a) . (b)			
					(a) Primary lambda control set point bank 2	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean mixture	(b)	0.05005	Unitless		
					Primary A/F sensor lambda bank 2 (a) Primary lambda control set point	>=	(a) - (b)			
					(b) maximum lambda deviation of rich mixture		0.05005	Unitless		
					for time Integrated rich exhaust gas mass flow bank	>=	0.2 15	sec g		
					2 ) And					
					( Secondary O2 sensor voltage bank 2	>	(a) + (b)			
					(a) minimum secondary O2 voltage (b) Offset voltage of Secondary O2 sensor	=	0.030518	V		
					)					
					statemachine (sm=2) - Lean mixture in catalyst					
					a commanded lambda active primary A/F commanded lambda	=	TRUE 1.08008	Unitless		
					for time for time if the following conditions are met,	>= >=	3 0.2	sec sec		
					sm moves to sm = 4					
					Secondary O2 sensor voltage for time	<= >=	0.150146 0.1	V sec		
					) OR					
					( Secondary O2 sensor voltage	<=	0.150146	V		
					Secondary O2 sensor voltage gradient over 0.05s	<=	0.09944	V/s		
					Secondary O2 sensor voltage gradient over 0.05s	>=	-0.09944	V/s		
					Integrated Oxygen mass flow bank 2 ))	>	0.1	q		
					Primary A/F sensor lambda (a) Primary lambda control set point	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean mixture	(b)	0.05005	Unitless		
					Primary A/F sensor lambda (a) Primary lambda control set point	>=	(a) - (b)			
					(b) maximum lambda deviation of rich mixture		0.05005	Unitless		
					for time Integrated lean exhaust gas mass flow bank	>= >=	0.2 15	sec g		
					2					
					statemachine (sm=3) -	=	TRUE	-		
					Lean mixture in catalyst a commanded lambda active bank 2 primary A/F commanded lambda bank 2	-	TRUE	- Unitless		
					for time  for time	>=	1.08008 3 0.2	sec		
					if the following conditions are met, sm moves to sm = 4	>=	0.2	sec		
					( Secondary O2 sensor voltage bank 2	<=	0.150146	v		
					for time OR	>=	0.1	sec		
					( Secondary O2 sensor voltage bank 2	<=	0.150146	v		
					Secondary O2 sensor voltage gradient over 0.05s	<=	0.09944	V/s		
					Secondary O2 sensor voltage gradient over 0.05s	>=	-0.09944	V/s		
					Integrated Oxygen mass flow bank 2 ))	>	0.1	q		
					( Primary A/F sensor lambda bank 2 (a) Primary lambda control set point	<= (a)	(a) + (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of lean mixture	(a) (b)	0.05005	Unitless		
					Primary A/F sensor lambda bank 2 (a) Primary lambda control set point	>=	(a) - (b)			

GROUP: KGMXOBDO	<b>€07</b>		TEST GROUP: KG	GMXV04.2088				MISSIONS	STDS: CALULEV125, I	FEDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs	Time Required	MIL II
					(b) maximum lambda deviation of rich		0.05005	Unitless		
					mixture for time Integrated lean exhaust gas mass flow bank	>= >=	0.2 15	sec q		
					2	<i>-</i> -	15	9		
					( Primary A/F commanded lambda bank 2	<=	(a) + (b)			
					(a) Primary A/F commanded lambda bank 2  (b) offset to the commanded lambda bank 2	l	0.06006			
					Secondary O2 sensor voltage bank 2	>	(a) + (b)			
					(a) minimum secondary O2 voltage Bank 2	1	(a) + (b)			
					(b) Offset voltage of Secondary O2 sensor	=	0.030518	٧		
					) statemachine (sm=4) -	-	TRUE	-		
					Rich mixture in catalvst a commanded lambda active	-	TRUE			
					primary A/F commanded lambda for time	>=	0.91992	Unitless sec		
					for time if the following conditions are met, sm moves to sm = 3	>=	0.2	sec		
					( Secondary O2 sensor voltage bank 2 OR	>=	0.85083	٧		
					( Secondary O2 sensor voltage bank 2	>=	0.749512	V		
					Secondary O2 sensor voltage gradient over 0.05s	<=	0.09944	V/s V/s		
					Secondary O2 sensor voltage gradient over 0.05s	>=				
					Integrated Oxygen mass flow bank 2 )) (	>	0.15	q		
					Primary A/F sensor lambda bank 2 (a) Primary lambda control set point bank 2	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean	(b)	0.05005	Unitless		
					mixture Primary A/F sensor lambda bank 2 (a) Primary lambda control set point	>=	(a) - (b)			
					(b) maximum lambda deviation of rich	l	0.05005	Unitless		
					for time Integrated rich exhaust gas mass flow bank	>= >=	0.2 15	sec g		
					2	1		9		
					EWMA filter strategy	l				
					Fast initialization mode (FIR) EWMA filter initial value for FIR mode	=	0.4	sec		
					EWMA filter constant Maximum number of samples per trip	=	0.3594 2	Unitless counts		
					Total number of samples for FIR mode Response to Step Change mode (RSC)	=	TRUE	counts -		
					Response to Step Change mode inactive absolute difference : ABS( (a) - (b) )	= >	TRUE (b) * (c)	-		
					(a) measured delayed response time (b) EWMA filtered normalized monitoring	l				
					result (c ) Step change detection factor	l	0.45	Sec		
					EWMA filter constant Maximum number of samples per trip	=	0.3594	Unitless counts		
					Total number of samples for RSC mode	=	4	counts		
					EWMA filter constant Total number of samples for stabilized mode	=	0.3594 1	Unitless counts		
					No pending or confirmed DTCs	=	see sheet inhibit			
					Basic enable conditions met	=	table see sheet enable	-		
							tables			
	P014B	Compares measured delay response time of Seconday O2 sensor 2 bank 2 with the calibrated threshold when the sensor	arithmetic filtered delay response time tiArth of	> 0.65 sec	primary A/F commanded lambda Bank 2	<=	1.09009	Unitless	2 counts	1

FEDBIN	STDS: CALULEV125, I	MISSIONS S	E			IC SUMMARY TABLES ECM GMXV04.2088	TEST GROUP: N		)7	GROUP: KGMXOBDG
MIL	Time Required	<b>s</b>	Enable Conditions		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		Unitless	0.8501	>=	primary A/F commanded lambda Bank 2		tiArth = old tiArth + ((((a) - (b)) - old tiArth) * 1/ sample order)			
		-	TRUE	=	engine runs		(a) Raw delay response time of secondary O2			
		mph	4.350528278	>=	Vehicle speed	0 sec	S2B2 Lean to Rich (b) Exhaust mass flow dependent correction for delay response time of secondary O2 sensor			
		rpm	3520	<=	engine speed		Lean to Rich			
		rpm %	1000 12 to 19.992	>= >=	engine speed engine load @ full engine mode (see Look-					
		%	12 to 19.992	>=	Up-Table #P0420-4) (engine load of full engine mode / 2) @ half					
		/6	12 to 15.552	/=	engine road of fail engine mode / 2/ @ ffail engine mode (see Look-Up-Table #P0420- 4)					
		sec Unitless	3 1.00024	>= <	for time Ratio total charge to charge in cylinder					
		sec q	2 100	>= >	for time Integrated air mass flow					
		deg C kPa	-39.8 50	>=	measured ambient temperatuer measured ambient pressure					
		deg C	52.06	>=	measured engine coolant temperature					
		sec	TRUE 2	= >=	no transmission gear change for time					
					(					
		g	100	>	integrated exhaust gas mass flow after the following operation points are in the					
					monitoring window bank 2 (					
		g/sec	6.94444444	<=	Change of exhaust gas mass flow bank 2: (a) - (b)					
		g/sec	-6.94444444	>=	Change of exhaust gas mass flow bank 2: (a) - (b)					
					(a) exhaust gas mass flow bank 2 (b) filtered exhaust gas mass flow bank 2					
		sec	1.20029304		PT1 time constant					
		g/sec	22.22222222222 2 to 27.7777777777777777	<=	Low window exhaust gas mass flow bank 2 (see Look-Up-Table #P0420-2)					
		g/sec	8 3.88888889	>=	Low window exhaust gas mass flow bank 2					
			(a) - (b)	>=	Low window exhaust gas mass flow bank 2					
		g/sec	3.88888889		(a) minimum exhaust gas mass flow bank 2					
		g/sec	0.833333333		(b) offset exhaust gas mass flow bank 2 at					
		sec	3	>=	tip-out for time					
		g/sec	22.22222222222	<=	High window exhaust gas mass flow bank 2					
			2 to 27.77777777777		(see Look-Up-Table #P0420-1)					
		g/sec	8 3.88888889	>=	High window exhaust gas mass flow bank 2					
					) (					
		deg C	40.0078	<=	Modeled catalyst temperature gradient bank 2:					
		deg C	-40.0078	>=	(a) - (b) Modeled catalyst temperature gradient bank 2:					
					(a) - (b) (a) Modeled catalyst temperature bank 2					
		sec	4.9989321	=	(b) filtered modeled catalyst temperature bank 2					
		deg C	650.006	<=	PT1 time constant Low window modeled catalyst temperature					
		deg C	520.022	>=	bank 2 Low window Modeled catalyst temperature					
		deg C	780.014	<=	bank 2 High window modeled catalyst temperature					
		deg C	600.014	>=	bank 2 High window Modeled catalyst temperature					
		deg C	420.06	>	bank 2 Modeled catalyst temperature bank 2 after					
		20g U	.20.00	-	the first engine start and driving		1			

BD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECM GMXV04.2088	м			EMISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ons	Time Required	MIL IIIu
					))					
					Integrated purge mass flow after a longer	>=	1.51	g		
					purge stop HC concentration factor in chacoal canister	<=	40	factor		
					relative fuel portion of canister purge to		0.200012	Unitless		
					relative ruel portion or canister purge to injected fuel mass : (a) / (b) (a) fuel mass supplied by canister purge control (b) fuel mass supplied by injection		0.200012	Unitiess		
					OR					
					open loop canister purge control OR	=	TRUE	-		
					canister purge control mass flow into the manifold	<=	5.55555556	g/sec		
					(( integrated exhaust gas mass flow bank 2	>	1600 to 2850	g		
					since engine start (see Look-Up-Table #P0420-3) integrated exhaust gas mass flow bank 2	>	40	_		
					after the following sensors's readiness	>	40	g		
					Secondary O2 sensor readiness bank 2 Primary A/F sensor readiness bank 2					
					,	>=	299.991	deg C		
					temperature deviation of Primary A/F sensor heater control bank 2: (a) - (b)	<	64.9922	deg C		
					(a) primary A/F sensor temperature set point		800.006	deg C		
					for heater control (b) measured primary A/F sensor temperature for heater control )					
					statemachine = sm					
					statemachine (sm =0) : inactive a commanded lambda active	=	FALSE			
					primary A/F commanded lambda if the following conditions are met,	=	1	Unitless		
					sm moves to sm = 2 Secondary O2 sensor voltage Bank 2 if the following conditions are met,	>=	0.749512	V		
					sm moves to sm = 1					
					Secondary O2 sensor voltage Bank 2 Secondary O2 sensor voltage Bank 2	< >=	0.749512 0.450439	V		
					statemachine (sm=1) - rich mixture in catalyst	=	TRUE			
					a commanded lambda active	=	TRUE	-		
					primary A/F commanded lambda Bank 2 for time	= >=	0.91992	Unitless sec		
					for time if the following conditions are met, sm moves to sm = 2	>=	0.2	sec		
					(( Secondary O2 sensor voltage gradient over	>=	0.069	V/s		
					0.05s Secondary O2 sensor voltage Bank 2	>=	0.749512	V		
					OR Secondary O2 sensor voltage Bank 2	>=	0.749512	v		
					) Integrated exhaust mass flow bank 2	>=	0.12	q		
					if the following conditions are met, sm moves to sm = 3					
					Secondary O2 sensor voltage bank 2 OR	>=	0.85083	٧		
					( Secondary O2 sensor voltage bank 2 Secondary O2 sensor voltage gradient over	>= <=	0.749512	V V/s		
					Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage gradient over	>=	0.09944 -0.09944	V/s V/s		
					0.05s Integrated Oxygen mass flow bank 2	>	0.15	g		
					)) ( Primary A/F sensor lambda bank 2	<=	(a) + (b)			

FEDBIN	STDS: CALULEV125, F	EMISSIONS S				IC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K		7	BD GROUP: KGMXOBDG
MILI	Time Required	ions	Enable Conditi		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
				(a)	(a) Primary lambda control set point bank 2					
		Unitless	0.05005	(b)	(b) maximum lambda deviation of lean					
			(a) - (b)	>=	mixture Primary A/F sensor lambda bank 2					
		Unitless	0.05005		(a) Primary lambda control set point (b) maximum lambda deviation of rich					
		sec	0.2	>=	mixture for time					
		g	15	>=	Integrated rich exhaust gas mass flow bank 2					
					) And					
			(a) + (b)	>	( Secondary O2 sensor voltage bank 2					
		V	0.030518	=	(a) minimum secondary O2 voltage (b) Offset voltage of Secondary O2 sensor					
					)					
					statemachine (sm=2) - Lean mixture in catalvst					
		- Unitless	TRUE 1.08008	=	a commanded lambda active primary A/F commanded lambda					
		sec sec	3 0.2	>= >=	for time for time					
					if the following conditions are met, sm moves to sm = 4					
		V	0.150146	<=	(( Secondary O2 sensor voltage					
		sec	0.1	>=	for time					
					OR					
		V V/s	0.150146 0.09944	<= <=	Secondary O2 sensor voltage Secondary O2 sensor voltage gradient over					
		V/s	-0.09944	>=	0.05s					
			0.1	>	Secondary O2 sensor voltage gradient over 0.05s Integrated Oxygen mass flow bank 2					
		q	0.1	>	integrated Oxygen mass flow bank 2 ))					
			(a) + (b)	<= (a)	Primary A/F sensor lambda (a) Primary lambda control set point					
		Unitless	0.05005	(a) (b)	(b) maximum lambda deviation of lean					
			(a) - (b)	>=	mixture Primary A/F sensor lambda					
		Unitless	0.05005		(a) Primary lambda control set point (b) maximum lambda deviation of rich					
		sec	0.2	>=	mixture for time					
		g	15	>=	Integrated lean exhaust gas mass flow bank 2					
					)					
		-	TRUE	=	statemachine (sm=3) - Lean mixture in catalyst					
		- Unitless	TRUE 1.08008	=	a commanded lambda active bank 2 primary A/F commanded lambda bank 2					
		sec sec	3 0.2	>= >=	for time for time					
					if the following conditions are met, sm moves to sm = 4					
		V	0.150146	<=	( Secondary O2 sensor voltage bank 2					
		sec	0.1	>=	for time OR					
		v	0.150146	<=	( Secondary O2 sensor voltage bank 2					
		V/s	0.09944	<=	Secondary O2 sensor voltage gradient over 0.05s					
		V/s	-0.09944	>=	Secondary O2 sensor voltage gradient over 0.05s					
		q	0.1	>	Integrated Oxygen mass flow bank 2					
			(a) + (b)		( Primary A/F sensor lambda bank 2					
		Unitless		<= (a)	(a) Primary A/F sensor lambda bank 2 (a) Primary lambda control set point (b) maximum lambda deviation of lean					
		Unitiess	0.05005	(b)	mixture					
			(a) - (b)	>=	Primary A/F sensor lambda bank 2 (a) Primary lambda control set point					
		Unitless	0.05005		(b) maximum lambda deviation of rich mixture					

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: N	TIC SUMMARY TABLES ECM			ſ	EMISSION	IS STDS: CALULEV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIum.
					Integrated lean exhaust gas mass flow bank 2	>=	15	g		
					) statemachine (sm=4) - Rich mixture in catalyst a commanded lambda active	=	TRUE TRUE	-		
					primary A/F commanded lambda for time for time if the following conditions are met,	= >= >=	0.91992 3 0.2	Unitless sec sec		
					sm moves to sm = 3 ( Secondary O2 sensor voltage bank 2 OR	>=	0.85083	٧		
					( Secondary O2 sensor voltage bank 2 Secondary O2 sensor voltage gradient over 0.05s	>= <=	0.749512 0.09944	V V/s		
					Secondary O2 sensor voltage gradient over 0.05s Integrated Oxygen mass flow bank 2	>=	-0.09944 0.15	V/s q		
					)) ( Primary A/F sensor lambda bank 2 (a) Primary lambda control set point bank 2	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean mixture Primary A/F sensor lambda bank 2	(b) >=	0.05005 (a) - (b)	Unitless		
					(a) Primary lambda control set point     (b) maximum lambda deviation of rich mixture for time	>=	0.05005	Unitless		
					Integrated rich exhaust gas mass flow bank 2 )	>=	15	g		
					Primary A/F commanded lambda bank 2 (a) Primary A/F commanded lambda bank 2 (b) offset to the commanded lambda bank 2	<=	(a) + (b) 0.1001			
					Secondary O2 sensor voltage bank 2 (a) minimum secondary O2 voltage Bank 2	>	(a) + (b)			
					(b) Offset voltage of Secondary O2 sensor )	=	0.030518	٧		
					( Secondary O2 sensor voltage bank 2 (a) minimum secondary O2 voltage Bank 2	>	(a) + (b)			
					(b) Offset voltage of Secondary O2 sensor	=	0.030518	٧		
					No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit table see sheet enable tables	-		
Downstream Exhaust Gas Sensor	P2270	Compare maximum secondary O2 sensor voltage bank 1 with a calibrated threshold during intrusive commanded rich	Maximum Secondary O2 sensor voltage bank 1 during lambda shifting to rich	< 0.749512 V					once per driving cycle	2 Trips
		lambda			primary A/F commanded lambda primary A/F commanded lambda engine runs	<= >= =	1.09009 0.8501 TRUE	Unitless Unitless		
					Leceleration Fuel Cut-Off (DFCO) for time Vehicle speed endie speed (endie bed @ full engine mode (see Look-Up-Table #P0420-4) (endine load of full engine mode / 2) @ half engine mode (see Look-Up-Table #P0420-6)	=	FALSE 3 4.350528278 3520 1000 12 to 19.992 12 to 19.992	sec mph rpm rpm %		
					engine indue (see Look-up-1 able #P-0420-4) for time Ratio total charge to charge in cylinder for time Integrated air mass flow measured ambient temperatuer	>=	3 1.00024 2 60 -39.8	sec Unitless sec q deq C		

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	М		E	MISSIONS	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Er	nable Condition	s	Time Required	MIL IIIc
					measured ambient pressure measured engine coolant temperature no transmission gear change for time )	>= >= = >=	50 52.06 TRUE 2	kPa deq C - sec		
					( integrated exhaust gas mass flow after the following operation points are in the monitoring window bank 1	>	60	g		
					Change of exhaust gas mass flow bank 1: (a) - (b)	<= 6	6.94444444	g/sec		
					Change of exhaust gas mass flow bank 1: (a) - (b)	>= -	6.94444444	g/sec		
					(a) exhaust gas mass flow bank 1 (b) filtered exhaust gas mass flow bank 1 PT1 time constant Low window exhaust gas mass flow bank 1 (see Look-Up-Table #P0420-2)	<= 22.	1.20029304 22222222222 2 to	sec g/sec		
					Low window exhaust gas mass flow bank 1		.77777777777 8 3.888888889	g/sec		
					Low window exhaust gas mass flow bank 1	>=	(a) - (b)			
					(a) minimum exhaust gas mass flow bank 1	3	3.888888889	g/sec		
					(b) offset exhaust gas mass flow bank 1 at tip-out	(	0.833333333	g/sec		
					for time	>=	3	sec		
					High window exhaust gas mass flow bank 1 (see Look-Up-Table #P0420-1)		22222222222 2 to .777777777777	g/sec		
					High window exhaust gas mass flow bank 1	>= 3	8 3.88888889	g/sec		
					) ( Modeled catalyst temperature gradient bank 1:	<=	40.0078	deg C		
					(a) - (b) Modeled catalyst temperature gradient bank 1:	>=	-40.0078	deg C		
					(a) - (b) (a) Modeled catalyst temperature bank 1 (b) filtered modeled catalyst temperature bank 1	=	4.9989321	sec		
					PT1 time constant Low window modeled catalyst temperature	<=	650.006	deg C		
					bank 1 Low window Modeled catalyst temperature	>=	520.022	deg C		
					bank 1 High window modeled catalyst temperature	<=	780.014	deg C		
					bank 1 High window Modeled catalyst temperature	>=	600.014	deg C		
					bank 1 Modeled catalyst temperature bank 1 after	>	420.06	deg C		
					the first engine start and driving for time ))	>=	12	sec		
					((		1.51	_		
					Integrated purge mass flow after a longer purge stop  HC concentration factor in chacoal canister	>= <=	40	g factor		
					relative fuel portion of canister purge to	~-	0.200012	Unitless		
					injected fuel mass : (a) / (b)  (a) fuel mass supplied by canister purge control  (b) fuel mass supplied by injection		0.200012	Unitiess		
					OR					
					open loop canister purge control OR	=	TRUE	-		
					canister purge control mass flow into the manifold	<= 5	5.55555556	g/sec		

FEDBIN1	S STDS: CALULEV125, F	EMISSIONS S			M	GMXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDG
MIL II	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		g g	1600 to 2850	>	(( integrated exhaust gas mass flow bank 1 since engine start (see Look-Up-Table #P0420-3) integrated exhaust gas mass flow bank 1					
					after the following sensors's readiness ( Secondary O2 sensor readiness bank 1 Primary A/F sensor readiness bank 1					
		deg C deg C	299.991 64.9922	>= <	) temperature deviation of Primary A/F sensor heater control bank 1: (a) - (b)					
		deg C	800.006		(a) primary A/F sensor temperature set point for heater control (b) measured primary A/F sensor temperature for heater control )					
		- Unitless	FALSE 1	= = =	statemachine = sm statemachine (sm =0) : inactive a commanded lambda active primary A/F commanded lambda					
		V	0.749512	>=	if the following conditions are met, sm moves to sm = 2 Secondary O2 sensor voltage bank1					
		v v	0.749512 0.450439	< >=	if the following conditions are met, sm moves to sm = 1 Secondary O2 sensor voltage bank1 Secondary O2 sensor voltage bank1					
		Unitless	TRUE TRUE 0.91992	=	statemachine (sm=1) - rich mixture in catalvst a commanded lambda active primary A/F commanded lambda bank1					
		sec sec	3 0.2	>= >=	for time for time Integrated Rich Gas Storage Capacity					
		q	0.75 200	>= <= >= >=	for time Primary A/F commanded lambda bank 1 Integreted Exhaust mass flow for time					
					if the following conditions are met, sm moves to sm = 2 ((					
		V/s V	0.069 0.749512	>=	Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage bank1					
		V	0.749512 0.12	>=	OR Secondary O2 sensor voltage bank1 ) Integrated exhaust mass flow bank 1					
		3	0.12		if the following conditions are met, sm moves to sm = 3					
		V	0.85083	>=	Secondary O2 sensor voltage bank 1 OR					
		V V/s V/s	0.749512 0.09944 -0.09944	>= <=	Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage gradient over					
		q	0.15	>	0.05s Integrated Oxygen mass flow bank 1 )) (					
		Unitless	(a) + (b) 0.05005	<= (a) (b)	Primary A/F sensor lambda bank 1 (a) Primary lambda control set point bank 1 (b) maximum lambda deviation of lean					
			(a) - (b)	(b) >=	mixture Primary A/F sensor lambda bank 1 (a) Primary lambda control set point					
		Unitless	0.05005	>=	<ul> <li>(b) maximum lambda deviation of rich mixture for time</li> </ul>					

BD GROUP: KGMXOBDG	07		DIAGNOSTI TEST GROUP: KI	IC SUMMARY TABLES EC GMXV04.2088	M			EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Ena	ble Condition	ons	Time Required	MIL IIIur
					( Secondary O2 sensor voltage bank 1 (a) minimum secondary O2 voltage		(a) + (b)			
					(b) Offset voltage of Secondary O2 sensor )	= (	0.030518	V		
					statemachine (sm=2) - Lean mixture in catalyst a commanded lambda active		TRUE	-		
					primary A/F commanded lambda for time	>=	1.08008	Unitless sec		
					for time if the following conditions are met, sm moves to sm = 4	>=	0.2	sec		
					(( Secondary O2 sensor voltage bank 1 for time	<= ( >=	0.150146 0.1	V sec		
					) OR					
					( Secondary O2 sensor voltage		0.150146	V		
					Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage gradient over		0.09944	V/s V/s		
					0.05s Integrated Oxygen mass flow bank 1	>	0.1	q		
					)) ( Primary A/F sensor lambda	<=	(a) + (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of lean	(a)	0.05005	Unitless		
					mixture Primary A/F sensor lambda (a) Primary lambda control set point	>=	(a) - (b)			
					<ul><li>(b) maximum lambda deviation of rich mixture</li></ul>		0.05005	Unitless		
					for time Integrated lean exhaust gas mass flow bank	>= >=	0.2 15	sec g		
					)					
					statemachine (sm=3) - Lean mixture in catalvst a commanded lambda active bank 1	=	TRUE	-		
					primary A/F commanded lambda bank 1 for time		1.08008 3	Unitless sec		
					for time if the following conditions are met, sm moves to sm = 4	>=	0.2	sec		
					( Secondary O2 sensor voltage bank 1 for time	<= ( >=	0.150146 0.1	V sec		
					OR (					
					Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over 0.05s	<= (	0.150146 0.09944	V V/s		
					Secondary O2 sensor voltage gradient over 0.05s		-0.09944	V/s		
					Integrated Oxygen mass flow bank 1 )) (	>	0.1	q		
					Primary A/F sensor lambda bank 1 (a) Primary lambda control set point	(a)	(a) + (b)			
					(b) maximum lambda deviation of lean mixture Primary A/F sensor lambda bank 1		0.05005 (a) - (b)	Unitless		
					(a) Primary lambda control set point (b) maximum lambda deviation of rich		0.05005	Unitless		
					mixture for time	>=	0.2	sec		
					Integrated lean exhaust gas mass flow bank 1 )	>=	15	g		
					statemachine (sm=4) - Rich mixture in catalvst	=	TRUE	-		
					a commanded lambda active primary A/F commanded lambda	=	TRUE 0.91992	- Unitless		
					for time for time	>= >=	3	sec sec		
					Integrated Rich Gas Storage Capacity for time	>= >=				

OBD GROUP: KGMXOBDG	)7		DIAGNOS <sup>*</sup> TEST GROUP: I	FIC SUMMARY TABLES ECM (GMXV04.2088			Е	MISSION	S STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Er	nable Condition	s	Time Required	MIL IIIum.
					Primary A/F commanded lambda bank 1 Integreted Exhaust mass flow for time	<= >= >=	0.75 200	q		
					if the following conditions are met, sm moves to sm = 3					
					Secondary O2 sensor voltage bank 1 OR (	>=	0.85083	V		
					Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over 0.05s	>= <=	0.749512 0.09944 -0.09944	V V/s V/s		
					Secondary O2 sensor voltage gradient over 0.05s Integrated Oxygen mass flow bank 1	>= >	0.15	y/s g		
					" ( Primary A/F sensor lambda bank 1 (a) Primary lambda control set point bank 1	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean mixture Primary A/F sensor lambda bank 1	(b) >=	0.05005 (a) - (b)	Unitless		
					(a) Primary lambda control set point (b) maximum lambda deviation of rich mixture	/=	0.05005	Unitless		
					for time Integrated rich exhaust gas mass flow bank 1	>= >=	0.2 15	sec g		
					)  No pending or confirmed DTCs	= se	ee sheet inhibit table	-		
					Basic enable conditions met	= se	ee sheet enable tables			
	P2271	Compare maximum secondary O2 sensor voltage bank 1 with a calibrated threshold during intrusive commanded rich lambda	Minimum secondary O2 sensor voltage bank 1 during lambda shifting to lean	> 0.150146 V	primary A/F commanded lambda	<=	1.09009	Unitless	once per driving cycle	2 Trips
		a. i.b.d.			primary A/F commanded lambda engine runs (	>= =	0.8501 TRUE	Unitless -		
					Deceleration Fuel Cut-Off (DFCO) for time Vehicle speed	= >= >= 4	FALSE 3 4.350528278	sec mph		
					engine speed engine speed	<= >=	3520 1000	rpm rpm		
					engine load @ full engine mode (see Look- Up-Table #P0420-4) (engine load of full engine mode / 2) @ half engine mode (see Look-Up-Table #P0420-		12 to 19.992 12 to 19.992	%		
					for time Ratio total charge to charge in cylinder for time	>= < >=	3 1.00024 2	sec Unitless sec		
					Integrated air mass flow measured ambient temperatuer	> >=	60 -39.8	q deg C		
					measured ambient pressure measured engine coolant temperature	>= >=	50 52.06	kPa deg C		
					no transmission gear change for time )	= >=	TRUE 2	sec		
					( integrated exhaust gas mass flow after the following operation points are in the monitoring window bank 1	>	60	g		
					Change of exhaust gas mass flow bank 1: (a) - (b)	<= 6	6.94444444	g/sec		
					Change of exhaust gas mass flow bank 1: (a) - (b)	>= -	6.94444444	g/sec		
					(a) exhaust gas mass flow bank 1 (b) filtered exhaust gas mass flow bank 1 PT1 time constant Low window exhaust gas mass flow bank 1 (see Look-Up-Table #P0420-2)	<= 22.	1.20029304 .22222222222 2 to .777777777777	sec g/sec		

BD GROUP: KGMXOBDG	07		DIAGNOSTIO TEST GROUP: KG	C SUMMARY TABLES ECI MXV04.2088	W			MISSIONS	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	Time Required	MIL IIIc
					Low window exhaust gas mass flow bank 1	>=	3.88888889	g/sec		
					Low window exhaust gas mass flow bank 1	>=	(a) - (b)			
					(a) minimum exhaust gas mass flow bank 1		3.888888889	g/sec		
					(b) offset exhaust gas mass flow bank 1 at		0.833333333	g/sec		
					tip-out for time	>=	3	sec		
					High window exhaust gas mass flow bank 1 (see Look-Up-Table #P0420-1)	<=	22.2222222222 2 to 27.77777777777777	g/sec		
					High window exhaust gas mass flow bank 1	>=	8 3.88888889	g/sec		
					) ( Modeled catalyst temperature gradient bank 1:	<=	40.0078	deg C		
					(a) - (b) Modeled catalyst temperature gradient bank	>=	-40.0078	deg C		
					(a) - (b)     (a) Modeled catalyst temperature bank 1     (b) filtered modeled catalyst temperature	=	4.9989321	sec		
					bank 1 PT1 time constant Low window modeled catalyst temperature	<=	650.006	deg C		
					bank 1  Low window Modeled catalyst temperature	>=	520.022	deg C		
					bank 1 High window modeled catalyst temperature	<=	780.014	deg C		
					bank 1 High window Modeled catalyst temperature	>=	600.014	deg C		
					bank 1 Modeled catalyst temperature bank 1 after	>	420.06	deg C		
					the first engine start and driving for time	>=	12	sec		
					)) //					
					Integrated purge mass flow after a longer purge stop	>=	1.51	g		
					HC concentration factor in chacoal canister	<=	40	factor		
					relative fuel portion of canister purge to injected fuel mass : (a) / (b) (a) fuel mass supplied by canister purge control		0.200012	Unitless		
					(b) fuel mass supplied by injection					
					OR					
					open loop canister purge control OR	=	TRUE	-		
					canister purge control mass flow into the manifold	<=	5.55555556	g/sec		
					(( integrated exhaust gas mass flow bank 1 since engine start (see Look-Up-Table #P0420-3)	>	1600 to 2850	g		
					integrated exhaust gas mass flow bank 1 after the following sensors's readiness (	>	40	g		
					Secondary O2 sensor readiness bank 1 Primary A/F sensor readiness bank 1 )					
					temperature deviation of Primary A/F sensor	>= <	299.991 64.9922	deg C deg C		
					heater control bank 1: (a) - (b) (a) primary A/F sensor temperature set point for heater control (b) measured primary A/F sensor temperature for heater control		800.006	deg C		
					statemachine = sm statemachine (sm =0): inactive a commanded lambda active primary A/F commanded lambda	= =	FALSE 1	- Unitless		

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECM GMXV04.2088				EMISSIONS	STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	ı	Enable Condition	ons	Time Required	MIL IIIum
					if the following conditions are met, sm moves to sm = 2 Secondary O2 sensor voltage bank1 if the following conditions are met,	>=	0.749512	V		
					sm moves to sm = 1 Secondary O2 sensor voltage bank1 Secondary O2 sensor voltage bank1 statemachine (sm=1) - rich mixture in	< >= =	0.749512 0.450439 TRUE	V V -		
					catalyst a commanded lambda active primary A/F commanded lambda bank1 for time for time	= = >= >=	TRUE 0.91992 3 0.2	Unitless sec sec		
					if the following conditions are met, sm moves to sm = 2	~	0.2	360		
					Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage bank1	>= >=	0.069 0.749512	V/s V		
					OR Secondary O2 sensor voltage bank1	>=	0.749512	V		
					Integrated exhaust mass flow bank 1 if the following conditions are met,	>=	0.12	q		
					sm moves to sm = 3 ( Secondary O2 sensor voltage bank 1 OR	>=	0.85083	V		
					( Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over	>= <=	0.749512 0.09944	V V/s		
					0.05s Secondary O2 sensor voltage gradient over 0.05s	>=	-0.09944	V/s		
					Integrated Oxygen mass flow bank 1 )) ( Primary A/F sensor lambda bank 1	> <=	0.15 (a) + (b)	g		
					(a) Primary lambda control set point bank 1 (b) maximum lambda deviation of lean	(a) (b)	0.05005	Unitless		
					mixture Primary A/F sensor lambda bank 1 (a) Primary lambda control set point	>=	(a) - (b)			
					(b) maximum lambda deviation of rich mixture for time Integrated rich exhaust gas mass flow bank	>= >=	0.05005 0.2 15	Unitless sec		
					integrated non-exhaust gas mass now bank  1 ) (	>=	15	g		
					Secondary O2 sensor voltage bank 1 (a) minimum secondary O2 voltage (b) Offset voltage of Secondary O2 sensor	> =	(a) + (b) 0.030518	V		
					) Statemachine (sm=2) - Lean mixture in catalyst a commanded lambda active primary A/F commanded lambda for time for time	= = >= >=	TRUE 1.08008 3 0.2	- Unitless sec sec		
					Integrated Oxygen Storage Capacity for time Primary A/F commanded lambda bank 1 Integreted Exhaust mass flow for time	>= >= >= >= >=	1.2 1 1.1499 200 0.2	q sec g sec		
					if the following conditions are met, sm moves to sm = 4	/=	0.2	360		
					(( Secondary O2 sensor voltage bank 1 for time )	<= >=	0.150146 0.1	V sec		
					OR ( Secondary O2 sensor voltage Secondary O2 sensor voltage gradient over	<= <=	0.150146 0.09944	V V/s		
					0.05s Secondary O2 sensor voltage gradient over 0.05s	>=	-0.09944	V/s		

D GROUP: KGMXOBDG	7		TEST GROUP: KG	SUMMARY TABLES E MXV04.2088	CIVI			EMISSIONS	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditi	ons	Time Required	MIL III
					Integrated Oxygen mass flow bank 1	>	0.1	g		
					" (					
					Primary A/F sensor lambda (a) Primary lambda control set point	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean	(b)	0.05005	Unitless		
					mixture Primary A/F sensor lambda	>=	(a) - (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of rich		0.05005	Unitless		
					mixture					
					for time Integrated lean exhaust gas mass flow bank	>= >=	0.2 15	sec g		
					1			, and the second		
					statemachine (sm=3) -	-	TRUE	-		
					Lean mixture in catalyst a commanded lambda active bank 1	=	TRUE	-		
					primary A/F commanded lambda bank 1	=	1.08008	Unitless		
					for time for time	>=	3 0.2	sec sec		
					Integrated Oxygen Storage Capacity for time	>= >=	1.2 1	g sec		
					Primary A/F commanded lambda bank 1	>=	1.1499	sec		
					Integreted Exhaust mass flow for time	>=	200 0.2	q sec		
					)		0.2	000		
					if the following conditions are met, sm moves to sm = 4					
					Secondary O2 sensor voltage bank 1	<=	0.150146	V		
					for time OR	>=	0.1	sec		
					(		0.450440			
					Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over	<= <=	0.150146 0.09944	V V/s		
					0.05s Secondary O2 sensor voltage gradient over	>=	-0.09944	V/s		
					0.05s					
					Integrated Oxygen mass flow bank 1 ))	>	0.1	g		
					Primary A/F sensor lambda bank 1	<=	(a) + (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of lean	(a) (b)	0.05005	Unitless		
					mixture Primary A/F sensor lambda bank 1	>=	(a) - (b)			
					(a) Primary lambda control set point			H-M		
					(b) maximum lambda deviation of rich mixture		0.05005	Unitless		
					for time Integrated lean exhaust gas mass flow bank	>= >=	0.2 15	sec g		
					1	-	15	9		
					statemachine (sm=4) -	=	TRUE	-		
					Rich mixture in catalvst a commanded lambda active	=	TRUE			
					primary A/F commanded lambda	=	0.91992	Unitless		
					for time for time	>= >=	3 0.2	sec sec		
					if the following conditions are met, sm moves to sm = 3					
					( Secondary O2 sensor voltage bank 1	>=	0.85083	V		
					OR (					
					Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over	>= <=	0.749512 0.09944	V V/s		
					0.05s					
					Secondary O2 sensor voltage gradient over 0.05s	>=	-0.09944	V/s		
					Integrated Oxygen mass flow bank 1	>	0.15	g		
					)) ( Primary A/F sensor lambda bank 1 (a) Primary lambda control set point bank 1	<= (a)	(a) + (b)			
							0.05005	Linkin		
					(b) maximum lambda deviation of lean mixture	(b)	0.05005	Unitless		
	1				Primary A/F sensor lambda bank 1	>=	(a) - (b)			

GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: N					MISSIONS	STDS: CALULEV125, FEI	DBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs	Time Required	MIL III
					(b) maximum lambda deviation of rich mixture for time Integrated rich exhaust gas mass flow bank	>= >=	0.05005 0.2 15	Unitless sec g		
					No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit table see sheet enable tables	-		
	P2270	Compare maximum secondary O2 sensor voltage bank 1 with	Maximum Secondary O2 sensor voltage bank 1	< 0.749512 V			tables		once per	2 T
		a calibrated threshold during intrusive commanded rich lambda	during lambda shifting to rich		primary A/F commanded lambda primary A/F commanded lambda engine runs	<= >= =	1.09009 0.8501 TRUE	Unitless Unitless	driving cycle	
					Deceleration Fuel Cut-Off (DFCO) for time Vehicle speed engine speed engine speed engine load @ full engine mode (see Look-Up-Table #P0420-4) (engine load of full engine mode / 2) @ half engine mode (see Look-Up-Table #P0420-	=	FALSE 3 4.350528278 3520 1000 12 to 19.992 12 to 19.992	sec mph rpm rpm %		
					4) for time Ratio total charge to charge in cylinder for time Integrated air mass flow measured ambient temperatuer measured ambient pressure measured engine coolant temperature no transmission gear change for time }	\" \ \" \ \" \ \" \ \" \ \" \ \" \ \"	3 1.00024 2 60 -39.8 50 52.06 TRUE 2	sec Unitless sec q deg C kPa deg C - sec		
					( integrated exhaust gas mass flow after the following operation points are in the monitoring window bank 1	>	60	g		
					Change of exhaust gas mass flow bank 1: (a) - (b)	<=	6.94444444	g/sec		
					Change of exhaust gas mass flow bank 1: (a) - (b)	>=	-6.94444444	g/sec		
					(a) exhaust gas mass flow bank 1 (b) filtered exhaust gas mass flow bank 1 PT1 time constant Low window exhaust gas mass flow bank 1 (see Look-Up-Table #P0420-2)	<=	1.20029304 22.22222222222 2 to 27.77777777777777777777777777777777777	sec g/sec		
					Low window exhaust gas mass flow bank 1	>=	8 3.88888889	g/sec		
					Low window exhaust gas mass flow bank 1	>=	(a) - (b)			
					(a) minimum exhaust gas mass flow bank 1		3.888888889	g/sec		
					(b) offset exhaust gas mass flow bank 1 at tip-out for time	>=	0.833333333	g/sec sec		
					for time  High window exhaust gas mass flow bank 1 (see Look-Up-Table #P0420-1)	<=	3 22.22222222222 2 to 27.77777777777777777777777777777777777	g/sec		
					High window exhaust gas mass flow bank 1	>=	8 3.888888889	g/sec		
					) ( Modeled catalyst temperature gradient bank	<=	40.0078	deg C		

LEV125, FEDB	S STDS: CALULEV12	EMISSIONS :				GMXV04.2088	TEST GROUP: K		7	GROUP: KGMXOBDG
juired M	Time Required	ens	Enable Conditio		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		deg C	-40.0078	>=	Modeled catalyst temperature gradient bank					
		sec	4.9989321	=	(a) - (b) (a) Modeled catalyst temperature bank 1 (b) filtered modeled catalyst temperature					
		deg C	650.006	<=	bank 1 PT1 time constant Low window modeled catalyst temperature					
		deg C	520.022	>=	bank 1 Low window Modeled catalyst temperature					
		deg C	780.014	<=	bank 1 High window modeled catalyst temperature					
		deg C	600.014	>=	bank 1 High window Modeled catalyst temperature					
		deg C	420.06	>	bank 1 Modeled catalyst temperature bank 1 after					
		sec	12	>=	the first engine start and driving for time					
			1.51		((					
		g		>=	Integrated purge mass flow after a longer purge stop					
		factor	40	<=	HC concentration factor in chacoal canister					
		Unitless	0.200012		relative fuel portion of canister purge to injected fuel mass : (a) / (b)					
					<ul> <li>(a) fuel mass supplied by canister purge control</li> </ul>					
					(b) fuel mass supplied by injection					
					OR					
		-	TRUE	=	open loop canister purge control OR					
		g/sec	5.55555556	<=	canister purge control mass flow into the manifold					
			1600 to 2850	>	(( integrated exhaust gas mass flow bank 1					
		g	1000 to 2000		since engine start (see Look-Up-Table					
		g	40	>	#P0420-3) integrated exhaust gas mass flow bank 1 after the following sensors's readiness					
					Secondary O2 sensor readiness bank 1 Primary A/F sensor readiness bank 1					
		deg C	299.991	>=	)					
		deg C	64.9922	<	temperature deviation of Primary A/F sensor heater control bank 1: (a) - (b)					
		deg C	800.006		(a) primary A/F sensor temperature set point for heater control					
					(b) measured primary A/F sensor temperature for heater control					
					statemachine = sm					
			FALSE	=	statemachine (sm =0) : inactive a commanded lambda active					
		Unitless	1	=	primary A/F commanded lambda if the following conditions are met,					
1		V	0.749512	>=	sm moves to sm = 2 Secondary O2 sensor voltage bank1					
1					if the following conditions are met, sm moves to sm = 1					
		V	0.749512 0.450439	< >=	Secondary O2 sensor voltage bank1 Secondary O2 sensor voltage bank1					
1		-	TRUE	=	statemachine (sm=1) - rich mixture in catalvst					
1		- Unitless	TRUE 0.91992	=	a commanded lambda active primary A/F commanded lambda bank1					
1		sec sec	3 0.2	= >= >=	for time for time					
		sec	0.2							
1			0.75	>= >=	Integrated Rich Gas Storage Capacity for time					
		q	0.75 200	<= >=	Primary A/F commanded lambda bank 1 Integreted Exhaust mass flow					
l				>=	for time					

Component / System				MXV04.2088					STDS: CALULEV125, F	ED-BIN12
	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition		Time Required	MIL IIIu
					(( Secondary O2 sensor voltage gradient over	>=	0.069	V/s		
					0.05s					
					Secondary O2 sensor voltage bank1	>=	0.749512	V		
					OR Secondary O2 sensor voltage bank1	>=	0.749512	V		
					) Integrated exhaust mass flow bank 1	>=	0.12	q		
					if the following conditions are met,					
					sm moves to sm = 3					
					Secondary O2 sensor voltage bank 1 OR	>=	0.85083	V		
					( Secondary O2 sensor voltage bank 1	>=	0.749512	V		
					Secondary O2 sensor voltage gradient over 0.05s	<=	0.09944	V/s		
					Secondary O2 sensor voltage gradient over 0.05s	>=	-0.09944	V/s		
					Integrated Oxygen mass flow bank 1 ))	>	0.15	q		
					( Primary A/F sensor lambda bank 1 (a) Primary lambda control set point bank 1	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean	(b)	0.05005	Unitless		
					mixture Primary A/F sensor lambda bank 1	>=	(a) - (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of rich		0.05005	Unitless		
					mixture for time	>=	0.2	sec		
					Integrated rich exhaust gas mass flow bank	>=	15	g		
					)		() (1)			
					Secondary O2 sensor voltage bank 1 (a) minimum secondary O2 voltage	>	(a) + (b)			
					(b) Offset voltage of Secondary O2 sensor	=	0.030518	V		
					statemachine (sm=2) -					
					Lean mixture in catalvst a commanded lambda active	=	TRUE			
					primary A/F commanded lambda for time	= >=	1.08008	Unitless sec		
					for time if the following conditions are met,	>=	0.2	sec		
					sm moves to sm = 4					
					Secondary O2 sensor voltage bank 1 for time	<= >=	0.150146 0.1	V sec		
					) OR	>=	0.1	sec		
					( Secondary O2 sensor voltage	<=	0.150146	v		
					Secondary O2 sensor voltage gradient over 0.05s	<=	0.09944	V/s		
					Secondary O2 sensor voltage gradient over	>=	-0.09944	V/s		
					0.05s Integrated Oxygen mass flow bank 1	>	0.1	q		
					)) ( Primary A/F sensor lambda	<=	(a) + (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of lean	(a)		Unitless		
					mixture	(b)	0.05005	Uniuess		
					Primary A/F sensor lambda (a) Primary lambda control set point	>=	(a) - (b)	11-20		
					(b) maximum lambda deviation of rich mixture		0.05005	Unitless		
					for time Integrated lean exhaust gas mass flow bank	>= >=	0.2 15	sec g		
					)					
					statemachine (sm=3) -	=	TRUE	-		
					Lean mixture in catalyst a commanded lambda active bank 1	=	TRUE	-		
					primary A/F commanded lambda bank 1 for time	= >=	1.08008	Unitless sec		

Component / System Fa	ault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	if the following conditions are met, sm moves to sm = 4 ( Secondary O2 sensor voltage bank 1 for time OR ( Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage gradient over 0.05s Integrated Oxygen mass flow bank 1 ( Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of lean mixture Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of rich mixture for time lambda deviation of rich mixture for time	<= >= <= <= >=	0.150146 0.1 0.150146 0.09944 -0.09944 0.1 (a) + (b) 0.05005 (a) - (b)	v sec v/s v/s u durittess	Time Required	MIL IIIum
					sm moves to sm = 4 ( Secondary O2 sensor voltage bank 1 for time OR ( Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over 0.05 Secondary O2 sensor voltage gradient over 0.05 Secondary O2 sensor voltage gradient over 0.05 Integrated Oxygen mass flow bank 1 (a) Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of lean mixture Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of rich mixture for time	>= <= <= >= > (a) (b)	0.1 0.150146 0.09944 -0.09944 0.1 (a) + (b) 0.05005 (a) - (b)	v V/s V/s q		
					for time OR  ( Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage gradient over 0.05s Integrated Oxygen mass flow bank 1 ))  ( Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of lean mixture Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of rich mixture  (a) Primary lambda control set point (b) maximum lambda deviation of rich mixture  (b) maximum lambda deviation of rich mixture  (or time	>= <= <= >= > (a) (b)	0.1 0.150146 0.09944 -0.09944 0.1 (a) + (b) 0.05005 (a) - (b)	v V/s V/s q		
					Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage gradient over 0.05s Integrated Oxygen mass flow bank 1 )) Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of lean mixture Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of rich mixture for time	<= >= > (a) (b)	0.09944 -0.09944 0.1 (a) + (b) 0.05005 (a) - (b)	V/s V/s q		
					Secondary O2 sensor voltage gradient over 0.05s Integrated Oxygen mass flow bank 1 ))  Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of lean mixture  Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of rich mixture for time	> <= (a) (b)	0.1 (a) + (b) 0.05005 (a) - (b)	q		
					Integrated Oxygen mass flow bank 1 )) (Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of lean mixture Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of rich mixture for time	<= (a) (b)	(a) + (b) 0.05005 (a) - (b)			
					(a) Primary lambda control set point (b) maximum lambda deviation of lean mixture Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of rich mixture for time	(a) (b)	0.05005 (a) - (b)	Unitless		
					(b) maximum lambda deviation of lean mixture Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of rich mixture for time	(b)	(a) - (b)	Unitless		
					Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of rich mixture for time	>=				
					(b) maximum lambda deviation of rich mixture for time					
					mixture for time		0.05005	Unitless		
						>=	0.2	sec		
					Integrated lean exhaust gas mass flow bank 1	>=	15	9		
					statemachine (sm=4) - Rich mixture in catalyst	=	TRUE	-		
					a commanded lambda active	-	TRUE	-		
					primary A/F commanded lambda for time	= >=	0.91992 3	Unitless sec		
					for time	>=	0.2	sec		
					Integrated Rich Gas Storage Capacity for time	>= >=				
					Primary A/F commanded lambda bank 1 Integreted Exhaust mass flow	<= >=	0.75 200	a		
					for time  if the following conditions are met,	>=	200	ų		
					sm moves to sm = 3 ( Secondary O2 sensor voltage bank 1	>=	0.85083	v		
					OR (					
					Secondary O2 sensor voltage bank 1 Secondary O2 sensor voltage gradient over 0.05s	>= <=	0.749512 0.09944	V V/s		
					Secondary O2 sensor voltage gradient over 0.05s	>=	-0.09944	V/s		
					Integrated Oxygen mass flow bank 1 )) (	>	0.15	q		
					Primary A/F sensor lambda bank 1 (a) Primary lambda control set point bank 1	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean mixture	(b)	0.05005	Unitless		
					mixture Primary A/F sensor lambda bank 1 (a) Primary lambda control set point (b) maximum lambda deviation of rich	>=	(a) - (b) 0.05005	Unitless		
					mixture					
					for time Integrated rich exhaust gas mass flow bank 1	>=	0.2 15	sec g		
					)  No pending or confirmed DTCs	=	see sheet inhibit	-		
					Basic enable conditions met	=	table see sheet enable tables			
-	P2273 C	Compare maximum secondary O2 sensor voltage bank 2 with	Minimum secondary O2 sensor voltage bank 2	> 0.150146 V	primary A/F commanded lambda	<=	1.09009	Unitless	once pe	
	a la	a calibrated threshold during intrusive commanded rich ambda	during lambda shifting to lean		primary A/F commanded lambda	>=	0.8501	Unitless	driving cy	cle
					engine runs (	=	TRUE	-		
					Deceleration Fuel Cut-Off (DFCO) for time	= >=	FALSE 3 4.350528278	- sec		ı

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	M		<u>EMISSIONS</u>	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	as	Time Required	MIL IIIu
					engine speed engine speed engine load @ full engine mode (see Look-	<= 3520 >= 1000 >= 12 to 19.992	rpm rpm %		
					Up-Table #P0420-4) (engine load of full engine mode / 2) @ half engine mode (see Look-Up-Table #P0420-	>= 12 to 19.992	%		
					for time Ratio total charge to charge in cylinder for time	>= 3 < 1.00024 >= 2	sec Unitless sec		
					Integrated air mass flow measured ambient temperatuer	> 60 >= -39.8	q deg C		
					measured ambient pressure measured engine coolant temperature	>= 50 >= 52.06	kPa deg C		
					no transmission gear change for time	= TRUE >= 2	sec		
					( integrated exhaust gas mass flow after the following operation points are in the monitoring window bank 2	> 60	g		
					( Change of exhaust gas mass flow bank 2: (a) - (b)	<= 6.944444444	g/sec		
					Change of exhaust gas mass flow bank 2: (a) - (b)	>= -6.94444444	g/sec		
					(a) exhaust gas mass flow bank 2 (b) filtered exhaust gas mass flow bank 2				
					PT1 time constant Low window exhaust gas mass flow bank 2 (see Look-Up-Table #P0420-2)	1.20029304 <= 22.22222222222 2 to	sec g/sec		
					Low window exhaust gas mass flow bank 2	27.77777777777 8 >= 3.888888889	g/sec		
					Low window exhaust gas mass flow bank 2	>= (a) - (b)			
					(a) minimum exhaust gas mass flow bank 2	3.88888889	g/sec		
					(b) offset exhaust gas mass flow bank 2 at	0.833333333	g/sec		
					tip-out for time	>= 3	sec		
					High window exhaust gas mass flow bank 2 (see Look-Up-Table #P0420-1)	<= 22.22222222222 2 to 27.7777777777777	g/sec		
					High window exhaust gas mass flow bank 2	>= 3.888888889	g/sec		
					) ( Modeled catalyst temperature gradient bank 2:	<= 40.0078	deg C		
					(a) - (b) Modeled catalyst temperature gradient bank 2:	>= -40.0078	deg C		
					(a) - (b)    (a) Modeled catalyst temperature bank 2    (b) filtered modeled catalyst temperature bank 2	= 4.9989321	sec		
					PT1 time constant Low window modeled catalyst temperature	<= 650.006	deg C		
					bank 2 Low window Modeled catalyst temperature	>= 520.022	deg C		
					bank 2 High window modeled catalyst temperature	<= 780.014	deg C		
					bank 2 High window Modeled catalyst temperature	>= 600.014	deg C		
					bank 2 Modeled catalyst temperature bank 2 after	> 420.06	deg C		
					the first engine start and driving for time	>= 12	sec		
					((				
					Integrated purge mass flow after a longer purge stop	>= 1.51	g		
					HC concentration factor in chacoal canister	<= 40	factor		

BD GROUP: KGMXOBDG0	7		TEST GROUP: KG	C SUMMARY TABLES E MXV04.2088	···			EMISSIONS S	TDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Ena	ble Condition	ns	Time Required	MIL III
					relative fuel portion of canister purge to	C	0.200012	Unitless		
					injected fuel mass : (a) / (b) (a) fuel mass supplied by canister purge control					
					(b) fuel mass supplied by injection					
					OR					
					open loop canister purge control OR	=	TRUE	-		
					canister purge control mass flow into the manifold	<= 5.5	55555556	g/sec		
					(( integrated exhaust gas mass flow bank 2 since engine start (see Look-Up-Table	> 16	00 to 2850	g		
					#P0420-3) integrated exhaust gas mass flow bank 2	>	40	g		
					after the following sensors's readiness ( Secondary O2 sensor readiness bank 2					
					Primary A/F sensor readiness bank 2					
					temperature deviation of Primary A/F sensor		299.991 64.9922	dea C deg C		
					heater control bank 2: (a) - (b) (a) primary A/F sensor temperature set point		800.006	deg C		
					for heater control (b) measured primary A/F sensor					
					temperature for heater control )					
					statemachine = sm					
					statemachine (sm =0) : inactive a commanded lambda active		FALSE			
					primary A/F commanded lambda if the following conditions are met,	=	1	Unitless		
					sm moves to sm = 2 Secondary O2 sensor voltage bank1	>= 0	0.749512	V		
					if the following conditions are met, sm moves to sm = 1					
					Secondary O2 sensor voltage bank1 Secondary O2 sensor voltage bank1	>= 0	0.749512 0.450439 TRUE	V		
					statemachine (sm=1) - rich mixture in catalvst a commanded lambda active		TRUE	-		
					primary A/F commanded lambda bank1	=	0.91992	Unitless		
					for time for time if the following conditions are met, sm	>= >=	3 0.2	sec sec		
					moves to sm = 2					
					Secondary O2 sensor voltage gradient over 0.05s	>=	0.069	V/s		
					Secondary O2 sensor voltage bank1	>= (	0.749512	V		
					OR Secondary O2 sensor voltage bank1	>= 0	0.749512	v		
					) Integrated exhaust mass flow bank 2	>=	0.12	q		
					if the following conditions are met, sm moves to sm = 3					
					( Secondary O2 sensor voltage bank 2 OR	>=	0.85083	٧		
					( Secondary O2 sensor voltage bank 2	>= 0	0.749512	v		
					Secondary O2 sensor voltage gradient over 0.05s	<=	0.09944	V/s		
					Secondary O2 sensor voltage gradient over 0.05s		-0.09944	V/s		
					Integrated Oxygen mass flow bank 2 ))	>	0.15	q		
					( Primary A/F sensor lambda bank 2 (a) Primary lambda control set point bank 2	<= (a)	(a) + (b)			
					(b) maximum lambda deviation of lean		0.05005	Unitless		
					mixture Primary A/F sensor lambda bank 2		(a) - (b)			

FEDBIN	STDS: CALULEV125, I	EMISSIONS S				IC SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K		07	GROUP: KGMXOBDG
MIL	Time Required	ons	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		Unitless	0.05005		(b) maximum lambda deviation of rich					
		sec g	0.2 15	>= >=	mixture for time Integrated rich exhaust gas mass flow bank					
					2					
			(a) + (b)	>	Secondary O2 sensor voltage bank 2 (a) minimum secondary O2 voltage					
		V	0.030518	=	(b) Offset voltage of Secondary O2 sensor					
			TRUE		statemachine (sm=2) - Lean mixture in catalvst a commanded lambda active					
		Unitless sec	1.08008	= = >=	primary A/F commanded lambda for time					
		sec	0.2	>=	for time					
		q sec	1.2	>= >=	Integrated Oxygen Storage Capacity for time					
			1.1499 200	>=	Primary A/F commanded lambda bank 2 Integreted Exhaust mass flow					
		g sec	0.2	>= >=	for time					
					if the following conditions are met, sm moves to sm = 4					
		V sec	0.150146 0.1	<= >=	(( Secondary O2 sensor voltage bank 2 for time					
					) OR					
		V V/s	0.150146 0.09944	<= <=	Secondary O2 sensor voltage Secondary O2 sensor voltage gradient over					
		V/s	-0.09944	>=	0.05s Secondary O2 sensor voltage gradient over					
		q	0.1	>	0.05s Integrated Oxygen mass flow bank 2					
			(a) + (b)	<=	// ( Primary A/F sensor lambda					
		Unitless	0.05005	(a) (b)	(a) Primary lambda control set point (b) maximum lambda deviation of lean					
			(a) - (b)	>=	mixture Primary A/F sensor lambda (a) Primary lambda control set point					
		Unitless	0.05005		(a) Primary lambda control set point (b) maximum lambda deviation of rich mixture					
		sec g	0.2 15	>= >=	for time Integrated lean exhaust gas mass flow bank					
		ŭ l			2					
		-	TRUE	=	statemachine (sm=3) -					
			TRUE	=	Lean mixture in catalvst a commanded lambda active bank 2					
		Unitless sec	1.08008	= >=	primary A/F commanded lambda bank 2 for time					
		sec	0.2 1.2	>=	for time (					
		g sec	1	>=	Integrated Oxygen Storage Capacity for time					
		q	1.1499 200	>=	Primary A/F commanded lambda bank 2 Integreted Exhaust mass flow					
		sec	0.2	>=	for time ) if the following conditions are met,					
					sm moves to sm = 4					
		V sec	0.150146 0.1	<= >=	Secondary O2 sensor voltage bank 2 for time OR					
		v	0.150146	<=	( Secondary O2 sensor voltage bank 2					
		V/s	0.09944	<=	Secondary O2 sensor voltage gradient over 0.05s					
		V/s	-0.09944	>=	Secondary O2 sensor voltage gradient over 0.05s					
		q	0.1	>	Integrated Oxygen mass flow bank 2 ))					
			(a) + (b)	<= (a)	( Primary A/F sensor lambda bank 2 (a) Primary lambda control set point					

OBD GROUP: KGMXOBDG	07		DIAGNOS <sup>*</sup> TEST GROUP: 1	TIC SUMMARY TAB	LES ECM				EMISSION	IS STDS:	CALULEV1	25, FED-	-BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Va	ilue	Secondary Parameters		Enable Condition	ns	т	ime Required		MIL IIIum.
						(b) maximum lambda deviation of lean mixture Primary A/F sensor lambda bank 2 (a) Primary Nambda control set point (b) maximum lambda deviation of rich mixture for time lintegrated lean exhaust gas mass flow bank 2	(b) >= >= >= >=	0.05005 (a) - (b) 0.05005 0.2 15	Unitless Unitless sec g				
						statemachine (sm=4) - Rich mixture in catalyst a commanded lambda active primary AFF commanded lambda for time for time if the following conditions are met, sm moves to sm = 3	= = = = = = = = = = = = = = = = = = = =	TRUE TRUE 0.91992 3 0.2	- Unitless sec sec				
						Secondary O2 sensor voltage bank 2 OR ( Secondary O2 sensor voltage bank 2 Secondary O2 sensor voltage gradient over 0.05s Secondary O2 sensor voltage gradient over 0.05s Integrated Oxygen mass flow bank 2	>= >= <= >= >=	0.85083 0.749512 0.09944 -0.09944 0.15	V V V/s V/s				
						// // // // // // // // // // // // //	<= (a) (b) >=	(a) + (b) 0.05005 (a) - (b) 0.05005 0.2	Unitless Unitless				
						to time integrated rich exhaust gas mass flow bank 2 )  No pending or confirmed DTCs  Basic enable conditions met	X = = = =	see sheet inhibit table see sheet enable tables	g -				
O2 Sensor Circuit Bank 1 Sensor 2	P0140	Path 1: Signal range check - open circuit	Mean value of difference between loaded and unloaded sensor voltage for 3 load pulses for time	>= 2.797852 >= 5	sec	Fault suspicion is active for time, which is the followina: (  Output voltage of O2 sensor Output voltage of O2 sensor )  Enable conditions for operating readiness of O2 sensor 2 bank 1(refer above common conditions)	>= >= <= =	3 0.322266 0.551758 TRUE	v v	0	sec co	ontinuous	2 Trips
		Path 2: Internal resistance plausibility - interrupted ground wire	Internal resistance of O2 sensor	> 40000		Exhaust gas temperature at O2 sensor  Enable conditions for operating readiness of O2 sensor 2 bank 1 (refer above common conditions) Basic enable conditions met No pending or confirmed DTCs	> = = = =	599.991 TRUE  see sheet enable tables see sheet inhibit tables	deg C				
O2 Sensor Circuit Bank 2 Sensor 2	P0160	Path 1: Signal range check - open circuit	Mean value of difference between loaded and unloaded sensor voltage for 3 load pulses for time	>= 2.797852 >= 5	V	Fault suspicion is active for time, which is the following: ( Output voltage of O2 sensor Output voltage of O2 sensor ) Enable conditions for operating readiness of O2 sensor 2 bank 2 (refer above common conditions)	>= >= ==	3 0.322266 0.551758 TRUE	v v	0	sec co	ontinuous	2 Trips

BD GROUP: KGMXOBDG	07		DIAGNOS TEST GROUP:							EMISSIONS	STDS: CALULEV125, FED	DBIN1:
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditio	ns	Time Required	MIL III
		Path 2: Internal resistance plausibility - interrupted ground wire	Internal resistance of O2 sensor	>	40000	Ohm	Exhaust gas temperature at O2 sensor  Enable conditions for operating readiness of O2 sensor 2 bank 2 (refer above common	> =	599.991 TRUE	deg C		
							conditions) Basic enable conditions met No pending or confirmed DTCs	=	see sheet enable tables see sheet inhibit tables	-		
Sensor Circuit Bank 1 Sensor 2	P0138	Signal range check - short circuit to battery	Set point lambda	>	0.995	-	Common Conditions: Enable conditions for operating readiness of	=	TRUE	-	1 sec continuous	2 7
			Output voltage of O2 sensor	>	1.201172	V	O2 sensor 2 bank 1 ( (Battery voltage Enable conditions for the status of signal fault in the previous driving with the availability of internal resistance value	> =	10.9 TRUE	V -		
							( Internal resistance is valid	=	TRUE	-		
							( Internal resistance is valid after X	=	TRUE	-		
							measurements  X = counter for validating internal resistance	>	10	counts		
							O2 Sensor open circuit fault detected	=	FALSE	-		
							Expected downstream O2 sensor readiness	=	TRUE	-		
							Protective heating is finished	=	TRUE	-		
							Status of downstream O2 sensor heating for hot engine conditions (	=	TRUE	-		
							Engine coolant temperature Conditions for enabling sensor heating for O2 sensor	> =	-9.8 TRUE	deg C		
							( ECU is not in POST DRIVE state Battery Voltage Engine start is completed )	= <= =	TRUE 25.59961 TRUE	V		
							) Dew point end is reached (	=	TRUE	-		
							( a >= (b) * (((c) * (d)) + 1) Where: (a) Integrated heat release since engine start					
							(b) Downstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up- Table #P0138-1)	=	0 to 120	kJ		
							(c ) adjustment factor (see Look-Up-Table #P0138-2) (d) Number of drive cycles without reaching dew point end of downstream sensor	=	0 to 0.5	-		
							(limited to max of 4) ) Dew point end is reached at upstream of					
							catalyst ( a >= (b) * (((c) * (d)) + 1) Where:					
							(a) Integrated heat release since engine start	l				
							(b) Upstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up-Table #P0138-3)	=	0 to 96	kJ		
							(c) adjustment factor (see Look-Up-Table #P0138-4) (d) Number of drive cycles without reaching dew point end of downstream sensor (limited to max of 3)	=	0 to 0.5	-		
							)	ı				

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: M	TIC SUMMARY TABLES ECM			ı	MISSION	IS STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIum.
					where A: Operating readiness, HEGO sensor 2 bank 1 / Debouncing time protective heating finished	=	15	sec		
					B: Operating readiness, HEGO sensor 2 bank 1 / Debouncing time for expected operating readiness	=	30	sec		
					) OR Exhaust gas sensor ready for operation	=	TRUE	_		
					( Status of heating enable conditions for the sensor operating readiness	=	TRUE	-		
					( Protective heating is finished for time	= >=	TRUE 15	- sec		
					OR Internal resistance OK for operating readiness	=	TRUE	-		
					Unfiltered internal resistance of HEGO sensor	<=	2000	Ohm		
					Protective heating is finished Counter for valid internal resistance measurements	= >=	TRUE 3	counts		
					) ) Status of sensor signal enable conditions for the sensor operating readiness	=	TRUE	-		
					( Internal resistance OK for operating readiness OR	=	TRUE	-		
					( ( Output voltage of HEGO Sensor	>=	0.551758	٧		
					and Output voltage of HEGO Sensor	<=	1.201172	V		
					OR Output voltage of HEGO Sensor	<=	0.322266	V		
					OR Sensor voltage stuck in countervoltage band	=	TRUE	-		
					( ( ( Output voltage of HEGO Sensor Output voltage of HEGO Sensor	< >	0.551758 0.322266	V V		
					( Sensor open circuit fault existed in previous	=	TRUE	-		
					trip OR Sensor open circuit fault currently not detected	=	TRUE	-		
					) Electrical diagnostics enabled	=	TRUE	-		
					) for time )	>=	20	sec		
					for time )	>=	0.2	sec		
					Basic enable conditions met  No pending or confirmed DTCs	=	see sheet enable tables see sheet inhibit tables	-		

	P0158	Monitor Strategy Description  Signal range check - short circuit to battery	Malfunction Criteria	Threshold Value								
F	P0158	Signal range check - short circuit to battery			Secondary Parameters	Ena	ble Conditions			Time Require	ed	MIL IIIum.
			Set point lambda  Output voltage of O2 sensor	> 0.995 - > 1.201172 V	Common Conditions: Enable conditions for operating readiness of O2 sensor 2 bank 2 ( Battery voltage Enable conditions for the status of signal fault in the previous driving with the availability of internal resistance value ( Internal resistance is valid ( Internal resistance is valid after X measurements X = counter for validating internal resistance ( Internal resistance is valid after X measurements X = counter for validating internal resistance ( C Status of expected downstream O2 sensor readiness ( Expected downstream O2 sensor heating for hot engine conditions ( Status of downstream O2 sensor heating for hot engine conditions ( C Status of downstream O2 sensor heating for O2 sensor ( C Status of the conditions of the conditions for enabling sensor heating for O2 sensor ( C Status of the conditions ( I Status of the conditions of the conditions for enabling sensor heating for O2 sensor ( C Status of the conditions of the conditions for enabling sensor heating for O2 sensor ( C Status of the conditions of the conditions for enabling sensor heating for O2 sensor ( C Status of the conditions of the conditions for enable of the conditions for enabling sensor heat threshold for release of heating (kJ) (see Look-Up-Table #PO158-2) ( C ) Aumber of drive cycles without reaching dew point end of downstream sensor ( Ilmited to max of 4) ) Dew point end is reached at upstream of catalyst ( C ) Some of the conditions of the conditions of the catalyst ( C ) Upstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up-Table #PO158-1) (c) (see Look-Up-T		TRUE  10.9 TRUE  TRUE  TRUE	V Counts  deg C V V C C C C C C C C C C C C C C C C	1	sec	continuous	MIL Illum.
					Where: (a) Integrated heat release since engine start (b) Upstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up-Table							
					where A: Operating readiness, HEGO sensor 2 bank 1 / Debouncing time protective heating finished B: Operating readiness, HEGO sensor 2 bank 1 / Debouncing time for expected operating readiness	=	15	sec				

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM			I	EMISSION	IS STDS: CALULEV125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIum.
					( Status of heating enable conditions for the sensor operating readiness	=	TRUE	-		
					( Protective heating is finished for time	= >=	TRUE 15	- sec		
					OR Internal resistance OK for operating readiness	=	TRUE	-		
					( Unfiltered internal resistance of HEGO sensor	<=	2000	Ohm		
					Protective heating is finished Counter for valid internal resistance measurements	>=	TRUE 3	counts		
					) Status of sensor signal enable conditions for the sensor operating readiness	=	TRUE	-		
					Internal resistance OK for operating readiness OR	=	TRUE	÷		
					(	>=	0.551758	V		
					Output voltage of HEGO Sensor Output voltage of HEGO Sensor	<=	1.201172	V		
					OR Output voltage of HEGO Sensor	<=	0.322266	V		
					OR Sensor voltage stuck in countervoltage band	=	TRUE	-		
					( (Output voltage of HEGO Sensor Output voltage of HEGO Sensor )	< >	0.551758 0.322266	V V		
					( Sensor open circuit fault existed in previous trip OR	=	TRUE	-		
					Sensor open circuit fault currently not detected	=	TRUE	-		
					) Electrical diagnostics enabled	=	TRUE	-		
					) for time )	>=	20	sec		
					for time )	>=	0.2	sec		
					) ) Basic enable conditions met	=	see sheet enable tables	-		
					No pending or confirmed DTCs	=	see sheet inhibit tables	-		
O2 Sensor Circuit Bank 1 Sensor 2	P0137	Signal range check - short circuit to ground	Mean value of difference between loaded and unloaded sensor voltage for 3 load pulses for time	< 0.014648 V >= 5 sec	Fault suspicion is active when the following conditions are satisfied for time ( Output voltage of O2 sensor	>= <	3 0.058594	sec V	0 sec continuous	2 Trips
					Catalyst purge active Deceleration Fuel Cut-Off Battery voltage )	= = >	FALSE FALSE 10.9	- V		
					Basic enable conditions met  No pending or confirmed DTCs	=	see sheet enable tables see sheet inhibit tables	-		

DBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: P		MARY TABLES 2088	ECM				EMISSION	S STDS:	CALULI	EV125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns		Time Requir	ed	MIL IIIum.
O2 Sensor Circuit Bank 2 Sensor 2	P0157	Signal range check - short circuit to ground	Mean value of difference between loaded and unloaded sensor voltace for 3 load pulses for time	>=	0.014648 5	V	Fault suspicion is active when the following conditions are satisfied for time ( ( Output voltage of O2 sensor Catalyst purge active Deceleration Fuel Cut-Off Battery voltage ) Basic enable conditions met No pending or confirmed DTCs	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	3 0.058594 FALSE FALSE 10.9 see sheet enable tables see sheet inhibit tables	v - v	0	sec	continuous	2 Trips
O2 Sensor Circuit Bank 1 Sensor 2	P2232	Heater Coupling- Short Circuit between the sensor signal wire and the sensor heater	Difference of the present and the previous output voltage of O2 sensor  Counter for Heater turn off events	>=	2.001953 6	V	Time frame for checking heater coupling is active ( Dew point end is reached for time Sensor heating is turned on ) Enable conditions for operating readiness of O2 sensor 2 bank 1 (refer above common conditions) Basic enable conditions met No pending or confirmed DTCs		0.04  10 FALSE TRUE  see sheet enable tables see sheet inhibit tables	sec	4	events	continuous	2 Trips
	P2235	Heater Coupling- Short Circuit between the sensor signal wire and the sensor heater	Difference of the present and the previous output voltage of O2 sensor Counter for Heater turn off events	>=	2.001953 6	V	Time frame for checking heater coupling is active ( )  Dew point end is reached for time Sensor heating is turned on Sensor heating is turned on Sensor heating is turned on Sensor 2 bank 2 (refer above common conditions)  Basic enable conditions met  No pending or confirmed DTCs	V	0.04  10 FALSE TRUE  see sheet enable tables see sheet inhibit tables	sec	4	events	continuous	2 Trips
Downstream Exhaust Gas Sensor	P0141	Compares the measured Secondary H02S sensor internal resistance with a calibrated threshold*  calibrated threshold* = the criteria required to be met by the component vendor for heater circuit performance at high mileage	Internal resistance of Secondary HO2S sensor bank 1 (see Look-Up-Table #P0141-1)	>	500 to 16200	Ohm	(Filtered normalized heating power for Secondary HO2S sensor bank 1 engine stop time copied at the time of first engine stare time copied at the time of first engine stare the copied at the time of first engine start in the driving cvole state of variable TEngOff_uFirstStrt (formerly tengszlst) intake air temperatures in dew point end calculated for Secondary HO2S sensor bank 1 Battery Voltage state for end of start engine speed for end of start engine speed for repeated key starts and Stop-Start (see Look-Up-Table #P0141-2) engine speed for respeated key starts and Stop-Start (see Look-Up-Table #P0141-4) (Filtered-modeled exhaust gas temperature for Secondary HO2S sensor bank 1 heating Filtered-modeled exhaust gas temperature for Secondary HO2S sensor bank 1 heating Bit heater power stage diagnostics enabled	> > = = > = = > > > > > > > = > = > = >	0.6 120 TRUE -30 TRUE 25.59961 10.9 TRUE 40 600 to 700 4 to 32  700.022 340.022 TRUE	Unitless sec - deg C - V V - rpm rpm counts deg C	5	sec		2 Trips

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: N	TIC SUMMARY TABLES ECM (GMXV04.2088			E	MISSION	S STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIum.
					enable condition for heater performance diagnosis after stop-phase state for end of start for time state for end of start for time internal resistance measurement valid if the following conditions are met:  (()  Secondary HO2S sensor voltage bank 1 Secondary HO2S sensor voltage bank 1 Secondary HO2S sensor voltage bank 1 OR Secondary HO2S sensor voltage bank 1 Secondary HO2S sensor voltage bank 1 (b) Pior Secondary HO2S sensor bank 1 (c) Pior Secondary HO2S sensor voltage bank 1 (d) Pior Secondary HO2S sensor bank 1 (d) Pior Secondary HO2S sensor bank 1 (d) Secondary HO2S sensor ba	= =	TRUE  FALSE 0 TRUE 0.5 TRUE 10 0.410156 0 0.489502 0.025  TRUE 30 TRUE 30 TRUE 120 320.006	sec		
					No pending or confirmed DTCs  Basic enable conditions met		see sheet inhibit table see sheet enable tables	-		
Downstream Exhaust Gas Sensor	P0161	Compares the measured Secondary HO2S sensor internal resistance with a calibrated threshold*	Internal resistance of Secondary HO2S sensor bank 2 (see Look-Up-Table #P0161-1)	> 500 to 16200 Ohm					5 sec	2 Trips
		calibrated threshold* = the criteria required to be met by the component vendor for heater circuit performance at high mileage			( Filtered normalized heating power for Secondary HO2S sensor bank 2 engine stop time copied at the time of first engine start in the driving cycle state of variable TiEngOff_uFirstStrt (formerly tengszlst) state of start temperatures in dew point end calculated for Secondary HO2S sensor bank 2 Battery Voltage Battery Voltage Battery Voltage Batter of the driving start of the sensor bank start of the driving start of the sensor bank start of the driving start of the sensor bank start of the	> = = = = >	0.6 120 TRUE 25.59961 10.9 TRUE	Unitless sec - V V - rpm		

D GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TC SUMMARY TABLES ECM GMXV04.2088				MISSION	IS STDS: (	CALULEV125, FE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	т	ime Required	MIL IIIur
					engine speed fo rrepeated key starts and Stop-Start (see Look-Up-Table #P0141-3) detection of end of start by engine speed threshold and injection counts (see Look-Up- Table #P0141-4)	.>	400 to 700 4 to 32	rpm			
					( Filtered-modeled exhaust gas temperature for Secondary HO2S sensor bank 2 heating	<=	700.022	deg C			
					Filtered-modeled exhaust gas temperature for Secondary HO2S sensor bank 2 heating	>=	340.022	deg C			
					enable condition for heater performance diagnosis after stop-phase state for end of start for time state for end of start for time	=	TRUE FALSE 0 TRUE 0.5	- sec - sec			
					internal resistance measurement valid if the following conditions are met:	=	TRUE	-			
					(( Secondary HO2S sensor voltage bank 2 Secondary HO2S sensor voltage bank 2 OR	> <= >=	10 0.410156 0	V V			
					Secondary HO2S sensor voltage bank 2 ) absolute sensor voltage difference: ABS( (a) - (b) )	> <=	0.489502 0.025	v			
					Secondary HO2S sensor voltage bank 2     Prior Secondary HO2S sensor voltage bank 2						
					Secondary HO2S sensor bank 2 heater control on for time	= >=	TRUE	- sec			
					Internal resistance measurement active of Secondary HO2S sensor bank 2 with Absolute Secondary HO2S sensor bank 2	= <=	TRUE 0.200195	- V			
					voltage difference: ABS( (a) - (b) ) (a) Secondary HO2S sensor bank 2 voltage after freeze for measurement of the internal resistance (b) Secondary HO2S sensor bank 2 voltage without load for the measurement of the internal resistance Absolute Secondary HO2S sensor bank 2 voltage difference: ABS( (a) - (b) ) (a) Secondary HO2S sensor bank 2 voltage with load for the measurement of the internal resistance (b) Secondary HO2S sensor bank 2 voltage with load for the measurement of the without load for the measurement of the internal resistance	X	0.0	V			
					no electrical sensor diagnostic faults of implausible high internal resistance no DFCO	=	TRUE TRUE				
					Minimum heater performance diagnostic	>=	120	sec			
					Filtered-modeled exhaust gas temperature for Secondary HO2S sensor bank 2 heating	>=	320.006	deg C			
					Internal resistance of Secondary HO2S  No pending or confirmed DTCs	<	10000 see sheet inhibit	Ohm			
					Basic enable conditions met	=	table see sheet enable tables	-			
Heater Control Circuit Bank 1 or 2	P0036	Diagnoses the HO2S Heater Control Bank 1 Sensor 2 low side driver circuit for open circuit faults	Voltage low during driver off state (indicates open circuit)	= Open Circuit:≥ 200 K Ω - impedance between ECU pin and load	General enabling condition for powerstage diagnosis	=	TRUE		0.5	sec continuous	2 Tri

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM			E	EMISSION	IS STDS: C	ALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs	Ti	me Required	MIL IIIum.
					Battery voltage Battery voltage Engine speed	< > >=	25.5 10.9 80	V V rpm			
					) Conditions for enabling sensor heating for O2 sensor	=	TRUE	-			
					( ECU is not in POST DRIVE state	=	TRUE	-			
					and Battery Voltage	<=	25.59961	V			
					and Engine start is completed	=	TRUE	-			
					and (						
					( Dew point end is reached (	=	TRUE	-			
					Integrated heat release since engine start	>=	(b) * (((c) * (d)) +	-			
					(b) Downstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up-		1) 0 to 120	kJ			
					Table #P0138-1) (c ) adjustment factor (see Look-Up-Table		0 to 0.5	-			
					#P0138-2) (d) Number of drive cycles without reaching dew point end of downstream sensor (limited to max of 4)						
					) and Dew point end is reached at upstream of catalyst						
					( Integrated heat release since engine start	>=	(b) * (((c) * (d)) +				
					(b) Upstream O2 sensor heat threshold for		1) 0 to 96	kJ			
					release of heating (kJ) (see Look-Up-Table #P0138-3)						
					(c) adjustment factor (see Look-Up-Table #P0138-4) (d) Number of drive cycles without reaching dew point end of downstream sensor (limited to max of 3)		0 to 0.5	-			
					) ) for time	>=	10	sec			
					) OR						
					( Battery voltage OR	<	25.59961	٧			
					( Environmental temperature and	>	3003.56	deq C			
					Ignition is ON for time	= >=	TRUE 0	sec			
					for time	>=	0	sec			
					) Basic enable conditions met	-	see sheet enable	-			
					No Pending or Confirmed DTCs	=	tables see sheet inhibit tables	-			
	P0007	Discourse the HOOS Heater Control David A Consequence	Mallacon la contrata de la contrata del contrata de la contrata del contrata de la contrata del contrata del contrata de la contrata del contrata de la contrata del contr	Charle arrival of 0.5	O and a self-second filter (second		TOUE		0.5		0.7
	P0037	Diagnoses the HO2S Heater Control Bank 1 Sensor 2 low side driver circuit for circuit low faults	Voltage low during driver off state (indicates short- to-ground)	= Short to ground: ≤ 0,5 - Ω impedance between signal and controller ground	General enabling condition for powerstage diagnosis	=	TRUE	-	0.5	sec continuous	s 2 Trips
					( Battery voltage	<	25.5	٧			
					Battery voltage Engine speed	>=	10.9 80	V rpm			
					) Conditions for enabling sensor heating for O2 sensor	=	TRUE	-			
					( ECU is not in POST DRIVE state	=	TRUE	-			
					and Battery Voltage	<=	25.59961	٧			
					and Engine start is completed	-	TRUE	-			

BD GROUP: KGMXOBD	07		DIAGNOST TEST GROUP: N	TC SUMMARY TABLES ECN GMXV04.2088	1			MISSION	IS STDS: CAL	LULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	Time	Required	MIL IIIun
					) and (						
					( Dew point end is reached (	=	TRUE	-			
					( Integrated heat release since engine start	>=	(b) * (((c) * (d)) +				
					(b) Downstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up- Table #P0138-1)		1) 0 to 120	kJ			
					(c) adjustment factor (see Look-Up-Table		0 to 0.5	-			
					#P0138-2) (d) Number of drive cycles without reaching dew point end of downstream sensor (limited to max of 4)						
					(inflited to max of 4) ) and						
					Dew point end is reached at upstream of catalyst						
					Integrated heat release since engine start	>=	(b) * (((c) * (d)) + 1)				
					(b) Upstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up-Table #P0138-3)		0 to 96	kJ			
					(c ) adjustment factor (see Look-Up-Table #P0138-4)		0 to 0.5	-			
					(d) Number of drive cycles without reaching dew point end of downstream sensor (limited to max of 3)						
					) ) for time	>=	10	sec			
					OR (						
					Battery voltage OR	<	25.59961	V			
					( Environmental temperature	>	3003.56	deg C			
					and Ignition is ON for time	= >=	TRUE 0	- sec			
					) )						
					for time ) Basic enable conditions met	>=	0 see sheet enable	sec			
					No Pending or Confirmed DTCs	=	tables see sheet inhibit				
					No 1 shaing of commisce 2 1 co	_	tables				
	P0038	Diagnoses the HO2S Heater Control Bank 1 Sensor 2 low side driver circuit for circuit high faults	Voltage high during driver on state (indicates short-to-power)	- Short to power: ≤ 0.5 Ω impedance between signal and controller power	General enabling condition for powerstage diagnosis	=	TRUE	-	0.5	sec continuous	2 Trij
					( Battery voltage	<	25.5	٧			
					Battery voltage Engine speed	>=	10.9 80	V rpm			
					) Conditions for enabling sensor heating for O2 sensor	=	TRUE	-			
					( ECU is not in POST DRIVE state	=	TRUE	-			
					and Battery Voltage and	<=	25.59961	V			
					Engine start is completed )	=	TRUE	-			
					and (						
					( Dew point end is reached (	=	TRUE	-			
				1					1		

BD GROUP: KGMXOBDG	07		TEST GROUP: N	IC SUMMARY TABLES EC GMXV04.2088			E	MISSION	S STDS: C	ALULEV125, I	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions	S	Ti	me Required	MIL IIIur
					(b) Downstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up-Table #P0138-1) (c) adjustment factor (see Look-Up-Table #P0138-2) (d) Number of drive cycles without reaching		0 to 120 0 to 0.5	kJ -			
					dew point end of downstream sensor (limited to max of 4) ) and Dew point end is reached at upstream of						
					catalyst ( Integrated heat release since engine start	>=	(b) * (((c) * (d)) +				
					(b) Upstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up-Table		1) 0 to 96	kJ			
					#P0138-3) (c) adjustment factor (see Look-Up-Table #P0138-4) (d) Number of drive cycles without reaching dew point end of downstream sensor (limited to max of 3)		0 to 0.5	-			
					) for time ) OR	>=	10	sec			
					( Battery voltage OR	<	25.59961	٧			
					( Environmental temperature and	>	3003.56	deq C			
					Ignition is ON for time	= >=	TRUE 0	sec			
					) for time	>=	0	sec			
					, Basic enable conditions met  No Pending or Confirmed DTCs	=	see sheet enable tables see sheet inhibit	-			
					No Fernaling of Committee DTCs	_	tables				
S Heater Control Circuit Bank 2 or 2	P0056	Diagnoses the HO2S Heater Control Bank 2 Sensor 2 low side driver circuit for open circuit faults	Voltage low during driver off state (indicates open circuit)	= Open Circuit:≥ 200 K Ω - impedance between ECU pin and load	General enabling condition for powerstage diagnosis	=	TRUE	-	0.5	sec continuo	us 2 Trip
					( Battery voltage Battery voltage	< >	25.5 10.9	V			
					Engine speed ) Conditions for enabling sensor heating for	>=	80 TRUE	rpm -			
					O2 sensor ( ECU is not in POST DRIVE state	=	TRUE	_			
					and Battery Voltage	<=	25.59961	V			
					and Engine start is completed	=	TRUE	-			
					and (						
					( Dew point end is reached (	=	TRUE	-			
					( Integrated heat release since engine start	>=	(b) * (((c) * (d)) +	-			
					(b) Downstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up- Table #P0158-1)		0 to 120	kJ			
					(c) adjustment factor (see Look-Up-Table #P0158-2) (d) Number of drive cycles without reaching dew point end of downstream sensor (limited to max of 4)		0 to 0.5	-			

OBD GROUP: KGMXOBDO	607		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM GMXV04.2088				MISSION	S STDS: CALULEV12	5, FEDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions	s	Time Required	MIL IIIum
					Dew point end is reached at upstream of catalyst ( Integrated heat release since engine start (b) Downstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up-Table #P0158-4) (c) adjustment factor (see Look-Up-Table #P0158-4) (d) Number of drive cycles without reaching dew point end of downstream sensor (limited to max of 3) ) for time OR CENVINDED COR (See Look-Up-Table #P0158-4) (d) See Look-Up-Table #P0158-4) (d) See Look-Up-Table #P0158-4) (d) Number of drive cycles without reaching dew point end of downstream sensor (limited to max of 3) ) for time ) ) ) ) for time ) ) ) ) for time ) ) ) ) ) or time ) ) ) ) ) ) ) or time ) ) ) ) ) or time ) ) ) ) ) ) ) ) or time ) ) ) ) ) or time ) ) ) ) ) or time ) ) ) ) ) ) or time ) ) ) ) ) ) ) ) or time ) ) ) ) ) ) or time ) ) ) ) ) ) or time ) ) ) ) ) ) ) ) ) ) or time ) ) ) ) ) ) or time ) ) ) ) ) ) or time ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) )	>= <	(b) * (((c) * (d)) + 1) 0 to 96 0 to 0.5 10 25.59961 3003.56 TRUE 0	kJ - sec V deq C - sec sec		Ī
	P0057	Diagnoses the HO2S Heater Control Bank 2 Sensor 2 low	Voltage low during driver off state (indicates short-	= Short to ground: ≤ 0.5 -	Basic enable conditions met  No Pending or Confirmed DTCs  General enabling condition for powerstage		see sheet enable tables see sheet inhibit tables	-	0.5 sec conti	nuous 2 Trips
		side driver circuit for circuit low faults	to-ground)	Ω impedance between signal and controller ground	diagnosis  ( Battery voltage Battery voltage Engine speed ) Conditions for enabling sensor heating for O2 sensor ( ECU is not in POST DRIVE state and Battery Voltage and Engine start is completed ) and ( ( Dew point end is reached ( Integrated heat release since engine start (b) Downstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up-Table #PO158-2) (d) Number of drive cycles without reaching dew point end of downstream sensor (limited to max of 4) ) and Dew point end is reached at upstream of catalyst (Integrated heat release since engine start (b) Downstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up-Table #PO158-2) (integrated heat release since engine start (b) Downstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up-Table #PO158-3) (c) adjustment factor (see Look-Up-Table #PO158-3)		25.5 10.9 80 TRUE TRUE 25.59961 TRUE  (b) *(((c) * (d)) + 0 to 120 0 to 0.5	V V Prom V kJ kJ		

D GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECM GMXV04.2088			<u>E</u>	MISSION	S STDS: CALUL	.EV125, FED	)BIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	I	Enable Conditions	s	Time Requi	ired	MIL IIIur
					(d) Number of drive cycles without reaching dew point end of downstream sensor (limited to max of 3)						
					) for time )	>=	10	sec			
					OR ( Battery voltage OR	<	25.59961	٧			
					( Environmental temperature and	>	3003.56	deg C			
					Ignition is ON for time	= >=	TRUE 0	sec			
					) for time	>=	0	sec			
					Basic enable conditions met		see sheet enable tables	-			
					No Pending or Confirmed DTCs	"	see sheet inhibit tables	-			
	P0058	Diagnoses the HO2S Heater Control Bank 2 Sensor 2 low side driver circuit for circuit high faults	Voltage high during driver on state (indicates short-to-power)	- Short to power: ≤ 0.5 Ω impedance between signal and controller power	General enabling condition for powerstage diagnosis	=	TRUE	-	0.5 sec	continuous	2 T
					( Battery voltage Battery voltage Engine speed	< > >=	25.5 10.9 80	V V rpm			
					Conditions for enabling sensor heating for O2 sensor	=	TRUE	-			
					( ECU is not in POST DRIVE state	=	TRUE	-			
					and Battery Voltage and	<=	25.59961	V			
					Engine start is completed ) and	=	TRUE	-			
					( Dew point end is reached (	=	TRUE	-			
					( Integrated heat release since engine start	>=	(b) * (((c) * (d)) +	-			
					(b) Downstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up- Table #P0158-1)		0 to 120	kJ			
					(c) adjustment factor (see Look-Up-Table #P0158-2) (d) Number of drive cycles without reaching dew point end of downstream sensor		0 to 0.5	-			
					(limited to max of 4) ) and Dew point end is reached at upstream of						
					catalyst ( Integrated heat release since engine start	>=	(b) * (((c) * (d)) +				
					(b) Downstream O2 sensor heat threshold for release of heating (kJ) (see Look-Up-		1) 0 to 96	kJ			
					Table #P0158-3) (c) adjustment factor (see Look-Up-Table #P0158-4) (d) Number of drive cycles without reaching dew point end of downstream sensor (limited to max of 3)		0 to 0.5	-			
					(limited to max of 3) ) for time	>=	10	sec			
					) OR (						
					Battery voltage OR	<	25.59961	V			

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: P	TIC SUMMARY TABLES ECM KGMXV04.2088		EMISSIONS	S STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					( Environmental temperature and lantition is ON for time ) for time ) for time ) Basic enable conditions met No Pending or Confirmed DTCs	> 3003.56 deq C  = TRUE - >= 0 sec  >= 0 sec  = see sheet enable - tables = see sheet inhbit - tables		
Crankcase Ventilation System	P04DB	Diagnosis of Disconnected Crankcase Ventilation System- Plausibility check	The measured Crankcase ventilation pressure (see Look-Up Table #P04DB-1)	> -1.7 to 0.016 kPa	Cumulative release time for crankcase ventilation diagnosis Release of crankcase ventilation monitoring, which is the following conditions:  ( Engine speed Engine speed Pressure upstream throttle valve bank 1 Low-pass filtered valve of the air mass flow for the crankcase monitoring Low-pass filtered valve of the air mass flow for the crankcase monitoring Low-pass filtered valve of the air mass flow for the crankcase monitoring Throttle Valve actuator position Bank 1 Time since Engine running state Engine is in running state Time since Engine running state was reached Coolant temperature Jor time No pending or confirmed DTCs Basic enable conditions met	>= 2 sec  = TRUE -  C= 5000 rpm >= 2500 rpm >= 2500 rpm <= 260 kPa >= 130 kPa <= 152.7777778 g/sec  >= 41.66666667 g/sec  <= 100 % >= 50 %  > 0.3 sec >= 74.5 kPa >= 74.5 kPa >= 74.5 kPa >= 77.04 deq C  = TRUE - > 0.5 sec > -0.04 deq C > 5 sec = see sheet inhibit tables = see sheet enable tables	2 sec continuous	s 2 Trips
Engine Cooling System	P0128	Compares the measured engine coolant temperature with the modeled engine coolant temperature during engine warm-up  Regulating engine coolant temperature: 70 degC	Engine coolant temperature difference between the model and the measured: (a) · (b) (a) the modeled engine coolant temperature (b) the measured engine coolant temperature	> 2 deg C	Innition key on Time since engine running Minium engine coolant temperature for the current trip measured ambient temperature for the current trip measured ambient temperature Engine running time monitoring delay time since engine start (see Look-Up-Table #P0128-5) Engine coolant temperature increase PT1 filtered average vehicle speed PT1 time constant Heat to engine coolant calculation of the model temperature: ((a) + ((b) + (c) + (d)) (a) temperature increment depending on inner torque and ambient temperature (see Look-Up-Table #P0128-4) (c) correction factor dependent on vehicle speed and ambient temperature (see Look-Up-Table #P0128-2) (d) temperature model correction during DFCO (d1) temperature model correction dependent on vehicle speed and ambient temperature (see Look-Up-Table #P0128-2) (d) temperature model correction during DFCO (d1) temperature model correction dependent on vehicle speed and ambient temperature (see Look-Up-Table #P0128-1) (d2) correction factor	<pre></pre>	20 sec	2 Trip

BD GROUP: KGMXOBDG0	)7		DIAGNOST TEST GROUP: 1		ARY TABLES 188	ECM				MISSION	IS STDS:	CALUL	EV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs		Time Requir	red	MIL IIIun
		OR												
		Continuously compares the measured engine coolant	Engine coolant temperature difference between	>	2	deg C	measured engine coolant temperature	<	59.86	deg C				
		after warm-up monitoring	the model and the measured: (a) - (b)											
			(a) the modeled engine coolant temperature     (b) the measured engine coolant temperature				Ignition key on Time since engine running Minium engine coolant temperature for the	>	TRUE 5 39.98	sec				
							Minium engine coolant temperature for the current trip measured ambient temperature	<= >=	-7.04	deg C dea C				
		Regulating engine coolant temperature : 70 degC					monitoring delay time since engine start (see Look-Up-Table #P0128-5)	>=	10 to 60	sec				
							PT1 filtered average vehicle speed PT1 time constant	> =	18.64512119 100	mph sec				
							Heat to engine coolant calculation of the model temperature:	> =	10 ((a) + ((b) * (c)) +	deg C				
							(a) temperature increment depending on inner torque and ambient temperature (see Look-Up-Table #P0128-3)		0 to 0.2243896	deg C/s				
							(b) Correction factor dependent on vehicle speed and ambient temperature (see Look- Up-Table #P0128-4)		1 to 1.160034	-				
							(c ) correction factor for temperature difference over the radiator (see Look-Up- Table #P0128-2) (d) temperature model correction during		0 to 0.1	deg C/s				
							DFCO (d1) temperatue model correction dependent on vehicle speed and ambient temperature (see Look-Up-Table #P0128-1)		-0.0810547 to - 0.0000488	deg C/s				
							(d2) correction factor		1	-				
							No pending or confirmed DTCs	=	see sheet inhibit table	-				
							Basic enable conditions met	=	see sheet enable tables	-				
ne Coolant Temperature Sensor	P0118	voltage is greater than a calibrated threshold for calibrated	Engine Coolant Temperature sensor voltage	>=	4.7996	V	Ignition is ON	=	TRUE	-	2	sec	continuous	2 Trips
		time.	Same as				Basic enable conditions met	=	see sheet enable					
			Engine Coolant Temperature	<=	-46.6	deg C			tables					
ne Coolant Temperature Sensor	P0117	Detects if the measured Engine Coolant Temperature sensor voltage is less than a calibrated threshold for calibrated time.	Engine Coolant Temperature sensor voltage	<=	0.104	V	Ignition is ON	=	TRUE	-	2	sec	continuous	2 Trips
			Same as				Basic enable conditions met	=	see sheet enable tables	-				
			Engine Coolant Temperature	>=	156	deq C			tabloo					
ine Coolant Temperature Sensor	P0116	Detects if the difference between mean valve and filetered valve of engine coolant tempearture sensor during cold start is greater than a calibrated threshold for a calibrated time	Difference between mean value and filtered value of engine coolant temperature sensor 1	>	14.96	deg C	Ignition is on	=	TRUE	-	1	sec	Once per driving cycle	2 Trips
							for time Combustion engine is running	>= =	1 TRUE	sec -				
							( Engine is in synchronised state and engine	=	TRUE	-				
							is rotating for time	_	1	sec				
							( Measured engine stop time ( Calculated engine stop time is exact value	= >= =	28800 TRUE	sec sec				
							OR Minimum engine off time is calculated)	=	TRUE	-				
							for time) (( Block heater is activated	<	3 FALSE	sec				
							(I Block heater is activated Diagnosis is inhibited by other temperature sensor errors )	=	FALSE	-				
							for time) No pending or confirmed DTCs	>= =	0 see sheet Inhibit tables	sec -				

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1		ARY TABLES	ECM			E	MISSION	IS STDS:	: CALULE\	V125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs		Time Required	i	MIL IIIum
							Basic enable conditions met	=	see sheet enable tables	-				
	P0116	Detects if the difference between filetered valve and mean valve of engine coolant tempearture sensor during cold start greator than calibrated threshold for an calibrated time	Difference between filtered value and mean value of engine coolant temperature sensor 1	>	14.96	deg C	Ignition is on	=	TRUE	-	1		Once per driving cycle	2 Trips
							for time Combustion engine is running	>=	1 TRUE	sec -				
							Engine is in synchronised state and engine is	=	TRUE	-				
							rotating for time	=	1	sec				
							( Measured engine stop time	>= =	28800 TRUE	sec -				
							Calculated engine stop time is exact value OR							
							Minimum engine off time is calculated ) )	=	TRUE	-				
							for time ( Block heater is activated Diagnosis is inhibited by other temperature	= =	3 FALSE FALSE	sec				
							sensor errors	=	FALSE	-				
							for time No pending or confirmed DTCs	>= =	0 see sheet Inhibit tables	sec -				
							Basic enable conditions met	=	see sheet enable tables	-				
le Control System / Cold Start Strateg	y P050A	Path 1: Monitoring of idle control for overspeed during catalyst heating	Deviation of idle speed precontrol (set point - current)	<	-200	rpm	ECU Sub-State in DRIVE	=	TRUE	-	5	sec	multiple	2 Trips
			OR Number of fuel cut-out phases	>=	255	counts	Engine start has finished ( No external torque demand (engine is running in idle)	=	TRUE TRUE	-				
							) for time Catalyst heating request by cold engine	>=	0 TRUE	sec -				
							( Condition: Request of catalyst heating in case of first start of combustion engine - Initialisation phase	=	TRUE	-				
							( First start of combustion in driving cycle	=	FALSE	-				
							Engine is not running Desired value for integrated air mass by catalyst heating by cold engine	= >	TRUE 0	-				
							Intake air temperature in manifold Difference between engine coolant temperatures in downstream and at engine	>=	-48.04 50.3	deg C deg C				
							stop Absolute difference between intake air temperature in manifold and engine coolant temperature in downstream during start	<=	191.3	deg C				
							Release of catalyst heating request by ambient temperature	=	TRUE	-				
							Condition: Request catalyst heating by cold engine (calculation till end of start is reached)	=	TRUE	-				
							( ( Off time of start-end recognition for customer	=	1	-				
							OR ( Difference between engine coolant temperatures in downstream and at engine stop	>=	50.3	deg C				

OBD GROUP: KGMXOBDG	07		DIAGNOS TEST GROUP: 1	TIC SUMMARY TABLES ECM (GMXV04.2088			MISSION	S STDS: CALULEV	125, FEDBIN
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	ıs	Time Required	MIL
					Absolute difference between intake air temperature in manifold and engine coolant temperature in downstream during start ) ) ) ( End of start is reached Request of catalyst heating in case of	<= 191.3 = FALSE = TRUE	deg C		
					resquest or catalyst neating in case or first start of combustion engine - Initialisation phase  Difference between desired value for integrated air mass by catalyst heating by cold engine and residual heat inside catalyst by start of combustion engine	= 1RUE >= 200.18	g		
					) OR ( Condition for evaluation of temperature in first brick of front catalyst for catalyst heating	= TRUE	-		
					( End of start is reached Off time of start-end recognition for customer	= FALSE = 1	-		
					Time counter at end of start from last driving cycle Engine off time based on start- end recognition	> 120	sec		
					Temperature inside first brick of front catalyst during start (see Look-Up-Table #P050A-1)	<= 399.96 to 439.96	deg C		
					Altitude correction factor ) Limp-home operation is not active Safety fuel cut off is not active Valid crankshaft signal is present Altitude correction factor Vehicle speed Engine coolant temperature Engine coolant temperature Time after end of start Difference between idle speed during catalyst heating and idle speed without catalyst heating and	> 0.400024  = TRUE  = TRUE  = TRUE  > O  <= 143.3  >= -39.8  >= 0  > 300	mph dea C deg C sec rpm		
					No pending or confirmed DTCs  Basic enabling conditions are met	= see sheet inhibit tables = see sheet enable tables	-		
		Path 2: Monitoring of idle control for underspeed during catalyst heating	Deviation of idle speed precontrol (set point - current)	> 100 rpm	ECU Sub-State in DRIVE Engine start has finished ( No external torque demand (engine is running in idle)	= TRUE = TRUE = TRUE	-	5 sec	multiple 2 °
					for time Catalyst heating request by cold engine ( ( Condition: Request of catalyst heating in case of first start of combustion engine -	>= 0 = TRUE = TRUE	sec -		
					Initialisation phase ( First start of combustion in driving cycle Engine is not running Desired value for integrated air mass by catalyst heating by cold engine	= FALSE = TRUE > 0.0	-		
					catavst nearing by cold engine Intake air temperature in manifold Difference between engine coolant temperatures in downstream and at engine stop Absolute difference between intake air	> -48.04 >= 50.3	deg C deg C deg C		
					Absolute difference between intake all temperature in manifold and engine coolant temperature in downstream during start	7= 191.5	ueg C		

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1	FIC SUMMARY TABLES E KGMXV04.2088	ECM			EMISSION	NS STDS: CALULEV125,	FEDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIum.
					Release of catalyst heating request by ambient temperature	=	TRUE	-		
					Condition: Request catalyst heating by cold engine (calculation till end of start is reached)	=	TRUE	-		
					Off time of start-end recognition for customer	=	1	-		
					OR ( Difference between engine coolant temperatures in downstream and at engine	>=	50.3	deg C		
					stop  Absolute difference between intake air temperature in manifold and engine coolant temperature in downstream during start	<=	191.3	deg C		
					)					
					End of start is reached Request of catalyst heating in case of first start of combustion engine - Initialisation phase	=	FALSE TRUE	-		
					Difference between desired value for integrated air mass by catalyst heating by cold engine and residual heat inside catalyst by start of combustion engine	>=	200.18	g		
					) OR ( Condition for evaluation of temperature in	=	TRUE	_		
					first brick of front catalyst for catalyst heating ( End of start is reached	=	FALSE	-		
					Off time of start-end recognition for customer	=	1			
					Time counter at end of start from last driving cycle Engine off time based on start- end	> <	120 300	sec		
					recognition )					
					Temperature inside first brick of front catalyst during start (see Look-Up-Table #P050A-1)	<=	399.96 to 439.96	deg C		
					Altitude correction factor ) Limp-home operation is not active	>	0.400024 TRUE	-		
					Safety fuel cut off is not active Valid crankshaft signal is present	=	TRUE TRUE			
					Altitude correction factor Vehicle speed Engine coolant temperature	> = <=	0 0 143.3	mph deg C		
					Engine coolant temperature Time after end of start Difference between idle speed during	>= >= >=	-39.8 0 300	deq C sec rpm		
					catalyst heating and idle speed without catalyst heating					
					No pending or confirmed DTCs  Basic enabling conditions are met	=	see sheet inhibit tables see sheet enable tables	-		
Cold Start Ignition Timing Performance	P050B	Path 1 : Diagnosis of Cold Start Ignition Timing Performance	moon deviation of actual imiting affairments	> calculated value	_ Catalyst heating activated		TRUE		1 200	per 2 Trips
Cold Start Ignition Timing Performance	PUSUB	in Engine Idle Mode	desired catalyst heating ignition efficiency during idle			=	IRUE	-	1 sec once driving	cycle 2 mps
			current time for catalyst heating during cold start during idle	> 5	Sec (		TRUE			
					End of start is reached Homogenous mode of operation is activated	=	TRUE	-		
					Robust engine run after initial fuelling (	=	FALSE	-		
	1		1		Engine coolant temperature OR	>	39.8	deg C		

FEDBIN	STDS: CALULEV125, F	EMISSIONS S				GMXV04.2088	TEST GROUP: K		7	GROUP: KGMXOBDG
MIL	Time Required	tions	Enable Condi		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		sec	120	>	Time counter at end of start OR					
		MPa	4	>	( Absolute value of fuel rail pressure					
		- sec	TRUE 25.5	=	Engine is running					
					for time					
		km/h or mph	0	>	Vehicle speed					
		-	TRUE	=	OR Initial fuelling stopped					
		-	TRUE	=	( Catalyst heating request for end of line test					
					OR					
		-	TRUE	=	Catalyst heating request by cold engine					
		-	TRUE	=	Condition: Request of catalyst heating in case of first start of combustion engine - Initialisation phase					
		-	FALSE	=	( First start of combustion in driving cycle					
		-	TRUE	=	Engine is not running					
		-	0.0	>	Desired value for integrated air mass by catalyst heating by cold engine					
		dea C deg C	-48.04 50.3	>=	Intake air temperature in manifold Difference between engine coolant temperatures in downstream and at engine					
		deg C	191.3	<=	stop Absolute difference between intake air temperature in manifold and engine coolant temperature in downstream during start					
		-	TRUE	=	Release of catalyst heating request by ambient temperature					
		-	TRUE	=	) Condition: Request catalyst heating by cold engine (calculation till end of start is reached)					
		-	1	=	( Off time of start-end recognition for customer					
					OR					
		deg C	50.3	>=	( Difference between engine coolant temperatures in downstream and at engine					
		deg C	191.3	<=	stop  Absolute difference between intake air temperature in manifold and engine coolant temperature in downstream during start					
					)					
		-	FALSE TRUE	=	End of start is reached Request of catalyst heating in case of first start of combustion engine - Initialisation phase					
		g	200.18	>=	Difference between desired value for integrated air mass by catalyst heating by cold engine and residual heat inside catalyst by start of combustion engine					
					) OR					
		-	TRUE	=	( Condition for evaluation of temperature in first brick of front catalyst for catalyst heating					
		-	FALSE 1	= =	( End of start is reached Off time of start-end recognition for customer					
		sec	120	>	Time counter at end of start from last					
					driving cycle		i l			

BD GROUP: KGMXOBDG	607		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC	CM		E	MISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions	s	Time Required	MIL IIIu
					) Temperature inside first brick of front catalyst during start (see Look-Up table #P050A-1)	<=	399.96 to 439.96	deg C		
					) Altitude correction factor	>	0.400024	-		
					Reset request for catalyst heating by cold engine	=	FALSE	-		
					( Catalyst heating activated	=	TRUE	-		
					Catalyst heating request by cold engine	=	TRUE	-		
					Relative amount of integrated air mass at catalyst heating	>=	0.6999969	-		
					OR Duration of catalyst heating during cold start	>	A * B	-		
					(A * B) where in     (A) maximum time for active catalyst heating in dependence from altitude and	=	25 to 45	sec		
					engine start temperature (see Look-Up table #P053F-1)  (B) weighing map for consideration of	=				
					catalyst heating for finishing catalyst heating  OR					
					( Catalyst heating break off in case of	_	FALSE			
					permanent idle Catalyst heating activated	=	FALSE	-		
					Idle speed for time	= >=	TRUE 60	- sec		
					) OR					
					( Catalyst heating request by cold engine	=	TRUE	-		
					Catalyst heating request by cold engine (calculation till end of start is reached)	=	FALSE	-		
					)					
					) Engine is running	=	TRUE	-		
					for time )	=	1	sec		
					( Catalyst heating activated	=	FALSE	-		
					OR Terminating factor for catalyst heating	>	0.0	-		
					) Terminating factor for catalyst heating	>	0.1016			
					) Relative amount of integrated air mass at catalyst heating	<				
					) OR Catalyst heating request in case of warming catalyst	=	TRUE	-		
					( Engine operates in catalyst warming mode	=	TRUE			
					Factor for weighting catalyst heating request for catalysator warming	>	0.01	-		
					( Engine is running	=	TRUE	-		
					Engine speed (A - B) where in (A) maximum engine speed for catalyst	<	A - B 3000	- rpm		
					warming (B) hysteresis for engine speed for the	=	0	rpm		
					release of catalyst warming  Catalyst heating request by cold engine	-	FALSE	ipini -		
					Time counter at first end of start in cycle	>	0	sec		
					Lambda for component protection is	=	FALSE	-		
					active (					

GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES E 3MXV04.2088			EMISSIONS	STDS: CALULEV125, I	FEDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Con	ditions	Time Required	MIL III
					Lambda closed loop control (upstream catalyst), bank 1	= TRUE	-		
					Engine coolant temperature	> -273.04	deg C		
					OR (				
					Lambda closed loop control (upstream catalyst), bank 1	= FALSE	-		
					Engine coolant temperature )	> -273.04	deq C		
					Relative air mass (A - B) where in	< A - B	-		
					<ul> <li>(A) maximum relative air charge for the release of catalyst warming</li> </ul>	= 1534.992	%		
					(B) hysteresis for maximum relative air charge for the release of catalyst warming	= 0	%		
					)				
					Maximum of two catalyst temperatures in Bank 2 (A - B) where in	< A - B	-		
					(A) maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required	= 3003.56	deg C		
					(B) hysteresis of maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required	= 0	deg C		
					OR Maximum of two catalyst temperatures in Bank 1 (A - B) where in	< A - B	-		
					<ul> <li>(A) maximum temperature of the first and second catalyst of Bank2 to which no</li> </ul>	= 3003.56	deg C		
					catalyst warming is required (B) hysteresis of maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required	= 0	deg C		
					) Catalyst heating request by cold engine (	= TRUE	-		
					( Condition: Request of catalyst heating in case of first start of combustion engine - Initialisation phase	= TRUE	-		
					( First start of combustion in driving cycle	= FALSE	-		
					Engine is not running Desired value for integrated air mass by	= TRUE > 0.0	-		
					catalyst heating by cold engine Intake air temperature in manifold	> -48.04	deq C		
					Difference between engine coolant temperatures in downstream and at engine	>= 50.3	deg C		
					stop Absolute difference between intake air temperature in manifold and engine coolant temperature in downstream during start	<= 191.3	deg C		
					Release of catalyst heating request by ambient temperature	= TRUE	-		
					Condition: Request catalyst heating by cold engine (calculation till end of start is reached)	= TRUE	-		
					Off time of start-end recognition for customer	= 1	-		
					OR (	500	des C		
					Difference between engine coolant temperatures in downstream and at engine stop	>= 50.3	deg C		
					Absolute difference between intake air temperature in manifold and engine coolant temperature in downstream during start	<= 191.3	deg C		
					1 .				1

BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC	į IVI		<u>E</u>	MISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	E	Enable Conditions	5	Time Required	MIL IIIu
					End of start is reached Request of catalyst heating in case of first start of combustion engine - Initialisation phase	=	FALSE TRUE	- -		
					Difference between desired value for integrated air mass by catalyst heating by cold engine and residual heat inside catalyst by start of combustion engine	>=	200.18	g		
					) OR					
					Condition for evaluation of temperature in first brick of front catalyst for catalyst heating	=	TRUE	-		
					( End of start is reached Off time of start-end recognition for customer	= =	FALSE 1	-		
					Time counter at end of start from last driving cycle	>	120	sec		
					Engine off time based on start- end recognition	<	300	sec		
					) Temperature inside first brick of front catalyst during start (see Look-Up table #P050A-1)	<= 3	99.96 to 439.96	deg C		
					Altitude correction factor	>	0.400024	-		
					Reset request for catalyst heating by cold engine	=	FALSE	-		
					Catalyst heating activated Catalyst heating request by cold engine	=	TRUE TRUE	-		
					( Relative amount of integrated air mass at catalyst heating OR	>=	0.6999969	-		
					Duration of catalyst heating during cold start	>	A * B	-		
					(A * B) where in (A) maximum time for active catalyst heating in dependence from altitude and engine start temperature (see Look-Up table #POSSF-11 (B) weighing map for consideration of catalyst heating for finishing catalyst heating	=	25 to 45	sec		
					OR					
					( Catalyst heating break off in case of permanent idle	=	FALSE	-		
					Catalyst heating activated Idle speed	=	FALSE TRUE	-		
					for time ) OR	>=	60	sec		
					Catalyst heating request by cold engine	=	TRUE	-		
					Catalyst heating request by cold engine (calculation till end of start is reached)	=	FALSE	-		
					)					
					Engine is running for time	=	TRUE 1	- sec		
					Catalyst heating activated OR	=	FALSE	-		
					Terminating factor for catalyst heating	>	0.0	-		
					Terminating factor for catalyst heating )	>	0.1016	-		
	1				Relative amount of integrated air mass at catalyst heating	<				

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM GMXV04.2088			EMISSION	S STDS: CALULEV	125, FEDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Co	onditions	Time Required	MIL III
					) ) No pending or confirmed DTCs Basic enabling conditions are met	= see sheet tables = see sheet of tables	nable -		
		Path 2: Diagnosis of Cold Start Ignition Timing Performance at Engine Part Load	mean deviation of actual ignition effciency and desired catalyst heating ignition effciency outside idle	> calculated value -	Catalyst heating activated	= TRUE	-	1 sec	once per 2 Trip Iriving cycle
			current time for catalyst heating during cold start outside idle	> 5 sec	( End of start is reached Homogenous mode of operation is activated	= TRUE			
					Robust engine run after initial fuelling (	= FALS			
					Engine coolant temperature OR Time counter at end of start OR	> 39.8			
					( Absolute value of fuel rail pressure Engine is running ) for time	> 4 = TRUE = 25.5			
					OR Vehicle speed OR Initial fuelling stopped	> 0 = TRUE	km/h or mph		
					) ( Catalyst heating request for end of line test	= TRUE			
					OR Catalyst heating request by cold engine	= TRUE	· -		
					( Condition: Request of catalyst heating in case of first start of combustion engine - Initialisation phase	= TRUE	-		
					( First start of combustion in driving cycle	= FALS			
					Engine is not running Desired value for integrated air mass by catalyst heating by cold engine	= TRUE > 0.0	-		
					Intake air temperature in manifold Difference between engine coolant temperatures in downstream and at engine	> -48.0- >= 50.3			
					stop Absolute difference between intake air temperature in manifold and engine coolant temperature in downstream during start	<= 191.3	deg C		
					Release of catalyst heating request by ambient temperature	= TRUE	-		
					Condition: Request catalyst heating by cold engine (calculation till end of start is reached)	= TRUE	-		
					Off time of start-end recognition for customer	= 1	-		
					OR ( Difference between engine coolant	>= 50.3	deg C		
					temperatures in downstream and at engine stop Absolute difference between intake air temperature in manifold and engine coolant temperature in downstream during start	<= 191.S	deg C		
					) ) ( End of start is reached	= FALS	_		

FEDBIN	S STDS: CALULEV125, F	MISSIONS	Е			IC SUMMARY TABLES EC GMXV04.2088	DIAGNOST TEST GROUP: K		7	BD GROUP: KGMXOBDG
MIL	Time Required	ıs	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		-	TRUE	=	Request of catalyst heating in case of first start of combustion engine - Initialisation phase					
		g	200.18	>=	Difference between desired value for integrated air mass by catalyst heating by cold engine and residual heat inside catalyst by start of combustion engine					
			TRUE		) OR ( Condition for evaluation of temperature in					
		-	IRUE	=	first brick of front catalyst for catalyst heating					
		-	FALSE 1	=	End of start is reached Off time of start-end recognition for customer					
		sec	120	>	Time counter at end of start from last					
		sec	300	<	driving cycle Engine off time based on start- end recognition					
		deg C	399.96 to 439.96	<=	) Temperature inside first brick of front catalyst during start (see Look-Up table #P050A-1)					
		-	0.400024	>	) Altitude correction factor					
		-	FALSE	=	) Reset request for catalyst heating by cold engine					
		-	TRUE TRUE	=	( Catalyst heating activated Catalyst heating request by cold engine					
		-	0.6999969	>=	( Relative amount of integrated air mass at catalyst heating					
		-	A * B	>	OR Duration of catalyst heating during cold					
		sec	25 to 45	=	start (A * B) where in (A) maximum time for active catalyst heating in dependence from altitude and					
				=	engine start temperature (see Look-Up table #P053F-1) (B) weighing map for consideration of catalyst heating for finishing catalyst heating					
					OR (					
		-	FALSE	=	Catalyst heating break off in case of permanent idle					
		-	FALSE TRUE	=	Catalyst heating activated Idle speed					
		sec	60	>=	for time ) OR					
		-	TRUE	=	( Catalyst heating request by cold engine					
		-	FALSE	=	Catalyst heating request by cold engine (calculation till end of start is reached)					
					(Calculation till end of start is reached)					
			TRUE		) Facing in supplies					
		sec	1	=	Engine is running for time					
		-	FALSE	=	( Catalyst heating activated					
		-	0.0	>	OR Terminating factor for catalyst heating					
		-	0.1016	>	) Terminating factor for catalyst heating					
				<	) Relative amount of integrated air mass at catalyst heating					

BD GROUP: KGMXOBDO	G07		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECI GMXV04.2088	M		EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condit	ions	Time Required	MIL IIIu
					) OR Catalyst heating request in case of warming catalyst	= TRUE	-		
					( Engine operates in catalyst warming mode	= TRUE	-		
					Factor for weighting catalyst heating request for catalysator warming	> 0.01	-		
					( Engine is running Engine speed	= TRUE < A - B	-		
					(A - B) where in (A) maximum engine speed for catalyst	= 3000	rpm		
					warming (B) hysteresis for engine speed for the	= 0	rpm		
					release of catalyst warming Catalyst heating request by cold engine	= FALSE			
					Time counter at first end of start in cycle	> 0	sec		
					Lambda for component protection is	= FALSE	-		
					active ( Lambda closed loop control (upstream catalyst), bank 1	= TRUE	-		
					Engine coolant temperature	> -273.04	deg C		
					) OR				
					( Lambda closed loop control (upstream	= FALSE	-		
					catalyst), bank 1 Engine coolant temperature	> -273.04	deg C		
					) Relative air mass	< A - B	-		
					(A - B) where in (A) maximum relative air charge for the	= 1534.992	%		
					release of catalyst warming (B) hysteresis for maximum relative air	= 0	%		
					charge for the release of catalyst warming )				
					(				
					Maximum of two catalyst temperatures in Bank 2	< A - B	-		
					(A - B) where in (A) maximum temperature of the first and	= 3003.56	deg C		
					second catalyst of Bank2 to which no catalyst warming is required (B) hysteresis of maximum temperature of the first and second catalyst of Bank2 to	= 0	deg C		
					which no catalyst warming is required OR Maximum of two catalyst temperatures in Bank 1	< A - B	-		
					Bank 1 (A - B) where in (A) maximum temperature of the first and second catalyst of Bank2 to which no	= 3003.56	deg C		
					catalvst warming is required (B) hysteresis of maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required	= 0	deg C		
					) Catalyst heating request by cold engine	= TRUE	-		
					( Condition: Request of catalyst heating in case of first start of combustion engine - Initialisation phase	= TRUE	-		
					( First start of combustion in driving cycle	= FALSE			
					Engine is not running	= TRUE	_		
					Desired value for integrated air mass by catalyst heating by cold engine	> 0.0	-		
					Intake air temperature in manifold Difference between engine coolant temperatures in downstream and at engine stop	> -48.04 >= 50.3	deg C deg C		

FEDBIN1	S STDS: CALULEV125, F	MISSIONS	E			(GMXV04.2088	TEST GROUP: P		7	BD GROUP: KGMXOBDG
MIL II	Time Required	s	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		deg C	191.3	<=	Absolute difference between intake air temperature in manifold and engine coolant temperature in downstream during start					
		-	TRUE	=	Release of catalyst heating request by ambient temperature					
		-	TRUE	=	) Condition: Request catalyst heating by cold engine (calculation till end of start is reached) (					
		-	1	=	Off time of start-end recognition for customer					
		deg C	50.3	>=	( Difference between engine coolant temperatures in downstream and at engine					
		deg C	191.3	<=	stop  Absolute difference between intake air temperature in manifold and engine coolant temperature in downstream during start					
					)					
		-	FALSE TRUE	=	End of start is reached Request of catalyst heating in case of first start of combustion engine - Initialisation phase					
		g	200.18	>=	Difference between desired value for integrated air mass by catalyst heating by cold engine and residual heat inside catalyst by start of combustion engine					
					) OR					
		-	TRUE	=	Condition for evaluation of temperature in first brick of front catalyst for catalyst heating					
		-	FALSE 1	=	( End of start is reached Off time of start-end recognition for customer					
		sec sec	120 300	> <	Time counter at end of start from last driving cycle Engine off time based on start- end					
		deg C	399.96 to 439.96	<=	recognition ) Temperature inside first brick of front catalyst during start (see Look-Up table					
		_	0.400024	>	#P050A-1) ) Altitude correction factor					
		-	FALSE	=	Reset request for catalyst heating by cold engine					
		-	TRUE TRUE	=	( Catalyst heating activated Catalyst heating request by cold engine					
		-	0.6999969	>=	( Relative amount of integrated air mass at catalyst heating OR					
		-	A * B	>	Duration of catalyst heating during cold start					
		sec	25 to 45	=	(A * B) where in (A) maximum time for active catalyst heating in dependence from altitude and engine start temperature (see Look-Up table #P053F-1)					
		-	1	=	(B) weighing map for consideration of catalyst heating for finishing catalyst heating					
			FALSE	=	OR ( Catalyst heating break off in case of					
			FALSE	-	permanent idle  Catalyst heating activated					

OBD GROUP: KGMXOBDG	07		DIAGNOS <sup>*</sup> TEST GROUP: 1	TIC SUMMARY TABLES ECM (GMXV04.2088			E	MISSION	S STDS: CALULEV125, I	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions		Time Required	MIL IIIum.
					Idle speed for time ) OR	= >=	TRUE 60	- sec		
					( Catalyst heating request by cold engine	-	TRUE			
					Catalyst heating request by cold engine (calculation till end of start is reached)	=	FALSE	-		
					) ) Engine is running	=	TRUE			
					for time )	=	1	sec		
					( Catalyst heating activated OR	=	FALSE	-		
					Terminating factor for catalyst heating	>	0.0	-		
					) Terminating factor for catalyst heating	>	0.1016	-		
					Relative amount of integrated air mass at catalyst heating	<				
					) ) No pending or confirmed DTCs	=	see sheet inhibit tables	-		
					Basic enabling conditions are met	-	see sheet enable tables	-		
High Pressure Fuel System	P053F	Detects if High Pressure fuel system control deviation of rail pressure during cold start is less than maximum threshold for calibrated period of time	Filtered value of rail pressure control deviation	< -3 MPa	Conditions for Plausibility check of Fuel supply system	=	TRUE	-	7 sec continue	ous 2 Trips
					Airbag is activated Rail pressure sensor voltage is not plausible	=	FALSE FALSE	-		
					Battery voltage Mean value of effective relative volumetric	<= >=	655.34 7.734	V %		
					injected fuel mass Mean value of effective relative volumetric injected fuel mass	<=	3071.953	%		
					Initial fueling mode is active )	=	FALSE	-		
					Time counter at end of start Conditions for reset of high-pressure regulation (	=	2 FALSE	sec -		
					(					
					Actual number of cylinders with injection cut-off Desired number of cylinders with	< <	8			
					injection cut-off ) OR End of start is reached	=	FALSE	-		
					) OR Difference between the actual rail	>	(A+B)	MPa		
					pressure and filtered rail pressure setpoint (A+B) where in:	=	1	MPa		
					(A) rail pressure offset during fuel cutoff for activation demand control (B) maximum difference between actual rail pressure and set rail pressure for deactivation of MSV if fuel cutt off is active	=	o	MPa		
					) (		TDUS			
	I	1	I	I	High pressure pump is active	=	TRUE	-	Ī	1
					( Engine is in running state	=	TRUE	_		

D GROUP: KGMXOBD	G07		TEST GROUP: KG	C SUMMARY TABLES EC MXV04.2088	JIII			EMISSIONS	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condi	tions	Time Required	MIL III
					)					
					for time ) OR	=	0.04	sec		
					( High pressure pump is not active	=	FALSE	-		
					End of start is reached )) (	=	TRUE	-		
					Start of injection enabled	=	TRUE	-		
					Engine start is in pre-injection mode Injection counter	= >=	TRUE (A+B)	-		
					(A+B) where in:	=	2	-		
					(A) Number of injections for enabling high- pressure controller     (B) Number of cylinders	=	8	-		
					OR					
					Engine start is not in pre-injection mode	=	FALSE	-		
					Injection counter ))	>=	2	-		
					) ( Engine state of synchronisation for rail	>=	30	_		
					pressure control activation					
					Engine is in running state OR Crankshaft signal is detected	=	TRUE	-		
					) for time	=	0.04	sec		
					) ) for time Conditions for high pressure fuel system	=	7	sec		
					diagnosis during cold start					
					( Rail pressure setpoint Rail pressure setpoint	< >	36 6	MPa MPa		
					) for time	=	0.2	sec		
					Absolute of difference between rail pressure set point and its filtered value for time	< =	15 0.2	MPa sec		
					Engine speed Coolant temperature at engine output	>	0 -3549.94	rpm deg C		
					) Catalyst heating activated (	=	TRUE	-		
					End of start is reached Homogenous mode of operation is	=	TRUE TRUE	-		
					activated  Robust engine run after initial fuelling	=	FALSE	-		
					Engine coolant temperature OR	>	39.8	deg C		
					Time counter at end of start OR	>	120	sec		
					Absolute value of fuel rail pressure Engine is running	> =	4 TRUE	MPa -		
					) for time OR	=	25.5	sec		
					Vehicle speed OR	>	0	km/h or mph		
					Initial fuelling stopped )	=	TRUE	-		
					Catalyst heating request for end of line test	=	TRUE	-		
					OR Catalyst heating request by cold engine	=	TRUE	-		
					( Condition: Request of catalyst heating in	=	TRUE	-		
					case of first start of combustion engine - Initialisation phase					

Figure and of commonwhol manifest of control m	ROUP: KGMXOBDG0	07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES EC GMXV04.2088	·M			MISSION	S STDS: CALULEV125, F	EDBIN125
Processes and extraction of the control of the cont	Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIur
Sourced due to integrate and most by a continuent of the continuen						( First start of combustion in driving cycle	=	FALSE	-		
contained to the contained contained and con						Engine is not running Desired value for integrated air mass by		TRUE			
timo Accusion difference between trailers or well-working and the second of the second						catalyst heating by cold engine Intake air temperature in manifold Difference between engine coolant	>	-48.04	deg C		
Release of caralysis heating respect by entropy to the property of the propert						stop  Absolute difference between intake air temperature in manifold and engine coolant	<=	191.3	deg C		
cock engine conductance in any of stant in the temporal t						Release of catalyst heating request by	=	TRUE	-		
OR  (Difference between engine cooland more in observations in observations in observations in observations and at engine and a state of constructions of the construction of the cooland more and the						cold engine (calculation till end of start is	=	TRUE	-		
Ofference between angine coolant content can be applied to the con							=	1	-		
Abballed difference between relate all employees colors and employees an						( Difference between engine coolant	>=	50.3	deg C		
Request of catalyst heading in case of first start of combustion engine - Initialisation phase  Difference between desired value for integrated air mass by catalyst heating by cold engine and residue heat inside catalyst by start of combustion engine  OR  (Condition for evaluation of temperature in first brick of front catalyst for catalyst heating of the phase of start end recognition for catalyst not start end of start read recognition for catalyst not start end of start from last divina cycle  Time counter at end of start from last divina cycle  Engine of time based on start-end recognition  Temperature inside first brick of front catalyst for the passed on start-end recognition  Temperature inside first brick of front catalyst for the passed on start-end recognition  Temperature inside first brick of front catalyst for the passed on start-end recognition  Temperature inside first brick of front catalyst for the passed on start-end recognition  Altitude correction factor > 0.400024 -						stop  Absolute difference between intake air temperature in manifold and engine coolant	<=	191.3	deg C		
Request of catalyst heading in case of first stant of combustion engine - Initialisation phase  Difference between desired value for integrated air mass by catalyst heating by cold engine and reactious heat inside catalyst by start of combustion engine  ) OR ( Condition for evaluation of temperature in first brick of front catalyst for catalyst heating)  Find of start is reached Off time of start-end recognition for customer  Time counter at end of start from last driving cycle Engine of time based on start-end recognition  Time counter at end of start from last driving cycle Engine of time based on start-end recognition  Time counter at end of start from last driving cycle Engine of time based on start-end recognition  Time counter at end of start front catalyst cycle start from last driving cycle Engine of time based on start-end recognition  Time counter at end of start front last cycle start from last driving cycle Engine of time based on start-end recognition  Altitude correction factor  > 0.400024 -						)					
integrated air mass by catalyst heating by cold engine and residual heat inside catalyst by start of combustion engine  OR  Condition for evaluation of temperature in first brick of front catalyst for catalyst heating  ( End of start is reached Off time of start-end recognition for customer  Time counter at end of start-from last driving over the counter of the counter at end of start-end end of the counter at end of start from last driving over the end of start end Engine off time based on start-end Engine off time based on start-end recognition  Temperature inside first brick of front catalyst during start (see Look-Up table stPOSOA-1)  Altitude correction factor > 0.400024 -						Request of catalyst heating in case of first start of combustion engine - Initialisation					
Condition for evaluation of temperature in first brick of front catalyst for catalyst heating  {     End of start is reached Off time of start-end recognition for customer      Time counter at end of start from last driving cycle     Engine off time based on start-end recognition     Temperature inside first brick of front catalyst during start (see Look-Up table #P050A-1)     Attitude correction factor }  Attitude correction factor  > 0.400024 -						integrated air mass by catalyst heating by cold engine and residual heat inside catalyst	>=	200.18	g		
first brick of front catalyst for catalyst heating  {     End of start is reached Off time of start-end recognition for customer      Time counter at end of start from last driving cycle     Engine off time based on start-end recognition     Tengenature inside first brick of front catalyst during start (see Look-Up table #POSOA-1)     Altitude correction factor }  Altitude correction factor     Catalyst Adving start (see Look-Up table #POSOA-1)     Altitude correction factor   Catalyst Adving start (see Look-Up table #POSOA-1)     Altitude correction factor   Catalyst Adving start (see Look-Up table #POSOA-1)     Altitude correction factor   Catalyst Adving start (see Look-Up table #POSOA-1)     Altitude correction factor   Catalyst Adving start (see Look-Up table #POSOA-1)     Altitude correction factor   Catalyst Adving start (see Look-Up table #POSOA-1)     Altitude correction factor   Catalyst Adving start (see Look-Up table #POSOA-1)   Catalyst Adving start (see Look						) OR					
Off time of start-end recognition for customer  Time counter at end of start from last driving cycle Engine off time based on start- end recognition r						Condition for evaluation of temperature in first brick of front catalyst for catalyst heating	=	TRUE	-		
driving cycle  Engine off time based on start- end recognition ) Temperature inside first brick of front catalyst during start (see Look-Up table #POSA-1) ) Altitude correction factor ) 1						Off time of start-end recognition for					
Temperature inside first brick of front catalyst during start (see Look-Up table #P050A-1)						driving cycle Engine off time based on start- end					
) Altitude correction factor )  0.400024 - )						) Temperature inside first brick of front catalyst during start (see Look-Up table	<=	399.96 to 439.96	deg C		
						)	>	0.400024	-		
Reset request for catalyst heating by cold = FALSE - engine = FALSE -						) Reset request for catalyst heating by cold	=	FALSE	-		
Catalyst heating activated = TRUE - Catalyst heating request by cold engine = TRUE -						( Catalyst heating activated					
( Relative amount of integrated air mass at >= 0.6999969 - catalyst heating						catalyst heating	>=	0.6999969			
OR Duration of catalyst heating during cold > A*B - start						Duration of catalyst heating during cold	>	A * B	-		

Component / System				GMXV04.2088					7120: 0112 GIZITIZO; I	EDBIN12
	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	E	Enable Conditio	ons	Time Required	MIL IIIu
					(A) maximum time for active catalyst	-	25 to 45	sec		
					heating in dependence from altitude and engine start temperature (see Look-Up table #P053F-1)					
					(B) weighing map for consideration of catalyst heating for finishing catalyst heating	=	1	-		
					OR (					
					Catalyst heating break off in case of permanent idle	=	FALSE	-		
					Catalyst heating activated Idle speed	=	FALSE TRUE	-		
					for time	>=	60	sec		
					OR					
					Catalyst heating request by cold engine	=	TRUE	-		
					Catalyst heating request by cold engine (calculation till end of start is reached)	=	FALSE	-		
					,					
			1		) ) Fasina is sussina		TRUE			
					Engine is running for time	=	TRUE 1	sec		
					(					
					( Catalyst heating activated	=	FALSE	-		
					Terminating factor for catalyst heating	>	0.0	-		
					) Terminating factor for catalyst heating	>	0.1016	-		
					) Relative amount of integrated air mass at catalyst heating )	<	65535	-		
					) OR					
					Catalyst heating request in case of warming catalyst	=	TRUE	-		
					( Engine operates in catalyst warming mode	=	TRUE	-		
					Factor for weighting catalyst heating request for catalysator warming	>	0.01	-		
					( Engine is running	=	TRUE	-		
					Engine speed (A - B) where in	<	A - B	-		
					(A) maximum engine speed for catalyst warming	=	3000	rpm		
					(B) hysteresis for engine speed for the release of catalyst warming	=	0	rpm		
					Catalyst heating request by cold engine	=	FALSE	-		
					Time counter at first end of start in cycle	>	0	sec		
					Lambda for component protection is active	=	FALSE	-		
					Lambda closed loop control (upstream catalyst), bank 1	=	TRUE	-		
					Engine coolant temperature	>	-273.04	deq C		
					OR (					
					Lambda closed loop control (upstream catalyst), bank 1	=	FALSE	-		
					Engine coolant temperature )	>	-273.04	deg C		
					Relative air mass (A - B) where in	<	A - B	-		
					(A) maximum relative air charge for the release of catalyst warming	=	1534.992	%		
			1		(B) hysteresis for maximum relative air charge for the release of catalyst warming	=	0	%		

OBD GROUP: KGMXOBDG07		DIAGNOST TEST GROUP: P	TIC SUMMARY TABLES ECM KGMXV04.2088		EMISSI	ONS STDS: CALULEV125, F	EDBIN125
Component / System Fault	It Code Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
				Maximum of two catalyst temperatures in Bank 2  (A - B) where in  (A) maximum temperature of the first and second catalyst of Bank 2 to which no catalyst twarming is required  (B) hysteresis of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required  OR  Maximum of two catalyst temperatures in Bank 1  (A - B) where in  (A) maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required  (B) hysteresis of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required  )  No pending or confirmed DTCs  Basic enable conditions met	<ul> <li>A · B -</li> <li>3003.56 deg C</li> <li>0 deg C</li> <li>A · B -</li> <li>3003.56 deg C</li> <li>0 deg C</li> </ul>		
	Detects if High Pressure fuel system control deviation of rail pressure during cold start is greater than minimum threshold for calibrated period of time	Filtered value of rail pressure control deviation	> 3 MPa	Airbag is activated  Rail pressure sensor voltage is not plausble Battery voltage Mean value of effective relative volumetric iniected fuel mass Mean value of effective relative volumetric iniected fuel mass Initial fueling mode is active Time counter at end of start Conditions for reset of high-pressure regulation (	= FALSE - = FALSE - <= 655.34		us 2 Trips

FEDBIN125	S STDS: CALULEV125, F	EMISSIONS			М	TIC SUMMARY TABLES E	DIAGNOS TEST GROUP: I		7	OBD GROUP: KGMXOBDG0
MIL IIIur	Time Required	ions	Enable Condi		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		-	TRUE	=	Start of injection enabled					
		Ξ.	TRUE (A+B)	= >=	( Engine start is in pre-injection mode Injection counter (A+B) where in:					
		-	2	=	(A) Number of injections for enabling high- pressure controller					
		-	8	=	(B) Number of cylinders OR					
		-	FALSE	=	Engine start is not in pre-injection mode					
		-	2	>=	Injection counter )					
		-	30	>=	( Engine state of synchronisation for rail pressure control activation					
		-	TRUE	=	( Engine is in running state OR					
		-	TRUE	=	Crankshaft signal is detected					
		sec	0.04	=	for time					
		sec	7	=	for time Conditions for high pressure fuel system diagnosis during cold start					
		MPa MPa	36 6	< >	( Rail pressure setpoint Rail pressure setpoint					
		sec MPa	0.2 15	= <	) for time Absolute of difference between rail pressure set point and its filtered value					
		sec rpm deg C	0.2 0 -3549.94	= > >	for time Engine speed Coolant temperature at engine output					
		-	TRUE	=	) Catalyst heating activated					
		-	TRUE TRUE	=	End of start is reached Homogenous mode of operation is					
		-	FALSE	=	activated Robust engine run after initial fuelling					
		deg C	39.8	>	Engine coolant temperature OR					
		sec	120	>	Time counter at end of start OR					
		MPa -	4 TRUE	> =	Absolute value of fuel rail pressure Engine is running					
		sec	25.5	=	) for time					
		km/h or mph	0	>	OR Vehicle speed					
		-	TRUE	=	OR Initial fuelling stopped					
		-	TRUE	=	( Catalyst heating request for end of line test					
		-	TRUE	=	OR Catalyst heating request by cold engine					
		-	TRUE	=	Condition: Request of catalyst heating in case of first start of combustion engine - Initialisation phase					
		-	FALSE	=	( First start of combustion in driving cycle					
		-	TRUE 0.0	= >	Engine is not running Desired value for integrated air mass by					
		deq C deg C	-48.04 50.3	>=	catalyst heating by cold engine Intake air temperature in manifold Difference between engine coolant temperatures in downstream and at engine stop					

FEDBIN1	S STDS: CALULEV125, F	MISSIONS	E			(GMXV04.2088	TEST GROUP: P		7	BD GROUP: KGMXOBDG
MIL II	Time Required	s	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		deg C	191.3	<=	Absolute difference between intake air temperature in manifold and engine coolant temperature in downstream during start					
		-	TRUE	=	Release of catalyst heating request by ambient temperature					
		-	TRUE	=	) Condition: Request catalyst heating by cold engine (calculation till end of start is reached) (					
		-	1	=	Off time of start-end recognition for customer					
		deg C	50.3	>=	( Difference between engine coolant temperatures in downstream and at engine					
		deg C	191.3	<=	stop  Absolute difference between intake air temperature in manifold and engine coolant temperature in downstream during start					
					)					
		-	FALSE TRUE	=	End of start is reached Request of catalyst heating in case of first start of combustion engine - Initialisation phase					
		g	200.18	>=	Difference between desired value for integrated air mass by catalyst heating by cold engine and residual heat inside catalyst by start of combustion engine					
					) OR					
		-	TRUE	=	Condition for evaluation of temperature in first brick of front catalyst for catalyst heating					
		-	FALSE 1	=	( End of start is reached Off time of start-end recognition for customer					
		sec sec	120 300	> <	Time counter at end of start from last driving cycle Engine off time based on start- end					
		deg C	399.96 to 439.96	<=	recognition ) Temperature inside first brick of front catalyst during start (see Look-Up table					
		_	0.400024	>	#P050A-1) ) Altitude correction factor					
		-	FALSE	=	Reset request for catalyst heating by cold engine					
		-	TRUE TRUE	=	( Catalyst heating activated Catalyst heating request by cold engine					
		-	0.6999969	>=	( Relative amount of integrated air mass at catalyst heating OR					
		-	A * B	>	Duration of catalyst heating during cold start					
		sec	25 to 45	=	(A * B) where in (A) maximum time for active catalyst heating in dependence from altitude and engine start temperature (see Look-Up table #P053F-1)					
		-	1	=	(B) weighing map for consideration of catalyst heating for finishing catalyst heating					
			FALSE	=	OR ( Catalyst heating break off in case of					
			FALSE	-	permanent idle  Catalyst heating activated					

EDBIN	STDS: CALULEV125, F	EMISSIONS S			···	C SUMMARY TABLES EC SMXV04.2088	TEST GROUP: KG		7	D GROUP: KGMXOBDG
MILI	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			TRUE 60	.=	Idle speed					
		sec	60	>=	for time ) OR					
		-	TRUE	=	( Catalyst heating request by cold engine					
		-	FALSE	=	Catalyst heating request by cold engine					
					(calculation till end of start is reached)					
					)					
		- sec	TRUE 1	=	Engine is running for time					
		333		_	)					
		-	FALSE	_	( Catalyst heating activated					
		-	0.0	>	Terminating factor for catalyst heating					
			0.4040		) Torribation factor for the first factor factor for the first factor fa					
			0.1016 65535	> <	Terminating factor for catalyst heating ) Relative amount of integrated air mass at					
			00000	•	catalyst heating					
					) OR					
		-	TRUE	=	Catalyst heating request in case of warming catalyst					
		-	TRUE	=	( Engine operates in catalyst warming mode					
		-	0.01	>	Factor for weighting catalyst heating request for catalysator warming					
		-	TRUE	=	( Engine is running					
		-	A - B	<	Engine speed (A - B) where in					
		rpm	3000	=	<ul> <li>(A) maximum engine speed for catalyst warming</li> </ul>					
		rpm	0	=	(B) hysteresis for engine speed for the release of catalyst warming					
		-	FALSE 0	=	Catalyst heating request by cold engine  Time counter at first end of start in cycle					
		sec -	FALSE	> =	Lambda for component protection is					
			FALSE	-	active					
		-	TRUE	=	Lambda closed loop control (upstream catalyst), bank 1					
		deg C	-273.04	>	Engine coolant temperature					
					OR					
		-	FALSE	=	Lambda closed loop control (upstream catalyst), bank 1					
		deg C	-273.04	>	Engine coolant temperature					
		-	A - B	<	Relative air mass (A - B) where in					
		%	1534.992	=	<ul> <li>(A) maximum relative air charge for the release of catalyst warming</li> </ul>					
		%	0	=	<ul> <li>(B) hysteresis for maximum relative air charge for the release of catalyst warming</li> </ul>					
					,)					
		-	A - B	<	) ) Maximum of two catalyst temperatures in					
		-	W-D	*	Bank 2 (A - B) where in					
		deg C	3003.56	=	<ul> <li>(A) maximum temperature of the first and second catalyst of Bank2 to which no</li> </ul>					
		deg C	0	=	catalyst warming is required (B) hysteresis of maximum temperature of					
		-			the first and second catalyst of Bank2 to which no catalyst warming is required				1	

Companion of System   Four Code   Note   N			DIAGNOS' TEST GROUP: I	TIC SUMMARY TABLES ECM (GMXV04.2088				EMISSION	S STDS: CA	LULEV125	, FEDBIN
Part	Code Monit	nitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditi	ons	Time	e Required	MIL
Cod dark monitoring for contribution from the desired of between separated abusiness the desired of between separated abusiness of the contribution of the desired of the contribution of the desired of the contribution of the desired of the contribution of the contri					Bank 1 (A - B) where in (A) maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warning is required (B) hysteresis of maximum temperature of the first and second catalyst of Bank2 to	=	3003.56	-			
diagnosis  contract and supplied of phase extractor intrides cambridge protot of contract freedoids for a confirmed period of a conf							table see sheet enable				
Macronization recovered for relative controlled Controlled controlled programmes accelerated Fund that is machined Headingson controlled programmes or TRUE Headingson controlled programmes or TRUE Evaluated endoral must after shall budding Recovered and one of programmes or the shall budding Fundament and one of state or the shall budding Three counters and one of state or the shall budding Three counters and one of state or the shall budding or	position and actual po is greater than calibra	position of phase actuator intake camshaf	Deviation between setpoint and actual angle of t camshaft intake actuator for CSERS diagnosis	> 6 degrees	actuator diagnosis for CSERS (Cold Start	=	TRUE	-	5	sec conti	auous 2
International Control of the Control of Cont					( Condition for requesting the cold start diagnosis request for intake camshaft	=	TRUE	-			
Homogenous mode of operation is a "TRUE" - souther at each of present of the mode of the content of the mode of the content of					Condition catalyst heating activated	=	TRUE	-			
Enrolle coolant terroperature > 38.8 dos C R R Three country after of shart > 120 sec C R R R R R R R R R R R R R R R R R R					Homogenous mode of operation is activated	=	TRUE				
OR Time countered at end of start OR Absolute value of businal pressure Engine is numbral Sort time OR UR					(						
Enone is rounting    TRUE					OR Time counter at end of start						
OR Vehicle speed					Engine is running )	=	TRUE	-			
Catalyst heating request for end of line test = TRUE -  Catalyst heating request by cold engine ( Condition: Request of catalyst heating in case of first start of combustion engine - Initialisation phase ( First start of combustion engine - Initialisation phase ( First start of combustion in driving cycle   Engine is not running   Desired value for integrated air mass by cold   Engine is not running   Desired value for integrated air mass by cold   Initials air temperature in mentifold   Difference between engine coolant   Itemperature in downstream and at engine ston   Absolute difference between insite air temperature in manifold and engine coolant   Itemperature in downstream during start   Release of catalyst heating request by antibion: Request catalyst heating by cold engine (calculation till end of start is calculation till end of start is calculation.					OR Vehicle speed OR			km/h or mph			
Condition: Request of catalyst heating in case of first start of combustion engine - Initialisation phase (					)			-			
case of first start of combustion engine - Initialisation phase  ( First start of combustion in driving cycle					) Catalyst heating request by cold engine (	=	TRUE	-			
Engine is not running  Desired value for fugated air mass by catalyst heating by cold engine Intake air temperature in manifold Difference between engine coolant temperatures in downstream and at engine stop Absolute difference between intake air temperature in manifold and engine coolant temperature in downstream in downstream in downstream temperature in downstream temperature in downstream in downstream in downstream in downstream in downstream in temperature Release of catalyst heating request by ambient temperature ) Condition: Request by ambient catalyst heating by cold engine (cabulation till end of start is					case of first start of combustion engine -	=	TRUE	-			
Desired value for integrated air mass by catalyst heating by coil or integrated air mass by catalyst heating by coil or integrated in mass by catalyst heating the mainfold integrated in mass by catalyst heating request by ambient in mainfold and engine coolant temperature in mainfold and engine coolant temperature in downstream and at engine coolant temperature in downstream in downstream and at engine coolant temperature in downstream in downstream and at engine coolant temperature  Release of catalyst heating request by ambient catalyst heating request by ambient catalyst heating by cool engine (catoulation till end of start is					( First start of combustion in driving cycle	=	FALSE	-			
Intake air temperature in manifold > 48.04 dea C  Difference between anjine coolant >= 50.3 deg C  temperatures in downstream and at engine stop  Absolute difference between intake air temperature in mole and engine coolant temperature in downstream during start  Release of catalyst heating request by ambient temperature in downstream during start  Release of catalyst heating request by ambient temperature ) Condition: Request catalyst heating by code engine (catoulation till end of start is					Desired value for integrated air mass by						
Absolute difference between intake air temperature in mandid and engine coolant temperature in downstream during start  Release of catalyst heating request by ambient temperature ) Condition: Request catalyst heating by cold engine (cabulation till end of start is					Intake air temperature in manifold Difference between engine coolant temperatures in downstream and at engine		-48.04 50.3	deq C deg C			
Release of catalyst heating request by ambient temperature ) Condition: Request catalyst heating by = TRUE - cold engine (calculation till end of start is					Absolute difference between intake air temperature in manifold and engine coolant	<=	191.3	deg C			
cold engine (calculation till end of start is					Release of catalyst heating request by	=	TRUE	-			
					cold engine (calculation till end of start is	=	TRUE	-			
Off time of start-end recognition for = 1 - customer					(     Off time of start-end recognition for customer	=	1	-			

GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES EO MXV04.2088			E	MISSIONS	STDS: CALULEV125, FI	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	Time Required	MIL III
					Difference between engine coolant	>=	50.3	deg C		
					temperatures in downstream and at engine stop Absolute difference between intake air	<=	191.3	deg C		
					temperature in manifold and engine coolant temperature in downstream during start					
					)					
					End of start is reached Request of catalyst heating in case of	=	FALSE TRUE	-		
					first start of combustion engine - Initialisation phase					
					Difference between desired value for integrated air mass by catalyst heating by cold engine and residual heat inside catalyst	>=	200.18	g		
					by start of combustion engine					
					OR (					
					Condition for evaluation of temperature in first brick of front catalyst for catalyst heating	=	TRUE	-		
					( End of start is reached Off time of start-end recognition for	=	FALSE 1	-		
					customer					
					Time counter at end of start from last driving cycle Engine off time based on start- end	> <	120 300	sec		
					recognition ) Temperature inside first brick of front	<=	399.96 to 439.96	deg C		
					catalyst during start (see Look-Up table #P050A-1)	~-	333.30 10 433.30	deg o		
					Altitude correction factor )	>	0.400024	-		
					Reset request for catalyst heating by cold engine	=	FALSE	-		
					Catalyst heating activated Catalyst heating request by cold engine	=	TRUE TRUE	-		
					( Relative amount of integrated air mass at	>=	0.6999969	-		
					catalyst heating OR Duration of catalyst heating during cold	>	A * B			
					start (A * B) where in (A) maximum time for active catalyst	=	25 to 45	sec		
					heating in dependence from altitude and engine start temperature (see Look-Up table #P053F-1)					
					(B) weighing map for consideration of catalyst heating for finishing catalyst heating	=	1	-		
					OR (					
					Catalyst heating break off in case of permanent idle Catalyst heating activated	=	FALSE FALSE	-		
					Idle speed for time	= >=	TRUE 60	sec		
					) OR					
					( Catalyst heating request by cold engine	=	TRUE	-		
					Catalyst heating request by cold engine (calculation till end of start is reached)	=	FALSE	-		
					) Engine is running	=	TRUE			
					for time	=	1	sec		

The state of the s	BD GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KG	C SUMMARY TABLES EC 3MXV04.2088	M		EMISSIC	ONS STDS: CALULEV125,	FEDBIN12
Communication between the contragent houseign and contragent of the contragent houseign and contragent and cont	Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable			MIL IIIu
Communication between the contragent houseign and contragent of the contragent houseign and contragent and cont						( Catalyst heating activated	= FAI	-SE -		
The property of the property o						OR				
The property of the property o						)	0.4	040		
Condender foundation  Condender foundation or many and mones or experience or control control or co						)				
Consists having appearance count of security contexts.  Entry two appearance counted of the context of the counted of the coun						catalyst heating	ζ 00.	-		
Formar for register control of the c							-			
Record to weighting categly investigate and programming and processing and proces						Catalyst heating request in case of warming catalyst	= IR	UE -		
Projects for catalysative woming Engine receiving Engine received for catalysis and expension of the catalysis and expension						Engine operates in catalyst warming mode	= TR	UE -		
Croive sected  (A) maintainer segine speed for catalyte  (A) maintainer segine speed for catalyte  (A) maintainer segine speed for the  (A) maintainer segine speed for speed for the  (A) maintainer segine speed for speed for the  (A) maintainer segine speed for speed for the  (A) maintainer segment segine speed for speed for the  (A) maintainer segment segine speed for spee						Factor for weighting catalyst heating request for catalysator warming	> 0.	01 -		
(A E) where is (A) increased for catalyst (B) is given each						Engine is running				
The course of first end of standard controls.  The course of first end of standard controls.  The course of first end of standard controls.  Lumbols for component potesticion is control to control t						(A - B) where in				
Time construct and first and of state in cycles — PALSE — Section 1. Control of the control of state in cycle — 0 sec — Section 1. Control of state in cycles — 0 sec — Section 1. Control of state in cycles — 0 sec — Section 1. Control of state in cycles — 1. Control of state in cycles						warming (B) hysteresis for engine speed for the				
Lombida for component protection is scale.  Lombida (storage)  Control						release of catalyst warming				
International colored top control (updatean catalysts), bank 1  Engine codest temperature > 273.04 dea C    I Lambda deside top control (updatean catalysts), bank 1  Engine codest temperature > 273.04 dea C    Lambda deside top control (updatean catalysts), bank 1  Engine codest temperature = FALSE - 273.04 dea C    Political of minas						Time counter at first end of start in cycle	> (	) sec		
Cambida closed loop control (upstream   Camb							= FAI	-SE -		
CR  Lamkda closed loop control (upstream catalyset), brain 1  Enryler coolent temperature  Relative at mass  (A - 8) where on  (A) shorter on  (A) shorter on the catalyset temperatures of the first and second catalyset of the first and second catalyset of the first and second catalyset defined to the first and second catalyset and second catalyset and second catalyset and second catalyset of the first and second catalyset of the second catalyset of the first and second catalyset of the sec						( Lambda closed loop control (upstream	= TR	UE -		
Catalysis, bank 1  Lambda closed loop control (upsineam catalysis), bank 1  Cristine codont fumorature 2  Relative air mass 4  (A - B) where in (A) maximum relative air charge for the release of catalyst warming 1  (B) hysteresis for maximum relative air charge for the release of catalyst warming 1  (Maximum of two catalyst temperatures in 2  Bank 2  (A) maximum of two catalyst temperatures in 2  (A) maximum impresenum of first and 4  (A) maximum impresenum of first and 5  (A) B  (B) hysteresis of finanzium impresenum of a maximum impresenu							> -273	3.04 deg C		
catalyed), bank 1 Enries coolant temperature > 2,73.0.4 dea C  Relative air mass						OR				
Enoine colorate temperature   > 273.04 dea C						Lambda closed loop control (upstream catalyst), bank 1	= FAI	-SE -		
(A. S) where in (A) maximum relative air charge for the release of catalyst warming (B) hysteries for maximum relative air charge for the release of catalyst warming (B) hysteries for maximum relative air charge for the release of catalyst warming (B) hysteries for maximum relative air charge for the release of catalyst warming (B) hysteries in (A) maximum relative of the first and second catalyst of Bank 2 to which no catalyst warming is required (B) hysteries for maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required (B) maximum requirement of the first and second catalyst of Bank 2 to which no catalyst warming is required (B) maximum remonstrate of the first and second catalyst of Bank 2 to which no catalyst warming is required (B) hysteries of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required (B) hysteries of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required (B) hysteries of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required (B) hysteries of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required (B) hysteries of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required (B) hysteries of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required (B) hysteries of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required (B) hysteries of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required (B) hysteries of maximum temperature of the first and (B) hysteries of maximum temperature of the first and (B) hysteries of maximum temperature of the first and (B) hysteries of maximum temperature of the first and (B) hysteries of maximum temperature of the first and (B) hysteries of m						Engine coolant temperature )	> -273	3.04 deg C		
release of catalysts warming  (B) systematis for maximum releative air charge for the release of catalyst warming  (Maximum of two catalysts temperatures in Bank 2  (A - B) where in  (A) maximum temperature of the first and catalyst of Bank 2 to which no catalyst warming is required  (B) systemesis of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required  (B) Maximum of two catalyst temperatures in Bank 1 to Which no catalyst warming is required  (B) systemesis of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required  (B) systemesis of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required  (B) systemesis of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required  (B) systemesis of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required  (B) systemesis of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required  (B) systemesis of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required  (B) systemesis of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required  (B) systemesis of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required  (B) systemesis of maximum temperature of the first and second catalyst of Bank 2 to which no catalyst warming is required  (C) the system of the first and second catalyst of Bank 2 to which no catalyst warming is required and second catalyst						(A - B) where in				
charge for the release of catalyst warming    Maximum of two catalyst temperatures in Bank 2   A - B   - Bank 2						release of catalyst warming				
Bank 2 (A B) where in (A) maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresis of maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required OR Maximum of two catalyst temperatures in Bank 1 (A B) where in (A) maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst temperature of the first and second catalyst temperature						charge for the release of catalyst warming	= (	J %		
Bank 2 (A B) where in (A) maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresis of maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required OR Maximum of two catalyst temperatures in Bank 1 (A B) where in (A) maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresiamum temperature of the first and second catalyst of Bank2 to which no catalyst temperature of the first and second catalyst temperature						)				
(A - B) where in   = 3003.56   deg C						( Maximum of two catalyst temperatures in	< A	-В -		
catalyst warming is required  (B) hysteresis of maximum temperature of the first and second catalyst of Bank2 to which no catalyst temperature in Bank 1  (A - B) where in  (A) maximum temperature of the first and second catalyst of Bank2 to which no catalyst of Bank2 to which no catalyst of Bank2 to which no catalyst warming is required  (B) hysteresis of maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required  (B) hysteresis of maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required  (C) hysteresis of maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required  (C) hysteresis of maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required  (C) hysteresis of maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required  (C) datalyst heating requests two coll engine the first and second catalyst of Bank2 to which no catalyst warming is required  (C) datalyst heating requests two coll engine the first and second catalyst of Bank2 to which no catalyst of Bank2 to which no catalyst warming is required to the first and second catalyst of Bank2 to which no catalyst of Bank2 to which no catalyst warming is required to the first and the first a						(A - B) where in (A) maximum temperature of the first and	= 300	3.56 deg C		
which no catalyst warming is required OR Maximum of two catalyst temperatures in Bank 1 IA - B) where in (A) maximum temperature of the first and second catalyst dank? to which no catalyst warming is required (B) hysteresis of maximum temperature of the first and second catalyst of Bank? to which no catalyst warming is required (B) hysteresis of maximum temperature of the first and second catalyst of Bank? to which no catalyst and garden and garde						catalyst warming is required (B) hysteresis of maximum temperature of	= (	) deg C		
Maximum of two catalyst temperatures in Bank 1  (A - B) where in  (A) maximum temperature of the first and second catalyst deank2 to which no catalyst warmin is required  (B) hysteresis of maximum temperature of the first and second catalyst of Bank2 to which no catalyst sof maximum temperature of the first and second catalyst of Bank2 to which no catalyst and garden catalyst of Bank2 to which no catalyst and garden catalyst of Bank2 to which no catalyst and garden catalyst of Bank2 to which no catalyst and garden catalyst of Bank2 to which no catalyst and garden catalyst of Bank2 to which no catalyst and garden catalyst of Bank2 to which no catalyst and garden catalyst of Bank2 to which no catalyst and garden catalyst of Bank2 to which no catalyst warming is required to which no catalyst warming is requi						which no catalyst warming is required				
(A - B) where in (A) maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required (B) hysteresis of maximum temperature of the first and second catalyst symming to Bank2 to which no catalyst warming to Bank2 to which no catalyst on the provided to the first and second catalyst warming to Bank2 to which no catalyst on the provided to the first and second catalyst warming to Bank2 to which no catalyst on the provided to the first and second catalyst warming to Bank2 to which no catalyst on the provided to the first and second catalyst warming to Bank2 to which no catalyst on the provided to the first and second catalyst warming to Bank2 to which no catalyst warming to be a catalyst war						Maximum of two catalyst temperatures in	< A	-В -		
catalyst warming is required  (B) hysteries of maximum temperature of the first and second catalyst of Bank2 to which no catalyst warming is required ) ) Catalyst heating request by cold engine = TRUE - Weighting factor for nominal angle of intake > 0 -						(A - B) where in (A) maximum temperature of the first and	= 300	3.56 deg C		
the first and second catalyst of Bank2 to which no catalyst warming is required ) ) Catalyst heating request by cold engine = TRUE - Weighting factor for nominal langle of intake > 0 -						catalyst warming is required				
Weighting factor for nominal angle of intake > 0 -						the first and second catalyst of Bank2 to	= (	deg C		
Weighting factor for nominal angle of intake > 0 -						) Catalyst heating request by cold engine	≡ тр	UF -		
						Weighting factor for nominal angle of intake				
) Ambient conditions for cold start diagnosis = TRUE - fulfilled						) Ambient conditions for cold start diagnosis	= TR	UE -		

FEDBIN	STDS: CALULEV125, F	EMISSIONS S				GMXV04.2088	TEST GROUP: KG		7	D GROUP: KGMXOBDG
MIL	Time Required	ns	Enable Conditio		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		deg C deg C	-20.04 179.96	>= <=	Oil temperature at cylinder head Oil temperature at cylinder head					
		rpm rpm	10200 500	> <	( Engine Speed Engine Speed					
		V	10.9	>=	) Battery voltage					
		-	TRUE	=	) State governor intake camshaft bank1					
		-	TRUE	=	( Release conditions for intake camshaft control					
		rpm	1000 to 1150	>	( Engine Speed (see Look-Up-Table #P05CC- 2)					
		-	TRUE	=	Global enable conditions for camshaft control depending on oil pressure, temperature and battery voltage					
		V	10	>	( Battery Voltage					
		v	655.34	<=	Battery Voltage					
		deg C	3003.56	>=	( Starting value of downstream engine coolant temperature					
		-	TRUE	=	( Oil temperature enabling conditions for camshaft diagnosis					
		deq C deq C	-20.04 149.96	> <=	( Oil temperature Oil temperature					
					) ) )					
		40	0000 50		OR (					
		deg C	3003.56	< >=	Starting value of downstream engine coolant temperature Oil pressure enabling conditions for					
			Ü	-	camshaft diagnosis					
		kPa sec	250 0.03	> >=	( Oil pressure for time					
		-	TRUE	=	) Oil temperature enabling conditions for camshaft diagnosis					
					) ( (					
		-	TRUE TRUE	=	( Engine is in running state No engine stall detected and engine is in running state					
		-	TRUE	=	and Crankshaft signal has not failed and engine speed is available					
		sec	2 to 4	>=	) for time (see Look-Up-Table #P05CC-1)					
		-	TRUE	=	OR No stop request from start stop system and engine is active					
		-	TRUE	=	OR Intake camshaft sensor is unlocked					
		degrees	0	>=	) Difference between reference position phase actuator and desired position phase actuator intake camshaft bank1					
		-	FALSE	=	( No adaptation of the reference position is requested					
		-	TRUE	=	OR Intake camshaft sensor is unlocked					
		sec	0.2 to 0.7	>=	) for time (see Look-Up-Table #3)					

D GROUP: KGMXOBDG	07		TEST GROUP: P	TIC SUMMARY TABLES ECM (GMXV04.2088				EMISSION	S STDS: CALULE	V125, FED	BIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditi	ons	Time Require	ed	MIL IIIu
					Difference between Desired position phase actuator and desired value intake camshaft nonCSERS bank1	>	6	degrees			
					) No pending or confirmed DTCs	=	see sheet inhibit	-			
					Basic enable conditions met	=	tables see sheet enable tables				
	P05CD	Detects stuck error when the deviation between the desired position and actual position of phase actuator intake camshaft bank 2 is greater than calibrated threshold for a calibrated period of time.	Deviation between setpoint and actual angle of camshaft intake actuator for CSERS	> 6 degrees	Conditions for enabling camshaft phase shift actuator diagnosis for CSERS (Cold Start Emission Reduction Strategy)	=	TRUE	-	5 sec	continuous	2 Tri
					( Condition for requesting the cold start diagnosis request for intake camshaft	=	TRUE	-			
					( Condition catalyst heating activated	=	TRUE	-			
					End of start is reached Homogenous mode of operation is activated	= =	TRUE TRUE	-			
					Robust engine run after initial fuelling	=	FALSE	-			
					Engine coolant temperature OR	>	39.8	deg C			
					Time counter at end of start OR	>	120	sec			
					Absolute value of fuel rail pressure Engine is running	> =	4 TRUE	MPa -			
					) for time	=	25.5	sec			
					OR Vehicle speed	>	0	km/h or mph			
					OR Initial fuelling stopped	=	TRUE	-			
					) Catalyst heating request for end of line test	=	TRUE	-			
					) Catalyst heating request by cold engine (	=	TRUE	-			
					Condition: Request of catalyst heating in case of first start of combustion engine - Initialisation phase	=	TRUE	-			
					First start of combustion in driving cycle	=	FALSE	-			
					Engine is not running Desired value for integrated air mass by	= >	TRUE 0.0	-			
					catalyst heating by cold engine Intake air temperature in manifold Difference between engine coolant	> >=	-48.04 50.3	deg C deg C			
					temperatures in downstream and at engine stop Absolute difference between intake air temperature in manifold and engine coolant temperature in downstream during start	<=	191.3	deg C			
					Release of catalyst heating request by ambient temperature	=	TRUE	-			
					) Condition: Request catalyst heating by cold engine (calculation till end of start is reached)	=	TRUE	-			
					( Off time of start-end recognition for customer	=	1	-			
					OR ( Difference between engine coolant	>=	50.3	deg C			
					temperatures in downstream and at engine stop Absolute difference between intake air temperature in manifold and engine coolant	<=	191.3	deg C			
					temperature in downstream during start						

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECM GMXV04.2088			E	MISSION	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions	S	Time Required	MIL IIIun
					( End of start is reached Request of catalyst heating in case of first start of combustion engine - Initialisation phase		FALSE TRUE			
					Difference between desired value for integrated air mass by catalyst heating by cold engine and residual heat inside catalyst by start of combustion engine	>=	200.18	g		
					) OR					
					( Condition for evaluation of temperature in first brick of front catalyst for catalyst heating	=	TRUE	-		
					( End of start is reached Off time of start-end recognition for customer	=	FALSE 1	-		
					Time counter at end of start from last	>	120	sec		
					driving cycle Engine off time based on start- end recognition	<	300	sec		
					Temperature inside first brick of front catalyst during start (see Look-Up table #P050A-1)	<=	399.96 to 439.96	deg C		
					) Altitude correction factor	>	0.400024	-		
					) Reset request for catalyst heating by cold engine	=	FALSE	-		
					Catalyst heating activated Catalyst heating request by cold engine	= =	TRUE TRUE	-		
					( Relative amount of integrated air mass at catalyst heating	>=	0.6999969	-		
					OR Duration of catalyst heating during cold	>	A * B	-		
					start (A * B) where in (A) maximum time for active catalyst heating in dependence from altitude and	=	25 to 45	sec		
					#Pinestant temperature (see Look-Up table #P053F-1)  (B) weighing map for consideration of catalyst heating for finishing catalyst heating	=	1	-		
					OR (					
					Catalyst heating break off in case of permanent idle	=	FALSE	-		
					Catalyst heating activated Idle speed	=	FALSE TRUE	-		
					for time ) OR	>=	60	sec		
					( Catalyst heating request by cold engine	-	TRUE			
					Catalyst heating request by cold engine (calculation till end of start is reached)	=	FALSE	-		
					) Engine is running	=	TRUE	-		
					for time ) (	=	1	sec		
					Catalyst heating activated	=	FALSE	-		
					OR Terminating factor for catalyst heating	>	0.0	-		
					) Terminating factor for catalyst heating	>	0.1016	-		

FEDBIN	S STDS: CALULEV125, F	EMISSIONS S			MXV04.2088	TEST GROUP: KG		7	D GROUP: KGMXOBDG
MILI	Time Required	ns	Enable Conditio	econdary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		·	65535	amount of integrated air mass at ting					
		-	TRUE	eating request in case of talyst					
		-	TRUE	erates in catalyst warming mode					
			0.01	weighting catalyst heating catalysator warming					
		-	TRUE	running					
		-	A - B 3000	peed here in num engine speed for catalyst					
		rpm							
		rpm	0	resis for engine speed for the atalyst warming					
		-	FALSE	neating request by cold engine					
		sec	0	nter at first end of start in cycle					
		-	FALSE	for component protection is					
		-	TRUE	a closed loop control (upstream ink 1					
		deq C	-273.04	coolant temperature					
		-	FALSE	closed loop control (upstream ink 1					
		deg C	-273.04	coolant temperature					
		-	A - B	air mass where in					
		%	1534.992	ximum relative air charge for the atalyst warming					
		%	0	steresis for maximum relative air he release of catalyst warming					
		-	A - B	f two catalyst temperatures in					
		deg C	3003.56	ere in am temperature of the first and alyst of Bank2 to which no					
		deg C	0	ming is required sis of maximum temperature of second catalyst of Bank2 to stalyst warming is required					
			A - B	f two catalyst temperatures in					
		deg C	3003.56	ere in am temperature of the first and alyst of Bank2 to which no					
		deg C	0	ming is required sis of maximum temperature of second catalyst of Bank2 to stalyst warming is required					
		:	TRUE 0	eating request by cold engine actor for nominal angle of intake uring catalyst heating					
		-	TRUE	nditions for cold start diagnosis					
		deg C deg C	-20.04 179.96						
		rpm rpm	10200 500	ed ed					
		.p1	300			1		1	

EDBIN1	STDS: CALULEV125, F	EMISSIONS S				C SUMMARY TABLES EC GMXV04.2088	TEST GROUP: K		7	BD GROUP: KGMXOBDG0
MIL III	Time Required	ns	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		-	TRUE	=	State governor intake camshaft bank2					
		-	TRUE	=	( Release conditions for intake camshaft control (					
		rpm	1000 to 1150	>	Engine Speed (see Look-Up-Table #P05CC-					
		-	TRUE	=	Global enable conditions for camshaft control depending on oil pressure, temperature and battery voltage					
		v v	10 655.34	> <=	( Battery Voltage Battery Voltage )					
		deg C	3003.56	>=	( Starting value of downstream engine coolant temperature					
		-	TRUE	=	( Oil temperature enabling conditions for camshaft diagnosis					
		deg C deg C	-20.04 149.96	> <=	( Oil temperature Oil temperature )					
					) ) OR (					
		deg C sec	3003.56 0	< >=	Starting value of downstream engine coolant temperature Oil pressure enabling conditions for					
		kPa sec	250 0.03	> >=	camshaft diagnosis ( ( Oil pressure for time					
		-	TRUE	=	) Oil temperature enabling conditions for camshaft diagnosis )					
		_	TRUE	=	( ( ( Engine is in running state					
		-	TRUE	=	No engine stall detected and engine is in running state Crankshaft signal has not failed and engine					
		sec	2 to 4	>=	speed is available ) for time (see Look-Up-Table #P05CC-1)					
		-	TRUE	=	) OR No stop request from start stop system and engine is active					
		-	TRUE	=	OR Intake camshaft sensor is unlocked					
		degrees	0	>=	) Difference between reference position phase actuator and desired position phase actuator intake camshaft bank2					
		-	FALSE	=	( No adaptation of the reference position is requested OR					
		-	TRUE	=	Intake camshaft sensor is unlocked )					
		sec	0.2 to 0.7	>=	for time (see Look-Up-Table #3)					
		degrees	6	>	) Difference between Desired position phase actuator and desired value intake camshaft nonCSERS bank2					

BD GROUP: KGMXOBDO	607		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES GMXV04.2088	ECM	EMISSIONS	STDS: CALULEV125, FEE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
					No pending or confirmed DTCs	= see sheet inhibit - tables		
					Basic enable conditions met	= see sheet enable - tables		
d Start Strategy	P2B95	Path 1: Detection of faulty injection output while catalyst heating with multiple injections	Ratio of the number of faulty combustions under catalyst heating condition to the number of combustions under catalyst heating condition with multiple injections active	> 0.100006	- ECU is in drive state	= TRUE	Once per driving cycle	2 Trips
					( ( Catalyst heating activated (see parameter definition)	= FALSE -		
					OR Catalyst heating request by cold engine (see parameter definition)	= FALSE -		
					Condition catalyst heating with desired operation mode for Cold start emission reduction strategy	= FALSE -		
					diagnosis Catalyst heating is completed for time )	= 10 sec		
					Monitor has not completed this drive cycle (i.e. monitor runs once per trip) No pending or confirmed DTCs	= TRUE - = see sheet Inhibit -		
					Basic enable conditions met	tables = see sheet enable tables		
	P2B95	Path 2: Detecting abnormal injector closing time delay	Error ratio calculated with correctly measured injector closing event per injection for diagnosis of catalyst heating with multiple injections	> 0.200012	- ECU is in drive state	= TRUE	Once per driving cycle	2 Trips
			injector closing delay of last CVO measurement	>= 720	us Catalyst heating activated	= FALSE -		
			injector closing delay of last CVO measurement	<= 100	us OR  Catalyst heating request by cold engine	= FALSE -		
					) Condition catalyst heating with desired operation mode for Cold start emission reduction	= FALSE -		
					strategy diagnosis time with status of catalyst heating with multiple injections	>= 9 sec		
					) Counter of CVO-measurements during catalyst heating	>= 100		
					Monitor has not completed this drive cycle (i.e. monitor runs once per trip) No pending or confirmed DTCs	= TRUE - = see sheet Inhibit -		
					Basic enable conditions met	tables = see sheet enable - tables		
	P2C9B	Monitoring of turbine bypass valve bank 1 jammed at open position during CSER	Actual position of turbine bypass valve bank 1	<= 50	% (			

OBD GROUP: KGMXOBDG	07		DIAGNOS <sup>*</sup> TEST GROUP: I		IARY TABLES	S ECM			E	MISSION	S STDS: CALULEV12	25, FED-	-BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	Time Required		MIL IIIum.
							Control valve was detected as jammed for time ) Rapid heat-up mode No pending or confirmed DTCs Basic enable conditions met		TRUE 1 TRUE see sheet inhibit tables see sheet enable tables	sec - -			
			Actual position of turbine bypass valve bank 1	>	50	%	( Control valve was detected as jammed for time ) Rapid heat-up mode No pending or confirmed DTCs Basic enable conditions met		TRUE 1 TRUE see sheet inhibit tables see sheet enable tables	sec - -			
	P2C9C	Monitoring of turbine bypass valve bank 2 jammed at open position during CSER	Actual position of turbine bypass valve bank 2	<=	50	%	(						
							Control valve was detected as jammed for time ) Rapid heat-up mode No pending or confirmed DTCs Basic enable conditions met	= >	TRUE 1 TRUE see sheet inhibit tables see sheet enable tables	sec - -			
			Actual position of turbine bypass valve bank 2	>	50	%	( Control valve was detected as jammed for time ) Rapid heat-up mode No pending or confirmed DTCs Basic enable conditions met	>	TRUE 1 TRUE see sheet inhibit tables see sheet enable tables	sec - -			
Camshaft Phaseshift Actuator	P0011	Monitoring of intake camshaft bank 1 position - Target error	(Actual angle has not reached target value threshold for allowed time within running monitoring cycle For time to reach setpoint and Absolute deviation between the highest (max) / lowest (min) camshaft position and the stored setpoint value at the beginning of the monitoring	> <	TRUE	sec degrees	Ignition is on  ( ( Oil temperature cylinder head Oil temperature cylinder head Engine speed	= >= >= >= >	-20.04 179.96 500	deg C deg C rpm	п	nultiple 2	? Trips
			) for a number of events	>=	4	events	Engine speed ) (Stet governor intake camshaft bank1 is working in closed loop operation Engine is in auto-stop mode Diagnosis is released after engine start for time Battery voltage ) No pending or confirmed DTCs Basic enable conditions met	= = = >= = = =	TRUE TRUE 0 10.9 see sheet inhibit tables see sheet enable tables	rpm - sec V -			
	P0014	Monitoring of outlet camshaft bank 1 position - Target error	( Actual angle has not reached target value threshold within running monitoring cycle For time to reach setpoint  AND	= >	TRUE	- sec	Ignition is on ( Oil temperature cylinder head Oil temperature cylinder head	= >= <=	TRUE -20.04 179.96	- deg C deg C	п	nultiple 2	? Trips

GROUP: KGMXOBDG	607		DIAGNOST TEST GROUP: F		MARY TABLES	ECM			ı	EMISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns	Time Required	MIL III
			Absolute deviation between the highest (max) / lowest (min) camshaft position and the stored setpoint value at the beginning of the monitoring	<	3	degrees	Engine speed	>	500	rpm		
			)				Engine speed	<=	10200	rpm		
			for a number of events	>=	4	events	) ( State governor outlet camshaft bank1 is working in closed loop operation  Engine is in auto-stop mode	=	TRUE TRUE	-		
							Diagnosis is released after engine start for time	>=	0	sec		
							Battery voltage )	>=	10.9	V		
							No pending or confirmed DTCs	=	see sheet inhibit tables	-		
							Basic enable conditions met	=	see sheet enable tables	-		
	P0021	Monitoring of intake camshaft bank 2 position - Target error	( Actual angle has not reached target value	=	TRUE	-	Ignition is on	=	TRUE	-	multipl	e 2 Trips
			threshold within running monitoring cycle For time to reach setpoint	>	1	sec	(	>=	-20.04	deg C		
			AND				Oil temperature cylinder head Oil temperature cylinder head	<=	179.96	deg C		
			Absolute deviation between the highest (max) / lowest (min) camshaft position and the stored setpoint value at the beginning of the monitoring	<	3	degrees	Engine speed	>	500	rpm		
			)				Engine speed	<=	10200	rpm		
			for a number of events	>=	4	events	( State governor intake camshaft bank2 is working in closed loop operation	=	TRUE	-		
							Engine is in auto-stop mode Diagnosis is released after engine start for	>=	TRUE 0	sec		
							time Battery voltage	>=	10.9	V		
							No pending or confirmed DTCs	=	see sheet inhibit	-		
							Basic enable conditions met	=	see sheet enable tables	-		
	2000				T0115				70.15			0.71
	P0024	Monitoring of outlet camshaft bank 2 position - Target error	Actual angle has not reached target value threshold within running monitoring cycle For time to reach setpoint	=	TRUE	sec	Ignition is on	= >=	TRUE -20.04	deg C	multipl	e 2 Trips
			AND		,	555	Oil temperature cylinder head Oil temperature cylinder head	<=	179.96	deg C		
			Absolute deviation between the highest (max) / lowest (min) camshaft position and the stored setpoint value at the beginning of the monitoring	<	3	degrees	Engine speed	>	500	rpm		
			)				Engine speed	<=	10200	rpm		
			for a number of events	>=	4	events	) ( State governor outlet camshaft bank2 is working in closed loop operation	=	TRUE	-		
							Engine is in auto-stop mode Diagnosis is released after engine start for	= >=	TRUE 0	sec		
							time Battery voltage	>=	10.9	٧		
							) No pending or confirmed DTCs	=	see sheet inhibit	-		
							Basic enable conditions met	=	tables see sheet enable tables	-		
amshaft Phaseshift Actuator	P000A	Monitoring of intake camshaft bank 1 position - slow response	(	=	TRUE		Ignition is on	=	TRUE		multipl	e 2 Trips
		fault	Actual angle has not reached target value threshold for allowed time within running monitoring cycle									
			For time to reach setpoint	>	1	sec	( Oil temperature cylinder head	>=	-20.04	deg C		
	I	I	and	l			Oil temperature cylinder head	<=	179.96	deg C	l	

OBD GROUP: KGMXOBDG	07		DIAGNOS <sup>*</sup> TEST GROUP: I		MARY TABLES 2088	ECM			E	MISSION	IS STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIum.
			Absolute deviation between the highest (max) / lowest (min) camshaft position and the stored setpoint value at the beginning of the monitoring	>	3	degrees	Engine speed	>	500	rpm		
			) for a number of events	>=	4	events	Engine speed ) (  ( State governor intake camshaft bank1 is working in closed loop operation Engine is in auto-stop mode	=	10200 TRUE TRUE	rpm -		
							Diagnosis is released after engine start for time Battery voltage ) No pending or confirmed DTCs	>=	0 10.9 see sheet inhibit	sec V		
							Basic enable conditions met	-	tables see sheet enable tables	-		
	P000B	Monitoring of outlet camshaft bank 1 position - slow response fault	( Actual angle has not reached target value threshold within running monitoring cycle	=	TRUE	-	Ignition is on	=	TRUE		multiple	2 Trips
			For time to reach setpoint  AND  Absolute deviation between the highest (max) / lowest (min) camshaft position and the stored setpoint value at the beginning of the monitoring	>	3	sec	( Oil temperature cylinder head Oil temperature cylinder head Engine speed	>= <= >	-20.04 179.96 500	deg C deg C rpm		
			) for a number of events	>=	4	events	Engine speed ) ( State governor outlet camshaft bank1 is working in closed loop operation	<= =	10200 TRUE	rpm -		
							Engine is in auto-stop mode and Diagnosis is released after engine start for time Battery voltage	= >= >=	TRUE 0 10.9	sec V		
							No pending or confirmed DTCs  Basic enable conditions met	= =	see sheet inhibit tables see sheet enable tables	- -		
	P000C	Monitoring of intake camshaft bank 2 position - slow response fault	( Actual angle has not reached target value threshold within running monitoring cycle	=	TRUE	-	Ignition is on		TRUE	-	multiple	2 Trips
			For time to reach setpoint  AND  Absolute deviation between the highest (max) / lowest (min) camshaft position and the stored setpoint value at the beginning of the monitoring	>	3	sec	( Oil temperature cylinder head Oil temperature cylinder head Engine speed	>= <= >	-20.04 179.96 500	deg C deg C rpm		
			) for a number of events	>=	4	events	Engine speed ) ( State governor intake camshaft bank2 is working in closed loop operation Engine is in auto-stop mode	=	10200 TRUE TRUE	rpm - -		
							Diagnosis is released after engine start for time Battery voltage )	>=	0	sec V		
							No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-		
	P000D	Monitoring of outlet camshaft bank 2 position - slow response fault	( Actual angle has not reached target value threshold within running monitoring cycle For time to reach setpoint	= >	TRUE	sec	Ignition is on	= >=	TRUE -20.04	- deg C	multiple	2 Trips
			AND Absolute deviation between the highest (max) / lowest (min) camshaft position and the stored setpoint value at the beginning of the monitoring	>	3	degrees	Oil temperature cylinder head Oil temperature cylinder head Engine speed	>	179.96 500	deg C rpm		

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K		MARY TABLES 2088	ECM				MISSION	IS STDS: (	CALULE	V125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	т	ime Require	ed	MIL IIIum.
			) for a number of events	>=	4	events	Engine speed ) (State governor outlet camshaft bank2 is working in closed loop operation Engine is in auto-stop mode Diagnosis is released after engine start for time Battery voltage ) No pending or confirmed DTCs Basic enable conditions met	= = >= = = =	TRUE TRUE 0 10.9 see sheet inhibit tables see sheet enable tables	rpm - sec V -				
MAF Sensor B1 - Airflow	P0103	Monitoring of MAF sensor signal - MAF sensor signal permanently high	( Time overflow error reported by MAF sensor OR Maximum period violation error reported by MAF sensor ) Pinpointing Current level of the PWM signal		TRUE TRUE HIGH	-	Ignition is on Battery voltage Battery voltage No pending or confirmed DTCs Basic enable conditions met	= ^ V = =	TRUE 10.9 655.34 see sheet inhibit tables see sheet enable tables	- V V	1	sec	continuous	2 Trips
	P0102	Monitoring of MAF sensor signal - MAF sensor signal permanently low	( Time overflow error reported by MAF sensor OR Maximum period violation error reported by MAF sensor )  Pinpointing Current level of the PWM signal		TRUE TRUE	-	Ignition is on Battery voltage Battery voltage No pending or confirmed DTCs Basic enable conditions met	= ^ v = =	TRUE 10.9 655.34 see sheet inhibit tables see sheet enable tables	- V V	1	sec	continuous	2 Trips
MAF Sensor B1 - Airflow	P0101	Path 1: Sional rance check - out of rance high	Raw value of time period transmitted by MAF sensor	>	980	us	Ignition is on Battery voltage Battery voltage Error in the sensor self diagnosis Error in the electric line diagnosis Error in the electric line diagnosis No pending or confirmed DTCs Basic enable conditions met		TRUE  10.9 655.34 FALSE FALSE FALSE see sheet inhibit tables see sheet enable tables	- V V - - -	1.5	sec	continuous	2 Trips
	P0101	Path 2: Signal range check - out of range low	Raw value of time period transmitted by MAF sensor	<	6.50	us	Ignition is on Battery voltage Battery voltage Error in the electric line diagnosis Error in the sensor self diagnosis Error in the sensor self diagnosis No pending or confirmed DTCs Basic enable conditions met	=	TRUE 10.9 655.34 FALSE FALSE FALSE see sheet inhibit tables see sheet enable tables	- V V - - -	1.5	sec	continuous	2 Trips
	P0101	Path 3: Sensor self diagnosis - MAF frequency in default range which indicates MAF has detected an internal error	Raw value of time period transmitted by MAF sensor and Raw value of time period transmitted by MAF sensor	<b>~</b>	1800 2200	us	Ignition is on  Battery voltage Battery voltage No pending or confirmed DTCs Basic enable conditions met	=	TRUE  10.9 655.34  see sheet inhibit tables see sheet enable tables	- V V	0.5	sec	continuous	2 Trips
MAF Sensor B1 - Airflow	P0101	Path 4: Comparison of Maximum Modelled and actual Air Mass Flow (Plausibility Check)	Measured MAF from bank 1 sensor	>	(A) / (B)	g/sec	Engine is rotating forwards and	=	TRUE	-	25.5	sec	continuous	2 Trips

OBD GROUP: KGMXOBDGO	07		DIAGNOST TEST GROUP: 1		IMARY TABLES	ECM			E	MISSION	NS STDS: (	CALULE	V125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	s	т	ime Require	ed	MIL IIIum.
			(A) Maximum modelled MAF at throttle body (B) Factor MAF sensor tolerance for min value	=	calculated parameter 0.600006	g/sec factor	Measured air mass flow sensor signal is invalid and Delta mass flow between compressor and DK through Delta pressure is valid for bank1 and Air mass flow through throttle valve for MAF diagnosis is valid No pending or conf		TRUE  TRUE  see sheet inhibit tables see sheet enable tables					
	P0101	Path 5: Comparison of Minimum Modelled and actual Air Mass Flow (Plausibility Check)	Measured MAF from bank 1 sensor with (A) Minimum modelled MAF at throttle body (B) Factor MAF sensor tolerance for max value	= =	(C) / (D)  calculated parameter 1.970001	g/sec g/sec factor	Engine is rotating forwards and Measured air mass flow sensor signal is invalid and	=	TRUE	-	25.5	sec	continuous	2 Trips
							Delta mass flow between compressor and DK through Delta pressure is valid for bank1 and Air mass flow through throttle valve for MAF diagnosis is valid No pending or confirmed DTCs Basic enable conditions met	= = =	TRUE  TRUE  see sheet inhibit tables  see sheet enable tables					
MAF Sensor B2 - Airflow	P010D	Monitoring of MAF sensor signal - MAF sensor signal permanently low	( Time overflow error reported by MAF sensor OR Maximum period violation error reported by MAF sensor )  Plinpointing	=	TRUE	-	Ignition is on Battery voltage Battery voltage No pending or confirmed DTCs Basic enable conditions met	= ^ \ \ \	TRUE 10.9 655.34  see sheet inhibit tables see sheet enable	- V V	1.5	sec	continuous	2 Trips
			Current level of the PWM signal	=	HIGH	-			tables					
	P010C	Monitoring of MAF sensor signal - MAF sensor signal permanently low	( Time overflow error reported by MAF sensor OR Maximum period violation error reported by MAF sensor )  Pinpointing Current level of the PWM signal	=	TRUE TRUE	-	Ignition is on Battery voltage Battery voltage No pending or confirmed DTCs Basic enable conditions met		TRUE  10.9 655.34  see sheet inhibit tables see sheet enable tables	- V V	1.5	sec	continuous	2 Trips
MAF Sensor B2 - Airflow	P010B	Path 1: Signal range check - out of range high	Raw value of time period transmitted by HFM sensor in Bank 2	>	980	us	Ignition is on Battery voltage Battery voltage Error in the sensor self diagnosis Error in the electric line diagnosis Error in the electric line diagnosis No pending or confirmed DTCs Basic enable conditions met	- ^	TRUE  10.9 655.34 FALSE FALSE FALSE see sheet inhibit tables see sheet enable tables	- V V - - -	1.5	sec	continuous	2 Trips
	P010B	Path 2: Signal range check - out of range low	Raw value of time period transmitted by HFM sensor in Bank 2	<	6.5	us	Ignition is on Battery voltage Battery voltage Bettery voltage Error in the sensor self diagnosis Error in the electric line diagnosis Error in the electric line diagnosis	- ^ <	TRUE  10.9 655.34 FALSE FALSE FALSE	- V V - -	1.5	sec	continuous	2 Trips

BD GROUP: KGMXOBDG	607		TEST GROUP: 1	TIC SUMMARY TABLES KGMXV04.2088	ECIVI			E	MISSION	IS STDS:	CALULE	V125, FE	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters		Enable Condition	s	1	Time Require	ed	MIL IIIum
						No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-				
	P010B	Path 3: Sensor self diagnosis - MAF frequency in default range which indicates MAF has detected an internal error	Raw value of time period transmitted by HFM sensor in Bank 2	> 1800	us	Ignition is on	=	TRUE	-	1.5	sec	continuous	2 Trips
			and Raw value of time period transmitted by HFM sensor in Bank 2	< 2200	us	Battery voltage Battery voltage No pending or confirmed DTCs	> <	10.9 655.34 see sheet inhibit	V				
						Basic enable conditions met		tables see sheet enable tables	-				
IAF Sensor B2 - Airflow	P010B	Path 4: Comparison of Maximum Modelled and actual Air Mass Flow (Plausibility Check)	Measured MAF from bank 2 sensor	> (A) / (B)	g/sec	Engine is rotating forwards	=	TRUE	-	25.5	sec	continuous	2 Trips
			with (A) Maximum modelled MAF at throttle body (B) Factor MAF sensor tolerance for min value	= calculated parameter = 0.600006	g/sec factor	and Measured air mass flow sensor signal at bank 2 is invalid and	=	FALSE	-				
						Delta mass flow between compressor and DK through Delta pressure is valid for bank2 and	=	TRUE	-				
						Air mass flow through throttle valve for MAF diagnosis is valid for bank 2 No pending or confirmed DTCs	=	TRUE see sheet inhibit tables	-				
						Basic enable conditions met	=	see sheet enable tables	-				
	P010B	Path 5: Comparison of Minimum Modelled and actual Air Mass Flow (Plausibility Check)	Measured MAF from bank 2 sensor with (A) Minimum modelled MAF at throttle body	< (C) / (D)  = calculated parameter	g/sec	Engine is rotating forwards  and Measured air mass flow sensor signal at	-	TRUE FALSE	-	25.5	sec	continuous	2 Trips
			(B) Factor MAF sensor tolerance for max value	= 1.970001	factor	bank 2 is invalid and							
						Delta mass flow between compressor and DK through Delta pressure is valid for bank2	=	TRUE	-				
						and Air mass flow through throttle valve for MAF diagnosis is valid for bank 2 No pending or confirmed DTCs	=	TRUE see sheet inhibit tables	-				
						Basic enable conditions met	=	see sheet enable tables	•				$ldsymbol{ldsymbol{ldsymbol{ldsymbol{eta}}}$
AF Sensor B1 - Temperature	P0113	Detects physical range check of Intake Air Temperature sensor - out of range high error when the intake air temperature falls above the threshold	Filtered Temperature value of the Intake Air Temperature sensor	> 122.76	deg C	( ( Ratio of Desired upstream Throttle valve	>	1.2	_	2	sec	continuous	2 Trips
						pressure to Ambient Pressure  Engine speed with low resolution )	>	3520	rpm				
						for time ) No pending or confirmed DTCs	=	10 see sheet inhibit table	sec -				
						Basic enable conditions met	=	see sheet enable tables	-				

Composition   Figure 10   Part Composition   Part	BD GROUP: KGMXOBDG	07		DIAGNOS' TEST GROUP: I		MARY TABLES 2088	ECM				EMISSIO	NS STDS	S: CALU	LEV125, FEI	DBIN125
## Cooper recordance of region control for make a trapporture    Cooper recordance of region control for make a trapporture   Cooper recordance of region control for make a trapporture   Cooper recording of the make a trapporture of the make a trapporture   Cooper recording of the make a trapporture of	Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns		Time Req	uired	MIL IIIum
A		P0112	sensor - out of range low error when the intake air temperature	Intake air temperature	<	-42.04	deg C	(				2	sec	continuous	2 Trips
Point   Comment of development regions consistent of make 48 Temperature secure during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Imagenature assert during CML   Comment of the make 18 Ima			falls below the threshold					Cylinder air mass flow	<=	14.4444444	g/sec				
Fig. 12 Commenced and an interpretative water of the months of the month								) for time	_	3	sec				
P0111 Complete for the interpretation of the programme amount along Cell Complete for the interpretation of the control to the interpretation of the control to the control								OR Starting value of downstream engine coolant							
POIL Concluded in clade. A 1 Temperature annexes during College of the Concept of								) No pending or confirmed DTCs	_	see sheet inhihit					
sear after 1 Temporature    Secretary   Temporature   Secretary										table see sheet enable	-				
TRUE	F Sensor B1 - Temperature	P0111	start when difference between the intake air temperature and	temperature from start and mean temperature	>	14.96	deg C	First engine start has happened	=	FALSE	-			continuous	2 trips
To the time Constitution engine to principle			,	·				lanition is on		TRUE	_				
Engine is an synchronized atale and engine recording to termine and the control to termine and the con									_	1	sec				
To retire 1 section of dears is recorded and angine is 1 section of dears is recorded and angine is 1 section of the control o								(							
Food of last of a seached and original is a TRUE -								is	-	IRUE	-				
Spillor ON   1   sac								for time		1	sec				
Internal Control Con									=	TRUE	-				
Measured enter a stora trine    Control of C								(	=	TRUE	-				
Engine stop time is calculated and is control.  CR  CR  Calculated engine stop time is a minimal value and overflow could be a reason  (Inc.)  For time  Can business in activated  Disagnation is in hibitable by other temperature sensor errors  (Inc.)  Combustion engine end of start is excited to for time  Combustion engine end of start is excited for time  Combustion engine end of start is excited for time  Combustion engine end of start is excited for time  Combustion engine end of start is excited for time  (Inc.)  Preferringly error with the coolant engine end engine coulert to temperature sensor (Inc.)  (Inc.)  Difference between engine coolant temperature value  From temperature and mean temperature value from temperature and mean temperature value from temperature sensors and engine coolant temperature sensors and engine coolant temperature sensors and engine coolant temperature value from temperature sensors and engine coolant temper										1	sec				
Engine stop time is calculated and is concern.  CR  Calculated engine stop time is a minimal value and overflow could be a reason  )  Not time  Block heater is activated  Obaquation is inhibited by other temperature sensor errors  (  (  Combustion engine and of start is expected for time of ti								( Measured engine stop time	\=	28800	sec				
OR Calculated engine stop time is a minimal value and overflow could be a reason  ) ) ) or fine  Block heater is activated Degrapions is inhibited by other temperature sensor errors  ( ( ( ( ( ( ( ( ( ( Combustion engine is numinal Combustion engine and of start is reached for the time  The periminary error with the coolant engine temperature and mean temperature experiture and mean temperature temperature and mean temperature  Defletence between engine coolant temperature and mean temperature value from temperature sensors  Defletence between mean entemperature value from temperature sensors and engine coolant temperature value from temperature sensors and engine coolant temperature  Engine coolant temperature  Engine coolant temperature  Sensor  48.96 deg C								( Engine stop time is calculated and is			-				
for time    Slock heater is activated								OR Calculated engine stop time is a minimal	=	2	-				
Bick heater is activated Diagnoss is inhibited by other temperature sensor errors  {  {  Combustion engine is running or Combustion engine end of start is reached Ior time   Petiminary error with the coolant engine temperature sensor   Difference between engine coolant temperature and mean temperature value  Irom temperature sensors OR Difference between mean temperature value   Difference between mean temperature value   Tor time   TRUE   TRUE     TRUE   TR								)							
Bickch heater is activated Diagnosis inhibited by other temperature sensor errors  {  {  Combustion engine is running or Combustion engine end of start is feached Ior time   Preliminary error with the coolant engine temperature sensor    Difference between engine coolant temperature and mean temperature value  Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron temperature sensors OR Difference between mean temperature value   Iron t								) for time		3	200				
Diagnosis is inhibited by other temperature sensor errors  {  {  (  (  Combustion engine in inhibited by other temperature sensor errors  (  Combustion engine end of start is exactled for time   FALSE   FAL								)							
or Combustion engine end of start is reached for time } Preliminary error with the coolant engine temperature sensor (  Difference between engine coolant temperature and mean temperature value from temperature sensors OR Difference between mean temperature value from temperature sensors and engine coolant temperature sensor >= 49.96 deg C								Diagnosis is inhibited by other temperature		FALSE					
or Combustion engine end of start is reached for time } Preliminary error with the coolant engine temperature sensor (  Difference between engine coolant temperature and mean temperature value from temperature sensors OR Difference between mean temperature value from temperature sensors and engine coolant temperature sensor >= 49.96 deg C								(							
Combustion engine end of start is reached for time >= 5 sec   Preliminary error with the coolant engine temperature sensor ( Difference between engine coolant temperature value from temperature sensor OR Difference between mean temperature value temperature sensors OR Engine coolant temperature value from temperature value from temperature sensors and engine coolant temperature sensors and engine coolant temperature sensors and engine coolant temperature sensors = 49.96 deg C		1							=	FALSE	-				
for time								Combustion engine end of start is	=	FALSE	-				
Preliminary error with the coolant engine temperature sensor (  Difference between engine coolant temperature value  from temperature sensors OR Difference between mean temperature value  value from temperature sensors OR Engine coolant temperature  value from temperature sensors and engine coolant temperature value from temperature sensors and engine coolant temperature ) Engine coolant temperature sensor >= 49.96 deg C									>=	5	sec				
temperature and mean temperature value  from temperature sensors  OR  Difference between mean temperature value from temperature sensors and engine coolant temperature )  Engine coolant temperature sensor >= 49.96 deg C									=	TRUE					
from temperature sensors  OR  OR  Difference between mean temperature value from temperature sensors and engine coolant temperature )  Engine coolant temperature sensor >= 49.96 deg C								temperature and mean temperature	>	14.96	deg C				
								from temperature sensors OR Difference between mean temperature value from temperature sensors and	<	14.96					
									>=	49.96	deg C				
for time < 0 sec								for time	<	0	sec				

O GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECM GMXV04.2088			Е	MISSION	S STDS: CALULEV125, FEI	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	Time Required	MIL IIIu
					Combustion engine is running	=	TRUE			
					for time	>=	0	sec		
					) No pending or confirmed DTCs	=	see sheet inhibit	-		
					Basic enable conditions met	=	table see sheet enable			
							tables			
	P0111		Difference between mean temperature value from the temperature sensors and the minimum intake air temperature from start	> 14.96 deg C	First engine start has happened	=	FALSE	-	continuous	2 trip
					Ignition is on	=	TRUE			
					for time Combustion engine is running	=	1 TRUE	sec -		
					( Engine is in synchronised state and engine	=	TRUE	-		
					is rotating	_	INOL	-		
					for time		1	sec		
					) End of start is reached and engine is	=	TRUE	-		
					running (	=	TRUE	-		
					Ignition ON for time		1	sec		
					) (		00000			
					Measured engine stop time	>=	28800 1	sec -		
					Engine stop time is calculated and is correct					
					OR Calculated engine stop time is a minimal value and overflow could be a reason	=	1	-		
					)					
					for time )	<	3	sec		
					Block heater is activated Diagnosis is inhibited by other temperature sensor errors	=	FALSE FALSE			
					( ( Combustion engine is running	=	FALSE			
					or Combustion engine end of start is	=	FALSE			
					reached					
					for time ) Preliminary error with the coolant engine temperature sensor	>=	5 TRUE	sec - -		
					( Difference between engine coolant temperature and mean temperature	>	14.96	deg C		
					value from temperature sensors OR Difference between mean temperature	<	14.96	sec deg C		
					value from temperature sensors and engine coolant temperature )					
					Engine coolant temperature sensor value	>=	49.96	deg C		
					) for time )	<	0	sec		
					or Combustion engine is running	=	TRUE	-		
					for time	>=	0	sec		
					) No pending or confirmed DTCs	=	see sheet inhibit	-		
					Basic enable conditions met	=	table see sheet enable			
							tables			I

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: N		ARY TABLES	ECM			ı	MISSION	IS STDS:	CALULE	V125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	Т	ime Require	d	MIL IIIum.
	P0111	Detection of stuck error of Intake Air Temperature sensor when the difference between the maximum and the minimum intake air temperature, since engine start is less than the calibrated threshold	Difference between the maximum and the minimum intake air temperature values	<	4.96	deg C	Engine coolant downstream temperature during the first engine start of the driving cycle	<=	49.96	deg C			continuous	2 Trips
							Counter for high-phases of intake air Temperature sensor Conditions for intake air temperature sensor (high phases):	>=	2 TRUE	counts -				
							( Cylinder air mass flow Vehicle speed Engine coolant temperature Integrated Air mass flow (see Look-Up- Table #P0111-1)	< < >	11.1111111 12.4300808 79.96 1000 to 20020	g/sec mph dea C g				
							) for time ) Counter for low-phases of intake air temperature sensor Conditions for low intake air temperature (low phases):	>=	60 2	sec				
							( ( Vehicle speed Cylinder air mass flow Cylinder air mass flow )	> >= <=	49.72032318 20 42.2222222	mph a/sec a/sec				
							for time ) No pending or confirmed DTCs Basic enable conditions met	=	see sheet inhibit table see sheet enable tables	sec -				
MAF Sensor B1 - Temperature	P0114	Detects the max error of the Gradient for the intake air temperature sensor after air filter, Bank 1	Absolute difference etween raw and filtered temperature values from Intake air temperature sensor 1 for time	> >=	10 25	deg C	Ignition ON  No pending or confirmed DTCs	=	TRUE see sheet inhibit table	-			continuous	2 Trips
							Basic enable conditions met	=	see sheet enable tables	-				
MAF Sensor B1 - Temperature	U1346	Detects Bus off error at LIN channel 2.	LIN channel 2 indicates bus off error	=	TRUE	-	Ignition is on No pending or confirmed DTCs Basic enable conditions met	=	TRUE see sheet inhibit tables see sheet enable tables	-	10	counts	continuous	1 Trip
MAF Sensor B1 - Temperature	U0611	Detects when the time since the last message from the 'Intake Air Temperature Sensor Bank 1 Sensor 1 Module' for frame 'MAF1, Rsp_TmpHum' (0x2A) was received via LIN 1 Channel is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Intake Air Temperature Sensor Bank 1 Sensor 1 for frame "MAF1_Rsp_TmpHum"(0x2A) was received via LIN 2Channel	>	0.1	sec	Ignition is ON	=	TRUE	-	3	counts	Continuous	2 Trips
							Basic enable conditions met	=	see sheet enable tables	•				
MAF Sensor B1 - Temperature	U1370	Monitoring of Temperature Alive Rolling Counter (ARC) LIN signal of Mass Air Flow Sensor	Wrong alive rolling counter received by the frame "MAF1_Rsp_TmpHum" (0x2A) from MAF1 Temperature humidity signals received over LIN	=	TRUE	-	Status of DIO pin connected to the mass air flow sensor line is not grounded  Basic enable conditions met	=	TRUE see sheet enable tables	-	10	counts	continuous	2 Trips
MAF Sensor B1 - Pressure	P222D	Monitoring of Barometric Pressure Sensor for Signal range Check - High	Raw value of upstream booster pressure sensor	>	115	kPa	( Raw value of pressure sensor signal upstream of compressor is valid	=	TRUE	-	2	sec	continuous	2 Trips
							for time No pending or confirmed DTCs Basic enable conditions met	>= = =	0.04 see sheet inhibit tables see sheet enable tables	sec -				

OBD GROUP: KGMXOBDO	G07		DIAGNOST TEST GROUP: P		TABLES ECN			E	MISSION	IS STDS:	CALULI	EV125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresh	nold Value	Secondary Parameters	Er	nable Conditions	s		Time Requir	red	MIL IIIum.
MAF Sensor B1 - Pressure	P222C	Monitoring of Barometric Pressure Sensor for Signal range Check - Low	Raw value of upstream booster pressure sensor	<	50 kPa	( Raw value of pressure sensor signal upstream of compressor is valid )) for time No pending or confirmed DTCs Basic enable conditions met		TRUE  0.04 ee sheet inhibit tables ee sheet enable tables	sec -	2	sec	continuous	2 Trips
MAF Sensor B1 - Pressure	P222B	Path 1: Monitoring of Barometric Pressure Sensor for Rationality Check - High	Difference between raw value of upstream booster pressure sensor and ambient air pressure raw value measured	>	15 kPa	( Raw value of pressure sensor signal upstream of compressor is valid ) for time Pressure value from Ambient Pressure Sensor is valid No pending or confirmed DTCs Basic enable conditions met		TRUE  0.04 TRUE  se sheet inhibit tables se sheet enable tables	sec - -	2	sec	continuous	2 Trips
		Path 2: Monitoring of Barometric Pressure Sensor for Rationality Check - High during startup	Difference between raw value of upstream booster pressure sensor and maximal reference pressure for delta pressure sensordiagnoses	> 3	5313 kPa	for time  ECU in drive state Pressure value from Ambient Pressure Sensor is valid Healing of ambient pressure sensor by delta pressure sensor Healing of manifold pressure sensor by delta pressure sensor Healing of pressure sensor by delta pressure sensor No pending or confirmed DTCs Basic enable conditions met		TRUE  5  TRUE TRUE TRUE TRUE TRUE TRUE TRUE tables se sheet inhibit tables te sheet enable tables	sec	2	sec	once per driving cycle	2 Trips
		Path 3: Monitoring of Barometric Pressure Sensor for Rationality Check - Low	Difference between raw value of upstream booster pressure sensor and minimal reference pressure for delta pressure sensordiagnoses	< 3	5313 kPa	Engine not in running state  for time  ECU in drive state Healing of ambient pressure sensor by delta pressure sensor Healing of manifold pressure sensor by delta pressure sensor Healing of pressure upstream of throttle sensor by delta pressure sensor No pending or confirmed DTCs  Basic enable conditions met		TRUE  TRUE  TRUE  TRUE  TRUE  TRUE  tables  e sheet inhibit tables  e sheet enable tables	. sec	2	sec	continuous	2 Trips
MAF Sensor B1 - Pressure	U068A	Detects when the time since the last message from the Barometric Pressure Sensor Bank 1 Sensor 2 Module' for frame "MAF1, Rsp. Press (bz2B) was received via LIN 1 Channel is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Barometric Pressure Sensor Bank 1 Sensor 2 for frame "MAF1_Rsp_Press"(0x2B) was received via LIN 2 Channel	> (	.025 sec	Ignition is ON  Basic enable conditions met	= = se	TRUE  e sheet enable tables	-	3	counts	Continuous	2 Trips
MAF Sensor B1 - Pressure	U1371	Monitoring of Pressure Alive Rolling Counter (ARC) LIN signal of Mass Air Flow Sensor	Wrong alive rolling counter received by the frame *MAF1_Rsp_Press* (0x2B) from MAF1 Pressure signals received over LIN	= T	RUE -	Status of DIO pin connected to the mass air flow sensor line is not grounded  Basic enable conditions met	= = se	TRUE e sheet enable tables	-	10	counts	continuous	2 Trips

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1		IARY TABLES	ECM				MISSION	IS STDS:	CALUL	EV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs		Time Requir	red	MIL IIIum.
1AF Sensor B2 - Temperature	POOAD	Detects physical range check of Intake Air Temperature sensor - out of range high error when the intake air temperature falls above the threshold	Filtered Temperature value of the Intake Air Temperature sensor	۸	122.76	deg C	( ( Ratio of Desired upstream Throttle valve pressure to Ambient Pressure Engine speed with low resolution ) ) for time ) No pending or confirmed DTCs Basic enable conditions met	> > = = =	1.2 3520 10 see sheet inhibit table see sheet enable tables	rpm sec -	3	sec	continuous	2 Trips
	P00AC	Detects physical range check of Intake Air Temperature sensor - out of range low error when the intake air temperature	Intake air temperature	<	-42.04	deg C					3	sec	continuous	2 Trips
		falls below the threshold					Coolant temperature at engine output Cylinder air mass flow Vehicle speed ) for time OR Starting value of downstream engine coolant temperature No pending or confirmed DTCs	>=	-41.04 14.4444444 6.215040398 3 142.96 see sheet inhibit	deg C q/sec mph sec deg C				
							Basic enable conditions met	=	table see sheet enable tables	-				
AAF Sensor B2 - Temperature	POOAB	Cross check of Intake Air Temperature sensor during Cold start when difference between the Intake air Temperature and mean temperature value exceeding the minimum threshold	Difference between the minimum intake air temperature from start and mean temperature value from the temperature sensors	>	14.96	deg C	First engine start has happened  Idnition is on for time Combustion engine is running Engine is in synchronised state and engine is rotating for time  End of start is reached and engine is running (Idnition ON for time) (Engine stop time is calculated and is correct OR Calculated engine stop time is a minimal value and overflow could be a reason )  Block heater is activated Diagnosis is inhibited by other temperature sensor errors ((Combustion engine is running or Combustion engine is running or Combustion engine is running or Combustion engine end of start is reached for time ) Preliminary error with the coolant engine temperature sensor	= = = = = = = = = = = = = = = = = = =	TRUE 1 TRUE 1 TRUE 1 TRUE 1 TRUE 1 28800 TRUE TRUE 3 FALSE FALSE FALSE FALSE 5 TRUE	sec sec sec			continuous	2 Trips

D GROUP: KGMXOBD	307		TEST GROUP: K	IC SUMMARY TABLES ECM GMXV04.2088				EMISSIONS	STDS: CALULEV125, FED	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL III
					Difference between engine coolant temperature and mean temperature value from temperature sensors OR Difference between mean temperature value from temperature usensors and	> <	14.96 14.96	deg C sec deg C		
					engine coolant temperature ) Engine coolant temperature sensor	>=	49.96	deg C		
					value ) for time )	<	0	sec		
					or Combustion engine is running	=	TRUE	-		
					for time ) No pending or confirmed DTCs	=	0 see sheet inhibit table	sec		
					Basic enable conditions met	=	see sheet enable tables	-		
			Difference between mean temperature value from the temperature sensors and the minimum intake air temperature from start	> 14.96 deg C	First engine start has happened	=	FALSE	-	continuous	2
					Ignition is on for time Combustion engine is running	=	TRUE 1 TRUE	sec		
					(     Engine is in synchronised state and engine is	=	TRUE	-		
					rotating for time	=	1	sec		
					End of start is reached and engine is running	=	TRUE	-		
					Ignition ON for time		1	sec		
					Measured engine stop time ( Engine stop time is calculated and is correct	>=	28800 TRUE	sec -		
					OR Calculated engine stop time is a minimal value and overflow could be a reason	=	TRUE	-		
					for time	<	3	sec		
					Block heater is activated Diagnosis is inhibited by other temperature sensor errors	=	FALSE FALSE	-		
					( ( Combustion engine is running	=	FALSE	-		
					or Combustion engine end of start is reached	=	FALSE	-		
					for time ) Preliminary error with the coolant engine temperature sensor (	>=	5 TRUE	sec - -		
					Difference between engine coolant temperature and mean temperature	>	14.96	deg C		
					from temperature sensors OR			sec		

OBD GROUP: KGMXOBDG	07		DIAGNOS <sup>*</sup> TEST GROUP: I	FIC SUMMA GMXV04.208		6 ECM			ı	EMISSION	NS STDS: (	CALULEV12	5, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	т	hreshold Value		Secondary Parameters		Enable Condition	ns	Т	ime Required		MIL IIIum.
							Difference between mean temperature value from temperature sensors and engine coolant temperature	<	14.96	deg C				
							Engine coolant temperature sensor value	>=	49.96	deg C				
							for time	<	0	sec				
							or Combustion engine is running	=	TRUE	-				
							for time	>=	0	sec				
							) No pending or confirmed DTCs	=	see sheet inhibit table	-				
							Basic enable conditions met	=	see sheet enable tables	-				
		Detection of stuck error of Intake Air Temperature sensor	Difference between the maximum and the	<	4.96	deg C	Engine coolant downstream temperature	<=	49.96	deg C		cont	tinuous	2 Trips
			minimum intake air temperature values		4.90	deg C	erigine coolant downstream temperature during the first engine start of the driving cycle	<=	49.90	deg C		cont	unuous	2 Hips
							Counter for high-phases of intake air Temperature sensor	>=	2	counts				
							Conditions for intake air temperature sensor (high phases):	=	TRUE	-				
							Cylinder air mass flow Vehicle speed	< <	11.11111111 12.4300808	g/sec mph				
							Engine coolant temperature Integrated Air mass flow (see Look-Up- Table #P00AB-1)	^ ^	79.96 1000 to 20020	deq C				
							for time	>	60	sec				
							Counter for low-phases of intake air temperature sensor Conditions for low intake air temperature (low phases)	>=	2	counts				
							( Vehicle speed Cylinder air mass flow Cylinder air mass flow	> >= <=	49.72032318 20 42.2222222	mph q/sec q/sec				
							for time	>	60	sec				
							No pending or confirmed DTCs	=	see sheet inhibit table	-				
							Basic enable conditions met	=	see sheet enable tables	-				
MAF Sensor B2 - Temperature	P00AE	Detects the max error of the Gradient for the intake air temperature sensor after air filter, Bank 2	Absolute difference etween raw and filtered temperature values from Intake air temperature	>	10	deg C	Ignition ON	=	TRUE	-		cont	tinuous	2 Trips
			sensor 3 for time	>=	25	sec	No pending or confirmed DTCs	=	see sheet inhibit	-				
							Basic enable conditions met	=	table see sheet enable tables	-				
MAF Sensor B2 - Temperature	U1349	Detects Bus off error at LIN channel 5.	LIN channel 5 indicates bus off error	=	TRUE	-	Ignition is on No pending or confirmed DTCs	=	TRUE see sheet inhibit	-	10	counts cont	tinuous	1 Trip
							Basic enable conditions met	=	tables see sheet enable tables	-				
MAF Sensor B2 - Temperature	U0612	Detects when the time since the last message from the 'Intake Air Temperature Sensor Bank 1 Sensor 1 Module' for frame "MAF2_Rsp_TmpHum"(0x2A) was received via LIN 1	Temperature Sensor Bank 1 Sensor 1 for frame "MAF2_Rsp_TmpHum"(0x2A) was received via	>	0.1	sec	Ignition is ON	=	TRUE	-	3	counts Conf	tinuous	2 Trips
		Channel is greater than the Supervision timeout value for a calibrated period of time	LIN 5 Channel				Basic enable conditions met	=	see sheet enable tables	-				

OBD GROUP: KGMXOBDO	607		DIAGNOST TEST GROUP: F	FIC SUMMARY TABLES (GMXV04.2088	ECM			<u>E</u>	MISSION	NS STDS:	CALUL	EV125, FE[	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters		Enable Conditions	•		Time Requir	red	MIL IIIum.
MAF Sensor B2 - Temperature	U1372	Monitoring of Temperature Alive Rolling Counter (ARC) LIN signal of Mass Air Flow Sensor 2	Wrong alive rolling counter received by the frame "MAF2_Rsp_TmpHum" (0x2A) from MAF2 Temperature humidity signals received over LIN	= TRUE	-	Status of DIO pin connected to the mass air flow sensor line bank 2 is not grounded  Basic enable conditions met	" "	TRUE see sheet enable tables	-	10	counts	continuous	2 Trips
MAF Sensor B2 - Pressure	P227D	Monitoring of Barometric Pressure Sensor for Signal range Check - High	Raw value of second upstream booster pressure sensor	> 115		( Raw value of second pressure sensor signal upstream of compressor is valid ) for time and No pending or confirmed DTCs Basic enable conditions met	= = =	TRUE  0.04  see sheet inhibit tables see sheet enable tables	sec -	2	sec	continuous	2 Trips
MAF Sensor B2 - Pressure	P227C	Monitoring of Barometric Pressure Sensor for Signal range Check - Low	Raw value of second upstream booster pressure sensor	< 50		( Raw value of second pressure sensor signal upstream of compressor is valid ) for time and No pending or confirmed DTCs  Basic enable conditions met		O.04  see sheet inhibit tables see sheet enable tables	sec -	2	sec	continuous	2 Trips
MAF Sensor B2 - Pressure	P227B	Path 1: Monitoring of Barometric Pressure Sensor for Rationality Check - High	Difference between raw value of second upstream booster pressure sensor and ambient air pressure raw value measured	> 15	kPa	( Raw value of second pressure sensor signal upstream of compressor is valid ) for time Pressure value from Ambient Pressure Sensor is valid No pending or confirmed DTCs Basic enable conditions met	= X= = =	TRUE  0.04 TRUE  see sheet inhibit tables see sheet enable tables	sec - -	2	sec	continuous	2 Trips
		Path 2: Monitoring of Barometric Pressure Sensor for Rationality Check - High during startup	Difference between raw value of second upstream booster pressure sensor and maximal reference pressure for delta pressure sensordiagnoses	> 3.5313	kPa	Engine not in running state  for time  ECU in drive state Pressure value from Ambient Pressure Sensor is valid Healing of ambient pressure sensor by delta pressure sensor Healing of pressure sensor by delta pressure sensor Healing of pressure upstream of throttle sensor by delta pressure sensor No pending or confirmed DTCs  Basic enable conditions met	= = = = = =	TRUE  5  TRUE TRUE  TRUE  TRUE  TRUE  TRUE  See sheet inhibit tables see sheet enable tables	sec	2	sec	once per driving cycle	2 Trips
		Path 3: Monitoring of Barometric Pressure Sensor for Rationality Check - Low	Difference between raw value of second upstream booster pressure sensor and minimal reference pressure for delta pressure sensordiagnoses	< 3.5313	kPa	Engine not in running state  for the time ECU in drive state Healing of ambient pressure sensor by delta pressure sensor Healing of manifold pressure sensor by delta pressure sensor Healing of pressure upstream of throttle sensor by delta pressure sensor No pending or confirmed DTCs	= A = = = = = =	TRUE  5 TRUE TRUE  TRUE  TRUE  TRUE  See sheet inhibit tables	sec	2	sec	continuous	2 Trips

OBD GROUP: KGMXOBD	G07		DIAGNOST TEST GROUP: N		ARY TABLES	ECM				MISSION	IS STDS:	CALUL	EV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s		Time Requir	ed	MIL IIIum.
							Basic enable conditions met	=	see sheet enable tables	-				
AF Sensor B2 - Pressure	U0680	Detects when the time since the last message from the Barometric Pressure Sensor Bank 1 Sensor 2 Module for frame "MAF2_Rsp_Press" (0x2B) was received via LIN 1 Channel is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Barometric Pressure Sensor Bank 1 Sensor 2 for frame "MAF2_Rsp_Press"(0x2B) was received via LIN 5 Channel	>	0.025	sec	Ignition is ON	=	TRUE	-	3	counts	Continuous	2 Trips
							Basic enable conditions met	=	see sheet enable tables	-				
MAF Sensor B2 - Pressure	U1373	Monitoring of Pressure Alive Rolling Counter (ARC) LIN signal of Mass Air Flow Sensor 2	Wrong alive rolling counter received by the frame "MAF2_Rsp_Press" (0x2B) from MAF2 Pressure signals received over LIN	=	TRUE	-	Status of DIO pin connected to the mass air flow sensor line bank 2 is not grounded  Basic enable conditions met	-	TRUE see sheet enable	-	10	counts	continuous	2 Trips
							basic enable conditions met	_	tables	•				
Intake Air Temperature 2 - B1	P0098	Detects signal range check of Intake Air Temperature sensor- out of range high when the voltage of the intake air temperature sensor is greater than the calibrated threshold	Intake air temperature sensor voltage	>	4.7994	V	(				2	sec	continuous	2 Trips
							Engine coolant temperature Air mass flow Vehicle speed	>= <= <=	-41.04 14.4444444 6.215040398	deq C q/sec mph				
							, for time OR Engine coolant temperature at engine start	= >	3 142.96	sec deg C				
							Basic enable conditions met	=	See sheet enable tables	-				
	P0097	Detects signal range check of Intake Air Temperature sensor - out of range low when the voltage of the intake air temperature sensor is less than the calibrated threshold	Intake air temperature sensor voltage	<	0.195	V	(				2	sec	continuous	2 Trips
							Ratio of modelled boost pressure to ambient pressure OR	<=	1.2	-				
							Engine speed ) for time Basic enable conditions met	= =	3520 120 See sheet enable	rpm sec				
		On the high think As Township and the Oak	Difference between the privilege between the privilege and		44.00	4-5-0	First continuous barrier barrier		tables					
Intake Air Temperature 2 - B1	P0096	Cross check of Intake Air Temperature sensor during Cold start when difference between the intake air temperature and mean temperature value exceeding the minimum threshold	Difference between the minimum intake air temperature from start and mean temperature value from the temperature sensors	>	14.96	deg C	First engine start has happened	=	FALSE	-			continuous	2 Trips
							Ignition ON for time Combustion engine is running	=	TRUE 1 TRUE	sec				
							Engine is in synchronised state and engine is rotating for time	=	TRUE	-				
							) Engine start is finished (*) (	=	TRUE TRUE	sec -				
							Ignition ON for time		1	sec				
							Engine off time ( Engine stop time is calculated and is correct	>= =	28800 TRUE	sec -				
							OR Calculated engine stop time is a minimal value and overflow could be a reason	=	TRUE	-				
							) ) for time	<	3	sec				
	l	l	l				) Block heater is activated	=	FALSE	-				

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: F	TIC SUMMARY TABLES ECM GMXV04.2088				MISSION	S STDS: CALULEV125, FEI	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIu
					Diagnosis is inhibited by other temperature sensor errors	=	FALSE	-		
					(					
					( Combustion engine is running	_	FALSE	_		
					or Engine start is finished (*)	-	FALSE			
					for time )	>=	5	sec -		
					Preliminary error with the coolant engine temperature sensor (	=	TRUE	-		
					Difference between engine coolant temperature and mean temperature value	>	14.96	deg C		
					from temperature sensors OR					
					Difference between mean temperature value from temperature sensors and engine coolant temperature	<	14.96	deg C		
					Engine coolant temperature	>=	49.96	deg C		
					for time	<	0	sec		
					or Combustion engine is running	=	TRUE	-		
					for time	>=	0	sec		
					) No pending or confirmed DTCs	=	See sheet inhibit table	-		
					Basic enable conditions met	=	See sheet enable tables	-		
		Cross check of Intake Air Temperature sensor during Cold	Difference between mean temperature value from	> 14.96 deg C	First engine start has happened	-	FALSE			
		start when difference between the mean temperature value and Intake air temperature exceeding the minimum threshold	the temperature sensors and the minimum intake	) 14.30 deg 0	i iist engine start has nappened	-	TALOL		continuous	2 Tr
					Ignition ON	=	TRUE			
					for time Combustion engine is running	=	1 TRUE	sec -		
					Engine is in synchronised state and engine	=	TRUE	-		
					rotating for time		1	sec		
					) Engine start is finished (*)	=	TRUE	-		
					( Ignition ON for time	=	TRUE 1	sec		
					) (		'	300		
					Engine off time	>=	28800 TRUE	sec -		
					Engine stop time is calculated and is correct					
					OR Calculated engine stop time is a minimal value and overflow could be a reason	=	TRUE	-		
					value and overnow could be a reason					
					) for time	<	3	sec		1
					) Block heater is activated	=	FALSE	-		1
					Diagnosis is inhibited by other temperature sensor errors	=	FALSE	-		
					( Combustion engine is running	-	FALSE			1
					or Engine start is finished (*)	=	FALSE	-		1
		Ĭ	I		for time	>=	5	sec		1

OBD GROUP: KGMXOBD	307		DIAGNOS <sup>*</sup> TEST GROUP: I	TIC SUMMARY TABLES ECN KGMXV04.2088	1		E	MISSION	IS STDS: C	CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Ena	able Condition	s	Ti	me Required	MIL IIIum.
					Preliminary error with the coolant engine temperature sensor (	=	TRUE	-			
					Difference between engine coolant temperature and mean temperature value	>	14.96	deg C			
					from temperature sensors OR Difference between mean temperature value from temperature sensors and engine coolant temperature	<	14.96	deg C			
					Engine coolant temperature	>=	49.96	deg C			
					for time	<	0	sec			
					or Combustion engine is running	=	TRUE				
					for time	>=	0	sec			
					No pending or confirmed DTCs	= See	e sheet inhibit	-			
					Basic enable conditions met	= See	sheet enable tables	-			
		Detection of stuck error of Intake Air Temperature sensor when the difference between the maximum and the minimum Intake air Temperature since engine start is less than the	Difference between the maximum and the minimum intake air temperature values	< 4.96 deg C	Engine coolant downstream temperature during the first engine start of the driving cycle	<=	49.96	deg C		continuo	us 2 Trips
		calibrated threshold			Counter for high-phases of intake air Temperature sensor Conditions for intake air temperature sensor (high phases):	>=	2 TRUE	counts -			
					( Air mass flow Vehicle speed Engine coolant temperature Integrated Air mass flow (See Look-Up Table #P0096-1)	< 1 >	1.11111111 12.4300808 79.96 000 to 20020	g/sec mph deg C g			
					) for time	>	60	sec			
					Counter for low-phases of intake air temperature sensor Conditions for low intake air temperature (low phases)	>=	2	counts			
					( Vehicle speed Air mass flow Air mass flow )	>=	9.72032318 20 2.22222222	mph q/sec q/sec			
					for time	>	60	sec			
					No pending or confirmed DTCs		e sheet inhibit table	-			
					Basic enable conditions met	= See	sheet enable tables	-			
	P0099	Detects electrical error (non plausible signal) of Intake Air Temperature sensor when the difference between raw voltage signal and filtered voltage signal of intake air temperature sensor exceeds the calibrated thres	Absolute value of difference between raw voltage signal of Intake air temperature sensor and filtered voltage signal of Intake air temperature sensor	> 0.12 V	No errors with signal range detected in Intake air temperature sensor (				20	sec continuo	us 2 Trips
					Signal Range check: out of range low error for intake air temperature sensor Signal Range check: out of range high error for intake air temperature sensor	=	FALSE FALSE	-			
					) Basic enable conditions met	= See	sheet enable tables	-			
		Detects signal range check of Intake Air Temperature sensor -	Intake air temperature sensor voltage	> 4.7994 V	(						
Intake Air Temperature 2 - B2	P00A8	out of range high when the voltage of the intake air temperature sensor is greater than the calibrated threshold							2	sec continuo	us 2 Trips

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: P	TIC SUMMARY TABLES ECM GMXV04.2088			E	MISSION	S STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable	Conditions		Time Required	MIL IIIum.
					Air mass flow Vehicle speed	<= 14.444 <= 6.2150	44444 40398	g/sec mph		
					for time OR	= :	3	sec		
					Engine coolant temperature at engine start	> 142	.96	deg C		
					Basic enable conditions met	= See she tab	et enable les	-		
	P00A7	Detects signal range check of Intake Air Temperature sensor - out of range low when the voltage of the intake air temperature	Intake air temperature sensor voltage	< 0.195 V	(				2 sec continuous	s 2 Trips
		sensor is less than the calibrated threshold			Ratio of modelled boost pressure to ambient pressure	<= 1	2	-		
					OR Engine speed	<= 35	20	rpm		
					) for time		20	sec		
					Basic enable conditions met	= See sher	et enable	-		
take Air Temperature 2 - B2	P00A6	Cross check of Intake Air Temperature sensor in intake manifold during Cold start when difference between the Intake air Temperature and mean temperature value exceeding the	Difference between the minimum intake air temperature from start and mean temperature value from the temperature sensors	> 14.96 deg C	First engine start has happened	= FAI	.SE	-	continuous	2 Trips
		minimum threshold			Ignition ON	= TR	UE	-		
					for time Combustion engine is running	= TR	I UE	sec -		
					( Engine is in synchronised state and engine	= TR				
					is rotating for time	= .	ı	sec		
					) Engine start is finished (*)	= TR	UE			
					( Ignition ON for time	= TR	UE	sec		
					( Engine off time	>= 288	200	sec		
					( Engine stop time is calculated and is	= 200		-		
					Correct OR Calculated engine stop time is a minimal	= .	I	_		
					value and overflow could be a reason	=	ı	-		
					)					
					for time ) Block heater is activated		SE	sec -		
					Diagnosis is inhibited by other temperature sensor errors	= FAI = FAI	.SE	-		
					( ( Combustion engine is running	= FAI	.SE	_		
					or Engine start is finished (*)		SE			
					for time )		5	sec -		
					Preliminary error with the coolant engine temperature sensor (	= TR	UE	-		
					Difference between engine coolant temperature and mean temperature value	> 14	96	deg C		
					from temperature sensors OR Difference between mean temperature value from temperature sensors and engine coolant temperature	< 14	96	deg C		
					Engine coolant temperature	>= 49	ne .	deg C		

GROUP: KGMXOBDG	07		DIAGNOSTI TEST GROUP: KO	GMXV04.2088				MISSION	S STDS: CALULEV125, FE	DBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs	Time Required	MIL III
					for time	<	0	sec		
					) or Combustion engine is running	=	TRUE	-		
					for time	>=	0	sec		
					) No pending or confirmed DTCs	=	See sheet inhibit	-		
					Basic enable conditions met	=	table See sheet enable	-		
							tables			
		Cross check of Intake Air Temperature sensor in intake manifold during Cold start when difference between the mean temperature value and Intake air temperature exceeding the minimum threshold	Difference between mean temperature value from the temperature sensors and the minimum intake air temperature from start	> 14.96 deg C	First engine start has happened	=	FALSE	-	continuous	2
		Illimitati difesiloid			Ignition ON for time	=	TRUE 1	- sec		
					Combustion engine is running	=	TRUE	-		
					Engine is in synchronised state and engine is rotating	=	TRUE	-		
					for time	=	1	sec		
					Engine start is finished (*) (	=	TRUE TRUE	-		
					Ignition ON for time		1	sec		
					) ( Engine off time	>=	28800	sec		
					( Engine stop time is calculated and is	=	1	-		
					correct OR					
					Calculated engine stop time is a minimal value and overflow could be a reason	=	1	-		
					) for time	<	3	sec		
					Block heater is activated Diagnosis is inhibited by other temperature sensor errors	=	FALSE FALSE	-		
					(					
					( Combustion engine is running	=	FALSE	-		
					or Engine start is finished (*)	-	FALSE	-		
					for time ) Preliminary error with the coolant engine temperature sensor	=	5 TRUE	sec - -		
					Difference between engine coolant temperature and mean temperature	>	14.96	deg C		
					temperature and mean temperature value from temperature sensors OR Difference between mean temperature value from temperature sensors and	<	14.96	deg C		
					engine coolant temperature )					
					Engine coolant temperature )	>=	49.96	deg C		
					for time )	<	0	sec		
					Combustion engine is running	=	TRUE	-		
					for time	>=	0	sec		
					No pending or confirmed DTCs	=	See sheet inhibit table	-		
					Basic enable conditions met	=	See sheet enable	-		

OBD GROUP: KGMXOBDG07	7		DIAGNOST TEST GROUP: P	TIC SUMMARY TABLES ECM (GMXV04.2088		EMISSION	IS STDS: CALULEV125, FED	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
		Detection of stuck error of Intake Air Temperature sensor in intake manifold when the difference between the maximum and the minimum Intake air Temperature, since engine start is less than the calibrated threshold	Difference between the maximum and the minimum intake air temperature values	< 4.96 deg C	Engine coolant downstream temperature during the first engine start of the driving cycle  Counter for high-phases of intake air Temperature sensor Conditions for intake air temperature sensor (high phases):  ( Air mass flow Vehicle speed Engine coolant temperature Integrated Air mass flow (See Look-Up Table #P00A6-1) ) Tor time ) Counter for low-phases of intake air temperatures ensor	<= 49.96 deg C  >= 2 counts  = TRUE -  < 11.11111111 g/sec  < 12.4300808 mph  > 79.96 deg C  > 1000 to 20020 g  > 60 sec  >= 2 counts	continuous	2 Trips
					((ow phases) ( (  (  (  Vehicle speed and Air mass flow Air mass flow ) for time ) No pending or confirmed DTCs Basic enable conditions met	> 49,72032318 mph >= 20 q/sec <= 42,22222222 q/sec > 60 sec = See sheet inhibit table = See sheet enable tables		
	P00A9	Detects electrical error (non plausible signal) of Intake Air Temperature sensor when the difference between raw voltage signal and filtered voltage signal of intake air temperature sensor exceeds the calibrated threshold	Absolute value of difference between raw voltage signal of Intake air temperature sensor and filtered voltage signal of Intake air temperature sensor	> 0.12 V	No errors with signal range detected in Intake air temperature sensor (  Signal Range check: out of range low error for intake air temperature sensor P00A7  Signal Range check: out of range high error for intake air temperature sensor P00A8  Basic enable conditions met	= FALSE - = FALSE - = See sheet enable tables	20 sec continuous	2 Trips
Battery Sensor (External Sensor) - Internal Temperature	P16DF	Path 1: Diagnosis of Battery Monitor Internal Temperature circuit high fault - Historical	Communication message indicating Battery Module Raw temperatue sensor 1  Communication message indicating historical temperature data down counter Communication message indicating historical temperature data down counter	< -43 degC  > 0 - <= 24 -	Battery Monitor module diagnosis is active, which is the following conditions:  ( Battery voltage Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication fault is active ) No pending or confirmed DTCs Basic enable conditions met	= TRUE -  > 10.9 V  = FALSE -  TRUE -  = FALSE -  = see sheet inhibit - tables  = see sheet enable - tables	40 counts continuous	2 Trips
		Path 2: Diagnosis of Battery Monitor Internal Temperature circuit high fault - Continuous	Communication message indicating Battery Module Raw temperatue sensor 1 Communication message indicating historical temperature data down counter	< -43 degC = 0 -	Battery Monitor module diagnosis is active, which is the following conditions:  ( Battery voltage Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication fault is active ) No pending or confirmed DTCs	= TRUE -  > 10.9 V = FALSE - TRUE - TRUE - FALSE - = FALSE - see sheet inhibit - tables	40 counts continuous	2 Trips

OBD GROUP: KGMXOBDG0	7		DIAGNOS' TEST GROUP: I	TIC SUMMARY TAB (GMXV04.2088	LES ECM		E	MISSION	S STDS: C	ALULEV12	25, FEDI	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Va	lue	Secondary Parameters	Enable Condition	s	Tin	me Required		MIL IIIum.
						Basic enable conditions met	= see sheet enable tables	-				
Done check Debounce Params	P16DE	Path 1: Diagnosis of Battery Monitor Internal Temperature circuit low fault - Historical	Communication message indicating Battery Module Raw temperatue sensor 1 Communication message indicating historical	> 120	degC	Battery Monitor module diagnosis is active, which is the following conditions:	= TRUE	-	40	counts cor	ntinuous	2 Trips
			temperature data down counter  Communication message indicating historical temperature data down counter	<= 24	-	Battery voltage	> 10.9 = FALSE	٧				
						Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication fault is active	= FALSE = TRUE = FALSE	-				
						No pending or confirmed DTCs  Basic enable conditions met	= see sheet inhibit tables = see sheet enable					
				100			tables					
		Path 2: Diagnosis of Battery Monitor Internal Temperature circuit low fault - Continuous	Communication message indicating Battery Module Raw temperatue sensor 1 Communication message indicating historical	> 120 = 0	degC -	Battery Monitor module diagnosis is active, which is the following conditions:	= TRUE	-	40	counts cor	ntinuous	2 Trips
			temperature data down counter			Battery voltage Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication fault is active	> 10.9 = FALSE = TRUE = FALSE	V - -				
						No pending or confirmed DTCs  Basic enable conditions met	= see sheet inhibit tables = see sheet enable tables					
Done, check debounce parameters	P100D	Diagnosis of Battery Monitor Module for Internal Temperature Erratic behavior	Maximum completed String Length for the NTC raw temperature Counter for the Internal Temperature samples Communication message indicating historical	> 70 > 10 = 0	degC -	Battery Monitor module diagnosis is active, which is the following conditions: ( Battery voltage	= TRUE	- V	5	counts cor	ntinuous	2 Trips
			temperature data down counter	-		Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication fault is active	= FALSE = TRUE = FALSE					
						) No pending or confirmed DTCs Basic enable conditions met	= see sheet inhibit tables = see sheet enable tables	-				
Lost Communication With Battery Sensor Module	U01B0	Detects when the time since the last message from the 'Battery Sensor Module' for frame 'IBSAmpHourChg'(0x18) was received via LIN 1 Channel is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the "Battery Sensor Module" for frame "IBSAmpHourChg"(0x18) was received via LIN 1 Channel	> 0.5	sec	Ignition is ON	= TRUE	-	3	counts Cor	ntinuous 21	Trips
						Basic enable conditions met	= see sheet enable tables	-				
	U01B0	Detects when the time since the last message from the "Battery Sensor Module" for frame "IBSAmpHourDisChrg" (0x19) was received via LIN 1 Channel is greater than the	Time since last message from the "Battery Sensor Module" for frame "IBSAmpHourDisChrg" (0x19) was received via LIN 1 Channel	> 0.5	sec	Ignition is ON	= TRUE	-	3	counts Cor	ntinuous 21	Trips
		Supervision timeout value for a calibrated period of time				Basic enable conditions met	= see sheet enable tables	-				
	U01B0	Detects when the time since the last message from the 'Battery Sensor Module' for frame 'IBSCalcData' (0x16) was received via LIN 1 Channel is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the "Battery Sensor Module" for frame "IBSCalcData"(0x16) was received via LIN 1 Channel	> 0.5	sec	Ignition is ON	= TRUE	-	3	counts Cor	ntinuous 21	Trips
		and and				Basic enable conditions met	= see sheet enable tables	-				
	U01B0	Detects when the time since the last message from the "Battery Sensor Module" for frame "IBSCfgDataRm" (0x1E) was received via LIN 1 Channel is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the "Battery Sensor Module" for frame "IBSCfgDataRtn"(0x1E) was received via LIN 1 Channel	> 1	sec	Ignition is ON	= TRUE	-	3	counts Cor	ntinuous 21	Trips

OBD GROUP: KGMXOBDG	)7		DIAGNOST TEST GROUP: K		ARY TABLES	ECM			E	MISSION	IS STDS:	CALULE	EV125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	•	1	Time Require	ed	MIL IIIum.
							Basic enable conditions met	=	see sheet enable tables	-				
	U01B0	Detects when the time since the last message from the "Battery Sensor Module" for frame "IBSCurrent" OMData" (I0x1A) was received via LIN 1 Channel is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the "Battery Sensor Module" for frame "IBSCurrentFOMData" (0x1A) was received via LIN 1 Channel	>	2	sec	Ignition is ON	=	TRUE	-	3	counts	Continuous	2 Trips
							Basic enable conditions met	=	see sheet enable tables	-				
	U01B0	Detects when the time since the last message from the "Battery Sensor Module" for frame "IBSFOMData" (0x1C) was received via LIN 1 Channel is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the "Battery Sensor Module" for frame "IBSFOMData" (0x1C) was received via LIN 1 Channel	>	2	sec	Ignition is ON	-	TRUE	-	3	counts	Continuous	2 Trips
		,					Basic enable conditions met	=	see sheet enable tables	-				
	U01B0	Detects when the time since the last message from the "Battery Sensor Module" for frame "IBSMeasuredTemp" (0x17) was received via LIN 1 Channel is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the "Battery Sensor Module" for frame "IBSMeasuredTemp" (0x17) was received via LIN 1 Channel	>	0.25	sec	Ignition is ON	=	TRUE	-	3	counts	Continuous	2 Trips
		Supervision unlessed value for a calibrated period of unite					Basic enable conditions met	=	see sheet enable tables	-				
	U01B0	Detects when the time since the last message from the *Battery Sensor Module* for frame *IBSMVIData* (0x15) was received via LIN 1 Channel is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the "Battery Sensor Module" for frame "IBSMV/Data"(0x15) was received via LIN 1 Channel	>	0.25	sec	Ignition is ON	=	TRUE	-	3	counts	Continuous	2 Trips
		umeout value for a calibrated period of time					Basic enable conditions met	=	see sheet enable tables	-				
	U01B0	Detects when the time since the last message from the *Battery Sensor Module* for frame *IBSVehStartData*(0x1D) was received via LIN 1 Channel is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the "Battery Sensor Module" for frame "IBSVehStartData"(0x1D) was received via LIN 1 Channel	>	0.5	sec	Ignition is ON	=	TRUE	-	3	counts	Continuous	2 Trips
							Basic enable conditions met	=	see sheet enable tables	-				
	U01B0	Detects when the time since the last message from the Battery Sensor Module' for frame 'IBSVoltageFOMData'(0x1B) was received via LIN 1 Channel is greater than the Supervision timeout value for a calibrated	Time since last message from the "Battery Sensor Module" for frame "BSV0tlageFOMData"(0x1B) was received via LIN 1 Channel	>	2	sec	Ignition is ON	=	TRUE	-	3	counts	Continuous	2 Trips
		period of time					Basic enable conditions met	=	see sheet enable tables	-				
sattery Monitor Sensor Signal Message Counter Incorrect	U04B1	Detects when wrong alive rolling counter received by the frame IBSAmpHourChg(0x18) in LIN1 channel from Battery Monitor	IBSAmpHourChg(0x18) in LIN1 channel from	=	TRUE		Ignition is ON	=	TRUE	-	10	counts	Continuous	2 Trips
		Sensor module	Battery Monitor Sensor module				Basic enable conditions met	=	see sheet enable tables	-				
	U04B1	Detects when wrong alive rolling counter received by the frame IBSAmpHourDisChrg(0x19) in LIN1 channel from Battery Monitor Sensor module	Wrong alive rolling counter received by the frame IBSAmpHourDisChrg(0x19) in LIN1 channel from Battery Monitor Sensor module	=	TRUE		Ignition is ON	=	TRUE	-	10	counts	Continuous	2 Trips
		Monitor Sensor module	Battery Monitor Sensor module				Basic enable conditions met	=	see sheet enable tables	-				
	U04B1	Detects when wrong alive rolling counter received by the frame IBSCalcData(0x16) in LIN1 channel from Battery Monitor Sensor module	Wrong alive rolling counter received by the frame IBSCalcData(0x16) in LIN1 channel from Battery Monitor Sensor module	=	TRUE	-	Ignition is ON	=	TRUE	-	10	counts	Continuous	2 Trips
							Basic enable conditions met	=	see sheet enable tables	-				
	U04B1	Detects when wrong alive rolling counter received by the frame IBSCfgDataRtn(0x1E) in LIN1 channel from Battery Monitor Sensor module	Wrong alive rolling counter received by the frame IBSCfgDataRtn(0x1E) in LIN1 channel from Battery Monitor Sensor module	=	TRUE	-	Ignition is ON	-	TRUE	-	10	counts	Continuous	2 Trips
							Basic enable conditions met	=	see sheet enable tables	-				

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: P	TIC SUMMARY TABLES	6 ECM			E	MISSION	IS STDS:	CALULE	EV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters		Enable Conditions	<b>.</b>		Time Require	ed	MIL IIIum.
	U04B1	Detects when wrong alive rolling counter received by the frame IBSCurrentFOMData(0x1A) in LIN1 channel from Battery Monitor Sensor module	Wrong alive rolling counter received by the frame IBSCurrentFOMData(0x1A) in LIN1 channel from Battery Monitor Sensor module	= TRUE	-	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables	-	10	counts	Continuous	2 Trips
	U04B1	Detects when wrong alive rolling counter received by the frame IBSFOMData(0x1C) in LIN1 channel from Battery Monitor Sensor module	Wrong alive rolling counter received by the frame IBSFOMData(0x1C) in LIN1 channel from Battery Monitor Sensor module	= TRUE	-	Ignition is ON  Basic enable conditions met	" "	TRUE see sheet enable tables	-	10	counts	Continuous	2 Trips
	U04B1	Detects when wrong alive rolling counter received by the frame IBSMeasuredTemp(0x17) in LIN1 channel from Battery Monitor Sensor module	Wrong alive rolling counter received by the frame IBSMeasuredTemp(0x17) in LIN1 channel from Battery Monitor Sensor module	= TRUE	-	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables		10	counts	Continuous	2 Trips
	U04B1	Detects when wrong alive rolling counter received by the frame IBSMVIData(0x15) in LIN1 channel from Battery Monitor Sensor module	Wrong alive rolling counter received by the frame IBSMVIData(0x15) in LIN1 channel from Battery Monitor Sensor module	= TRUE	-	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables	-	10	counts	Continuous	2 Trips
	U04B1	Detects when wrong alive rolling counter received by the frame IBSVehStartData(0x1D) in LIN1 channel from Battery Monitor Sensor module	Wrong alive rolling counter received by the frame IBSVehStartData(0x1D) in LIN1 channel from Battery Monitor Sensor module	= TRUE	-	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables	-	10	counts	Continuous	2 Trips
	U04B1	Detects when wrong alive rolling counter received by the frame IBSVoltageFOMData(0x1B) in LIN1 channel from Battery Monitor Sensor module	Wrong alive rolling counter received by the frame IBSVoltageFOMData(0x1B) in LIN1 channel from Battery Monitor Sensor module	= TRUE	-	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables		10	counts	Continuous	2 Trips
Battery Sensor (External Sensor) - Temperature	P058E	Path 1: Diagnosis Battery Monitor Module Temperature Out Of Range High - Historical	Communication message indicating Battery Module Raw temperature sensor 2  Communication message indicating historical temperature data down counter Communication message indicating historical temperature data down counter	> 120 > 0 <= 24	degC - -	Battery Monitor module diagnosis is active, which is the following conditions: ( Battery voltage Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication is active Communication fault is active ) No pending or confirmed DTCs Basic enable conditions met	> = = =	TRUE  10.9  FALSE TRUE  FALSE  see sheet inhibit tables see sheet enable tables	V	40	counts	continuous	2 Trips
		Path 2: Diagnosis Battery Monitor Module Temperature Out Of Range High - Continuous	Communication message indicating Battery Module Raw temperatue sensor 2 Communication message indicating historical temperature data down counter	> 120 = 0	degC -	Battery Monitor module diagnosis is active, which is the following conditions:  ( Battery voltage Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication fault is active ) No pending or confirmed DTCs Basic enable conditions met		TRUE  10.9 FALSE TRUE FALSE see sheet inhibit tables see sheet enable tables	V	40	counts	continuous	2 Trips
Done, check debounce	P058F	Path 1: Diagnosis of Battery Monitor Module Temperature Out Of Range Low - Historical	Communication message indicating Battery Module Raw temperatue sensor 2 Communication message indicating historical temperature data down counter Communication message indicating historical temperature data down counter	< -43 > 0 <= 24	degC - -	Battery Monitor module diagnosis is active, which is the following conditions: ( Battery voltage	>	TRUE	- V	40	counts	continuous	2 Trips

OBD GROUP: KGMXOBDG0	7		DIAGNOS <sup>*</sup> TEST GROUP: I	TIC SUMMAR'	Y TABLES	ECM			Eľ	MISSION	S STDS: (	CALULE	V125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre	shold Value		Secondary Parameters	E	nable Conditions		Т	me Required	i	MIL IIIum.
							Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication fault is active ) No pending or confirmed DTCs Basic enable conditions met		FALSE TRUE FALSE see sheet inhibit tables ee sheet enable tables	- - -				
		Path 2: Diagnosis of Battery Monitor Module Temperature Out Of Range Low - Continuous	Communication message indicating Battery Module Raw temperatue sensor 2  Communication message indicating historical temperature data down counter	=	-43	degC -	Battery Monitor module diagnosis is active, which is the following conditions:  ( Battery voltage Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication is active ) No pending or confirmed DTCs Basic enable conditions met		TRUE  10.9 FALSE TRUE FALSE TRUE FALSE see sheet inhibit tables ee sheet enable tables	V	40	counts	continuous	2 Trips
Done, check debounce	P100C	Diagnosis of Battery Monitor Module for Temperature Erratic behavior	Maximum completed String Length for the ASIC internal raw temperature Counter for the Temperature samples Communication message indicating historical temperature data down counter	> =	70 10 0	degC - -	Battery Monitor module diagnosis is active, which is the following conditions: ( Battery voltage  Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication is active Communication fault is active ) No pending or confirmed DTCs  Basic enable conditions met		TRUE  10.9  FALSE TRUE  FALSE see sheet inhibit tables ee sheet enable tables	- V - - -	5	counts	continuous	2 Trips
done	P058C	Path 1: Diagnosis of Battery Monitor Module Temperature Monitoring performance - Historical	Absolute difference between the IBS NTC Raw Temperature and the IBS ASIC Raw Temperature Communication message indicating historical temperature data down counter Communication message indicating historical temperature data down counter	> > <=	10 0 24	degC - -	Battery Monitor module diagnosis is active, which is the following conditions: ( Battery voltage Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication is active Communication fault is active ) No pending or confirmed DTCs Basic enable conditions met	-	TRUE  10.9  FALSE TRUE  FALSE tables ee sheet inhibit tables ee sheet enable tables	V	40	counts	continuous	2 Trips
		Path 2: Diagnosis of Battery Monitor Module Temperature Monitoring performance - Continuous	Absolute difference between the IBS NTC Raw Temperature and the IBS ASIC Raw Temperature Communication message indicating historical temperature data down counter	-	0	degC -	Battery Monitor module diagnosis is active, which is the following conditions:  ( Battery voltage Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication is active Communication fault is active ) No pending or confirmed DTCs Basic enable conditions met		TRUE  10.9 FALSE TRUE FALSE cee sheet inhibit tables ee sheet enable tables	V	40	counts	continuous	2 Trips
Battery Sensor (External Sensor) - Current Shunt Sensor	P16DD	Diagnosis of Battery Monitor Module Current High fault	Communication message for Shunt Voltage out of range High indicates a diagnostic failure	=	TRUE	-	Battery Monitor module diagnosis is active, which is the following conditions: ( Battery voltage Condition general function request	> =	TRUE 10.9 FALSE	- V -			continuous	2 Trips

OBD GROUP: KGMXOBDG07	,		DIAGNOST TEST GROUP: P	TIC SUMMARY TABLES -	ECM		EMI	ISSION	IS STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters	Enable Conditions		Time Required	MIL IIIum.
						Intelligent Battery Sensor (IBS) communication is active Communication fault is active ) No pending or confirmed DTCs Basic enable conditions met	= TRUE = FALSE = see sheet inhibit tables = see sheet enable tables			
Done Check debounce Param	P16D6	Diagnosis of Battery Monitor Module Current Low fault	Communication message for Shunt Voltage out of range Low indicates a diagnostic failure	= TRUE	-	Battery Monitor module diagnosis is active, which is the following conditions: ( Battery voltage Condition general function request intelligent Battery Sensor (IBS) communication is active Communication fault is active ) No pending or confirmed DTCs Basic enable conditions met	= TRUE  > 10.9 = FALSE = TRUE = FALSE = see sheet inhibit tables = see sheet enable tables	- V	continue	us 2 Trips
done	P058B	Diagnosis of Battery Monitor Module Current Monitoring performance fault	Communication message for Battery Current performance indicates a diagnostic failure	= TRUE	-	Battery Monitor module diagnosis is active, which is the following conditions: ( ( Battery voltage Condition general function request Intelligent Battery Sensor (BS) communication is active Communication fault is active ) No pending or confirmed DTCs Basic enable conditions met	TRUE  > 10.9 = FALSE = TRUE  FALSE = FALSE = see sheet inhibit tables = see sheet enable tables	V	continue	us 2 Trips
Battery Sensor (External Sensor) - Module	P16E1	Diagnosis of Battery Monitor Module Performance – RAM error	Communication message for Internal Battery Sensor - RAM internal fault indicates a diagnostic failure	= TRUE		Battery Monitor module diagnosis is active, which is the following conditions:  ( Battery voltage Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication is active Communication fault is active ) No pending or confirmed DTCs Basic enable conditions met	TRUE  10.9  FALSE  TRUE  FALSE  FALSE  See sheet inhibit tables  see sheet enable tables	· V · · · · · · · · · · · · · · · · · ·	continue	us 2 Trips
Done check debounce param	P16E2	Diagnosis of Battery Monitor Module Performance – ROM error	Communication message for Internal Battery Sensor - ROM internal fault indicates a diagnostic failure	= TRUE		Battery Monitor module diagnosis is active, which is the following conditions:  ( Battery voltage Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication is active Communication fault is active ) No pending or confirmed DTCs Basic enable conditions met	TRUE  10.9 FALSE TRUE  FALSE  FALSE  see sheet inhibit tables see sheet enable tables	. V	continue	us 2 Trips
	P16E3		( Absolute difference between the IBS Return Nominal C20 and ECM Nominal C20 Calibration OR Absolute difference between the IBS Return Battery Type and ECM Battery Type Calibration OR Absolute difference between the IBS Return U40 Battery Calibration and ECM U40 Battery Calibration OR	> 5 > 0 > 0.502	Ah - V	Battery Monitor module diagnosis is active, which is the following conditions: ( Battery voltage  Condition general function request Intelligent Battery Sensor (IBS) communication is active  Communication fault is active	= TRUE > 10.9 = FALSE = TRUE = FALSE	v -	10 counts continue	us 2 Trips

OBD GROUP: KGMXOBDG07	,		DIAGNOST TEST GROUP: P		MARY TABLES - 2088	- ECM		EMI	SSION	S STDS: CALULEV125, FI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Enable Conditions		Time Required	MIL IIIum.
			Absolute difference between the IBS Return U80 Battery Calibration and ECM U80 Battery Calibration	>	0.502	V	)				
			) Manufacturer Enable Counter used to automatically arm Seed & Key	>=	0	-	No pending or confirmed DTCs  Basic enable conditions met	= see sheet inhibit tables = see sheet enable tables			
		Path 2: Diagnosis of Battery monitor Module data Incompatible diagnostic - Continuous	Absolute difference between the IBS Return Nominal C20 and ECM Nominal C20 Calibration	>	5	Ah	Battery Monitor module diagnosis is active, which is the following conditions:	= TRUE	-	10 counts continuou	s 2 Trips
			OR Absolute difference between the IBS Return Battery Type and ECM Battery Type Calibration	>	0	-	( Battery voltage	> 10.9	V		
			OR Absolute difference between the IBS Return U40 Battery Calibration and ECM U40 Battery Calibration	>	0.502	V	Condition general function request Intelligent Battery Sensor (IBS) communication is active	= FALSE = TRUE	-		
			OR Absolute difference between the IBS Return U80 Battery Calibration and ECM U80 Battery Calibration	>	0.502	٧	Communication fault is active )	= FALSE	-		
			Gaildatoi				No pending or confirmed DTCs  Basic enable conditions met	= see sheet inhibit tables = see sheet enable tables	-		
Battery Monitor Module	P058A	Diagnosis of Battery Monitor Module Communication - Initialization error	Communication message for Battery Sensor initialization indicates a diagnostic failure	=	TRUE	-	Battery Monitor module diagnosis is active, which is the following conditions:	= TRUE		continuou	s 2 Trips
							Battery voltage Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication fault is active	> 10.9 = FALSE = TRUE = FALSE	V - -		
							) No pending or confirmed DTCs Basic enable conditions met	= see sheet inhibit tables = see sheet enable tables			
Battery Sensor (External Sensor) - Voltage Sensor	P16D5	Diagnosis of Battery Monitor Module Circuit High Voltage fault	Communication message for Battery Voltage out of range High indicates a diagnostic failure	=	TRUE	-	Battery Monitor module diagnosis is active, which is the following conditions:	= TRUE		continuou	s 2 Trips
							( Battery voltage Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication fault is active	> 10.9 = FALSE = TRUE = FALSE	v - -		
							) No pending or confirmed DTCs Basic enable conditions met	= see sheet inhibit tables = see sheet enable tables	-		
Done, check debounce values.	P16D4	Diagnosis of Battery Monitor Module Circuit Low Voltage fault	Communication message for Battery Voltage out of range Low indicates a diagnostic failure	=	TRUE	-	Battery Monitor module diagnosis is active, which is the following conditions:	= TRUE		continuou	s 2 Trips
							Battery voltage Condition general function request Intelligent Battery Sensor (IBS) communication is active Communication fault is active	> 10.9 = FALSE = TRUE = FALSE	V - -		
							No pending or confirmed DTCs  Basic enable conditions met	= see sheet inhibit tables = see sheet enable tables			
done, but check debounce parameter values	P058D	Diagnosis of Battery Monitor Module Voltage Monitoring performance fault	Absolute difference between IBS Measured Voltage and System 12V Battery Voltage	>	5	V	Battery Monitor module diagnosis is active, which is the following conditions: ( Battery voltage Condition general function request intelligent Battery Sensor (IBS) communication is active Communication fault is active	= TRUE > 10.9 = FALSE = TRUE = FALSE	- V -	100 counts continuou	s no MIL

OBD GROUP: KGMXOBDG	607		DIAGNOS' TEST GROUP: I		MARY TABLES - .2088	ECM			E	MISSION	NS STDS:	CALULI	EV125, FE	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	s		Time Requir	ed	MIL IIIum.
							) No pending or confirmed DTCs Basic enable conditions met	= =	see sheet inhibit tables see sheet enable tables	-				
attery Volatge	P0563	Detects if the battery voltage is higher than calibrated threshold for calibrated amount of time	Battery voltage	>	3.1802	V	ECU is not in the PREDRIVE state Engine is in running state for time Vehicle speed No pending or confirmed DTCs Basic enable conditions met	=	TRUE  TRUE 2 2.486016159 see sheet inhibit tables see sheet enable tables	sec mph -	10	sec	continuous	no MIL
attery Volatge	P0562	Detects if the battery voltage is lower than calibrated threshold for calibrated amount of time	Battery voltage	<	1.582	V	ECU is not in the PREDRIVE state Engine is in running state for time No pending or confirmed DTCs Basic enable conditions met	= = = =	TRUE  TRUE 2 see sheet inhibit tables see sheet enable tables	- sec -	10	sec	continuous	no MIL
rake Position Sensor - Primary	P057D	Detects if the brake pedal position sensor voltage is higher than calibrated threshold for calibrated amount of time	Brake pedal position sensor voltage	>	4.597	V	Ignition is on  Basic enable conditions met	=	TRUE see sheet enable tables	-	0.5	sec	continuous	1 Trip
rake Position Sensor - Primary	P057C	Detects if the brake pedal position sensor voltage is lower than calibrated threshold for calibrated amount of time	Brake pedal position sensor voltage	<	0.449	V	Ignition is on Basic enable conditions met	=	TRUE see sheet enable tables	-	0.5	sec	continuous	1 Trip
rake pedal position sensor	P057B	Path 1: Detects when brake pedal position ratio is higher than calibrated threshold for calibrated amount of time	Brake pedal ratio	>	109.9976	%	Ignition is on  No pending or confirmed DTCs  Basic enable conditions met	= =	TRUE see sheet inhibit tables see sheet enable tables		1	sec	continuous	1 Trip
		Path 2: Detects when brake pedal position ratio is lower than calibrated threshold for calibrated amount of time	Brake pedal ratio	<	-18.0054	%	Ignition is on  No pending or confirmed DTCs  Basic enable conditions met	= =	TRUE  see sheet inhibit tables see sheet enable tables	- -	1	sec	continuous	1 Trip
trake switch diagnosis		Path 3: Detects when brake pedal switch EWMA(Exponentially Weighted Moving Average) factor is less than calibrated threshold	EWMA filtered test result based on the difference of ((a) - (b))  where (a) maximum analog brake sensor raw voltage during test (b) minimum analog brake sensor raw voltage during test (b) minimum analog brake sensor raw voltage during test where difference of the brake sensor voltage corresponds to a corrected value of (see Look-Up-Table # P057B-1)	<= = =	0.400024  calculated parameter calculated parameter \( \)  0 to 1	V /	Battery voltage  Control for starter powerstage for time  Conditions for fast test scheduler  ( Number of reference voltage samples considered for fast EWMA calculation  Absolute difference between maximum and minimum voltage obtained during the EWMA calculation in fast test scheduler ) Conditions for slow test scheduler ( Slow test completion cycle	> = >= >	10.9  FALSE 0.04  50 0.051	V sec	2	events	continuous	1 Trip
							Vehicle is in parking state ( Gear position in case of automatic transmission system is in parking	=	TRUE TRUE	-				

OBD GROUP: KGMXOBDG	:07		DIAGNOST TEST GROUP: K		MARY TABLES	ECM			E	MISSION	IS STDS:	CALULE	EV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	т	ime Requir	ed	MIL IIIum.
							) Number of reference voltage samples considered for slow EWMA calculation Gear position in case of automatic transmission system is not in parking Vehicle speed Accelerator pedal position ) Number of successful EWMA test completed No pending or confirmed DTCs Basic enable conditions met	> =	200 TRUE  4.350528278 5.0049 2 see sheet inhibit tables see sheet enable tables	- mph % events -				
	P138B	Checks if the voltage of the released brake pedal is within the zero point range	Brake pedal position sensor voltage	>	1.445	٧	Conditions for first zero point learning				1.5	sec	continuous	1 Trip
		200 point dange	OR Brake pedal position sensor voltage	<	0.6	V	( Brake pedal released (Detection through pedal switch)	=	TRUE	-				
							OR Brake stroke sensor learning Continuous zero point learning conditions	=	TRUE	-				
							Accelerator pedal position Accelerator pedal position Vehicle speed Vehicle speed Vehicle acceleration Vehicle acceleration Absolute difference between filtered brake pedal volatge and raw value brake pedal position voltage Engine is in running state Starter is not engaged ) No pending or confirmed DTCs	V	69.9951 9.9976 74.58048477 7.458048477 0.8 0.1 0.03 TRUE TRUE	%				
							Basic enable conditions met	=	tables see sheet enable tables	-				
Brake Position Sensor - Secondary	P0572	Detects when redundant brake pedal initial travel status is achieved but redundant brake switch is not set	Redundant brake pedal initial travel status Redundant brake switch status	=	TRUE FALSE	-	Ignition is on  No pending or confirmed DTCs  Basic enable conditions met	=	TRUE see sheet inhibit tables see sheet enable tables	-	5	sec	continuous	1 Trip
	P0573	Detects when redundant brake pedal initial travel status is not achieved but redundant brake switch is set	Redundant brake pedal initial travel status	=	FALSE	-	Ignition is on	=	TRUE	-	5	sec	continuous	1 Trip
		achieved but reduition in brake switch is set	Redundant brake switch status	=	TRUE	-	No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-				
coolant Temperature Sensor	P0119	Engine Coolant Temperature Sensor 1 - Circuit continuity check - loose contact detection	Difference between raw sensor value and low-pass filtered raw sensor value of engine coolant tempearture sensor 1	>=	0.12	V	Engine Coolant Temperature Sensor 1 Circuit Low	=	FALSE	-	20	sec	continuous	2 Trips
							Engine Coolant Temperature Sensor 1 Circuit High and Basic enable conditions met	=	FALSE see sheet enable tables	-				
rank Case Vapor Pressure Sensor	P051D	Detects if the crankcase pressure sensor voltage is greater than a calibrated threshold for calibrated time	Raw voltage from the crankcase pressure sensor same as	>	4.7 -5.625 to 6.25	V	Ignition is on  No pending or confirmed DTCs  Basic goable conditions met	=	TRUE see sheet inhibit tables	-	2	sec	continuous	2 Trips
			Crankcase pressure	>	-5.625 to 6.25	kPa	Basic enable conditions met	=	see sheet enable tables					
Crank Case Vapor Pressure Sensor	P051C	Detects if the crankcase pressure sensor voltage is less than a calibrated threshold for calibrated time	Raw voltage from the crankcase pressure sensor	<	0.2	٧	Ignition is on	=	TRUE	-	2	sec	continuous	2 Trips

OBD GROUP: KGMXOBDG07	,		DIAGNOST TEST GROUP: K		MARY TABLES 2088	ECM			E	MISSION	NS STDS:	CALULE	V125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	<b>,</b>	т	ime Require	ed	MIL IIIum.
			same as Crankcase pressure	<	-5.625 to 6.25	kPa	No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables					
Crank Case Vapor Pressure Sensor	P051B	Diagnosis of Crankcase Pressure Sensor plausibility check	Absolute value of Sensed crank case ventilation pressure	>	0.253	kPa	ECU is in afterrun state  No pending or confirmed DTCs  Basic enable conditions met	= =	TRUE see sheet inhibit tables see sheet enable tables	- - -	0.01	sec	once per driving cycle	2 Trips
DC/DC Converter (External sensor) - Output Voltage Sensing Circuit 1	P3053	Signal range check - out of range high	Raw value of circuit 1 voltage	۸	28	V	Ignition is on Battery voltage No pending or confirmed DTCs Basic enable conditions met	= > = =	TRUE  7 see sheet inhibit tables see sheet enable tables	- V -	800	counts	continuous	2 Trips
	P3051	Signal range check - out of range low	Raw value of circuit 1 voltage	<	1.00	V	Ignition is on Battery voltage No pending or confirmed DTCs Basic enable conditions met	= > = =	TRUE 7 see sheet inhibit tables see sheet enable tables	- V -	800	counts	continuous	2 Trips
	P3055	Circuit 1 Voltage Performance – Bypass Mode	Absolute difference between Host ECU Process System Voltage and Circuit 1 Voltage	>	1.00	V	Ignition is on  Battery voltage ( Engine is running and for time OR Ignition is on and for time OR Engine Auto Stop Active ) No pending or confirmed DTCs Basic enable conditions met	= > >= >= = =	TRUE  7 1 1 TRUE see sheet inhibit tables see sheet enable tables	V sec sec	800	counts	continuous	2 Trips
	P3055	Circuit 1 Voltage Performance – Stabilize Mode	Absolute difference between Host ECU Pre- Crank System Voltage and Circuit 1 Voltage	>	1.00	V	Ignition is on Battery voltage No pending or confirmed DTCs Basic enable conditions met	= > =	TRUE  7 see sheet inhibit tables see sheet enable tables	- V -	2	counts	continuous	2 Trips
DC/DC Converter Actuator Voltage Signal Message Counter Incorrect	U0599	Detects when wrong alive rolling counter (DC Converter Actuator Voltage ADC Value Alive Rolling Count) received by the frame PPEL_DC_Conv_General_Status_PE (0xA0) from DC to DC Converter Control Module "A"	Wrong alive rolling counter (DC Converter Actuator Voltage ADC Value Alive Rolling Count) received by the frame PPEL DC_Conv. General Status_PE (0xA0) from DC to DC Converter Control Module "A"	II	TRUE	-	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables	-	10	counts	continuous	2 Trips
	U0599	Detects when wrong protection value (DC Converter Actuator Voltage ADC Value Protection Value) received by the frame PPEL_DC_Conv_General_Status_PE (0xA0) from DC to DC Converter Control Module "A"	Wrong protection value (DC Converter Actuator Voltage ADC Value Protection Value) received by the frame PPEI_DC_Conv. General_Status_PE (0xA0) from DC to DC Converter Control Module "A"	=	TRUE	-	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables	-	10	counts	continuous	2 Trips
DC/DC Converter Internal Health Status Signal Message Counter Incorrect	U0599	Detects when wrong alive rolling counter received by the frame PPEI_DC_Cnv_Int_Health_Stat_PE (0x1D2) from DC to DC Converter Control Module "A"	Wrong alive rolling counter received by the frame PPEI_DC_Cnv_Int_Health_Stat_PE (0x1D2) from DC to DC Converter Control Module "A"	-	TRUE	-	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables	-	10	counts	continuous	2 Trips

OBD GROUP: KGMXOBDG07	,		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECM GMXV04.2088		EMISSIONS	STDS: CALULEV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	U0599	Detects when wrong protection value received by the frame PPEL_DC_Cnv_Int_Health_Stat_PE (0x1D2) from DC to DC Converter Control Module "A"	Wrong protection value received by the frame PPEL DC_Cnv_Int_Health_Stat_PE (0x1D2) from DC to DC Converter Control Module "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	10 counts continuous	2 Trips
	U0599	Detects when sliding window error received by the frame PPEI_DC_Cnv_Int_Health_Stat_PE from DC to DC Converter Control Module "A"	Sliding window error received by the frame PPEI_DC_Cnv_Int_Health_Stat_PE from DC to DC Converter Control Module "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables -	10 counts continuous	2 Trips
DC/DC Converter Ignition Switch Run/Start Position Signal Message Counter Incorrect	U0599	Detects when wrong alive rolling counter (DC Converter Crank Terminal Status Alive Rolling Count) received by the frame PPEI_DC_Conv_General_Status_PE (0xA0) from DC to DC Converter Control Module 'A'	Wrong alive rolling counter (DC Converter Crank Terminal Status Alive Rolling Count) received by the frame PPEL DC_Conv_General_Status_PE (0xA0) from DC to DC Converter Control Module 'A'	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable -	10 counts continuous	2 Trips
	U0599	Detects when wrong protection value (DC Converter Crank Terminal Status Protection Value) received by the frame PPEL DC_Conv. General Status_PE (0xA0) from DC to DC Converter Control Module "A"	Wrong protection value (DC Converter Crank Terminal Status Protection Value) received by the frame PPEL DC, Conv. General, Status, PE (0xA0) from DC to DC Converter Control Module *A*	= TRUE -	Ignition is ON  Basic enable conditions met	tables  = TRUE -  = see sheet enable - tables	10 counts continuous	2 Trips
IC/DC Converter Crank Control Signal Message Counter Incorrect	U0599	Detects when wrong alive rolling counter error(DC Converter Crank Control Terminal Status Alive Rolling Count) received by the frame PPEL_DC_Conv_General_Status_PE (0xA0) from DC to DC Converter Control Module "A"	Wrong alive rolling counter error(DC Converter Crank Control Terminal Status Alive Rolling Count) received by the frame PPEL DC_Conv. General Status_PE (0xA0) from DC to DC Converter Control Module "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	10 counts continuous	2 Trips
	U0599	Detects when wrong protection value received by the frame PPEL DC_Conv_General_Status_PE (0xA0) from DC to DC Converter Control Module *A*	Wrong protection value received by the frame PPEL DC_Conv_General_Status_PE (0xA0) from DC to DC Converter Control Module *A*	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable tables	10 counts continuous	2 Trips
DC/DC Converter Control Module "A"	U0599	Detects when sliding windows error is received by frame PPEI_DC_Cnv_Int_Health_Statt_PE(0x1D2) from DC Converter Internal Health Status module	sliding windows error is received by frame PPEL_DC_Cnv_Int_Heath_Stat_PE(0x102) from DC Converter Internal Health Status module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	10 counts continuous	2 Trips
	U0599	Detects when sliding windows error is received by frame PPEI_DC_Conv_General_Status_PE(0xA0) from DC Converter Actuator Voltage ADC module	sliding windows error is received by frame PPEI_DC_Conv_General_Status_PE(0xA0) from DC Converter Actuator Voltage ADC module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	10 counts continuous	2 Trips
	U0599	Detects when sliding error is received by frame PPEI_DC_Conv_General_Status_PE(0xA0) from DC Converter Crank Control Terminal Status module	sliding error is received by frame PPEI_DC_Conv_General_Status_PE(0xA0) from DC Converter Crank Control Terminal Status module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	10 counts continuous	2 Trips
Uose	U0599	Detects when sliding error is received by frame PPEI_DC_Conv_General_Status_PE(0x40) from DC Converter Run Crank Terminal Status module	sliding error is received by frame PPEL DC_Conv. General_Status_PE(0x40) from DC Converter Run Crank Terminal Status module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	10 counts continuous	2 Trips
	U0599	Detects when wrong ARC is received by frame PPEI_DC_Conv_General_Status_PE(0xA0) from DC Converter Crank Terminal Status module	wrong ARC is received by frame PPEI_DC_Conv_General_Status_PE(0xA0) from DC Converter Crank Terminal Status module	= TRUE -	Ignition is ON	= TRUE -	10 counts continuous	2 Trips

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: 1		MARY TABLES 2088	ECM			E	MISSION	S STDS:	CALULE	V125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	<b>.</b>	т	ime Require	ed	MIL IIIum.
							Basic enable conditions met	=	see sheet enable tables	-				
DC/DC Converter (External sensor) - Output Voltage Sensing Circuit 2	P3054	Signal range check - out of range high	Raw value of circuit 2 voltage	^	28	V	Ignition is on Battery voltage No pending or confirmed DTCs Basic enable conditions met	= > = =	TRUE  7 see sheet inhibit tables see sheet enable tables	- V -	800	counts	continuous	2 Trips
	P3052	Signal range check - out of range low	Raw value of circuit 2 voltage	<	1.00	V	Ignition is on Battery voltage No pending or confirmed DTCs Basic enable conditions met	= > = =	TRUE 7 see sheet inhibit tables see sheet enable tables	- V -	800	counts	continuous	2 Trips
	P3056	Circuit 2 Voltage Performance – Bypass Mode	Absolute difference between Host ECU Process System Voltage and Circuit 2 Voltage	>	1.00	V	Ignition is on  Battery voltage Engine is in the start phase ( Engine is running and for time OR Ignition is on and for time OR Engine Auto Stop Active ) No pending or confirmed DTCs Basic enable conditions met	> = > = > = = = = = = = = = = = = = = =	TRUE  7 FALSE  1 1 TRUE see sheet inhibit tables see sheet enable tables	V - sec sec	800	counts	continuous	2 Trips
	P3056	Circuit 2 Voltage Performance – Stabilize Mode	Absolute difference between Host ECU Pre- Crank System Voltage and Circuit 2 Voltage	>	1.00	V	Ignition is on Battery voltage Engine is in the start phase No pending or confirmed DTCs Basic enable conditions met	= > = =	TRUE 7 TRUE see sheet inhibit tables see sheet enable tables	- V - -	2	counts	continuous	2 Trips
DC/DC Converter (External sensor) - Crank input Signal	: P305D	Crank Control Sensor Circuit High Voltage Fault	The status of the starter output acquired from DC/DC converter		The status of the starter output to the powerstage	-	Ignition is ON: ECU is in DRIVE mode  Battery voltage Starter output to the powerstage No pending or confirmed DTCs  Basic enable conditions met	> = = =	TRUE  7 FALSE see sheet inhibit tables see sheet enable tables	- V - -	800	counts	continuous	2 Trips
	P305E	Crank Control Sensor Circuit Low Voltage Fault	The status of the starter output acquired from DC/DC converter	<b>⋄</b>	The status of the starter output to the powerstage	-	Battery voltage  Starter output to the powerstage No pending or confirmed DTCs  Basic enable conditions met	> = = =	7 TRUE see sheet inhibit tables see sheet enable tables	V - -	30	counts	continuous	2 Trips
DC/DC Converter (External sensor) - P3 Ignition Switch Run/Start Position Circuit	P305B	Ignition Switch Circuit High Voltage Fault	DC/DC-converter Run Crank Terminal Status		Engine Controller Run Crank Terminal Status	-	Ignition is OFF: ECU is in PREDRIVE or POSTDRIVE mode Battery voltage No pending or confirmed DTCs Basic enable conditions met	= > = =	TRUE  7 see sheet inhibit tables see sheet enable tables	- V -	400	counts	continuous	2 Trips
	P305C	Ignition Switch Circuit Low Voltage Fault	DC/DC-converter Run Crank Terminal Status	<b>\$</b>	Engine Controller Run Crank Terminal Status	-	Ignition is ON: ECU is in DRIVE mode Battery voltage	= >	TRUE	- V	800	counts	continuous	2 Trips

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: P		ARY TABLE	S ECM			E	MISSION	NS STDS:	CALULE	V125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	•	1	Time Require	ed	MIL IIIum.
							No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables					
Ambient Air Temperature Sensor	P0073	Detection of ambient temperature sensor voltage exceeding the maximum threshold	Raw voltage of the Ambient temperature sensor Same as: Ambient air temperature	> <	4.913 -46.17	V Deg C	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met		TRUE see sheet inhibit tables see sheet enable tables	-	2	sec	Continuous	2 Trips
	P0072	Detection of ambient temperature sensor voltage falling below the minimum threshold	Raw voltage of the Ambient temperature sensor Same as: Ambient air temperature	>	0.351 99.96	V Deg C	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	= =	TRUE see sheet inhibit tables see sheet enable tables	-	2	sec	Continuous	2 Trips
Ambient Air Temperature Sensor	P0071	Plausbillty check of Ambient Temperature sensor when compared with model temperature value higher than maximum threshold	Difference between ambient temperature sensor value and model temperature	>	14.96	deg C	Errors with ambient temperature sensor ( Signal Range check : out of range low error for ambient air temperature sensor (P0072) Signal Range check : out of range high error for ambient air temperature sensor (P0073)	=	FALSE FALSE	-	5	sec	continuous	2 Trips
	P0071	Plausibility check of Ambient Temperature sensor when	Difference between model temperature and	<	14.96	deg C	Ambient temperature model released and updated on the current drive cycle ) Basic enable conditions met No pending or confirmed DTCs  Errors with ambient temperature sensor	-	see sheet enable tables see sheet inhibit tables FALSE		5	sec	continuous	2 Trips
		compared with model temperature value higher than minimum threshold	ambient temperature sensor value				Signal Range check : out of range low error for ambient air temperature sensor (P0072) Signal Range check : out of range high error for ambient air temperature sensor (P0073)  (P0073)  (Ambient temperature model released and updated on the current drive cycle ) Basic enable conditions met	=	FALSE  FALSE  see sheet enable					
nbient Air Temperature Sensor	P0074	Detects Environment Air Temperature implausible / Environmental temperature signal erratic	Absolute difference between measured and filtered ambient temperatures for time	>=	10.06	deg C	No pending or confirmed DTCs  Ignition ON  No pending or confirmed DTCs	=	tables see sheet inhibit tables  TRUE see sheet inhibit				continuous	2 Trips
Barometric pressure sensor	P2229	Monitoring of Barometric Pressure Sensor for Signal range	Error information message A fom digital ambient	=	TRUE	-	Basic enable conditions met  Reading message A fom digital ambient air	=	tables see sheet enable tables TRUE		2	sec	Continous	2 Trips
		check - High	air pressure sensor returns a CRC (Cyclical Redundancy Checking) error OR Error information message A fom digital ambient air pressure sensor returns a short circuit to VDD	=	TRUE	-	pressure sensor has been successful and has delivered valid values Ambient pressure sensor boot is done ECU is in drive state  No pending or confirmed DTCs	= =	TRUE TRUE see sheet inhibit tables	-				po

BD GROUP: KGMXOBD	G07		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECM GMXV04.2088	л 		EMISSION	S STDS: C	CALULE	V125, FED	)BIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	ns	Ti	me Require	ed	MIL IIIu
					Basic enable conditions met	= see sheet enable tables	-				
	P2228	Monitoring of Barometric Pressure Sensor for Signal range check - Low	Error information message A fom digital ambient air pressure sensor returns a short circuit to ground	= TRUE -	Reading message A fom digital ambient air pressure sensor has been successful and has delivered valid values Ambient pressure sensor boot is done ECU is in drive state No pending or confirmed DTCs Basic enable conditions met	= TRUE = TRUE = TRUE = see sheet inhibit tables = see sheet enable tables		2	sec	Continous	2 Tri
netric pressure sensor	Peth 1: Continuity check - positive deviation too high		Difference between filtered ambient air pressure raw value and its delayed value (20s)	> 5 kPa	Ambient pressure sensor valid, which is the following condition: ( Ambient pressure sensor raw value exceeded for time ) No pending or confirmed DTCs Basic enable conditions met	= TRUE  = TRUE  >= 0.2  = see sheet inhibit tables  = see sheet enable tables	- sec -	2	sec	continous	2 Tr
			Difference between measured ambient air pressure raw value and maximum modeled ambient pressure	> 1.5 kPa	Threshold model for ambient pressure valid, which is the following condition for time	>= 2.6	sec	2	sec	continous	2 Tr
				( Throttle valve/actuator position Engine speed )	< 8.0078 < 1000	% rpm					
					OR Enqine speed ECU is in DRIVE state Measured pressure upstream throttle valve is valid	= 0 = TRUE = TRUE	rpm - -				
					) Ambient pressure sensor valid, which is the following condition:	= TRUE	-				
					Ambient pressure sensor raw value exceeded for time	= TRUE >= 0.2	- sec				
					) Error suspision from contionious check, which is the following condition:	= TRUE	-				
					( Difference between measured ambient air pressure raw value and its delayed value (20s)	> 5	kPa				
					OR Fault suspicion from continuity check between the drives, which is the following condition: (	= TRUE	-				
					( Absolute value of difference between ambient pressure from actual driving cycle and ambient pressure from last driving cycle	< 10	kPa				
					Zyklus flag for diagnosis by comparing actual and last driving cycle ambient pressure	= TRUE	-				
					Ambient pressure from last driving cycle valid	= TRUE	-				
					Cycle flag ambient pressure from current driving cycle adopted ) ) OR	= TRUE	-				
					Healing of continuity check with additional value (	= TRUE	-				
					Condition threshold modells for ambient pressure valid Difference between ambient air pressure raw value measured and maximum modelled ambient pressure	= TRUE < 1.5	kPa				

D GROUP: KGMXOBDG	07		DIAGNOSTIC TEST GROUP: KGM	SUMMARY TABLES ECM MXV04.2088			EMISSION	S STDS: CAL	LULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	ns	Time	Required	MIL IIIu
					Difference between minimal modelled ambient pressure and ambient air pressure raw value measured	< 1.5	kPa			
					OR Condition deadlock threshold modells for ambient pressure valid	= TRUE	-			
					Condition for error suspision from	= TRUE	-			
					contionious check Validity of the pressure sensor of the intake manifold - bank 1 )	= TRUE	-			
					) No pending or confirmed DTCs	= see sheet inhibit	-			
					Basic enable conditions met	tables = see sheet enable	-			
						tables				
		Path 2: Continuity check - negative deviation too high	Difference between delayed (20s) ambient air pressure and measured ambient air pressure raw value	> 5 kPa	Ambient pressure sensor valid, which is the following condition:	= TRUE	-	2	sec continou	s 2 T
					( Ambient pressure sensor raw value	= TRUE	-			
					exceeded for time	>= 0.2	sec			
					) No pending or confirmed DTCs	= see sheet inhibit	-			
					Basic enable conditions met	tables = see sheet enable	-			
						tables				
			Difference between minimum modeled ambient pressure and measured ambient air pressure raw value	> 1.5 kPa	Threshold model for ambient pressure valid, which is the following condition for time	>= 2.6	sec	2	sec continou	s 2T
					( Throttle valve/actuator position Engine speed )	< 8.0078 < 1000	% rpm			
					OR Engine speed ECU is in DRIVE state Measured pressure upstream throttle valve is valid	= 0 = TRUE = TRUE	rpm - -			
					) Ambient pressure sensor valid, which is the following condition:	= TRUE	-			
					( Ambient pressure sensor raw value	= TRUE	-			
					exceeded for time	>= 0.2	sec			
					Error suspision from contionious check, which is the following condition:	= TRUE	-			
					Difference between measured ambient air pressure raw value and its delayed value (20s)	> 5	kPa			
					OR Fault suspicion from continuity check between the drives, which is the following condition:	= TRUE	-			
					( Absolute value of difference between ambient pressure from actual driving cycle and ambient pressure from last driving cycle	< 10	kPa			
					Zyklus flag for diagnosis by comparing actual and last driving cycle ambient pressure	= TRUE	-			
					( Ambient pressure from last driving cycle	= TRUE	-			
					valid Cycle flag ambient pressure from current driving cycle adopted )	= TRUE	-			
					) OR Healing of continuity check with additional value	= TRUE	-			

OBD GROUP: KGMXOBDG	607		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES EC GMXV04.2088	М		EMISSIO	NS STDS: C	ALULEV125,	FEDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable 0	Conditions	Tir	me Required	MIL IIIum
					( Condition threshold modells for ambient pressure valid Difference between ambient air pressure raw value measured and maximum modelled ambient pressure Difference between minimal modelled ambient pressure and ambient air pressure raw value measured	= TRL < 1.5	i kPa			
					) OR Condition deadlock threshold modells for ambient pressure valid	= TRL	IE -			
					( Condition for error suspision from contionious check Validity of the pressure sensor of the intake	= TRU				
					manifold - bank 1 ) ) No pending or confirmed DTCs Basic enable conditions met	= see shee table = see sheet table	es enable -			
		Path 3: Rationality check - out of range high	Difference between measured ambient pressure and the maximal reference pressure for delta	> 2.2344 kPa	ECU is in DRIVE state	= TRL	IE -	2	sec contin	ous 2 Trip
			pressure sensor diagnosis		( Engine is not running for time )	= TRU >= 5				
					( ( Condition ambient pressure sensor valid Condition ambient pressure from sensor valid	= TRU = TRU				
					) for time ) OR	> 0.2	e sec			
					( ( Condition ambient pressure sensor valid Condition ambient pressure from sensor valid	= TRL = TRL	JE - JE -			
					for time	= 0.2				
					Ambient pressure sensor reference for delta pressure sensor is stable	= FAL				
					Ambient pressure sensor measured is valid  No pending or confirmed DTCs	= TRL = see shee	t inhibit -			
					Basic enable conditions met	= see sheet table				
		Path 4: Rationality check - out of range low	Difference between the minimal reference pressure for delta pressure sensor diagnosis and the measured ambient pressure	> 2.2344 kPa	ECU is in DRIVE state	= TRL	E -	2	sec contin	ous 2 Trip
					( Engine is not running for time )	= TRU >= 5	IE - sec			
					( ( Condition ambient pressure sensor valid Condition ambient pressure from sensor valid	= TRL				
					for time ) OR	> 0.2	e sec			
					( ( Condition ambient pressure sensor valid Condition ambient pressure from sensor valid	= TRU = TRU	JE - JE -			

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: P	TIC SUMMARY TABLES ECM KGMXV04.2088		EMISSIONS	S STDS: CALULEV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					for time  Ambient pressure sensor reference for delta pressure sensor is stable  Ambient pressure sensor measured is valid  No pending or confirmed DTCs  Basic enable conditions met	= 0.2 sec  = FALSE -  = TRUE -  = see sheet inhibit - tables  = see sheet onable - tables		
		Path 5: Sensor plausibility check	Information from digital ambient pressure sensor for QUEUE FULL OR Information from digital ambient pressure sensor for SENSOR DEFECT OR Information from digital ambient pressure sensor for VALUE TOO LOW OR Information from digital ambient pressure sensor for VALUE TOO HIGH	= TRUE - = TRUE - = TRUE -	Sensor reset is triggered ( Ambient pressure sensor boot done ECU Sub-State in DRIVE ) No pending or confirmed DTCs Basic enable conditions met	= TRUE -  = TRUE -  = TRUE -  = TRUE -  = see sheet inhibit tables  = see sheet enable tables	2 sec continous	2 Trip
mary value (SENT)	- P128A	Diagnosis of Fuel Rail Pressure Sensor1 Bank1 - Out of Range Error	Raw pressure data of SENT rail pressure sensor channel 1  OR  Raw pressure data of SENT rail pressure sensor channel 1	> 4088 - < 1 -	Ignition is on  Loss due to high level on SENT sensor signal line of SENT Rail pressure sensor Loss due to low level on SENT sensor signal line of SENT Rail pressure sensor  Error in SENT rail pressure sensor  No pending or confirmed DTCs  Basic enable conditions met	= FALSE -  = FALSE -  = FALSE -  = FALSE -  = See sheet inhibit tables  = see sheet enable - tables	0.5 sec Continuous	1 Trip
	U0625	Path1: Diagnosis of message loss due to sensor signal line on high level	Loss due to high level on SENT sensor signal line of SENT rail pressure sensor	= TRUE -	Ignition is on  Loss due to low level on SENT sensor signal line of SENT rall pressure sensor No pending or confirmed DTCs  Basic enable conditions met	= FALSE -  = FALSE -  = see sheet inhibit - tables = see sheet enable - tables	0.5 sec Continuous	1 Trip
		Path2: Diagnosis of message loss due to sensor signal line on low level	Loss due to low level on SENT sensor signal line of SENT rail pressure sensor	= TRUE -	Ignition is on  Loss due to high level on SENT sensor signal line of SENT rail pressure sensor No pending or confirmed DTCs  Basic enable conditions met	= FALSE -  = FALSE -  = see sheet inhibit -     tables  = see sheet enable -     tables	0.5 sec Continuous	1 Trip
	U1374	Diagnosis of Fuel Rail Pressure Protocol Error	Protocol error for SENT rail pressure sensor detected	= TRUE -	Ignition is on  Loss due to high level on SENT sensor signal line of SENT Rail pressure sensor Loss due to low level on SENT sensor signal line of SENT Rail pressure sensor No pending or confirmed DTCs  Basic enable conditions met	= FALSE -  = FALSE -  = FALSE -  = see sheet inhibit tables  = see sheet enable - tables	0.5 sec Continuous	1 Trip

OBD GROUP: KGMXOBDG0	)7		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM (GMXV04.2088			E	MISSION	IS STDS:	CALULI	EV125, FE	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions			Time Requir	ed	MIL IIIum.
Fuel Rail Pressure Sensor Performance	P0191	Path 1: Rationality Diagnosis of Fuel Rail Pressure Sensor	The low-pass filtered absolute value of the difference of the two rail pressure data values (see Look-up-table #P0191-1)	> 100 to 200 -	Raw data for rail pressure from SENT Raw data for rail pressure from SENT Raw data for rail pressure from SENT sensor channel 2 Raw data for rail pressure from SENT sensor channel 2 Message loss due to high level on SENT sensor signal line of SENT Rail pressure sensor Message loss due to low level on SENT sensor signal line of SENT Rail pressure sensor Protocol error of SENT rail pressure sensor Protocol error of SENT rail pressure sensor No pending or confirmed DTCs Basic enable conditions met	\= \\= \\= \\= \\= \\= \\= \\= \\= \\=	1 4088 1 4088 FALSE FALSE FALSE see sheet inhibit tables see sheet enable		1	sec	Continuous	1 Trip
Fuel Content High Procesure Concer	D0404	Dark 2		4.5 MDa	First are supply supply is ON		tables				Continuous	1 Trip o
Fuel System High Pressure Sensor	P0191	Path 2: High pressure sensor digital raw value is lesser than calibrated threshold for a calibrated period of time	High pressure sensor digital raw value	< -1.5 MPa	Fuel pre-supply pump is ON  ( Rail pressure sensor voltage is not plausible (  ( Condition error in stuck check, no voltage difference, which is the following	=	TRUE TRUE FALSE	-	1	sec	Continuous	1 Trips
					conditions  ( Rail pressure sensor voltage difference between minimum and maximum value over one cycle	>	4	-				
					Number of injections ECU is in drive state	< =	8 FALSE	-				
					) Rail pressure sensor voltage is plausible	=	TRUE	-				
					Pressure from SENT is not plausible	=	FALSE	-				
					Raw data for rail pressure from SENT Raw data for rail pressure from SENT	<= >=	4088 1	Ī				
					OR Pressure from SENT is not plausible, channel 2 (	=	FALSE	-				
					Data for rail pressure from SENT Sensor channel 2	<=	4088	-				
					Data for rail pressure from SENT Sensor channel 2 ) ) ) )	>=	1	-				
					) Condition for initial fuelling of fuel supply system is active	=	FALSE	-				
					No pending or confirmed DTCs  Basic enable conditions met	" "	see sheet inhibit tables see sheet enable tables	-				
Fuel System Pressure Sensor High Pressure Side	P0191	Path 3: Signal stuck check	Rail pressure sensor voltage difference between minimum and maximum value over one cycle	<= 4 -	Condition error in stuck check, no voltage difference, which is the following conditions	=	TRUE	-	2	sec	continuous	1 Trip
					( Number of injections ECU is in drive state )	>=	8 TRUE	:				
	I	I	I	I	Rail pressure sensor voltage is plausible	=	TRUE	-	I			l

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: P	FIC SUMMARY TABLES	ECM	EMISSIO	NS STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					( Pressure from SENT is not plausible ( Raw data for rail pressure from SENT Raw data for rail pressure from SENT ) OR Pressure from SENT is not plausible, channel 2 ( Data for rail pressure from SENT, channel 2 Data for rail pressure from SENT, channel 2 ) No pending or confirmed DTCs Basic enable conditions met	= FALSE - <= 4088 - = 1 -  = TRUE - <= 4088 - >= 1 -  = see sheet inhibit - tables = see sheet enable - tables		
Fuel Rail Pressure Sensor - Dual Pressure - Backup value (SENT)	P128B	Diagnosis of Fuel Rail Pressure Sensor2 Bank1 - Out of Range Error	Raw pressure data of SENT rail pressure sensor channel 2  OR  Raw pressure data of SENT rail pressure sensor channel 2	> 4088 < 1	- Ignition is on  Loss due to high level on SENT sensor signal line of SENT Rail pressure sensor  - Loss due to low level on SENT sensor signal line of SENT Rail pressure sensor  Error in SENT rail pressure sensor  No pending or confirmed DTCs  Basic enable conditions met	= FALSE -  = see sheet inhibit -	0.5 sec Continuous	1 Trip
	U101B	Path1: Diagnosis of message loss due to sensor signal line on high level	Loss due to high level on SENT sensor signal line of SENT rail pressure sensor	= TRUE	Ignition is on  Loss due to low level on SENT sensor signal line of SENT rail pressure sensor No pending or confirmed DTCs  Basic enable conditions met	= FALSE -  = FALSE -  = see sheet inhibit - tables = see sheet enable - tables	0.5 sec Continuous	1 Trip
		Path2: Diagnosis of message loss due to sensor signal line on low level	Loss due to low level on SENT sensor signal line of SENT rail pressure sensor	= TRUE	Ignition is on     Loss due to high level on SENT sensor signal line of SENT rail pressure sensor No pending or confirmed DTCs     Basic enable conditions met	= FALSE -  = FALSE -  = see sheet inhibit tables  = see sheet enable tables	0.5 sec Continuous	1 Trip
	U1375	Diagnosis of Fuel Rail Pressure Protocol Error	Protocol error for SENT rail pressure sensor detected	= TRUE	Loss due to high level on SENT sensor signal line of SENT Rail pressure sensor Loss due to low level on SENT sensor signal line of SENT Rail pressure sensor No pending or confirmed DTCs  Basic enable conditions met	= FALSE -  = FALSE -  = FALSE -  = see sheet inhibit -     tables  = see sheet enable -     tables	0.5 sec Continuous	1 Trip
Fuel Tank Pressure Sensor (S1 CAN)	P0453	Detects if the fuel tank pressure sensor voltage is higher than a calibrated threshold for a calibrated period of time	Fuel tank pressure sensor voltage same as Fuel tank pressure	> 4.8486	V ( Engine start is finished means: kPa (	= TRUE -	10 sec continuous	2 Trips

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1	FIC SUMMARY TABLES ECM (GMXV04.2088			E	MISSION	S STDS: C	CALULE	V125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	Ti	me Require	ed	MIL IIIum
					Engine speed ) OR Engine speed OR Engine state is in auto stop mode ) ECU is in pre-drive state No pending or confirmed DTCs Basic enable conditions met	> = = = = =	200  TRUE  FALSE See sheet inhibit tables See sheet enable tables	rpm rpm				
uel Tank Pressure Sensor (S1 CAN)	P0452	Detects if the fuel tank pressure sensor voltage is lower than a calibrated threshold for a calibrated period of time	Fuel tank pressure sensor voltage same as Fuel tank pressure	< 0.2002 V > 1.63 kPa	( Engine start is finished means: ( Engine speed ) OR Engine speed OR Engine speed OR Engine state is in auto stop mode ) ECU is in pre-drive state No pending or confirmed DTCs Basic enable conditions met	> = = = = =	TRUE  200  0  TRUE  FALSE See sheet inhibit tables See sheet enable tables	rpm rpm	10	sec	continuous	2 Trips
	P0451	Absolute value of Pressure difference for check of tank pressure sensor for drift is greater than the threshold for a calibrated period of time	Absolute value of Pressure difference for check of tank pressure sensor for drift	> 0.813 kPa	Tank pressure sensor for start check for drift is fulfilled, which is the following conditions for time  ( Canister vent valve (CVV) commanded open { EVAP purge flow { Vehicle speed } Purge mass for tank pressure sensor ((a/66)+b) where a - EVAP purge flow where b - Integrated CPV - mass flow for tank pressure sensor ) OR  ECU control for ECU switch off delay is awalable { Condition refueling is recognized { Filtered tank pressure sensor } OR  Absolute band pass filtered tank pressure signal for refueling or cap opening detection } OR  Condition refueling is detected { Condition refueling is detected { Condition refueling is detected { Condition refueling possible OR Briference between unfiltered fuel volume and stopped fuel level }	>= <= <= >> >= = <= = <= = <= = = <= = <= = = <= = = <= = = <= = = <= = = <= = = <= = = <= = = <= = = <= = = <= = = <= = = = <= = = <= = = <= = = <= = = <= = = = <= = = <= = = = <= = = = <= = = <= = = = <= = = = <= = = = = = <= = = = = <= = = = = <= = = = = = = <= = = = = = = = = = = <= = = = = = = = = = = = = = = = = = = =	3 TRUE 0.000541667 93.22560597 0 0.3 30 TRUE FALSE 0.119995 0.030029 0.040039 FALSE FALSE 5.1	g/sec mph mph g sec - kPa kPa kPa	7	sec	continuous	2 Trips

D GROUP: KGMXOBD	G07		TEST GROUP: K	IC SUMMARY TABLES ECM GMXV04.2088			E	MISSIONS	STDS: CALULEV125, FI	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	Time Required	MIL III
					( Condition refueling bit valid	=	FALSE	-		
					(	=	TRUE	-		
					Condition refueling possible OR Refuel indication is active		TRUE			
					Difference between unfiltered fuel	>	5.1	ī		
					volume and stopped fuel level					
					)					
					for time	>	300	sec		
					(		70	LD-		
					Ambient pressure	>=	70 FALSE	kPa -		
					Condition maximum fuel level for diagnostic					
					function (					
					fuel level )	<	64	1		
					Condition minimum fuel level for diagnostic function	=	FALSE	-		
					(					
					fuel level	<	7.7	1		
					) ) Fuel level		63			
					(	< <=	35.26	deg C		
					Ambient air temperature Ambient air temperature	>=	-7.04	deg C		
					Reference value for check of tank pressure	=	TRUE	_		
					sensor for drift stored in this driving cycle	-	INOL			
						>	5	sec		
					Engine not stopped after first start Ambient air temperature sensor model is	=	TRUE	-		
					error free	-	INOL			
					Temperature difference for cold start detection	<=	9.86	deg C		
					for check of tank pressure sensor for drift )					
					)					
					No pending or confirmed DTCs	=	See sheet inhibit tables	-		
					Basic enable conditions met	=	See sheet enable tables	-		
	P0451	Absolute value of tank pressure filtered for offset-diagnosis tank pressure sensor is greater than calibrated threshold	Absolute fuel tank pressure filtered for offset- diagnosis tank pressure sensor	> 1 kPa	Tank pressure sensor start check for offset is fulfilled, which is the following conditions	>=	2	sec	continuou	us 2 Trips
					for time (					
					Ambient pressure for offset diagnosis is fulfilled	=	TRUE	-		
					( Ambient air temperature	<=	35.26	deg C		
					Ambient air temperature )	>=	-7.04	deg C		
					( Ambient pressure	>=	70	kPa		
					( Condition maximum fuel level for	=	FALSE	-		
					diagnostic function					
					( fuel level	<	64	1		
					)  Condition minimum fuel level for diagnostic	=	FALSE	-		
					function					1

D GROUP: KGMXOBDG	607		DIAGNOSTI TEST GROUP: KG	C SUMMARY TABLES EC BMXV04.2088	IVI			EMISSIONS	STDS: CALULEV125, FI	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditio	ons	Time Required	MIL III
					fuel level	<	7.7	ı		
					)					
					Vehicle speed conditions are fulfilled for offset diagnosis	=	TRUE	-		
					( Absolute vehicle acceleration for offset-	<=	1.997	m/s^2		
					diagnosis of tank pressure sensor	<=	43.50528278	mph		
					Vehicle speed Vehicle speed	>=	3.107520199	mph		
					) ) Tank pressure is stable for offset diagnosis	=	TRUE	-		
					Fuel tank ventilation adaption factor	<=	5	_		
					( Integrated mass flow for release of offset	>=	34.987	g		
					check tank pressure sensor Engine not stopped after first start	=	TRUE	-		
					(	=	FALSE			
					Condition refueling is detected	=	FALSE	-		
					Condition refueling possible OR Difference between unfiltered fuel volume	<=	5.1			
					and stopped fuel level	~-	3.1	,		
					) OR					
					OR ( Condition refueling bit valid	=	FALSE	-		
					( Condition refueling possible	=	TRUE	-		
					OR Refuel indication is active	=	TRUE	; l		
					Difference between unfiltered fuel volume and stopped fuel level	>	5.1	'		
					)					
					Internal error flag CCV error	=	FALSE	-		
					Difference between filtered tank pressure for	>=	0	-		
					offset diagnosis and filtered tank pressure due to no mass flow					
					)					
					) CPV plausibility check is successful	=	TRUE	-		
					(		1.997	/222		
					Absolute vehicle acceleration for offset- diagnosis tank pressure sensor	<=		m/s^2		
					Canister vent valve (CVV) commanded open	=	TRUE	-		
					Low manifold ambient pressure Internal error flag CCV error	=	0.703125 FALSE	-		
					) for time	>=	5	sec		
					) Timer for calculation of reference tank	>=	5	sec		
					pressure ( Counter CPV-plausibility-checks	<	5	-		
					( CPV active for plausibility check	=	FALSE	-		
					Pressure from open CPV max. deviation 1. reference value to 2.	= <=	TRUE 0.050049	- kPa		

OBD GROUP: KGMXOBDG	07		DIAGNOS <sup>*</sup> TEST GROUP: I	TIC SUMMARY TABLES KGMXV04.2088	ECM			E	MISSION	S STDS: CAL	ULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters		Enable Conditions	<b>.</b>	Time Re	quired	MIL IIIum.
						minimum change for pressure because of CPV open and close ) ) ) ) No pending or confirmed DTCs Basic enable conditions met	>=	0.050049  See sheet inhibit tables See sheet enable tables	kPa -			
	P0451	Difference between Max and Min purge mass flow for incremental check of tank pressure sensor greater than a calibrated threshold	Difference between Max and Min purge mass flow for incremental check of tank pressure sensor and Difference between Max and Min fuel tank pressure during incremental check of tank pressure sensor	>= 0.41666667	g/sec	Condition start increment check of tank pressure sensor ( Vehicle speed ( Ambient air temperature  Ambient air temperature  Ambient pressure ( Condition maximum fuel level for diagnostic function ( Fuel level )  Condition minimum fuel level for diagnostic function ( Fuel level )  EVAP purge flow Manifold ambient pressure ( Measured tank pressure Measured tank pressure ) No pending or confirmed DTCs  Basic enable conditions met	=	TRUE  0 49.96  -7.04  70 FALSE  64 FALSE  7.7  0 0.804688 1.300049 -1.199951 See sheet inhibit tables See sheet enable tables	mph deg C  deg C  kPa  I  kPa kPa kPa kPa		continuous	2 Trips
	P0454	Tank pressure difference in tank leak diagnosis greater than a calibrated threshold for a calibrated period of time	Tank pressure difference in tank leak diagnosis	>= 1	kPa	Canister vent valve (CVV) commanded open for time ) Vehicle idle speed control condition (	= >= >= >= >= <= >= <== <== == <== == <== == == <= == == <= == =	TRUE  4  TRUE  0  0.5  0.5  FALSE  0  FALSE  49.96	sec	20 se	continuous	2 Trips

OBD GROUP: KGMXOBDG	607		DIAGNOST TEST GROUP: F	TIC SUMMARY TABLES (GMXV04.2088	ECM	EMISSIONS S	STDS: CALULEV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					Ambient air temperature ) Vehicle speed No pending or confirmed DTCs Basic enable conditions met	>= -7.04 deg C <= 3.107520199 mph = See sheet inhibit - tables = See sheet enable - tables		
Fuel Tank Pressure Sensor (S1 CAN)	U18A2	Detects when the time since the last message from the Fuel Pump Driver Control Module for the frame FTZM_Information_1_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Fuel Pump Driver Control Module was received is greater than a supervision timeout value	= TRUE	Ignition is ON     Basic enable conditions met	= TRUE -  = see sheet enable - tables	1 sec continuous	2 Trips
	U18A2	Detects when the time since the last message from the Fuel Pump Driver Control Module for the frame FTZM_Information_11_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Fuel Pump Driver Control Module was received is greater than a supervision timeout value	= TRUE	- Ignition is ON	= TRUE -	1 sec continuous	2 Trips
	U18A2	Detects when the time since the last message from the Fuel Pump Driver Control Module for the frame FTZM. Information 2. S1 was received is greater than the	Time since last message from the Fuel Pump Driver Control Module was received is greater than a supervision timeout value	= TRUE	Basic enable conditions met - Ignition is ON	= see sheet enable - tables  = TRUE -	1 sec continuous	2 Trips
	U18A2	Supervision timeout value for a calibrated period of time  Detects when the time since the last message from the Fuel	Time since last message from the Fuel Pump	= TRUE	Basic enable conditions met  Idnition is ON	= see sheet enable - tables	1 sec continuous	2 Trips
	010/2	Pump Driver Control Module for the frame FTZM_Information_3_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Driver Control Module was received is greater than a supervision timeout value	- INCL	Basic enable conditions met	= see sheet enable - tables	, sec communication	2 11103
	U18A2	Detects when the time since the last message from the Fuel Pump Driver Control Module for the frame FTZM_Information_4_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Fuel Pump Driver Control Module was received is greater than a supervision timeout value	= TRUE	- Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable -	1 sec continuous	2 Trips
	U18A2	Detects when the time since the last message from the Fuel Pump Driver Control Module for the frame	Time since last message from the Fuel Pump Driver Control Module was received is greater	= TRUE	- Ignition is ON	tables = TRUE -	1 sec continuous	2 Trips
		FTZM_Information_5_S1 was received is greater than the Supervision timeout value for a calibrated period of time	than a supervision timeout value		Basic enable conditions met	= see sheet enable - tables		
	U18A2	Detects when the time since the last message from the Fuel Pump Driver Control Module for the frame FTZM_Information_7_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Fuel Pump Driver Control Module was received is greater than a supervision timeout value	= TRUE	- Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	1 sec continuous	2 Trips
	U18A2	Detects when the time since the last message from the Fuel Pump Driver Control Module for the frame FTZM_Information_8_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Fuel Pump Driver Control Module was received is greater than a supervision timeout value	= TRUE	- Ignition is ON	= TRUE -	1 sec continuous	2 Trips
	U18A2	Detects when the time since the last message from the Fuel	Time since last message from the Fuel Pump	= TRUE	Basic enable conditions met - Ignition is ON	= see sheet enable tables  = TRUE -	1 sec continuous	2 Trips
		Pump Driver Control Module for the frame FTZM_Information_9_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Driver Control Module was received is greater than a supervision timeout value		Basic enable conditions met	= see sheet enable - tables		
Fuel Level Sensor 1 (S1 CAN)	P0463	Detects Fuel Level Sensor of primary tank Signal range check - High	Raw voltage value from the fuel level sensor of primary tank	> 2.801	V Ignition is ON	= TRUE -	2 sec continuous	2 Trips

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1		IARY TABLES	S ECM			E	MISSION	IS STDS: (	CALULE	/125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	т	me Required	1	MIL IIIum.
			Same as: Primary tank fuel level value	>	95.1	%	No pending or confirmed DTCs Basic enable conditions met	" "	See sheet inhibit tables see sheet enable tables	-				
	P0462	Detects Fuel Level Sensor of primary tank Signal range check -Low	Raw voltage value from the fuel level sensor of primary tank Same as: Primary tank fuel level value	<	0.475 8.38	V %	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	=	TRUE See sheet inhibit tables see sheet enable tables	-	2	sec	continuous	2 Trips
	P0461	Detects Fuel Level Primary Sender (sensor 1) Performance - sensor stuck	(Consumed fuel volume during test of primary sender	>=	9	I	Engine state: engine running	=	TRUE	·			continuous	2 Trips
			AND Delta between maximum and minimum sensed fuel level from primary sender during test)	<	3	1	for time Current fuel level zone is 3 or 4 as given by		0.2	sec				
			OR Distance traveled while in fuel level zone 2	>=	100000	m	Fuel level in primary tank  Current fuel level zone is 2, as given by Fuel level in primary tank Fuel level in secondary tank	< >= <=	35 35 3.3	1				
							No pending or confirmed DTCs  Basic enable conditions met	=	See sheet inhibit tables see sheet enable tables	-				
	P1434	Detects difference between period or pulse width of commanded and reference fuel levels	Absolute difference between the Reference Voltage Pulse Width Command value and Sensed Fuel Level Sensor Reference Voltage Pulse Width vale	>	0.025	sec	Ignition is ON	=	TRUE	-	40	events	continuous	2 Trips
			OR				No alive rolling count (ARC) or checksum fault is pending for the serial data message that communicates the sensed fuel level sensor reference voltage period and pulse width values	=	TRUE	-				
			Absolute difference between the Reference Voltage Period Command value and the Sensed Fuel Level Sensor Reference Voltage Period value	>	0.025	sec	Measured fuel level sensor reference voltage period OR pulse are available  Basic enable conditions met	=	TRUE see sheet enable tables	-				
	P2068	Detects Fuel Level Sensor of secondary tank Signal range	Raw voltage value from the fuel level sensor of	>	2.801	V	Ignition is ON		TRUE					2 Trips
Fuel Level Sensor 2 (S1 CAN)	P2066	check - High	secondary tank Same as:  Primary tank fuel level value	>	95.1	v %	No pending or confirmed DTCs  Basic enable conditions met	=	See sheet inhibit tables see sheet enable	-	2	sec	continuous	2 Hips
									tables					
	P2067	Detects Fuel Level Sensor of secondary tank Signal range check - Low	Raw voltage value from the fuel level sensor of secondary tank  Same as:	<	0.475	V	Ignition is ON  No pending or confirmed DTCs	=	TRUE See sheet inhibit	-	2	sec	continuous	2 Trips
			Primary tank fuel level value	<	8.38	%	Basic enable conditions met	=	tables see sheet enable tables	-				
	P2066	Detects Fuel Level Secondary Sender (sensor 2) Performance - sensor stuck	Consumed fuel volume during test of secondary sender	>=	9	I	Engine state: engine running	=	TRUE	-		_	continuous	2 Trips
			AND Delta between maximum and minimum sensed fuel level from secondary sender during test	<	3	1	for time Current fuel level zone is 1 or 3 as given by		0.2	sec				
							Fuel level in secondary tank	>=	3.3	I				

OBD GROUP: KGMXOBDG0	07		DIAGNOST TEST GROUP: 1		MARY TABLES 2088	ECM			E	MISSION	IS STDS: (	CALULE	EV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	i	Ti	ime Require	ed	MIL IIIum.
			OR Distance traveled while in fuel level zone 2	>=	100000	m	Current fuel level zone is 2, as given by Fuel level in primary tank Fuel level in secondary tank No pending or confirmed DTCs Basic enable conditions met	>= <= = =	35 3.3 See sheet inhibit tables see sheet enable tables	-				
	P143E	Detects difference between period or pulse width of commanded and reference fuel levels	Absolute difference between the Reference Voltage Pulse Width Command value and Sensed Fuel Level Sensor Reference Voltage Pulse Width vale OR	>	0.001	sec	Ignition is ON  No alive rolling count (ARC) or checksum fault is pending for the serial data message that communicates the sensed fuel level	=	TRUE		40	events	continuous	2 Trips
			Absolute difference between the Reference Voltage Period Command value and the Sensed Fuel Level Sensor Reference Voltage Period value	>	0.025	sec	sensor reference voltage period and pulse width values Measured fuel level sensor reference voltage period OR pulse are available Basic enable conditions met	=	TRUE see sheet enable tables					
Fuel Pressure Sensor	P018D	Detects Fuel Pressure Sensor Signal range check - High	Average raw voltage value of low pressure fuel pressure sensor Same as:  Low fuel pressure value	>	4.75 843	V kPa	Ignition ON  Basic enable conditions met	=	TRUE see sheet enable tables	-	1	sec	continuous	2 Trips
	P018C	Detects Fuel Pressure Sensor Signal range check - Low	Average raw voltage value of low pressure fuel pressure sensor Same as: Low pressure fuel value	<	0.25 7.05	V kPa	Ignition ON Basic enable conditions met	=	TRUE see sheet enable tables	-	1	sec	continuous	2 Trips
Fuel Pressure Sensor	P018B	Filtered governor low pressure output of fuel system is greater than calibrated threshold for calibrated period of time	Filtered governor low pressure output of fuel system	>	250	kPa	Electrical fuel pump operational mode is in closed loop control  ( Fuel flow demand of electrical fuel pump Engine is running state Pre-Supply pump is ON ) No pending or confirmed DTCs Basic enable conditions met	= = = =	0.1 TRUE TRUE TRUE see sheet inhibit tables see sheet enable tables	- Vh - - -	15	sec	continuous	2 Trips
	P018B	Filtered governor low pressure output of fuel system is lesser than calibrated threshold for calibrated period of time	Filtered governor low pressure output of fuel system	<	-250	kPa	Electrical fuel pump operational mode is in closed loop control  {     Fuel flow demand of electrical fuel pump Engine is running state Pre-Supply pump is ON }     No pending or confirmed DTCs Basic enable conditions met	>= = = = =	O.1 TRUE TRUE TRUE see sheet inhibit tables see sheet enable tables	- Vh - - -	15	sec	continuous	2 Trips
	P018B	Low pressure fuel system controller deviation is greater than a calibrated threshold for a calibrated period of time	Raw fuel pressure deviation in the low pressure fuel system for time when the above condition is true then Difference of raw low pressure governor maximum set point and minimum set point for a time	> >= < >=	20 10 4 14	kPa sec kPa sec	Fuel pressure sensor signal is valid means (sensor raw voltage sensor raw voltage) Engine run time Electrical fuel pump operational mode is in closed loop control Fuel flow demand of electrical fuel pump Fuel flow demand of electrical fuel pump Fuel level	=	4.75 0.25 15 TRUE 1.0 100 2	V V sec - !/h !/h	0.1	sec	contiuous	2 Trips

OBD GROUP: KGMXOBDG0	)7		DIAGNOST TEST GROUP: P		MARY TABLES 2088	ECM			E	MISSION	IS STDS: CALULEV125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	s	Time Required	MIL IIIum.
							No pending or confirmed DTCs Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables			
Camshaft Position Sensor - Intake B1	P0343	Camshaft sensor signal circuit high - Detects no signal error - high level at the inlet camshaft sensor at bank 1 by monitoring camshaft revolutions when there is no new edges detected and the signal level during transition to no signal state is high	Crankshaft signals	>=	8	revs	Ignition ON	=	TRUE	-	continuous	2 Trips
			Camshaft signal level when there is a transition to no signal state	=	permanently high	-	Crankshaft signal with gap is detected Back rotating engine is not detected No pending or confirmed DTCs Basic enable conditions met	=	TRUE  TRUE  See sheet inhibit tables  See sheet enable tables	-		
	P0342	Camshaft sensor signal circuit low - Detects no signal error- low level at the inlet camshaft sensor at bank 1 by monitoring camshaft revolutions when there is no new edges detected and the signal level during transition to no signal state is low	Crankshaft signals	>=	8	revs	Ignition ON	=	TRUE	•	continuous	2 Trips
			Camshaft signal level when there is a transition to no signal state	=	permanently low	-	Crankshaft signal with gap is detected Back rotating engine is not detected No pending or confirmed DTCs Basic enable conditions met	=	TRUE  TRUE  See sheet inhibit tables  See sheet enable tables	-		
Camshaft Position Sensor - Intake B1	P0341	Camshaft sensor signal rationality check - Detection of implausible crankshaft sensor operation by detecting incorrect camshaft sensor signal patterns - inlet camshaft sensor bank 1	( Length of the acquired camshaft segment is wrong	=	TRUE		Ignition ON	=	TRUE		continuous	2 Trips
			OR No matching of camshaft signal table and reference table found because of disturbances	=	TRUE	-	Crankshaft signal with gap is detected Back rotating engine is not detected	=	TRUE TRUE	-		
			OR  Sequence of entries in the signal table does not match with the reference table  OR	=	TRUE	-	No pending or confirmed DTCs  Basic enable conditions met	=	See sheet inhibit tables See sheet enable tables	-		
			Number of erroneous edge positions has exceeded the maximum tolerance ) AND	=	TRUE	-						
			Defect counter	>=	20	revs						
Camshaft Position Sensor - Intake B2	P0348	Camshaft sensor signal circuit high - Detects no signal error - high level at the inlet camshaft sensor at bank 2 by monitoring camshaft revolutions when there is no new edges detected and the signal level during transition to no signal state is high	Crankshaft signals	>=	8	revs	Ignition ON	=	TRUE	-	continuous	2 Trips
			Camshaft signal level when there is a transition to no signal state	=	permanently high	-	Crankshaft signal with gap is detected Back rotating engine is not detected No pending or confirmed DTCs Basic enable conditions met	=	TRUE See sheet inhibit tables See sheet enable tables	-		
	Dec 47	Camshaft sensor signal circuit low - Detects no signal error - low level at the inlet camshaft sensor at bank 2 by monitoring camshaft revolutions when there is no new edges detected	Crankshaft signals	>=	8	revs	Ignition ON	=	TRUE			2.7
	P0347	and the signal level during transition to no signal state is low	Camshaft signal level when there is a transition to no signal state	=	permanently low	-	Crankshaft signal with gap is detected Back rotating engine is not detected No pending or confirmed DTCs Basic enable conditions met	= = =	TRUE TRUE See sheet inhibit tables See sheet enable tables	-	continuous	2 Trips

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: P		MARY TABLES 2088	ECM			E	MISSION	IS STDS: CALULEV125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	5	Time Required	MIL IIIum.
	P0346	Camshaft sensor signal rationality check - Detection of implausible crankshaft sensor operation by detecting incorrect camshaft sensor signal patterns - inlet camshaft sensor bank 2		=	TRUE		Ignition ON	=	TRUE			
		, i	OR No matching of camshaft signal table and reference table found because of disturbances	=	TRUE	-	Crankshaft signal with gap is detected Back rotating engine is not detected	=	TRUE TRUE	÷	continuous	2 Trips
			OR Sequence of entries in the signal table does not	=	TRUE	-	No pending or confirmed DTCs  Basic enable conditions met	=	See sheet inhibit tables See sheet enable	-		
			match with the reference table OR Number of erroneous edge positions has exceeded the maximum tolerance	=	TRUE	-			tables			
			) AND Defect counter	>=	20	revs						
Camshaft Position Sensor - Exhaust B1	P0368	high level at the outlet camshaft sensor at bank 1 by monitoring camshaft revolutions when there is no new edges detected and the signal level during transition to no signal state	Crankshaft signals	>=	8	revs	Ignition ON	=	TRUE	-	continuous	2 Trips
		is high	Camshaff signal level when there is a transition to no signal state	=	permanently high	-	Crankshaft signal with gap is detected Back rotating engine is not detected No pending or confirmed DTCs Basic enable conditions met	= = =	TRUE TRUE See sheet inhibit tables See sheet enable tables	-		
	P0367	Camshaft sensor signal circuit low - Detects no signal error- low level at the outlet camshaft sensor at bank 1 by monitoring camshaft revolutions when there is no new edges detected and the signal level during transition to no signal state is low	Crankshaft signals	>=	8	revs	Ignition ON	=	TRUE	-	continuous	2 Trips
			Camshaff signal level when there is a transition to no signal state	=	0	-	Crankshaft signal with gap is detected Back rotating engine is not detected No pending or confirmed DTCs Basic enable conditions met	= = =	TRUE TRUE See sheet inhibit tables See sheet enable tables	- - -		
	P0366	Camshaft sensor signal rationality check - Detection of implausible crankshaft sensor operation by detecting incorrect camshaft sensor signal patterns - outlet camshaft sensor bank	( Length of the acquired camshaft segment is wrong	=	TRUE	-	Ignition ON	=	TRUE	-	continuous	2 Trips
		1	OR  No matching of camshaft signal table and reference table found because of disturbances  OR	=	TRUE	-	Crankshaft signal with gap is detected Back rotating engine is not detected No pending or confirmed DTCs	=	TRUE TRUE See sheet inhibit	-		
			Sequence of entries in the signal table does not match with the reference table OR	=	TRUE	-	Basic enable conditions met	=	tables See sheet enable tables	-		
			Number of erroneous edge positions has exceeded the maximum tolerance ) AND	=	TRUE	-						
			Counter for signal disturbance error after pattern matching	>=	20	revs						
Camshaft Position Sensor - Exhaust B2	P0393	Camshaft sensor signal circuit high - Detects no signal error- high level at the outlet camshaft sensor at bank 2 by monitoring camshaft revolutions when there is no new edges detected and the signal level during transition to no signal state is high	Crankshaft signals	>=	8	revs	Ignition ON	=	TRUE	-	continuous	2 Trips
			Camshaff signal level when there is a transition to no signal state	II	permanently high	_	Crankshaft signal with gap is detected Back rotating engine is not detected No pending or confirmed DTCs Basic enable conditions met	= =	TRUE  TRUE  See sheet inhibit tables  See sheet enable tables	-		

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1		MARY TABLES 2088	ECM			E	MISSION	IS STDS:	CALULE\	/125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	s		Time Required	i	MIL IIIum.
	P0392	Camshaft sensor signal circuit low - Detects no signal error- low level at the outlet camshaft sensor at bank 2 by monitoring camshaft revolutions when there is no new edges detected and the signal level during transition to no signal state is low	Crankshaft signals	>=	8	revs	Ignition ON	=	TRUE	-			continuous	2 Trips
			Camshaft signal level when there is a transition to no signal state	=	permanently low	-	Crankshaft signal with gap is detected Back rotating engine is not detected No pending or confirmed DTCs Basic enable conditions met	= = =	TRUE TRUE See sheet inhibit tables See sheet enable tables	-				
	P0391	Camshaft sensor signal rationality check - Detection of implausible crankshaft sensor operation by detecting incorrect camshaft sensor signal patterns - outlet camshaft sensor bank 2	( Length of the acquired camshaft segment is wrong	=	TRUE	-	Ignition ON	=	TRUE	-			continuous	2 Trips
		2	OR No matching of camshaft signal table and reference table found because of disturbances	=	TRUE	-	Crankshaft signal with gap is detected Back rotating engine is not detected	=	TRUE TRUE	Ī				
			OR  Sequence of entries in the signal table does not match with the reference table  OR	=	TRUE	-	No pending or confirmed DTCs  Basic enable conditions met	=	See sheet inhibit tables See sheet enable tables	-				
			OR Number of erroneous edge positions has exceeded the maximum tolerance ) AND	=	TRUE	-								
			Defect counter	>=	20	revs								
rankshaft Position Sensor	P0335	Crankshaft signal rationality check - monitoring of crankshaft missing signal against camshaft signal	Crankshaft signal is not available	=	TRUE	-	Engine speed based on camshaft is above the lower plausible limit Engine speed based on camshaft is below the higher plausible limit Engine speed based on camshaft is below maximum engine speed Camshaft signal is valid	= = =	FALSE FALSE FALSE TRUE	- - -	3	camshaft revolutions	continuous	1 Trip
							Vehicle speed Vehicle speed ) ) OR (	٧ ,	0.62150404 15.53760099	mph mph				
							Engine speed ) ) (	^	550	rpm				
							Engine speed Synchronization check is completed ) OR	> =	550 TRUE	rpm -				
							Engine speed OR Engine is ready and waiting for engine speed )	=	0 TRUE	rpm -				
							) ) OR Starter is active and starter signal is available	=						
							) No pending or confirmed DTCs Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-				
rankshaft Position Sensor	P0336	Path 1: Crankshaft signal rationality check - detection of implausible crankshaft sensor operation by detecting incorrect crank	Gap found in crankshaft signal	=	FALSE		(				20	events	continuous	1 Trip
		cratissiant sensor operation by detecting incorrect crank sensor signal patterns.	Crankshaft signal disturbance is found Engine is in backup crankshaft mode	=	TRUE TRUE	- -	( ( Vehicle speed Vehicle speed	<b>&gt; Y</b>	0.62150404 15.53760099	mph mph				

OBD GROUP: KGMXOBDG07	,		DIAGNOST TEST GROUP: P		IARY TABLE	S ECM			E	MISSION	S STDS: (	CALULEV	/125, FED-	-BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	Т	ime Required		MIL IIIum.
							) OR ( Engine speed )	>	550	rpm				
							Engine speed Synchronization check is completed OR	> =	550 TRUE	rpm -				
							Engine speed OR Engine is ready and waiting for engine speed ) )	=	0 TRUE	rpm -				
							) OR Starter is active and starter signal is available )	=						
							No pending or confirmed DTCs  Basic enable conditions met	" "	see sheet inhibit tables see sheet enable tables	-				
	P0336	Path 2: Crankshaft signal rationality check - Range check of DGI pulse width	Error detected in the range of pulse width from DGI sensor	=	TRUE	-	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables	-	10	events		
	P034A	Wrong engine stop position detected. After camshaft/crankshaft synchronization a too large of angle difference was detected at the following crankshaft gap.	Absolute value of difference between angle set by engine stop position detection and angle at crankshaft gap	>=	20.0	degrees	Ignition is ON	=	TRUE	-	10	events	continuous	2 Trips
			Absolute value of difference between angle set by engine stop position detection and angle at crankshaft qap where A is threshold for angle of resynchronization after start by engine stop position for the error entry of DGI	<= =	360 - A 20.0	degrees	Basic enable conditions met	=	see sheet enable tables	-				
	P034B	Crankshaft signal rationality check - Detection of reverse rotation	Engine is rotating in reverse direction	=	TRUE	-	Engine speed based on a camshaft- revolution	>	2000	rpm	10	events	continuous	2 Trips
							Basic enable conditions met	=	see sheet enable tables	-				
Crankshaft to Intanke Camshaft Correlation - B1	P0016	Rationality check: Crankshaft position - intake camshaft position allocation Bank 1	(Average of angular offset between camshaft and crankshaft	>	4.5044	degrees	Number of camshaft revolutions	>=	10		2	camshaft revs		2 Trips
			OR Average of angular offset between camshaft and crankshaft)	<	-14.502	degrees	Back rotating engine NOTE: Pulse length indicates the direction of rotation: 45us forward rotating shaft, 90us backward rotating shaft	=	FALSE	-				
							Four crankshaft revolutions are complete without any error on crankshaft or camshaft signal and no sync lost Monitoring is calibrated as active No signal loss failure or signal disturbance is	=	TRUE TRUE TRUE	:				
							Into agrial loss insulator of agrian distributions is stored for the camshaft in question Intake camshaft: Edge adaptation request	-	TRUE	-				
Crankshaft to Intake Camshaft Correlation - B2	P0018	Rationality check: Crankshaft position - intake camshaft position allocation Bank 2	(Average of angular offset between camshaft and crankshaft OR	>	4.5044	degrees	Number of camshaft revolutions  Back rotating engine	>=	10 FALSE	-	2	camshaft revs		2 Trips

OBD GROUP: KGMXOBDG07	,		DIAGNOST TEST GROUP: M	TIC SUMMARY TABLES EC	М	EMISSIONS	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
			Average of angular offset between camshaft and crankshaft)	< -14.502 degr	es NOTE: Pulse length indicates the direction of rotation: 45us forward rotating shaft, 90us backward rotating shaft Four crankshaft revolutions are complete without any error on crankshaft or camsha signal and no sync lost Monitoring is calibrated as active No signal loss failure or signal disturbance stored for the camshaft in question Intake camshaft: Edge adaptation request	= TRUE - ft = TRUE - is = TRUE -		
Crankshaft to Exhaust Camshaft Correlation - B1	P0017	Rationality check: Crankshaft position - exhaust camshaft position allocation Bank 1	(Average of angular offset between camshaft and crankshaft OR Average of angular offset between camshaft and crankshaft)	> 4.5044 degr	Back rotating engine	ft = TRUE - ft = TRUE - is = TRUE -	2 camshaft 2 revs	2 Trips
Crankshaft to Exhaust Carnshaft Correlation - B2	P0019	Rationality check: Crankshaft position - exhaust camshaft position allocation Bank 2	(Average of angular offset between camshaft and crankshaft of Average of angular offset between camshaft and crankshaft)	> 4.5044 degr	Back rotating engine	ft = TRUE - ft = TRUE - is = TRUE -	2 camshaft 2 revs	2 Trips
Hood Switch Position Sensor	P257F	Diagnosis of Engine Hood Switch Sensor for Out of Range Check - High	Percentage of Reference voltage of Engine Hood Switch Sensor	> 67.8397 %	Ignition is on  No pending or confirmed DTCs  Basic enable conditions met	= TRUE -  = see sheet inhibit tables  = see sheet enable tables	1 sec Continuou	s 2 Trips
	P257E	Diagnosis of Engine Hood Switch Sensor for Out of Range Check - Low	Percentage of Reference voltage of Engine Hood Switch Sensor	< 17.2043 %	Ignition is on  No pending or confirmed DTCs  Basic enable conditions met	= TRUE -  = see sheet inhibit - tablies = see sheet enable - tables	1 sec Continuou	s 2 Trips
Hood Switch Position Sensor	P257D	Detects if percentage of reference voltage of Engine Hood Switch Sensor is in between the ranges for closed and open Hood positions.	Percentage of Reference voltage of Engine Hood Switch Sensor  Percentage of Reference voltage of Engine Hood Switch Sensor	> 43.4018 % < 45.7478 %	Ignition is on  No pending or confirmed DTCs  Basic enable conditions met	= TRUE -  = see sheet inhibit - tables = see sheet enable - tables	1 sec Continuou	2 Trips
Ignition Coil Supply Voltage Feedback - B1	P135A	Diagnoses Ignition Coil External Fuse open circuit Bank 1	Voltage at ignition coil side of fuse	= 0 V	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	40 events continuo	us 1 Trip

DBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: P		MARY TABLES 2088	6 ECM				EMISSION	IS STDS:	CALULE	EV125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns		Time Require	ed	MIL IIIum
nition Coil Supply Voltage Feedback - B2	P135B	Diagnoses Ignition Coil External Fuse open circuit Bank 2	Voltage at ignition coil side of fuse	=	0	V	Ignition is ON Basic enable conditions met	=	TRUE see sheet enable tables	-	40	events	continuous	1 Trip
nock Sensor 1 B1	P0328	Knock sensor 1 short circuit to battery	Filtered knock sensor output Where Low pass filter gain - Integration result for short circuit to battery diagnosis	> =	4.7 0.5	V	Enqine speed	>	500	rpm	3	events		
	P0327	Knock sensor 1 short circuit to ground	Filtered knock sensor output Where Low pass filter gain – Integration result for short circuit to ground diagnosis	< =	0.2 0.5	V	Enqine speed	>	500	rpm	3	events		
	P0325	Knock sensor 1 open circuit	Integration result for open load detection Where Low pass filter gain – Integration result for open load diagnosis	>	25000 0.5		Knock sensor PWM duty cycle applied Engine speed	> >	50 500	% rpm	3	events		
							Engine speed Engine load Engine load SCG & SCB diagnostic enabled	< > < =	5000 0 1535.977 TRUE	rpm % % -				
	P0326	Knock sensor 1 reference signal rationality check	Normalized reference level of knock control (see Look-Up-Table #P0326-1) Debounce counter for knock sensor diagnosis	>	0.525 to 1.35 30	V*ms Counts	Engine coolant temperature at engine start Knock control active ( Relative charge of air in the cylinder	> = >=	49.96 TRUE 40.008	deg C - %			multiple	2 Trips
							OR  {     Engine load dynamic for knock detection active (*) maintained active for time     ) } Engine Speed	= >= >=	FALSE 0.4 520	- sec rpm				
							Engine start is finished (*) for number of combustions to deactivate knock control after start end Fuel Cut off ) GDI mode stratified is active	> =	TRUE 20 FALSE FALSE	Counts				
							for time ) Enable knock sensor diagnosis ( Knock control synchronization error at phase error OR	= =	0 TRUE FALSE	sec - -				
							State of EPM operation mode should not have valid crankshaft signal present ) Engine load dynamic for knock detection active	=	FALSE	-				
							Intake manifold pressure (see Look-Up Table #P0326-2) Delay for dynamic detection Engine in idle condition (*)::) maintained active for time	>= = = >=	10 to 24 20 FALSE 0.8	kPa - - sec				

OBD GROUP: KGMXOBDO	607		DIAGNOST TEST GROUP: K		IARY TABLE 1088	S ECM				EMISSION	S STDS: CA	LULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ons	Time	Required	MIL IIIum.
							Engine speed dynamic for knock detection active ( Engine speed gradient averaged during one working cvcle for time )) Engine Speed No pending or confirmed DTCs Basic enable conditions met	=	FALSE  1000  0.25  500 see sheet inhibit tables see sheet enable tables	rpm/s sec rpm -			
nock Sensor 2 B1	P032D	Knock sensor 3 short circuit to battery	Filtered knock sensor output Where Low pass filter gain – Integration result for short circuit to battery diagnosis	> =	4.7 0.5	V	Engine speed	>	500	rpm	3	events	
	P032C	Knock sensor 3 short circuit to ground	Filtered knock sensor output Where Low pass filter gain – Integration result for short circuit to ground diagnosis	< =	0.2 0.5	V	Engine speed	>	500	rpm	3	events	
nock Sensor 2 B1	P032A	Knock sensor 3 open circuit	Integration result for open load detection Where Low pass filter gain – Integration result for open load diagnosis	> =	25000 0.5		Knock sensor PWM duty cycle applied Engine speed	> >	50 500	% rpm	3	events	
							Engine speed Engine load Engine load SCG & SCB diagnostic enabled	< > < =	5000 0 1535.977 TRUE	rpm % % -			
	P032B	Knock sensor 3 reference signal rationality check	Normalized reference level of knock control (see Look-Up-Table #P0326-1)	>	0.525 to 1.35	V*ms	Engine coolant temperature at engine start	>	49.96	deg C		multiple	2 Trips
			Debounce counter for knock sensor diagnosis	>	30	Counts	Knock control active	=	TRUE	-			
							( ( Relative charge of air in the cylinder OR (	>=	40.008	%			
							Engine load dynamic for knock detection active (*) maintained active for time	= >=	FALSE 0.4	sec			
							Engine Speed Engine start is finished (*) for number of combustions to deactivate knock control after start end	> =	520 TRUE 20	rpm - Counts			
							Fuel Cut off ) GDI mode stratified is active	=	FALSE FALSE	-			
							for time	>	0	sec			
							Enable knock sensor diagnosis ( Knock control synchronization error at phase error	=	TRUE FALSE	-			
							OR State of EPM operation mode should not have valid crankshaft signal present	=	FALSE	-			
							) Engine load dynamic for knock detection active (	=	FALSE	-			
							Intake manifold pressure (see Look-Up Table #P0326-2)	>=	10 to 24	kPa			

OBD GROUP: KGMXOBDO	307		DIAGNOST TEST GROUP: K		IARY TABLES	S ECM				EMISSION	S STDS:	CALULEV125	5, FEDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns	1	Time Required	MIL IIIum.
							Delay for dynamic detection Engine in idle condition (*) ) maintained active for time Engine speed dynamic for knock detection active (	= = >= =	20 FALSE 0.8 FALSE	- - sec -			
							Engine speed gradient averaged during one working cycle for time 1) Engine Speed No pending or confirmed DTCs Basic enable conditions met	> = = = = = = = = = = = = = = = = = = =	0.25 500 see sheet inhibit tables see sheet enable tables	sec rpm -			
Knock Sensor 1 B2	P0333	Knock sensor 2 short circuit to battery	Filtered knock sensor output Where Low pass filter gain – Integration result for short circuit to battery diagnosis	> =	4.7 0.5	V	Engine speed	>	500	rpm	3	events	
	P0332	Knock sensor 2 short circuit to ground	Filtered knock sensor output Where Low pass filter gain – Integration result for short circuit to ground diagnosis	< =	0.2 0.5	V	Engine speed	>	500	rpm	3	events	
Knock Sensor 1 B2	P0330	Knock sensor 2 open circuit	Integration result for open load detection Where Low pass filter gain – Integration result for open load diagnosis	> =	25000 0.5		Knock sensor PWM duty cycle applied Engine speed	>	50 500	% rpm	3	events	
							Engine speed Engine load Engine load SCG & SCB diagnostic enabled	< > < =	5000 0 1535.977 TRUE	rpm % % -			
	P0331	Knock sensor 2 reference signal rationality check	Normalized reference level of knock control (see Look-Up-Table #P0326-1)	>	0.525 to 1.35	V*ms	Engine coolant temperature at engine start	>	49.96	deg C		mu	Iltiple 2 Trips
			Debounce counter for knock sensor diagnosis	>	30	Counts	Knock control active (	=	TRUE	-			
							( Relative charge of air in the cylinder OR /	>=	40.008	%			
							Engine load dynamic for knock detection active (*) maintained active for time	= >=	FALSE 0.4	sec			
							Engine Speed Engine start is finished (*) for	> =	520 TRUE 20	rpm -			
							number of combustions to deactivate knock control after start end Fuel Cut off ) GDI mode stratified is active	=	FALSE FALSE	Counts -			
							for time	>	0	sec			
							Enable knock sensor diagnosis ( Knock control synchronization error at phase error OR	=	TRUE	-			

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: M		MARY TABLES 2088	ECM				EMISSION	IS STDS:	CALULEV1	25, FEDB	IN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns		Time Required	м	IIL IIIum.
							State of EPM operation mode should not have valid crankshaft signal present	=	FALSE	-				
							) Engine load dynamic for knock detection active	=	FALSE	-				
							Intake manifold pressure (see Look-Up Table #P0326-2) Delay for dynamic detection	>=	10 to 24 20	kPa				
							Engine in idle condition (*)  maintained active for time Engine speed dynamic for knock detection active	= >= =	FALSE 0.8 FALSE	sec				
							( Engine speed gradient averaged during one working cycle for time	>=	1000	rpm/s				
							tor time ) Engine Speed No pending or confirmed DTCs	> =	0.25 500 see sheet inhibit	rpm -				
							Basic enable conditions met	=	tables see sheet enable tables	-				
Knock Sensor 2 B2	P033D	Knock sensor 3 short circuit to battery	Filtered knock sensor output Where Low pass filter gain – Integration result for short circuit to battery diagnosis	> =	4.7 0.5	V	Engine speed	>	500	rpm	3	events		
	P033C	Knock sensor 3 short circuit to ground	Filtered knock sensor output Where Low pass filter gain – Integration result for short circuit to ground diagnosis	< =	0.2 0.5	V	Engine speed	>	500	rpm	3	events		
Knock Sensor 2 B2	P033A	Knock sensor 3 open circuit	Integration result for open load detection Where Low pass filter gain – Integration result for open load diagnosis	> =	25000 0.5		Knock sensor PWM duty cycle applied Engine speed	>	50 500	% rpm	3	events		
							Engine speed Engine load Engine load SCG & SCB diagnostic enabled	< > < =	5000 0 1535.977 TRUE	rpm % % -				
	P033B	Knock sensor 4 reference signal rationality check	Normalized reference level of knock control (see Look-Up-Table #P0326-1)	>	0.525 to 1.35	V*ms	Engine coolant temperature at engine start	>	49.96	deg C		ı	multiple	2 Trips
			Debounce counter for knock sensor diagnosis	>	30	Counts	Knock control active ( ( ( (	=	TRUE	-				
							( Relative charge of air in the cylinder OR (	>=	40.008	%				
							Engine load dynamic for knock detection active (*) maintained active for time	= >=	FALSE 0.4	sec				
							) ) Engine Speed Engine start is finished (*)	> =	520 TRUE	rpm -				
							for number of combustions to deactivate knock control after start end Fuel Cut off	>	20 FALSE	Counts				
							) GDI mode stratified is active	=	FALSE	-				
							for time	>	0	sec				
							Enable knock sensor diagnosis ( Knock control synchronization error at phase error OR	=	TRUE FALSE					

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: N	IC SUMMARY TABLES ECM GMXV04.2088				EMISSIONS	S STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	E	nable Condition	าร	Time Required	MIL IIIun
					State of EPM operation mode should not have valid crankshaft signal present ) Engine load dynamic for knock detection	=	FALSE FALSE			
					active ( Intake manifold pressure (see Look-Up	= >=	10 to 24	kPa		
					Table #P0326-2)  Delay for dynamic detection  Engine in idle condition (*)	=	20 FALSE	- -		
					) maintained active for time Engine speed dynamic for knock detection active	>= =	0.8 FALSE	sec -		
					( Engine speed gradient averaged during one	>=	1000	rpm/sec		
					working cycle for time )	>	0.25	sec		
					Engine Speed No pending or confirmed DTCs Basic enable conditions met		500 see sheet inhibit tables ee sheet enable	rpm - -		
							tables			
Diagnosis knock detection signal evaluation	P06B6	Path 1: Monitoring of the number of measurement values	Absolute difference of estimated and measured sampled signals in the measuring window for number of counts (signal evaluation errors (combustion) within obersavtion period)	> 30 counts > 48 counts	General release conditions for knock sensor line diagnostics: Knock sensor diagnosis is active Engine coolant temperature at engine start	>	49.96	deg C	continuous	s 2 Trip
			Observation period	= 800 combustion strokes	Knock control active					
					( Relative charge of air in the cvlinder OR (	>=	40.008	%		
					Additional load dynamics retard exceeded: Intake manifold pressure (see Look-Up Table #P0326-2)	>=	10 to 24	kPa		
					Delay for dynamic detection Idle speed from driver sight	=	0.02 FALSE	sec -		
					for a time ) Engine Speed End of engine start is reached	> =	0.4 520 TRUE	sec rpm -		
					for a number of combustions to deactivate knock control after start end Fuel Cut off GDI mode stratified is active	>= = =	20 FALSE FALSE	Counts - -		
					) for time	>	0	sec		
					Enable knock sensor diagnosis: Knock control synchronisation error at phase error No valid crankshaft signal present (backup	=	FALSE FALSE	-		
					using camshaft signal)  No load dynamics for knock detection active:					
					( Intake manifold pressure (see Look-Up Table #P0326-2) Delay for dynamic detection	< =	10 to 24 0.02	kPa sec		
					Idle speed from driver sight ) for time	= >	TRUE 0.8	sec		
					No speed dynamics for knock detection active: Absolute value of engine speed gradient	<	1000	1/min/s		
					during one working cycle					
					Engine speed	>=	500	rpm		

GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1								EMISSION	S STDS: CALU	LEV125, FED	)BIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold V	/alue		Secondary Parameters		Enable Conditio	ns	Time Requ	iired	MIL III
								Signal evaluation combustion released, which is the following conditions:						
								Absolute value of engine speed gradient calculated over current crankshaft segment	<	1000	rpm/s			
								Estimated number of measuring values in	<=	200	counts			
								the measuring window Synchronisation based on engine shut off position or full synchro information	-	TRUE	-			
								No pending or confirmed DTCs	=	see sheet inhibit tables	-			
								Basic enabling conditions are met	=	see sheet enable tables	-			
		Path 2:	Number of signal evaluation errors (position and	>	2		counts	General release conditions for knock						
		Monitoring of position and length of the measurement window	length of the measuring window) within obersavtion period		•			sensor line diagnostics: Knock sensor diagnosis is active	l	40.00	4 0			
			Observation period	=	3		sec	Engine coolant temperature at engine start  Knock control active	>	49.96	deg C			
								(	i					
								Relative charge of air in the cylinder OR	>=	40.008	%			
								Additional load dynamics retard exceeded:	i					
								Intake manifold pressure (see Look-Up Table #P0326-2)	>=	10 to 24	kPa			
								Delay for dynamic detection Idle speed from driver sight	=	0.02 FALSE	sec -			
								for a time	<=	0.4	sec			
								Engine Speed End of engine start is reached	> =	520 TRUE	rpm -			
								for a number of combustions to deactivate knock control after start end	>=	20	Counts			
								Fuel Cut off GDI mode stratified is active	=	FALSE FALSE	-			
								) for time	>	0	sec			
								Enable knock sensor diagnosis: Knock control synchronisation error at	_	FALSE	_			
								phase error No valid crankshaft signal present (backup	_	FALSE	-			
								using camshaft signal)	i					
								No load dynamics for knock detection active:	i					
								( Intake manifold pressure (see Look-Up Table #P0326-2)	<	10 to 24	kPa			
								Delay for dynamic detection Idle speed from driver sight	=	0.02 TRUE	sec -			
								) for time	>	0.8	sec			
								No speed dynamics for knock detection	i					
								active: Absolute value of engine speed gradient during one working cycle	<	1000	1/min/s			
								Engine speed	>=	500	rpm			
								Signal evaluation measuring window released, which is the following	l					
								conditions: ECU Sub-State in DRIVE (*) Engine speed	= >	TRUE 1000	- rpm			
								and Synchronisation completed	-	TRUE	-			
								No pending or confirmed DTCs	=	see sheet inhibit tables	-			
								Basic enabling conditions are met	-	see sheet enable tables	-			
M Module System Voltage	P129C	Monitoring of fuel pump driver control module system for	Fuel Tank Zone Module(FTZM) sensed battery		16.02			Ignition ON		TRUE			Continuous	2

OBD GROUP: KGMXOBDO	907		DIAGNOST TEST GROUP: N	TIC SUMMARY TABLES ECN (GMXV04.2088		EMISSIONS	STDS: CALULEV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					No pending or confirmed DTCs  Basic enabling conditions are met	= see sheet inhibit - tables = see sheet enable tables		
	P129B	Monitoring of fuel pump driver control module system for voltage low fault	Fuel Tank Zone Module(FTZM) sensed battery voltage	< 10.02 V	Ignition ON  No pending or confirmed DTCs  Basic enabling conditions are met	= TRUE -  = see sheet inhibit - tables = see sheet enable tables	5 sec Continuous	2 Trips
	P1002	Monitoring of fuel pump driver control module system voltage for its performance fault	Absolute difference between battery voltage and Fuel Tank Zone Module(FTZM) sensed battery voltage	> 3 V	Ignition ON  No pending or confirmed DTCs  Basic enabling conditions are met	= TRUE -  = see sheet inhibit - tables = see sheet enable - tables	5 sec Continuous	2 Trips
TZM Internal Performance	P1005	Monitoring of FTZM fuel pump driver control module for too many unexpected resets	Fuel Pump driver contol module too many resets is detected	= TRUE -	Ignition ON  No pending or confirmed DTCs  Basic enabling conditions are met	= TRUE -  = see sheet inhibit tables  = see sheet enable tables	0.5 sec Continuous	2 Trips
	P1255	Monitoring of FTZM fuel pump output for over temperature fault	Fuel Tank Zone Module(FTZM) over temperature is detected	= TRUE -	Ignition ON  No pending or confirmed DTCs  Basic enabling conditions are met	= TRUE - = see sheet inhibit - tables = see sheet enable - tables	0.5 sec Continuous	2 Trips
	P102C	Monitoring of FTZM fuel pump output for phase to phase short circuit fault	Fuel Tank Zone Module(FTZM) fuel pump output is shorted between phase to phase	= TRUE -	Ignition ON  No pending or confirmed DTCs  Basic enabling conditions are met	= TRUE - = see sheet inhibit tables = see sheet enable - tables	0.5 sec Continuous	2 Trips
ZM gnition On/Start Switch Circuit	P1007	Monitoring of the FTZM Run/Crank signal for a stuck high condition	FTZM detects that the run/crank signal is stuck high (e.g. 12V)	= TRUE -	Ignition ON  ECM and CAN bus awake for transmission (meaning CAN awaken by BCM or ECM)  No pending or confirmed DTCs  Basic enabling conditions are met	= FALSE - = TRUE - = see sheet inhibit tables = see sheet enable tables	40 counts Continuous	2 Trips
	P129D	Monitoring of the FTZM Run/Crank signal for a stuck high condition	FTZM detects that the run/crank signal is stuck low (e.g. 0V)	= TRUE -	Ignition ON  ECM and CAN bus awake for transmission (meaning CAN awaken by BCM or ECM)  No pending or confirmed DTCs  Basic enabling conditions are met	= TRUE -  TRUE -  TRUE -  see sheet inhibit tables  see sheet enable tables	40 counts Continuous	2 Trips
Injection Valve Flyback Voltage - Cyl.	1 P02EE	Plausibility check of injector ADC signal buffer	( ADC buffer signal from beginning of Controlled Valve Operation signal evaluation	<= 15000 -	Ignition is ON  No pending or confirmed DTCs	= TRUE -  = see sheet inhibit - tables	20 events continuous	2 Trips

OBD GROUP: KGMXOBDG0	07		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES EC (GMXV04.2088	М	EMISSIONS	S STDS: CALULEV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
			OR  ADC buffer signal from end of Controlled Valve Operation signal evaluation )	>= 5000 -	Basic enable conditions met	= see sheet enable - tables		
Injection Valve Flyback Voltage - Cyl. 1	P02EF	Plausibility check of injector ADC signal buffer	( ADC buffer signal from beginning of Controlled Valve Operation signal evaluation OR ADC buffer signal from end of Controlled Valve Operation signal evaluation )	<= 15000 - >= 5000 -	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	= TRUE - = see sheet inhibit - tables = see sheet enable - tables	20 events continuous	2 Trips
Injection Valve Flyback Voltage - Cyl. 1	P02F0	Plausibility check of injector ADC signal buffer	( ADC buffer signal from beginning of Controlled Valve Operation signal evaluation OR ADC buffer signal from end of Controlled Valve Operation signal evaluation	<= 15000 - >= 5000 -	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	= TRUE - = see sheet inhibit tables = see sheet enable tables	20 events continuous	2 Trips
Injection Valve Flyback Voltage - Cyl. 1	P02F1	Plausibility check of injector ADC signal buffer	( ADC buffer signal from beginning of Controlled Valve Operation signal evaluation OR ADC buffer signal from end of Controlled Valve Operation signal evaluation )	<= 15000 - >= 5000 -	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	= TRUE -  = see sheet inhibit - tables = see sheet enable - tables	20 events continuous	2 Trips
Injection Valve Flyback Voltage - Cyl. 1	P02F2	Plausibility check of injector ADC signal buffer	( ADC buffer signal from beginning of Controlled Valve Operation signal evaluation OR ADC buffer signal from end of Controlled Valve Operation signal evaluation	<= 15000 - >= 5000 -	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	= TRUE -  = see sheet inhibit - tables = see sheet enable - tables	20 events continuous	2 Trips
Injection Valve Flyback Voltage - Cyl. 1	P02F3	Plausibility check of injector ADC signal buffer	( ADC buffer signal from beginning of Controlled Valve Operation signal evaluation OR ADC buffer signal from end of Controlled Valve Operation signal evaluation	<= 15000 - >= 5000 -	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	= TRUE -  = see sheet inhibit - tables = see sheet enable - tables	20 events continuous	2 Trips
Injection Valve Flyback Voltage - Cyl. 1	P02F4	Plausibility check of injector ADC signal buffer	( ADC buffer signal from beginning of Controlled Valve Operation signal evaluation	<= 15000 -	Ignition is ON  No pending or confirmed DTCs	= TRUE - = see sheet inhibit - tables	20 events continuous	2 Trips

OBD GROUP: KGMXOBDG07	,		DIAGNOST TEST GROUP: 1		ARY TABLES	ECM			E	MISSION	S STDS:	CALULE	V125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	1	ime Require	ed	MIL IIIum.
			OR ADC buffer signal from end of Controlled Valve Operation signal evaluation )	>=	5000	-	Basic enable conditions met	=	see sheet enable tables	-				
Injection Valve Flyback Voltage - Cyl. 1	P02F5	Plausibility check of injector ADC signal buffer	( ADC buffer signal from beginning of Controlled Valve Operation signal evaluation OR ADC buffer signal from end of Controlled Valve Operation signal evaluation )	<= >=	15000 5000	-	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met		TRUE see sheet inhibit tables see sheet enable tables	-	20	events	continuous	2 Trips
Engine Oil Temperature Sensor	P0198	Diagnosis of engine oil temperature sensor circuit - High	Raw voltage of the oil temperature sensor Fail mV corresponds with oil temperature	> >	4.973 -46.4	V deg C	Ignition is ON	=	TRUE	-	2	sec	continuous	2 Trips
	P0197	Diagnosis of engine oil temperature sensor circuit - Low	Raw voltage of the oil temperature sensor Fail mV corresponds with oil temperature	< <	0.334 150	V deg C	Ignition is ON	=	TRUE	-	2	sec	continuous	2 Trips
	P0196	Plausibility check of engine oil temperature sensor during cold start - High	Difference between the provided temperature sensors' mean reference value and the measured oil temperature sensor value	>	14.96	deg C	Ignition is on  for time Engine running (Engine is synchronized for time) I Engine off time (finde off time) Rengine off timer is state 1 exact time OR Engine off timer is state 2 minimum off time) for time (Block heater is activated Diagnosis is inhibited by other temperature sensor errors)  ten time No pending or confirmed DTCs Basic enable conditions met		TRUE  1 TRUE TRUE 1 28800 TRUE TRUE 3 FALSE FALSE FALSE 0 see sheet inhibit tables see sheet enable tables	sec			Once per driving cycle	2 Trip
	P0196	Plausibility check of engine oil temperature sensor during cold start - Low	Difference between the measured oil temperature sensor value and the provided temperature sensors' mean reference value	>	14.96	deg C	Ignition is on  for time Englier running (Engine is synchronized for time) I Engine off time (Engine off time (Engine off timer is state 1 exact time OR Engine off timer is state 2 minimum off time) I for time (Block heater is activated Diagnosis is inhibited by other temperature sensor errors) for time No pending or confirmed DTCs Basic enable conditions met	=	TRUE  1 TRUE 1 28800 TRUE TRUE 3 FALSE FALSE O see sheet inhibit tables see sheet enable tables	sec			Once per driving cycle	2 Trip
Oil Temperature Sensor	P0196	Detects if the difference between measured oil temperature at main gallery and modelled oil temperature at oil gallery is greater than a calibrated threshold for a calibrated amount of time	Difference of measured oil temperature at the main gallery and modelled oil temperature value at oil gallery	>	26.96	deg C	Engine is running	=	TRUE	-	10	sec	continuous	2 Trips

OBD GROUP: KGMXOBDG	607		DIAGNOST TEST GROUP: 1		MARY TABLES	6 ECM			E	MISSION	IS STDS:	CALULEV125	, FEDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	1	ime Required	MIL IIIu
							Blockheater is detected Oil temperature model value at oil qallery Endine speed for time No pending or confirmed DTC's Basic enable conditions met		FALSE -48.04 0 3 see sheet inhibit tables see sheet enable tables	deq C rpm sec -			
	P0196	Detects if the difference between modelled oil temperature at oil gallery and measured oil temperature at main gallery is greater than a calibrated threshold for a calibrated amount of time	Difference of modelled oil temperature value at oil gallery and measured oil temperature at main gallery	۸	29.96	deg C	Engine is running  Blockheater is detected Oil temperature model value at oil gallery Engine speed for time No pending or confirmed DTC's Basic enable conditions met	" " " "	FALSE -48.04 0 3 see sheet inhibit tables see sheet enable tables	deg C rpm sec -	10	sec conti	nuous 2 Trip
	P0199	Diagnosis of Oil Temperature Sensor circuit - Loose connection check	Absolute difference between raw voltage and filtered raw voltage of oil temperature sensor at the main sallery Raw voltage oil temperature sensor filter rate	Ä =	0.12	V	Ignition is ON  Engine Oil Temperature Sensor "A" Circuit Low Engine Oil Temperature Sensor "A" Circuit Hidh Basic enable conditions met	= = =	TRUE  FALSE  FALSE  see sheet enable tables	- - -	20	sec conti	nuous 2 Trip
	P0523	Monitoring of Engine Oil Pressure Sensor for Signal range check - High	Engine oil pressure sensor voltage Same as: Engine Oil Pressure	>	4.5 0 to 1049.8	V kPa	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	=	TRUE see sheet inhibit tables see sheet enable tables	-	1	sec	2 Trip
	P0522	Monitoring of Engine Oil Pressure Sensor for Signal range check - Low/Open	Engine oil pressure sensor voltage Same as: Engine Oil Pressure	<	0.25 0 to 1049.8	V kPa	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	=	TRUE see sheet inhibit tables see sheet enable tables		1	sec	2 Trip
	P0521	Error: oil pressure sensor is not plausible	Fail Case #1 Engine Running: Relative Oil Pressure  OR Relative Oil Pressure	>	500	kPa kPa	Fail Case #1 Engine Running Enable Conditions: Endine speed Oil temperature in the oil sump The high-side switch must be the Closed oil pressure control Status CrCll request exceeds driver's request Status of forward drive request by driver request No active faults associated with the oil pressure sensor (P0522 & P0523) Endine speed Time after endine start No active faults associated with the oil pressure sensor (P0522 & P0523) Bendine speed Time after endine start No active faults associated with the oil pressure sensor (P0522 & P0523) and the camshaft sensor (P0321 & P0322) Basic enable conditions met	< > = <= =  = =  = =	770 54.96 TRUE 0 0 TRUE 1520 4.96 TRUE	rpm deg C - - rpm sec	3	Sec	2 Trip
			Fail Case #2 After Run: Absolute value of the Relative Oil Pressure	>	80	kPa	Fail Case #2 Engine Off Enable Conditions: (Current system / ECU substate is in POSTDRIVE Time since the status SYC_POSTDRIVE was reached) Oil temperature in the oil sump No active faults associated with the oil pressure sensor (P0522 & P0523) Basic enable conditions met	= > > = =	TRUE 10 54.96 TRUE see sheet enable tables	sec dea C	3	sec	2 Trip

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: P		IMARY TABLES 1.2088	ECM			E	MISSION	NS STDS:	CALUL	EV125, FE[	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	1	Γime Requir	ed	MIL IIIum.
			Fail Case #3 Before Engine Start: Absolute value of the Relative Oil Pressure	>	80	kPa	Fail Case #3 Engine Off Enable Conditions: Engine off time Engine speed Oil temperature in the oil sump Motor status is cranking No active faults associated with the oil pressure sensor (P0522 & P0523) Basic enable conditions met	\	10 0 54.96 TRUE TRUE see sheet enable	sec rpm deq C -	3	sec		2 Trips
Throttle / Accelerator Pedal - Signal 1	P2123	Circuit continuity - circuit high	Accelerator pedal position sensor 1 voltage	>=	4.775	V	Ignition is ON No pending or confirmed DTCs Basic enable conditions met	= =	TRUE see sheet inhibit tables see sheet enable tables	: :	0.2	sec	Continuous	1 Trip
	P2122	Circuit continuity - circuit low	Accelerator pedal position sensor 1 voltage	<=	0.28	V	Ignition is ON No pending or confirmed DTCs Basic enable conditions met	= =	TRUE see sheet inhibit tables see sheet enable tables	- -	0.2	sec	Continuous	1 Trip
	P2138	Synchronization check	Absolute difference between accelerator pedal position sensor 1 voltage (a) and sensor 2 voltage (b) (see Look-Up-Table #P2138-1) where  (a) Maximum Value between accelerator pedal position sensor 1 voltage divided by (d) and (c) (b) Maximum value between accelerator pedal position sensor 2 voltage and (c) (c) Minimum voltage to enable swintromization check (d) Factor between sensor values	> = = = =	0.12 to 0.18  Max(sensor 1 raw voltage(d,c) Max(sensor 2 raw voltage,c) 0.424 2	V V V V	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	=	TRUE see sheet inhibit tables see sheet enable tables	-	0.25	sec	Continuous	2 Trips
Throttle / Accelerator Pedal - Signal 2	P2128	Circuit continuity - circuit high	Accelerator pedal position sensor 2 voltage	>=	4.775	V	Ignition is ON No pending or confirmed DTCs Basic enable conditions met	= =	TRUE see sheet inhibit tables see sheet enable tables	:	0.2	sec	Continuous	1 Trip
	P2127	Circuit continuity - circuit low	Accelerator pedal position sensor 2 voltage	<=	0.28	V	Ignition is ON No pending or confirmed DTCs Basic enable conditions met	= =	TRUE see sheet inhibit tables see sheet enable tables	-	0.2	sec	Continuous	1 Trip
Throttle Position Sensor - Sensor 1 B1	P0123	Diagnosis of Throttle Position Sensor1 Bank1 for Signal Range Check-High	Raw voltage value of Throttle Position Sensor1 Bank1	>	4.805	٧	ECU is in DRIVE state  OR  ECU is in POSTDRIVE state Request safety fuel cut off SKA bank 1, following condition: ( Request reversible safety fuel cut off SKA bank 1, which has following condition: ( ( Battery voltage for throttle valve operation OR Engine speed ) Limp home position not reached bank 1 ) Irreversible safety fuel cut off SKA bank 1 ) No pending or confirmed DTCs Basic enable conditions met		TRUE TRUE FALSE  FALSE  TRUE 1000 FALSE FALSE see sheet inhibit tables see sheet enable tables	rpm	0.14	sec	continuous	1 Trip

O GROUP: KGMXOBDO	G07		DIAGNOST TEST GROUP: K		MARY TABLES 2088	ECM			E	MISSION	IS STDS:	CALUL	EV125, FED	)BIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	s		Time Requir	red	MIL IIIu
	P0122	Diagnosis of Throttle Position Sensor1 Bank1 for Signal Range Check-Low	Raw voltage value of Throttle Position Sensor1 Bank1	<	0.195	V	ECU is in DRIVE state	=	TRUE	-	0.14	sec	continuous	1 Trip
							OR ECU is in POSTDRIVE state Request safety fuel cut off SKA bank 1, following condition:	=	TRUE FALSE	-				
							( Request reversible safety fuel cut off SKA bank 1, which has following condition:	=	FALSE	-				
							( Battery voltage for throttle valve operation sufficient bank 1	=	TRUE	-				
							OR Engine speed	>	1000	rpm				
							) Limp home position not reached bank 1	-	FALSE	-				
							) Irreversible safety fuel cut off SKA bank 1	-	FALSE	-				
							) No pending or confirmed DTCs	=	see sheet inhibit	-				İ
							Basic enable conditions met	_	tables see sheet enable					ĺ
							basic enable conditions met	_	tables					ĺ
	P0121	Synchronization check for Throttle Position Sensor1 Bank1 -	(				(	-	TRUE				continuous	1
		rationality check against modelled air charge value Deviation of relative actual angle from Throttle Position Sensors	( Absolute difference between relative actual angle calculated based on voltages from sensor 1 and sensor 2 (see Look-Up-Table #P0121-1)	>	5 to 6.25	%	ECU is in DRIVE state OR							
			) for time	>=	0.14	sec	ECU is in POSTDRIVE state	=	TRUE	-				
			(	>	9.0234	%	) Request safety fuel cut off SKA bank 1,	=	FALSE	-				ĺ
			Absolute difference between relative actual angle calculated based on voltage from sensor 1 and relative air charge signal				following condition:							
			for time )	>=	0.28	sec	( Request reversible safety fuel cut off SKA bank 1, which has following condition:	=	FALSE	-				
			OR (				( Battery voltage for throttle valve operation sufficient bank 1	=	TRUE	-				
		Deviation of relative actual angle from Throttle Position Sensors wrt relative air charge signal	( Absolute difference between relative actual angle calculated based on voltage from sensor 1 and sensor 2 and relative air charge signal	>	0	%	OR							
			) for time	>=	0.36	sec	Engine speed	>	1000	rpm				ĺ
	1		) OR				) Limp home position not reached bank 1	=	FALSE					İ
	1	Error in the main charge sensor	Main charge sensor error, following conditions:	=	TRUE	-	) Irreversible safety fuel cut off SKA bank 1	=	FALSE	-				ĺ
			Condition for error of main filling sensor (	=	TRUE	-	) Flag for throttle angle calculated from main charge sensor is unthrottled, following condition:	=	FALSE	-				
			Validity of the pressure sensor of the intake manifold bank 1	=	FALSE	-	(							ĺ
			Condition for HFM error (without debounce)	=	TRUE	-	Difference between throttle angle calculated from unthrottled mass flow of main charging sensor and throttle valve angle at which the 95 charge is through minimum tolerance for bank1	<	0	%				
			( Flag Variant Diagnosis Error bank 1	=	TRUE	-	) No pending or confirmed DTCs	=	see sheet inhibit	-				
			OR				Basic enable conditions met	=	see sheet enable	-				ĺ
			Error flag of the signal variation check of the HFM sensor (Bank 2) OR	=	TRUE	-			tables					
			Flag plausible diagnosis error	=	TRUE	-								ĺ
			Flag to display a physical HFM range error bank  1  OR	=	TRUE	-								
			Flag to display a physical HFM range error bank	=	TRUE	-								ĺ
			2 OR											í

BD GROUP: KGMXOBDG	607		DIAGNOST TEST GROUP: P		MARY TABLES 2088	ECM			E	MISSION	IS STDS:	CALULE	V125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	•	т	ime Require	d	MIL IIIum
			( Validity flag of the measured air mass flow sensor signal for bank 1	=	TRUE	-								
			OR Validity flag of the measured air mass flow sensor signal for bank 2	=	TRUE	-								
			) Release of the HFM diagnosis of the electrical signal )	=	TRUE	-								
			for time	>=	0.14	sec								
rottle Position Sensor - Sensor 1 B1	U0606	Diagnosis of Throttle Position Sensor 1 Bank 1 for SENT data - Communication Check	a Communication error from the SENT Channel of Throttle Position Sensor 1 Bank 1, following conditions:	=	TRUE	-	( ECU is in DRIVE state	=	TRUE	-	0.12	sec	continuous	1 Trip
			( No signal on the line	=	TRUE	-	OR ECU is in POSTDRIVE state	=	TRUE					
			OR				) Request safety fuel cut off SKA bank 1, following condition:	=	FALSE	-				
			Pulse length of SENT message is out of range	=	TRUE	-	(							
			OR				Request reversible safety fuel cut off SKA bank 1, which has following condition:	=	FALSE	-				
			Calibration pulse of SENT message is out of range )	=	TRUE	-	Battery voltage for throttle valve operation sufficient bank 1	=	TRUE					
							OR Engine speed	>	1000	rpm				
							) Limp home position not reached bank 1	=	FALSE	-				
							) Irreversible safety fuel cut off SKA bank 1	=	FALSE	-				
							) No pending or confirmed DTCs	=	see sheet inhibit	-				
							Basic enable conditions met	=	tables see sheet enable tables	-				
									tables					
	U136C	Invalid data from SENT device	No valid data from the SENT Channel of Throttle Position Sensor 1 Bank 1, following conditions:	=	TRUE	-	( ECU is in DRIVE state	II	TRUE	-	0.12	sec	continuous	1 Trip
			( Error in the monitoring status of SENT driver Bank 1	=	TRUE		OR ECU is in POSTDRIVE state	=	TRUE	-				
			)				Request safety fuel cut off SKA bank 1, following condition:	=	FALSE	-				
							( Request reversible safety fuel cut off SKA bank 1, which has following condition:	=	FALSE	-				
							( Battery voltage for throttle valve operation sufficient bank 1 OR	=	TRUE	-				
							Engine speed	>	1000	rpm				
							Limp home position not reached bank 1	=	FALSE	-				
							Irreversible safety fuel cut off SKA bank 1	=	FALSE	-				
							No pending or confirmed DTCs	=	see sheet inhibit tables	-				
							Basic enable conditions met	=	see sheet enable tables	-				
ottle Position Sensor - Sensor 2 B1	P0223	Diagnosis of Throttle Position Sensor2 Bank1 for Signal Range Check-High	Raw voltage value of Throttle Position Sensor2 Bank1	>	4.805	V	ECU is in DRIVE state	=	TRUE	-	0.14	sec	continuous	1 Trip
							OR ECU is in POSTDRIVE state Request safety fuel cut off SKA bank 1,		TRUE FALSE	-				
							following condition: ( Request reversible safety fuel cut off SKA	=	FALSE	-				
		1					bank 1, which has following condition:				Ī			

GROUP: KGMXOBDO	G07		TEST GROUP: N		ARY TABLE: 088					MISSION	NS STDS:	CALULEV	125, FED	BIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	1	Time Required		MIL IIIu
							Battery voltage for throttle valve operation sufficient bank 1 OR Engine speed	=	TRUE	- rpm				
							) Limp home position not reached bank 1	_	FALSE	ipili				
							) Irreversible safety fuel cut off SKA bank 1	-	FALSE	-				
							)  No pending or confirmed DTCs	-	see sheet inhibit	-				
							Basic enable conditions met	_	tables see sheet enable					
							Basic enable conditions met		tables					
	P0222	Diagnosis of Throttle Position Sensor2 Bank1 for Signal	Raw voltage value of Throttle Position Sensor2 Bank1	<	0.195	V	ECU is in DRIVE state	-	TRUE	-	0.14	sec	continuous	1
		Range Check-Low	Dalik I				OR ECU is in POSTDRIVE state Request safety fuel cut off SKA bank 1, following condition:	=	TRUE FALSE	-				
							( Request reversible safety fuel cut off SKA bank 1, which has following condition: (	=	FALSE	-				
							( Battery voltage for throttle valve operation sufficient bank 1	=	TRUE	-				
							OR Engine speed	>	1000	rpm				
							) Limp home position not reached bank 1	=	FALSE	-				
							) Irreversible safety fuel cut off SKA bank 1	_	FALSE	_				
							) No pending or confirmed DTCs	_	see sheet inhibit	_				
							Basic enable conditions met		tables see sheet enable	_				
									tables					
	P0221	Synchronization check for Throttle Position Sensor2 Bank1 - rationality check against modelled air charge value Deviation of relative actual angle from Throttle Position Sensors	( Absolute difference between relative actual angle calculated based on voltage from sensor 1 and relative actual angle calculated based on voltage from sensor 2 (see Look-Up-Table #P0121-1)	>	5 to 6.25	%	( ECU is in DRIVE state OR	=	TRUE	-			continuous	11
			Absolute difference between relative actual throttle angle calculated based on voltage from sensor 2 and throttle angle calculated from the main charge sensor (intake manifold pressure sensor	>	9.0234	%	ECU is in POSTDRIVE state )	=	TRUE	-				
			for time	>=	0.28	sec	Request safety fuel cut off SKA bank 1, following condition:	=	FALSE	-				
			OR				Request reversible safety fuel cut off SKA bank 1, which has following condition:	-	FALSE	-				
		Deviation of relative actual angle from Throttle Position Sensors wrt relative air charge signal	Absolute difference between relative actual angle calculated based on voltage from sensor 1 and sensor 2 and relative air charge signal	<	0	%	(							
			for time	>=	0.36	sec	Battery voltage for throttle valve operation sufficient bank 1	=	TRUE	-				
		Error in the main charge sensor	OR Main charge sensor error, following conditions:	=	TRUE	-	OR Engine speed	>	1000	rpm				
			( Condition for error of main filling sensor	=	TRUE	-	) Limp home position not reached bank 1	=	FALSE	-				
			Validity of the pressure sensor of the intake	=	FALSE	-	) Irreversible safety fuel cut off SKA bank 1	=	FALSE	-				
			manifold bank 1 Condition for HFM error (without debounce) (	=	TRUE	-	) Flag for throttle angle calculated from main charge sensor is unthrottled, following condition:	=	FALSE	-				
			Flaq Variant Diagnosis Error bank 1 OR	=	TRUE	-	( Difference between throttle angle calculated from unthrottled mass flow of main charging sensor and throttle valve angle at which the 95 charge is through minimum tolerance for bank1	<	0	%				

OBD GROUP: KGMXOBDG0	)7		DIAGNOS <sup>*</sup> TEST GROUP: I		MARY TABLES 2088	ECM			<u>E</u>	MISSION	IS STDS: C	ALULEV	125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	•	Ti	me Required		MIL IIIum.
			Error flag of the signal variation check of the HFM sensor (Bank 2) OR	=	TRUE	-	)  No pending or confirmed DTCs	-	see sheet inhibit					
			Flag plausible diagnosis error	=	TRUE	-	Basic enable conditions met	=	tables see sheet enable tables	-				
			OR Flag to display a physical HFM range error bank 1	=	TRUE	-								
			OR Flag to display a physical HFM range error bank	=	TRUE	-								
			OR (											
			Validity flag of the measured air mass flow sensor signal for bank 1 OR	=	TRUE	-								
			Validity flag of the measured air mass flow sensor signal for bank 2	=	TRUE	-								
			Release of the HFM diagnosis of the electrical signal	=	TRUE	-								
			) for time	>=	0.14	sec								
			)											
Throttle Position Sensor - Sensor 2 B1	U0607	Diagnosis of Throttle Position Sensor 2 Bank 1 for SENT data - Communication Check	Communication error from the SENT Channel of Throttle Position Sensor 2 Bank 1, following conditions:	=	TRUE	-	( ECU is in DRIVE state	=	TRUE	-	0.12	sec c	continuous	1 Trip
			( No signal on the line	=	TRUE	-	OR ECU is in POSTDRIVE state	=	TRUE					
			OR				Request safety fuel cut off SKA bank 1, following condition:	=	FALSE	-				
			Pulse length of SENT message is out of range	=	TRUE	-	(							
			OR				Request reversible safety fuel cut off SKA bank 1, which has following condition:	=	FALSE	-				
			Calibration pulse of SENT message is out of range	=	TRUE	-	( Battery voltage for throttle valve operation	=	TRUE					
							sufficient bank 1 OR Engine speed	>	1000	rpm				
							) Limp home position not reached bank 1	=	FALSE	-				
							) Irreversible safety fuel cut off SKA bank 1	=	FALSE	-				
							) No pending or confirmed DTCs	=	see sheet inhibit	-				
							Basic enable conditions met	=	tables see sheet enable tables	-				
	U136C	Invalid data from SENT device	No valid data from the SENT Channel of Throttle	_	TRUE		(		TRUE		0.12	sec o	continuous	1 Trip
	0.000	and data non-service	Position Sensor 2 Bank 1, following conditions:		mor		ECU is in DRIVE state		11102		0.12		oonundodo	TIMP
			( Error in the monitoring status of SENT driver Bank 1	=	TRUE	-	OR ECU is in POSTDRIVE state	=	TRUE	-				
			) )				Request safety fuel cut off SKA bank 1, following condition:	=	FALSE	-				
							Request reversible safety fuel cut off SKA bank 1, which has following condition:	=	FALSE	-				
							( Battery voltage for throttle valve operation sufficient bank 1 OR	=	TRUE	-				
							OR Engine speed	>	1000	rpm				
							Limp home position not reached bank 1	=	FALSE	-				
							Irreversible safety fuel cut off SKA bank 1	=	FALSE	-				
							No pending or confirmed DTCs	=	see sheet inhibit tables	-				
							Basic enable conditions met	-	see sheet enable tables	-				

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: F		ARY TABLES	ECM			E	MISSION	IS STDS:	CALUL	EV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s		Time Requir	ed	MIL IIIum.
Throttle Position Sensor - Sensor 1 B2	P0228	Diagnosis of Throttle Position Sensor1 Bank2 for Signal Range Check-High	Raw voltage value of Throttle Position Sensor1 Bank2	>	4.805	V	ECU is in DRIVE state	=	TRUE	-	0.14	sec	continuous	1 Trip
							OR ECU is in POSTDRIVE state Request safety fuel cut off SKA bank 2, following condition:	=	TRUE FALSE	-				
							( Irreversible safety fuel cut off SKA bank 2 Request reversible safety fuel cut off SKA bank 2, following conditions:	=	FALSE FALSE	-				
							Cattery voltage for throttle valve operation sufficient bank 2	=	TRUE	-				
							Engine speed	>	1000	rpm				
							Limp home position not reached bank 2	=	FALSE	-				
							) No pending or confirmed DTCs Basic enable conditions met	=	see sheet inhibit tables see sheet enable	-				
							basic enable conditions met	-	tables	-				
	P0227	Diagnosis of Throttle Position Sensor1 Bank2 for Signal Range Check-Low	Raw voltage value of Throttle Position Sensor1 Bank2	<	0.195	V	ECU is in DRIVE state	=	TRUE		0.14	sec	continuous	1 Trip
							OR ECU is in POSTDRIVE state Request safety fuel cut off SKA bank 2, following condition:	=	TRUE FALSE	Ī				
							Irreversible safety fuel cut off SKA bank 2 Request reversible safety fuel cut off SKA bank 2, following conditions:	=	FALSE FALSE	-				
							( Battery voltage for throttle valve operation sufficient bank 2	=	TRUE	-				
							OR Engine speed	>	1000	rpm				
							) Limp home position not reached bank 2 )	=	FALSE	-				
							No pending or confirmed DTCs	=	see sheet inhibit tables	-				
							Basic enable conditions met	=	see sheet enable tables	-				
	P0226	Synchronization check for Throttle Position Sensor1 Bank2 - rationality check against modelled air charge value Deviation of relative actual angle from Throttle Position Sensors	( Absolute difference between relative actual angle calculated based on voltages from sensor 1 and	>	5 to 6.25	%	( ECU is in DRIVE state OR	=	TRUE	-			continuous	1 Trip
			sensor 2 (see Look-Up-Table #P0226-1)											
			for time	>=	0.14	sec	ECU is in POSTDRIVE state )	=	TRUE	-				
			Absolute difference between relative actual angle calculated based on voltage from sensor 1 and relative air charge signal	>	9.0234	%	Request safety fuel cut off SKA bank 2, following condition:	=	FALSE	-				
			for time ) OR	>=	0.28	sec	( Irreversible safety fuel cut off SKA bank 2 and	=	FALSE	-				
		Deviation of relative actual angle from Throttle Position Sensors wrt relative air charge signal	( Absolute difference between relative actual angle calculated based on voltage from sensor 1 and	>	0	%	Request reversible safety fuel cut off SKA bank 2, following conditions:	=	FALSE	-				
			sensor 2 and relative air charge signal for time )	>=	0.36	sec	( Battery voltage for throttle valve operation sufficient bank 2	=	TRUE	-				
		Error in the main charge sensor	OR Error main charge sensor, following conditions: (	=	TRUE	-	) Limp home position not reached bank 2 Flag for throttle angle calculated from main charge sensor is unthrottled, following	=	FALSE FALSE	-				
	1	l	Condition for error of main filling sensor	=	TRUE	-	condition: (							

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K		MARY TABLES 2088	ECM			E	MISSION	IS STDS: (	CALULE	V125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions		Т	ime Require	d	MIL IIIum.
			(				Difference between throttle angle calculated from unthrottled mass flow of main charging sensor and throttle valve angle at which the 95 charge is through minimum tolerance for	<	0	%				
			Validity of the pressure sensor of the intake manifold bank 1	=	FALSE	-	bank1 )							
			Condition for HFM error (without debounce)	=	TRUE	-	)	_						
			Flag Variant Diagnosis Error bank 1 OR	=	TRUE	•	No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet enable					
			Error flag of the signal variation check of the HFM sensor (Bank 2)	=	TRUE	-	Basic Gradie Conditions met	_	tables					
			OR Flag plausible diagnosis error	=	TRUE	-								
			OR Flag to display a physical HFM range error bank 1	=	TRUE	-								
			OR Flag to display a physical HFM range error bank 2	=	TRUE	-								
			OR ( Validity flag of the measured air mass flow sensor signal for bank 1	=	TRUE	-								
			OR Validity flag of the measured air mass flow sensor signal for bank 2	=	TRUE	-								
			Release of the HFM diagnosis of the electrical signal	=	TRUE	-								
			) for time )	>=	0.14	sec								
Throttle Position Sensor - Sensor 1 B2	U0608	Diagnosis of Throttle Position Sensor 1 Bank 2 for SENT data - Communication Check	Communication error from the SENT Channel of Throttle Position Sensor 1 Bank 2, following conditions:	=	TRUE	-	( ECU is in DRIVE state	=	TRUE	-	0.12	sec	continuous	1 Trip
			( No signal on the line	=	TRUE	-	OR ECU is in POSTDRIVE state	=	TRUE	-				
			OR				) Request safety fuel cut off SKA bank 2, following condition:	=	FALSE	-				
			Pulse length of SENT message is out of range OR	=	TRUE	-	( Irreversible safety fuel cut off SKA bank 2 Request reversible safety fuel cut off SKA	=	FALSE FALSE	-				
			Calibration pulse of SENT message is out of range	=	TRUE	-	bank 2, following conditions: (							
			)				( Battery voltage for throttle valve operation sufficient bank 2	=	TRUE	-				
							) Limp home position not reached bank 2 )	=	FALSE	-				
							) No pending or confirmed DTCs	=	see sheet inhibit tables	-				
							Basic enable conditions met	=	see sheet enable tables	-				
	U136E	Invalid data from SENT device	No valid data from the SENT Channel of Throttle Position Sensor 1 Bank 2, following conditions:	=	TRUE	-	( ECU is in DRIVE state	=	TRUE	-	0.12	sec	continuous	1 Trip
			(		TDI		OR		TD:-					
			Error in the monitoring status of SENT driver Bank 2	=	TRUE	-	ECU is in POSTDRIVE state ) Request safety fuel cut off SKA bank 2,	-	TRUE FALSE					
			ľ				following condition:	_	FALSE					
							Irreversible safety fuel cut off SKA bank 2 and	=	FALSE	-				
							Request reversible safety fuel cut off SKA bank 2, following conditions:	=	FALSE	-				
							( Battery voltage for throttle valve operation sufficient bank 2	=	TRUE	-				

D GROUP: KGMXOBDO	G07		DIAGNOST TEST GROUP: N	TIC SUMMAF		ECM			E	MISSION	NS STDS:	CALULEV1	25, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Th	reshold Value		Secondary Parameters		Enable Condition	s	т	ime Required		MIL IIIun
							Limp home position not reached bank 2	-	FALSE	-				
							) No pending or confirmed DTCs	-	see sheet inhibit					
							Basic enable conditions met	=	tables see sheet enable					
									tables					
tle Position Sensor - Sensor 2 B2	P212D	Diagnosis of Throttle Position Sensor2 Bank2 for Signal Range Check-High	Raw voltage value of Throttle Position Sensor2 Bank2	>	4.805	V	ECU is in DRIVE state	=	TRUE	-	0.14	sec co	ontinuous	1 Tri
							OR ECU is in POSTDRIVE state Request safety fuel cut off SKA bank 2, following condition:	=	TRUE FALSE	-				
							( Irreversible safety fuel cut off SKA bank 2	_	FALSE	_				
							Request reversible safety fuel cut off SKA bank 2, following conditions:	=	FALSE	-				
							( Battery voltage for throttle valve operation OR	=	TRUE	-				
							Engine speed	>	1000	rpm				
							Limp home position not reached bank 2	=	FALSE	-				
							) No pending or confirmed DTCs	-	see sheet inhibit					
							Basic enable conditions met	-	tables see sheet enable					
									tables					
	P212C	Diagnosis of Throttle Position Sensor2 Bank2 for Signal Range Check-Low	Raw voltage value of Throttle Position Sensor2 Bank2	<	0.195	V	ECU is in DRIVE state	=	TRUE		0.14	sec co	ontinuous	1 T
		realige Orlean Edw	Dain's				OR ECU is in POSTDRIVE state Request safety fuel cut off SKA bank 2, following condition:	=	TRUE FALSE	-				
							( Irreversible safety fuel cut off SKA bank 2 Request reversible safety fuel cut off SKA bank 2, following conditions:	= =	FALSE FALSE	-				
							( Battery voltage for throttle valve operation sufficient bank 2	=	TRUE	-				
							OR Engine speed	>	1000	rpm				
							) Limp home position not reached bank 2	=	FALSE	-				
							No pending or confirmed DTCs	=	see sheet inhibit tables	-				
							Basic enable conditions met	=	see sheet enable tables	-				
	P212B	Synchronization check for Throttle Position Sensor2 Bank2 -	(				(	-	TRUE			C	ontinuous	1 T
	12.25	rationality check against modelled air charge value Deviation of relative actual angle from Throttle Position	(	>	5 to 6.25	%	ECU is in DRIVE state OR		11102				onandodo	
		Sensors	Absolute difference between relative actual angle calculated based on voltage from sensor 1 and relative actual angle calculated based on voltage from sensor 2 (see Look-Up-Table #P0226-1)											
			Absolute difference between relative actual throttle angle calculated based on voltage from sensor 2 and throttle angle calculated from the main charge sensor (intake manifold pressure sensor	>	9.0234	%	ECU is in POSTDRIVE state )	=	TRUE	-				
			) for time	>=	0.28	sec	Request safety fuel cut off SKA bank 2, following condition:	=	FALSE	-				
		Deviation of relative actual angle from Throttle Position Sensors wrt relative air charge signal	) OR Absolute difference between relative actual angle calculated based on voltage from sensor 1 and	<	0	%	( Irreversible safety fuel cut off SKA bank 2 Request reversible safety fuel cut off SKA bank 2, following conditions:	= =	FALSE FALSE	:				
		Contacts with relative all criange signal	sensor 2 and relative air charge signal for time	>=	0.36	sec	(							
			OR OR	7-	0.30	300	Č							

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1		MARY TABLES 2088	ECM			E	MISSION	IS STDS:	CALULE	V125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	<b>s</b>	1	Time Required	i	MIL IIIum.
		Error in the main charge sensor	Error main charge sensor, following conditions:	=	TRUE	-	Battery voltage for throttle valve operation sufficient bank 2	=	TRUE	-				
			( Condition for error of main filling sensor (	=	TRUE	-	) Limp home position not reached bank 2 Flag for throttle angle calculated from main charge sensor is unthrottled, following condition:	=	FALSE FALSE	Ī				
			Validity of the pressure sensor of the intake	=	FALSE	-	(							
			manifold bank 1 Condition for HFM error (without debounce)	=	TRUE	-	Difference between throttle angle calculated from unthrottled mass flow of main charging sensor and throttle valve angle at which the 95 charge is through minimum tolerance for bank1	<	0	%				
			Flag Variant Diagnosis Error bank 1	=	TRUE	-	)							
			OR Error (Bank 2) OR	=	TRUE	-	) No pending or confirmed DTCs Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-				
			Flag plausible diagnosis error	=	TRUE	-			tables					
			OR Flag to display a physical HFM range error bank	=	TRUE	-								
			OR Flag to display a physical HFM range error bank OR OR	-	TRUE	-								
			( Validity flag of the measured air mass flow sensor signal for bank 1 OR	=	TRUE	-								
			Validity flag of the measured air mass flow sensor signal for bank 2	=	TRUE	-								
			Release of the HFM diagnosis of the electrical signal	=	TRUE	-								
			) for time )	>=	0.14	sec								
Throttle Position Sensor - Sensor 2 B2	U0688	Diagnosis of Throttle Position Sensor 2 Bank 2 for SENT data - Communication Check	Communication error from the SENT Channel of Throttle Position Sensor 2 Bank 2, following conditions:	=	TRUE	-	( ECU is in DRIVE state	=	TRUE	-	0.12	sec	continuous	1 Trip
			( No signal on the line	=	TRUE	-	OR ECU is in POSTDRIVE state	=	TRUE	-				
			OR				) Request safety fuel cut off SKA bank 2,	=	FALSE	-				
			Pulse length of SENT message is out of range	=	TRUE	-	following condition:							
			OR				Irreversible safety fuel cut off SKA bank 2 Request reversible safety fuel cut off SKA	=	FALSE FALSE	-				
			Calibration pulse of SENT message is out of range	=	TRUE	-	bank 2, following conditions: (							
							Battery voltage for throttle valve operation sufficient bank 2	=	TRUE	-				
							Limp home position not reached bank 2	=	FALSE	-				
							) No pending or confirmed DTCs	-	see sheet inhibit tables	-				
							Basic enable conditions met	=	see sheet enable tables	-				
	U136F	Invalid data from SENT device	No valid data from the SENT Channel of Throttle Position Sensor 2 Bank 2, following conditions:	=	TRUE	-	( ECU is in DRIVE state	=	TRUE	-	0.12	sec	continuous	1 Trip
			( Error in the monitoring status of SENT driver	=	TRUE		OR ECU is in POSTDRIVE state	_	TRUE					
			Bank 2		52		Request safety fuel cut off SKA bank 2, following condition:	=	FALSE	-				
							( Irreversible safety fuel cut off SKA bank 2	=	FALSE	-				
	1		ĺ	l			and Request reversible safety fuel cut off SKA	=	FALSE		1			

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: P		IARY TABLES 088	ECM			E	MISSION	IS STDS: C	ALULE	V125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	s	Tir	ne Required	d	MIL IIIum.
							Battery voltage for throttle valve operation sufficient bank 2 ) Limp home position not reached bank 2 ) No pending or confirmed DTCs Basic enable conditions met	= = =	TRUE  FALSE  see sheet inhibit tables see sheet enable tables	-				
Turbocharger Wastegate Feedback Position Sensor - B1	P2AB9	Detects if the turbine bypass valve 1 position sensor raw voltage is greater than maximum mechanical threshold and lesser than range check upper limit	Raw voltage of position sensor  Raw voltage of position sensor	> <	4.0726 5	V	There is no ADC and no sensor supply error  No pending or confirmed DTCs  Basic enable conditions met	=	TRUE see sheet inhibit tables see sheet enable tables	-	1.5	sec	continuous	2 Trips
	P2AB8	Detects if the turbine bypass valve 1 position sensor raw voltage is lesser than minimum mechanical threshold and greater than range check lower limit	Raw voltage of position sensor  Raw voltage of position sensor	> <	0 0.244	V	There is no ADC and no sensor supply error  No pending or confirmed DTCs  Basic enable conditions met	=	TRUE see sheet inhibit tables see sheet enable tables	- - -	1.5	sec	continuous	2 Trips
Turbocharger Wastegate Feedback Position Sensor - B1	P2B81	Monitoring of SENT signal for communication errors	Raw data value received via SENT interface OR Raw data value received via SENT interface ) OR Status and communication nibble for channel 1 validity is set OR Status and communication nibble for channel 2 validity is set OR Channel message is lost	> < = = = =	65535 0 TRUE TRUE TRUE		No communication error  No data error No pending or confirmed DTCs  Basic enable conditions met	= = =	TRUE  TRUE  see sheet inhibit tables  see sheet enable tables	:	0.5	sec	continuous	2 Trips
Turbocharger Wastegate Feedback Position Sensor - B1	U0644	Lost SENT communication	( No signal on the line (RBA SENTIF ERROR NOSIG) OR Sensor line is at low level (RBA SENTIF INFO LINE LOW) OR Sensor line is at high level (RBA SENTIF INFO LINE HIGH)	-	TRUE TRUE TRUE		Ignition is ON  Basic enable conditions met		TRUE see sheet enable tables	-			continuous	2 Trips
	U1376	Fast SENT channel data validation	( SENT Cyclic Redundancy Check (CRC) has detected an error (RBA_SENTIF_ERROR_CRC) OR Pulse length is out of permitted range (RBA_SENTIF_ERROR_RANGE) OR Short frame: means too few nibbles received than configured (RBA_SENTIF_ERROR_MISSING_NIBBLE) OR	=	TRUE TRUE TRUE	-	A valid signal is on the line (RBA SENTIF ERROR NOSIG) Sensor line is not at low level (RBA_SENTIF_INFO_LINE_LOW) Sensor line is not at high level (RBA_SENTIF_INFO_LINE_HIGH) Basic enable conditions met	= = =	TRUE TRUE TRUE see sheet enable tables				continuous	2 Trips

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K		MARY TABLES : .2088	ECM			ı	MISSION	NS STDS: (	CALULE	V125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	т	ime Require	ed	MIL IIIum.
			Long frame: means too many nibbles received than configured (RBA_SENTIF_ERROR_TOOMANY_NIBBLES)	=	TRUE									
			OR Calibration pulse is out of range (RBA_SENTIF_ERROR_CAL_PULSE_RANGE)	=	TRUE	-								
			OR Deviation of calibration pulse is greater than 1/64 of the previous length (RBA_SENTIF_ERROR_CAL_SUCCESSIVE_D EVIATION)	=	TRUE	-								
			OR Data counter pattern not detected (RBA SENTIF ERROR FAST DATA CTR)	=	TRUE	-								
			The inverted value of the first nibble of the Fast Frame is not equal to the fifth nibble of the Fast Frame (RBA_SENTIF_ERROR_FAST_DATA_INV_MS NO)	=	TRUE	-								
			OR Message lost due to HW (Hardware) overrun / overwritten (RBA SENTIF ERROR HW OVERRUN)	=	TRUE	-								
Furbocharger Wastegate Feedback Position Sensor - B2	P2ABC	Detects if the turbine bypass valve 2 position sensor raw voltage is greater than maximum mechanical threshold and	Raw voltage of position sensor	>	4.0726	V	There is no ADC and no sensor supply error	П	TRUE	-	1.5	sec	continuous	2 Trips
		lesser than range check upper limit	Raw voltage of position sensor	<	5	٧	No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-				
	P2ABB	Detects if the turbine bypass valve 2 position sensor raw voltage is lesser than minimum mechanical threshold and	Raw voltage of position sensor	>	0	V	There is no ADC and no sensor supply error	=	TRUE	-	1.5	sec	continuous	2 Trips
		greater than range check lower limit	Raw voltage of position sensor	<	0.244	٧	No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-				
Furbocharger Wastegate Feedback	P2B82	Monitoring of SENT signal for communication errors	(				No communication error	=	TRUE		0.5	sec	continuous	2 Trips
			Raw data value received via SENT interface OR	>	65535	-	No data error No pending or confirmed DTCs	=	TRUE see sheet inhibit tables	-				
			Raw data value received via SENT interface	<	0	-	Basic enable conditions met	=	see sheet enable tables	-				
			OR Status and communication nibble for channel 1 validity is set OR	=	TRUE	-								
			Status and communication nibble for channel 2 validity is set OR	=	TRUE	-								
			Channel message is lost	=	TRUE	-								
Turbocharger Wastegate Feedback Position Sensor - B2	U0674	Lost SENT communication	( No signal on the line (RBA SENTIF ERROR NOSIG)	=	TRUE	-	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables	-			continuous	2 Trips
			OR Sensor line is at low level (RBA SENTIF INFO LINE LOW)	=	TRUE	-								
			OR Sensor line is at high level (RBA SENTIF INFO LINE HIGH) )	=	TRUE	-								
	U1377	Fast SENT channel data validation	( SENT Cyclic Redundancy Check (CRC) has detected an error (RBA_SENTIF_ERROR_CRC)	=	TRUE	-	A valid signal is on the line (RBA SENTIF ERROR NOSIG) Sensor line is not at low level (RBA_SENTIF_INFO_LINE_LOW)	=	TRUE TRUE	-			continuous	2 Trips

OBD GROUP: KGMXOBDG0	7		DIAGNOS' TEST GROUP: I		MARY TABLES 2088	ECM			ı	MISSION	NS STDS: (	CALULI	EV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	т	ime Requir	ed	MIL IIIum.
			OR Pulse length is out of permitted range (RBA SENTIF ERROR RANGE)	=	TRUE	-	Sensor line is not at high level (RBA SENTIF INFO LINE HIGH) Basic enable conditions met		TRUE see sheet enable tables	-				
			OR Short frame: means too few nibbles received than configured (RBA SENTIF ERROR MISSING NIBBLE) OR	=	TRUE	-								
			Long frame: means too many nibbles received than configured (RBA_SENTIF_ERROR_TOOMANY_NIBBLES)	=	TRUE	-								
			OR Calibration pulse is out of range (RBA_SENTIF_ERROR_CAL_PULSE_RANGE)	=	TRUE	-								
			OR Deviation of calibration pulse is greater than 1/64 of the previous length (RBA_SENTIF_ERROR_CAL_SUCCESSIVE_D EVIATION)	=	TRUE	-								
			Data counter pattern not detected (RBA SENTIF ERROR FAST DATA CTR) OR	=	TRUE	-								
			The inverted value of the first nibble of the Fast Frame is not equal to the fifth nibble of the Fast Frame (RBA_SENTIF_ERROR_FAST_DATA_INV_MS	=	TRUE	-								
			NO) OR Message lost due to HW (Hardware) overrun / overwritten (RBA SENTIF ERROR HW OVERRUN) )	=	TRUE	-								
Manifold Absolute Pressure Sensor - B1	P0108	Monitoring of Intake manifold pressure sensor bank1 for Signal range check-High	Raw voltage from Intake manifold pressure sensor bank1	>	4.749968	V	No pending or confirmed DTCs Basic enable conditions met	11 11	see sheet inhibit tables see sheet enable tables	-	1.5	sec	continuous	2 Trips
	P0107	Monitoring of Intake manifold pressure sensor bank1 for Signal range check-Low	Raw voltage from Intake manifold pressure sensor bank1	<	0.250002	٧	No pending or confirmed DTCs  Basic enable conditions met	11 11	see sheet inhibit tables see sheet enable tables	-	1.5	sec	continuous	2 Trips
Manifold Absolute Pressure Sensor - B1	P0106	Path 1: Rationality check against reference pressure - high	Difference between raw pressure during initialization before engine start - Bank 1 and maximal reference pressure for delta pressure sensor diagnoses	>	A+B	kPa	( Engine speed	II	0	rpm	5	sec	once per driving cycle	2 Trips
			where A: Tolerance manifold pressure sensor to ambient pressure during start		20.8047	kPa	ECU is in drive-state )	=	TRUE	-				
			B: Delta Intake manifold pressure to ambient pressure during start		0	kPa	For number of events  Condition manifold pressure sensor reference for delta pressure sensor	>=	2 FALSE	counts -				
							Unfiltered raw voltage of manifold pressure sensor Unfiltered raw voltage of manifold pressure sensor	>	0.250002 4.749968	v				
							No pending or confirmed DTCs  Basic enable conditions met	11 11	See sheet inhibit tables See sheet enable tables	-				
		Path 2: Rationality check against reference pressure - low	Difference between of raw pressure during initialization before engine start - Bank 1 and minimal reference pressure for delta pressure	<	A-B	kPa	( Engine speed	=	0	rpm				
	P0106		sensor diagnoses								5	sec	once per driving cycle	2 Trips

ОВ	D GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: #	TIC SUMMARY TABLES (GMXV04.2088	- ECM			E	MISSION	S STDS: C	ALULEV1	25, FED-	-BIN125
	Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters		Enable Condition	s	Tir	me Required		MIL IIIum.
				where A: Tolerance manifold pressure sensor to ambient pressure during start B: Delta Intake manifold pressure to ambient pressure during start	20.8047 0	kPa kPa	ECU is in drive-state ) For number of events Condition manifold pressure sensor reference for delta pressure sensor Unfiltered raw voltage of manifold pressure sensor Unfiltered raw voltage of manifold pressure sensor Sensor No pending or confirmed DTCs Basic enable conditions met	=	2 FALSE 0.250002 4.749968 See sheet inhibit tables See sheet enable tables	counts  V  V  -				
		P0106	Path 3: Rationality check high - comparison of measured intake manifold pressure with modelled intake manifold pressure	Difference between maximum intake manifold pressure and maximum modeled manifold pressure	> 13.5		Engine speed  Model-based manifold pressure diagnosis released from icing detection (sensor not frozen), which is the following condition: Difference between maximum and minimum manifold pressure from sensor signal wobble check ((( Raw voltage of manifold pressure sensor Raw voltage of manifold pressure sensor) for time (( Inflow into the MAP sensor is valid Outflow from the MAP sensor is valid Outflow from the MAP sensor is valid Outflow from the MAP sensor failure (*)) Sussicion of a throttle valve sensor failure (*)) No pending or confirmed DTCs Basic enable conditions met	>= >= >= >= == == == == == == == == == =	TRUE  10 0.250002 4.749968 0.2 TRUE TRUE 0.14 FALSE FALSE FALSE FALSE See sheet inhibit tables See sheet enable tables	rpm  kPa  V  v  sec	2.5	sec co	ntinuous	2 Trips
		P0106	Path 4: Rationality check low - comparison of measured intake manifold pressure with modelled intake manifold pressure	Difference between minimum modeled manifold pressure and minimum intake manifold pressure	> 13.5		Engine speed  Model-based manifold pressure diagnosis released from icing detection (sensor not frozen), which is the following condition: Difference between current maximum and minimum manifold pressure from sensor sianal wobble check (( Raw voltage of manifold pressure sensor Raw voltage of manifold pressure sensor ) for time ( Inflow into the MAP sensor is valid Outflow from the MAP sensor is valid ) for time ( Request safety fuel cut off (*) Suspicion of a throttle valve sensor failure (*)) No pending or confirmed DTCs Basic enable conditions met	>= = >= > < >= = = = = = = = = = = = = =	TRUE  10 0.250002 4.749968 0.2  TRUE TRUE 0.14 FALSE FALSE FALSE See sheet inhibit tables See sheet enable tables	rpm  kPa  V  v  sec	2.5	sec co	nntinuous	2 Trips

OBD GROUP: KGMXOBDG	)7		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES EC	СМ			E	EMISSION	S STDS:	CALUL	EV125, FEI	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters		Enable Condition	ns		Time Requi	red	MIL IIIum.
	P0106	Path 5: Rationality check low during startup- Raw pressure is less than maximum value of minimum ambient pressure and difference of ambient pressure, offset voltage and tolerance	Raw pressure before engine start in the intake manifold	< max[a,(b-c)-d] kP	<sup>2</sup> a	Time counter for valid raw pressure after engine start	٧	0	sec	2.5	sec	once per driving cycle	2 Trips
			where (a) minimum ambient pressure for intake manifold pressure diagnosis (b) Ambient pressure (c) Offset-voltage for ambient pressure sensor (d) tolerances between pressure raw value before engine start in the intake manifold and ambient pressure	0 kP 255.9961 kP	∂a	Engine speed  Engine speed calculated in 10ms ( Raw voltage of manifold pressure sensor Raw voltage of manifold pressure sensor ) for time  Counter for number of raw values for averaging Calculation of raw-pressure during initialization is finished for bank 1 Engine speed Difference between raw pressure before engine start in the intake manifold and absolute intake manifold pressure ( Inflow into the MAP sensor is valid Outflow from the MAP sensor is valid	<pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre>&lt;</pre>	300 0.250002 4.749968 0.2 5 FALSE 400 30 TRUE TRUE	rpm V V sec counts - rpm kPa				
	P0106	Signal variation check: checks if the sensor is frozen, by comparing the difference of maximum and minimum manifold pressure against calibration threshold for sensor signal wobble check	Difference between maximum and minimum manifold pressure from sensor signal wobble check	< 10 kP	²a	) for time Request safety fuel cut off (*) Suspicion of a throttle valve sensor failure (*)) No pending or confirmed DTCs Basic enable conditions met  ( Engine coolant downstream temperature during the first engine start of the driving cycle.	= = = =	0.14  FALSE FALSE See sheet inhibit tables See sheet enable tables	sec deg C			continuous	2 Trips
	10100					OR ( Engine coolant temperature for time ) (( Raw voltage of manifold pressure sensor Raw voltage of manifold pressure sensor ) for time ( Inflow into the MAP sensor is valid Outflow from the MAP sensor is valid Outflow from the MAP sensor is valid ) for time Request safety fuel cut off (*) Suspicion of a throttle valve sensor failure (*) ( Engine speed	^ # ^ V # # # # A	30 100 0.250002 4.749968 0.2 TRUE TRUE 0.14 FALSE FALSE 1300	deg C sec V V sec - sec - ppm			COMMINGUES	2 1193
						Engine speed Minimum throttle valve position (Bank 1) ) ( Engine speed Maximum throttle valve position (Bank 1) ) ) for time No pending or confirmed DTCs Basic enable conditions met	<	10.0098 1500 25 See sheet inhibit tables See sheet enable tables	% rpm % sec -				

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: 1		IARY TABLES	ECM			E	MISSION	IS STDS:	CALUL	EV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs		Time Requi	red	MIL IIIum.
Manifold Absolute Pressure Sensor - B2	P2A0D	Monitoring of Intake manifold pressure sensor bank2 for Signal range check-High	Raw voltage from Intake manifold pressure sensor bank2	>	4.749968	V	No pending or confirmed DTCs Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-	1.5	sec	continuous	2 Trips
	P2A0C	Monitoring of Intake manifold pressure sensor bank2 for Signal range check-Low	Raw voltage from Intake manifold pressure sensor bank2	<	0.250002	V	No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-	1.5	sec	continuous	2 Trips
Manifold Absolute Pressure Sensor - B2	P2A0B	Path 1: Rationality check against reference pressure - high	Difference between raw manifold pressure during initialization – Bank 2 and maximal reference pressure for delta pressure sensor diagnoses	>	A+B	kPa	( Engine speed	=	0	rpm	5	sec	once per driving cycle	2 Trips
			where A: Tolerance manifold pressure sensor to ambient pressure during start		20.8047	kPa	ECU is in drive-state )	=	TRUE	-				
			B: Delta Intake manifold pressure to ambient pressure during start		0	kPa	For number of events Condition manifold pressure sensor reference for delta pressure sensor Unfiltered raw voltage of manifold pressure sensor Bank 2 Unfiltered raw voltage of manifold pressure sensor Bank 2 No pending or confirmed DTCs Basic enable conditions met	\= = \ \ \ = =	FALSE 0.250002 4.749968 See sheet inhibit tables See sheet enable	events  V  V  -				
	P2A0B	Path 2: Rationality check against reference pressure - low	Difference between raw manifold pressure during initialization – Bank 2 and minimal reference pressure for delta pressure sensor diagnoses	<	A-B	kPa	( Engine speed	=	tables 0	rpm	5	sec	once per driving cycle	2 Trips
			where A: Tolerance manifold pressure sensor to ambient pressure during start		20.8047	kPa kPa	ECU is in drive-state	=	TRUE	-				
			B: Delta Intake manifold pressure to ambient pressure during start		0	KFA	for number of events  Condition manifold pressure sensor reference for delta pressure sensor Unfiltered raw voltage of manifold pressure sensor Bank 2 Unfiltered raw voltage of manifold pressure sensor Bank 2 No pending or confirmed DTCs  Basic enable conditions met	\= = < > = =	FALSE 0.250002 4.749968 See sheet inhibit tables See sheet enable tables	events  V  V  -				
	P2A0B	Path 3: Rationality check - comparison of measured intake manifold pressure with modelled intake manifold pressure	Difference between maximum intake manifold pressure and maximum modeled manifold pressure	>	13.5	kPa	Model-based manifold pressure diagnosis released from icing detection (sensor not frozen), which is the following condition:	=	TRUE	-	2.5	sec	continuous	2 Trips
							Difference between current minimum and its maximum manifold pressure from sensor signal wobble check ( maximum voltage threshold for electrical diagnosis for time	>= >	10 4.749968 0.2	kPa V sec				
							( Inflow into the MAP sensor is valid Outflow from the MAP sensor is valid )	= =	TRUE TRUE 0.14	- - sec				
							for time  Request safety fuel cut off (*)	=	FALSE	-				

D GROUP: KGMXOBDG	607		DIAGNOS' TEST GROUP: I	TIC SUMMARY TABLES ECM (GMXV04.2088		EMISSIO	NS STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
					Suspicion of a throttle valve sensor failure (*) No pending or confirmed DTCs Basic enable conditions met	= FALSE - = See sheet enable - tables = See sheet enable - tables		
	P2A0B	Path 4: Rationality check - comparison of measured intake manifold pressure with modelled intake manifold pressure	Difference between minimum intake manifold pressure and minimum modeled manifold pressure	> 13.5 kPa	Model-based manifold pressure diagnosis released from icing detection (sensor not frozen), which is the following condition:	= TRUE -	2.5 sec continuous	s 2 Trips
					Difference between current minimum and its maximum manifold pressure from sensor signal wobble check (maximum voltage threshold for electrical diagnosis for time)	>= 10 kPa > 4.749968 V >= 0.2 sec		
					( Inflow into the MAP sensor is valid Outflow from the MAP sensor is valid ) for time	= TRUE - = TRUE - >= 0.14 sec		
					Request safety fuel cut off (*) Suspicion of a throttle valve sensor failure (*) No pending or confirmed DTCs (se inhibit conditions table) Basic enable conditions met	= FALSE - = FALSE - = See sheet enable - tables = See sheet enable - tables		
	P2A0B	Signal variation check: checks if the sensor is frozen, by comparing the difference of maximum and minimum manifold pressure against calibration threshold for sensor signal wobble check	Difference between maximum and minimum manifold pressure from sensor signal wobble check bank 2	< 10 kPa	( Engine coolant downstream temperature during the first engine start of the driving cycle.	> -7.5 deg C	continuous	s 2 Trij
					OR ( Engine coolant temperature for time	> 30 deg C >= 100 sec		
					) (( Raw voltage of manifold pressure sensor Bank2 Raw voltage of manifold pressure sensor	> 0.250002 V		
					Bank2 ) for time	>= 0.2 sec = TRUE -		
					Inflow into the MAP sensor is valid Outflow from the MAP sensor is valid )	= TRUE -		
					for time Request safety fuel cut off (*) Suspicion of a throttle valve sensor failure (*)) ( Engine Speed Minimum throttle valve position (Bank 2)	= = 1300 rpm < 10.0098 %		
					( Engine Speed Maximum throttle valve position (Bank 2)	< 10.0098 %  < 1500 rpm  > 25 %		
					for time  No pending or confirmed DTCs  Basic enable conditions met	>= 1 sec = See sheet inhibit - tables = See sheet enable -		
	1	1	1	ĺ		tables	1	1

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: 1		MARY TABLES	ECM			j	EMISSION	IS STDS:	CALULE	EV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns	1	ime Requir	ed	MIL IIIum.
							Engine in state of synchronization No pending or confirmed DTCs Basic enable conditions met	= =	TRUE see sheet inhibit tables see sheet enable tables	-				
	P0237	Monitoring of Throttle valve upstream pressure sensor Bank 1 for Signal range check - Low	Raw voltage from Throttle valve upstream pressure sensor Bank 1	<	0.250002	V	Engine speed Engine in state of synchronization No pending or confirmed DTCs Basic enable conditions met	>= = =	TRUE see sheet inhibit tables see sheet enable tables	rpm - -	1.5	sec	continuous	2 Trips
Boost Pressure Sensor - B1	P0236	Path 1: Rationality check against maximum ambient pressure based threshold	Case 1: Engine NOT running for time	>=	A*B	sec	(				2	sec	continuous	2 Trip
			Difference between raw upstream throttle valve pressure and ambient pressure  Case 2: Engine NOT running for time	> <	C+D A*B	kPa sec sec	Engine speed Throttle actuator position	< <	1000 8.0078	rpm %				
			Difference between raw upstream throttle valve pressure and ambient pressure  Where:	>	C+E	kPa	for time  Valid pressure sensor signal upstream of throttle valve	>= =	2.6 TRUE	sec -				
			where: (A) Time delay for ambient pressure in manifold (B) constant (C) Upper tolerance value of upstream throttle valve pressure	=	0.95 13.4531	sec - kPa	for time  ( Raw voltage (unfiltered) of throttle valve pressure sensor	>=	0.2 4.749968	sec V				
			(D) Ambient pressure including an offset for robustness     (E) Difference between modelled and measured upstream throttle valve pressure values	=	1.9648 1.9883	kPa kPa	Raw voltage (unfiltered) of throttle valve pressure sensor )	>=	0.250002	٧				
							Suspicion of a throttle valve sensor failure (*) Request safety fuel cut off (*) ( Max range error of pressure upstream throttle When: Pressure upstream throttle valve raw ) No pending or confirmed DTCs Basic enable conditions met	(	FALSE FALSE FALSE 511.9922 see sheet inhibit tables see sheet enable tables	- - - kPa -				
		Path 2 : Rationality check during startup against maximum ambient pressure based threshold	Difference between raw throttle valve pressure Bank 1 and the maximum reference pressure for delta pressure sensor diagnosis	>	14.625	kPa	Raw voltage (unfiltered) of throttle valve pressure sensor Raw voltage (unfiltered) of throttle valve pressure sensor ) for time Engine not running for time E(U in drive state (Max range error of pressure upstream throttle When:  Pressure upstream throttle valve raw ) No pending or confirmed DTCs  Basic enable conditions met	<= >= = = = = = =	4.749968 0.250002 0.2 TRUE 5 TRUE FALSE 511.9922 see sheet inhibit tables see sheet enable tables	V V sec - sec - kPa -	2	sec	continuous	2 Trip
	P0236	Path 3: Rationality check against minimum ambient pressure based threshold	Case 1: Engine NOT running for time (Difference between raw upstream throttle valve pressure and ambient pressure	>= <	A*B C+D	sec kPa	( Engine speed	<	1000	rpm	2	sec	continuous	2 Trip

OBD GROUP: KGMXOBD	G07		DIAGNOS' TEST GROUP: I		MARY TABLES .2088	ECM			E	MISSION	NS STDS: (	CALUL	EV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	т	ime Requir	ed	MIL IIIum.
			for time) Case 2: Engine NOT running for time (Difference between raw upstream throttle valve	>= < < <	1 A*B C+E	sec sec kPa	Throttle actuator position ) for time	< >=	8.0078 2.6	% sec				
			pressure and ambient pressure for time)	>=	1	sec	Valid pressure sensor signal upstream of throttle valve	=	TRUE	-				
			Where: (A) Time delay for ambient pressure in manifold	=	3	sec	for time	>=	0.2	sec				
			(B) constant (C) Upper tolerance value of upstream throttle valve pressure	=	0.95 13.4531	kPa	( Raw voltage (unfiltered) of throttle valve pressure sensor	<=	4.749968	V				
			(D) Ambient pressure including an offset for robustness	=	1.9648	kPa	Raw voltage (unfiltered) of throttle valve pressure sensor	>=	0.250002	V				
			(E) Maximum pressure loss at air filter	=.	2.1211	kPa	)							
							Suspicion of a throttle valve sensor failure (*): Request safety fuel cut off (*) ( Max range error of pressure upstream throttle When:	=	FALSE FALSE FALSE	- - -				
							Pressure upstream throttle valve raw ) No pending or confirmed DTCs	< =	511.9922 see sheet inhibit tables	kPa -				
							Basic enable conditions met	=	see sheet enable tables	-				
	P0236	Path 4: Rationality check during startup against minimum ambient pressure based threshold	Difference between raw throttle valve pressure Bank 1 and the minimum reference pressure for	<	14.625	kPa	(				2	sec	continuous	2 Trip
			delta pressure sensor diagnosis				Raw voltage (unfiltered) of throttle valve pressure sensor Raw voltage (unfiltered) of throttle valve pressure sensor	<= >=	4.749968 0.250002	v v				
							for time Engine not running for time ECU in drive state	>= = >= =	0.2 TRUE 5 TRUE	sec - sec				
							( Max range error of pressure upstream throttle When:	=	FALSE	-				
							Pressure upstream throttle valve raw ) No pending or confirmed DTCs	< =	511.9922 see sheet inhibit tables	kPa -				
							Basic enable conditions met	=	see sheet enable tables	-				
Boost Pressure Sensor - B2	P0242	Monitoring of Throttle valve upstream pressure sensor Bank 2 for Signal range check - High	Raw voltage from Throttle valve upstream pressure sensor Bank 2	>	4.749968	V	Engine speed	>=	400	rpm	1.5	sec	continuous	2 Trips
							Engine in state of synchronization No pending or confirmed DTCs	=	TRUE see sheet inhibit tables	-				
							Basic enable conditions met	=	see sheet enable tables	-				
	P0241	Monitoring of Throttle valve upstream pressure sensor Bank 2 for Signal range check - Low	Raw voltage from Throttle valve upstream pressure sensor Bank 2	<	0.250002	V	Engine speed	>=	400	rpm	1.5	sec	continuous	2 Trips
							Engine in state of synchronization No pending or confirmed DTCs	=	TRUE see sheet inhibit tables	-				
							Basic enable conditions met	=	see sheet enable tables	-				
Boost Pressure Sensor - B2	P0240	Path 1: Rationality check against maximum ambient pressure based threshold	Case 1: Engine NOT running for time	>=	A*B	sec	(				2	sec	continuous	2 Trip
			Difference between raw upstream throttle valve pressure and ambient pressure	>	C+D	kPa	Engine speed	<	1000	rpm				
			Case 2: Engine NOT running for time Difference between raw upstream throttle valve	< >	A*B C+E	sec sec kPa	Throttle actuator position ) for time	>=	8.0078 2.6	% sec				
			pressure and ambient pressure				Valid pressure sensor signal upstream of throttle valve	=	TRUE	-				

OBD GROUP: KGMXOBDG	607		DIAGNOS <sup>*</sup> TEST GROUP: I		MARY TABLES 2088	ECM			E	MISSION	IS STDS: CAL	ULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	Time	Required	MIL IIIum.
			Where: (A) Time delay for ambient pressure in manifold	=	3	sec	for time	>=	0.2	sec			
			(B) constant (C) Upper tolerance value of upstream throttle valve pressure	= =	0.95 13.4531	- kPa	( Raw voltage (unfiltered) of throttle valve pressure sensor for Bank 2	<=	4.749968	٧			
			(D) Ambient pressure including an offset for robustness	=	1.9648	kPa	Raw voltage (unfiltered) of throttle valve pressure sensor for Bank 2	>=	0.250002	V			
			(E) Difference between modelled and measured upstream throttle valve pressure values	=	1.9883	kPa	)						
							Suspicion of a throttle valve sensor failure Bank 2	=	FALSE	-			
							Request safety fuel cut off ( Max range error of pressure upstream throttle When:	=	FALSE FALSE	-			
							Pressure upstream throttle valve raw ) No pending or confirmed DTCs	< =	511.9922 see sheet inhibit	kPa -			
							Basic enable conditions met	=	tables see sheet enable tables	-			
	P0240	Path 2: Rationality check during startup against maximum ambient pressure based threshold	Difference between throttle valve pressure Bank 2 and the maximum reference pressure for delta	>	14.625	kPa	(				2	sec once pe driving cy	r 2 Trip
			pressure sensor diagnosis				Raw voltage (unfiltered) of throttle valve pressure sensor for Bank 2 Raw voltage (unfiltered) of throttle valve pressure sensor for Bank 2	<= >=	4.749968 0.250002	V V			
							) for time Engine not running for time ECU in drive state ( Max range error of pressure upstream	>= = >= =	0.2 TRUE 5 TRUE FALSE	sec - sec -			
							throttle When:						
							Pressure upstream throttle valve raw ) No pending or confirmed DTCs	=	511.9922 see sheet inhibit tables	kPa -			
							Basic enable conditions met	=	see sheet enable tables	-			
	P0240	Path 3: Rationality check against minimum ambient pressure based threshold	Case 1: Engine NOT running for time	>=	A*B	sec	(				2	sec continuo	us 2 Trip
			(Difference between raw upstream throttle valve pressure and ambient pressure	<	C+D	kPa	Engine speed	<	1000	rpm			
			for time) Case 2: Engine NOT running for time (Difference between raw upstream throttle valve	>= < <	1 A*B C+E	sec sec kPa	Throttle actuator position ) for time	< >=	8.0078 2.6	% sec			
			pressure and ambient pressure for time)	>=	1	sec	Valid pressure sensor signal upstream of	=	TRUE	-			
			Where: (A) Time delay for ambient pressure in manifold	=	3	sec	throttle valve for time	>=	0.2	sec			
			(B) constant (C) Upper tolerance value of upstream throttle valve pressure	= =	0.95 13.4531	kPa	( Raw voltage (unfiltered) of throttle valve pressure sensor for Bank 2	<=	4.749968	V			
			(D) Ambient pressure including an offset for robustness	=	1.9648	kPa	Raw voltage (unfiltered) of throttle valve pressure sensor for Bank 2	>=	0.250002	V			
			(E) Maximum pressure loss at air filter	=	2.1211	kPa	) Suspicion of a throttle valve sensor failure	_	FALSE				
							Suspicion of a throttle valve sensor failure Request safety fuel cut off ( Max range error of pressure upstream throttle When:	= =	FALSE FALSE FALSE	-			
							Pressure upstream throttle valve raw ) No pending or confirmed DTCs	< =	511.9922 see sheet inhibit tables	kPa -			
							Basic enable conditions met	=	see sheet enable tables	-			

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: P	FIC SUMMARY TAB (GMXV04.2088	LES ECM			E	MISSION	IS STDS:	CALULE	V125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Va	ilue	Secondary Parameters		Enable Condition	ıs		Time Require	ed	MIL IIIum.
	P0240	Path 4 : Rationality check during startup against minimum ambient pressure based threshold	Difference between raw throttle valve pressure Bank 2 and the minimum reference pressure for delta pressure sensor diagnosis	< 14.625	kPa	Raw voltage (unfiltered) of throttle valve pressure sensor Raw voltage (unfiltered) of throttle valve pressure sensor ) to time English end running for time ECU in drive state (Max range error of pressure upstream throttle When:  Pressure upstream throttle valve raw ) No pending or confirmed DTCs	<= >=	4.749968 0.250002 0.2 TRUE 5 TRUE FALSE 511.9922 see sheet inhibit tables	V V sec sec kPa	2	sec	continuous	2 Trip
						Basic enable conditions met	=	see sheet enable tables	-				
Engine Off Timer	P262B	Path 1: Too Slow Monitor : Engine off time is too short in considering ECT change	Calculated engine off time (see Look-Up-Table #P262B-1)	< 0 to 420	min	Ratio of current cool down compared to last ignition-off event Ratio of current cool down compared to last ignition-off event Engine coolant temperature prior to shutdown in previous driving cycle Possible cool down of the coolant temperature during shutdown since previous driving cycle Cool down of the engine coolant temperature during shutdown since previous driving cycle Cool down of the engine coolant temperature during shutdown since previous driving cycle Accumulated ecu-on-time since last ignition-off event (see Look-Up-Table #P262B-2) No pending or confirmed DTCs Basic enable conditions met	>=	0.75  1 57.96 20 20 120 to 9600  see sheet inhibit tables see sheet enable tables	deg C deg C deg C sec	1			2 Trips
	P262B	Path 2: Too Fast Monitor : Engine off time is too long in considering ECT change	Calculated engine off time (see Look-Up-Table #P262B-3)	> 60 to 2000	min	Ratio of current cool down compared to last ignition-off event Ratio of current cool down compared to last ignition-off event Engine coolant temperature prior to shutdown in previous driving cycle Possible cool down of the coolant temperature during shutdown since previous driving cycle Cool down of the engine coolant temperature during shutdown since previous driving cycle Accumulated ecu-on-time since last ignition-off event (see Look-Up-Table #P262B-4) No pending or confirmed DTCs Basic enable conditions met	\= \tag{=}	0 0.700195 57.96 20 100 120 to 9600 see sheet inhibit tables see sheet enable tables	deg C deg C deg C				2 Trips
	P262B	Path 3: Rationality check of control module power off timer	At least one bit of the counter value in the counter device RAM doesn't change it's value OR  Communication error is reported by counter device OR Difference between counter steps compared to ECU system time is out of tolerance	= TRUE = TRUE	-	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables					2 Trips

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: F		MARY TABLES 2088	ECM			E	MISSION	NS STDS:	CALULI	EV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s		Time Requir	red	MIL IIIum.
ECM Internal Failures	P062B	Path 1: Electrical failure with high pressure injection valve powerstage for bank 1	Electrical fault is detected for the control bank 1 (  Number of misfire counter for cylinder 0	=	TRUE		Diagnosis inhibited by statistical function	=	FALSE	- rom	5	sec	continuous	2 Trips
			Number of misfire counter for cylinder 4 ) and	>	100 TRUE	-	Engine speed relative air charge Half engine mode active for time	> < =	1520 100.008 FALSE	rpm % -				
			Rail pressure control minimum error is set	=	TRUE	-	Tor time  No pending or confirmed DTCs  Basic enable conditions met	>= = =	0.5 see sheet inhibit tables see sheet enable tables	sec - -				
	P062B	Path 2: Electrical failure with high pressure injection valve powerstage for bank 2	Electrical fault is detected for the control bank 2 (	=	TRUE	-	Diagnosis inhibited by statistical function	=	FALSE		5	sec		
		Sum 2	Number of misfire counter for cylinder 1 Number of misfire counter for cylinder 5 )	> >	100 100		Engine speed Engine speed relative air charge	< >	6000 1520 100.008	rpm rpm %				
			and Rail pressure control minimum error is set	=	TRUE	-	Half engine mode active for time No pending or confirmed DTCs	= >= =	FALSE 0.5 see sheet inhibit tables	sec				
							Basic enable conditions met	=	see sheet enable tables	-			_	
	P062B	Path 3: Electrical failure with high pressure injection valve powerstage for bank 3	Electrical fault is detected for the control bank 3 (	=	TRUE	-	Diagnosis inhibited by statistical function	=	FALSE	•	5	sec		
		IOI Balik 3	Number of misfire counter for cylinder 2 Number of misfire counter for cylinder 6 )	> >	100 100	-	Engine speed Engine speed relative air charge	< > <	6000 1520 100.008	rpm rpm %				
			and Rail pressure control minimum error is set	=	TRUE	-	Half engine mode active for time No pending or confirmed DTCs	= >= =	FALSE 0.5 see sheet inhibit tables	sec				
							Basic enable conditions met	=	see sheet enable tables	-			_	
	P062B	Path 4: Electrical failure with high pressure injection valve powerstage for bank 4	Electrical fault is detected for the control bank 3 (	=	TRUE	-	Diagnosis inhibited by statistical function	=	FALSE		5	sec		
			Number of misfire counter for cylinder 3 Number of misfire counter for cylinder 7	>	100 100	-	Engine speed Engine speed relative air charge	< > <	6000 1520 100.008	rpm rpm %				
			and Rail pressure control minimum error is set	=	TRUE	-	Half engine mode active for time No pending or confirmed DTCs	= >= =	FALSE 0.5 see sheet inhibit tables	sec -				
							Basic enable conditions met	=	see sheet enable tables	-				
	P062B	Path 5: Detects if the booster voltage of Dc-Dc convertor is too low	Output voltage of DcDc converter	<=	20	V	Battery voltage Battery voltage	>= <=	10.9 6553.5	V V	2	events	continuous	2 Trips
							Basic enable conditions met  No pending or confirmed DTCs	=	see sheet enable tables see sheet inhibit tables	-				
	P062B	Path 6: Error check in CVO diagnosis for all cylinders	Number of tested cylinders against min or max error for Controlled Valve Operation diagnosis	>=	8	-	Ignition is ON	=	TRUE				continuous	1 Trips
			and  Number of cylinders in error state due to minimum or maximum error in Controlled Valve Operation diagnose	>=	8	-	No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-				
	P0606	Detects error of ignition power stage diagnosis ASIC Bank 1	Device information error from the powerstage ASIC	-	TRUE		12V system voltage	>	10.9	٧	20	events	continuous	1 Trip
							12V system voltage Engine synchronization (*) Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once	v = ^ ^	655.34 TRUE 1400 9	V - rpm counts				
							Basic enable conditions met	=	see sheet enable tables	-				

OBD GROUP: KGMXOBDG	07	•	DIAGNOS TEST GROUP: P	TIC SUMMARY TABLES ECM (GMXV04.2088		EMISSION	NS STDS: CALULEV125, FED	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	P0606	Detects error of ignition power stage diagnosis ASIC Bank 2	Device information error from the powerstage ASIC	= TRUE -	12V system voltage 12V system voltage Engine synchronization (*) Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	> 10.9 V < 655.34 V = TRUE - > 1400 pm > 9 counts = see sheet enable tables	20 events continuous	1 Trip
	P0606	Detects when the last activity detected for the LIN Communication Hardware has been greater than the limit for a calibrated period of time	Time since last activity detected for the LIN Communication Hardware is greater than limit	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	0.02 sec continuous	1 Trip
	P0606	Detects when the last activity detected for the CAN Communication Hardware has been greater than the limit for a calibrated period of time	Time since last activity detected for the CAN Communication Hardware is greater than limit	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	0.02 sec continuous	1 Trip
	P0606	Internal monitoring of main processor controller: Monitoring of hardware error management	Error management module (EMM) / Safety management unit (SMU) reports alarm	= TRUE -	Ignition is on  Basic enable conditions met	= TRUE - = TRUE -	continuous	1 Trip
	P06D1	Detects communication error with ignition power stage diagnosis ASIC Bank 1	SPI information error from the powerstage ASIC	= TRUE -	12V system voltage 12V system voltage Engine synchronization (*) Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	> 10.9 V < 655.34 V = TRUE - > 1400 pm > 90 counts = see sheet enable tables	20 events continuous	2 Trips
	P06D1	Detects commmunication error with ignition power stage diagnosis ASIC Bank 2	SPI information error from the powerstage ASIC	= TRUE -	12V system voltage 12V system voltage Engine synchronization (*) Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	> 10.9 V < 655.34 V = TRUE - > 1400 pm > 9 counts = see sheet enable - tables	20 events continuous	2 Trips
	P060B	Function monitoring - Pedal potentiometer signal 2 voltage check - The measured ADC voltage pulled to low level is compared with a threshold.	Measured voltage at the ADC for the acceleration pedal signal 2	>= 0.215 V	Ignition is on  AD-input to low-level (Short Circuit to Ground)  Basic enable conditions met	= TRUE - = TRUE - = TRUE -	0.1 sec continuous	1 Trip
	P060B	Function monitoring - Test voltage range check - The measured ADC test voltage channel voltage is compared with thresholds.	Measured voltage at the ADC test voltage input OR Measured voltage at the ADC test voltage input	> 4.8291 V	Ignition is on  Basic enable conditions met	= TRUE -	0.15 sec continuous	1 Trip
	P060A	Path 1: CAN and Flexray shut-off path test	Detects if CAN and Flexray transmission is diabled in case of an error	= TRUE -	Shut-Off path test is completed  Ignition ON Basic enable conditions met	= TRUE -  = TRUE -  = see sheet enable - tables	once per driving cycle	1 Trip

GROUP: KGMXOBDG	607		DIAGNOST TEST GROUP: F		IMARY TABLES - 1.2088	- ECM			E	MISSION	NS STDS:	CALULI	EV125, FE	DBIN1:
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	s	Т	ime Requir	ed	MIL III
		Path 2: Power stage shut-off path test	Detects if power stages is disabled in case of an error OR The entire power stage shut-off path test has not been completed for time where A - Maximum number of repetitions of shut-off path test	= ^ =	TRUE  TRUE  A*2.2ms 450		Shut-Off path test is completed lanition ON Basic enable conditions met	11 11 11	TRUE TRUE see sheet enable tables	-				
	P060D	Post 4	7				legition ON		TDUE		0.006		anatio	4.7
	PUGUD	Path 1: Detects if the absolute difference between the accelerator pedal signal 1 voltage and the accelerator pedal signal 2 voltage exceeds with a threshold (part pedal).	Absolute difference of accelerator pedal position sensor voltages, calculated by the following formula:   max{ (a);(b) } - max{ (b);(c) }	>	0.3606	V	( maximum value between the accelerator pedal position sensor 1 raw voltage (from ADC) and the voltage threshold for start of plausability check of the accelerator signal	= <=	TRUE 4.061	v	0.026	sec	continuous	1 T
			where: (a) Accelerator pedal position sensor 1 current voltage (from ADC)	=	measured parameter	-	OR maximum value between the voltage threshold for start of plausibility check of the accelerator signal and the accelerator pedal position sensor 2 raw voltage (from ADC)	<=	4.061	٧				
			(b) Voltage threshold for start of plausibility check of the accelerator signal	=	0.848	٧	)							
			(c) Accelerator pedal position sensor 2 current voltage (from ADC)	=	measured parameter	-	Null load test impulse check in ADC monitoring is not active	=	TRUE	-				
			)				Basic enable conditions met No accelerator pedal fault	=	TRUE TRUE	-				
		Path 2: Detects if the absolute difference between the accelerator pedal signal 1 voltage and the accelerator pedal signal 2 voltage exceeds with a threshold (full pedal).	( Absolute difference of accelerator pedal position sensor voltages, calculated by the following	>	0.3606	V	Ignition ON	=	TRUE	-	0.026	sec	continuous	1
			formula:   max[ (a);(b) ] - max[ (b);(c) ] I				maximum value between the accelerator pedal position sensor 1 raw voltage (from ADC) and the voltage threshold for start of plausibility check of the accelerator signal	>	4.061	V				
			where:				plausibility check of the accelerator signal maximum value between the voltage threshold for start of plausibility check of the accelerator signal and the accelerator pedal position sensor 2 raw voltage (from ADC)	>	4.061	V				
			(a) Accelerator pedal position sensor 1 current voltage (from ADC)     (b) Voltage threshold for start of plausibility check	=	measured parameter 0.848	- V	)  Null load test impulse check in ADC	=	TRUE	-				
			of the accelerator signal (c) Accelerator pedal position sensor 2 current	=	measured parameter	-	monitoring is not active  Basic enable conditions met	=	TRUE	-				
			voltage (from ADC)				No accelerator pedal fault	=	TRUE	-				
		Path 3: For accelerator pedal sensor 1 and 2 separately, detects if the learned normalized accelerator pedal voltage of Level 2 is greater than the learned normalized accelerator pedal voltage of Level 1.	Difference between the minimum learned normalized accelerator pedal voltage L2 and the minimum learned normalized pedal voltage L1 - accelerator pedal sensor 1, calculated by the following formula: (d) > (e)	>	0	-	Igntion ON  Basic enable conditions met	= =	TRUE	-			continuous	1
			where (d) Minimum learned normalized pedal voltage L2 - accelerator pedal sensor 1 (c) Minimum learned normalized pedal voltage L1	=	measured parameter	-								
			(e) Minimum learned normalized pedal voltage L1 - accelerator pedal sensor 1 OR Difference between the minimum learned normalized accelerator pedal voltage L2 and the minimum learned normalized pedal voltage L1 - accelerator pedal sensor 2, calculated by the following formula: (f) > (g)	>	measured parameter 0	-								

BD GROUP: KGMXOBDG07	7		DIAGNOST TEST GROUP: K		MARY TABLES	ECM			E	MISSION	IS STDS:	CALUL	EV125, FEI	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	s	,	ime Requi	red	MIL IIIu
			(g) Minimum learned normalized pedal voltage L1 - accelerator pedal sensor 2	=	measured parameter	-								
	P061C	Engine speed plausibility check - The difference between calculated (function monitoring) and measured engine speed is greater than a calibrated threshold for a calibrated period of time	Difference between calculated engine speed from function monitoring and measured engine speed	>=	320	rpm	Engine synchronization is active  Engine speed signal is valid (angle counter difference >=0) Synchronization is not lost	" " "	TRUE TRUE	-	0.08	sec	continuous	1 Tri
							Calculated high resolution engine speed in function monitoring Basic enable conditions met	=	520 TRUE	rpm -				
		Detects if minimum engine speed is reached and debounced for a calibrated period of time	Engine speed gradient  Debounce time for engine speed gradient in function monitoring	\= \	520 0.52	rpm sec	Engine synchronization is active  Engine speed signal is not valid (angle counter difference < 0)  Synchronization is not lost Basic enable conditions met		TRUE TRUE TRUE TRUE	-				
	P0607	Path 1: Monitoring ABE activation	ABE line active	=	TRUE	-	Shut-off path test active ECU is in DRIVE state ( Battery voltage	= - ^	FALSE TRUE 8	- - V	0.05	sec	continuous	1 Trip
							) For time Basic enable conditions met	>= =	0.1 see sheet enable tables	sec -				
		Path 2: Monitoring shut-off by query-response communication	WDA line active	=	TRUE	-	Shut-off path test active ECU is in DRIVE state Basic enable conditions met	=	FALSE  TRUE see sheet enable tables	- :	0.05	sec	continuous	1 Trip
		Path 3: Monitoring shut-off by error pin activation	Error pin line active	=	TRUE	-	Shut-off path test active ECU is in DRIVE state Basic enable conditions met	= = =	FALSE TRUE see sheet enable tables	- - -	0.05	sec	continuous	1 Trip
		Path 4: Monitoring ABE activation at overvoltage detection	ABE line active  Latching of overvoltage detection is activated	=	TRUE TRUE	-	Shut-off path test active ECU is in DRIVE state Basic enable conditions met	=	FALSE TRUE see sheet enable tables	-	0.05	sec	continuous	1 Trip
ol Module Long Term Memory Reset	P0603	Detects KeepAlive error during runtime at an external device	Any of the peripheral monitoring function reports a keep alive error such as memory errors, incorrect init state, unexpected resets of the external device during runtime	=	TRUE	-	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables	-			Continuous	1 Trip
	P0603	Detects KeepAlive error during initialization phase at an external device	Any of the peripheral monitoring function reports a keep alive error such as memory errors, incorrect in state, unexpected resets of the external device during initialization phase	=	TRUE		Ignition is ON	=	TRUE	-			Once in a Driving Cycle	
							Basic enable conditions met	=	see sheet enable tables	-				
	P0604	Read diagnosis for non volatile memory	A memory block could not be read successfully	=	TRUE	-	Ignition is ON  Basic enabling conditions are met	-	TRUE see sheet enable tables	-				1 Ti
		Write diagnosis for non volatile memory	A memory block could not be stored successfully	=	TRUE	-	Ignition is ON	=	TRUE	-				

BD GROUP: KGMXOBDO	907		DIAGNOST TEST GROUP: P		RY TABLES	ECM			E	MISSION	NS STDS: CA	LULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	т	Threshold Value		Secondary Parameters		Enable Conditions	•	Time	Required	MIL IIIum.
							Basic enabling conditions are met	=	see sheet enable tables	-			
	P30D6	Digital output communication loss/errors. Irregular operation of the SPI for Throttle actuator motor control circuit Bank 1	SPI error read out from power stage diagnoctics of Throttle actuator motor control circuit Bank 1	=	TRUE	-	( ECU is in DRIVE state	=	TRUE	-		continuous	2 Trips
							OR ECU is in POSTDRIVE state	_	TRUE	_			
							) The powerstage of the actuator is switched	=	TRUE	-			
							( State of the thottle valve powerstage bank 1	>	0	-			
							) Release of adaptation Actual position is valid Request safety fuel cut off SKA bank 1, following condition:	=	FALSE TRUE FALSE	:			
							( Request reversible safety fuel cut off SKA bank 1, which has following condition:	=	FALSE	-			
							( Battery voltage for throttle valve operation sufficient bank 1	>	7.5	٧			
							OR Engine speed	>	1000	rpm			
							Limp home position not reached bank 1	=	FALSE	-			
							No pending or confirmed DTCs	=	see sheet inhibit tables	-			
							Basic enable conditions met	=	see sheet enable tables	-			
	P30D7	Digital output communication loss/errors. Irregular operation of the SPI for Throttle actuator motor control circuit Bank 2	SPI error read out from power stage diagnoctics of Throttle actuator motor control circuit Bank 2	=	TRUE	-	( ECU is in DRIVE state	=	TRUE	-		continuous	2 Trips
							OR ECU is in POSTDRIVE state	=	TRUE	-			
							The powerstage of the actuator is switched on, following conditions:	=	TRUE	-			
							( State of the thottle valve powerstage bank 2	>	0				
							) Release of adaptation Actual position is valid Request safety fuel cut off SKA bank 2, following condition:	= =	FALSE TRUE FALSE	:			
							( Request reversible safety fuel cut off SKA bank 2, which has following condition:	=	FALSE	-			
							( Battery voltage for throttle valve operation sufficient bank 2	>	7.5	٧			
							OR Engine speed	>	1000	rpm			
							Limp home position not reached bank 2	-	FALSE	-			
							No pending or confirmed DTCs	-	see sheet inhibit tables	-			
							Basic enable conditions met	=	see sheet enable tables	-			
	P16F3	Path 1:	Absolute deviation of predicted relative air charge	>	11.3	%	Ignition is ON	=	TRUE	-	0.52	sec continuous	s 1 Trip
		Relative air charge range check in function monitoring	from calculated relative air charge for time	>=	0.36	sec	Engine Speed Injection cut off (ICO) is not requested from	>=	1200 TRUE	rpm -			
							function monitoring Injection cut off (ICO) is not requested	=	TRUE TRUE	-			
							System voltage exceeds 8V Limp home mode is not requested from function monitoring	=	TRUE	-			
							No loss of Synchronisation during function monitoring	=	TRUE	-			
	1	i e	Ī				(				1		1

GROUP: KGMXOBDO	907		TEST GROUP: P		RY TABLES 8					EMISSION	IS STDS:	CALULE	EV125, FE	DBIN1:
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	TI	hreshold Value		Secondary Parameters		Enable Conditi	ons		Time Require	red	MIL III
							OR ECU is not in post-drive ) Air-Fuel check is disabled for function monitoring Basic enable conditions met	-	TRUE FALSE TRUE	- -				
		Path 2: Complementary Error in Half Engine Mode status transmitted by Function Monitoring	(				Engine speed	>=	1200	rpm	1.04	sec	continuous	1 7
		b) Taronor monitoring	Synchronisation of half engine mode in injection,	=	TRUE	-	(	l						
			air charge and ignition Data redundancy to indicate CDA is active	!=	170	-	Injection cut off (ICO) is not requested from	=	TRUE	-				
			)				Injection cut off (ICO) is not requested from Level 2 monitoring	=	TRUE	-				
			OR				Battery voltage is in desired range and undervoltage shut-off is not active	=	TRUE	-				
			(				Limp home mode is not requested from function monitoring	-	TRUE	-				
			Synchronisation of half engine mode in injection, air charge and ignition Data redundancy to indicate CDA is active )	= !=	FALSE 55	-	No loss of Synchronisation during function monitoring ) (	=	TRUE	-				
							ECU is not in pre-drive state	=	TRUE	-				
							OR ECU is not in post-drive state	=	TRUE	-				
							Air-Fuel check is disabled for function monitoring	=	FALSE	-				
							Basic enable conditions met	=	TRUE	-				
		Path 3: Plausibility check w.r.t Ignition condition for cylinder deactivation in function monitoring of Half Engine Mode (HEM)	(				Engine speed	>=	1200	rpm	1.04	sec	continuous	1
			Synchronisation of half engine mode in injection, air charge and ignition	=	TRUE	-	and	l						
			Cylinder with combustion in HEM )	=	FALSE	-	( Injection cut off (ICO) is not requested from Level 1 monitoring	=	TRUE	-				
			for time	>=	0.32	sec	Injection cut off (ICO) is not requested from Level 2 monitoring	=	TRUE	-				
							Battery voltage is in desired range and undervoltage shut-off is not active	=	TRUE	-				
							Limp home mode is not requested from function monitoring	=	TRUE	-				
							No loss of Synchronisation during function monitoring	=	TRUE	-				
							( ECU is not in pre-drive state	=	TRUE	-				
							OR ECU is not in post-drive state	=	TRUE	-				
							) Air-Fuel check is disabled for function monitoring	=	FALSE	-				
							Basic enable conditions met	=	TRUE	-				
		Path 4: Ignition check for cylinder deactivation in function monitoring	(				Engine speed	>=	1200	rpm	1.04	sec	continuous	1
		ignition check for cylinder deactivation in function monitoring of Half Engine Mode (HEM)	Synchronisation of half engine mode in injection,	=	TRUE		and	l						1
			air charge and ignition  Cylinder with combustion in HEM	=	TRUE	-	(	l						
			P				Injection cut off (ICO) is not requested from Level 1 monitoring	=	TRUE	-				
			for time	>=	0.08	sec	Injection cut off (ICO) is not requested from Level 2 monitoring	=	TRUE	-				
							Battery voltage is in desired range and undervoltage shut-off is not active	=	TRUE	-				1
							Limp home mode is not requested from function monitoring No loss of Synchronisation during function monitoring	=	TRUE	-				

GROUP: KGMXOBDO	307		TEST GROUP: N		IMARY TABLES    1.2088	ECIVI			Е	MISSION	IS STDS:	CALULE	V125, FED	DBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	s	1	Time Require	ed	MIL III
						_	ECU is not in pre-drive state	_	TRUE	-				
							OR ECU is not in post-drive state	=	TRUE					
							) Air-Fuel check is disabled for function	=	FALSE					
							monitoring Basic enable conditions met	=	TRUE	-				
		Path 5:	Synchronisation of half engine mode in injection,	=	TRUE	-	Engine speed	>=	1200	rpm	1.04	sec	continuous	1
		Injection check in cylinder deactivation in function monitoring of Half Engine Mode (HEM)	air charge and ignition for time	>=	0.16	sec	,							
			ioi ume	>=	0.16	sec	Injection cut off (ICO) is not requested from Level 1 monitoring	=	TRUE	-				
							Injection cut off (ICO) is not requested from Level 2 monitoring	-	TRUE	-				
							Battery voltage is in desired range and undervoltage shut-off is not active	=	TRUE	-				
							Limp home mode is not requested from	=	TRUE	-				
							function monitoring No loss of Synchronisation during function	=	TRUE	-				
							monitoring )							
							ECU is not in pre-drive state OR	=	TRUE	-				
							ECU is not in post-drive state	=	TRUE	-				
							Air-Fuel check is disabled for function monitoring	=	FALSE	-				
							Basic enable conditions met	-	TRUE	-				
		Path 6: Cylinder individual fuel correction rationality check in function monitoring.	(				Ignition is ON	=	TRUE	-	4.16	sec	continuous	1
			Cylinder individual fuel correction	>	(a*b) + c	%	Engine Speed	>=	1200	rpm				
			where a : Relative fuel mass for individual cylinder		Measured parameter	%	Injection cut off (ICO) is not requested Injection cut off (ICO) is not requested from	=	TRUE TRUE	-				
			b : Factor maximum tolerance in check of cylinder-		1.101563	-	function monitoring System voltage exceeds 8V	=	TRUE	-				
			individual fuel in function monitoring c : Offset tolerance in check of cylinder-individual		10.5	%	Limp home mode is not requested from	_	TRUE	-				
			fuel in function monitoring				function monitoring No loss of Synchronisation during function	=	TRUE	_				
			OR				monitoring (							
			( Cylinder individual fuel correction	<	(a*b) - c	%	ECU is not in pre-drive state OR	=	TRUE	-				
			where a : Relative fuel mass for individual cylinder		Measured parameter	%	ECU is not in post-drive state )	=	TRUE	-				
			b : Factor maximum tolerance in check of cylinder individual fuel in function monitoring		0.898438	-	Air-Fuel check is disabled for function monitoring	-	FALSE	-				
			c : Offset tolerance in check of cylinder-individual fuel in function monitoring		10.5	%	Basic enable conditions met	=	see sheet enable tables	-				
		Path 7:	The complement of cylinder counter is not equal	=	TRUE	-	Ignition is ON	-	TRUE	-	4.16	sec	continuous	1
		The complement check of cylinder counter for homogeneous injection, stratified injection and calculation of post injection at	to the redundant counter for homogenous injection in function monitoring											
		dvnamic load.	OR The complement of cylinder counter is not equal		TRUE		Engine Speed Injection cut off (ICO) is not requested	>=	1200	rpm				
			to the redundant counter for stratified injection in	=	IRUE	-	Injection cut off (ICO) is not requested	=	TRUE	-				
			function monitoring OR				Injection cut off (ICO) is not requested from	=	TRUE	-				1
			The complement of cylinder counter is not equal to the redundant counter for calculation of post-injection at dynamic load in function monitoring	=	TRUE	-	function monitoring System voltage exceeds 8V	=	TRUE	-				
			OR				Limp home mode is not requested from	=	TRUE	-				
			Cylinder counter for homogeneous injection	>=	8	-	function monitoring No loss of Synchronisation during function monitoring	=	TRUE	-				
							I/							
			OR Cylinder counter for stratified injection	>=	8	-	ECU is not in pre-drive state	=	TRUE	-				

GROUP: KGMXOBDO	07		TEST GROUP: F	FIC SUMMARY TABLES ECM CGMXV04.2088		EN	IISSIONS	STDS: CAL	JLEV125, FEI	DBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions		Time Re	quired	MIL III
					Air-Fuel check is disabled for function monitoring Basic enable conditions met	= FALSE = see sheet enable tables				
		Path 8: Plausibility check: Average value for cylinder individual fuel correction in function monitoring is greater than a calibrated threshold for a calibrated period of time	Average value for cylinder individual fuel correction in function monitoring	> 1.029999 -	Ignition is ON  Engine Speed Injection cut off (ICO) is not requested Injection cut off (ICO) is not requested from function monitoring System voltage exceeds 8V Limp home mode is not requested from function monitoring No loss of Synchronisation during function monitoring (  ECU is not in pre-drive state OR ECU is not in post-drive state  ) Air-Fuel check is disabled for function monitoring Basic enable conditions met	= TRUE  >= 1200 = TRUE = TRUE = TRUE = TRUE = TRUE = TRUE = TRUE = FALSE = see sheet enable tables	rpm	4.16 sec	continuous	1
	P16F3	Path 9: Detects plausibility check of air/fuel ratio in function monitoring: complement check	Complement of mode of operation in gasoline direct injection (GDI) for monitoring where:  A: Mode of operation in gasoline direct injection (GDI) for monitoring )	!= A -	Engine Speed  Injection cut off (ICO) is not requested Injection cut off (ICO) is not requested from function monitoring System voltage exceeds 8V  Limp home mode is not requested from function monitorina No loss of Synchronisation during function monitorina ( ECU is not in pre-drive state ECU is not in post-drive state ) Air-Fuel check is disabled for function monitoring No pending or confirmed DTCs Basic enable conditions met	>= 1200  = TRUE  = FALSE  = see sheet enable tables  see sheet inhibit tables	rpm	0.52 sec	: continuous	1
		Path 10: Checks the operation mode of ECU in function monitoring	( Gasoline direct injection for monitoring is not in homogeneous operation mode Gasoline direct injection (GD) for monitoring is not in homogeneous spit mode Gasoline direct injection (GD)) for monitoring is not in homogeneous knock protection mode )	= TRUE - = TRUE - = TRUE -	Engine Speed Injection cut off (ICO) is not requested Injection cut off (ICO) is not requested from function monitorina System voltage exceeds 8V Limp home mode is not requested from function monitoring No loss of Synchronisation during function monitoring ( ECU is not in pre-drive state ECU is not in pre-drive state ECU is not in post-drive state Air-Fuel check is disabled for function monitoring No pending or confirmed DTCs Basic enable conditions met	>= 1200 = TRUE = TRUE = TRUE = TRUE = TRUE = TRUE = TRUE = TRUE = FALSE = see sheet enable tables = see sheet inhibit tables	rpm	0.52 sec	: continuous	1
		Path 11: The Lambda setpoint is checked against the range of permissable values for bank 1 and bank 2 systems	Desired lambda limitation for Bank 1 for monitoring	< 0.67944 -	Engine Speed	>= 1200	rpm	0.52 sec	continuous	1

OBD GROUP: KGMXOBDO	607		DIAGNOS <sup>*</sup> TEST GROUP: I		ARY TABLES	ECM				MISSION	NS STDS:	CALULI	EV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	т	ime Requir	ed	MIL IIIum.
			Desired lambda limitation for Bank 2 for monitoring OR Desired lambda limitation for Bank 1 for monitoring OR	>	1.20044	-	Injection cut off (ICO) is not requested from function monitoring. System voltage exceeds 8V Limp home mode is not requested from function monitoring. No loss of Synchronisation during function monitoring function monitoring.		TRUE TRUE TRUE TRUE					
			Desired lambda limitation for Bank 2 for monitoring	>	1.20044	-	CU is not in pre-drive state ECU is not in post-drive state ) Air-Fuel check is disabled for function monitorina No pending or confirmed DTCs Basic enable conditions met	-	TRUE TRUE FALSE see sheet enable tables see sheet inhibit tables					
		Path 12: Ignition angle plausibility check in function monitoring	Ignition angle value where: A: complement of "the complement of the ignition angle value"	!=	А	degrees	Ignition is ON  Engine Speed Injection cut off (ICO) is not requested Injection cut off (ICO) is not requested Injection monitoring System woltage exceeds 8V Limp home mode is not requested from function monitoring No loss of Synchronisation during function monitoring ( CEU is not in pre-drive state OR	= X= = = = = = = = = = = = = = = = = =	TRUE 1200 TRUE TRUE TRUE TRUE TRUE TRUE	- rpm	0.52	sec	continuous	1 Trip
		Path 13: Torque comparison - The difference between current torque in the function monitoring and the filtered relative permissible torque is compared with threshold.	( Difference between current torque and filtered relative permissible torque in function monitoring	>	0	%	ECU is not in post-drive state ) Air-Fuel check is disabled for function monitoring Basic enable conditions met  Ignition is ON	-	TRUE FALSE see sheet inhibit tables TRUE	-	0.52	sec	continuous	1 Trip
			for time  OR  Error sum of the relative deviation from the permissable torque in function monitoring )	>=	0.52 8	sec %*s	Injection cut off (ICO) is not requested from function monitoring Injection cut off (ICO) is not requested System voltage exceeds 8V Limp home mode is not requested from function monitoring No loss of Synchronisation during function monitoring (CU is not in pre-drive state OR ECU is not in post-drive state ) Basic enable conditions met		TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE	- - - - -				
		Path 14: The injection cut-off pattern total is evaluated by compared with the expected and actual injection cut-off pattern.	The complement of injection cut-off pattern total is not equal to the injection cut-off pattern	=	TRUE		Ignition is ON  Enaine Speed Injection out off (ICO) is not requested Injection out off (ICO) is not requested from function monitoring System voltage exceeds 8V Limp home mode is not requested from function monitoring No loss of Synchronisation during function monitoring (  ECU is not in pre-drive state OR ECU is not in post-drive state )  Air-Fuel check is disabled for function monitoring	=	TRUE  1200 TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE	rpm	0.52	sec	continuous	1 Trip

FEDBIN1	CALULEV125, FE	IS STDS: (	MISSION				MARY TABLES ECM .2088		DIAGNOST TEST GROUP: K		7	BD GROUP: KGMXOBDG0
MIL II	ime Required	Т	ıs	Enable Condition		Secondary Parameters	Threshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
$\top$			-	see sheet inhibit tables	=	Basic enable conditions met						
uous 1 Ti	sec continuou	0.52	-	TRUE	=	Ignition is ON	TRUE -		The complement of driver injection demand is not equal to the redundant driver injection demand for homogenous injection in function monitoring	Path 15: The complement check of driver injection demand for homogeneous injection, stratified injection and calculation of lost injection at dynamic load.		
			rpm	1200	>=	and Engine Speed	TRUE -	ot =	OR  The complement of driver injection demand is not equal to the redundant driver injection demand for stratified injection in function monitoring	post injection at uvilaine load.		
			į	TRUE TRUE	=	Injection cut off (ICO) is not requested Injection cut off (ICO) is not requested from function monitoring	TRUE -	ot =	OR The complement of driver injection demand is not equal to the redundant driver injection demand for calculation of post injection at dynamic in			
			-	TRUE TRUE TRUE	=	System voltage exceeds 8V Limp home mode is not requested from function monitoring No loss of Synchronisation during function			function monitoring			
			-	TRUE	=	monitoring ( ECU is not in pre-drive state						
			-	TRUE FALSE	=	OR ECU is not in post-drive state )						
			-	see sheet inhibit tables	=	Air-Fuel check is disabled for function monitoring Basic enable conditions met						
ious 1 T	sec continuou	0.52	-	TRUE	=	Ignition is ON	TRUE -	:0 =	The complement of injection timing is not equal to the redundant injection timing in function monitoring	Path 16: The complement of injection mode timing check in function monitoring.		
			rpm - -	1200 TRUE TRUE	>= = =	Engine Speed Injection cut off (ICO) is not requested Injection cut off (ICO) is not requested from function monitoring			monitoring	momonig.		
			-	TRUE TRUE TRUE	=	System voltage exceeds 8V Limp home mode is not requested from function monitoring No loss of Synchronisation during function monitoring						
			-	TRUE	=	( ECU is not in pre-drive state OR						
			-	TRUE FALSE	=	ECU is not in post-drive state ) Air-Fuel check is disabled for function						
			-	see sheet inhibit tables	=	monitoring Basic enable conditions met						
ious 1 Ti	sec continuou	0.52	•	TRUE	н	Ignition is ON	TRUE -	n =	Injection cut off mask is not equal to the injection cut off pattern total in the cylinder individual cut off array at the cylinder for homogeneous injection	Path 17: Complement check to ensure the stored injection cut off information for all cylinders for homogeneous injection, stratified injection and calculation of post injection at dynamic		
			rpm -	1200 TRUE	>= =	Engine Speed Injection cut off (ICO) is not requested	TRUE -	= e	OR Injection cut off pattern total is not equal to the complement of injection cut off pattern total in the cylinder individual cut off array at position of	load.		
			-	TRUE	=	Injection cut off (ICO) is not requested from function monitoring			stratified injection OR			
			-	TRUE	=	System voltage exceeds 8V	TRUE -	= e	Injection cut off pattern total is not equal to the complement of injection cut off pattern total in the cylinder individual cut off array at position of calculation of post injection at dynamic load			
			-	TRUE	=	Limp home mode is not requested from function monitoring No loss of Synchronisation during function monitoring						
			-	TRUE	=	( ECU is not in pre-drive state						
			-	TRUE	=	CR ECU is not in post-drive state )						
			-	FALSE	=	Air-Fuel check is disabled for function monitoring						

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1		ARY TABLES	ECM				MISSION	IS STDS:	CALULE	V125, FED	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	1	Time Required	d	MIL IIIun
							Basic enable conditions met	-	see sheet inhibit tables	-				
		Path 18:	(				All the partial injections are calculated in S0		TRUE		0.52	sec	continuous	1 Trip
		Injection cut-off pattern total is checked against the injections currently demanded from the driver for homogeneous and calculation of post injection at dynamic load												
			Driver injection demand for homogeneous injection mode	>	0	-	OR							
			(				All the partial injections are calculated in S0 and S1 (mixed timing)	=	TRUE	-				
			Injection is allowed	=	FALSE	-	Engine Speed	>=	1200	rpm				
			Injection cut-off pattern total is performed	=	TRUE	-	Injection cut off (ICO) is not requested Injection cut off (ICO) is not requested from	=	TRUE TRUE					
			individually for homogeneous injection mode )				function monitoring System voltage exceeds 8V	=	TRUE	-				
			P				Limp home mode is not requested from function monitoring	=	TRUE	-				
			OR (				No loss of Synchronisation during function monitoring	=	TRUE	-				
			Driver injection demand for calculation of post injection mode	>	0	-	ECU is not in pre-drive state	=	TRUE	-				
			Injection is allowed	=	FALSE	-	ECU is not in post-drive state	=	TRUE	-				
			Injection cut-off pattern total is performed individually for calculation of post injection mode	=	TRUE	-	Air-Fuel check is disabled for function monitoring	=	FALSE	-				
			)				Basic enable conditions met	=	see sheet inhibit tables	-				
			)						70115					
		Path 19: Injection cut-off pattern total is checked against the injections currently demanded from the driver for stratified injection	(				All the partial injections are calculated in S0 and S1	=	TRUE	-	0.52	sec	continuous	1 Tri
		modes.	Driver injection demand for stratified injection mode	>	0	-	Engine Speed	>=	1200	rpm				
			( Injection is allowed	=	FALSE	-	Injection cut off (ICO) is not requested Injection cut off (ICO) is not requested from function monitoring	=	TRUE TRUE	-				
			OR Injection cut-off pattern total is performed	=	TRUE	-	System voltage exceeds 8V Limp home mode is not requested from	=	TRUE TRUE	-				
			individually for stratified injection mode )				function monitoring No loss of Synchronisation during function monitoring	=	TRUE	-				
			)				( ECU is not in pre-drive state	=	TRUE	_				
							OR ECU is not in post-drive state	_	TRUE	_				
							) Air-Fuel check is disabled for function	_	FALSE					
							monitoring			-				
							Basic enable conditions met	=	see sheet inhibit tables	-				
		Path 20: Fault check of ECU signal input monitoring Air and fuel	Compliment of synchronous counter S0 is not equal to redundant synchronous counter S0 in	=	TRUE	-	Ignition is ON	=	TRUE	-	0.52	sec	continuous	1 Trip
			function monitoring OR				Engine Speed	>=	400	rpm				
			Compliment of synchronous counter S1 is not equal to redundant synchronous counter S1 in function monitoring	=	TRUE	-	Injection cut off (ICO) is not requested	=	TRUE	-				
			OR				Injection cut off (ICO) is not requested from	=	TRUE	-				
			Difference between expected values for the number of calls of synchronous counter S0 frames in function monitoring based on the	>	1	count	function monitoring System voltage exceeds 8V	=	TRUE	-				
			course of engine speed and previous synchronous counter S0											
			OR				Limp home mode is not requested from function monitoring	=	TRUE	-				
			Difference between expected values for the number of calls of synchronous counter S1 frames in function monitoring based on the course of engine speed and previous synchronous counter S1	>	1	count	No loss of Synchronisation during function monitoring	=	TRUE	-				
							( ECU is not in pre-drive state	=	TRUE					
	1		ĺ				OR	l -			1			l

GROUP: KGMXOBDG	607		TEST GROUP: N		MARY TABLES				E	MISSION	NS STDS: (	CALULEV125, FE	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	т	ime Required	MIL III
							ECU is not in post-drive state	-	TRUE	-			
							) Air-Fuel check is disabled for function	=	FALSE	_			
							monitoring Basic enable conditions met	=	TRUE	-			
		Path 21: This function performs a plausibility check of the mixture control for GDI systems and safeguards the fuel mass.	Expected value for relative fuel mass in function monitoring (GDI)	>	(A*B) + C	%	Ignition is ON	=	TRUE	-	0.512	sec continuou	ıs 1 Tı
			where A: Relative fuel mass				Engine Speed Injection cut off (ICO) is not requested	>=	1200 TRUF	rpm			
			B: Factor maximum tolerance in check of bank	=	1.101563	-	Injection cut off (ICO) is not requested from	=	TRUE	-			
			selective fuel in function monitoring (GDI) C: Offset tolerance in check of fuel in function	=	10.5	%	function monitoring System voltage exceeds 8V	=	TRUE	-			
			monitoring (GDI) OR				Limp home mode is not requested from	=	TRUE	-			
			Expected value for relative fuel mass in function	<	(A*B) - C	%	function monitoring  No loss of Synchronisation during function	=	TRUE	_			
			monitoring (GDI)		, , -		monitoring						
			A: Relative fuel mass B: Factor minimum tolerance in check of bank		0.898438		ECU is not in pre-drive state	=	TRUE	-			1
			selective fuel in function monitoring (GDI)  C: Offset tolerance in check of fuel in function		10.5	%	EQUI:		TRUE				
			monitoring (GDI)		10.5	%	ECU is not in post-drive state	=	IRUE	-			
							) Air-Fuel check is disabled for function	=	FALSE	-			
							monitoring Basic enable conditions met	=	see sheet enable	-			
									tables				
		Path 22:	After start adaption factor in function monitoring	>	1.01563	deg C	Ignition is ON	-	TRUE	-	0.512	sec continuou	ıs 1 T
		Control fault check of mixture management for GDI.	(see Look-Up-Table #1) OR				Engine Speed	>=	1200	rpm			
			( Additive adaptive correction of the relative fuel	>	7.078	%	Injection cut off (ICO) is not requested Injection cut off (ICO) is not requested from	=	TRUE TRUE	-			
			amount on GDI path in function monitoring				function monitoring System voltage exceeds 8V	=	TRUE	-			
			Additive adaptive correction of the relative fuel amount on GDI path bank 2 in function	>	7.078	%	Limp home mode is not requested from function monitoring	=	TRUE	-			
			monitoring )				No loss of Synchronisation during function	=	TRUE	-			
			OR				monitoring (						
			( lambda collector output in function monitoring	>	1.28006	-	ECU is not in pre-drive state OR	=	TRUE	-			
			OR lambda collector output bank 2 in function	>	1.28006	-	ECU is not in post-drive state	=	TRUE	-			
			monitoring		1.20000		Air-Fuel check is disabled for function	_	FALSE				
							monitoring			-			
			OR				Basic enable conditions met	=	see sheet enable tables	-			
			( Fuel mixture adaption for GDI injection path in function monitoring (see Look-Up-Table #2)	>	1.250061	rpm							
			OR Fuel mixture adaption for GDI injection path bank 2 in function monitoring (see Look-Up-Table #2)	>	1.250061	rpm							
			)										
			OR (										
			( Relative fuel part of the purge control in function monitoring	<	(a*b) - c								
			where:										
			a : Relative fuel mass on GDI in function monitoring										
			c : Factor tolerance in check of canister purge in function monitoring		-0.090942	-							
			d : Offset tolerance in check of canister purge in function monitoring		6	%							
			) OR										
	ı	1	Ċ		(a*b) - c								
			Relative fuel part of the purge control bank 2 in function monitoring	<	(a b) - c								

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1		IARY TABLES	ECM			EMISSION	IS STDS: C	ALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters	Enable Condition	าร	Tin	ne Required	MIL IIIum.
			a : Relative fuel mass on GDI in function monitoring for Bank 2 b : Factor tolerance in check of canister purge in function monitoring c : Offset tolerance in check of canister purge in		-0.090942 6	- %						
			function monitoring ) ) OR (		· ·	,,						
			( Engine Speed Fuel evaporated mass of the engine oil in function monitoring ) ) OR	>= <	1400 -0.094	rpm %						
			Engine Speed Fruel evaporated mass of the engine oil in function monitoring	< <	1400 -0.609	rpm %						
			OR The complement of cylinder individual Atkinson fuel amount is not equal to the redundant cylinder individual Atkinson fuel amount in function monitoring	=	TRUE	-						
			OR Mixture adaption factor for Atkinson gasoline backflow in function monitoring	>	1.98999	-						
		Path 23: Monitoring of the electronic transmission range select (ETRS) system (with irreversible error reaction of Level 2)	Level 1 request to apply EPB invalid	=	TRUE	-	Ignition is ON	= TRUE	-	0.04	sec continuous	1 Trip
			for counts means: ( Level 1 request to apply EPB	>=	50 TRUE		( ECU is not in pre-drive state OR ECU is not in post-drive state	= TRUE = TRUE	-			
			Vehicle speed for counts	>= >=	3.11	mph -	Basic enable conditions met	= see sheet enable tables	-			
			OR Change of direction request from level 1 invalid for counts OR	= >=	TRUE 50	:						
			Missed level 1 request to apply EPB for counts means:	>=	TRUE 50	-						
			Level 1 request to apply EPB Level 2 request to apply EPB ) OR		FALSE TRUE	-						
			Park engagement and EPB engagement error set for counts	= >=	TRUE 50	-						
I			means: ( Valid park range request Park engaged by TCU	=	TRUE FALSE	-						
			Level 1 request to apply EPB ) for counts OR	= >=	FALSE 150	-						
			Unintended vehicle movement despite park request for counts	= >=	TRUE 50	-						
			OR Unintended leave of park state by the TCU despite park request for counts	= >=	TRUE	-						
			OR 'Shift away from park range' request from level 1 invalid	=	TRUE 50	-						
		Path 24:	for counts  Change of direction request from level 1 invalid	>=	TRUE	-	Ignition is ON	= TRUE		0.04	sec continuous	s 1 Trip
		Monitoring of the electronic transmission range select (ETRS) system (with reversible error reaction of Level 2)	OR		¥-		(					

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: N	TIC SUMMARY TABLES ECM KGMXV04.2088		EMISSION	S STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
			Shift away from park range' request from level 1 invalid	= TRUE -	ECU is not in pre-drive state  OR  ECU is not in post-drive state )  Basic enable conditions met	= TRUE -  = TRUE -  = see sheet enable - tables		
ECM Programing Errors	P0633	Security key not programmed	Immobilizer secret key is not programmed	= TRUE -	( Innition is ON OR Starter control power mode is not in Power OFF mode Immobilizer is deactivated Manufacturer Enable Counter used to automatically arm Seed & Key Basic enable conditions met	= FALSE	Execution continuous Rate	no MIL
	P1631	Incorrect password	An incorrect pre-release password	= TRUE -	( Ignition is ON OR Starter control power mode is not in Power OFF mode ) Immobilizer is deactivated Secret key is programmed Basic enable conditions met	= FALSE - = TRUE - = FALSE - = TRUE - = See sheet enable tables	Execution continuous Rate	no MIL
	P0513	Incorrect response from Immobiliser for the challenge send by ECM	An Incorrect response is received from Immobiliser for the challenge send by ECM	= TRUE -	( Ignition is ON OR Starter control power mode is not in Power OFF mode ) Immobilizer is deactivated Secret key is programmed Basic enable conditions met	= FALSE - = TRUE - = FALSE - = TRUE - = TRUE - see sheet enable tables	Execution continuous Rate	no MIL
	P1649	Security Code not programmed	Immobilizer Security code is not programmed	= TRUE -	( Ignition is ON OR Starter control power mode is not in Power OPF mode ) Immobilizer is deactivated Global A Immo 1=GlobalA environment Manufacturer Enable Counter used to automatically arm Seed & Key Basic enable conditions met	= FALSE -  = TRUE -  = FALSE -  TRUE -  = 0 -  = see sheet enable tables	Execution continuous Rate	no MIL
	P0602	Diagnosis of Code Variation of Start Calibration	Dataset is not valid	= TRUE -	Ignition is ON  Counter for proc to be executed alternatively Basic enable conditions met	= TRUE -  = FALSE -  = see sheet enable - tables	once per driving cycle (during inittalization)	5 Trips
	P0630	Monitoring of Vehicle Identification Number	VIN Not programmed : VIN contains 0xFF in all the 17 bytes	= TRUE -	Ignition is ON VIN buffer is read successfully from EEP Counter for price to be executed alternatively Basic enable conditions met	= TRUE - = TRUE - = FALSE - = see sheet enable - tables	continuous	1 Trip

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1		MARY TABLES 4.2088	ECM			E	MISSION	IS STDS:	CALUL	EV125, FEC	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s		Time Requi	red	MIL IIIum.
ECM Ignition Accessory Input Pin	P2538	Monitoring of T15 handling with ACC-Pin and T15-Pin for Accessory Position Circuit High fault	Terminal 15 status  Wake up status for accessory pin (Application Supervisor)  CAN message: CAN status	= > =	TRUE 0 CRANKREQUEST	- - -	No pending or confirmed DTCs  Basic enabling conditions are met	=	see sheet enable tables see sheet inhibit tables	-	1	sec	once per driving cycle	2 Trips
	P2537	Monitoring of T15 handling with ACC-Pin and T15-Pin for Accessory Position Circuit Low fault	Terminal 15 status  Wake up status for accessory pin (Application Supervisor)  CAN message: CAN status	=	TRUE 0 RUN	- - -	No pending or confirmed DTCs  Basic enabling conditions are met	=	see sheet enable tables see sheet inhibit tables	-	1	sec	once per driving cycle	-
		Monitoring of the Accessory Position Circuit CAN Message	Terminal 15 status  Wake up status for accessory pin (Application Supervisor)  Counter for power mode diagnostics: message received	=	TRUE 0 0	- - -	No pending or confirmed DTCs Basic enabling conditions are met	=	see sheet enable tables see sheet inhibit tables	-	10	counts	once per driving cycle	-
ECM Ignition On/Start Input Pin	P2535	Monitoring of T15 handling with ACC-Pin and T15-Pin for Accessory Position Circuit Low fault	Terminal 15 status  Wake up status for accessory pin (Application Supervisor)  CAN message: CAN status	=	TRUE 0 CRANKREQUEST	- - -	No pending or confirmed DTCs  Basic enabling conditions are met	=	see sheet enable tables see sheet inhibit tables	-	1	sec	once per driving cycle	1 Trip
	P2534	Monitoring of T15 handling with ACC-Pin and T15-Pin for Accessory Position Circuit Low fault	Terminal 15 status  Wake up status for accessory pin (Application Supervisor)  CAN message: CAN status	= > =	FALSE 0 RUN	- -	No pending or confirmed DTCs  Basic enabling conditions are met	=	see sheet enable tables see sheet inhibit tables	-	1	sec	once per driving cycle	1 Trip
Target Wheel Adaptation for Misfire Detection	P0315	Indicates that the engine has experienced a problem with the crankshaft position sensor and/or the crankshaft sensor wheel by monitoring the adapted crankshaft segment time value against a calibrated threshold	Method 1: Median segment time adaptation value from test frame  OR  Method 1: Median segment time adaptation value in the alternative segment position (catalyst heating) from test frame	>	1.199951 3.999939	degrees	Engine speed  Engine speed  Engine coolant temperature	< , < , < , < , < , < , < , < , < , <	3000 39.96	rpm rpm deg C			Every 11th segment time adaptation sample	1 Trip
			where [One test frame defined by: Segment time adaptation sample counts	=	11	-	Rough road detection is not active (means: Average wheel acceleration rear axle	= <	TRUE 0	- m/(s^2)				
			(sample means: Current segment time adaptation value (means: Segment time ratio where [A] Modelled segment time [B] Measured segment time Filtered for N camshaft revolutions where	= = =	measured parameter [AVIB] measured parameter measured parameter	ь hs hs	OR Average wheel acceleration front axle) Traction or electronic stability control torque intervention is not active Calculated EPM seament time is valid Half-engine mode state is not active Half-engine mode state is not active Overrunfuel cut-off is active Seament time adaptation is not complete No pending or confirmed DTCs Basic enable conditions met	V = = = = = = =	0 TRUE TRUE TRUE TRUE TRUE TRUE See sheet inhibit tables see sheet enable	m/(s^2)				
			(N where  A  Filter factor lower limit  B  Filter factor upper limit  C  Filter factor slope ))) for Maximum adaptation value threshold exceedance counter		(ln([A]/[B]))/(ln[C]) 0.0500031 0.1999969 0.899939	Camshaft revolutions events			tables					
			Method 2: Difference between the maximum and minimum filtered ratios of the modelled to measured segment time during one sample OR	>	0.399933	degrees							Every segment time adaptation sample	1 Trip

OBD GROUP: KGMXOBDO	307		DIAGNOS TEST GROUP: 1		MARY TABLES 4.2088	ECM			E	MISSION	S STDS: C	ALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	<b>.</b>	Ti	me Required	MIL IIIum.
			Method 2: Difference between the maximum and minimum filtered ratios of the modelled to measured segment time in the alternative segment position (catalyst heating) during one sample		1.799927	degrees							
			where (sample means: Current segment time adaptation value (means: Segment time ratio	_	measured parameter [A]/[B]	-							
			where [A] Modelled segment time	=	measured parameter	μs							
			[B] Measured segment time Filtered for N camshaft revolutions	=	measured parameter	μs							
			where (N	=	$(\ln([A]/[B]))/(\ln[C])$	Camshaft revolutions							
			where [A] Filter factor lower limit [B] Filter factor upper limit [C] Filter factor slope)))]	= = =	0.0500031 0.1999969 0.8999939								
			for Segment time ratio difference threshold exceedance counter	≥	3	events							
			Method 3: Difference between the maximum and minimum segment time adaptation values of the inner five adaptation samples	>	0.119934	degrees						Every 11tl segment tin adaptation sample	ne
			OR  Method 3: Difference between the maximum and minimum segment time adaptation values of the inner five adaptation samples in the alternative segment position (catalvst heating)	>	[A] x ([B] / [C])								
			where [A] Maximum spread threshold of the inner five adaptation values in the standard segment		0.119934	degrees							
			position [B] Standard segment position length [C] Alternative segment position length and		90 90	dea KW deg KW							
			(sample means: Current segment time adaptation value (means:		measured parameter	-							
			Segment time ratio where [A] Modelled segment time [B] Measured segment time Filtered for	= =	[A]/[B] measured parameter measured parameter	us us							
			N camshaft revolutions Where Where (N	=	(ln([A]/[B]))/(ln[C])	Camshaft revolutions							
			where [A] Filter factor lower limit [B] Filter factor upper limit [C] Filter factor slope))))	= =	0.0500031 0.1999969 0.8999939								
			for Inner five segment time adaptation value difference threshold exceedance counter	≥	3	events							
High Speed CAN Bus	U0073	Diagnosis of Bus off error for High Speed CAN controller	Bus off error is detected at High Speed CAN controller	=	TRUE	·	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	= =	TRUE see sheet inhibit tables see sheet enable	-	2	sec continuous	1 Trips
									tables				
High Speed CAN Bus	U0101	Detects when the time since the last message from the Transmission control module for the frame ETEL_Transmission_General_Status was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Transmission control module was received is greater than a supervision timeout value	=	TRUE	-	Ignition is ON	=	TRUE	-	1	sec continuou	s 1 Trip
		LII I E					Basic enable conditions met	=	see sheet enable tables	-			

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: N	TIC SUMMARY TABLES ECM		EMISSIONS	S STDS: CALULEV125. FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	U0101	Detects when the time since the last message from the Transmission control module for the frame PPEI_Trans_General_Status_1_Rx was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Transmission control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	1 sec continuous	1 Trip
	U0101	Detects when the time since the last message from the Transmission control module for the frame PPEL_Trans_General_Status_2. Rx was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Transmission control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	1 Trip
	U0101	Detects when the time since the last message from the Transmission control module for the frame	Time since last message from the Transmission control module was received is greater than a	= TRUE -	Basic enable conditions met	= see sheet enable - tables  = TRUE -	1.25 sec continuous	1 Trip
		PPE_Trans_General_Status_3_Rx was received is greater than the Supervision timeout value for a calibrated period of time	supervision timeout value		Basic enable conditions met	= see sheet enable - tables		
	U0101	Detects when the time since the last message from the Transmission control module for the frame PPEI_Trans_General_Status_4_HS was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Transmission control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	1 Trip
		une			Basic enable conditions met	= see sheet enable - tables		
	U0101	Detects when the time since the last message from the Transmission control module for the frame PPEL Transmission, Opt. Rot. Stat was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Transmission control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable -	1 sec continuous	1 Trip
	U0101	Detects when the time since the last message from the	Time since last message from the Transmission	= TRUE -	Ignition is ON	tables	1 sec continuous	1 Trip
		Transmission control module for the frame PTEI_Hybrid_Trans_Status_2 was received is greater than the Supervision timeout value for a calibrated period of time	control module was received is greater than a supervision timeout value		Basic enable conditions met	= see sheet enable - tables		
	U0101	Detects when the time since the last message from the Transmission control module for the frame PTEI_Trans_General_Status_2 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Transmission control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	1 Trip
					Basic enable conditions met	= see sheet enable - tables		
	U0101	Detects when the time since the last message from the Transmission control module for the frame PTEL_Trans_Ratio_Status was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Transmission control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable -	1 sec continuous	1 Trip
				70.45		tables		
	U0101	Detects when the time since the last message from the Transmission control module for the frame PTEI_Transmission_Torque_Request was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Transmission control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable -	1 sec continuous	1 Trip
	U0102	Detects when the time since the last message from the	Time since last message from the Transfer Case	= TRUE -	Ignition is ON	tables  = TRUE -	1 sec continuous	2 Trips
	00102	Detects when the time since the last message from the Transfer Case Control Module for the frame PPEI_Secondary_Axle_Status was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Transfer Case Control Module was received is greater than a supervision timeout value	= IRUE -	rgimudi is un	= IRUE -	1 sec continuous	∠ inps

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM (GMXV04.2088		EMISSIONS	STDS: CALULEV125, FED	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					Basic enable conditions met	= see sheet enable - tables		
	U0104	Detects when the time since the last message from the Cruise Control Module for the frame Adaptive, Cruise, Disp, Stat, HS was received is greater than the Supervision timeout value for a calibrated period of time		= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	no MIL
					Basic enable conditions met	= see sheet enable - tables		
	U0104	Detects when the time since the last message from the Cruise Control Module for the frame PPEI_Adaptive_Cruise_AM_ITq_Req was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Cruise Control Module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	no MIL
		une			Basic enable conditions met	= see sheet enable - tables		
	U0129	Detects when the time since the last message from the Brake system control module "A" for the frame Artillock, Brake, and T.C. Status, I-B was received is greater than the Supervision timeout value for a calibrated period of	Time since last message from the Brake system control module "A" was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	2 Trips
		time		-	Basic enable conditions met	= see sheet enable - tables		
	U0129	Detects when the time since the last message from the Brake system control module "A" for the frame Brake, Pedal, Driver, Status, HS was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Brake system control module "A" was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	2 Trips
					Basic enable conditions met	= see sheet enable - tables		
	U0129	Detects when the time since the last message from the Brake system control module "A" for the frame Electric, Park, Brake, Status, HS was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Brake system control module "A" was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	2 Trips
					Basic enable conditions met	= see sheet enable - tables		
	U0129	system control module "A" for the frame PPEI_Chassis_Eng_Torque_Req_1 was received is greater than the Supervision timeout value for a calibrated period of	Time since last message from the Brake system control module "A" was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	2 Trips
		time			Basic enable conditions met	= see sheet enable - tables		
	U0129	Detects when the time since the last message from the Brake system control module "A" for the frame PPEL Chassis_General_Status_1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Brake system control module "A" was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	2 Trips
					Basic enable conditions met	= see sheet enable - tables		
	U0129	Detects when the time since the last message from the Brake system control module "A" for the frame PPEL Chassis, General, Status, 2 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Brake system control module "A" was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	2 Trips
					Basic enable conditions met	= see sheet enable - tables		
	U0129	Detects when the time since the last message from the Brake system control module 'A' for the frame PPEL Driven, Whl, Rotational, Stat was received is greater than the Supervision timeout value for a calibrated period of	Time since last message from the Brake system control module "A" was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	2 Trips
		time			Basic enable conditions met	= see sheet enable - tables		

D GROUP: KGMXOBDO	307		DIAGNOS I TEST GROUP: N	TIC SUMMARY TABLES ECM (GMXV04.2088		EMISSIONS	STDS: CALULEV125, FED-	)BIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIu
	U0129	Detects when the time since the last message from the Brake system control module "A" for the frame PPEI_Driver_Command_Brake_Status was received is greater than the Supervision timeout value for a calibrated	Time since last message from the Brake system control module "A" was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	2 Trip
		period of time			Basic enable conditions met	= see sheet enable - tables		
	U0129	Detects when the time since the last message from the Brake system control module "A" for the frame PPEI_Long_Lat_Sensor_Data_HS was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Brake system control module "A" was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	2 Tı
		une			Basic enable conditions met	= see sheet enable - tables		
	U0129	Detects when the time since the last message from the Brake system control module 'A' for the frame PPEI, NonDrivn, WhI, RotationI, Stat was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Brake system control module "A" was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	2 Tı
		une			Basic enable conditions met	= see sheet enable - tables		
	U0140	Detects when the time since the last message from the Body control module for the frame Body_Information_2_HS was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	1 T
		campated period of time			Basic enable conditions met	= see sheet enable - tables		
	U0140	Detects when the time since the last message from the Body control module for the frame Body_Information_4_HS was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	1
					Basic enable conditions met	= see sheet enable - tables		
	U0140	Detects when the time since the last message from the Body control module for the frame Body_Information_HS was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	1
					Basic enable conditions met	= see sheet enable - tables		
	U0140	Detects when the time since the last message from the Body control module for the frame Exterior_Lighting_HS was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -	2.5 sec continuous	1
					basic enable conditions met	tables		
	U0140	Detects when the time since the last message from the Body control module for the frame Immobilizer_Identifier_HS was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	1
					Basic enable conditions met	= see sheet enable - tables		
	U0140	Detects when the time since the last message from the Body control module for the frame Lighting, Customization, Rqst_1_HS was received is greater than the Supervision timeout value for a calibrated period of	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	1
		time			Basic enable conditions met	= see sheet enable - tables		
	U0140	Detects when the time since the last message from the Body control module for the frame PPEI_Brake_Apply_Status was received is greater than the Supervision timeout value for a	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	1
		calibrated period of time			Basic enable conditions met	= see sheet enable - tables		

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: N	FIC SUMMARY TABLES ECM		EMISSIONS	S STDS: CALULEV125. FED	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	U0140	Detects when the time since the last message from the Body control module for the frame PPEL Climate, System_Gen_Info2 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	2.5 sec continuous	1 Trip
	U0140	Detects when the time since the last message from the Body control module for the frame PPEL Cruise Control, Sw. Status was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	1 Trip
	110440		To a local de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction de la contraction d	TOUS	Basic enable conditions met	= see sheet enable - tables		4 Tele
	U0140	Detects when the time since the last message from the Body control module for the frame PPEI_Gateway_LS_General_Info was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable -	1 sec continuous	1 Trip
					Basic chable conditions met	tables		
	U0140	Detects when the time since the last message from the Body control module for the frame PPEI_Platform_Configuration_Data was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	2.5 sec continuous	1 Trip
					Basic enable conditions met	= see sheet enable - tables		
	U0140	Detects when the time since the last message from the Body control module for the frame PPEI_Platform_Eng_Cntfl_Req_2 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1.25 sec continuous	1 Trip
					Basic enable conditions met	= see sheet enable - tables		
	U0140	Detects when the time since the last message from the Body control module for the frame PPEI_Platform_Eng_Cntrl_Requests was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	1 Trip
					Basic enable conditions met	= see sheet enable - tables		
	U0140	Detects when the time since the last message from the Body control module for the frame PPEI_Platform_General_Status was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	1 Trip
					Basic enable conditions met	= see sheet enable - tables		
	U0140	Detects when the time since the last message from the Body control module for the frame PPEI_Steering. Wheel_Angle was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	1 Trip
					Basic enable conditions met	= see sheet enable - tables		
	U0140	Detects when the time since the last message from the Body control module for the frame PPEI_VIN_Digits_10_to_17 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Body control module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	2.5 sec continuous	1 Trip
					Basic enable conditions met	= see sheet enable - tables		
	U0146	Detects when the time since the last message from the Gateway "A" for the frame PPEL_CGM_General_Status_2_HS was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Gateway "A" was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	2.5 sec continuous	2 Trips

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES EC (GMXV04.2088	М	EMISSIONS	STDS: CALULEV125, FEE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					Basic enable conditions met	= see sheet enable - tables		
	U0146	Detects when the time since the last message from the Gateway "A" for the frame PPELCGM_Ceneral_Status_HS was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Gateway "A" was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	2 Trips
					Basic enable conditions met	= see sheet enable - tables		
	U023A	Detects when the time since the last message from the Image Processing Module "A" for the frame PPEL Collision_Prep_Req_Status was received is greater than the Supervision timeout value for a calibrated period of	Time since last message from the Image Processing Module "A" was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	no MIL
		time			Basic enable conditions met	= see sheet enable - tables		
High Speed CAN Bus	U0402	Detects when wrong data length code received by the frame ETEL_Transmission_General_Status from Transmission Control Module	Wrong data length code received by the frame ETEI_Transmission_General_Status from Transmission Control Module	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	1 Trip
					Basic enable conditions met	= see sheet enable - tables		
	U0402	Detects when wrong data length code received by the frame PPEL_Trans_General_Status_1_Rx from Transmission Control Module	Wrong data length code received by the frame PPEI_Trans_General_Status_1_Rx from Transmission Control Module	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	1 Trip
					Basic enable conditions met	= see sheet enable - tables		
	U0402	Detects when wrong data length code received by the frame PPEI_Trans_General_Status_2_Rx from Transmission Control Module	Wrong data length code received by the frame PPEI_Trans_General_Status_2_Rx from Transmission Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	1 Trip
	U0402	Detects when wrong data length code received by the frame PPEI_Trans_General_Status_3_Rx from Transmission Control Module	Wrong data length code received by the frame PPEI_Trans_General_Status_3_Rx from Transmission Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable -	0.5 sec continuous	1 Trip
						tables		
	U0402	Detects when wrong data length code received by the frame PPEL_Trans_General_Status_4_HS from Transmission Control Module	Wrong data length code received by the frame PPEI_Trans_General_Status_4_HS from Transmission Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= IRUE -  = see sheet enable - tables	0.5 sec continuous	1 Trip
	U0402	Detects when wrong data length code received by the frame PPEI_Transmission_Otpt_Rot_Stat from Transmission	Wrong data length code received by the frame PPEI_Transmission_Otpt_Rot_Stat from	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	1 Trip
		Control Module	Transmission Control Module		Basic enable conditions met	= see sheet enable - tables		
	U0402	Detects when wrong data length code received by the frame PTEI_Hybrid_Trans_Status_2 from Transmission Control	Wrong data length code received by the frame PTEI_Hybrid_Trans_Status_2 from Transmission	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	1 Trip
		Module .	Control Module		Basic enable conditions met	= see sheet enable - tables		
	U0402	Detects when wrong data length code received by the frame PTEI_Trans_General_Status_2 from Transmission Control Module	Wrong data length code received by the frame PTEI_Trans_General_Status_2 from Transmission Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable -	0.5 sec continuous	1 Trip
	U0402	Detects when wrong data length code received by the frame	Wrong data length code received by the frame	= TRUE -	Ignition is ON	tables = TRUE -	0.5 sec continuous	1 Trip
	00402	PTEL_Trans_Ratio_Status from Transmission Control Module	Wholing data length code received by the frame PTEL_Trans, Ratio_Status from Transmission Control Module	- 1806 -	Basic enable conditions met	= see sheet enable - tables	5.5 Sec Cornaluous	Trip

OBD GROUP: KGMXOBDG07			DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM (GMXV04.2088		EMISSIONS	STDS: CALULEV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	U0402	Detects when wrong data length code received by the frame PTEL_Transmission_Torque_Request from Transmission Control Module	Wrong data length code received by the frame PTEL_Transmission_Torque_Request from Transmission Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	1 Trip
	U0403	Detects when wrong data length code received by the frame PPEI_Secondary_Axle_Status from Transfer Case Control Module	Wrong data length code received by the frame PPEL_Secondary_Axle_Status from Transfer Case Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable tables	0.5 sec continuous	2 Trips
	U0405	Detects when wrong data length code received by the frame Adaptive_Cruise_Disp_Stat_HS from Cruise Control Module	Wrong data length code received by the frame Adaptive_Cruise_Disp_Stat_HS from Cruise Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	no MIL
	U0405	Detects when wrong data length code received by the frame PPEI_Adaptive_Cruise_Axl_Trq_Req from Cruise Control Module	Wrong data length code received by the frame PPEL_Adaptive_Cruise_Axl_Trq_Req from Cruise Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	no MIL
	U0418	Detects when wrong data length code received by the frame Antilock_Brake_and_TC_Status_HS from Brake System Control Module "A"	Wrong data length code received by the frame Antilock_Brake_and_TC_Status_HS from Brake System Control Module "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips
	U0418	Detects when wrong data length code received by the frame Brake_Pedal_Driver_Status_HS from Brake System Control Module "A"	Wrong data length code received by the frame Brake_Pedal_Driver_Status_HS from Brake System Control Module *A*	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips
	U0418	Detects when wrong data length code received by the frame Electric_Park_Brake_Status_HS from Brake System Control Module "A"	Wrong data length code received by the frame Electric, Park, Brake, Status, HS from Brake System Control Module "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips
	U0418	Detects when wrong data length code received by the frame PPEI_Chassis_Eng_Torque_Req_1 from Brake System Control Module "A"	Wrong data length code received by the frame PPEI_Chassis_Eng_Torque_Req_1 from Brake System Control Module "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips
	U0418	Detects when wrong data length code received by the frame PPEI_Chassis_General_Status_1 from Brake System Control Module "A"	Wrong data length code received by the frame PPEI_Chassis_General_Status_1 from Brake System Control Module "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips
	U0418	Detects when wrong data length code received by the frame PPEI_Chassis_General_Status_2 from Brake System Control Module "A"	Wrong data length code received by the frame PPEI_Chassis_General_Status_2 from Brake System Control Module "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips
	U0418	Detects when wrong data length code received by the frame PPEI_Driven_WhI_Rotational_Stat from Brake System Control Module "A"	Wrong data length code received by the frame PPEL_Driven_WhI_Rotational_Start from Brake System Control Module "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips
	U0418	Detects when wrong data length code received by the frame PPEI_Driver_Command_Brake_Status from Brake System Control Module "A"	Wrong data length code received by the frame PPEL_Driver_Command_Brake_Status from Brake System Control Module "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips

OBD GROUP: KGMXOBDGO	)7		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM KGMXV04.2088		EMISSIONS	STDS: CALULEV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	U0418	Detects when wrong data length code received by the frame PPEI_Long_Lat_Sensor_Data_HS from Brake System Control Module "A"	Wrong data length code received by the frame PPEI_Long_Lat_Sensor_Data_HS from Brake System Control Module "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	0.5 sec continuous	2 Trips
	U0418	Detects when wrong data length code received by the frame PPEL NonDrivn_Whl_Rotationl_Stat from Brake System Control Module "A"	Wrong data length code received by the frame PPEI_NonDrivn_WhI_RotationI_Stat from Brake System Control Module "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable tables	0.5 sec continuous	2 Trips
	U0422	Detects when wrong data length code received by the frame Body_Information_2_HS from Body Control Module	Wrong data length code received by the frame Body_Information_2_HS from Body Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable tables	0.5 sec continuous	1 Trip
	U0422	Detects when wrong data length code received by the frame Body_Information_4_HS from Body Control Module	Wrong data length code received by the frame Body_Information_4_HS from Body Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	0.5 sec continuous	1 Trip
	U0422	Detects when wrong data length code received by the frame Body_Information_HS from Body Control Module	Wrong data length code received by the frame Body_Information_HS from Body Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	0.5 sec continuous	1 Trip
	U0422	Detects when wrong data length code received by the frame Immobilizer_Identifier_HS from Body Control Module	Wrong data length code received by the frame Immobilizer_Identifier_HS from Body Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	0.5 sec continuous	1 Trip
	U0422	Detects when wrong data length code received by the frame Lighting, Customization_Rqst_1_HS from Body Control Module	Wrong data length code received by the frame Lighting_Customization_Rqst_1_HS from Body Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	0.5 sec continuous	1 Trip
	U0422	Detects when wrong data length code received by the frame PPEI_Brake_Apply_Status from Body Control Module	Wrong data length code received by the frame PPEI_Brake_Apply_Status from Body Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	0.5 sec continuous	1 Trip
	U0422	Detects when wrong data length code received by the frame PPEI_Climate_System_Gen_Info2 from Body Control Module	Wrong data length code received by the frame PPEI_Climate_System_Gen_Info2 from Body Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	0.5 sec continuous	1 Trip
	U0422	Detects when wrong data length code received by the frame PPEI_Cruise_Control_Sw_Status from Body Control Module	Wrong data length code received by the frame PPEI_Cruise_Control_Sw_Status from Body Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable tables -	0.5 sec continuous	1 Trip
	U0422	Detects when wrong data length code received by the frame PPEI_Gateway_LS_General_Info from Body Control Module	Wrong data length code received by the frame PPEI_Gateway_LS_General_Info from Body Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable tables	0.5 sec continuous	1 Trip
	U0422	Detects when wrong data length code received by the frame PPEI_Platform_Configuration_Data from Body Control Module	Wrong data length code received by the frame PPEI_Platform_Configuration_Data from Body Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	0.5 sec continuous	1 Trip

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: P	TIC SUMMARY TABLES EC	М	EMISSION	NS STDS: CALULEV125, FED	RIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	U0422	Detects when wrong data length code received by the frame PPEL_Platform_Eng_Cntrl_Req_2 from Body Control Module	Wrong data length code received by the frame PPEI_Platform_Eng_Cntrl_Req_2 from Body Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable tables	0.5 sec continuous	1 Trip
	U0422	Detects when wrong data length code received by the frame PPEL_Platform_Eng_Cntrl_Requests from Body Control Module	Wrong data length code received by the frame PPEI_Platform_Eng_Cntrl_Requests from Body Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable tables	0.5 sec continuous	1 Trip
	U0422	Detects when wrong data length code received by the frame PPEI_Platform_General_Status from Body Control Module	Wrong data length code received by the frame PPEI_Platform_General_Status from Body Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable tables	0.5 sec continuous	1 Trip
	U0422	Detects when wrong data length code received by the frame PPEI_Steering_Wheel_Angle from Body Control Module	Wrong data length code received by the frame PPEI_Steering_Wheel_Angle from Body Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable tables	0.5 sec continuous	1 Trip
	U0422	Detects when wrong data length code received by the frame PPEI_VIN_Digits_10_to_17 from Body Control Module	Wrong data length code received by the frame PPEI_VIN_Digits_10_to_17 from Body Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable tables	0.5 sec continuous	1 Trip
	U0447	Detects when wrong data length code received by the frame PPEI_CGM_General_Status_2_HS from Gateway "A"	Wrong data length code received by the frame PPEI_CCM_General_Status_2_HS from Gateway "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable tables	0.5 sec continuous	2 Trips
	U0447	Detects when wrong data length code received by the frame PPEI_CGM_General_Status_HS from Gateway "A"	Wrong data length code received by the frame PPEI_CGM_General_Status_HS from Gateway "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips
	U053B	Detects when wrong data length code received by the frame PPEI_Collision_Prep_Req_Status from Image Processing Module "A"	Wrong data length code received by the frame PPEI_Collision_Prep_Req_Status from Image Processing Module "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable tables	0.5 sec continuous	no MIL
owertrain Expansion CAN Bus	U0074	Diagnosis of Bus off error for Powertrain Expansion CAN controller	Bus off error is detected at Powertrain Expansion CAN controller	= TRUE -	Ignition is ON  No pending or confirmed FIDs  Basic enable conditions met	= TRUE -  = see sheet inhibit - tables = see sheet enable - tables	2 sec continuous 1	1 Trips
owertrain Expansion CAN Bus	U18A7	Detects when the time since the last message from the DC to DC Converter Control Module "A" for the frame PPEI DC_Cnv_Int, Health Stat, PE was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the DC to DC Converter Control Module 'A' was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable tables	1 sec continuous	2 Trips
	U18A7	Detects when the time since the last message from the DC to DC Converter Control Module "A" for the frame PPEL DC_CON_General_Status_PE was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the DC to DC Converter Control Module 'A' was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	1 sec continuous	2 Trips

OBD GROUP: KGMXOBDO	607		DIAGNOST TEST GROUP: P	TIC SUMMARY TABLES ECM (GMXV04.2088		EMISSIONS	STDS: CALULEV125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
Powertrain Expansion CAN Bus	U18D3	Detects when the time since the last message from the Transmission Range Selector Control Module on Powertrain Expansion CAN Bus for the frame SIB_Input_Sensor_State_Scndry_PE was received is greater than the Supervision timeout value for a calibrated period of	Time since last message from the Transmission Range Selector Control Module on Powertrain Expansion CAN Bus was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	2 Trips
		time		-	Basic enable conditions met	= see sheet enable - tables		
	U18D3	Detects when the time since the last message from the Transmission Range Selector Control Module on Powertrain Expansion CAN Bus for the frame SIB_Linear_Sensor_Status_Sec_PE was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Transmission Range Selector Control Module on Powertrain Expansion CAN Bus was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	2 Trips
		ume			Basic enable conditions met	= see sheet enable - tables		
Powertrain Expansion CAN Bus	U0599	Detects when wrong alive rolling counter received by the frame PPEI_DC_Cnv_Int_Health_Stat_PE from DC to DC Converter Control Module "A"	Wrong alive rolling counter received by the frame PPEI_DC_Cnv_Int_Health_Stat_PE from DC to DC Converter Control Module "A"	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	2 Trips
					Basic enable conditions met	= see sheet enable - tables		
	U0599	Detects when wrong data length code received by the frame PPEI_DC_Cnv_Int_Health_Stat_PE from DC to DC Converter Control Module "A"	Wrong data length code received by the frame PPEI_DC_Cnv_Int_Health_Stat_PE from DC to DC Converter Control Module "A"	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	2 Trips
					Basic enable conditions met	= see sheet enable - tables		
	U0599	Detects when wrong data length code received by the frame PPEI_DC_Conv_General_Status_PE from DC to DC Converter Control Module "A"	Wrong data length code received by the frame PPEI_DC_Conv_General_Status_PE from DC to DC Converter Control Module "A"	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips
	U0404	Detects when wrong data length code received by the frame	Wrong data length code received by the frame	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	2 Trips
		SIB_General_Info_2_S1 from Transmission Range Selector Control Module	SIB_General_Info_2_S1 from Transmission Range Selector Control Module		Basic enable conditions met	= see sheet enable - tables		
	U0404	Detects when wrong data length code received by the frame SIB_General_Info_S1 from Transmission Range Selector Control Module	Wrong data length code received by the frame SIB_General_Info_S1 from Transmission Range Selector Control Module	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	2 Trips
		Control Module	Selector Control Module		Basic enable conditions met	= see sheet enable - tables		
	U0404	Detects when wrong alive rolling counter received by the frame SIB_Input_Sensor_State_Primry_S1 from Transmission Range Selector Control Module	Wrong alive rolling counter received by the frame SIB_Input_Sensor_State_Primry_S1 from Transmission Range Selector Control Module	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	2 Trips
					Basic enable conditions met	= see sheet enable - tables -		
	U0404	Detects when wrong checksum received by the frame SIB_Input_Sensor_State_Primry_S1 from Transmission Range Selector Control Module	Wrong checksum received by the frame SIB_Input_Sensor_State_Primry_S1 from Transmission Range Selector Control Module	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	2 Trips
		Transpose delector donitor module	Transmission realige delector control module		Basic enable conditions met	= see sheet enable - tables		
	U0404	Detects when wrong data length code received by the frame SIB_Input_Sensor_State_Primry_S1 from Transmission Range Selector Control Module	Wrong data length code received by the frame SIB_Input_Sensor_State_Primry_S1 from Transmission Range Selector Control Module	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	2 Trips
					Basic enable conditions met	= see sheet enable - tables		
	U0404	Detects when wrong alive rolling counter received by the frame SIB Input Sensor_State Scndry_PE from Transmission Range Selector Control Module	Wrong alive rolling counter received by the frame SIB_Input_Sensor_State_Scndry_PE from Transmission Range Selector Control Module	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	2 Trips
					Basic enable conditions met	= see sheet enable - tables		

OBD GROUP: KGMXOBD	G07		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM KGMXV04.2088		EMISSIONS	S STDS: CALULEV125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	U0404	Detects when wrong checksum received by the frame SIB_Input_Sensor_State_Scndry_PE fromTransmission Range Selector Control Module	Wrong checksum received by the frame SIB_Input, Sensor, State, Scndry,PE from Transmission Range Selector Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable tables	0.5 sec continuous	2 Trips
	U0404	Detects when wrong data length code received by the frame SIB_Input_Sensor_State_Scndry_PE fromTransmission Range Selector Control Module	Wrong data length code received by the frame SIB_Input_Sensor_State_Sendry_PE from Transmission Range Selector Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	0.5 sec continuous	2 Trips
	U0404	Detects when wrong alive rolling counter received by the frame SIB_Linear_Sensor_Status_Prim_S1 from Transmission Range Selector Control Module	Wrong alive rolling counter received by the frame SIB_Linear_Sensor_Status_Prim_S1 from Transmission Range Selector Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	0.5 sec continuous	2 Trips
	U0404	Detects when wrong checksum received by the frame SIB_Linear_Sensor_Status_Prim_S1 from Transmission Range Selector Control Module	Wrong checksum received by the frame SIB_Linear_Sensor_Status_Prim_S1 from Transmission Range Selector Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable tables	0.5 sec continuous	2 Trips
	U0404	Detects when wrong data length code received by the frame SIB_Linear_Sensor_Status_Prim_S1 from Transmission Range Selector Control Module	Wrong data length code received by the frame SIB_Linear_Sensor_Status_Prim_S1 from Transmission Range Selector Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable tables	0.5 sec continuous	2 Trips
	U0404	Detects when wrong alive rolling counter received by the frame SIB_Linear_Sensor_Status_Sec_PE from Transmission Range Selector Control Module	Wrong alive rolling counter received by the frame SIB_Linear_Sensor_Status_Sec_PE from Transmission Range Selector Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable tables	0.5 sec continuous	2 Trips
	U0404	Detects when wrong checksum received by the frame SIB_Linear_Sensor_Status_Sec_PE from Transmission Range Selector Control Module	Wrong checksum received by the frame SIB_Linear_Sensor_Status_Sec_PE from Transmission Range Selector Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	0.5 sec continuous	2 Trips
	U0404	Detects when wrong data length code received by the frame SIB_Linear_Sensor_Status_Sec_PE from Transmission Range Selector Control Module	Wrong data length code received by the frame SIB_Linear_Sensor_Status_Sec_PE from Transmission Range Selector Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables -	0.5 sec continuous	2 Trips
owertrain Sensor CAN Bus	U0076	Diagnosis of Bus off error forPowertrain Sensor CAN controller	Bus off error is detected at Powertrain Sensor CAN controller	= TRUE -	Ignition is ON  No pending or confirmed FIDs  Basic enable conditions met	= TRUE -  = see sheet inhibit - tables = see sheet enable - tables	2 sec continuous	2 Trips
owertrain Sensor CAN Bus	U18A2	Detects when the time since the last message from the Fuel Pump Driver Control Module for the frame FTZM_Information_1_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Fuel Pump Driver Control Module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	1 sec continuous	2 Trips
	U18A2	Detects when the time since the last message from the Fuel Pump Driver Control Module for the frame FTZM_Information_11_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Fuel Pump Driver Control Module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	1 sec continuous	2 Trips

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: P	FIC SUMMARY TABLES ECM (GMXV04.2088	_	EMISSIONS	STDS: CALULEV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	U18A2	Detects when the time since the last message from the Fuel Pump Driver Control Module for the frame FTZM_Information_2_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Fuel Pump Driver Control Module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	1 sec continuous	2 Trips
	U18A2	Detects when the time since the last message from the Fuel Pump Driver Control Module for the frame FTZM, Information, 3, S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Fuel Pump Driver Control Module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	1 sec continuous	2 Trips
	U18A2	Detects when the time since the last message from the Fuel Pump Driver Control Module for the frame FTZM_Information_4_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Fuel Pump Driver Control Module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	1 sec continuous	2 Trips
	U18A2	Detects when the time since the last message from the Fuel Pump Driver Control Module for the frame FTZM_Information_5_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Fuel Pump Driver Control Module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	1 sec continuous	2 Trips
	U18A2	Detects when the time since the last message from the Fuel Pump Driver Control Module for the frame FTZM_Information_7_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Fuel Pump Driver Control Module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable tables	1 sec continuous	2 Trips
	U18A2	Detects when the time since the last message from the Fuel Pump Driver Control Module for the frame FTZM_Information_8_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Fuel Pump Driver Control Module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	1 sec continuous	2 Trips
	U18A2	Detects when the time since the last message from the Fuel Pump Dirver Control Module for the frame FTZM_Information_9_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Fuel Pump Driver Control Module was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	1 sec continuous	2 Trips
	U18D2	Detects when the time since the last message from the Transmission Range Selector Control Module on Powertrain Sensor CAN Bus for the frame SIB_General_Info_2_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Transmission Range Selector Control Module on Powertrain Sensor CAN Bus was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable - tables	2.5 sec continuous	2 Trips
	U18D2	Detects when the time since the last message from the Transmission Range Selector Control Module on Powertrain Sensor CAN Bus for the frame SIB. General_Info_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Transmission Range Selector Control Module on Powertrain Sensor CAN Bus was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	1 sec continuous	2 Trips
	U18D2	Detects when the time since the last message from the Transmission Range Selector Control Module on Powertrain Sensor CAN Bus for the frame SIB_Input_Sensor_State_Primry_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Transmission Range Selector Control Module on Powertrain Sensor CAN Bus was received is greater than a supervision timeout value	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	1 sec continuous	2 Trips

OBD GROUP: KGMXOBD	G07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM GMXV04.2088		EMISSIONS	STDS: CALULEV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	U18D2	Detects when the time since the last message from the Transmission Range Selector Control Module on Powertrain Sensor CAN Bus for the frame SIB_Linear_Sensor_Status_Prim_S1 was received is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the Transmission Range Selector Control Module on Powertrain Sensor CAN Bus was received is greater than a supervision timeout value	= TRUE -	Ignition is ON	= TRUE -	1 sec continuous	2 Trips
		une			Basic enable conditions met	= see sheet enable - tables		
Powertrain Sensor CAN Bus	U131D	Detects when wrong alive rolling counter received by the frame FTZM_Information_1_S1 (Sensor Reference Voltage Status) from Fuel Pump Driver Control Module	Wrong alive rolling counter reveiced by the frame FTZM_Information_1_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable -	0.5 sec continuous	2 Trips
						tables		
	U131D	Detects when wrong checksum received by the frame FTZM_Information_1_S1 (Sensor Reference Voltage Status) from Fuel Pump Driver Control Module	Wrong checksum received by the frame FTZM_Information_1_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable -	0.5 sec continuous	2 Trips
						tables		
	U131D	Detects when wrong data length code received by the frame FTZM_Information_1_S1 (Sensor Reference Voltage Status) from Fuel Pump Driver Control Module	Wrong data length code received by the frame FTZM_Information_1_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable -	0.5 sec continuous	2 Trips
						tables		
	U131D	Detects when wrong alive rolling counter received by the frame FTZM_Information_11_S1 (Evaporative Emission System Signals) from Fuel Pump Driver Control Module	Wrong alive rolling counter reveiced by the frame FTZM_Information_11_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable -	0.5 sec continuous	2 Trips
					Dadio Grapio Gorialiono mot	tables		
	U131D	Detects when wrong checksum received by the frame FTZM_Information_11_S1 (Evaporative Emission System Signals) from Fuel Pump Driver Control Module	Wrong checksum received by the frame FTZM_Information_11_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	2 Trips
					Basic enable conditions met	= see sheet enable - tables		
	U131D	Detects when wrong data length code received by the frame FTZM_Information_11_S1 (Evaporative Emission System Signals) from Fuel Pump Driver Control Module	Wrong data length code received by the frame FTZM_Information_11_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	2 Trips
					Basic enable conditions met	= see sheet enable - tables		
	U131D	Detects when wrong alive rolling counter received by the frame FTZM_Information_2_S1 (Battery Voltage Signal) from Fuel Pump Driver Control Module	Wrong alive rolling counter reveiced by the frame FTZM_Information_2_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	2 Trips
					Basic enable conditions met	= see sheet enable - tables		
	U131D	Detects when wrong checksum received by the frame FTZM_Information_2_S1 (Battery Voltage Signal) from Fuel	Wrong checksum received by the frame FTZM_Information_2_S1 from Fuel Pump Driver	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	2 Trips
		Pump Driver Control Module	Control Module		Basic enable conditions met	= see sheet enable - tables		
	U131D	Detects when wrong data length code received by the frame FTZM_Information_2_S1 (Battery Voltage Signal) from Fuel Pump Driver Control Module	Wrong data length code received by the frame FTZM_Information_2_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	2 Trips
	L				Basic enable conditions met	= see sheet enable - tables		
	U131D	Detects when wrong alive rolling counter received by the frame FTZM_Information_3_S1 (Fuel Level Sensor 1 Signal) from Fuel Pump Driver Control Module	Wrong alive rolling counter reveiced by the frame FTZM_Information_3_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	2 Trips
					Basic enable conditions met	= see sheet enable - tables		
	U131D	Detects when wrong checksum received by the frame FTZM_Information_3_S1 (Fuel Level Sensor 1 Signal) from Fuel Pump Driver Control Module	Wrong checksum received by the frame FTZM_Information_3_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON	= TRUE -	0.5 sec continuous	2 Trips

OBD GROUP: KGMXOBDO	607		DIAGNOS <sup>*</sup> TEST GROUP: I	TIC SUMMARY TABLES ECM KGMXV04.2088		EMISSIONS	S STDS: CALULEV125, FED	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					Basic enable conditions met	= see sheet enable - tables		
	U131D	Detects when wrong data length code received by the frame FTZM_Information_3_S1 (Fuel Level Sensor 1 Signal) from Fuel Pump Driver Control Module	Wrong data length code received by the frame FTZM_Information_3_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips
	U131D	Detects when wrong alive rolling counter received by the frame FTZM, Information, 4, S1 (Fuel Level Sensor 2 Signal) from Fuel Pump Driver Control Module	Wrong alive rolling counter reveiced by the frame FTZM_Information_4_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips
	U131D	Detects when wrong checksum received by the frame FTZM_Information_4_S1 (Fuel Level Sensor 2 Signal) from Fuel Pump Driver Control Module	Wrong checksum received by the frame FTZM_Information_4_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips
	U131D	Detects when wrong data length code received by the frame FTZM_Information_4_S1 (Fuel Level Sensor 2 Signal) from Fuel Pump Driver Control Module	Wrong data length code received by the frame FTZM_Information_4_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips
	U131D	Detects when wrong alive rolling counter received by the frame FTZM_Information, 5, S1 (Ignition Run/Start Voltage Signal) from Fuel Pump Driver Control Module	Wrong alive rolling counter reveiced by the frame FTZM_Information_5_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable tables	0.5 sec continuous	2 Trips
	U131D	Detects when wrong checksum received by the frame FTZM_Information_5_S1 (Ignition Run/Start Voltage Signal) from Fuel Pump Driver Control Module	Wrong checksum received by the frame FTZM_Information_5_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable tables	0.5 sec continuous	2 Trips
	U131D	Detects when wrong data length code received by the frame FTZM_Information_5_S1 (Ignition Run/Start Voltage Signal) from Fuel Pump Driver Control Module	Wrong data length code received by the frame FTZM_Information_5_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE - = see sheet enable tables	0.5 sec continuous	2 Trips
	U131D	Detects when wrong alive rolling counter received by the frame FTZM_Information_7_S1 (Fuel Pump Driver Control Module Temperature High Signal) from Fuel Pump Driver Control Module	Wrong alive rolling counter reveiced by the frame FTZM_Information_7_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips
	U131D	Detects when wrong checksum received by the frame FTZM_Information, 7, S1 (Fuel Pump Driver Control Module Temperature High Signal) from Fuel Pump Driver Control Module	Wrong checksum received by the frame FTZM_Information_7_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips
	U131D	Detects when wrong data length code received by the frame FTZM_Information, 7, S1 (Fuel Pump Driver Control Module Temperature High Signal) from Fuel Pump Driver Control Module	Wrong data length code received by the frame FTZM_Information_7_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable tables	0.5 sec continuous	2 Trips
	U131D	Detects when wrong alive rolling counter received by the frame FTZM_Information_8_S1 (Fuel Pump Control Status Signal) from Fuel Pump Driver Control Module	Wrong alive rolling counter revelced by the frame FTZM_Information_8_S1 from Fuel Pump Driver Control Module	= TRUE -	Ignition is ON  Basic enable conditions met	= TRUE -  = see sheet enable - tables	0.5 sec continuous	2 Trips

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: 1		RY TABLES	ECM			EI	MISSION	NS STDS	: CALUL	EV125, FE	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	т	hreshold Value		Secondary Parameters		Enable Conditions			Time Requi	red	MIL IIIum.
	U131D	Detects when wrong checksum received by the frame FTZM_Information_8_S1 (Fuel Pump Control Status Signal) from Fuel Pump Driver Control Module	Wrong checksum received by the frame FTZM_Information_8_S1 from Fuel Pump Driver Control Module	=	TRUE	-	Ignition is ON  Basic enable conditions met	" "	TRUE see sheet enable tables	-	0.5	sec	continuous	2 Trips
	U131D	Detects when wrong data length code received by the frame FTZM_Information_8_S1 (Fuel Pump Control Status Signal) from Fuel Pump Driver Control Module	Wrong data length code received by the frame FTZM_Information_8_S1 from Fuel Pump Driver Control Module	=	TRUE	-	Ignition is ON  Basic enable conditions met	" "	TRUE see sheet enable tables	-	0.5	sec	continuous	2 Trips
	U131D	Detects when wrong alive rolling counter received by the frame FTZM_Information_9_S1 (Fuel Pump Driver Control Module Reset Count) from Fuel Pump Driver Control Module	Wrong alive rolling counter reveiced by the frame FTZM_Information_9_S1 from Fuel Pump Driver Control Module	=	TRUE	-	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables	-	0.5	sec	continuous	2 Trips
	U131D	Detects when wrong checksum received by the frame FTZM_Information_9_S1 (Fuel Pump Driver Control Module Reset Count) from Fuel Pump Driver Control Module	Wrong checksum received by the frame FTZM_Information_9_S1 from Fuel Pump Driver Control Module	=	TRUE	-	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables	-	0.5	sec	continuous	2 Trips
	U131D	Detects when wrong data length code received by the frame FTZM_Information_9_S1 (Fuel Pump Driver Control Module Reset Count) from Fuel Pump Driver Control Module	Wrong data length code received by the frame FTZM_Information_9_S1 from Fuel Pump Driver Control Module	=	TRUE	-	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables	-	0.5	sec	continuous	2 Trips
LIN Bus 1	U1345	Detects Bus off error at LIN channel 1.	LIN channel 1 indicates bus off error	=	TRUE	-	lanition is on No pending or confirmed DTCs Basic enable conditions met	11 11 11	TRUE see sheet inhibit tables see sheet enable tables	-	10	counts	continuous	1 Trip
	U135E	Detects when the time since the last message from the Transmission Control Module on Engine Control Module LIN Bus 1 Module' for frame "TCM. Rsp" (0x01) was received via LIN 1 Channel is greater than the Supervision timeout value for a calibrated period of time	Time since last message from the "Transmission Control Module on Engine Control Module LIN Bus 1 Module' for frame "TCM_Rsp"(0x01) was received via LIN 1 Channel	>	0.05	sec	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables	-	3	counts	Continuous	2 Trips
	U250D	Validity of the Transmission Control Data Received Via LIN	Mismatch between the transmitted range command received from the Gearshif Coordinator module and Echo Range Command from Transmission Control Module through LIN	-	TRUE		Current Range Command value is equal to Previous Range Command Value  System is not in PARK mode and system power is used by accessories or system wakeup lanition ON ( Current range of gear lever is in PARK position initialization of gear selection in progress is active of the position of gear selection in progress is active of the position of gear selection in progress is active of the position of gear selection in progress is active of the position of gear selection in progress is active of the position of gear selection in progress is active of gear selection in progress is active of gear selection in progress is active of gear selection in progress is active of gear selection in progress is active of gear selection in progress is active of gear selection in progress is active of gear selection in progress is active of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear selection of gear s		TRUE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE		0.5	sec	Continuous	2 Trips
							command is in allow driver override command  Manufacturer Enable Counter used to  automatically arm Seed & Key  LIN diagnostics enabled	=	0 TRUE	-				

OBD GROUP: KGMXOBD	G07		DIAGNOS' TEST GROUP: 1		ARY TABLES	6 ECM			E	MISSION	NS STDS:	CALULE	V125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	7	Time Require	ed	MIL IIIum.
							No pending or confirmed DTCs  Basic enabling conditions are met	=	see sheet inhibit tables see sheet enable tables	-				
LIN Bus 2	U1346	Detects Bus off error at LIN channel 2.	LIN channel 2 indicates bus off error	=	TRUE	-	Ignition is on No pending or confirmed DTCs Basic enable conditions met		TRUE see sheet inhibit tables see sheet enable tables	-	10	counts	continuous	1 Trip
LIN Bus 4	U1348	Detects Bus off error at LIN channel 4.	LIN channel 4 indicates bus off error	=	TRUE	-	lanition is on No pending or confirmed DTCs Basic enable conditions met	11 11	TRUE see sheet inhibit tables see sheet enable tables	- - -	10	counts	continuous	1 Trip
	U062F	Detects when the time since the last message from the  "Charge Air Cooler Water Pump" for frame "CWP_Rsp"(0x25)  was received via LIN 4 Channel is greater than the Supervision  timeout value for a calibrated period of time	Time since last message from the 'Charge Air Cooler Water Pump' for frame 'CWP_Rsp'(0x25) was received via LIN 4 Channel	>	0.25	sec	Ignition is ON  Basic enable conditions met	=	TRUE see sheet enable tables	-	3	counts	Continuous	2 Trips
	U1378	Path 1: Detects when the wrong length code for frame CWP Rsp(0x25) in LIN4 channel was detected	Wrong length code for frame CWP_Rsp(0x25) in LIN4 channel was detected	=	TRUE	-	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	= = =	TRUE  see sheet inhibit tables see sheet enable tables	- - -	10	counts	Continuous	2 Trips
		Path 2: Detects when wrong alive rolling counter received by the frame CWP_Rsp(0x25) in LIN4 channel from the "Charge Air Cooler Water Pump"	Wrong alive rolling counter received by the frame CWP_Rsp(0x25) in LIN4 channel from the "Charge Air Cooler Water Pump"	=	TRUE	-	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	=	TRUE  see sheet inhibit tables see sheet enable tables	- - -	10	counts	Continuous	2 Trips
LIN Bus 5	U1349	Detects Bus off error at LIN channel 5.	LIN channel 5 indicates bus off error	=	TRUE		Ignition is on No pending or confirmed DTCs Basic enable conditions met		TRUE see sheet inhibit tables see sheet enable tables	: :	10	counts	continuous	1 Trip
EVAP System Ventilation Valve	P0446	Path 1 : Monitoring of Canister Ventilation Valve control - offset diagnosis	Tank pressure filtered for offset-diagnosis tank pressure sensor Difference between tank pressure filtered for offset and cove error threshold because cpv can not open because of vacuum of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country of the country	>= <	25 0	- kPa sec	Error message for internal cycle Canister close valve error  No pending or confirmed DTCs  Basic enable conditions met	=	TRUE see sheet inhibit tables see sheet enable tables	- - -			continuous	2 Trips
		Path 2 : Monitoring of Canister Ventilation Valve control - based on environmental pressure	Tank pressure	>=	-900.024	Pa	Diagnosis of canister purge system is active  Mass flow through purge control valve for tank leakage diagnosis time for miscellaneous measurements No pending or confirmed DTCs  Basic enable conditions met	= <= >= =	TRUE  0.008355556  5 see sheet inhibit tables see sheet enable tables	g/sec sec -				
EVAP System Ventilation Valve	P0449	Diagnosis of EVAP System Vent Valve Control Circuit-Open Load fault	EVAP powerstage reports open load fault through CAN communication message	=	TRUE	-	Ignition is ON  No pending or confirmed DTCs	=	TRUE see sheet inhibit tables	-	2	sec	continuous	2 Trips

OBD GROUP: KGMXOBDG	)7		DIAGNOST TEST GROUP: 1		MMARY TABLES - 4.2088	ECM			E	MISSION	NS STDS:	CALUL	EV125, FEI	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	s		Time Requi	red	MIL IIIum.
							Basic enable conditions met	=	see sheet enable tables	-				
	P0498	Diagnosis of EVAP System Vent Valve Control Circuit-Circuit Low	EVAP powerstage reports short circuit to groud fault through CAN communication message	=	TRUE	-	Ignition is ON  No pending or confirmed FIDs	=	TRUE see sheet inhibit tables	-	2	sec	continuous	2 Trips
	P0499	Diagnosis of EVAP System Vent Valve Control Circuit- Circuit	EVAP powerstage reports short circuit to battery	_	TRUE		Basic enable conditions met		see sheet enable tables	-	2	Sec	continuous	2 Trips
	10433	High	fault through CAN communication message		INOL		No pending or confirmed FIDs  Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-	_	360	commudus	2 1103
ow Temperature Loop Coolant Pump .IN4)	P3196	Detection of the pump speed performance commanded versus actual (return) speed	Filtered Speed of Charge Air Cooler Pump	>	200	rpm	No pending or confirmed DTCs	=	see sheet inhibit tables	-	5	sec	Continuous	2 Trips
			where  A - B   A (Filtered requested speed of charge air cooler pump)  B (Filtered actual speed of charge air cooler pump)	=	Graph WtrPmp_CACPmpSpd PT1 I Graph WtrPmp_CACPmpSpd	rpm	Basic enable conditions met	=	see sheet enable tables	-				
	P26FA	Detection of the recievd pump speed exceeding the maximum		>	ActPT1 I 7500	rpm	No pending or confirmed DTCs	-	see sheet inhibit		5	sec	Continuous	2 Trips
		threshold					Basic enable conditions met	-	tables see sheet enable tables	-				
	P2BA0	Detection of the receieved pump speed falling below the minimum threshold	charge air cooler pump measured speed	<	0	rpm	No pending or confirmed DTCs  Basic enable conditions met		see sheet inhibit tables see sheet inhibit tables	-	5	sec	Continuous	2 Trips
	P2C48	Detection of the pump current to be within the calculated threshold for a given pump speed	Pump current where Threshold = A * B A (charge air cooler pump current high limit for a given pump speed) B (charge air cooler pump factor high limit for a given coolant temperature)	= =	Threshold 20 1	A A deg C	No pending or confirmed DTCs Basic enable conditions met	=	see sheet inhibit tables see sheet inhibit tables	-	5	sec	Continuous	2 Trips
			OR Pump current where Threshold = C * D C (charge air cooler pump current low limit for a given pump speed) D (charge air cooler pump factor low limit for a given coolant temperature)	< = =	Threshold 0 1	A A deg C								
	P3198	Detection of the current of the pump exceeding the maximum threshold	charge air cooler pump motor measured current	>	18	A	No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet inhibit tables	-	5	sec	Continuous	2 Trips
	P3199	Detection of the current of the pump falling below the minimum threshold	charge air cooler pump motor measured current	<	0	A	No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet inhibit tables	-	5	sec	Continuous	2 Trips
IIL Bulb	P263B	Diagnoses the MIL low side driver circuit for circuit high fault	Voltage high during driver on state (indicates short-to-power)	=	Short to power: ≤ 0.5 Ω impedance between signal and controller power	-	ECU is in pre drive state	=	FALSE	-	1	sec	Continuous	2 Trips
							ECU in post drive state Basic enable conditions met	= =	FALSE see sheet enable tables	-				

OBD GROUP: KGMXOBDG	07		DIAGNOS <sup>*</sup> TEST GROUP: I		RY TABLES -	- ECM			E	MISSION	IS STDS:	CALULI	EV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Th	reshold Value		Secondary Parameters		Enable Conditions	5		Time Requir	red	MIL IIIum.
	P263A	Diagnoses the MIL low side driver circuit for circuit low fault	Voltage low during driver on state (indicates short-to-ground)	≤ ( bet	short to ground: 0.5 Ω impedance tween signal and ontroller ground	-	ECU is in pre drive state  ECU in post drive state  Basic enable conditions met		FALSE FALSE see sheet enable	-	1	sec	Continuous	2 Trips
	P0650	Diagnoses the MIL low side driver circuit for open circuit fault	Voltage high during driver off state (indicates open circuit)	ŀ	en Circuit : ≥ 200 <Ω impedance veen ECU pin and load	-	ECU is in pre drive state  ECU in post drive state  Basic enable conditions met	" ""	FALSE FALSE see sheet enable	-	1	sec	Continuous	1 Trip
Sensor Supply Relay (FTZM voltage supply)	P16D9	Circuit Check - Short circuit to Battery	Power stage feedback voltage	>	4.5	V	Ignition is ON  ( Battery Voltage Battery Voltage Power stage off-diagnosis enable timer ) Power stage output signal Timeout after which the state machine No pending or confirmed DTCs Basic enable conditions met	=	TRUE  10.9 655.34 2 FALSE 1 see sheet inhibit tables see sheet enable tables	V V sec - sec	20	event	Continuous	2 Trips
	P16D8	Circuit Check - Short circuit to Ground	Power stage feedback voltage (See Look-Up- Table #P16D8-1)	<	1.95 to 4.5	V	Ignition is ON  ( Battery Voltage Battery Voltage Battery Voltage Power stage off-diagnosis enable timer ) Power stage output signal No pending or confirmed DTCs Basic enable conditions met	= >= <= <	TRUE  10.9 655.34 2  TRUE see sheet inhibit tables see sheet enable tables	V V Sec	5	event	Continuous	2 Trips
	P16D7	Circuit Check - Open Load	Power stage feedback voltage Power stage feedback voltage	>= <=	1.5 2	V	Iduition is ON ( Battery Voltage Battery Voltage Power stage off-diagnosis enable timer ) Power stage output signal Timeout after which the state machine leaves the off-diagnosis state No pending or confirmed DTCs Basic enable conditions met	=	TRUE 10.9 655.34 2 FALSE 1 see sheet inhibit tables see sheet enable tables	V V Sec - sec	20	event	Continuous	2 Trips
Sensor Supply Relay (FTZM voltage supp	N) P0629	Digital output stage - Circuit High	Pre Supply Pump output voltage	>	4.7	V	( ECU is in POSTDRIVE state OR Airbag is activated ) OR (Condition of the engine in stop phase Condition to stop the activation of fuel pump during startstop Validity bit of fuel low pressure value Fuel pressure actual value ) (Fuel pressure actual value OR Fuel System Priming Timer is active	= = = :	TRUE TRUE TRUE FALSE TRUE 500 600 TRUE		0.2	Sec	continuous	2 Trips

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: N	TIC SUMMARY TABLES ECM (GMXV04.2088		EMISSION	S STDS: CALULEV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					) Battery voltage No pending or confirmed DTCs Basic enable conditions met	> 9 V = see sheet inhibit - tables = see sheet enable - tables		
	P0628	Digital output stage - Circuit Low	Pre Supply Pump output voltage (See Look-Up- Table #P0628-1)	< 1.95 to 4.5 V	( Engine is in running state OR Validity bit of fuel low pressure value Fuel pressure actual value ) Fuel pressure actual value Fuel System Priming Timer is not active Battery voltage No pending or confirmed DTCs Basic enable conditions met	= TRUE 100 kPa < 100 kPa < 100 kPa = FALSE - > 9 V = see sheet inhibit - tables = see sheet enable - tables	0.05 sec continuous	2 Trips
	P0627	Digital output stage - Open	Pre Supply Pump output voltage Pre Supply Pump output voltage	<= 2.25 V >= 1.25 V	( ECU is in POSTDRIVE state OR Airbag is activated ) OR ( Condition of the engine in stop phase Condition to stop the activation of fuel pump during stantstop validity bit of fuel low pressure value Fuel pressure actual value ) OR ( Fuel pressure actual value OR State Priming Timer is active ) Battery voltage No pending or confirmed DTCs Basic enable conditions met	= TRUE -  = TRUE -  = TRUE -  = FALSE -  = TRUE -  > 500 kPa  =  > 600 kPa  = TRUE -  > FAUE -  > 600 kPa  = TRUE -  > see sheet inhibit tables  = see sheet enable -  tables	1 sec continuous	2 Trips
		Digital output stage - Over Temperature	Pre Supply Pump output voltage Pre Supply Pump output voltage	<= 2.25 V >= 1.25 V	( ECU is in POSTDRIVE state OR Airbag is activated ) OR ( Condition of the engine in stop phase Condition to stop the activation of fuel pump during stantstop Validity bit of fuel low pressure value Fuel pressure actual value ) OR ( Fuel pressure actual value OR Fuel system Priming Timer is active ) Battery voltage No pending or confirmed DTCs Basic enable conditions met	= TRUE - = TRUE - = TRUE - = FALSE - = TRUE - > 500 kPa  > 600 kPa = TRUE - > FALSE - > 500 kPa  > 600 kPa = TRUE - > 9 V = see sheet inhibit - tables = see sheet enable - tables	1 sec continuous	2 Trips
linder 2 Deactivation Solenoid	P3499	Detects "pumping air" error for cylinder 2 during half engine mode for a calibrated period fo time	(		Synchronisation half engine mode and air charge determination of first activated HEM cylinder	= TRUE -	Continuous	2 Trips

25, FEDBIN	S STDS: CALULEV125,	EMISSIONS S				ECM			DIAGNOS TEST GROUP:		7	D GROUP: KGMXOBDG
MIL	Time Required	ns	Enable Condition		Secondary Parameters		hreshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			TRUE	=	Diagnose for undesired camshaft switch event active	-	TRUE	=	"Pumping Air" Error is detected			
		-	TRUE	=	( Valve lift diagnosis enabled. (	counts	16	=	) for counts			
		rpm	2900	<=	( Engine speed and							
		rpm	750	>=	Engine speed )							
		-	0.899994	<=	Ratio of Intake manifold pressure rawvalue to the Pressure upstream throttle valve raw	ļ						
		-	0.200012	>=	Ratio of Intake manifold pressure rawvalue to the Pressure upstream throttle valve raw	1						
		-	TRUE	=	( condition: first pressure upstream throttle )							
		-	TRUE	=	( validity of the pressure value (sensor) of the )							
		-	TRUE	=	( Condition massflow over throttle blade based on throttle angle valid, Bank1 )	ļ						
		sec	3	>	( time counter at first end of start in cycle (16 bit) )							
		kPa	40	<=	( Set intake manifold pressure; Bank 1 lesser than Positive load step threshold for set pressure	1						
		kPa	20	<=	OR difference of Set intake manifold pressure; Bank 1 and pressure value (best of) of the intake manifold - bank 1 is lesser than caliberated threshid	ļ						
		kPa	-15	>=	) (t) Set intake manifold pressure; Bank 1 is greater than Negative load step threshold for differential pressure							
		kPa	150	>=	OR difference of Set intake manifold pressure; Bank 1 and pressure value (best of) of the intake manifold - bank 1 is greater than caliberated threshid	ļ.						
		-	FALSE	=	) ( Condition instationary state during half engine mode switching							
		sec	0.6 to 0.85	>=	for time (see Look-Up-Table #P3499-2)							
		-	1	<=	( Scavenging rate based on scavenged air and drapped air in the cylinder							
		%	0.6016	<=	( Absolute value of the difference between the currrent value and previous value of the Position of the throttle valve on motor bench							
		sec	0.42 to 0.84	=	one for time (see Look-Up-Table #P3499-1) )							
		-	TRUE	=	) Valve lift diagnosis of bank 2 enabled. (							
		rpm rpm	2900 750	<= >=	( Engine speed Engine speed )							
		-	0.200012	<= >=	( raw manifold pressure - Bank 2 / pressure upstream throttle valve raw (2. bank) raw manifold pressure - Bank 2 / pressure upstream throttle valve raw (2. bank)	ľ						

BD GROUP: KGMXOBDG	)7		DIAGNOST TEST GROUP: 1		ARY TABLES	S ECM			E	MISSION	IS STDS: CALULEV125, FE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	s	Time Required	MIL IIIui
							) ( condition: second pressure upstream throttle valve measured valid	=	TRUE	-		
							( condition, measured intake manifold pressure valid sencond bank					
							( Condition Mass flow at the DK calculated from the sensor signal of the HFM valid, Bank2)	=	TRUE	-		
							( Condition massflow over throttle blade based on throttle angle valid, Bank2	=	TRUE	-		
							) time counter at first end of start in cycle (16 bit) (	>	3	sec		
							( Set intake manifold pressure; Bank 2	<=	40	kPa		
							OR difference of Set intake manifold pressure; Bank 2 and pressure value (best of) of the intake manifold - bank 2 )	<=	20	kPa		
							( Set intake manifold pressure; Bank 2	>=	-15	kPa		
							OR difference of Set intake manifold pressure; Bank 2 and pressure value (best of) of the intake manifold - bank 2 )	>=	150	kPa		
							) ( Condition instationary state during half engine mode switching for time (see Look-Up-Table #P3499-2)	= >=	FALSE 0.6 to 0.85	- sec		
							) ( scavenging rate based on scavenged air and drapped air in the cylinder	<=	1	_		
							) ( Absolute value of the difference between the currrent value and previous value of the	<=	0.6016	%		
							Position of the throttle valve on motor bench two for time (see Look-Up-Table #P3499-1) )	=	0.42 to 0.84	sec		
							)					
							No pending or confirmed DTCs	=	see sheet inhibit tables	-		
							Basic enabling conditions are met	=	see sheet enable tables	-		
	P318A	Detects no air charge change at the intake for cylinder 2	(				Synchronisation half engine mode and air		FALSE		Continuous	s 2 T
	1 010/1	during full engine mode for a calibrated period of time	No air charge change at the intake	=	TRUE	-	charge determination of first activated HEM cylinder Diagnose for undesired camshaft switch	=	TRUE	_	Continuoda	
			) for counts	=	16	counts	event active ( Valve lift diagnosis enabled.	=	TRUE	-		
							( ( Engine speed Engine speed	<= >=	2900 750	rpm rpm		
							) ( Ratio of Intake manifold pressure rawvalue	<=	0.899994	-		
							to the Pressure upstream throttle valve raw Ratio of Intake manifold pressure rawvalue to the Pressure upstream throttle valve raw	>=	0.200012	-		
							) ( condition: first pressure upstream throttle valve measured valid	=	TRUE	-		

BD GROUP: KGMXOBDG	)7		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECN GMXV04.2088	<b>И</b>		EMISSIONS	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Cond	litions	Time Required	MIL IIIui
					) ( validity of the pressure value (sensor) of the intake manifold - bank 1	= TRUE	-		
					) ( Condition massflow over throttle blade based on throttle angle valid, Bank1	= TRUE	-		
					) ( time counter at first end of start in cycle (16 bit)	> 3	sec		
					) ( ( Set intake manifold pressure; Bank 1 lesser than Positive load step threshold for set	<= 40	kPa		
					pressure OR difference of Set intake manifold pressure; Bank 1 and pressure value (best of) of the intake manifold - bank 1 is lesser than caliberated threshld	<= 20	kPa		
					) ( Set intake manifold pressure; Bank 1 is greater than Negative load step threshold for differential pressure	>= -15	kPa		
					OR difference of Set intake manifold pressure; Bank 1 and pressure value (best of) of the intake manifold - bank 1 is greater than caliberated threshid )	>= 150	kPa		
					) ( Condition instationary state during half engine mode switching	= FALSE	-		
					for time (see Look-Up-Table #P3499-2)	>= 0.6 to 0.85	sec		
					( Scavenging rate based on scavenged air and drapped air in the cylinder )	<= 1	-		
					( Absolute value of the difference between the currrent value and previous value of the Position of the throttle valve on motor bench	<= 0.6016	%		
					one for time (see Look-Up-Table #P3499-1)	= 0.42 to 0.84	sec		
					) Valve lift diagnosis of bank 2 enabled. (	= TRUE	-		
					( Enqine speed Enqine speed )	<= 2900 >= 750	rpm rpm		
					( raw manifold pressure - Bank 2 / pressure upstream throttle valve raw (2. bank)	<= 0.200012	-		
					raw manifold pressure - Bank 2 / pressure upstream throttle valve raw (2. bank)	>= 0.899994	-		
					( condition: second pressure upstream throttle valve measured valid	= TRUE	-		
					( condition, measured intake manifold pressure valid sencond bank )				
					Condition Mass flow at the DK calculated from the sensor signal of the HFM valid, Bank2	= TRUE	-		
					( Condition massflow over throttle blade based on throttle angle valid, Bank2	= TRUE	-		

Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text Code   Text	OBD GROUP: KGMXOBDGO	07		DIAGNOST TEST GROUP: P	TIC SUMMARY TABLES ECM				MISSION	S STDS: (	CALULE	V125, FED	BIN125
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Battery Voltage Engine Speed Graphs is furning start off driving cycle to check the voltage of two flatter  P3411 Diagnosis of cylinder 2 gas exchange valve control for circuit  Or flatter  P3402 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3409 Diagnosis of cylinder 2 gas exchange valve control for circuit  Or flatter in control in circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3400 Diagnosis of cylinder 2 gas exchange valve control for circuit  P3					controller power								
Gas exchange valve is turned ON and OFF of surring start of driving yord to start of driving yord to shock the working of valve Shore the working of valve Shore to ground DTCs = see sheet enable tables see sheet nable tables see						Battery Voltage	<	25.5	v				
Basic enable conditions met stables see sheet enable tables see sheet inhibit tables see sheet inhibit tables see sheet inhibit tables see sheet inhibit tables see sheet inhibit tables see sheet inhibit tables see sheet inhibit tables see sheet inhibit tables see sheet inhibit tables see sheet inhibit tables see sheet inhibit tables see sheet inhibit tables see sheet inhibit tables see sheet inhibit tables see sheet inhibit tables see sheet inhibit see sheet sale see sheet inhibit stables see sheet inhibit stables see sheet inhibit stables see sheet inhibit stables see sheet inhibit stables see sheet sheet stables see sheet sheet stables see sheet sheet stables see sheet sheet stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shable stables see sheet shables see sheet shable stables see sheet shable stables see sheet shables see sheet shable stables see sheet shables sale shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles shadles s						Gas exchange valve is turned ON and OFF during start off driving cycle to check the		TRUE	-				
P3411 Diagnosis of cylinder 2 gas exchange valve control for circuit bow faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for circuit bow faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for circuit bow faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for circuit bow faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3411 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3412 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3412 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3413 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3415 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3410 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults							=		-				
Disgnosis of cylinder 2 gas exchange valve control for open circuit faults  10-ground)  10						No pending or confirmed DTCs	=	see sheet inhibit	-				
P3409   Diagnosis of cylinder 2 gas exchange valve control for open circuit faults		P3411			Ω impedance between signal and controller	ECU is in drive state	=	TRUE	-	0.5	sec	continuous	2 Trips
P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuits 200 K Ω  ECU is in drive state  ECU is in drive state  ECU is in drive state  Englis cyclinder 2 gas exchange valve control for open circuits 200 K Ω  ECU is in drive state  Englis cyclinder 2 gas exchange valve control for open circuits 200 K Ω  ECU is in drive state  Englis cyclinder 2 gas exchange valve control for open circuits 200 K Ω  ECU is in drive state  Englis cyclinder 2 gas exchange valve control for open circuits 200 K Ω  ECU is in d					qiouna	Engine Speed Battery Voltage		80 10.9	rpm V				
P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 g						Battery Voltage Engine Speed	<	25.5	V				
Basic enable conditions met    P3409   Diagnosis of cylinder 2 gas exchange valve control for open circuit faults						during start off driving cycle to check the	=	TRUE	-				
P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit)  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control for open circuit faults  P3409 Diagnosis of cylinder 2 gas exchange valve control faults  P3409 Diagnosis of cylinder 2 gas exchange valve control faults  P3409 Diagnosis of cylinder 2 gas exchan						Basic enable conditions met	=		-				
circuit faults circuit) impedance between ECU pin and load Enqine Speed >= 80 rpm Battery Voltage > 10.9 V Stattery Voltage < 25.5 V						No pending or confirmed DTCs	=		-				
ECU pin and load  Engine Speed >= 80 rpm  Battery Voltage > 10.9 V  Battery Voltage < 25.5 V		P3409	Diagnosis of cylinder 2 gas exchange valve control for open circuit faults		impedance between	ECU is in drive state	=	TRUE	-	0.5	sec	continuous	2 Trips
Battery Voltage < 25.5 V				,	ECU pin and load								
						Battery Voltage	<	25.5	v				

Component / System  Fault Code  Monitor Strategy Description  Malfunction Criteria  Time Req  Gas exchange valve is turned ON and OFF during stant off diving cycle to check the working of valve Basic createle conditions met tables  No pending or confirmed DTCs  Synchronisation half engine mode and air charge determination of first activated HEM vinder  Pumping Air Error is detected  Pumping Air Error is detected  TRUE  TRU	Continuous
during start off driving cycle to check the working of valve Basic enable conditions met tables No pending or confirmed DTCs  P349A  Detects "pumping air" error for cylinder 3 during half engine mode for a calibrated period to time  Pumping Air" Error is detected  Pumping Air" Error is detected  TRUE  TRU	Continuous
mode for a calibrated period fo time  Pumping Air' Error is detected  TRUE  TR	Continuous
"Pumping Air" Error is detected = TRUE - Diagnose for undesired camshaft switch event active (Valve lift diagnosis enabled. = TRUE - Valve lift diagnosis enabled. = TRUE - Va	
for counts  = 16 counts  Valve lift diagnosis enabled.  Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed Engine speed E	
Engine speed >= 750 rpm ) ( Ratio of Intake manifold pressure rawvalue to the Pressure upstream throttle valve raw Ratio of Intake manifold pressure rawvalue >= 0.200012	
to the Pressure upstream throttle valve raw  Ratio of Intake manifold pressure rawvalue >= 0.200012 _	
Ratio of Intake manifold pressure rawvalue >= 0.200012 _	
) ( condition: first pressure upstream throttle = TRUE - valve measured valid	
) ( ( validity of the pressure value (sensor) of the   intake manifold - bank 1	
) ( Condition massflow over throttle blade = TRUE - based on throttle angle valid, Bank1	
) ( time counter at first end of start in cycle (16 > 3 sec bit)	
/ ( {     Set intake manifold pressure; Bank 1 lesser <= 40 kPa     than Positive load step threshold for set     pressure	
OR difference of Set intake manifold pressure; <= 20 kPa Bank 1 and pressure value (best of) of the intake manifold - bank 1 is lesser than calberated threshid	
) ( Set intake manifold pressure; Bank 1 is >= -15 kPa greater than Negative load step threshold for differential pressure	
OR diliferace of Set intake manifold pressure; >= 150 kPa  Bank 1 and pressure value (best of) of the intake manifold - bank 1 is greater than caliberated threshld )	
) ( Condition instationary state during half = FALSE - engine mode switching	
for time (see Look-Up-Table #P3499-2) >= 0.6 to 0.85 sec	
( Scavenging rate based on scavenged air <= 1 _ and drapped air in the cylinder	
) ( Absolute value of the difference between the <= 0.6016 % current value and previous value of the Position of the throttle value on motor bench	

BD GROUP: KGMXOBDG	07		DIAGNOS TEST GROUP:		RY TABLES 3	- ECM			Е	MISSION	S STDS: CALULEV125, FE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Th	reshold Value		Secondary Parameters		Enable Condition	s	Time Required	MIL IIIu
							) ) Valve lift diagnosis of bank 2 enabled.	_	TRUE			
							(	-				
							Engine speed Engine speed )	<= >=	2900 750	rpm rpm		
							raw manifold pressure - Bank 2 / pressure	<=	0.200012	_		
							upstream throttle valve raw (2. bank) raw manifold pressure - Bank 2 / pressure upstream throttle valve raw (2. bank)	>=	0.899994	-		
							(ndition: second pressure upstream throttle valve measured valid	=	TRUE	-		
							( condition, measured intake manifold pressure valid sencond bank )					
							( Condition Mass flow at the DK calculated from the sensor signal of the HFM valid, Bank2	=	TRUE	-		
							( Condition massflow over throttle blade based on throttle angle valid, Bank2	=	TRUE	-		
							) time counter at first end of start in cycle (16 bit)	>	3	sec		
							( ( Set intake manifold pressure; Bank 2	<=	40	kPa		
							OR diiference of Set intake manifold pressure; Bank 2 and pressure value (best of) of the intake manifold - bank 2	<=	20	kPa		
							) ( Set intake manifold pressure; Bank 2 OR	>=	-15	kPa		
							Old difference of Set intake manifold pressure; Bank 2 and pressure value (best of) of the intake manifold - bank 2	>=	150	kPa		
							) ( Condition instationary state during half	=	FALSE	-		
							engine mode switching for time (see Look-Up-Table #P3499-2) )	>=	0.6 to 0.85	sec		
							( scavenging rate based on scavenged air and drapped air in the cylinder	<=	1	-		
							Absolute value of the difference between the currrent value and previous value of the Position of the throttle valve on motor bench	<=	0.6016	%		
							two for time (see Look-Up-Table #P3499-1) )	=	0.42 to 0.84	sec		
							) ) No pending or confirmed DTCs	=	see sheet inhibit	-		
							Basic enabling conditions are met	=	tables see sheet enable tables	-		
	P318B	Detects no air charge change at the intake for cylinder 3 during full engine mode for a calibrated period of time	(				Synchronisation half engine mode and air charge determination of first activated HEM	=	FALSE	-	Continuous	2 Tr
		adming real drighter mode for a calibrated period of title	No air charge change at the intake	=	TRUE		charge determination of first activated HEM cylinder Diagnose for undesired camshaft switch event active	=	TRUE	-		
			) for counts	=	16	counts	( Valve lift diagnosis enabled.	=	TRUE	-		
							( ( Engine speed	<=	2900	rpm		

BD GROUP: KGMXOBDG	07		TEST GROUP: KG	C SUMMARY TABLES E GMXV04.2088				EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIu
					Engine speed	>=	750	rpm		
					( Ratio of Intake manifold pressure rawvalue to the Pressure upstream throttle valve raw	<=	0.899994	-		
					Ratio of Intake manifold pressure rawvalue to the Pressure upstream throttle valve raw	>=	0.200012	-		
					) ( condition: first pressure upstream throttle valve measured valid	=	TRUE	-		
					) ( validity of the pressure value (sensor) of the intake manifold - bank 1	=	TRUE	-		
					) ( Condition massflow over throttle blade based on throttle angle valid, Bank1	=	TRUE	-		
					/ ( time counter at first end of start in cycle (16 bit) )	>	3	sec		
					( ( Set intake manifold pressure; Bank 1 lesser than Positive load step threshold for set pressure	<=	40	kPa		
					OR diiference of Set intake manifold pressure; Bank 1 and pressure value (best of) of the intake manifold - bank 1 is lesser than caliberated threshid	<=	20	kPa		
					) ( Set intake manifold pressure; Bank 1 is greater than Negative load step threshold for differential pressure	>=	-15	kPa		
					OR difference of Set intake manifold pressure; Bank 1 and pressure value (best of) of the intake manifold - bank 1 is greater than caliberated threshid	>=	150	kPa		
					) ( Condition instationary state during half engine mode switching	=	FALSE	-		
					for time (see Look-Up-Table #P3499-2)	>=	0.6 to 0.85	sec		
					( Scavenging rate based on scavenged air and drapped air in the cylinder )	<=	1	-		
					( Absolute value of the difference between the currrent value and previous value of the Position of the throttle valve on motor bench	<=	0.6016	%		
					one for time (see Look-Up-Table #P3499-1) )	=	0.42 to 0.84	sec		
					) Valve lift diagnosis of bank 2 enabled. (	=	TRUE	-		
					( Engine speed Engine speed	<= >=	2900 750	rpm rpm		
					) ( raw manifold pressure - Bank 2 / pressure upstream throttle valve raw (2. bank)	<=	0.200012	-		
					raw manifold pressure - Bank 2 / pressure upstream throttle valve raw (2. bank)	>=	0.899994	-		
					( condition: second pressure upstream throttle	=	TRUE	-		

OBD GROUP: KGMXOBDG07	7		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM (GMXV04.2088			EMISSION	NS STDS: C	ALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	ns	Tim	ne Required	MIL IIIum.
					condition, measured intake manifold pressure valid sencond bank					
					( Condition Mass flow at the DK calculated from the sensor signal of the HFM valid, Bank2 )	= TRUE	-			
					( Condition massflow over throttle blade based on throttle angle valid, Bank2	= TRUE	-			
					time counter at first end of start in cycle (16 bit)	> 3	sec			
					( Set intake manifold pressure: Bank 2 OR	<= 40	kPa			
					diiference of Set intake manifold pressure; Bank 2 and pressure value (best of) of the intake manifold - bank 2	<= 20	kPa			
					) ( Set intake manifold pressure; Bank 2 OR	>= -15	kPa			
					diiference of Set intake manifold pressure; Bank 2 and pressure value (best of) of the intake manifold - bank 2	>= 150	kPa			
					) ( Condition instationary state during half engine mode switching	= FALSE	-			
					for time (see Look-Up-Table #P3499-2)	>= 0.6 to 0.85	sec			
					( scavenging rate based on scavenged air and drapped air in the cylinder )	<= 1	-			
					( Absolute value of the difference between the currrent value and previous value of the Position of the throttle valve on motor bench	<= 0.6016	%			
					two for time (see Look-Up-Table #P3499-1) )	= 0.42 to 0.84	sec			
					) No pending or confirmed DTCs Basic enabling conditions are met	= see sheet inhibit tables = see sheet enable	-			
	P3420	Diagnosis of cylinder 3 gas exchange valve control for circuit	Voltage high during driver on state (indicates	- Short to power: -	ECU is in drive state	tables = TRUE		0.5	sec continuo	us 2 Trips
		high faults	short-to-power)	$\leq$ 0.5 $\Omega$ impedance between signal and controller power						
					Enqine Speed Battery Voltaqe Battery Voltaqe	>= 80 > 10.9 < 25.5	rpm V V			
					Engine Speed Gas exchange valve is turned ON and OFF during start off driving cycle to check the working of valve	<= 255 = TRUE	1/min -			
					Basic enable conditions met  No pending or confirmed DTCs	= see sheet enable tables = see sheet inhibit	-			
	D2440	Discussion of whiteday 2 and such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as a such as	Voltage laureluine die er Wester Co-Wester	Chad to grow discon	ECU is in drive state	tables		0.5		0 T
	P3419	Diagnosis of cylinder 3 gas exchange valve control for circuit low faults	Voltage low during driver off state (indicates short- to-ground)	= Short to ground: ≤ 0.5 - Ω impedance between signal and controller ground	EGG is in drive state	= TRUE	-	0.5	sec continuo	us 2 Trips
				<u> </u>	Engine Speed Battery Voltage Battery Voltage	>= 80 > 10.9 < 25.5	rpm V V			
					Engine Speed Gas exchange valve is turned ON and OFF during start off driving cycle to check the working of valve	<= 255 = TRUE	1/min -			

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM GMXV04.2088		EN	<u> IISSION</u>	S STDS: CALULEV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions		Time Required	MIL IIIum.
					Basic enable conditions met  No pending or confirmed DTCs	= see sheet enable tables = see sheet inhibit tables	-		
	P3417	Diagnosis of cylinder 3 gas exchange valve control for open circuit faults	Voltage low during driver off state (indicates open circuit)	= Open Circuit:≥ 200 K Ω - impedance between ECU pin and load	ECU is in drive state  Engine Speed Battery Voltage Battery Voltage Engine Speed Gas exchange valve is turned ON and OFF during start off driving cycle to check the working of valve Basic enable conditions met No pending or confirmed DTCs	= TRUE  >= 80 > 10.9 < 25.5 <= 255 = TRUE  = see sheet enable tables = see sheet inhibit tables	rpm V V 1/min -	0.5 sec continuous	2 Trips
linder 5 Deactivation Solenoid	P349C	Detects "pumping air" error for cylinder 5 during half engine mode for a calibrated period fo time	(		Synchronisation half engine mode and air charge determination of first activated HEM	= TRUE	-	Continuous	2 Trips
			"Pumping Air" Error is detected	= TRUE -	cylinder Diagnose for undesired camshaft switch event active	= TRUE	-		
			for counts	= 16 counts	( Valve lift diagnosis enabled. (	= TRUE	-		
					( Engine speed Engine speed )	<= 2900 >= 750	rpm rpm		
					( Ratio of Intake manifold pressure rawvalue to the Pressure upstream throttle valve raw	<= 0.899994	-		
					Ratio of Intake manifold pressure rawvalue to the Pressure upstream throttle valve raw	>= 0.200012	-		
					( condition: first pressure upstream throttle valve measured valid	= TRUE	-		
					( validity of the pressure value (sensor) of the intake manifold - bank 1	= TRUE	-		
					( Condition massflow over throttle blade based on throttle angle valid, Bank1 )	= TRUE	-		
					time counter at first end of start in cycle (16 bit) )	> 3	sec		
					( Set intake manifold pressure; Bank 1 lesser than Positive load step threshold for set pressure	<= 40	kPa		
					OR diiference of Set intake manifold pressure; Bank 1 and pressure value (best of) of the intake manifold - bank 1 is lesser than caliberated threshid	<= 20	kPa		
					( Set intake manifold pressure; Bank 1 is greater than Negative load step threshold for differential pressure	>= -15	kPa		
					OR difference of Set intake manifold pressure; Bank 1 and pressure value (best of) of the intake manifold - bank 1 is greater than caliberated threshld )	>= 150	kPa		
					) ( Condition instationary state during half engine mode switching	= FALSE	-		

25, FEDBIN	S STDS: CALULEV125,	MISSIONS	E		I	IC SUMMARY TABLES EC GMXV04.2088	DIAGNOSTI TEST GROUP: K		)7	BD GROUP: KGMXOBDG
MIL	Time Required	s	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		sec	0.6 to 0.85	>=	for time (see Look-Up-Table #P3499-2)					
		-	1	<=	( Scavenging rate based on scavenged air and drapped air in the cylinder					
		%	0.6016	<=	( Absolute value of the difference between the currrent value and previous value of the Position of the throttle valve on motor bench					
		sec	0.42 to 0.84	=	one for time (see Look-Up-Table #P3499-1) )					
		-	TRUE	=	) Valve lift diagnosis of bank 2 enabled. (					
		rpm rpm	2900 750	<= >=	( Engine speed Engine speed )					
		-	0.200012	<=	( raw manifold pressure - Bank 2 / pressure upstream throttle valve raw (2. bank)					
		-	0.899994	>=	raw manifold pressure - Bank 2 / pressure upstream throttle valve raw (2. bank)					
		-	TRUE	=	( condition: second pressure upstream throttle valve measured valid )					
					( condition, measured intake manifold pressure valid sencond bank )					
		-	TRUE	=	( Condition Mass flow at the DK calculated from the sensor signal of the HFM valid, Bank2					
		-	TRUE	=	( Condition massflow over throttle blade based on throttle angle valid, Bank2					
		sec	3	>	time counter at first end of start in cycle (16 bit)					
		kPa	40	<=	( Set intake manifold pressure; Bank 2 OR					
		kPa	20	<=	difference of Set intake manifold pressure; Bank 2 and pressure value (best of) of the intake manifold - bank 2					
		kPa	-15	>=	Set intake manifold pressure; Bank 2					
		kPa	150	>=	OR difference of Set intake manifold pressure; Bank 2 and pressure value (best of) of the intake manifold - bank 2 )					
		-	FALSE	=	) ( Condition instationary state during half engine mode switching					
		sec	0.6 to 0.85	>=	for time (see Look-Up-Table #P3499-2)					
		-	1	<=	( scavenging rate based on scavenged air and drapped air in the cylinder					
		%	0.6016	<=	( Absolute value of the difference between the currrent value and previous value of the Position of the throttle valve on motor bench					
		sec	0.42 to 0.84	=	two for time (see Look-Up-Table #P3499-1)					
		-	see sheet inhibit tables	=	) ) No pending or confirmed DTCs					

GROUP: KGMXOBDG	07		DIAGNOS TEST GROUP:	TIC SUMMARY TABLES - KGMXV04.2088	- ECM				EMISSION	S STDS: CALULEV125, FEE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters		Enable Condition	ns	Time Required	MIL III
						Basic enabling conditions are met	=	see sheet enable tables	-		
	P318D	Detects no air charge change at the intake for cylinder 5	(			Synchronisation half engine mode and air	=	FALSE		Continuous	2 Tr
		during full engine mode for a calibrated period of time	No air charge change at the intake	= TRUE	-	charge determination of first activated HEM cylinder Diagnose for undesired camshaft switch	=	TRUE	-		
			) for counts	= 16	counts	event active ( Valve lift diagnosis enabled.	=	TRUE	-		
						( ( Engine speed	<=	2900	rpm		
						Engine speed ) (	>=	750	rpm		
						Ratio of Intake manifold pressure rawvalue to the Pressure upstream throttle valve raw	<=	0.899994	-		
						and Ratio of Intake manifold pressure rawvalue to the Pressure upstream throttle valve raw	>=	0.200012	-		
						) ( condition: first pressure upstream throttle valve measured valid	=	TRUE	-		
						, ( validity of the pressure value (sensor) of the intake manifold - bank 1 )	=	TRUE	÷		
						( Condition massflow over throttle blade based on throttle angle valid, Bank1 )	=	TRUE	-		
						( time counter at first end of start in cycle (16 bit) )	>	3	sec		
						( Set intake manifold pressure; Bank 1 lesser than Positive load step threshold for set pressure	<=	40	kPa		
						OR difference of Set intake manifold pressure; Bank 1 and pressure value (best of) of the intake manifold - bank 1 is lesser than caliberated threshld	<=	20	kPa		
						( Set intake manifold pressure; Bank 1 is greater than Negative load step threshold for differential pressure	>=	-15	kPa		
						OR difference of Set intake manifold pressure; Bank 1 and pressure value (best of) of the intake manifold - bank 1 is greater than caliberated threshld	>=	150	kPa		
						) ( Condition instationary state during half engine mode switching	=	FALSE	-		
						for time (see Look-Up-Table #P3499-2)	>=	0.6 to 0.85	sec		
						( Scavenging rate based on scavenged air and drapped air in the cylinder	<=	1	-		
						/ ( Absolute value of the difference between the currrent value and previous value of the Position of the throttle valve on motor bench	<=	0.6016	%		
						one for time (see Look-Up-Table #P3499-1)	=	0.42 to 0.84	sec		
						) Valve lift diagnosis of bank 2 enabled.	=	TRUE	-		

GROUP: KGMXOBDO	907		TEST GROUP: N	TIC SUMMARY TABLES EC (GMXV04.2088	IVI		Е	MISSION	S STDS: CALULEV125	FEDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	Time Required	MIL II
					( Engine speed Engine speed	<= >=	2900 750	rpm rpm		
					) (					
					raw manifold pressure - Bank 2 / pressure upstream throttle valve raw (2. bank) raw manifold pressure - Bank 2 / pressure	<= >=	0.200012 0.899994	-		
					upstream throttle valve raw (2. bank)		0.00001	-		
					( condition: second pressure upstream throttle valve measured valid )	=	TRUE	-		
					( condition, measured intake manifold pressure valid sencond bank )					
					( Condition Mass flow at the DK calculated from the sensor signal of the HFM valid, Bank2	=	TRUE	-		
					( Condition massflow over throttle blade based on throttle angle valid, Bank2	=	TRUE	-		
					) time counter at first end of start in cycle (16 bit) (	>	3	sec		
					( Set intake manifold pressure; Bank 2	<=	40	kPa		
					OR diiference of Set intake manifold pressure; Bank 2 and pressure value (best of) of the intake manifold - bank 2	<=	20	kPa		
					, ( Set intake manifold pressure; Bank 2 OR	>=	-15	kPa		
					diiference of Set intake manifold pressure; Bank 2 and pressure value (best of) of the intake manifold - bank 2 )	>=	150	kPa		
					) ( Condition instationary state during half	=	FALSE			
					engine mode switching for time (see Look-Up-Table #P3499-2) )	>=	0.6 to 0.85	sec		
					( scavenging rate based on scavenged air and drapped air in the cylinder	<=	1	-		
					( Absolute value of the difference between the currrent value and previous value of the Position of the throttle valve on motor bench	<=	0.6016	%		
					two for time (see Look-Up-Table #P3499-1) )	=	0.42 to 0.84	sec		
					) ) No pending or confirmed DTCs	=	see sheet inhibit	-		
					Basic enabling conditions are met	=	see sheet enable tables	-		
	P3436	Diagnosis of cylinder 5 gas exchange valve control for circuit high faults	Voltage high during driver on state (indicates short-to-power)	Short to power: ≤ 0.5 Ω impedance between signal and controller power	ECU is in drive state	=	TRUE	-	0.5 sec contin	iuous 2
					Engine Speed Battery Voltage	>= >	80 10.9	rpm V		
					Battery Voltage Engine Speed	< <=	25.5 255	V 1/min		
					Gas exchange valve is turned ON and OFF during start off driving cycle to check the	=	TRUE	-		
					working of valve Basic enable conditions met	=	see sheet enable tables	-		

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: F	TIC SUMMARY TABLES ECM GMXV04.2088			E	MISSION	IS STDS:	CALULE	EV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	E	Enable Condition	s		Time Require	ed	MIL IIIum
					No pending or confirmed DTCs	= :	see sheet inhibit tables	-				
	P3435	Diagnosis of cylinder 5 gas exchange valve control for circuit low faults	Voltage low during driver off state (indicates short-to-ground)	Ω impedance between signal and controller	ECU is in drive state	=	TRUE	-	0.5	sec	continuous	2 Trips
				ground	Engine Speed Battery Voltage Battery Voltage Engine Speed Gas exchange valve is turned ON and OFF	>= > < <= =	80 10.9 25.5 255 TRUE	rpm V V 1/min				
					during start off driving cycle to check the working of valve Basic enable conditions met No pending or confirmed DTCs		see sheet enable tables see sheet inhibit tables	-				
	P3433	Diagnosis of cylinder 5 gas exchange valve control for open circuit faults	Voltage low during driver off state (indicates open circuit)	= Open Circuit≿ 200 K Ω - impedance between ECU pin and load	ECU is in drive state	=	TRUE	-	0.5	sec	continuous	2 Trips
					Engine Speed Battery Voltage Battery Voltage Engine Speed Gas exchange valve is turned ON and OFF during start off driving cycle to check the	>= >	80 10.9 25.5 255 TRUE	rpm V V 1/min -				
					working of valve Basic enable conditions met No pending or confirmed DTCs		see sheet enable tables see sheet inhibit tables	- -				
der 8 Deactivation Solenoid	P349F	Detects "pumping air" error for cylinder 8 during half engine mode for a calibrated period fo time	(		Synchronisation half engine mode and air charge determination of first activated HEM cylinder	=	TRUE	-			Continuous	2 Trip
			"Pumping Air" Error is detected	= TRUE -	Diagnose for undesired camshaft switch event active	=	TRUE	-				
			for counts	= 16 counts	Valve lift diagnosis enabled. (	=	TRUE	-				
					Engine speed Engine speed )	<= >=	2900 750	rpm rpm				
					Ratio of Intake manifold pressure rawvalue to the Pressure upstream throttle valve raw	<=	0.899994	-				
					Ratio of Intake manifold pressure rawvalue to the Pressure upstream throttle valve raw	>=	0.200012	-				
					( condition: first pressure upstream throttle valve measured valid )	=	TRUE	-				
					( validity of the pressure value (sensor) of the intake manifold - bank 1 )	=	TRUE	-				
					( Condition massflow over throttle blade based on throttle angle valid, Bank1)	=	TRUE	-				
					( time counter at first end of start in cycle (16 bit) )	>	3	sec				
					( ( Set intake manifold pressure; Bank 1 lesser than Positive load step threshold for set pressure	<=	40	kPa				
					OR diliference of Set intake manifold pressure; Bank 1 and pressure value (best of) of the intake manifold - bank 1 is lesser than caliberated threshld	<=	20	kPa				

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM GMXV04.2088				EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIur
					( Set intake manifold pressure; Bank 1 is greater than Negative load step threshold for differential pressure	>=	-15	kPa		
					OR difference of Set intake manifold pressure; Bank 1 and pressure value (best of) of the intake manifold - bank 1 is greater than caliberated threshid )	>=	150	kPa		
					( Condition instationary state during half engine mode switching	=	FALSE	-		
					for time (see Look-Up-Table #P3499-2)	>=	0.6 to 0.85	sec		
					( Scavenging rate based on scavenged air and drapped air in the cylinder )	<=	1	-		
					( Absolute value of the difference between the currrent value and previous value of the Position of the throttle valve on motor bench	<=	0.6016	%		
					one for time (see Look-Up-Table #P3499-1) )	=	0.42 to 0.84	sec		
					) Valve lift diagnosis of bank 2 enabled. (	=	TRUE	-		
					( Engine speed Engine speed )	<= >=	2900 750	rpm rpm		
					( raw manifold pressure - Bank 2 / pressure upstream throttle valve raw (2. bank) raw manifold pressure - Bank 2 / pressure upstream throttle valve raw (2. bank)	<= >=	0.200012 0.899994	-		
					) ( condition: second pressure upstream throttle valve measured valid	=	TRUE	-		
					( condition, measured intake manifold pressure valid sencond bank )					
					( Condition Mass flow at the DK calculated from the sensor signal of the HFM valid, Bank2	=	TRUE	-		
					( Condition massflow over throttle blade based on throttle angle valid, Bank2	=	TRUE	-		
					) time counter at first end of start in cycle (16 bit)	>	3	sec		
					( ( Set intake manifold pressure; Bank 2	<=	40	kPa		
					OR diiference of Set intake manifold pressure; Bank 2 and pressure value (best of) of the intake manifold - bank 2	<=	20	kPa		
					( Set intake manifold pressure; Bank 2	>=	-15	kPa		
					difference of Set intake manifold pressure; Bank 2 and pressure value (best of) of the intake manifold - bank 2 )	>=	150	kPa		
					) ( Condition instationary state during half	=	FALSE	-		
					engine mode switching for time (see Look-Up-Table #P3499-2)	>=	0.6 to 0.85	sec		

D GROUP: KGMXOBDG	07		DIAGNOS' TEST GROUP: I	FIC SUMMARY TABLES ECM CGMXV04.2088			EMISSIONS	STDS: CALULEV125, FE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Co	nditions	Time Required	MIL IIIu
					scavenging rate based on scavenged air and drapped air in the cylinder	<= 1	-		
					Absolute value of the difference between the currrent value and previous value of the Position of the throttle valve on motor bench	<= 0.6016	%		
					two for time (see Look-Up-Table #P3499-1)	= 0.42 to 0.	84 sec		
					) ) No pending or confirmed DTCs Basic enabling conditions are met	= see sheet ir tables = see sheet er			
					Ů	tables			
	P3190	Detects no air charge change at the intake for cylinder 8 during full engine mode for a calibrated period of time	( No air charge change at the intake	= TRUE -	Synchronisation half engine mode and air charge determination of first activated HEM cylinder Diagnose for undesired camshaft switch	= FALSE		Continuous	2 Tri
			ino air charge change at the intake     for counts	= TRUE - = 16 counts	Diagnose for undesired camsnart switch event active ( Valve lift diagnosis enabled.	= TRUE			
					( ( Engine speed Engine speed	<= 2900 >= 750	rom rpm		
					) ( Ratio of Intake manifold pressure rawvalue to the Pressure upstream throttle valve raw	<= 0.89999	4 _		
					and Ratio of Intake manifold pressure rawvalue to the Pressure upstream throttle valve raw	>= 0.20001	2 _		
					) ( condition: first pressure upstream throttle	= TRUE			
					valve measured valid ) ( validity of the pressure value (sensor) of the	= TRUE			
					intake manifold - bank 1 ) ( Condition massflow over throttle blade	= TRUE			
					based on throttle angle valid, Bank1 ) ( time counter at first end of start in cycle (16	> 3	sec		
					bit) ) (				
					Set intake manifold pressure; Bank 1 lesser than Positive load step threshold for set pressure OR	<= 40	kPa		
					difference of Set intake manifold pressure; Bank 1 and pressure value (best of) of the intake manifold - bank 1 is lesser than caliberated threshid	<= 20	kPa		
					( Set intake manifold pressure; Bank 1 is greater than Negative load step threshold for differential pressure	>= -15	kPa		
					OR diliference of Set intake manifold pressure; Bank 1 and pressure value (best of) of the intake manifold - bank 1 is greater than caliberated threshld )	>= 150	kPa		
					) ( Condition instationary state during half engine mode switching	= FALSE	-		
					for time (see Look-Up-Table #P3499-2)	>= 0.6 to 0.8	sec sec		

FEDBII	S STDS: CALULEV125, I	MISSIONS				GMXV04.2088	TEST GROUP: K		107	GROUP: KGMXOBDG
МІІ	Time Required	ıs	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		-	1	<=	( Scavenging rate based on scavenged air and drapped air in the cylinder					
		%	0.6016	<=	) ( Absolute value of the difference between the currrent value and previous value of the Position of the throttle valve on motor bench					
		sec	0.42 to 0.84	=	one for time (see Look-Up-Table #P3499-1)					
		-	TRUE	=	) Valve lift diagnosis of bank 2 enabled.					
		rpm rpm	2900 750	<= >=	( Engine speed Engine speed )					
		-	0.200012	<=	raw manifold pressure - Bank 2 / pressure upstream throttle valve raw (2. bank)					
		-	0.899994	>=	raw manifold pressure - Bank 2 / pressure upstream throttle valve raw (2. bank)					
		-	TRUE	=	( condition: second pressure upstream throttle valve measured valid					
					( condition, measured intake manifold pressure valid sencond bank )					
		-	TRUE	=	( Condition Mass flow at the DK calculated from the sensor signal of the HFM valid, Bank2 )					
		-	TRUE	=	( Condition massflow over throttle blade based on throttle angle valid, Bank2					
		sec	3	>	time counter at first end of start in cycle (16 bit)					
		kPa	40	<=	( ( Set intake manifold pressure; Bank 2					
		kPa	20	<=	OR difference of Set intake manifold pressure; Bank 2 and pressure value (best of) of the intake manifold - bank 2					
		kPa	-15	>=	( Set intake manifold pressure; Bank 2 OR					
		kPa	150	>=	difference of Set intake manifold pressure; Bank 2 and pressure value (best of) of the intake manifold - bank 2					
		-	FALSE	=	) ( Condition instationary state during half					
		sec	0.6 to 0.85	>=	engine mode switching for time (see Look-Up-Table #P3499-2) )					
		-	1	<=	( scavenging rate based on scavenged air and drapped air in the cylinder					
		%	0.6016	<=	) ( Absolute value of the difference between the currrent value and previous value of the Position of the throttle valve on motor bench					
		sec	0.42 to 0.84	=	two for time (see Look-Up-Table #P3499-1)					
		-	see sheet inhibit	=	) ) ) No pending or confirmed DTCs					
		-	tables see sheet enable tables	=	Basic enabling conditions are met					

OBD GROUP: KGMXOBDG0	17		DIAGNOST TEST GROUP: P	TIC SUMMARY TABLES ECM (GMXV04.2088			EMISSIO	NS STDS:	CALULEV	125, FED-	-BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Cor	ditions		Time Required		MIL IIIum.
	P3460	Diagnosis of cylinder 8 gas exchange valve control for circuit high faults	Voltage high during driver on state (indicates short-to-power)	Short to power: ≤ 0.5 Ω impedance between signal and controller power	ECU is in drive state  Engine Speed Battery Voltage Battery Voltage Battery Voltage Engine Speed Gas exchange valve is turned ON and OFF during start off driving cycle to check the working of valve Basic enable conditions met  No pending or confirmed DTCs	= TRUE  >= 80 > 10.9 < 25.5 <= 255 = TRUE  = see sheet er tables = see sheet in tables		0.5	sec (	continuous	2 Trips
	P3459	Diagnosis of cylinder 8 gas exchange valve control for circuit low faults	Voltage low during driver off state (indicates short-to-ground)	= Short to ground: ≤ 0.5 - Ω impedance between signal and controller ground	ECU is in drive state  Engine Speed Battery Voltage Battery Voltage Engine Speed Gas exchange valve is turned ON and OFF during start off driving cycle to check the working of valve Basic enable conditions met No pending or confirmed DTCs	= TRUE  >= 80 > 10.9 < 25.5 <= 255 = TRUE  = see sheet or tables = see sheet in tables		0.5	SEC (	continuous	2 Trips
	P3457	Diagnosis of cylinder 8 gas exchange valve control for open circuit faults	Voltage low during driver off state (indicates open circuit)	= Open Circuit:≥ 200 K Ω - impedance between ECU pin and load	ECU is in drive state  Engine Speed Battery Voltage Battery Voltage Engine Speed Gas exchange valve is turned ON and OFF during start off driving cycle to check the working of valve Basic enable conditions met  No pending or confirmed DTCs	= TRUE  >= 80 > 10.9 < 25.5 <= 25.5 = TRUE  = see sheet er tables = see sheet in tables		0.5	sec	continuous	2 Trips
Ignition Coils	P2301	Diagnoses the Ignition Coil "A" Primary low side driver circuit for circuit high faults.	Voltage high during driver on state (indicates short-to-power)	Short to power:     S.5.0 impedance     between signal and     controller power	Battery voltage  Battery voltage Ignition synchronized Endine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	> 10.9  < 655,34 = TRUE > 1400 > 9  = see sheet er tables	V rpm counts	0,4	Sec (	continuous	2 Trips
	P2300	Diagnoses the Ignition Coil "A" Primary low side driver circuit for circuit low faults.	Voltage low during driver off state (indicates short- to-ground)	= Short to ground: ≤ 0.5 - Ω impedance between signal and controller ground	Battery voltage Battery voltage Ignition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	> 10.9  < 655.34 = TRUE > 1400 > 9  = see sheet er tables	V V rpm counts	0,4	Sec	continuous	2 Trips
	P0351	Diagnoses the Ignition Coil "A" Primary low side driver circuit for open circuit faults.	Voltage low during driver off state (indicates open circuit)	= Open Circuit : ≥ 200 KΩ impedance between ECU pin and load	Battery voltage Battery voltage	> 10.9	V	0,4	sec	continuous	2 Trips

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM GMXV04.2088		EMISSION:	S STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					Ignition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	= TRUE - > 1400 rpm > 9 counts  = see sheet enable - tables		
	P2304	Diagnoses the Ignition Coil "H" low side driver circuit for circuit high faults.	Voltage high during driver on state (indicates short-to-power)	= Short to power: ≤ 0.5 Ω impedance between signal and controller power	Battery voltage	> 10.9 V	0,4 sec continuous	2 Trips
					Ignition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	= TRUE - > 1400 rpm > 9 counts  = see sheet enable - tables		
	P2303	Diagnoses the Ignition Coil "H" Primary low side driver circuit for circuit low faults.	Voltage low during driver off state (indicates short- to-ground)	= Short to ground: ≤ 0.5 - Ω impedance between signal and controller ground	Battery voltage	> 10.9 V	0,4 sec continuous	2 Trips
					Batter voltace lignition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	< 655.34 V = TRUE - > 1400 rpm > 9 counts = see sheet enable - tables		
	P0352	Diagnoses the Ignition Coil "H" Primary low side driver circuit for open circuit faults.	Voltage low during driver off state (indicates open circuit)	= Open Circuit : ≥ 200 - KΩ impedance between ECU pin and load	Battery voltage	> 10.9 V	0,4 sec continuous	2 Trips
				ivac	Battery voltage Ignition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	<ul> <li>655.34 V</li> <li>TRUE rom</li> <li>1400 rom</li> <li>9 counts</li> </ul> see sheet enable rables		
	P2307	Diagnoses the Ignition Coil "D" low side driver circuit for circuit high faults.	Voltage high during driver on state (indicates short-to-power)	= Short to power: ≤ 0.5 Ω impedance between signal and controller power	Battery voltage	> 10.9 V	0,4 sec continuous	2 Trips
					Battery voltage lanition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	<ul> <li>655.34 V</li> <li>TRUE - 1400 rpm</li> <li>9 counts</li> </ul>		
	P2306	Diagnoses the Ignition Coil "D" low side driver circuit for circuit low faults.	Voltage low during driver off state (indicates short- to-ground)	= Short to ground: ≤ 0,5 - Ω impedance between signal and controller	Battery voltage	> 10.9 V	0,4 sec continuous	2 Trips
				ground	Battery voltage Ignition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once	< 655.34 V = TRUE - > 1400 rpm > 9 counts		
					Basic enable conditions met	= see sheet enable - tables		

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: P	TIC SUMMARY TABLES ECM (GMXV04.2088		EMISSION	S STDS: CALULEV125, FED	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	P0353	Diagnoses the Ignition Coil "D" Primary low side driver circuit for open circuit faults.	Voltage low during driver off state (indicates open circuit)	= Open Circuit : ≥ 200 - KΩ impedance between ECU pin and load	Battery voltage Battery voltage Ignition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	> 10.9 V  < 655.34 V = TRUE - > 1400 rpm > 9 counts  = see sheet enable - tables	0,4 sec continuous	2 Trips
	P2310	Diagnoses the Ignition Coil *C* low side driver circuit for circuit high faults.	Voltage high during driver on state (indicates short-to-power)	Short to power:     S.5.0 impedance     between signal and     controller power	Battery voltage Battery voltage Ignition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	> 10.9 V  < 655.34 V = TRUE - > 1400 rpm > 9 counts  = see sheet enable - tables	0,4 sec continuous	2 Trips
	P2309	Diagnoses the Ignition Coil "C" low side driver circuit for circuit low faults.	Voltage low during driver off state (indicates short- to-ground)	= Short to ground: ≤ 0.5 - Ω impedance between signal and controller ground  around	Battery voltage  Battery voltage Ignition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	> 10.9 V  < 655.34 V = TRUE - > 1400 rpm > 9 counts  = see sheet enable - tables	0,4 sec continuous	2 Trips
	P0354	Diagnoses the Ignition Coil "C" Primary low side driver circuit for open circuit faults.	Voltage low during driver off state (indicates open circuit)	= Open Circuit : ≥ 200 - KΩ Impedance between ECU pin and load	Battery voltage  Battery voltage Ignition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	> 10.9 V  < 655.34 V = TRUE - > 1400 rpm > 9 counts  = see sheet enable - tables	0,4 sec continuous	2 Trips
	P2313	Diagnoses the Ignition Coil "B" Primary low side driver circuit for circuit high faults.	Voltage high during driver on state (indicates short-to-power)	= Short to power: ≤ 0.5 Ω impedance between signal and controller power	Battery voltage  Battery voltage Ignition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	> 10.9 V  < 655.34 V = TRUE - > 1400 rpm > 9 counts  = see sheet enable - tables	0,4 sec continuous	2 Trips
	P2312	Diagnoses the Ignition Coil "B" Primary low side driver circuit for circuit low faults.	Voltage low during driver off state (indicates short- to-ground)	= Short to ground: ≤ 0.5 - Ω impedance between signal and controller ground	Battery voltage Battery voltage Ignition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	> 10.9 V  < 655.34 V = TRUE - > 1400 rpm > 9 counts  = see sheet enable - tables	0,4 sec continuous	2 Trips

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM (GMXV04.2088		EMISSI	ONS STDS: CALULEV125, FED	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	P0355	Diagnoses the Ignition Coil "B" Primary low side driver circuit for open circuit faults.	Voltage low during driver off state (indicates open circuit)	= Open Circuit : ≥ 200 - KΩ impedance between ECU pin and load	Battery voltage Battery voltage	> 10.9 V	0,4 sec continuous	2 Trips
					Ionition synchronized Enaine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	= TRUE - > 1400 rpm > 9 counts  = see sheet enable - tables		
	P2316	Diagnoses the Ignition Coil "E" low side driver circuit for circuit high faults.	Voltage high during driver on state (indicates short-to-power)	= Short to power: ≤ 0.5 Ω impedance between signal and controller power	Battery voltage	> 10.9 V	0,4 sec continuous	2 Trips
					Battery voltage Ignition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	< 655.34 V = TRUE - > 1400 rpm > 9 counts = see sheet enable tables		
	P2315	Diagnoses the Ignition Coil "E" low side driver circuit for circuit low faults.	Voltage low during driver off state (indicates short- to-ground)	= Short to ground: ≤ 0.5 - Ω impedance between signal and controller ground	Battery voltage	> 10.9 V	0,4 sec continuous	2 Trips
				ground	Battery voltage lantition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	<ul> <li>655.34 V</li> <li>TRUE -</li> <li>1400 rpm</li> <li>9 counts</li> </ul>		
	P0356	Diagnoses the Ignition Coil "E" Primary low side driver circuit for open circuit faults.	Voltage low during driver off state (indicates open circuit)	= Open Circuit : ≥ 200 - KΩ impedance between ECU pin and	Battery voltage	> 10.9 V	0,4 sec continuous	2 Trips
				load	Battery voltage lantition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	<ul> <li>655.34 V</li> <li>TRUE -</li> <li>1400 rpm</li> <li>9 counts</li> </ul>		
	P2319	Diagnoses the Ignition Coil "G" low side driver circuit for circuit high faults.	Voltage high during driver on state (indicates short-to-power)	= Short to power: - ≤ 0.5 Ω impedance between signal and controller power	Battery voltage	> 10.9 V	0,4 sec continuous	2 Trips
					Battery voltage lanition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once Basic enable conditions met	<ul> <li>655.34 V</li> <li>TRUE -</li> <li>1400 rpm</li> <li>9 counts</li> </ul>		
	P2318	Diagnoses the Ignition Coil "G" Primary low side driver circuit for circuit low faults.	Voltage low during driver off state (indicates short-to-ground)	= Short to ground: ≤ 0.5 - Ω impedance between signal and controller	Battery voltage	> 10.9 V	0,4 sec continuous	2 Trips
				ground	Battery voltage lgnition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once	< 655.34 V = TRUE - > 1400 rpm > 9 counts	:	

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: P	TIC SUMMARY TABLES ECM KGMXV04.2088		EMISSI	DNS STDS: CALULEV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					Basic enable conditions met	= see sheet enable - tables		
	P0357	Diagnoses the Ignition Coil "G" Primary low side driver circuit for open circuit faults.	Voltage low during driver off state (indicates open circuit)	= Open Circuit : ≥ 200 - KΩ impedance between ECU pin and	Battery voltage	> 10.9 V	0,4 sec continuous	2 Trips
				load	Battery voltage Ignition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once.	< 655.34 V = TRUE - > 1400 rpm > 9 counts		
					Basic enable conditions met	= see sheet enable - tables		
	P2322	Diagnoses the Ignition Coil "F" low side driver circuit for circuit high faults.	Voltage high during driver on state (indicates short-to-power)	= Short to power:  \$ 0.5 \( \Omega\) impedance between signal and controller power	Battery voltage	> 10.9 V	0,4 sec continuous	no MIL
					Battery voltage Ignition swnchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once	< 655.34 V = TRUE - > 1400 rpm > 9 counts		
					at least once Basic enable conditions met	= see sheet enable - tables		
	P2321	Diagnoses the Ignition Coil "F" low side driver circuit for circuit low faults.	Voltage low during driver off state (indicates short-to-ground)	= Short to ground: ≤ 0.5 Ω impedance between signal and controller ground	Battery voltage	> 10.9 V	0,4 sec continuous	2 Trips
				ulounu	Battery voltage Ignition swnchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired at least once.	< 655.34 V = TRUE - > 1400 rbm > 9 counts		
					Basic enable conditions met	= see sheet enable - tables		
	P0358	Diagnoses the Ignition Coil "F" Primary low side driver circuit for open circuit faults.	Voltage low during driver off state (indicates open circuit)	= Open Circuit : ≥ 200 - KΩ impedance between ECU pin and load	Battery voltage	> 10.9 V	0,4 sec continuous	2 Trips
				iodu	Battery voltage Ignition synchronized Engine speed Difference between new and old ignition counter ensuring that all cylinder were fired	< 655.34 V = TRUE - > 1400 rpm > 9 counts		
					at least once Basic enable conditions met	= see sheet enable - tables		
Fuel Injection Valve - Low Side - Cylinder 1	P1248	Diagnoses the Cylinder 1 Injector "A" for short circuit fault between high side and low side of driver circuit	Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	Battery Voltage	>= 10.9 V	2 events continuous	2 Trips
				injector supply voliage	Battery Voltage Basic enable conditions met No pending or confirmed DTCs	<= 6553.5 V = see sheet enable tables = see sheet inhibit -		
	P029D	Detects mechanical failure open high pressure injection valve	Number of misfire counter for cylinder 4	> 100 -	Diagnosis inhibited by statistical function	tables	5 sec continuous	2 Trips
	1 0235	1	Rail pressure control minimum error is set	= TRUE -	Engine speed Engine speed Engine speed relative air charge Half engine mode active for time Electrical failure with high pressure injectors	< 6000 pm > 1520 pm < 100,008 % = FALSE - >= 0.5 sec = FALSE -		2 11.00
	1				No pending or confirmed DTCs	= see sheet inhibit - tables		

OBD GROUP: KGMXOBDG07	7		DIAGNOS TEST GROUP: 1	TIC SUMMARY TABLES ECM KGMXV04.2088		EMISSIONS	STDS: CALULEV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					Basic enable conditions met	= see sheet enable - tables		
	P0201	Diagnoses the Cylinder 1 Injector "A" low side of driver circuit for open circuit faults	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit: ≥ 200 K Ω impedance between ECU pin and load	Battery Voltage  Battery Voltage Basic enable conditions met  No pending or confirmed DTCs	>= 10.9 V  <= 6553.5 V = see sheet enable - tables = see sheet inhbit - tables	2 events continuous	2 Trips
		Diagnoses the Cylinder 1 Injector "A" low side of driver circuit for short circuit faults (short circuit to battery or short circuit to ground)	Voltage low during driver OFF state (indicates short circuit to ground)  OR  Voltage high during driver ON state (indicates short circuit to battery)	= Short to ground: ≤ 0.5 Ω impedance between ECU pin and ground  = Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	>= 10.9 V  <= 6553.5 V = see sheet enable - tables = see sheet inhibit tables	2 events continuous	2 Trips
Fuel Injection Valve - Low Side - Cylinder 2	P1249	Diagnoses the Cylinder 2 Injector "A" for short circuit fault between high side and low side of driver circuit	Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: \$ 0.5 Ω impedance between ECU pin and injector supply voltage	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	>= 10.9 V  <= 6553.5 V = see sheet enable - tables = see sheet inhibit - tables	2 events continuous	2 Trips
	P02A1	Detects mechanical failure open high pressure injection valve 8	Number of misfire counter for cylinder 2 Rail pressure control minimum error is set	> 100 - = TRUE -	Diagnosis inhibited by statistical function Engine speed Engine speed Engine speed relative air charqe Half engine mode active for time Electrical failure with high pressure injectors No pending or confirmed DTCs Basic enable conditions met	= FALSE -  < 6000 rpm > 1520 rpm < 100.008 % = FALSE - >= 0.5 sec = FALSE - = see sheet inhibit tables = see sheet enable tables	5 sec continuous	2 Trips
	P0202	Diagnoses the Cylinder 2 Injector "A" low side of driver circuit for open circuit faults	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit: ≥ 200 K Ω impedance between ECU pin and load	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	>= 10.9 V  <= 6553.5 V = see sheet enable - tables = see sheet inhbit - tables	2 events continuous	2 Trips
		Diagnoses the Cylinder 2 Injector "A" low side of driver circuit for short circuit faults (short circuit to battery or short circuit to ground)	Voltage low during driver OFF state (indicates short circuit to ground)  OR  Voltage high during driver ON state (indicates short circuit to battery)	= Short to ground: ≤ 0.5   Ω impedance between ECU pin and ground  = Short to power: - ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	>= 10.9 V  <= 6553.5 V = see sheet enable - tables = see sheet inhibit - tables	2 events continuous	2 Trips
Fuel Injection Valve - Low Side - Cylinder 3	P124A	Diagnoses the Cylinder 3 Injector "A" for short circuit fault between high side and low side of driver circuit	Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	Battery Voltage Battery Voltage Basic enable conditions met	>= 10.9 V <= 6553.5 V = see sheet enable - tables	2 events continuous	2 Trips

D GROUP: KGMXOBDG0	7		TEST GROUP:	TIC SUMMARY TABLES EC KGMXV04.2088		EMIS	SIONS STDS: CALULEV125, FED	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIur
					No pending or confirmed DTCs	= see sheet inhibit tables		
	P02A5	Detects mechanical failure open high pressure injection valve 4	Number of misfire counter for cylinder 3 Rail pressure control minimum error is set	> 100 - = TRUE -	Diagnosis inhibited by statistical function Engine speed Engine speed relative air charge Half engine mode active for time Electrical failure with high pressure injectors No pending or confirmed DTCs	> 1520 m < 100.008 = FALSE	- 5 sec continuous om om %	2 Tri
	P0203	Diagnoses the Cylinder 3 Injector "A" low side of driver circuit for open circuit faults	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit: ≥ 200 K - Ω impedance between ECU pin and load	Basic enable conditions met  Battery Voltage  Battery Voltage Basic enable conditions met No pending or confirmed DTCs		V 2 events continuous V -	2 Trips
			Voltage low during driver OFF state (indicates short circuit to ground)  OR Voltage high during driver ON state (indicates short circuit to battery)	= Short to ground: ≤ 0,5   Ω impedance between ECU pin and ground  = Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs		V 2 events continuous V -	2 Trips
njection Valve - Low Side - Cylinder 4	P124B	Diagnoses the Cylinder 4 Injector "A" for short circuit fault between high side and low side of driver circuit	Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	Battery Voltage  Battery Voltage Basic enable conditions met  No pending or confirmed DTCs		V 2 events continuous V -	2 Trips
	P02A9	Detects mechanical failure open high pressure injection valve 3	Number of misfire counter for cylinder 4 Rail pressure control minimum error is set	> 100 - = TRUE -	Diagnosis inhibited by statistical function Engine speed Engine speed relative air charge Half engine mode active for time Electrical failure with high pressure injectors No pending or confirmed DTCs Basic enable conditions met	> 1520 m < 100.008 = FALSE	- 5 sec continuous om om %	2 Tr
	P0204	Diagnoses the Cylinder 4 Injector "A" low side of driver circuit for open circuit faults	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit: ≥ 200 K Ω impedance between ECU pin and load	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs		V 2 events continuous V -	2 Trips
		Diagnoses the Cylinder 4 Injector "A" low side of driver circuit for short circuit faults (short circuit to battery or short circuit to	Voltage low during driver OFF state (indicates short circuit to ground)	= Short to ground: ≤ 0,5 - Ω impedance between	Battery Voltage	>= 10.9	V 2 events continuous	2 Trips

OBD GROUP: KGMXOBDG07	,		DIAGNOS' TEST GROUP: I	TIC SUMMARY TABLES KGMXV04.2088	- ECM			MISSION	IS STDS: C	ALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters	Enable Condition	s	Tin	me Required	MIL IIIum.
			Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	-	Basic enable conditions met  No pending or confirmed DTCs	= see sheet enable tables  = see sheet inhibit tables				
Fuel Injection Valve - Low Side - Cylinder 5	P124C	Diagnoses the Cylinder 5 Injector "A" for short circuit fault between high side and low side of driver circuit	Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: s 0.5 Ω impedance between ECU pin and injector supply voltage	-	Battery Voltage and Battery Voltage and Base conditions met and No pending or confirmed DTCs	>= 10.9  <= 6553.5  = see sheet enable tables  = see sheet inhibit tables	v v -	2	events continuo	us 2 Trips
	P02AD	Detects mechanical failure open high pressure injection valve 2	Number of misfire counter for cylinder 5 Rail pressure control minimum error is set	> 100 = TRUE	-	Diagnosis inhibited by statistical function Engine speed Engine speed relative air charge Half engine mode active for time Electrical failure with high pressure injectors No pending or confirmed DTCs Basic enable conditions met	= FALSE < 6000 > 1520 < 100.008 = FALSE >= 0.5 = FALSE = see sheet inhibit tables = see sheet enable tables	rpm rpm % - sec - -	5	sec continuo	us 2 Trips
	P0205	Diagnoses the Cylinder 5 Injector "A" low side of driver circuit for open circuit faults.	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit: ≥ 200 K Ω impedance between ECU pin and load	-	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	>= 10.9  <= 6553.5 = see sheet enable tables = see sheet inhibit tables	V V -	2	events continuo	us 2 Trips
		Diagnoses the Cylinder 5 Injector "A" low side of driver circuit for short circuit faults (short circuit to battery or short circuit to ground)	Voltage low during driver OFF state (indicates short circuit to ground)  OR  Voltage high during driver ON state (indicates short circuit to battery)	= Short to ground: ≤ 0.5 Ω impedance between ECU pin and ground  = Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	-	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	>= 10.9  <= 6553.5 = see sheet enable tables  = see sheet inhibit tables	V V -	2	events continuo	us 2 Trips
Fuel Injection Valve - Low Side - Cylinder 6	P124D	Diagnoses the Cylinder 6 Injector "A" for short circuit fault between high side and low side of driver circuit	Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	-	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	>= 10.9  <= 6553.5 = see sheet enable tables = see sheet inhibit tables	V V -	2	events continuo	us 2 Trips
	P02B1	Detects mechanical failure open high pressure injection valve 5	Number of misfire counter for cylinder 6 Rail pressure control minimum error is set	> 100 = TRUE	-	Diagnosis inhibited by statistical function  Engine speed Engine speed Engine speed Half engine mode active for time Electrical Halfure with high pressure injectors No pending or confirmed DTCs Basic enable conditions met	= FALSE  < 6000 > 1520 < 100.008 = FALSE >= 0.5 = FALSE = see sheet inhibit tables = see sheet enable tables	rpm rpm % - sec -	5	sec continuo	us 2 Trips

OBD GROUP: KGMXOBDG0	7		DIAGNOS' TEST GROUP: I	TIC SUMMARY TABLES ECM KGMXV04.2088		EMISSIONS	S STDS: CALULEV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	P0206	Diagnoses the Cylinder 6 Injector "A" low side of driver circuit for open circuit faults	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit: ≥ 200 K - Ω impedance between ECU pin and load	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	>= 10.9 V <= 6553.5 V = see sheet enable - tables = see sheet inhibit - tables	2 events continuous	2 Trips
		Diagnoses the Cylinder 6 Injector "A" low side of driver circuit for short circuit faults (short circuit to battery or short circuit to ground)	Voltage low during driver OFF state (indicates short circuit to ground)  OR Voltage high during driver ON state (indicates short circuit to battery)	= Short to ground: \$ 0.5 - \Omega impedance between ECU pin and ground  = Short to power:  \$ 0.5 \Omega impedance between ECU pin and injector supply voltage	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	>= 10.9 V  <= 6553.5 V = see sheet enable - tables = see sheet inhibit - tables	2 events continuous	2 Trips
uel Injection Valve - Low Side - Cylinder 7	P124E	Diagnoses the Cylinder 7 Injector "A" for short circuit fault between high side and low side of driver circuit	Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	>= 10.9 V  <= 6553.5 V = see sheet enable - tables = see sheet inibit - tables	2 events continuous	2 Trips
	P02B5	Detects mechanical failure open high pressure injection valve 7	Number of misfire counter for cylinder 7 Rail pressure control minimum error is set	> 100 - = TRUE -	Diagnosis inhibited by statistical function Engine speed Engine speed relative air charge Half engine mode active for time Electrical failure with high pressure injectors No pending or confirmed DTCs Basic enable conditions met	= FALSE -  < 6000 rpm > 1520 rpm < 100.008 % = FALSE - >= 0.5 sec = FALSE - = see sheet inhibit tables = see sheet enable tables	5 sec continuous	2 Trips
	P0207	Diagnoses the Cylinder 7 Injector "A" low side of driver circuit for open circuit faults	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit: ≥ 200 K - Ω impedance between ECU pin and load	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	>= 10.9 V  <= 6553.5 V = see sheet enable - tables = see sheet inhibit - tables	2 events continuous	2 Trips
		Diagnoses the Cylinder 7 Injector "A" low side of driver circuit for short circuit faults (short circuit to battery or short circuit to ground)	Voltage low during driver OFF state (indicates short circuit to ground)  OR  Voltage high during driver ON state (indicates short circuit to battery)	= Short to ground: ≤ 0.5   Ω impedance between ECU pin and ground  = Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	>= 10.9 V  <= 6553.5 V = see sheet enable - tables = see sheet inhibit - tables	2 events continuous	2 Trips
uel Injection Valve - Low Side - Cylinder 8	P124F	Diagnoses the Cylinder 8 Injector "A" for short circuit fault between high side and low side of driver circuit	Voltage high during driver ON state (indicates short circuit to battery)	= Short to power:  ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	>= 10.9 V  <= 6553.5 V = see sheet enable - tables = see sheet inhibit - tables	2 events continuous	2 Trips

OBD GROUP: KGMXOBDG07	,		DIAGNOS TEST GROUP: 1		MARY TABLES - .2088	- ECM			E	MISSION	IS STDS:	CALULE	EV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s		Time Requir	ed	MIL IIIum.
	P02B9	Detects mechanical failure open high pressure injection valve 6	Number of misfire counter for cylinder 8 Rail pressure control minimum error is set	> =	100 TRUE	-	Diagnosis inhibited by statistical function Engine speed Fengine speed relative air charge Half engine mode active for time Electrical failure with high pressure injectors No pending or confirmed DTCs Basic enable conditions met		FALSE 6000 1520 100.008 FALSE 0.5 FALSE see sheet inhibit tables see sheet enable tables	rpm rpm % - sec -	5	sec	continuous	2 Trips
	P0208	Diagnoses the Cylinder 8 Injector "A" low side of driver circuit for open circuit faults	Voltage low during driver OFF state (indicates open circuit)	=	Open Circuit: ≥ 200 K Ω impedance between ECU pin and load	·	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	10.9 6553.5 see sheet enable tables see sheet inhibit tables	V V -	2	events	continuous	2 Trips
		Diagnoses the Cylinder 8 Injector "A" low side of driver circuit for short circuit faults (short circuit to battery or short circuit to ground)	Voltage low during driver OFF state (indicates short circuit to ground)  OR  Voltage high during driver ON state (indicates short circuit to battery)	=	Short to ground: ≤ 0.5 Ω impedance between ECU pin and ground Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	-	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	\= = =	10.9 6553.5 see sheet enable tables see sheet inhibit tables	v v -	2	events	continuous	2 Trips
Fuel Injection Valve - High Side - Cylinder 1	P2146	Diagnoses the Cylinder 1 Injector "A" for short circuit (short circuit to battery or short circuit to ground) at high side of the driver circuit	Voltage low during driver OFF state (indicates short circuit to ground)  OR  Voltage high during driver ON state (indicates short circuit to battery)	=	Short to ground: ≤ 0.5 Ω impedance between ECU pin and ground Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	-	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	\= \= = =	10.9 6553.5 see sheet enable tables see sheet inhibit tables	V V -	2	events	continuous	2 Trips
Fuel Injection Valve - High Side - Cylinder 2	P2149	Diagnoses the Cylinder 2 Injector "B" for short circuit (short circuit to battery or short circuit to ground) at high side of the driver circuit	Voltage low during driver OFF state (indicates short circuit to ground)  OR  Voltage high during driver ON state (indicates short circuit to battery)	=	Short to ground: ≤ 0.5 Ω impedance between ECU pin and ground Short to power: ≤ 0.5 Ω impedance so 0.5 Ω impedance between ECU pin and injector supply voltage	-	Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	\" = =	10.9 6553.5 see sheet enable tables see sheet inhibit tables	V	2	events	continuous	2 Trips
Fuel Injection Valve - High Side - Cylinder 3	P2152	Diagnoses the Cylinder 3 Injector "C" for short circuit (short circuit to battery or short circuit to ground) at high side of the driver circuit	Voltage low during driver OFF state (indicates short circuit to ground)  OR  Voltage high during driver ON state (indicates short circuit to battery)	=	Short to ground: ≤ 0.5 Ω impedance between ECU pin and ground Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	-	Battery Voltage  Battery Voltage Basic enable conditions met  No pending or confirmed DTCs	>=	10.9 6553.5 see sheet enable tables see sheet inhibit tables	V V -	2	events	continuous	2 Trips
Fuel Injection Valve - High Side - Cylinder 4	P2155	Diagnoses the Cylinder 4 Injector "D" for short circuit (short circuit to batter) or short circuit to ground) at high side of the driver circuit	Voltage low during driver OFF state (indicates short circuit to ground) OR	=	Short to ground: ≤ 0.5 Ω impedance between ECU pin and ground	-	Battery Voltage Battery Voltage	>= <=	10.9 6553.5	V	2	events	continuous	2 Trips

OBD GROUP: KGMXOBDG0			DIAGNOS TEST GROUP: I		MARY TABLES - .2088	- ECM			<u>E</u>	MISSIOI	NS STDS:	CALULE	V125, FEC	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	•		Time Require	ed	MIL IIIum.
			Voltage high during driver ON state (indicates short circuit to battery)	-	Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage		Basic enable conditions met	=	see sheet enable tables	-				
					injector supply voltage		No pending or confirmed DTCs	=	see sheet inhibit tables	-				
uel Injection Valve - High Side - Cylinder 5	P216A	Diagnoses the Cylinder 5 Injector "E" for short circuit (short circuit to battery or short circuit to ground) at high side of the driver circuit	Voltage low during driver OFF state (indicates short circuit to ground)	=	Short to ground: ≤ 0.5 Ω impedance between ECU pin and ground	-	Battery Voltage	>=	10.9	٧	2	events	continuous	2 Trips
			OR Voltage high during driver ON state (indicates short circuit to battery)	=	Short to power: ≤ 0.5 Ω impedance between ECU pin and	-	Battery Voltage Basic enable conditions met	=	6553.5 see sheet enable tables	V -				
					injector supply voltage		No pending or confirmed DTCs	=	see sheet inhibit tables	-				
uel Injection Valve - High Side - Cylinder 6	P216D	Diagnoses the Cylinder 6 Injector "F" for short circuit (short circuit to battery or short circuit to ground) at high side of the driver circuit	Voltage low during driver OFF state (indicates short circuit to ground)	=	Short to ground: ≤ 0.5 Ω impedance between ECU pin and ground	-	Battery Voltage	>=	10.9	V	2	events	continuous	2 Trips
			OR Voltage high during driver ON state (indicates short circuit to battery)	=	Short to power: ≤ 0.5 Ω impedance between ECU pin and	-	Battery Voltage Basic enable conditions met	<= =	6553.5 see sheet enable tables	V -				
					injector supply voltage		No pending or confirmed DTCs	=	see sheet inhibit tables	-				
uel Injection Valve - High Side - Cylinder 7	P217A	Diagnoses the Cylinder 7 Injector "G" for short circuit (short circuit to battery or short circuit to ground) at high side of the driver circuit	Voltage low during driver OFF state (indicates short circuit to ground)	=	Short to ground: ≤ 0.5 Ω impedance between ECU pin and ground	-	Battery Voltage	>=	10.9	V	2	events	continuous	2 Trips
			OR Voltage high during driver ON state (indicates short circuit to battery)	=	Short to power: ≤ 0.5 Ω impedance between ECU pin and	-	Battery Voltage Basic enable conditions met	<= =	6553.5 see sheet enable tables	V -				
					injector supply voltage		No pending or confirmed DTCs	=	see sheet inhibit tables	-				
uel Injection Valve - High Side - Cylinder 8	P217D	Diagnoses the Cylinder 8 Injector "H" for short circuit (short circuit to battery or short circuit to ground) at high side of the driver circuit	Voltage low during driver OFF state (indicates short circuit to ground)	=	Short to ground: ≤ 0.5 Ω impedance between ECU pin and ground	-	Battery Voltage	>=	10.9	V	2	events	continuous	2 Trips
			OR Voltage high during driver ON state (indicates short circuit to battery)	=	Short to power: ≤ 0.5 Ω impedance between ECU pin and	-	Battery Voltage Basic enable conditions met	<=	6553.5 see sheet enable tables	V -				
					injector supply voltage		No pending or confirmed DTCs	=	see sheet inhibit tables	-				
uel Pressure Regulator Control Circuit - igh Side - B1	P0089	Path 1a: Plausibility check of High Pressure fuel system where controller output is compared with maximum threshold for calibrated period of time	Filtered value of the High pressure controller output	>	5.75	MPa	Common Conditions				10	sec	continuous	2 Trips
		campiated period of time					Conditions for Plausibility check of Fuel supply system (							
							Airbag is activated Rail pressure sensor voltage is not plausible	=	FALSE FALSE	-				
							Battery voltage Mean value of effective relative volumetric injected fuel mass	<= >=	655.34 7.734	V %				
							Mean value of effective relative volumetric injected fuel mass Initial fueling mode is active	<=	3071.953 FALSE	%				
							) Time counter at end of start Conditions for reset of high-pressure regulation	>= =	7 FALSE	sec -				

BD GROUP: KGMXOBDO	907		DIAGNOST TEST GROUP: P	FIC SUMMAR GMXV04.208		ECM			E	MISSION	NS STDS:	CALULEV	125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Th	reshold Value		Secondary Parameters		Enable Conditions	s	1	Time Required		MIL IIIum.
							(							
							Actual number of cylinders with injection cut-off Desired number of cylinders with	٧ ٧	8					
							injection cut-off ) OR End of start is reached	_	FALSE	_				
							) OR							
							Difference between the actual rail pressure and filtered rail pressure setpoint (A+B) where in:	^ =	(A+B)	MPa MPa				
							(A) rail pressure offset during fuel cutoff for activation demand control (B) maximum difference between actual rail	=	0	мРа				
							pressure and set rail pressure for deactivation of MSV if fuel cutt off is active							
							( High pressure pump is active	=	TRUE	-				
							Engine is in running state OR	=	TRUE	-				
							Crankshaft signal is detected ) for time	=	TRUE 0.04	sec				
							) OR High pressure pump is not active	_	FALSE	-				
							End of start is reached	=	TRUE	-				
							Start of injection enabled (	=	TRUE	-				
							Engine start is in pre-injection mode Injection counter (A+B) where in:	= >=	TRUE (A+B)	-				
							(A) Number of injections for enabling high- pressure controller	=	2	-				
							(B) Number of cylinders OR	=	8 FALSE	-				
							Engine start is not in pre-injection mode  Injection counter	>=	2					
							) ) (							
							Engine state of synchronisation for rail pressure control activation	>=	30	-				
							Engine is in running state OR	=	TRUE	-				
							Crankshaft signal is detected ) for time	-	TRUE 0.04	sec				
							) ) for time	=	7	sec				
							No pending or confirmed DTCs	=	see sheet inhibit table	-				
							Basic enable conditions met	=	see sheet enable table	-				
	Plau	h 1b: usibility check of High Pressure fuel system where troller output is compared with maximum threshold for	Filtered value of the High pressure controller output pressure	>	5.75	MPa	Common Conditions				6	sec	continuous	2 Trips
	calit	brated period of time					Fuel tank is empty or reserve	=	TRUE	-				
		h 2: usibility check of High Pressure fuel system where	Filtered value of the High pressure controller output pressure	<	-5.75	MPa	Conditions for Plausibility check of Fuel supply system				10	sec	continuous	2 Trips
	con	usibility check of high Pressure fuel system where stroller output is compared with minimum threshold for brated period of time					(							
							Airbag is activated Rail pressure sensor voltage is not plausible	=	FALSE FALSE	-				

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM KGMXV04.2088			E	MISSION	S STDS: CALULEV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Ena	able Conditions	s	Time Required	MIL IIIum.
					Battery voltage Mean value of effective relative volumetric injected fuel mass Mean value of effective relative volumetric injected fuel mass Initial fueling mode is active		655.34 7.734 3071.953 FALSE	V % %		
					Time counter at end of start Conditions for reset of high-pressure regulation	>=	7 FALSE	sec -		
					( ( Actual number of cylinders with	<	8			
					injection cut-off Desired number of cylinders with injection cut-off ) OR	<	8	-		
					End of start is reached ) OR Difference between the actual rail pressure and filtered rail pressure setpoint	>	FALSE (A+B)	- MPa		
					(A+B) where in:  (A) rail pressure offset during fuel cutoff for activation demand control (B) maximum difference between actual rail pressure and set rail pressure for deactivation of MSV if fuel cut toff is active	=	0	MPa MPa		
					) (  ( High pressure pump is active (  Engine is in running state	=	TRUE TRUE	-		
					OR Crankshaft signal detected ) for time )	=	TRUE 0.04	sec		
					OR High pressure pump not active End of start is reached )	=	FALSE TRUE	:		
					Start of injection is enabled ( Engine start is in pre-injection mode Injection counter (A+B) where in:	= = >=	TRUE (A+B)	-		
					(A) Number of injections for enabling high- pressure controller (B) Number of cylinders OR	=	8	-		
					Engine start is not in pre-injection mode Injection counter )	>=	FALSE 2	-		
					Engine state of synchronisation for rail pressure control activation ( Engine is in running state	>=	30 TRUE			
					OR Crankshaft signal is detected ) for time )	=	TRUE 0.04	- sec		
					for time  No pending or confirmed DTCs  Basic enable conditions met		7 e sheet inhibit table sheet enable table	sec -		
Fuel Pressure Regulator Control Circuit - High Side - B1	P228D	Detects if High Pressure fuel system control deviation of rail pressure is lesser than maximum threshold for calibrated period of time	Filtered value of rail pressure control deviation	< -3 MPa	Conditions for Plausibility check of Fuel supply system		TRUE	·	7 sec	2 Trips

DBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECM GMXV04.2088			EMIS	SSION	S STDS: CALULEV125, FI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable	e Conditions		Time Required	MIL IIIum
					Airbag is activated Rail pressure sensor voltage is not	= F/ = F/		-		
					plausible Battery voltage			v		
					Mean value of effective relative volumetric injected fuel mass	>= 7		%		
					Mean value of effective relative volumetric injected fuel mass Initial fueling mode is active			%		
					) Time counter at end of start	>=	7 s	sec		
					Conditions for reset of high-pressure regulation (	= F/	ALSE	-		
					(					
					Actual number of cylinders with injection cut-off	<	8	-		
					Desired number of cylinders with injection cut-off	<	8	-		
					) OR End of start is reached	= F/	ALSE			
					) OR	=	LOE	-		
					Difference between the actual rail pressure and filtered rail pressure setpoint (A+B) where in:			MРа		
					(A) rail pressure offset during fuel cutoff for activation demand control	=	1 M	MРа		
					(B) maximum difference between actual rail pressure and set rail pressure for deactivation of MSV if fuel cutt off is active	=	0 N	MРа		
					)					
					High pressure pump is active	= T	RUE	-		
					Engine is in running state OR			-		
					Crankshaft signal is detected )			-		
					for time ) OR	= (	1.04 s	sec		
					High pressure pump is not active End of start is reached			:		
					Start of injection enabled	= T	RUE	-		
					( Engine start is in pre-injection mode Injection counter			-		
					(A+B) where in:  (A) Number of injections for enabling high-	=,	2	-		
					pressure controller (B) Number of cylinders	=	8	-		
					OR (					
					Engine start is not in pre-injection mode			-		
					Injection counter ) )	>=	2	-		
					) ( Engine state of synchronisation for rail	>=	30	_		
					pressure control activation ( Engine is in running state	= T	RUE			
					OR Crankshaft signal is detected			-		
					) for time			sec		
					)					
					for time High pressure diagnosis disabled due to CSERS diagnosis		7 s	sec -		

GMXOBDG07			TEST GROUP: K	IC SUMMARY TABLES GMXV04.2088			E	MISSION	S STDS: CALULEV125, I	FEDBIN1
System F	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	S	Time Required	MIL II
					(					
					Catalyst heating activated OR	=	FALSE	-		
					Catalyst heating request by cold engine OR	-	FALSE	-		
					Time counter at end of start OR	<	2	sec		
					Plausibility check fuel supply system active	-	FALSE	-		
					OR					
					Rail pressure setpoint	>=	36	MPa		
					OR Rail pressure setpoint	<=	6	MPa		
					OR Absolute of difference between rail pressure set point and its filtered value	>=	15	MPa		
					OR Engine speed	<=	0	rpm		
					Coolant temperature at engine output	<=	-3549.94	deg C		
					OR	_	TRUE	_		
					High pressure regulation is reset )			-		
					No pending or confirmed DTCs	-	see sheet inhibit table	-		
					Basic enable conditions met	=	see sheet enable table	-		
	P228C	Path 1:	Filtered value of rail pressure control deviation	> 3	MPa Common conditions				5 sec	2
		Detects if High Pressure fuel system control deviation of rail pressure is greater than minimum threshold for calibrated								
		period of time			Conditions for Plausibility check of Fuel	-	TRUE	-		
					supply system	_	11102			
					Airbag is activated	-	FALSE	-		
					Rail pressure sensor voltage is not plausible	=	FALSE	-		
					Battery voltage Mean value of effective relative volumetric	<= >=	655.34 7.734	V %		
					injected fuel mass Mean value of effective relative volumetric	<=	3071.953	%		
					injected fuel mass					
					Initial fueling mode is active )	=	FALSE	-		
					Time counter at end of start Conditions for reset of high-pressure	>=	7 FALSE	sec -		
					regulation					
					`(					
					(, , , , , , , , , , , , , , , , , , ,					
					Actual number of cylinders with injection cut-off	<	8	-		
					Desired number of cylinders with injection cut-off	<	8	-		
					) OR					
					End of start is reached	-	FALSE	-		
					OR					
					Difference between the actual rail pressure and filtered rail pressure setpoint	>	(A+B)	MPa		
					(A+B) where in:	=	1	MPa		
					<ul> <li>(A) rail pressure offset during fuel cutoff for activation demand control</li> </ul>					
					<ul><li>(B) maximum difference between actual rail</li></ul>	-	0	MPa		
					pressure and set rail pressure for deactivation of MSV if fuel cutt off is active					1
					$\Gamma_{\epsilon}$					
					( High pressure pump is active	_	TRUE	_		
					( Engine is in running state		TRUE			
					OR	-				
					Crankshaft signal is detected	=	TRUE	-		
			l l		) for time	_	0.04	sec		

OBD GROUP: KGMXOBDG07	,		DIAGNOST TEST GROUP: K	IC SUMMAR GMXV04.2088		ECM			E	MISSION	IS STDS: C	ALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Th	reshold Value		Secondary Parameters		Enable Condition	s	Tim	ne Required	MIL IIIum.
							High pressure pump is not active End of start is reached	= =	FALSE TRUE				
							) ( Start of injection enabled	=	TRUE	_			
							( ( Engine start is in pre-injection mode	=	TRUE	_	1		
							Injection counter (A+B) where in:	>=	(A+B)	-			
							(A) Number of injections for enabling high- pressure controller						
							(B) Number of cylinders ) OR	=	8	-			
							( Engine start is not in pre-injection mode	=	FALSE	-			
							Injection counter )	>=	2	-	1		
							, (						
							Engine state of synchronisation for rail pressure control activation (	>=	30	-			
							Engine is in running state OR Crankshaft signal is detected	=	TRUE TRUE				
							) for time	=	0.04	sec			
							for time	=	7 FALSE	sec			
							High pressure diagnosis disabled due to CSERS diagnosis	=					
							Catalyst heating activated OR Catalyst heating request by cold engine	=	FALSE FALSE	-			
							OR Time counter at end of start OR	<	2	sec			
							Plausibility check fuel supply system active OR	=	FALSE	-			
							( Rail pressure setpoint OR	>=	36	MPa			
							Rail pressure setpoint OR	<=	6	MPa			
							Absolute of difference between rail pressure set point and its filtered value OR	>=	15	MPa			
							Engine speed Coolant temperature at engine output	<= <=	0 -3549.94	rpm deq C			
							OR High pressure regulation is reset	=	TRUE	-			
							Fuel tank is empty or reserve No pending or confirmed DTCs	=	FALSE see sheet inhibit table	:			
							Basic enable conditions met	=	see sheet enable table	-	1		
	P228C	Path 2: Detects if High Pressure fuel system control deviation of rail	Filtered value of rail pressure control deviation	>	3	MPa	Common conditions				5	sec	2 Trips
		Detects if High Pressure fuel system control deviation of fall pressure is greater than minimum threshold for calibrated period of time during fuel tank is empty or reserve state											
							Fuel tank is empty or reserve	=	TRUE	-			
	P00C6	Fuel Rail Pressure Too Low - Engine Cranking Bank 1	High pressure start	=	FALSE	-	Engine is in standby state	=	TRUE	-		once per driving cycle	
			( Fuel rail pressure (see Look-Up-Table #P00C6-1)	<	7 to 12	MPa	Condition calucation of diagnosis high pressure start is stopped Engine temperature for diagnosis	= <=	FALSE 142.96	- deg C			
			for number of synchronous counts (see Look-		16 to 48		start with high fuel pressure Engine temperature for diagnosis		-42.54	-	1		I

D GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: N		IARY TABLE 1088	S ECM				MISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIui
			OR				Release condition for all high pressure starts	=	TRUE	-		
			( ( Fuel rail pressure (see Look-Up-Table #P00C6-1)	<	7 to 12	MPa	( ( Engine is in ready state	=	TRUE	-		
			OR Filtered rail pressure	<	1.5	MPa	OR Engine is in auto stopping state	=	TRUE	-		
			) Engine is running	=	TRUE	-	OR Injection is not released	=	TRUE	-		
			) for time (see Look-Up-Table #P00C6-3) OR	=	2 to 6	sec	) Temperature for upper threshold high	<	142.96	deg C		
			C				pressure start Temperature for lowe threshold high	>=	-42.54	deg C		
			Fuel rail pressure (see Look-Up-Table #P00C6-1)	>=	7 to 12	MPa	pressure start Condition disable flow of high pressure pump	=	FALSE	-		
			and Filtered rail pressure	<	1.5	MPa	( Voltage rail pressure sensor not plausible	=	FALSE	-		
			ß				Airbag activated and	=	FALSE	- V		
							Battery voltage ) )	<=	655.34			
							Condition hot start	=	FALSE	-		
							Engine temperature OR	<	89.96	deq C		
							Integrated air mass flow from engine start to maximum value )	>	550	g		
							( ( Condition end of start for activation of md	_	TRUE	_		
							structure Condition enable start injection	=	TRUE	-		
							) OR Engine is in ready state	=	TRUE	_		
							)	_	TRUE			
							High pressure start request	_	INUE			
							Start type from the start coordinator indicates no start OR	=	TRUE	-		
							( Start type from the start coordinator	=	FALSE	-		
							indicates low pressure start Start type from the start coordinator indicates preijections with low pressure start	=	FALSE	-		
							)					
							) No pending or confirmed DTCs	_	see sheet inhibit			
							Basic enable conditions met	_	tables see sheet enable			
							Dasic enable contaitons met	-	tables			
		Monitoring of preinjection with low pressure	Preinjection with low pressure is active	=	FALSE	-	Engine is in standby state Condition calucation of diagnosis high	-	TRUE FALSE	-		
			Start temperature for the start co-ordinator	>=	-10.54	deg C	pressure start is stopped Engine temperature for diagnosis	<=	142.96	deg C		
			OR				start with high fuel pressure Engine temperature for diagnosis	>	-42.54	deg C		
			Injection counter	>=	A * B	counts	start with high fuel pressure Release condition for all high pressure starts	=	TRUE	-		
			where A: Number of working cycle during preinjection (see Look-Up-Table #P00C6-4)	=	0 to 1	cycle	(					
			B: Number of cylinder OR State of EPM operation mode is in Backup	=	TRUE	-	( Engine is in ready state OR	=	TRUE	-		
			camshaft mode OR				Engine is in auto stopping state	=	TRUE	-		
			Repeated cold start )	=	TRUE	-	OR Injection is not released	=	TRUE	-		
	1						) Temperature for upper threshold high	<	142.96	deg C		

OBD GROUP: KGMXOBDG07	7		DIAGNOS' TEST GROUP: I	STIC SUMMARY TABLES ECN KGMXV04.2088	1		E	MISSION	IS STDS: (	CALULE	V125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	s	т	ime Require	ed	MIL IIIum.
					Temperature for lowe threshold high pressure start Condition disable flow of high pressure pump	>=	-42.54 FALSE	deg C				
					( Voltage rail pressure sensor not plausible Airbag activated Battery voltage )	= = <=	FALSE FALSE 655.34	- - V				
					Condition hot start	=	FALSE	-				
					Engine temperature OR	<	89.96	deg C				
					Integrated air mass flow from engine start to maximum value ) (	>	550	g				
					Condition end of start for activation of md structure	=	TRUE					
					Condition enable start injection	=	TRUE					
					OR Engine is in ready state	=	TRUE	-				
					)	=	TRUE	-				
					High pressure start request ( Start type from the start coordinator	_	TRUE					
					indicates low pressure start	-	TRUE	-				
					No pending or confirmed DTCs	=	see sheet inhibit tables	-				
					Basic enable conditions met	=	see sheet enable tables	-				
Fuel Pressure Regulator Control Circuit - High Side - B1	P10E8	Diagnoses the fuel quantity control valve for short circuit fault between the high side and low side of the driver circuit	Voltage low during driver OFF state (indicates short circuit to ground)	= Short to ground: ≤ 0.5 - Ω impedance between ECU pin and ground	Battery voltage	>=	10.9	V	20	sec	continuous	1 Trip
			OR Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	Battery voltage Engine speed	< >=	655.34 80	V rpm				
				injector supply voltage	Basic enable conditions met	=	see sheet enable tables					
					No pending or confirmed DTCs	=	see sheet inhibit tables	-				
	P00CA	Diagnoses the fuel quantity control valve for short circuit to battery fault at the high side of the driver circuit	Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	Battery voltage	>=	10.9	٧	20	sec	continuous	1 Trip
				injector cappry voltage	Battery voltage Engine speed	< >=	655.34 80	V rpm				
					Basic enable conditions met	=	see sheet enable tables	-				
					No pending or confirmed DTCs	=	see sheet inhibit tables	-				
	P00C9	Diagnoses the fuel quantity control valve for short circuit to ground fault at the high side of the driver circuit	Voltage low during driver OFF state (indicates short circuit to ground)	= Short to ground: ≤ 0.5 - Ω impedance between ECU pin and ground	Battery voltage	>=	10.9	V	20	sec	continuous	1 Trip
					Battery voltage Engine speed	< >=	655.34 80	V rpm				
					Basic enable conditions met	=	see sheet enable tables	-				
					No pending or confirmed DTCs	=	see sheet inhibit tables	-				
	P0090	Detects open circuit error of fuel quantity control valve when there is high current flowing through the driver circuit	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit: ≥ 200 K - Ω impedance between ECU pin and load	Battery voltage	>=	10.9	V	20	sec	continuous	no MIL
					Battery voltage Engine speed	< >=	655.34 80	V rpm				

OBD GROUP: KGMXOBDG	07		DIAGNOS TEST GROUP: 1	FIC SUMMARY TABLES ECN (GMXV04.2088	л 	EMISSIONS	STDS: CALULEV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					Basic enable conditions met  No pending or confirmed DTCs	= see sheet enable - tables = see sheet inhibit - tables		
uel Pressure Regulator Control Circuit - ow Side - B1	P0092	Diagnoses the fuel quantity control valve for short circuit to battery fault at the low side of the driver circuit	Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	Battery voltage Battery voltage	>= 10.9 V	20 sec continuous	1 Trip
					Batter volunte Engine speed Basic enable conditions met No pending or confirmed DTCs	>= 80 rpm = see sheet enable r tables = see sheet inhibit tables		
	P0091	Diagnoses the fuel quantity control valve for short circuit to ground fault at the low side of the driver circuit	Voltage low during driver OFF state (indicates short circuit to ground)	= Short to ground: ≤ 0.5 - Ω impedance between ECU pin and ground	Battery voltage	>= 10.9 V	20 sec continuous	1 Trip
					Battery voltage Engine speed Basic enable conditions met No pending or confirmed DTCs	< 655.34 V >= 80 pm = see sheet enable - tables = see sheet inhibit - tables		
uel Pressure Regulator Control Circuit - igh Side - B2	P313A	Diagnoses the fuel quantity control valve for short circuit fault between the high side and low side of the driver circuit	Voltage low during driver OFF state (indicates short circuit to ground)	= Short to ground: ≤ 0.5 - Ω impedance between ECU pin and ground	Battery voltage	>= 10.9 V	20 sec continuous	1 Trip
			OR Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: - ≤ 0,5 Ω impedance between ECU pin and injector supply voltage	Battery voltage Engine speed	< 655.34 V >= 80 rpm		
				проскої зарру чопадо	Basic enable conditions met  No pending or confirmed DTCs	= see sheet enable - tables = see sheet inhibit - tables		
	P3139	Diagnoses the fuel quantity control valve for short circuit to battery fault at the high side of the driver circuit	Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	Battery voltage	>= 10.9 V	20 sec continuous	1 Trip
					Battery voltage Engine speed Basic enable conditions met No pending or confirmed DTCs	< 655.34 V >= 80 rpm = see sheet enable tables = see sheet inhibit tables		
	P3138	Diagnoses the fuel quantity control valve for short circuit to ground fault at the high side of the driver circuit	Voltage low during driver OFF state (indicates short circuit to ground)	= Short to ground: ≤ 0.5 - Ω impedance between ECU pin and ground	Battery voltage	>= 10.9 V	20 sec continuous	1 Trip
					Battery voltage Engine speed Basic enable conditions met No pending or confirmed DTCs	< 655.34 V >= 80 pm = see sheet enable - tables = see sheet inhibit - tables		
	P2C02	Detects open circuit error of fuel quantity control valve when there is high current flowing through the driver circuit	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit: ≥ 200 K Ω impedance between ECU pin and load	Battery voltage	>= 10.9 V	20 sec continuous	no MIL
					Battery voltage Engine speed Basic enable conditions met No pending or confirmed DTCs	< 655.34 V >= 80 rpm = see sheet enable - tables = see sheet inhibit - tables		

OBD GROUP: KGMXOBDG0	7		DIAGNOS TEST GROUP:	TIC SUMMARY TABLES	ECM			EMISSIO	NS STDS:	CALULI	EV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters	Enable Condi	tions		Time Requir	ed	MIL IIIum.
Fuel Pressure Regulator Control Circuit - Low Side - B1	P2C04	Diagnoses the fuel quantity control valve for short circuit to battery fault at the low side of the driver circuit	Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	-	Battery voltage	>= 10.9	V	20	sec	continuous	1 Trip
						Battery voltage Engine speed Basic enable conditions met No pending or confirmed DTCs	< 655.34 >= 80 = see sheet enab tables = see sheet inhib tables					
	P2C03	Diagnoses the fuel quantity control valve for short circuit to ground fault at the low side of the driver circuit	Voltage low during driver OFF state (indicates short circuit to ground)	= Short to ground: ≤ 0.5 Ω impedance between ECU pin and ground	-	Battery voltage	>= 10.9	V	20	sec	continuous	1 Trip
						Battery voltage Engine speed Basic enable conditions met No pending or confirmed DTCs	< 655.34 >= 80 = see sheet enab tables = see sheet inhib tables					
Fuel Pump - FTZM	P12A6	ECM command state for pump does not match feedback value from FTZM_Information_2_S1 signal FTZMSnsdFuelCltEnblAtv *Fuel Tank Zone Module Sensed Fuel Control Enable Active*	Status of Pre supply pump is not plausible with the status received from the Communication module	= TRUE	-	Rationality check for Pre-Supply pump diagnosis is active	= TRUE		2	sec	continuous	1 Trip
		r del Collida Enable Active				No pending or confirmed DTCs  Basic enable conditions met	= see sheet inhib tables = see sheet enab tables					
	P129F	Commanded pump speed in ECM does not match feedback value from FTZM_Information_8_S1 signal FTZMBrshFPmpSnsdSpd "Fuel Tank Zone Module Brushless Fuel Pump Sensed Speed" - feedback speed too high	Difference between actual Pre Supply Pump speed and Pre Supply Pump speed converted from PWM value	> 200	rpm	Rationality check for Pre-Supply pump diagnosis is active	= TRUE	-	3	sec	continuous	2 Trips
						No pending or confirmed DTCs  Basic enable conditions met	= see sheet inhib tables = see sheet enab tables					
		Commanded pump speed in ECM does not match feedback value from FTZM_Information_8_S1 signal FTZMBrshFPmpSnsdSpd "Fuel Tank Zone Module Brushless Fuel Pump Sensed Speed" - feedback speed too low	converted from PWM value and actual Pre	> 200	rpm	Rationality check for Pre-Supply pump diagnosis is active	= TRUE	-	3	Sec	continuous	2 Trips
						No pending or confirmed DTCs  Basic enable conditions met	= see sheet inhib tables = see sheet enab tables					
Fuel Pump - FTZM	P2635	Filtered fuel pressure deviation in the low pressure fuel system is lesser than calibrated threshold for calibrated period of time	Filtered fuel pressure deviation in the low pressure system	< -50	kPa	Electrical fuel pump operational mode is in closed loop control	= TRUE	-	15	sec	continuous	2 Trips
						Fuel flow demand of electrical fuel pump Engine is running state Pre-Supply pump is ON	>= 0.1 = TRUE = TRUE	Vh - -				
						No pending or confirmed DTCs  Basic enable conditions met	= see sheet inhib tables = see sheet enab tables					
	P2635	Filtered fuel pressure deviation in the low pressure fuel system is greater than calibrated threshold for calibrated period of time	Filtered fuel pressure deviation in the low pressure system	> 50	kPa	Electrical fuel pump operational mode is in closed loop control	= TRUE		15	sec	continuous	2 Trips
						Fuel flow demand of electrical fuel pump Engine is running state Pre-Supply pump is ON )	>= 0.1 = TRUE = TRUE	Vh - -				
						No pending or confirmed DTCs  Basic enable conditions met	= see sheet inhib tables = see sheet enab tables					

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: N	TIC SUMMARY TABLES ECM (GMXV04.2088	_	EMISSIONS	STDS: CALULEV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	P102B	Monitoring of FTZM fuel pump output for circuits high fault	Fuel Tank Zone Module(FTZM) fuel pump output is shorted to battery	= TRUE -	Ignition ON No pending or confirmed DTCs Basic enabling conditions are met	= TRUE - = see sheet inhibit - tables = see sheet enable - tables	0.5 sec Continuous	2 Trips
	P102A	Monitoring of FTZM fuel pump output for circuits low fault	Fuel Tank Zone Module(FTZM) fuel pump output is shorted to ground	= TRUE -	Ignition ON  No pending or confirmed DTCs  Basic enabling conditions are met	= TRUE - = see sheet inhibit tables = see sheet enable -	0.5 sec Continuous	2 Trips
	P1029	Monitoring of FTZM fuel pump output for circuits open fault	Fuel Tank Zone Module(FTZM) fuel pump output circuit is opened	= TRUE -	Ignition ON  No pending or confirmed DTCs  Basic enabling conditions are met	tables  = TRUE -  = see sheet inhibit - tables = see sheet enable - tables	0.5 sec Continuous	2 Trips
Camshaft Position Actuator - Intake B1	P2089	Diagnoses the "A" Camshaft Position Actuator Bank 1 low side driver circuit for short circuit to battery faults.	Voltage high during driver on state (indicates short-to-power)	= Short to power: ≤ 0.5 Ω impedance between signal and controller power	Ignition is ON  ECU is in drive state Engine Speed Battery Voltage Battery Voltage No pending or confirmed DTCs Basic enable conditions met	= TRUE -  = TRUE - >= 80 pm > 10.9 V < 25.5 V = see sheet nhibit - tables = see sheet enable - tables	1 sec Continuous	2 Trips
	P2088	Diagnoses the "A" Camshaft Position Actuator Bank 1 low side driver circuit for short circuit to ground faults.	Voltage low during driver off state (indicates short-to-ground)	= Short to ground: ≤ 0.5 - Ω impedance between signal and controller ground	Ignition is ON  ECU is in drive state Engine Speed Battery Voltage Battery Voltage No pending or confirmed DTCs Basic enable conditions met	= TRUE -  = TRUE -  >= 80 rpm > 10.9 V < 2.5.5 V = see sheet inhibit tables = see sheet enable - tables	0.2 sec Continuous	2 Trips
	P0010	Diagnoses the "A" Camshaft Position Actuator Bank 1 low side driver circuit for open circuit faults	Voltage low during driver off state (indicates open circuit)	= Open Circuit ; ≥ 200 - KΩ impedance between ECU pin and load	Ignition is ON  ECU is in drive state Engine Speed Battery Voltage Battery Voltage No pending or confirmed DTCs Basic enable conditions met	= TRUE -  = TRUE -  >= 80 rpm > 10.9 V < 2.55. V = see sheet inhibit - tables = see sheet enable - tables	1 sec Continuous	2 Trips
Camshaft Position Actuator - Intake B2	P2093	Diagnoses the "A" Camshaft Position Actuator Bank 2 low side driver circuit for short circuit to battery faults.	Voltage high during driver on state (indicates short-to-power)	= Short to power: ≤ 0.5 Ω - impedance between signal and controller power	Ignition is ON  ECU is in drive state Engine Speed Battery Voltage Battery Voltage No pending or confirmed DTCs	= TRUE -  = TRUE - >= 80 rpm > 10,9 V < 2,55 V = see sheet inibit - tables	1 sec Continuous	2 Trips

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: #	TIC SUMMARY TABLES ECM	_	EMISSIONS	STDS: CALULEV125, FEE	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					Basic enable conditions met	= see sheet enable - tables		
	P2092	Diagnoses the "A" Camshaft Position Actuator Bank 2 low side driver circuit for short circuit to ground faults.	Voltage low during driver off state (indicates short-to-ground)	= Short to ground: ≤ 0.5 Ω impedance between signal and controller around	Ignition is ON  ECU is in drive state Engine Speed Battery Voltage Battery Voltage No pending or confirmed DTCs Basic enable conditions met	= TRUE -  = TRUE -  >= 80 rpm > 10.9 V < 25.5 V = see sheet inhibit     tables = see sheet enable -     tables	0.2 sec Continuous	2 Trips
	P0020	Diagnoses the "A" Camshaft Position Actuator Bank 2 low side driver circuit for open circuit faults	Voltage low during driver off state (indicates open circuit)	= Open Circuit : ≥ 200 - KΩ impedance between ECU pin and load	Ignition is ON  ECU is in drive state Engine Speed Battery Voltage No pending or confirmed DTCs Basic enable conditions met	= TRUE - >= 80 pm > 10,9 V < 25.5 V = see sheet inhibit - tables = see sheet enable - tables	1 sec Continuous	2 Trips
Camshaft Position Actuator - Exhaust B1	P2091	Diagnoses the "B" Camshaft Position Actuator Bank 1 low side driver circuit for short circuit to battery faults.	Voltage high during driver on state (indicates short-to-power)	= Short to power: ≤ 0,5 Ω - impedance between signal and controller power	Ignition is ON  ECU is in drive state Engine Speed Battery Voltage Battery Voltage No pending or confirmed DTCs Basic enable conditions met	= TRUE - >= 80 rpm > 10.9 V < 25.5 V = see sheet inhibit tables = see sheet enable - tables	1 sec Continuous	2 Trips
	P2090	Diagnoses the "B" Camshaft Position Actuator Bank 1 low side driver circuit for short circuit to ground faults.	Voltage low during driver off state (indicates short-to-ground)	= Short to ground: ≤ 0.5 - Ω impedance between signal and controller ground	Ignition is ON  ECU is in drive state Engine Speed Battery Voltage Battery Voltage No pending or confirmed DTCs Basic enable conditions met	= TRUE -  = TRUE -  >= 80 rpm  > 10.9 V  < 25.5 V  = see sheet inibit -     tables  = see sheet enable -     tables	0.2 sec Continuous	2 Trips
	P0013	Diagnoses the "B" Camshaft Position Actuator Bank 1 low side driver circuit for open circuit faults	Vollage low during driver off state (indicates open circuit)	= Open Circuit : ≥ 200 - KΩ impedance between ECU pin and load	Ignition is ON  ECU is in drive state Engine Speed Battery Voltage Battery Voltage No pending or confirmed DTCs Basic enable conditions met	= TRUE -  = TRUE - >= 80 rpm > 10.9 V < 25.5 V = see sheet inibit - tables = see sheet enable - tables	1 sec Continuous	2 Trips
Camshaft Position Actuator - Exhaust B2	P2095	Diagnoses the "B" Camshaft Position Actuator Bank 2 low side driver circuit for short circuit to battery faults.	Voltage high during driver on state (indicates short-to-power)	= Short to power: ≤ 0.5 Ω - impedance between signal and controller power	Ignition is ON  ECU is in drive state Endine Speed Battery Voltage Battery Voltage	= TRUE -  = TRUE - >= 80	1 sec Continuous	2 Trips

OBD GROUP: KGMXOBDG0	)7		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM		EMISSION	IS STDS: CALULEV125, FED	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					No pending or confirmed DTCs Basic enable conditions met	= see sheet inhibit - tables = see sheet enable - tables		
	P2094	Diagnoses the "B" Camshaft Position Actuator Bank 2 low side driver circuit for short circuit to ground faults.	Voltage low during driver off state (indicates short- to-ground)	= Short to ground: ≤ 0,5 - Ω impedance between signal and controller ground	Ignition is ON  ECU is in drive state Engine Speed Battery Voltage No pending or confirmed DTCs Basic enable conditions met	= TRUE - >= 80 rpm > 10.9 V < 25.5 V = see sheet inhibit - tables = see sheet enable - tables	0.2 sec Continuous	2 Trips
	P0023	Diagnoses the "B" Camshaft Position Actuator Bank 2 low side driver circuit for open circuit faults	Voltage low during driver off state (indicates open circuit)	= Open Circuit : ≥ 200 - KΩ impedance between ECU pin and load	Ignition is ON  ECU is in drive state Endine Speed Battery Voltage No pending or confirmed DTCs Basic enable conditions met	= TRUE - >= 80 rpm > 10.9 V < 25.5 V = see sheet inhibit tables = see sheet enable tables	1 sec Continuous	2 Trips
Camshaft Position Actuator Park Lock - Intake B1 (Electronic Actuator)	P1011	Inlet camshaft Bank 1 locking position offset check	Absolute angle difference between the actual position and the locking position of inlet camshaft bank1 for number of times	>= 8 degrees > 2 -	Engine is cranking e.g. end of startup has not reached or has reached for time Engine OFF time before cranking was long enough to allow camshaft actuator return in locking position, which is the following condition: londition off time ( Automatic start is active No of automatic start ) Engine speed Difference between desired position phase actuator and locking position of inlet camshaft bank1 inlet camshaft adaption is performed No pending or confirmed DTCs Basic enable conditions met	= 1 sec  = TRUE -  >= 1 sec  = TRUE -  <= 1 count  >= 120 rpm <= 4 degrees  = TRUE -  = see sheet inhibit - tables  = see sheet enable - tables	Once per driving cycle	2 Trips
Camshaft Position Actuator Park Lock - Intake B1 (Electronic Actuator)	P25CC	Diagnoses the Camshaft Lock Pin Actuator Bank 1 low side driver circuit for short circuit to battery faults.	Voltage high during driver on state (indicates short-to-power)	= Short to power: ≤ 0,5 Ω impedance between signal and controller power	ECU is in drive state  Engine Speed Battery Voltage Bastic enable conditions met  No pending or confirmed DTCs	= TRUE -  >= 80 rpm > 10.9 V < 25.5 V = see sheet enable - tables = see sheet inhibit - tables	1 sec continuous	2 Trips
	P25CB	Diagnoses the Camshaft Lock Pin Actuator Bank 1 low side driver circuit for short circuit to ground faults.	Voltage low during driver off state (indicates short- to-ground)	= Short to ground: ≤ 0,5 - Ω impedance between signal and controller	ECU is in drive state  Engine Speed Battery Voltage Battery Voltage Basic enable conditions met No pending or confirmed DTCs	= TRUE -  >= 80 rpm > 10.9 V < 25.5 V = see sheet enable - tables = see sheet inhibit - tables	1 sec continuous	2 Trips

OBD GROUP: KGMXOBDG0	)7		DIAGNOST TEST GROUP: 1		MARY TABLES - 2088	ECM				EMISSION	NS STDS	: CALULI	EV125, FEI	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditio	ns		Time Requir	ed	MIL IIIum.
	P25CA	Diagnoses the Camshaft Lock Pin Actuator Bank 1 low side driver circuit for open circuit faults	Voltage low during driver off state (indicates open circuit)	=	Open Circuit : ≥ 200 KΩ impedance between ECU pin and load	-	ECU is in drive state  Engine Speed Battery Voltage Battery Voltage Battery Voltage Basic enable conditions met  No pending or confirmed DTCs	=	80 10.9 25.5 see sheet enable tables see sheet inhibit tables	rpm V V -	1	sec	continuous	2 Trips
Camshaft Position Actuator Park Lock - intake B2 (Electronic Actuator)	P1013	Inlet camshaft Bank 2 locking position offset check	The angle difference between the actual position and the locking position of inlet camshaft bank2 for number of times	>=	2	degrees	Engine is cranking e.g. end of startup has not reached or has reached for time Engine OFF time before cranking was long enough to allow camshaft actuator return in locking position, which is the following condition: lanition off time ( Automatic start is active No of automatic start t ) Engine speed Difference between desired position phase actuator and bocking position of inlet camshaft bank1 inlet camshaft adaption is performed No pending or confirmed DTCs Basic enable conditions met	V	1 TRUE  1 TRUE  1 120 4 TRUE see sheet inhibit tables see sheet enable tables	sec - sec - count rpm degrees			Once per driving cycle	2 Trips
Camshaft Position Actuator Park Lock - Intake B2 (Electronic Actuator)	P25CF	Diagnoses the Camshaft Lock Pin Actuator Bank 2 low side driver circuit for short circuit to battery faults.	Voltage high during driver on state (indicates short-to-power)	=	Short to power: $\le$ 0.5 $\Omega$ impedance between signal and controller power	-	ECU is in drive state  Engine Speed Batteny Voltage Basic enable conditions met  No pending or confirmed DTCs		80 10.9 25.5 see sheet enable tables see sheet inhibit tables	rpm V V -	1	Sec	continuous	2 Trips
	P25CE	Diagnoses the Camshaft Lock Pin Actuator Bank 2 low side driver circuit for short circuit to ground faults.	Voltage low during driver off state (indicates short-to-ground)	=	Short to ground: $\leq 0.5$ $\Omega$ impedance between signal and controller	-	ECU is in drive state  Engine Speed Battery Voltage Bastic evoltage Basic enable conditions met  No pending or confirmed DTCs		TRUE  80 10.9 25.5 see sheet enable tables see sheet inhibit tables	rpm V V -	1	sec	continuous	2 Trips
	P25CD	Diagnoses the Camshaft Lock Pin Actuator Bank 2 low side driver circuit for open circuit faults	Voltage low during driver off state (indicates open circuit)	-	Open Circuit : ≥ 200 KD impedance between ECU pin and load	-	ECU is in drive state  Encine Soeed Battery Voltage Battery Voltage Basic enable conditions met  No pending or confirmed DTCs  Basic enable conditions met		80 10.9 25.5 see sheet enable tables see sheet inhibit tables see sheet enable tables	rom V V - -	1	Sec	continuous	2 Trips
Engine Oil Pressure Control Actuator	P0524	Oil pressure - Low	Relative engine oil pressure (see Look-Up Table #P0524-1) for time (see Look-Up Table #P0524-2)	<	-70 to 182 2.2 to 15	kPa sec	( Absolute value of transversal acceleration for time for hold time after condition becomes false )	<= >= <=	5 0 0	g sec sec	0	sec		1 Trip

BD GROUP: KGMXOBDO	<del></del>		DIAGNOS' TEST GROUP: I	TIC SUMMARY TABLES ECM KGMXV04.2088		EMISSIONS	S STDS: CALULEV125, I	FEDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					No pending or confirmed DTCs  Basic enable conditions met	= see sheet inhibit - tables = see sheet enable - tables		
	POEDD	Measured oil pressure compared to setpoint - High	Difference between measured engine oil pressure and oil pressure surface set point (see Look-Up Table #PoBDD-1) for time constant filter	> 100 to 800 kPa > 1.9998779 sec	Short trip test active  ( Absolute value of transversal acceleration for time for to have a comment of the form of the acceleration of his properties.)  Oil temperature oil pump high side switch commanded on Backup duty cycle for oil pressure is in use in electric drive mode No pending or confirmed DTCs  Basic enable conditions met	= FALSE -  >= 5 g  >= 0 sec <= 0 sec > -50.04 dea C = TRUE - = FALSE - = FALSE - = see sheet inhibit - tables = see sheet enable - tables	1 sec	2 Trip
	P06DD	Measured oil pressure compared to setpoint - Low	Engine oil pressure minus oil pressure set point (see Look-Up Table #P06DD-2)	< -800 to -40 kPa	Short trip test active ( Absolute value of transversal acceleration for time for hold time after condition becomes false ) Oil temperature Oil pump high side switch commanded on Backup duty cycle for oil pressure is in use in electric drive mode No pending or confirmed DTCs Basic enable conditions met	= FALSE -  >= 5	1 sec	2 Trip
	POGDC	Diagnoses oil pump low side driver circuit for circuit high fault	Oil pump actuator driver has posted a high circuit failure	= TRUE - Short to power: - ≤ 0,5 Ω impedance between signal and controller power	Actuator power stage is enabled Battery voltage  for time No pending or confirmed DTCs Basic enable conditions met	= TRUE - > 10.9 V  >= 0 sec = see sheet inhibit - tables = see sheet enable - tables	0.05 sec	2 Trips
	POGDB	Diagnoses oil pump low side driver circuit for circuit low fault	Oil pump actuator driver has posted a low circuit failure	= TRUE - Short to ground: ≤ 0,5 - Ω impedance between signal and controller ground	Actuator power stage is enabled Battery voltage for time No pending or confirmed DTCs Basic enable conditions met	= FALSE - > 10.9 V  >= 0 sec = see sheet inhibit - tables = see sheet enable - tables	0.05 sec	2 Trips
	P06DA	Diagnoses oil pump low side driver circuit for open circuit fault	Oil pump actuator driver has posted an open circuit failure	= TRUE - Open Circuit: ≥ 200 K Ω impedance between ECU pin and load	Actuator power stage is enabled Battery voltage for time No pending or confirmed DTCs Basic enable conditions met	= TRUE - > 10.9 V >= 0 sec = see sheet inhibit - tables = see sheet enable - tables	1 sec	2 Trips
	P06DA	Diagnoses oil pump low side driver circuit for over temperature circuit fault	Oil pump actuator driver has posted an over temperature circuit failure	= TRUE -	Actuator power stage is enabled	= TRUE -	1 sec	2 Trips

OBD GROUP: KGMXOBDG	:07		DIAGNOST TEST GROUP: P	FIC SUMMARY TABLES ECN (GMXV04.2088		EMISSION	S STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
				Over Temperature: -	Battery voltage for time No pending or confirmed DTCs Basic enable conditions met	> 10.9 V >= 0 sec = see sheet inhibit - tables = see sheet enable - tables		
Engine Starter Motor Actuator	P06E9	Detects no engine movement in spite of requested active power stage (mechanical blocked engine, relay malfunction) for a calibrated time.	Difference between camshaft edge counter and stored camshaft edge counter everytime when starter diagnosis was activated OR Difference between camshaft edge counter and stored camshaft edge counter everytime when starter diagnosis was activated Difference between camshaft edge counter and stored camshaft edge counter everytime when starter diagnosis was activated 1) Engine speed	< 3 - < 0 - < -32765 - = 0 rpm	Battery voltage  Battery voltage  ECU is in drive state Starter release from monitoring is active  (  Starter relav is active for time OR Starter relav is active for time Starter relav is active for time ) No pending or confirmed DTCs Basic enable conditions met	>= 8 V  <= 655.34 V  = TRUE - TRUE - TRUE - O.026 sec  = TRUE - O.026 sec  = TRUE - O.02 sec  = TRUE - O.021 sec  = TRUE - O.021 sec  = see sheet inhibit - tables  = see sheet enable - tables	1.5 sec continuous	no MIL
Engine Starter Motor Actuator	P0617	Starter motor relay circuit feedback voltage is greater than a calibrated threshold for a calibrated period of time.	Power stage 1 feedback voltage	> 4.5 V	Battery voltage  Battery voltage  ECU is in drive state  Starter relav powestage 1 is active  Basic enable conditions met  No pending or confirmed DTCs	>= 8 V  <= 655.34 V = TRUE - = FALSE - = see sheet enable - tables = see sheet inhibit - tables	1 sec continuous	no MIL
	P0616	Starter motor relay circuit feedback voltage is less than a calibrated threshold for a calibrated period of time.	Power stage 1 feedback voltage (see Look-Up- Table #P0616-1)	< 1.95 to 4.5 V	Battery voltage Battery voltage ECU is in drive state Starter relay powestage 1 is active Basic enable conditions met No pending or confirmed DTCs	>= 8 V <= 655.34 V = TRUE - = FALSE - = see sheet enable - tables = see sheet inhibit - tables	0.05 sec continuous	no MIL
	P0615	Starter motor relay circuit feedback voltage is within a calibrated threshold range for a calibrated period of time.	Power stage 1 feedback voltage Power stage 1 feedback voltage	>= 1.2 V <= 2.8 V	Battery voltage Battery voltage ECU is in drive state Starter relay powestage 1 is active Basic enable conditions met No pending or confirmed DTCs	>= 8 V <= 655.34 V = TRUE - = FALSE - = see sheet enable - tables = see sheet inhibit - tables	1 sec continuous	no MIL
Engine Starter Pinion Actuator	P26E6	Starter motor relay "b" circuit feedback voltage is greather than a calibrated threshold for a calibrated period of time.	Power stage 2 feedback voltage	> 4.5 V	Battery voltage Battery voltage ECU is in drive state Starter relav powestage 1 is active Basic enable conditions met No pending or confirmed DTCs	>= 8 V <= 655.34 V = TRUE - = FALSE - = see sheet enable - tables = see sheet inhibit - tables	1 sec continuous	no MIL
	P26E5	Starter motor relay "B" circuit feedback voltage is less than a calibrated threshold for a calibrated period of time.	Power stage 2 feedback voltage (see Look-Up- Table #P0616-1)	< 1.95 to 4.5 V	Battery voltage	>= 8 V	0.05 sec continuous	no MIL

OBD GROUP: KGMXOBDO	607		DIAGNOS TEST GROUP:		MARY TABLES 2088	ECM				MISSION	S STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIum.
							Battery voltage ECU is in drive state Starter relav powestage 1 is active Basic enable conditions met No pending or confirmed DTCs	<= = = =	655.34 TRUE FALSE see sheet enable tables see sheet inhibit tables	V - - -		
	P26E4	Starter motor relay "B" circuit feedback voltage is within a	Power stage 2 feedback voltage	>=	1.2	V	Battery voltage	>=	8	V	1 sec continuous	no MIL
		calibrated threshold range for a calibrated period of time.	Power stage 2 feedback voltage	<=	2.8	V	Battery voltage ECU is in drive state Starter relay powestage 1 is active Basic enable conditions met No pending or confirmed DTCs	= = =	655.34 TRUE FALSE see sheet enable tables see sheet inhibit tables	V - - -		
urbocharger Bypass Valve - B1	P2261	Plausibility check of HFM Sensor : Error Dump valve	Pressure downstream compressor for counts	>	5 5	kPa -	( Bit dump valve diagnosis enabled (cross	-	TRUE		Continuous	2 Trips
					Ü		effects) Condition air mass flow upstream intercooler at bank1 valid	=	TRUE	-		
							Delta mass flow through volume between compressor and DK through Delta pressure is valid for bank1	=	TRUE	-		
							Condition for pressure sensor signal upstream throttle valve valid	=	TRUE	-		
							Condition boost pressure 1st bank plausible  Condition Mass flow at the DK calculated	=	TRUE TRUE	-		
							from the sensor signal of the DSS valid, Bank1 Validity of the pressure value (sensor) of the	_	TRUE	-		
							intake manifold - bank 1  Difference between maximum and minimum manifold pressure from sensor signal wobble	>=	10	kPa		
							check Condition modelled manifold pressure independent of massflow over throttle blade	=	TRUE	-		
							valid, bank1 Condition defect cylinder in full engine mode without gas exchange for bank 1	=	FALSE	-		
							( Condition defect cylinder in half engine mode with Permanently gas exchange bank 1.	=	FALSE	-		
							OR Synchronisation half engine mode and air charge	=	FALSE	-		
							determination of first activated HEM cylinder for bank 1					
							) ambient pressure valid Temperature downstream inlet valve valid (bank 1)	=	TRUE TRUE	-		
							Bit physical condition for dump valve diagnosis present	=	TRUE	-		
							Intake air temperature before intake throttle (Bank-1) Enabling condition for driving the output	> =	4.960 TRUE	deg C		
							stage of the dump valve Battery voltage	<	655.34	V		
							( ( Condition for openening the dump valve (turn	=	TRUE	-		
							off delayed: Condition for openening the dump valve ( Ratio pressure downstream to upstream	= >	TRUE 1.069946 to	-		
							compressor (See Look-up-Table #P2261-1) OR		3.445923			
							Ratio pressure downstream to upstream compressor (bank 2) (See Look-up-Table #P2261-2)	>	1.069946 to 3.407959	-		

OBD GROUP: KGMXOBDG	07		DIAGNOS <sup>*</sup> TEST GROUP: 1	TIC SUMMARY TABLES ECN KGMXV04.2088	I	E	MISSION	S STDS: CALULEV125, FE	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	s	Time Required	MIL IIIum.
					Set intake manifold pressure (See Look-up-Table #P2261-3) ) for time ) OR Condition for openening the dump valve must be true for time for time ) for time No pending or confirmed DTCs Basic enable conditions met	>= 0 to 35  > 0.1  > 0.5  > 0.7  = see sheet inhibit tables = see sheet enable tables	kPa sec sec sec -		
	P0035	Diagnosis of turbocharger bypass valve for short circuit to battery faults	Voltage high during driver ON state (indicates short circuit to battery)	= Short to power.	Conditions for enabling the powerstage diagnosis:  (ECU is in drive state enaine speed with low resolution Battery voltage Bastery voltage) ) Basic enable conditions met  No pending or confirmed DTCs	= TRUE  = TRUE >= 80 > 10.9 < 25.5 = see sheet enable tables = see sheet inhibit tables	- rpm V V -	0.5 sec continuou	s 2 Trips
	P0034	Diagnosis of turbocharger bypass valve for short circuit to ground faults	Voltage low during driver OFF state (indicates short circuit to ground)	= Short to ground: ≤ 0.5 - Ω impedance between ECU pin and ground	Conditions for enabling the powerstage diagnosis: ( ECU is in drive state enable sneed with low resolution Battery voltage ) Battery voltage ) Basic enable conditions met No pending or confirmed DTCs	= TRUE >= 80 > 10.9 < 25.5 = see sheet enable tables = see sheet inhibit tables	rpm V V	0.5 sec continuou	s 2 Trips
	P0033	Diagnosis of turbocharger bypass valve for open circuit faults	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit: ≥ 200 K - Ω impedance between ECU pin and load	Conditions for enabling the powerstage diagnosis: (  ECU is in drive state enable sneed with low resolution Battery voltage Battery voltage ) Basic enable conditions met No pending or confirmed DTCs	= TRUE >= 80 > 10.9 < 25.5 = see sheet enable tables = see sheet inhibit tables	- rpm V V	0.5 sec continuou	s 2 Trips
Turbocharger Bypass Valve - B2	P00C4	Plausibility check of HFM Sensor : Error Dump valve for bank 2	Pressure downstream compressor for bank 2 for counts	> 5 kPa	( Bit dump valve diagnosis enabled (cross effects) Condition air mass flow upstream intercooler at bank2 valid  Delta mass flow through volume between compressor and Dk through Delta pressure is valid for bank2 Condition for pressure sensor signal upstream throttle valve valid for bank 2 Condition boost pressure 1st bank plausible Condition Mass flow at the DK calculated from the sensor signal of the DSS valid, bank2	= TRUE = TRUE = TRUE = TRUE = TRUE = TRUE		Continuou	s 2 Trips

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: F	TIC SUMMARY TABLES ECM KGMXV04.2088			E	MISSION	S STDS: C	ALULEV	125, FED-	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions	s	Tir	me Required		MIL IIIum.
					Validity of the pressure value (sensor) of the intake manifold - bank 2 Difference between maximum and minimum manifold pressure from sensor signal wobble	= >=	TRUE	- kPa				
					check Condition modelled manifold pressure independent of massflow over throttle blade	=	TRUE	-				
					valid, bank2 Condition defect cylinder in full engine mode without gas exchange for bank 2	=	FALSE	-				
					( Condition defect cylinder in half engine mode with Permanently gas exchange bank 2. OR	=	FALSE	-				
					OR Synchronisation half engine mode and air charge determination of first activated HEM cylinder for bank 2	=	FALSE	-				
					ambient pressure valid Temperature downstream inlet valve valid (Bank 2)	= =	TRUE TRUE	-				
					Bit physical condition for dump valve diagnosis present Intake air temperature before intake throttle (Bank 2)	>	TRUE 4.96	deg C				
					Enabling condition for driving the output stage of the dump valve	=	TRUE	-				
					Battery voltage (	<	655.34	V				
					Condition for openening the dump valve (turn off delayed) Condition for openening the dump valve	=	TRUE	-				
					Ratio pressure downstream to upstream compressor (See Look-up-Table #P2261-1)	>	1.069946 to 3.445923					
					OR Ratio pressure downstream to upstream compressor (bank 2) (See Look-up-Table #P2261-2)	>	1.069946 to 3.407959	-				
					) Set intake manifold pressure (See Look-up- Table #P2261-3)	>=	0 to 35	kPa				
					for time ) OR	>	0.1	sec				
					Condition for openening the dump valve must be true for time for time	>	0.5	sec				
					for time No pending or confirmed DTCs	> =	0.7 see sheet inhibit tables	sec -				
					Basic enable conditions met	-	see sheet enable tables	-				
	P00C2	Diagnosis of turbocharger bypass valve for short circuit to battery faults	Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: ≤ 0.5 Ω impedance between ECU pin and injector supply voltage	Conditions for enabling the powerstage diagnosis:	=	TRUE	-	0.5	sec (	continuous	2 Trips
					ECU is in drive state engine speed with low resolution Battery voltage Battery voltage	= >= > <	TRUE 80 10.9 25.5	rpm V V				
					) Basic enable conditions met No pending or confirmed DTCs	=	see sheet enable tables see sheet inhibit tables	-				
	P00C1	Diagnosis of turbocharger bypass valve for short circuit to	Voltage low during driver OFF state (indicates	= Short to ground: ≤ 0.5 - Ω impedance between	Conditions for applying the powersts	=	TRUE		0.5	sec (	continuous	2 Trips
		ground faults	short circuit to ground)	Ω impedance between ECU pin and ground	Conditions for enabling the powerstage diagnosis: ( ECU is in drive state	=	TRUE	_				

OBD GROUP: KGMXOBD	G07		DIAGNOS TEST GROUP: 1	TIC SUMMARY TABLES -	ECM			E	MISSION	IS STDS: C	ALULEV	125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters		Enable Condition	s	Tin	ne Required		MIL IIIum.
						engine speed with low resolution Battery voltage Battery voltage Basic enable conditions met No pending or confirmed DTCs	>= > < = =	80 10.9 25.5 see sheet enable tables see sheet inhibit tables	rpm V V -				
	P00C0	Diagnosis of turbocharger bypass valve for open circuit faults	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit: ≥ 200 K Ω impedance between ECU pin and load	-	Conditions for enabling the powerstage diagnosis:  (ECU is in drive state endine speed with low resolution Battery voltage ) ) Basic enable conditions met No pending or confirmed DTCs	= >= > < = = =	TRUE  80 10.9 25.5 see sheet enable tables see sheet inhibit tables	- rpm V V -	0.5	sec (	continuous	2 Trips
EVAP Purge Valve - B1	P0459	Diagnoses the EVAP System Purge Control Valve low side driver circuit for circuit high faults.	Output (driver) current	>= 5.6	A	Battery voltage Battery voltage Power stage (driver) is switched on Basic enable conditions met No pending or confirmed DTCs	>= <= = =	17 TRUE see sheet enable tables see sheet inhibit tables	V V - -	1	sec (	continuous	2 Trips
	P0458	Diagnoses the EVAP System Purge Control Valve low side driver circuit for circuit low faults.	Output (driver) voltage	<= 2.74	V	Battery voltage Battery voltage Power stage (driver) is switched off Basic enable conditions met No pending or confirmed DTCs	>= <= = = =	10 17 TRUE see sheet enable tables see sheet inhibit tables	V V - -	1	sec (	continuous	2 Trips
	P0443	Diagnoses the EVAP System Purge Control Valve low side driver circuit for open circuit faults.	Output (driver) voltage Output (driver) voltage	> 3.26 <= 4.7	V V	Battery voltage Battery voltage Power stage (driver) is switched off Basic enable conditions met No pending or confirmed DTCs	>= <= = =	10 17 TRUE see sheet enable tables see sheet inhibit tables	V V - -	1	sec (	continuous	2 Trips
EVAP Purge Valve - B2	P04AD	Diagnoses the EVAP System Purge Control Valve low side driver circuit for circuit high faults.	Output (driver) current	>= 5.6	A	Battery voltage  Battery voltage Power stage (driver) is switched on Basic enable conditions met  No pending or confirmed DTCs	>= <= = = =	10 17 TRUE see sheet enable tables see sheet inhibit tables	V V - -	1	sec (	continuous	2 Trips
	P04AC	Diagnoses the EVAP System Purge Control Valve low side driver circuit for circuit low faults.	Output (driver) voltage	<= 2.74	V	Battery voltage Battery voltage Power stace (driver) is switched off Basic enable conditions met No pending or confirmed DTCs	>= <= = =	10 17 TRUE see sheet enable tables see sheet inhibit tables	V V - -	1	Sec (	continuous	2 Trips
	P04AB	Diagnoses the EVAP System Purge Control Valve low side driver circuit for open circuit faults.	Output (driver) voltage Output (driver) voltage	> 3.26 <= 4.7	v v	Battery voltage Battery voltage Power stage (driver) is switched off Basic enable conditions met No pending or confirmed DTCs	>= <= = = =	17 TRUE see sheet enable tables see sheet inhibit tables	V V - -	1	sec (	continuous	2 Trips

FEDBIN	STDS: CALULEV125, FE	EMISSIONS S	1						DIAGNOST TEST GROUP: P		7	BD GROUP: KGMXOBDG
MIL	Time Required		Enable Condition		Secondary Parameters		hreshold Value		Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
per 1	Once per		FALSE	-	(				(	Throttle actuator Bank1 first initialization - lower mechanical	P2176	ottle Actuator - B1
cycle	driving cyc		TALOL	_	Offset learning aborted OR		TRUE	=	Initial learning of the closed throttle valve position	stop learning fail	12170	ottle Actuator - B i
			FALSE	=	Offset learning successful	-	TRUE	=	has started  Aborted due to one of the enable conditions no			
					)				longer being fulfilled (see secondary parameters)			
		-	FALSE	=	Offset check at cold temperature conditions				OR			
					active (				(			
		-	TRUE	=	( Return spring check aborted				Step 1 (Learning of the closed throttle valve	First learning of closed mechanical stop: Throttle position at lower mechanical stop		
					OR				position): Lower mechanical stop offset learning aborted at step 1 (moving throttle valve to the closed position) due to the following reason (closed	Throttle position at lower mechanical stop		
		_	TRUE	_	Return spring check successful				position has not reached):			
		-	FALSE	=	) Return spring check fault is set				(			
					OR	%	1.5	>	Difference between actual throttle position sensor1 at lower mechanical stop and desired			
									value for adaptation (based on max. allowed for lower mechanical stop voltage)			
		-	0	>	Device type )							
		sec	29	>	( Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	sec	1	>=	for time )			
					(				)			
		-	TRUE	=	Offset learning active				OR			
					OR (				( Step 2 (If no fault in step 1 then ramp to closed position with duty cylce in a defined range and	First learning of closed mechanical stop: Duty cycle at lower mechanical stop and resulting change in		
			FALSE	_	Offset learning active				check sensor voltages): Lower mechanical stop offset learning aborted at	sensor voltage		
									step 2 (pressing throttle valve to the low mechanical stop with certain force) due to the			
		_	TRUE	=	( The powerstage of the throttle actuator	%	60	<=	( Calculated duty cycle ratio			
					is commanded on				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
		V	7.5	>	Battery voltage )	sec	1	>=	) for time			
					)							
		-	TRUE	=	OR Power save is active				OR			
		-	FALSE FALSE	=	Limp home driving mode requested Safety fuel cut off requested				( Step 3 (If no fault in step 2 then check range of	Range check of learned sensor voltage at low mechanical		
			171202		Curacy radio cut on requested				learned sensor voltages at lower mechanical stop):	stop		
		-	FALSE	=	Torque limitation requested )				Lower mechanical stop offset learning aborted at step 3 (sensor offset learning at low mechanical stop) due to one of the the following conditions:			
		-	FALSE	=	(				(			
					Long term and short term adaptation chosen OR	V	0.69458	>	Lauras machanical stan unkana access d			
		-	TRUE	=	( Long term and short term adaptation	V	0.09450	>	Lower mechanical stop voltage sensor 1 OR			
		-	TRUE	=	chosen  Long term and short term is released	V	0.37964	<	Lower mechanical stop voltage sensor 1			
					)	v	4.61426	>	OR Lower mechanical stop voltage sensor 2			
					OR (	V	4.36157	<	OR Lower mechanical stop voltage sensor 2			
		-	FALSE	=	( First learning performed				)			
		-	TRUE	=	OR Limp air position is not plausible							
		-	TRUE	=	OR External trigger to start offset learning							
		-	TRUE	=					1			

OBD GROUP: KGMXOBD	G07		DIAGNOST TEST GROUP: 1		IARY TABLE 088	S ECM				MISSION	IS STDS: (	CALULEV12	5, FEDE	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	т	ime Required	ı	MIL IIIum.
							OR ECU is in post drive state for time	>	5	sec				
							OR ECU is in post drive state for time	>	5	sec				
							) Offset learning will be enabled when below conditions are satisfied (	=	TRUE	-				
							( ( Offset learning active OR	=	TRUE	-				
							( Offset learning active	=	FALSE	-				
							The powerstage of the throttle actuator is	=	TRUE	-				
							commanded on Battery voltage )	>	7.5	V				
							OR Power save is active	=	TRUE	-				
							) Limp home driving mode requested Safety fuel cut off requested Torque limitation requested	= =	FALSE FALSE	- - -				
							) Vehicle speed Engine speed	<= <=	0.62150404 300	mph rpm				
							Battery voltage Battery voltage Intake air temperature before throttle valve	<= >= <=	655.34 10 143.26	V V deg C				
							Intake air temperature before throttle valve Engine coolant temperature Engine coolant temperature	>= <= >=	5.26 100.46 5.26	deg C deg C deg C				
							No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-				
		Throttle actuator Bank1 - lower mechanical stop learning fail	Lower mechanical stop offset learning aborted at step 2 (pressing throttle valve to the low mechanical stop with certain force) due to the following reason (duty cycle ratio has not reached				( Offset learning aborted	=	FALSE	-	1	sec Or drivi	nce per ing cycle	1 Trip
			threshold): ( Calculated duty cycle ratio	<=	60	%	OR Offset learning successful	-	FALSE	_				
			for time	>=	1	sec	) Offset check at cold temperature conditions active	=	FALSE	-				
			OR				(	=	TRUE	-				
			Lower mechanical stop offset learning aborted at step 3 (sensor offset learning at low mechanical stop) due to one of the the following conditions:				Return spring check aborted OR							
			(				Return spring check successful	=	TRUE	-				
			Lower mechanical stop voltage sensor 1	>	0.69458	٧	Return spring check fault is set )	=	FALSE	-				
			OR Lower mechanical stop voltage sensor 1	<	0.37964	٧	OR Device type )	>	0	-				
			OR Lower mechanical stop voltage sensor 2	>	4.61426	٧	( Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec				
			OR				(							
			Lower mechanical stop voltage sensor 2	<	4.36157	V	Offset learning active OR	=	TRUE	-				
							Offset learning active	=	FALSE	-				

FEDBIN	STDS: CALULEV125, F	MISSIONS				GMXV04.2088	TEST GROUP: K		<del>3</del> 07	GROUP: KGMXOBDG
MIL	Time Required	s	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
		-	TRUE	=	The powerstage of the throttle actuator					
		v			commanded on					
		v	7.5	>	Battery voltage					
					)					
		-	TRUE	=	OR Power save is active					
		-	FALSE	=	) Limp home driving mode requested					
		-	FALSE FALSE	=	Safety fuel cut off requested Torque limitation requested					
		-	FALSE	=	)					
					Long term and short term adaptation chosen					
		-	TRUE	_	OR (					
					Long term and short term adaptation chosen					
		-	TRUE	=	Long term and short term is released )					
					) OR					
					(					
		-	FALSE	=	First learning performed OR					
		-	TRUE	=	Limp air position is not plausible OR					
		-	TRUE	=	External trigger to start offset learning )					
		-	TRUE	=	( ECU is in drive state					
		sec	5	>	OR ECU is in post drive state for time					
		555	Ü		)					
		sec	5	>	OR ECU is in post drive state for time					
		-	TRUE	=	) Offset learning will be enabled when below					
			TRUE	-	conditions are satisfied					
					(					
		-	TRUE	=	Offset learning active OR					
		_	FALSE		(					
		-		=	Offset learning active					
		-	TRUE	=	The powerstage of the throttle actuator is					
		V	7.5	>	commanded on Battery voltage					
					,)					
					OR					
		-	TRUE	=	Power save is active )					
		-	FALSE FALSE	=	Limp home driving mode requested Safety fuel cut off requested					
		-	FALSE	=	Torque limitation requested )					
		mph rpm	0.62150404 300	<= <=	Vehicle speed Engine speed					
		V V	655.34 10	<= >=	Battery voltage Battery voltage					
		deg C deg C	143.26 5.26	<= >=	Intake air temperature before throttle valve Intake air temperature before throttle valve					
		deg C deg C	100.46 5.26	<= >=	Engine coolant temperature Engine coolant temperature					
		-	see sheet inhibit tables	=	No pending or confirmed DTCs					
		-	see sheet enable tables	=	Basic enable conditions met					
per 1	1 sec once pe		FALSE	_			Step 1 (Learning of the closed throttle valve	Throttle position at lower mechanical stop exceeded	P30E3 Pat	
	1 sec once pe driving cy	-	FALSE	=	Offset learning aborted		position):	mum limit for Throttle Position Sensor Bank 1	routo Pat	

GROUP: KGMXOBDO	307		TEST GROUP: K		MARY TABLES .2088	ECIVI				EMISSIONS	S STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition		Time Required	MIL II
			Actuator throttle position	>	(Vmax - V) * Tgrad +	%	OR					
			Where:		Offset		Offset learning successful	=	FALSE	-		
			Vmax (Maximum voltage value allowed at	=	0.69458	V	) Offset check at cold temperature conditions	=	FALSE	-		
			mechanical stop, position sensor 1) V (Actual learned sensor voltage of sensor 1 at	=	sensed voltage	V	active (					
			the lower mechanical stop) Tgrad (Gradient of the throttle valve angle versus	=	calculated value	%/V	(	=	TRUE	-		
			sensor 1 voltage) Offset (Offset to Desired position value to start	=	1.5	%	Return spring check aborted OR					
			ramping into mechanical stop)				Return spring check successful	=	TRUE	-		
		Path 2: Range check of learned sensor voltage at lower mechanical stop for Throttle Position Sensor Bank 1: Maximum learning limit exceeded	Low mechanical stop first learning has been performed	=	TRUE	-	Return spring check fault is set )	=	FALSE	-		
			and Step 3 (If no fault in step 1 then check range of learned sensor voltages at lower mechanical stop):				OR Device type )	>	0	-		
			Actual learned sensor voltage of sensor 1 at the mechanical stop	>	0.69458	V	(					
			OR				Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec		
			Actual learned sensor voltage of sensor 2 at the	>	4.61426	V	(					
			mechanical stop				( Offset learning active	=	TRUE	-		
							OR (					
							Offset learning active	=	FALSE			
							The powerstage of the throttle actuator is commanded on Battery voltage	= ^	TRUE	v		
							) ) )	,	7.5	v		
							OR Power save is active	=	TRUE	_		
							) Limp home driving mode requested	=	FALSE	_		
							Safety fuel cut off requested Torque limitation requested	=	FALSE FALSE	-		
							( Long term and short term adaptation	=	FALSE	-		
							Chosen OR					
							( Long term and short term adaptation chosen	=	TRUE	-		
							Long term and short term is released ) ) OR	=	TRUE	-		
							(					
							First learning performed OR	=	FALSE	-		
							Limp air position is not plausible OR	=	TRUE	-		
							External trigger to start offset learning	=	TRUE	-		
							( ECU is in drive state OR	=	TRUE	-		
							ECU is in post drive state for time )	>	5	sec		
							OR ECU is in post drive state for time	>	5	sec		
							) Offset learning will be enabled when below conditions are satisfied	=	TRUE	-		

GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K		ARY TABLES	ECM				EMISSION	S STDS: CAL	ULEV125, FE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	is	Time	Required	MIL IIIu
							(   Offset learning active OR     Offset learning active OR     Offset learning active     Offset learning active     The powerstage of the throttle actuator is     Commanded on Battery voltage     OR     Power save is active     Limp home driving mode requested Safety fuel cut off requested Torque limitation requested     Torque limitation requested     Vehicle speed     Entire voltage     Battery voltage     Battery voltage     Battery voltage     Batter throttle valve     Batter voltage     Batter throttle valve     Command     Command	= = = = = = = = = = = = = = = = = = = =	TRUE FALSE TRUE 7.5  TRUE FALSE FALSE FALSE 62150404 300 655.34 10 143.26	V  mph rpm V V dea C			
							Intake air temperature before throttle valve Engine coolant temperature Engine coolant temperature No pending or confirmed DTCs Basic enable conditions met	>= <= >= =	5.26 100.46 5.26 see sheet inhibit tables see sheet enable tables	deq C deq C deg C -			
	P30E4	Range check of learned sensor voltage at lower mechanical stop for Throttle Position Sensor Bank 1: Minimum learning limit exceeded	Low mechanical stop first learning has been performed	=	TRUE		( Offset learning aborted	=	FALSE		1	sec once per driving cycle	1 T
		mint exceeded	and Step 3 (If no fault in step 2 then check range of learned sensor voltages at lower mechanical				OR Offset learning successful )	=	FALSE	-			
			stop): Actual learned sensor voltage of sensor 1 at the mechanical stop Actual learned sensor voltage of sensor 2 at the	<=	0.69458 4.61426	v v	Offset check at cold temperature conditions active	=	FALSE	-			
			mechanical stop ( Actual learned sensor voltage of sensor 1 at the	<	0.37964	v	( ( Return spring check aborted OR	=	TRUE	-			
			mechanical stop OR	`	0.37304	•	Return spring check successful	=	TRUE				
			Actual learned sensor voltage of sensor 2 at the	<	4.36157	V	) Return spring check fault is set	=	FALSE	-			
			mechanical stop )				OR Device type	>	0	-			
							Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec			
							( ( Offset learning active OR	=	TRUE	-			
							( Offset learning active	=	FALSE	-			
							The powerstage of the throttle actuator	=	TRUE	-			
							commanded on Battery voltage ) )	>	7.5	٧			
							OR Power save is active	_	TRUE				
	1						) Limp home driving mode requested	_	FALSE	-			1

OBD GROUP: KGMXOBDO	07		DIAGNOS <sup>*</sup> TEST GROUP: I		MARY TABLES	ECM				MISSION	S STDS: (	CALULEV	/125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns	т	ime Required	ı	MIL IIIum.
							Long term and short term adaptation chosen OR ( Long term and short term adaptation chosen Long term and short term is released ) ) OR ( ( First learning performed OR Limp air position is not plausible OR External trigger to start offset learning	= = = = = = = = = = = = = = = = = = = =	FALSE TRUE TRUE FALSE TRUE TRUE	- - - - -				
							CEU is in drive state OR ECU is in post drive state for time ) ) ) OR ECU is in post drive state for time CEU is in post drive state for time Offset learning will be enabled when below conditions are satisfied	> >	TRUE 5 5 TRUE	sec				
							( ( ( Offset learning active OR ( Offset learning active ( The powerstage of the throttle actuator is commanded on Battery voltage	= = = >	TRUE FALSE TRUE 7.5	- - - V				
							Battlery Voltadge ) ) ) ) OR Power save is active ) Limp home driving mode requested Safety fuel cut off requested Torque limitation requested	= = = =	TRUE FALSE FALSE FALSE	- - -				
							Vehicle speed Engline speed Battery voltage Battery voltage Intake air temperature before throttle valve Intake air temperature before throttle valve Engline coolant temperature Engline coolant temperature No pending or confirmed DTCs Basic enable conditions met	<= <= <= <= <= <= <= <= <= = = = = = =	0.62150404 300 655.34 10 143.26 5.26 100.46 5.26 see sheet inhibit tables	mph rpm V V deg C dea C dea C				
	P2101	Rationality check of throttle actuator control Bank 1 deviation - Actual actuator position is continuously monitored against commanded value	( Difference between actual actuator position and its commanded value OR	>	A*B+C	%	( ECU is in DRIVE state  OR ECU is in POSTDRIVE state )	=	TRUE	-	0.5	sec	continuous	1 Trip
			Difference between commanded value and actual actuator position ) Where: (A) Rate of change of the commanded value (B) Factor for allowed control deviation	=	(A * B + C)  calculated value  0.02	% %/s -	Powerstage switched off by diagnosis )  for time The powerstage of the actuator is switched on, following conditions:	>= ====================================	TRUE 0.799805 TRUE	sec -				
			(C) Allowed control deviation in steady state	=	5	%	State of the thottle valve powerstage bank 1	>	0	-				

OI	BD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: K		MARY TABLES - .2088	- ECM			E	MISSION	IS STDS: (	CALULE	V125, FED	BIN125
	Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	s	т	me Require	d	MIL IIIum.
								) Release of adaptation Actual position is valid Request safety fuel cut off SKA bank 1, following condition:	= = =	FALSE TRUE FALSE	: :				
								( Request reversible safety fuel cut off SKA bank 1, which has following condition:	=	FALSE	-				
								Battery voltage for throttle valve operation sufficient bank 1	>	7.5	٧				
								Engine speed	>	1000	rpm				
								Limp home position not reached bank 1	=	FALSE	-				
								No pending or confirmed DTCs	=	see sheet inhibit tables	-				
								Basic enable conditions met	=	see sheet enable tables	-				
		P0638	Range check of Throttle Actuator Control duty cycle Bank 1	Absolute value of Throttle valve duty cycle ratio bank 1	>	Minimum(A, (B*C))	%	( ECU is in DRIVE state	=	TRUE	-	0.6001	sec	continuous	1 Trip
				Where: A - Upper threshold for Throttle Actuator Control duty cycle Bank 1 diagnosis in case of low battery		95	%	OR ECU is in POSTDRIVE state )	=	TRUE	-				
				voltage B - Upper threshold for Throttle Actuator Control duty cycle bank1 diagnosis		80	%	Absolute value of position controller of the throttle valve bank 1 of motor bench one / gradient of the filtered desired value	<	78.1	%/s				
				C - Factor for battery voltage compensation bank		13.5V / measured battery voltage [V]	-	The powerstage of the actuator is switched on, following conditions:	=	TRUE	-				
								State of the thottle valve powerstage bank 1	>	0	-				
								Release of adaptation Actual position is valid Request safety fuel cut off SKA bank 1, following condition:	=	FALSE TRUE FALSE	:				
								Request reversible safety fuel cut off SKA bank 1, which has following condition:	=	FALSE	-				
								Battery voltage for throttle valve operation sufficient bank 1 OR	=	TRUE	-				
								Engine speed )	>	1000	rpm				
								Limp home position not reached bank 1 )	=	FALSE	-				
								Battery voltage for throttle valve operation sufficient for bank 1	=	TRUE	-				
								No pending or confirmed DTCs	=	see sheet inhibit tables	-				
L								Basic enable conditions met	=	see sheet enable tables	-				
		P1551	Path 1: Drift check of imp air position Bank 1 - comparison of actual learned value with first learned limp air position	Absolute difference between actual learned sensor voltage of sensor 1 at limp air position after mean value calculation and first learned sensor voltage of sensor 1 at limp air position	>=	1.40015	V	( Offset learning aborted	=	FALSE	-			Once per driving cycle	1 Trip
				OR Absolute difference between first learned sensor voltage of sensor 2 at limp air position and actual learned sensor voltage of sensor 2 at limp air position after mean value calculation	>=	1.40015	V	OR Offset learning successful )	=	FALSE	-				
								Offset check at cold temperature conditions active	=	FALSE	-				
								( Return spring check aborted OR	=	TRUE	-				

5, FEDBI	STDS: CALULEV125,	EMISSIONS S				GMXV04.2088	TEST GROUP: N		307	D GROUP: KGMXOBDO
MIL	Time Required	ns	Enable Conditio		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
			TRUE	-	Return spring check successful					
		-	FALSE	=	) Return spring check fault is set					
		-	0	>	OR Device type					
		sec	29	>	Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time					
			TRUE	=	( ( ( Offset learning active					
					OR (					
		-	FALSE TRUE	=	Offset learning active ( The powerstage of the throttle actuator					
		v	7.5	>	is commanded on Battery voltage					
			TRUE		) ) OR					
		-	FALSE	=	Power save is active ) Limp home driving mode requested					
		-	FALSE FALSE	=	Safety fuel cut off requested Torque limitation requested					
		-	FALSE	=	) ( Long term and short term adaptation					
					chosen OR					
		-	TRUE	=	( Long term and short term adaptation chosen Long term and short term is released					
			INGE	=	) ) OR					
					(					
		-	FALSE	=	First learning performed OR					
		-	TRUE	=	Limp air position is not plausible OR					
		-	TRUE TRUE	=	External trigger to start offset learning )					
			INUE	-	ECU is in drive state OR					
		sec	5	>	ECU is in post drive state for time )					
		sec	5	>	OR ECU is in post drive state for time					
		-	TRUE	=	) Offset learning will be enabled when below conditions are satisfied					
		_	TRUE	=	( ( ( Offset learning active					
		-	FALSE	=	OR ( Offset learning active					
		-	TRUE	=	( The powerstage of the throttle actuator					
		V	7.5	>	is commanded on Battery voltage					
					) ) OR					
		-	TRUE	=	Power save is active )					
		-	FALSE FALSE	=	Limp home driving mode requested Safety fuel cut off requested					

GROUP: KGMXOBD	G07		TEST GROUP: K	TIC SUMMARY TABLES ECN GMXV04.2088	n		EMISSIONS	STDS: CALULEV125, FEE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	ons	Time Required	MIL IIIur
					Torque limitation requested ) Vehicle speed Endine speed Battery voltage Battery voltage Intake air temperature before throttle valve Intake air temperature before throttle valve Endine coolant temperature Endine coolant temperature No pending or confirmed DTCs Basic enable conditions met	= FALSE  <= 0.62150404 <= 300 <= 655.34 >= 10 <= 143.26 >= 5.26 <= 100.46 >= 5.26 = see sheet inhibit tables  = see sheet enable tables	mph rpm V V den C den C den C		
		Path 2: Range check of limp air position for Bank 1 - high	Difference between actual learned sensor voltage of sensor 1 at imp air position after mean value calculation and actual learned sensor voltage of sensor 1 at the lower mechanical stop	> 1.39771 V	( Offset learning aborted	= FALSE		Once per driving cycle	1 Trip
			OR Difference between actual learned sensor voltage of sensor 2 at the lower mechanical stop and actual learned sensor voltage of sensor 2 at limp air position after mean value calculation	> 1.39771 V	OR Offset learning successful )	= FALSE	-		
					Offset check at cold temperature conditions active ( (	= FALSE	-		
					( Return spring check aborted OR Return spring check successful	= TRUE			
					Return spring check fault is set ) OR	= FALSE	-		
					Device type ) ( Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time (	> 0	sec		
					( ( Offset learning active OR	= TRUE	-		
					Offset learning active ( The powerstage of the throttle actuator	= FALSE = TRUE	-		
					is commanded on Battery voltage )	> 7.5	٧		
					OR Power save is active ) Limp home driving mode requested	= TRUE = FALSE			
					Safety fuel cut off requested Torque limitation requested ) (	= FALSE = FALSE	-		
					Long term and short term adaptation chosen OR (	= TRUE	_		
					Long term and short term adaptation chosen  Long term and short term is released )	= TRUE			
					, OR ( (				
					First learning performed OR	= FALSE	-		

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM	_		EMISSION	IS STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	ns	Time Required	MIL IIIum.
					Limp air position is not plausible OR External triqqer to start offset learning ) {	= TRUE = TRUE = TRUE > 5	- - - sec		
					) ) OR ECU is in post drive state for time ) Offset learning will be enabled when below conditions are satisfied	> 5 = TRUE	sec -		
					Offset learning active OR OR Offset learning active	= TRUE = FALSE	-		
					The powerstage of the throttle actuator is commanded on Battery voltage	= TRUE	v		
					OR Power save is active ) Limp home driving mode requested Safety fuel cut off requested Torque limitation requested )	= TRUE = FALSE = FALSE = FALSE	- - - -		
					Vehicle speed Endine speed Battery voltage Battery voltage Battery voltage Intake air temperature before throttle valve Intake air temperature before throttle valve Endine coolant temperature Endine coolant temperature No pending or confirmed DTCs	<= 0.62150404 <= 300 <= 655.34 >= 10 <= 143.26 >= 5.26 <= 100.46 >= 5.26 = see sheet inhibit tables	mph rpm V V deq C deq C deq C deq C		
		Path 3: Range check of limp air position for Bank 1 - low	Difference between actual learned sensor voltage of sensor 1 at limp air position after mean value	< 0.77026 V	Basic enable conditions met  ( Offset learning aborted	= see sheet enable tables  = FALSE	-	Once per driving cycle	1 Trip
			calculation and actual learned sensor voltage of sensor 1 at the lower mechanical stop  OR  Difference between actual learned sensor voltage of sensor 2 at the lower mechanical stop and actual learned sensor voltage of sensor 2 at limp air position after mean value calculation	< 0.77026 V	OR Offset learning successful )	= FALSE	-		
					Offset check at cold temperature conditions active (	= FALSE	-		
					Return spring check aborted OR Return spring check successful	= TRUE	-		
					Return spring check fault is set ) OR Device type	= FALSE > 0	-		
					Device type ) ( Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time (	> 29	sec		
					( ( Offset learning active	= TRUE	-		

GROUP: KGMXOBDO	907		TEST GROUP: KGI	SUMMARY TABLES EC MXV04.2088			E	MISSIONS	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Ena	able Condition	ns	Time Required	MIL II
					OR					
					( Offset learning active	=	FALSE			
					( The powerstage of the throttle actuator	=	TRUE	_		
					is	-	TROL			
					commanded on Battery voltage	>	7.5	٧		
					)					
					) OR					
					Power save is active	=	TRUE	-		
					Limp home driving mode requested	=	FALSE	-		
					Safety fuel cut off requested Torque limitation requested	=	FALSE FALSE	-		
					)	=	FALSE			
					Long term and short term adaptation chosen	_	TALOL			
					OR Chosen					
					( Long term and short term adaptation	=	TRUE	-		
					chosen Long term and short term is released	=	TRUE			
					)		11102			
					OR					
					(					
					First learning performed OR	=	FALSE	-		
					Limp air position is not plausible OR	=	TRUE	-		
					External trigger to start offset learning	=	TRUE	-		
					(	=	TRUE	-		
					ECU is in drive state OR					
					ECU is in post drive state for time	>	5	sec		
					)					
					OR ECU is in post drive state for time	>	5	sec		
					) Offset learning will be enabled when below	=	TRUE			
					conditions are satisfied					
					(					
					Offset learning active	=	TRUE	-		
					OR (					
					Offset learning active	=	FALSE	-		
					The powerstage of the throttle actuator	=	TRUE	-		
					commanded on Battery voltage		7.5	v		
					)	>	7.5	٧		
					)					
					OR Power save is active	=	TRUE			
	1 1				) Limp home driving mode requested	=	FALSE	_		
	1 1				Safety fuel cut off requested	=	FALSE	-		
					Torque limitation requested )	=	FALSE	-		
					Vehicle speed Engine speed	<= 0 <=	.62150404 300	mph rpm		
	1 1				Battery voltage Battery voltage	<= >=	655.34 10	V		
	1 1				Intake air temperature before throttle valve	<=	143.26	deg C		
	1 1				Intake air temperature before throttle valve Engine coolant temperature	>= <=	5.26 100.46	dea C dea C		
					Engine coolant temperature No pending or confirmed DTCs	>= = see	5.26 sheet inhibit	deq C		
	1 1				Basic enable conditions met		tables sheet enable			
	1 1				_ adio diradio doriambila lilot	- 300	tables			1

GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1		MARY TABLES .2088	ECM				EMISSIONS	S STDS: CALULEV125, FEE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIu
		Path 4: Limp air position drift Bank 1 - comparison with lower mechanical stop sensor voltage	(				( Offset learning aborted	=	FALSE		Once per driving cycle	1 Trip
		mecnanical stop sensor voltage	Actual offset learning step	=	4	-	Offset learning aborted OR Offset learning successful	_	FALSE	_	ariving cycle	
			( A - B ) Absolute value of the actual learned	>	0.15503	٧	) Offset check at cold temperature conditions	_	FALSE	-		
			((A - B)) Absolute value of the actual rearried value minus last stored value Where:	,	0.15503	v	active	-	FALSE	-		
			A	=	(A1 + A2) / 2	V	( Return spring check aborted	=	TRUE	-		
			B A1	=	(B1 + B2) / 2 A11 - A12	V V	OR Return spring check successful	=	TRUE			
			A2	_	A22 - A21	v	) Return spring check fault is set	_	FALSE	_		
			R1	=	B11 - B12	v	) OR		171202			
			B2	=	B22 - B21	v	Device type	>	0	-		
			(A11) Learned sensor voltage of sensor 1 at limp air position				(					
			(A12) Learned reference sensor voltage of sensor 1 at the lower mechanical stop				Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec		
			(A22) Learned reference sensor voltage of				(					
			sensor 2 at the lower mechanical stop (A21) Learned sensor voltage of sensor 2 at limp				Offset learning active	=	TRUE	-		
			air position (B11) Actual learned sensor voltage of sensor 1				OR					
			at limp air position after mean value calculation									
			(B12) Learned reference sensor voltage of sensor 1 at the lower mechanical stop				(					
			(B22) Learned reference sensor voltage of sensor 2 at the lower mechanical stop				Offset learning active	=	FALSE	-		
			(B21) Actual learned sensor voltage of sensor 2 at limp air position after mean value calculation				(					
			)				The powerstage of the throttle actuator	=	TRUE	_		
							is commanded on					
							and Battery voltage	>	7.5	V		
							)					
							) OR					
							Power save is active	=	TRUE	-		
							Limp home driving mode requested Safety fuel cut off requested	=	FALSE FALSE	-		
							Torque limitation requested	=	FALSE	-		
							( Long term and short term adaptation	=	FALSE	-		
							chosen OR					
							( Long term and short term adaptation	=	TRUE	-		
							chosen  Long term and short term is released	_	TRUE	_		
							)					
	1						OR					
							( First learning performed	_	FALSE	_		
							OR Limp air position is not plausible	_	TRUE			
							OR External trigger to start offset learning	_	TRUE	_		
	1						)	_	TRUE			
	1						ECU is in drive state	_	INUE	-		
							ECU is in post drive state for time	>	5	sec		
	1						)					
	1						OR ECU is in post drive state for time	>	5	sec		I

ОВІ	D GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: P		IMARY TABLES - 1.2088	ECM			E	MISSION	IS STDS: C	ALULE	V125, FED	BIN125
	Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions		Ti	me Require	d	MIL IIIum.
								Offset learning will be enabled when below conditions are satisfied	=	TRUE	-				
								( ( Offset learning active OR	=	TRUE	-				
								Offset learning active	=	FALSE	-				
								The powerstage of the throttle actuator is	=	TRUE					
								commanded on Battery voltage ) ) )	>	7.5	٧				
								OR Power save is active	=	TRUE					
								) Limp home driving mode requested Safety fuel cut off requested Torque limitation requested	= =	FALSE FALSE FALSE	-				
								Vehicle speed Engine speed Battery voltage Battery voltage Battery voltage Intake air temperature before throttle valve Engine coolant temperature Engine coolant temperature Ropen ocolant temperature No pending or confirmed DTCs Basic enable conditions met	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	0.62150404 300 655.34 10 143.26 5.26 100.46 5.26 see sheet inhibit tables see sheet enable	mph rpm V V deq C deq C deq C				
										tables					
		P2119	Path 1: Throttle valve opening spring check - opening failure for Bank 1	Here it is checked whether opening spring can be returned by mechanical force only to the defined limp home position in the defined time				( Offset learning aborted	=	FALSE	-	0.26	sec	once per driving cycle	1 Trip
				( Actual offset learning step	=	4	-	OR Offset learning successful	=	FALSE	_				
				( ( Limp air position is implausible	=	TRUE	-	) Offset check at cold temperature conditions	-	FALSE					
				OR				active .							
				First learning performed	=	FALSE	-	( ( Return spring check aborted	=	TRUE	-				
				) Position of the throttle valve	<=	A * C1	%	OR Return spring check successful	=	TRUE	-				
								) Return spring check fault is set	=	FALSE	-				
				for time	>=	0.26	sec	) OR Device type	>	0	_				
				OR (				() (Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec				
				Limp air position is implausible	=	FALSE	-	(							
				First learning performed Position of the throttle valve	= <=	TRUE Limp home position of throttle valve - 3%	- %	( Offset learning active OR	=	TRUE	-				
				Limp air position is implausible when: Absolute difference of the deviation of limp air position sensor voltage at ECU start from lower mechanical stop position sensor voltage and the deviation of actual learned film pair position sensor voltage from lower mechanical stop position	>	0.15503	V	( Offset learning active	=	FALSE	-				
				sensor voltage for time )	>=	0.26	sec	( The powerstage of the throttle actuator is	=	TRUE	-				
				Where: (A) Gradient of the throttle valve angle	=	100% / ((V12 - V11) + (V21 - V22)) * 0.5	%/V	commanded on Battery voltage ) ) )	>	7.5	V				

GROUP: KGMXOBDG	07		TEST GROUP: K	TIC SUMMARY TABLES - GMXV04.2088				E	MISSION	S STDS: CA	ALULEV125, FE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters		Enable Conditions	<b>s</b>	Tim	ne Required	MIL IIIu
			(C1) Threshold for minimum absolute limp air position allowed	= 0.77026	V	OR						
			(V12) Actual learned sensor voltage of sensor 1			Power save is active	=	TRUE	-			
			at the upper mechanical stop (V11) Actual learned sensor voltage of sensor 1			Limp home driving mode requested	=	FALSE	-			
			at the lower mechanical stop (V21) Actual learned sensor voltage of sensor 2 at the lower mechanical stop			Safety fuel cut off requested	=	FALSE	-			
			(V22) Actual learned sensor voltage of sensor 2			Torque limitation requested	=	FALSE	-			
			at the upper mechanical stop			) (	=	FALSE	-			
						Long term and short term adaptation chosen						
						OR (	=	TRUE	-			
						Long term and short term adaptation chosen						
						Long term and short term is released )	=	TRUE				
						OR						
						(		E11.5-				1
						First learning performed OR	=	FALSE	-			
						Limp air position is not plausible OR	=	TRUE	-			
						External trigger to start offset learning )	=	TRUE	-			
						( ECU is in drive state	=	TRUE				
						OR ECU is in post drive state for time	>	5	sec			
						)						
						OR ECU is in post drive state for time	>	5	sec			
						) Offset learning will be enabled when below	=	TRUE	-			
						conditions are satisfied (						
						(						
						Offset learning active OR	=	TRUE	-			
						( Offset learning active	=	FALSE	-			
						( The powerstage of the throttle actuator	=	TRUE	-			
						is commanded on						
						Battery voltage )	>	7.5	V			
						)						
						OR Power save is active	=	TRUE	-			
						) Limp home driving mode requested	=	FALSE	-			
						Safety fuel cut off requested Torque limitation requested	=	FALSE FALSE	-			
						) Vehicle speed	<=	0.62150404	mph			
						Engine speed Battery voltage	<= <=	300 655.34	rom V			1
						Battery voltage Intake air temperature before throttle valve	>= <=	10 143.26	V deg C			1
						Intake air temperature before throttle valve Engine coolant temperature	>= <=	5.26 100.46	deg C deg C			1
						Engine coolant temperature No pending or confirmed DTCs	>=	5.26 see sheet inhibit	deg C			
						Basic enable conditions met	=	tables see sheet enable				
								tables		<u> </u>		
		Path 2: Throttle valve opening spring failure while spreading	Position of the throttle valve	> 1 + B1 + B2	%	(	=	FALSE		0.3	sec once per	1 T
		the opening spring for Bank 1	Where:			Offset learning aborted OR					driving cycle	le
			(B1) Offset for the lower mechanical stop because of dirt	= Calculated parameter	%	Offset learning successful )	=	FALSE	-			
			(B2) Range for actual position (offset to desired	= 1	%	Offset check at cold temperature conditions	=	FALSE	-	I		

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	IC SUMMARY TABLES ECI GMXV04.2088	М			EMISSION	S STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	E	nable Conditio	ons	Time Required	MIL IIIu
					(		TRUE			
					Return spring check aborted OR	=	IKUE	-		
					Return spring check successful	=	TRUE	-		
					Return spring check fault is set	=	FALSE	-		
					OR Device type	>	0	-		
					)		-			
					Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec		
					(					
					Offset learning active OR	=	TRUE	-		
					Offset learning active	=	FALSE	-		
					The powerstage of the throttle actuator	=	TRUE	-		
					commanded on Battery voltage	>	7.5	v		
					)		7.5	·		
					) OR					
					Power save is active )	=	TRUE	-		
					Limp home driving mode requested Safety fuel cut off requested	=	FALSE FALSE	-		
					Torque limitation requested )	=	FALSE	-		
					( Long term and short term adaptation	=	FALSE	-		
					chosen OR					
					Long term and short term adaptation	=	TRUE	-		
					chosen Long term and short term is released	=	TRUE	-		
					) ) OR					
					OR (					
					First learning performed OR	=	FALSE	-		
					Limp air position is not plausible OR	=	TRUE	-		
					External trigger to start offset learning	=	TRUE	-		
					( ECU is in drive state	=	TRUE	-		
					OR ECU is in post drive state for time	>	5	sec		
					)					
					OR ECU is in post drive state for time	>	5	sec		
					) Offset learning will be enabled when below	=	TRUE	-		
					conditions are satisfied (					
					(					
					Offset learning active OR	=	TRUE	-		
					( Offset learning active	=	FALSE	-		
					( The powerstage of the throttle actuator	=	TRUE	-		
					commanded on Battery voltage	>	7.5	v		
					)	,	1.3	v		
					) OR					

GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1						E	MISSION	S STDS: CA	ALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	Tim	ne Required	MIL IIIur
							Power save is active ) Limp home driving mode requested Safety fuel cut off requested Torque limitation requested Vehicle speed Engine speed Battery voltage Intake air temperature before throttle valve Intake air temperature before throttle valve Engine coolant temperature Engine coolant temperature No pending or confirmed DTCs	= = = = = = = = = = = = = = = = = = = =	TRUE  FALSE FALSE FALSE 0.62150404 300 655.34 10 143.26 5.26 100.46 5.26 see sheet inhibit	mph rpm V V dea C dea C dea C dea C			
							Basic enable conditions met	=	tables see sheet enable tables	-			
		Path 3: Throttle valve return spring failure check for Bank 1	( ( Limp air position is implausible OR	=	TRUE	-	Offset learning aborted OR	=	FALSE	-	0.36	sec once pe driving cyc	
			OR  First learning performed )	=	FALSE	-	Offset learning successful ) Offset check at cold temperature conditions active (	=	FALSE FALSE	-			
			Position of the throttle valve	>	A * C1	٧	( ( Return spring check aborted	=	TRUE	-			
			for time )	>=	0.36	sec	OR Return spring check successful	=	TRUE	-			
			OR				) Return spring check fault is set )	=	FALSE	-			
			( Limp air position is implausible	=	FALSE	-	OR Device type	>	0	-			
			First learning performed Position of the throttle valve	>	TRUE Limp home position of throttle valve + 3%	%	Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec			
			Limp air position is implausible when:				( (						
			Absolute difference of the deviation of limp air position sensor voltage at ECU start from lower mechanical stop position sensor voltage and the deviation of actual learned limp air position sensor voltage from lower mechanical stop position sensor voltage	>	0.15503	٧	Offset learning active	=	TRUE	-			
			for time	>=	0.36	sec	OR (						
			Where: (A) Gradient of the throttle valve angle	=	100% / ((V12 - V11) + (V21 - V22)) * 0.5	%/V	Offset learning active (	=	FALSE	-			
			(C1) Threshold for maximum absolute limp air position allowed	=	1.39771	٧	The powerstage of the throttle actuator is	=	TRUE	-			
			(V12) Actual learned sensor voltage of sensor 1 at the upper mechanical stop (V11) Actual learned sensor voltage of sensor 1 at the lower mechanical stop				commanded on Battery voltage	>	7.5	٧			
			(V21) Actual learned sensor voltage of sensor 2 at the lower mechanical stop (V22) Actual learned sensor voltage of sensor 2				OR Power save is active	_	TRUE				
			at the upper mechanical stop				Limp home driving mode requested Safety fuel cut off requested Torque limitation requested	=	FALSE FALSE FALSE	-			
							) ( Long term and short term adaptation chosen OR	=	FALSE	-			
							( Long term and short term adaptation	=	TRUE	-			
							chosen Long term and short term is released	=	TRUE	-			

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1		MARY TABLES - .2088	ECM				MISSION	IS STDS: (	CALULEV	/125, FED-	BIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	т	ime Required	l	MIL IIIur
							(		544.05					
							First learning performed OR	=	FALSE	-				
							Limp air position is not plausible OR External trigger to start offset learning	=	TRUE					
							)	-	TRUE TRUE					
							ECU is in drive state OR	-	IKUE	-				
							ECU is in post drive state for time	>	5	sec				
							OR ECU is in post drive state for time	>	5	sec				
							Offset learning will be enabled when below conditions are satisfied	=	TRUE	-				
							( ( Offset learning active	=	TRUE					
							Offset learning active OR ( Offset learning active		FALSE					
							( The powerstage of the throttle actuator	-	TRUE					
							is commanded on	_	TRUE					
							Battery voltage )	>	7.5	V				
							OR Power save is active	=	TRUE	_				
							) Limp home driving mode requested Safety fuel cut off requested Torque limitation requested	= =	FALSE FALSE FALSE	-				
							) Vehicle speed	<=	0.62150404 300	mph				
							Engine speed Battery voltage Battery voltage	<= <= >=	655.34 10	rpm V V				
							Intake air temperature before throttle valve Intake air temperature before throttle valve	>= <= >=	143.26 5.26	deg C deg C				
							Engine coolant temperature Engine coolant temperature Engine coolant temperature	>= <= >=	100.46 5.26	deg C deg C				
							No pending or confirmed DTCs	=	see sheet inhibit tables	-				
							Basic enable conditions met	=	see sheet enable tables	-				
		Path 4: Throttle valve return spring failure while spreading the	Position of the throttle valve	<=	(D1 + D2) - D3	%	(	-	FALSE	-	0.2	sec	once per	1 T
		return spring for Bank 1	Where:				Offset learning aborted OR						driving cycle	
			(D1) Limp home position of the throttle valve	-	Calculated parameter	%	Offset learning successful	=	FALSE	-				
			(D2) Value by which return spring is spread starting from power off position	=	15	%	Offset check at cold temperature conditions active	=	FALSE	-				
			(D3) Range for actual position (offset to desired value) to check whether return spring spread position is reached	=	2	%	(							
			position is reactied				( Return spring check aborted	=	TRUE	-				
							OR Return spring check successful	=	TRUE					
							) Return spring check fault is set	=	FALSE					
							OR Device type	>	0	_				
							) (			-				
							Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time (	>	29	sec				
							(							
	1						Offset learning active OR	=	TRUE	-				

OBD GROUP: KGMXOBD	307		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECI GMXV04.2088	М		EMISSION	S STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Co	nditions	Time Required	MIL IIIum.
					( Offset learning active	= FALSE	-		
					The powerstage of the throttle actuator	= TRUE	-		
					is commanded on Battery voltage ) )	> 7.5	V		
					) OR Power save is active	= TRUE	-		
					) Limp home driving mode requested Safety fuel cut off requested Torque limitation requested	= FALSE = FALSE = FALSE	-		
					) ( Long term and short term adaptation	= FALSE			
					chosen OR ( Long term and short term adaptation	= TRUE	-		
					chosen  Long term and short term is released )	= TRUE	-		
					OR ( (				
					First learning performed OR	= FALSE			
					Limp air position is not plausible OR	= TRUE	-		
					External trigger to start offset learning	= TRUE	-		
					( ECU is in drive state OR	= TRUE			
					ECU is in post drive state for time ) )	> 5	sec		
					OR ECU is in post drive state for time	> 5	sec		
					) Offset learning will be enabled when below conditions are satisfied	= TRUE	-		
					( Offset learning active OR	= TRUE	-		
					Offset learning active	= FALSE	-		
					( The powerstage of the throttle actuator	= TRUE	-		
					commanded on Battery voltage	> 7.5	V		
					)))) OR Power save is active	= TRUE	_		
					) Limp home driving mode requested Safety fuel cut off requested Torque limitation requested	= FALSE = FALSE = FALSE	-		
					) Vehicle speed Engine speed Battery voltage	<= 0.621504 <= 300	04 mph		
					Battery voltage Intake air temperature before throttle valve Intake air temperature before throttle valve Engine coolant temperature Engine coolant temperature	>= 10 <= 143.26 >= 5.26 <= 100.46 >= 5.26	V deq C deq C deq C deq C		
					No pending or confirmed DTCs  Basic enable conditions met	= see sheet ir tables = see sheet er tables	nable -		

BD GROUP: KGMXOBDG	07		DIAGNOS' TEST GROUP: I	TIC SUMMARY TABLES ECM (GMXV04.2088			EMISSION	NS STDS:	CALULE	V125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	ns	т	ime Require	ed	MIL IIIum.
	P2100	Path 1 : Diagnosis of the Throttle Actuator Control Bank 1 H bridge circuit for open circuit fault	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit: ≥ 200 K Ω impedance between ECU pin and load	( ECU is in DRIVE state	= TRUE	-	0.799805	sec	continuous	1 Trip
					OR ECU is in POSTDRIVE state	= TRUE					
					) The powerstage of the actuator is switched	= TRUE					
					on, following conditions:						
					State of the thottle valve powerstage bank 1	> 0	•				
					Release of adaptation Actual position is valid Request safety fuel cut off SKA bank 1, following condition:	= FALSE = TRUE = FALSE	-				
					( Request reversible safety fuel cut off SKA bank 1, which has following condition:	= FALSE	-				
					( Battery voltage for throttle valve operation sufficient bank 1 OR	> 7.5	٧				
					Engine speed )	> 1000	rpm				
					Limp home position not reached bank 1	= FALSE = see sheet inhibit	-				
					No pending or confirmed DTCs  Basic enable conditions met	<ul><li>see sheet inhibit</li><li>tables</li><li>see sheet enable</li></ul>					
					Sable shable soridile no met	tables					
		Path 2: Check throttle valve power stage IC for over temperature	Over temperature error from the power stage is detected	= TRUE -	( ECU is in DRIVE state	= TRUE	-			continuous	1 Trip
					ECU is in POSTDRIVE state	= TRUE	-				
					The powerstage of the actuator is switched on, following conditions:	= TRUE	-				
					State of the thottle valve powerstage bank 1	> 0	-				
					Release of adaptation Actual position is valid	= FALSE = TRUE	-				
					Request safety fuel cut off SKA bank 1, following condition:	= FALSE	-				
					Request reversible safety fuel cut off SKA bank 1, which has following condition:	= FALSE	-				
					Sattery voltage for throttle valve operation sufficient bank 1	> 7.5	V				
					Engine speed	> 1000	rpm				
					Limp home position not reached bank 1	= FALSE	-				
					No pending or confirmed DTCs	see sheet inhibit tables	-				
					Basic enable conditions met	= see sheet enable tables	-				
		Path 3 :	Voltage low during driver ON state (indicates	= Short to ground: ≤ 0.5 -	(	= TRUE				continuous	1 Trip
		Diagnoses the Turbine bypass valve H bridge high side driver circuit at out 1 for circuit low fault	short circuit to ground)	$\Omega$ impedance between signal and controller ground	ECU is in DRIVE state						
		Diagnoses the Turbine bypass valve H bridge low side driver circuit at out 2 for circuit high fault	OR Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: ≤ 0.5 Ω impedance between signal and controller	OR ECU is in POSTDRIVE state )	= TRUE	-				
				power	The powerstage of the actuator is switched on, following conditions:	= TRUE	-				
					State of the thottle valve powerstage bank 1	> 0	-				
					) Release of adaptation Actual position is valid	= FALSE = TRUE	-				

BD GROUP: KGMXOBDG	607		DIAGNOST TEST GROUP: K		MARY TABLE 2088	S ECM			E	MISSION	S STDS: CALULEV125, FEE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	Time Required	MIL IIIum
							Request safety fuel cut off SKA bank 1, following condition:	=	FALSE	-		
							( Request reversible safety fuel cut off SKA bank 1, which has following condition:	=	FALSE	-		
							( Battery voltage for throttle valve operation sufficient bank 1	>	7.5	V		
							OR Engine speed	>	1000	rpm		
							) Limp home position not reached bank 1	=	FALSE	-		
							No pending or confirmed DTCs	=	see sheet inhibit tables	-		
							Basic enable conditions met	=	see sheet enable tables	-		
rottle Actuator - B2	P218A	Throttle actuator Bank2 first initialization - lower mechanical stop learning fail	(				( Offset learning aborted	=	FALSE	-	Once per driving cycle	1 Trip
		Stop learning rain	Initial learning of the closed throttle valve position has started	=	TRUE	-	OR OR	l			unving cycle	
			Aborted due to one of the enable conditions no longer being fulfilled (see secondary parameters)	=	TRUE	-	Offset learning successful )	=	FALSE	-		
			OR				Offset check at cold temperature conditions	=	FALSE	-		
		First learning of closed mechanical stop: Throttle position at lower mechanical stop	Lower mechanical stop offset learning aborted at step 1 (moving throttle valve to the closed position) due to the following reason (closed				active ( (					
			position has not reached): (				( Return spring check aborted	=	TRUE	-		
			( Difference between actual throttle position	>	1.5	%	OR Return spring check successful	=	TRUE			
			sensor2 at lower mechanical stop and desired )				) Return spring check fault for bank 2 is set )	=	FALSE	-		
			for time )	>=	1	sec	OR Device type	>	0	-		
			OR  Lower mechanical stop offset learning aborted at step 2 (pressing throttle valve to the low mechanical stop with certain force) due to the following reason (duty cycle ratio has not reached threshold):				) ( Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time (	>	29	sec		
		First learning of closed mechanical stop: Duty cycle at lower mechanical stop and resulting change in sensor voltage	Calculated duty cycle ratio	<=	60	%	( Offset learning active	=	TRUE	-		
			) for time	>=	1	sec	OR (	l				
		Range check of learned sensor voltage at low mechanical stop	OR  Lower mechanical stop offset learning aborted at step 3 (sensor offset learning at low mechanical stop) due to one of the the following conditions:				Offset learning active (	=	FALSE	-		
			(				The powerstage of the throttle actuator for bank 2 is commanded on	=	TRUE	-		
			Lower mechanical stop voltage sensor 1 OR	>	0.69458	٧	Battery voltage )	>	7.5	V		
			Lower mechanical stop voltage sensor 1 OR	<	0.37964	٧	) OR Power save is active for bank 2	=	TRUE	-		
			Lower mechanical stop voltage sensor 2	>	4.61426	V	) Limp home driving mode requested for bank	=	FALSE	-		
			OR Lower mechanical stop voltage sensor 2	<	4.36157	٧	2 Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2	=	FALSE FALSE	-		
			)				) ( Long term and short term adaptation chosen	=	FALSE	-		
							OR .	_	TRUE	_		

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K			S ECM			Е	MISSION	IS STDS: C	CALULEV	125, FED-	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	1	hreshold Value		Secondary Parameters		Enable Condition	s	Ti	me Required		MIL IIIum.
							Long term and short term is released )	=	TRUE	-				
							) OR (	in						
							( First learning performed	=	FALSE	-				
							OR Limp air position is not plausible	=	TRUE	-				
							OR External trigger to start offset learning	=	TRUE	-				
							( ECU is in drive state	=	TRUE	-				
							OR ECU is in post drive state for time )	>	5	sec				
							OR ECU is in post drive state for time	>	5	sec				
							Offset learning will be enabled when below conditions are satisfied	=	TRUE	-				
							( (	ì						
							Offset learning active OR	=	TRUE	-				
							Offset learning active	=	FALSE	-				
							The powerstage of the throttle actuator for bank 2 is	=	TRUE	-				
							commanded on Battery voltage )	>	7.5	٧				
							) '	in						
							OR Power save is active for bank 2	=	TRUE	-	İ			
							Limp home driving mode requested for bank	=	FALSE	-				
							Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2	=	FALSE FALSE	-				
							Vehicle speed Engine speed	<= <=	0.62150404 300	mph rpm				
							Battery voltage Battery voltage	<= >=	655.34 10	V				
							Intake air temperature before throttle valve Intake air temperature before throttle valve	<= >=	143.26 5.26	dea C dea C				
							Engine coolant temperature Engine coolant temperature	<= >=	100.46 5.26	dea C dea C				
							No pending or confirmed DTCs	=	see sheet inhibit tables	-				
							Basic enable conditions met	-	see sheet enable tables	-	<u> </u>			
		Throttle actuator Bank2 - lower mechanical stop learning fail	Lower mechanical stop offset learning aborted at step 2 (pressing throttle valve to the low mechanical stop with certain force) due to the				( Offset learning aborted	=	FALSE	-	1	sec	Once per driving cycle	1 Trip
			following reason (duty cycle ratio has not reached threshold):				00	in			İ			
			( Calculated duty cycle ratio	<=	60	%	OR Offset learning successful	=	FALSE	-	1			
			for time	>=	1	sec	Offset check at cold temperature conditions active	=	FALSE	-	1			
			) OR				(	ì	TDUE	-	1			
			Lower mechanical stop offset learning aborted at step 3 (sensor offset learning at low mechanical				Return spring check aborted OR	=	TRUE	-	1			
			stop) due to one of the the following conditions:				Datum opéns about	ì	TDUE					
			Lower mechanical stop voltage sensor 1	>	0.69458	٧	Return spring check successful ) Return spring check fault for bank 2 is set	=	TRUE FALSE	-				
											1			

D GROUP: KGMXOBDG	07		DIAGNOS TEST GROUP:		MARY TABLES 2088	ECM				EMISSIONS	STDS: CALULEV125, F	FEDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIun
			Lower mechanical stop voltage sensor 1	<	0.37964	V	Device type	>	0	-		
			OR Lower mechanical stop voltage sensor 2	>	4.61426	V	( Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec		
			OR  Lower mechanical stop voltage sensor 2	<	4.36157	V	( ( Offset learning active	=	TRUE	_		
			)				OR (	_	E410E			
							Offset learning active ( The powerstage of the throttle actuator	-	FALSE TRUE			
							for bank 2 is commanded on Battery voltage	>	7.5	v		
							)′					
							OR Power save is active for bank 2	=	TRUE	-		
							) Limp home driving mode requested for bank	=	FALSE	-		
							2 Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2 )	=	FALSE FALSE	:		
							( Long term and short term adaptation chosen	=	FALSE	-		
							OR (	_	TRUE	-		
							Long term and short term adaptation chosen					
							Long term and short term is released )	=	TRUE	-		
							OR					
							( First learning performed	=	FALSE	_		
							OR Limp air position is not plausible	_	TRUE	-		
							OR External trigger to start offset learning	=	TRUE	-		
							) ( ECU is in drive state	=	TRUE	-		
							OR ECU is in post drive state for time	>	5	sec		
							OR ECU is in post drive state for time	>	5	sec		
							) Offset learning will be enabled when below conditions are satisfied (	=	TRUE	-		
							( ( Offset learning active OR	=	TRUE	-		
							Offset learning active	=	FALSE	-		
							The powerstage of the throttle actuator for bank 2 is	=	TRUE	-		
							commanded on Battery voltage )	>	7.5	V		
							) OR Power save is active for bank 2	=	TRUE	-		
							) Limp home driving mode requested for bank	-	FALSE			
							2 Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2	=	FALSE FALSE	:		
							) Vehicle speed	<=	0.62150404	mph		

GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1		MARY TABLES .2088	ECM		_		MISSION	IS STDS:	CALULE	V125, FED	)BIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs		Time Require	ed	MIL IIIu
							Battery voltage Battery voltage Battery voltage Intake air temperature before throttle valve Intake air temperature before throttle valve Engine coolant temperature Engine coolant temperature No pending or confirmed DTCs Basic enable conditions met	<= >= <= >= <= >= =	655.34 10 143.26 5.26 100.46 5.26 see sheet inhibit tables see sheet enable tables	V V deq C deq C deq C deg C				
	P30E5	Path 1: Throttle position at lower mechanical stop exceeded maximum limit for Throttle Position Sensor Bank 2	Step 1 (Learning of the closed throttle valve position):  Actuator throttle position  Where:  Vmax (Maximum voltage value allowed at mechanical stop, position sensor bank 2)  V (Actual learned sensor voltage of sensor bank 2 at the lower mechanical stop)  Tgrad (Gradient of the throttle valve angle versus sensor bank 2 voltage)	> = = =	(Vmax - V) * Tgrad + Offset 0.69458 sensed voltage calculated value	% V V %/V	( Offset learning aborted  OR Offset learning successful ) Offset check at cold temperature conditions active ( ( ( Return spring check aborted	=	FALSE FALSE FALSE TRUE		1	sec	once per driving cycle	1 Tri
			Offset (Offset to Desired position value to start ramping into mechanical stop)	=	1.5	%	OR  Return spring check successful )	=	TRUE	-				
		Path 2: Range check of learned sensor voltage at lower mechanical stop for Throttle Position Sensor Bank 2: Maximum learning limit exceeded	Low mechanical stop first learning has been performed and Step 3 (If no fault in step 2 then check range of learned sensor voltages at lower mechanical	=	TRUE	-	Return spring check fault for bank 2 is set )  OR Device type )	>	FALSE 0	-				
			stop): Actual kamed sensor voltage of sensor 1 at the mechanical stop OR	>	0.69458	V	( Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec				
			Actual learned sensor voltage of sensor 2 at the mechanical stop	>	4.61426	V	( ( Offset learning active OR	=	TRUE	-				
							Offset learning active ( The powerstage of the throttle actuator for bank 2 is commanded on Battery voltage	= = >	FALSE TRUE 7.5	- - V				
							) ) ) OR Power save is active for bank 2 )	=	TRUE	-				
							Limp home driving mode requested for bank 2 Safety fuel cut off requested for bank 2	=	FALSE FALSE	-				
							Torque limitation requested for bank 2	=	FALSE FALSE	-				
							Cong term and short term adaptation chosen OR Cong term and short term adaptation	=	TRUE	-				
							chosen Long term and short term is released ) ) OR	=	TRUE	-				

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1		ARY TABLE	S ECM			<u> </u>	MISSION	IS STDS:	CALULE	EV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	1	Fime Require	ed	MIL IIIum.
							First learning performed OR Limp air position is not plausible OR External trigger to start offset learning	" " "	FALSE TRUE TRUE					
							CU is in drive state OR ECU is in post drive state for time	= >	TRUE	- sec				
							) OR ECU is in post drive state for time ) Offset learning will be enabled when below conditions are satisfied	> =	5 TRUE	sec -				
							( ( Offset learning active OR (	=	TRUE	-				
							Offset learning active ( The powerstage of the throttle actuator for bank 2 is commanded on	" "	FALSE TRUE	-				
							Battery voltage ) ) ) OR	^	7.5	V				
							Power save is active for bank 2 ) Limp home driving mode requested for bank 2 Safety fuel cut off requested for bank 2		TRUE FALSE FALSE					
							Torque limitation requested for bank 2 ) Vehicle speed Engine speed Battery voltage Battery voltage Battery voltage Intake air temperature before throttle valve Intake air temperature before throttle valve Engine coolant temperature Engine coolant temperature No pending or confirmed DTCs Basic enable conditions met	= = = = = = = = = = = = = = = = = = = =	FALSE  0.62150404 300 655.34 10 143.26 5.26 100.46 5.26 see sheet inhibit tables see sheet enable tables	mph rpm V V deq C deq C deq C				
	P30E6	Range check of learned sensor voltage at lower mechanical stop for Throttle Position Sensor Bank 2: Minimum learning limit exceeded	Low mechanical stop first learning has been performed	=	TRUE	-	( Offset learning aborted	=	FALSE		1	sec	once per driving cycle	1 Trip
			and Step 3 (If no fault in step 2 then check range of learned sensor voltages at lower mechanical stop):				OR Offset learning successful	=	FALSE	-				
			Actual learned sensor voltage of sensor 1 at the mechanical stop Actual learned sensor voltage of sensor 2 at the mechanical stop (	<= <=	0.69458 4.61426	V	Offset check at cold temperature conditions active ( ( ( Return spring check aborted		FALSE TRUE	-				
			Actual learned sensor voltage of sensor 1 at the mechanical stop OR  Actual learned sensor voltage of sensor 2 at the	<	0.37964 4.36157	v	OR  Return spring check successful )  Return spring check fault for bank 2 is set		TRUE FALSE	-				
			mechanical stop )				OR Device type	>	0	-				
							( Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec				

D GROUP: KGMXOBD	G07		TEST GROUP: KG	SUMMARY TABLES E MXV04.2088	CIVI			EMISSIONS	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enab	le Condition	ns	Time Required	MIL II
					(					
					Offset learning active OR	= '	TRUE	-		
					Offset learning active	= F	ALSE	-		
					The powerstage of the throttle actuator for bank 2 is	= .	TRUE	-		
					commanded on Battery voltage	>	7.5	v		
					)					
					OR Power save is active for bank 2		TRUE	_		
					) Limp home driving mode requested for bank		ALSE			
					2 Safety fuel cut off requested for bank 2	= F	ALSE	-		
					Torque limitation requested for bank 2 )		FALSE	-		
					Long term and short term adaptation chosen	- '	ALGE			
					OR (		TRUE	-		
					Long term and short term adaptation chosen		TOUE			
					Long term and short term is released )	= '	TRUE			
					OR (					
					( First learning performed	= F	ALSE	-		
					OR Limp air position is not plausible OR	= .	TRUE	-		
					External trigger to start offset learning )		TRUE	-		
					( ECU is in drive state	= '	TRUE	-		
					OR ECU is in post drive state for time )	>	5	sec		
					OR ECU is in post drive state for time	>	5	sec		
					Offset learning will be enabled when below conditions are satisfied	=	TRUE	-		
					( ( Offset learning active		TRUE	_		
					OR (		FALSE			
					Offset learning active ( The powerstage of the throttle actuator		TRUE	-		
					for bank 2 is commanded on Battery voltage		7.5	V		
					)		-			
					) OR Power save is active for bank 2	_	TRUE			
					)  Limp home driving mode requested for bank		ALSE	-		
					2 Safety fuel cut off requested for bank 2	= F	FALSE	-		
					Torque limitation requested for bank 2 ) Vehicle speed		2150404	- moh		
					Vehicle speed Engine speed Battery voltage	<=	2150404 300 355.34	mph rpm V		
					Battery voltage Intake air temperature before throttle valve	>= <= 1	10 143.26	V deg C		
					Intake air temperature before throttle valve Engine coolant temperature	>=	5.26 100.46	deg C deg C		

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES	- ECM			E	MISSION	IS STDS: CALULEV125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters		Enable Conditions	5	Time Required	MIL IIIum.
						No pending or confirmed DTCs  Basic enable conditions met	11 11	see sheet inhibit tables see sheet enable tables	-		
	P210B	Rationality check of throttle actuator control Bank 2 deviation - Actual actuator position is continuously monitored against commanded value	( Difference between actual actuator position and its commanded value	> A*B+C	%	( ECU is in DRIVE state OR	ı	TRUE	-	0.5 sec continuous	1 Trip
			OR  Difference between commanded value and actual actuator position	> (A*B+C)	%	ECU is in POSTDRIVE state ) ( Powerstage switched off by diagnosis	=	TRUE TRUE	-		
			) Where: (A) Rate of change of the commanded value (B) Factor for allowed control deviation (C) Allowed control deviation in steady state	= calculated value = 0.02 = 5	%/s - %	) for time The powerstage of the actuator is switched on, following conditions: ( State of the thottle valve powerstage bank 2	>= =	0.799805 TRUE 0	sec -		
						) Release of adaptation Actual position is valid Request safety fuel cut off SKA bank 2, following condition:	11 11 11	FALSE TRUE FALSE	-		
						( Request reversible safety fuel cut off SKA bank 2, which has following condition:	=	FALSE	-		
						Battery voltage for throttle valve operation sufficient bank 2 OR	>	7.5	V		
						Enqine speed ) Limp home position not reached bank 2 ) No pending or confirmed DTCs Basic enable conditions met	> = =	FALSE see sheet inhibit tables see sheet enable tables	rpm - - -		
	P0639	Range check of Throttle Actuator Control duty cycle Bank 2	Absolute value of Throttle valve duty cycle ratio bank 2	> Minimum(A, (B*C))	%	( ECU is in DRIVE state	=	TRUE	-	0.6001 sec continuous	1 Trip
			where A - Upper threshold for Throttle Actuator Control duty cycle Bank 2 diagnosis in case of low battery	95	%	OR ECU is in POSTDRIVE state	=	TRUE	-		
			voltage B - Upper threshold for Throttle Actuator Control duty cycle bank 2 diagnosis C - Factor for battery voltage compensation bank	80 13.5V / measured battery voltage [V]	%	Absolute value of position controller of the throttle valve bank 2 of motor bench one / gradient of the filtered desired value. The powerstage of the actuator is switched on, following conditions:	<	78.1 TRUE	%/s -		
			2	battery voltage [V]		( State of the thottle valve powerstage bank 2	>	0	-		
						) Release of adaptation Actual position is valid Request safety fuel cut off SKA bank 2, following condition:		FALSE TRUE FALSE	:		
						( Request reversible safety fuel cut off SKA bank 2, which has following condition:	=	FALSE	-		

GROUP: KGMXOBDG	07	-	TEST GROUP: K	IC SUMMARY TABL GMXV04.2088	L3 LCIVI			<u>_</u>	MISSIONS	STDS: CALULEV125, FE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Valu	e	Secondary Parameters		Enable Condition	ıs	Time Required	MIL III
						Battery voltage for throttle valve operation sufficient bank 2 OR Engine speed	= >	TRUE	- rpm		
						Limp home position not reached bank 2 ) Battery voltage for throttle valve operation sufficient for bank 2	=	FALSE TRUE	-		
						No pending or confirmed DTCs  Basic enable conditions met	=	see sheet inhibit tables see sheet enable tables	-		
	P30E7	Path 1: Drift check of limp air position Bank 2 - comparison of actual learned value with first learned limp air position	sensor voltage of sensor 1 at limp air position after mean value calculation and first learned sensor voltage of sensor 1 at limp air position	>= 1.40015	V	( Offset learning aborted	=	FALSE	·	Once per driving cycle	17
			OR Absolute difference between first learned sensor voltage of sensor 2 at limp air position and actual learned sensor voltage of sensor 2 at limp air position after mean value calculation	>= 1.40015	V	OR Offset learning successful )	=	FALSE	-		
			position after mean value carculation			Offset check at cold temperature conditions active (	=	FALSE	-		
						( Return spring check aborted OR Return spring check successful	=	TRUE	-		
						Return spring check fault for bank 2 is set	=	FALSE	-		
						OR Device type ) (	>	0	-		
						Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec		
						Offset learning active OR (	=	TRUE	-		
						Offset learning active ( The powerstage of the throttle actuator for bank 2 is	=	FALSE TRUE	-		
						commanded on Battery voltage ) )	>	7.5	V		
						OR Power save is active for bank 2 ) Limp home driving mode requested for bank	=	TRUE FALSE	-		
						2 Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2 )	=	FALSE FALSE	-		
						( Long term and short term adaptation chosen OR	=	FALSE TRUE	-		
						Cong term and short term adaptation chosen Long term and short term is released	=	TRUE	-		
						) OR ( (					
						First learning performed OR Limp air position is not plausible	=	FALSE TRUE	-		

Component / System				GMXV04.2088					INIOOIOIV	S STDS: CALULEV125,	FEDBIN12
Component, Cyclem	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters		Enable Condition	ıs	Time Required	MIL IIIur
						) ( ECU is in drive state	=	TRUE			
						OR ECU is in post drive state for time )	>	5	sec		
						OR ECU is in post drive state for time	>	5	sec		
						) Offset learning will be enabled when below conditions are satisfied	=	TRUE	-		
						(					
						Offset learning active OR	=	TRUE	-		
						Offset learning active	=	FALSE	-		
						The powerstage of the throttle actuator for bank 2 is	=	TRUE	-		
						commanded on Battery voltage )	>	7.5	٧		
						)					
						Power save is active for bank 2	=	TRUE	-		
						Limp home driving mode requested for bank 2	=	FALSE	-		
						Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2	=	FALSE FALSE	-		
						Vehicle speed Engine speed	<= <=	0.62150404 300	mph rpm		
						Battery voltage Battery voltage	<= >=	655.34 10	V		
						Intake air temperature before throttle valve Intake air temperature before throttle valve Engine coolant temperature	<= >=	143.26 5.26 100.46	deg C deg C deg C		
						Engine coolant temperature Engine coolant temperature No pending or confirmed DTCs	<= >= =	5.26 see sheet inhibit	deg C		
						Basic enable conditions met	=	tables see sheet enable tables	-		
		Path 2: Range check of limp air position for Bank 2 - high	Difference between actual learned sensor voltage of sensor 1 at limp air position after mean value calculation and actual learned sensor voltage of sensor 1 at the lower mechanical stop	> 1.40015	V	( Offset learning aborted	=	FALSE	-	Once driving o	per 1 T cycle
			OR Difference between actual learned sensor voltage of sensor 2 at the lower mechanical stop and actual learned sensor voltage of sensor 2 at limp air position after mean value calculation	> 1.40015	٧	OR Offset learning successful )	=	FALSE			
						Offset check at cold temperature conditions active (	=	FALSE	-		
						( ( Return spring check aborted	=	TRUE	-		
						OR Return spring check successful	=	TRUE			
						Return spring check fault for bank 2 is set )	=	FALSE	-		
						OR Device type	>	0	_		
						)					
						Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec		
						(					

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Office to post drive state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for from the state for f						OR					
Offset learning will be enabled when below conditions are satisfied  (						ECU is in post drive state for time )	>	5	sec		
Offset learning will be enabled when below conditions are satisfied  (						) OR					
conditions are satisfied (						)					
OR  ( Offset learning active ( Offset learning active )							=	TRUE	-		
OR  ( Offset learning active ( Offset learning active )						(					
Offset learning active ( The powerstage of the throttle actuator for bank 2 is a commanded on Battery voltace  ) OR Power save is active for bank 2   Limp home driving mode requested for bank 2   FALSE   -						Offset learning active	=	TRUE	-		
The powerstage of the throttle actuator for bank 2 is commanded on Battery voltage						(	_	FALSE	-		
for bank 2 is commanded on Battery voltage > 7.5 V    OR						(			-		
) ) ) ) OR Power save is active for bank 2						for bank 2 is commanded on					
Limp home driving mode requested for bank 2   FALSE -						Battery voltage )	>	7.5	V		
Limp home driving mode requested for bank 2   FALSE -						)					
2 Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2  Vehicle speed  Endine speed  Endine speed  Sattery voltage  Sattery voltage  Sattery voltage  Intake air temperature before throttle valve  Intake air temperature before throttle valve  Endine coolant temperature  Endine coolant temperature  Endine coolant temperature  No pending or confirmed DTCs  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltage  Sattery voltag						Power save is active for bank 2	=	TRUE	-		
Torque limitation requested for bank 2   = FALSE -   ) Vehicle speed   <= 0.62150404 mph   Endine speed   <= 300 mpm   Battery voltage   <= 655.34 V   Battery voltage   <= 143.26 deq C   Intake air temperature before throttle valve   Intake air temperature before throttle valve   Endine coolant temperature   <= 100.46 deq C   Endine coolant temperature   <= 100.46 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine coolant temperature   >= 5.26 deq C   Endine						Limp home driving mode requested for bank	=	FALSE	-		
Vehicle speed <= 0.62150404 mph Enaire yolted Battery voltage Battery voltage Battery voltage Battery voltage Intake air temperature before throttle valve Intake air temperature before throttle valve Enaire coolant temperature Enaire coolant temperature Enaire coolant temperature Enaire coolant temperature No pending or confirmed DTCs  = 0.62150404 mph  <= 300 rpm  <= 655.34 V  >= 10 V  <= 143.26 deg C  Intake air temperature == 100.46 deg C  == 100.46 deg C  == 5.26 deg C  So pending or confirmed DTCs == see sheet inhibit tables						Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2	=	FALSE FALSF			
Enaine speed Battery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Intake air temperature before throttle valve Intake air temperature before throttle valve Enaine coolant temperature Enaine coolant temperature Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage Sattery voltage S						)					
Battery voltage Intake air temperature before throttle valve Intake air temperature before throttle valve Intake air temperature before throttle valve Intake air temperature before throttle valve Engine coolant temperature Engine coolant temperature  = 10.46 deq C  Engine coolant temperature >= 5.26 deq C  Engine coolant temperature >= 5.26 deq C  No pending or confirmed DTCs = see sheet inhibit tables						Engine speed Battery voltage	<=	300 655.34	rpm V		
Engine coolant temperature <= 100.46 deg C Engine coolant temperature >= 5.26 deg C No pending or confirmed DTCs = see sheet inhibit - tables						Battery voltage Intake air temperature before throttle valve	>= <=	10 143.26	deg C		
No pending or confirmed DTCs = see sheet inhibit - tables						Intake air temperature before throttle valve Engine coolant temperature	>= <=	5.26 100.46	deg C deg C		
tables								see sheet inhibit	dea C		
Basic enable conditions met = see sheet enable - tables						Basic enable conditions met	= 8	see sheet enable	-		

DBIN	STDS: CALULEV125, FEI	MISSIONS S				MXV04.2088	TEST GROUP: K		7	D GROUP: KGMXOBDGO
MIL	Time Required	s	Enable Condition		Secondary Parameters	Threshold Value	Malfunction Criteria	Monitor Strategy Description	Fault Code	Component / System
1 1 1	Once per driving cycle		FALSE	=	( Offset learning aborted	< 0.77026 V	e between actual learned sensor voltage 1 at limp air position after mean value n and actual learned sensor voltage of at the lower mechanical stop	Path 3: Range check of limp air position for Bank 2 - low		
		-	FALSE	=	OR Offset learning successful )	< 0.77026 V	e between actual learned sensor voltage 2 at the lower mechanical stop and med sensor voltage of sensor 2 at limp n after mean value calculation			
		-	FALSE	=	Offset check at cold temperature conditions active					
		-	TRUE	=	( ( Return spring check aborted					
		-	TRUE	=	OR Return spring check successful					
		-	FALSE	=	Return spring check fault for bank 2 is set )					
		-	0	>	OR Device type )					
		sec	29	>	( Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time (					
		-	TRUE	=	( ( Offset learning active OR					
		-	FALSE	=	( Offset learning active					
		-	TRUE	=	The powerstage of the throttle actuator for bank 2 is commanded on					
		٧	7.5	>	Battery voltage					
		-	TRUE	=	) OR Power save is active for bank 2					
		-	FALSE	=	) Limp home driving mode requested for bank					
		-	FALSE FALSE	=	2 Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2					
		-	FALSE	=	) ( Long term and short term adaptation chosen					
		-	TRUE	=	OR ( Long term and short term adaptation					
		-	TRUE	=	chosen  Long term and short term is released )					
					) OR (					
		-	FALSE	=	First learning performed OR					
		-	TRUE	=	Limp air position is not plausible OR					
		-	TRUE	=	External trigger to start offset learning )					
		-	TRUE	=	( ECU is in drive state OR					
		sec	5	>	ECU is in post drive state for time ) )					
		sec	5	>	OR ECU is in post drive state for time					

D GROUP: KGMXOBD	G07		DIAGNOST TEST GROUP: K		IARY TABLES	ECM			E	MISSION	S STDS: CALULEV125,	FEDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	•	Time Required	MIL III
							Offset learning will be enabled when below conditions are satisfied	=	TRUE	-		
							( ( Offset learning active OR	=	TRUE	-		
							( Offset learning active	=	FALSE	-		
							( The powerstage of the throttle actuator for bank 2 is commanded on	=	TRUE	-		
							Battery voltage )	>	7.5	٧		
							OR Power save is active for bank 2	_	TRUE	-		
							) Limp home driving mode requested for bank	=	FALSE	-		
							2 Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2	=	FALSE FALSE	-		
							) Vehicle speed Engine speed	<=	0.62150404 300	mph		
							Battery voltage Battery voltage	<= <= >=	655.34 10	rpm V V		
							Intake air temperature before throttle valve Intake air temperature before throttle valve	<= >=	143.26 5.26	deg C deg C		
							Engine coolant temperature Engine coolant temperature	<= >=	100.46 5.26	deg C deg C		
							No pending or confirmed DTCs	=	see sheet inhibit tables	-		
							Basic enable conditions met	=	see sheet enable tables	-		
		Path 4: Limp air position drift Bank 2 - comparison with lower mechanical stop sensor voltage	(				( Offset learning aborted	=	FALSE	-	Once driving	per 17
			Actual offset learning step and	=	4	-	OR Offset learning successful	-	FALSE	-	g	,,
			( A - B ) Absolute value of the actual learned value minus last stored value Where:	>	0.15503	٧	) Offset check at cold temperature conditions active (	=	FALSE	-		
			A	=	(A1 + A2) / 2	V	( ( Datum corion shoots shooted	=	TRUE	-		
			B A1	=	(B1 + B2) / 2 A11 - A12	V V	Return spring check aborted OR Return spring check successful	-	TRUE	_		
			A2	=	A22 - A21	V	) Return spring check fault for bank 2 is set	=	FALSE	-		
			R1	_	B11 - B12	V	) OR					
			B2	=	B22 - B21	v	Device type	>	0	-		
			(A11) Learned sensor voltage of sensor 1 at limp air position, bank 2				(					
			(A12) Learned reference sensor voltage of sensor 1 at the lower mechanical stop, bank 2				Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec		
			(A22) Learned reference sensor voltage of sensor 2 at the lower mechanical stop				(					
			(A21) Learned sensor voltage of sensor 2 at limp air position, bank 2				Offset learning active	=	TRUE	-		
			(B11) Actual learned sensor voltage of sensor 1 at limp air position after mean value calculation				OR					
			(B12) Learned reference sensor voltage of sensor 1 at the lower mechanical stop, bank 2				(					
			(B22) Learned reference sensor voltage of sensor 2 at the lower mechanical stop, bank 2				Offset learning active	=	FALSE	-		
							(					1
			(B21) Actual learned sensor voltage of sensor 2 at limp air position after mean value calculation				, i					
							The powerstage of the throttle actuator for bank 2 is	=	TRUE	-		

BD GROUP: KGMXOBDG	907		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES ECM (GMXV04.2088			EMISSION	NS STDS: CALULEV	125, FEDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Con	ditions	Time Required	MIL IIIur
					)				
					OR				
					Power save is active for bank 2 ) Limp home driving mode requested for bank	= TRUE = FALSE	-		
					2 Safety fuel cut off requested for bank 2	= FALSE	-		
					Torque limitation requested for bank 2	= FALSE	-		
					( Long term and short term adaptation chosen OR	= FALSE	-		
					( Long term and short term adaptation	= TRUE	-		
					chosen Long term and short term is released	= TRUE	-		
					)				
					OR (				
					First learning performed OR	= FALSE	-		
					Limp air position is not plausible OR	= TRUE	-		
					External trigger to start offset learning )	= TRUE	-		
					( ECU is in drive state	= TRUE	-		
					OR ECU is in post drive state for time	> 5	sec		
					) ) OP				
					ECU is in post drive state for time	> 5	sec		
					Offset learning will be enabled when below conditions are satisfied	= TRUE	-		
					(				
					( Offset learning active	= TRUE	-		
					OR (	541.05	_		
					Offset learning active ( The powerstage of the throttle actuator	= FALSE = TRUE	-		
					for bank 2 is commanded on	- 1102			
					Battery voltage )	> 7.5	٧		
					OR	= TRUE			
					Power save is active for bank 2 ) Limp home driving mode requested for bank	= FALSE			
					2 Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2	= FALSE = FALSE	-		
					) Vehicle speed Engine speed	<= 0.6215040 <= 300	1 mph rpm		
					Battery voltage Battery voltage	<= 655.34 >= 10	V V		
					Intake air temperature before throttle valve Intake air temperature before throttle valve	<= 143.26 >= 5.26	dea C deg C		
					Engine coolant temperature Engine coolant temperature	<= 100.46 >= 5.26	deg C deg C		
					No pending or confirmed DTCs	= see sheet inh tables			
					Basic enable conditions met	= see sheet end tables	ble -		
	P211D	Path 1: Throttle valve opening spring check - opening failure for Bank 2	Here it is checked whether opening spring can be returned by mechanical force only to the defined limp home position in the defined time		( Offset learning aborted	= FALSE	-		once per 1 Tri driving cycle
			( Actual offset learning step	= 4 -	OR				

D GROUP: KGMXOBD	G07		TEST GROUP: N		MARY TABLES - 4.2088	ECM				EMISSIONS	S STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditio	ns	Time Required	MIL III
			( _				Offset learning successful	-	FALSE	-		
			( Limp air position is implausible	=	TRUE	-	) Offset check at cold temperature conditions	=	FALSE	-		
			OR				active (					
			First learning performed	=	FALSE		(	=	TRUE	_		
							Return spring check aborted OR					
			Position of the throttle valve	<=	A * C1	%	Return spring check successful	=	TRUE	-		
			for time	>=	0.26	sec	Return spring check fault for bank 2 is set	=	FALSE	-		
							OR					
			OR				Device type	>	0	-		
			(		FALSE		) (		00			
			Limp air position is implausible	=	FALSE	-	Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec		
			First learning performed	=	TRUE	-	(					
			Position of the throttle valve	<=	Limp home position of	%	( Offset learning active	=	TRUE	-		
			Limp air position is implausible when:		throttle valve - 3%		OR					
			Absolute difference of the deviation of limp air position sensor voltage at ECU start from lower mechanical stop position sensor voltage and the deviation of actual learned limp air position sensor voltage from lower mechanical stop position	>	0.15503	V						
			sensor voltage for time	>=	0.26	sec	Offset learning active	=	FALSE	_		
			)		0.20	360	(	-	TALOL			
			Where:				The powerstage of the throttle actuator	=	TRUE	-		
							for bank 2 is commanded on					
			(A) Gradient of the throttle valve angle	=	100% / ((V12 - V11) + (V21 - V22)) * 0.5	%/V	Battery voltage	>	7.5	٧		
			(C1) Threshold for minimum absolute limp air position allowed	=	0.77026	V	)					
			(V12) Actual learned sensor voltage of sensor 1				) OR					
			at the upper mechanical stop (V11) Actual learned sensor voltage of sensor 1				Power save is active for bank 2	=	TRUE	-		
			at the lower mechanical stop (V21) Actual learned sensor voltage of sensor 2				) Limp home driving mode requested for bank	=	FALSE			
			at the lower mechanical stop (V22) Actual learned sensor voltage of sensor 2				2 Safety fuel cut off requested for bank 2	_	FALSE			
			at the upper mechanical stop						FALSE			
							Torque limitation requested for bank 2 )	=				
							Long term and short term adaptation chosen	=	FALSE	-		
							(	=	TRUE	-		
							Long term and short term adaptation chosen					
							Long term and short term is released )	=	TRUE	-		
							) OR					
							(					
							First learning performed OR	=	FALSE	-		
							Limp air position is not plausible OR	=	TRUE	-		
							External trigger to start offset learning	=	TRUE	-		
							( ECU is in drive state	=	TRUE	-		
							OR ECU is in post drive state for time		5			
							)	>	5	sec		
							) OR					
	1 1						ECU is in post drive state for time	>	5	sec		

OBD GROUP: KGMXOBDG	607		DIAGNOS' TEST GROUP: I	TIC SUMMARY TABLES ECM KGMXV04.2088			E	MISSION	S STDS: CA	LULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enat	ble Conditions	5	Time	e Required	MIL IIIum.
					Offset learning will be enabled when below conditions are satisfied (	=	TRUE	-			
					( ( Offset learning active OR	=	TRUE	-			
					Offset learning active	=	FALSE	-			
					The powerstage of the throttle actuator for bank 2 is	=	TRUE	-			
					commanded on Battery voltage )	>	7.5	V			
					OR Power save is active for bank 2	=	TRUE	-			
					Limp home driving mode requested for bank	=	FALSE	-			
					Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2	=	FALSE FALSE	-			
					Vehicle speed Engline speed Battery voltage Battery voltage Intake air temperature before throttle valve Intake air temperature before throttle valve	<= <= >= <= >=	62150404 300 655.34 10 143.26 5.26	mph rpm V V deg C deg C			
					Enqine coolant temperature Enqine coolant temperature No pending or confirmed DTCs	>= = sees	100.46 5.26 sheet inhibit tables	deg C deg C			
					Basic enable conditions met		sheet enable tables	-			
		Path 2: Throttle valve opening spring failure while spreading the opening spring for Bank 2	Position of the throttle valve	> 1 + B1 + B2 %	( Offset learning aborted	=	FALSE		0.3	sec once per driving cyc	1 Trip
			Where: (B1) Offset for the lower mechanical stop	= Calculated Parameter %	OR Offset learning successful	=	FALSE	_			
			because of dirt (B2) Range for actual position (offset to desired value) to check whether open spring spread position is reached	= 1 %	) Offset check at cold temperature conditions active	=	FALSE	-			
					(						
					Return spring check aborted OR	=	TRUE	-			
					Return spring check successful	=	TRUE	-			
					Return spring check fault for bank 2 is set )	=	FALSE	-			
					OR Device type )	>	0	-			
					Offset learning will be enabled during ECU	>	29	sec			
					is in drive state when below conditions are satisfied for time						
						=	TRUE	-			
					satisfied for time ( ( ( Offset learning active		TRUE	-			
					satisfied for time ( ( ( ( Offset learning active OR ( Offset learning active ( The powerstage of the throttle actuator for bank 2 is	=					
					satisfied for time {     (      (      Offset learning active     OR      (      Offset learning active      (      The powerstage of the throttle actuator	=	FALSE	-			
					satisfied for time {     (       (	= = >	FALSE TRUE	-			

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1	FIC SUMMAF		- ECM			E	MISSION	S STDS: C	ALULEV125	, FEDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Th	reshold Value		Secondary Parameters		Enable Condition	ıs	Tir	me Required	MIL IIIum
							Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2	11 11	FALSE FALSE	-			
							( Long term and short term adaptation chosen OR	=	FALSE	-			
							( Long term and short term adaptation chosen	=	TRUE	-			
							Long term and short term is released ) OR	=	TRUE	-			
							( ( First learning performed OR	=	FALSE	-			
							Limp air position is not plausible OR	=	TRUE	-			
İ							External trigger to start offset learning	=	TRUE	-			
							(	=	TRUE				
							ECU is in drive state OR ECU is in post drive state for time )	>	5	sec			
							OR ECU is in post drive state for time	>	5	sec			
							Offset learning will be enabled when below conditions are satisfied	=	TRUE	-			
							( Offset learning active OR	=	TRUE	-			
							( Offset learning active	=	FALSE	_			
I							( The powerstage of the throttle actuator for bank 2 is	=	TRUE	-			
							commanded on Battery voltage )	>	7.5	V			
							OR Power save is active for bank 2	=	TRUE	-			
							Limp home driving mode requested for bank	=	FALSE	-			
							Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2 )	=	FALSE FALSE	-			
							Vehicle speed Engine speed	<=	0.62150404 300	mph rpm			
							Battery voltage Battery voltage	<= >=	655.34 10	V			
							Intake air temperature before throttle valve Intake air temperature before throttle valve	<= >=	143.26 5.26	deg C deg C			
							Engine coolant temperature Engine coolant temperature	<= >=	100.46 5.26	deg C deg C			
							No pending or confirmed DTCs	=	see sheet inhibit	-			
							Basic enable conditions met	=	tables see sheet enable tables	-			
		Dath 2. Throttle value salves as 2 = 1.7 as short (-2.2.1.2.					,				0.22		4.70
		Path 3: Throttle valve return spring failure check for Bank 2	( ( Limp air position is implausible	=	TRUE	-	Offset learning aborted OR	=	FALSE	-	0.36	sec ond drivin	e per 1 Trip
			OR First learning performed	=	FALSE	-	Offset learning successful ) Offset check at cold temperature conditions	=	FALSE FALSE				
			)				active						
			Position of the throttle valve for time	> >=	A * C1 0.36	V sec	( Return spring check aborted OR	=	TRUE	-			
							Return spring check successful )	=	TRUE	-			

D GROUP: KGMXOBD	G07		DIAGNOS TEST GROUP: I		RY TABLES	ECM				EMISSIONS	STDS: CALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	-	Threshold Value		Secondary Parameters		Enable Condition	ons	Time Required	MIL III
			OR				Return spring check fault for bank 2 is set )	=	FALSE			
			( Limp air position is implausible	=	FALSE	-	OR Device type	>	0	-		
			First learning performed Position of the throttle valve		TRUE mp home position of throttle valve + 3%	- %	( Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec		
			Limp air position is implausible when:				( (					
			Absolute difference of the deviation of limp air position sensor voltage at ECU start from lower mechanical stop position sensor voltage and the deviation of actual learned limp air position sensor voltage from lower mechanical stop position sensor voltage	>	0.15503	V	Offset learning active	=	TRUE	-		
			for time	>=	0.36	sec	OR (					
			Where: (A) Gradient of the throttle valve angle		0% / ((V12 - V11) + (V21 - V22)) * 0.5	%/V	Offset learning active	=	FALSE	-		
			(C1) Threshold for minimum absolute limp air position allowed	=	1.39771	V	The powerstage of the throttle actuator for bank 2 is commanded on	=	TRUE	-		
			(V12) Actual learned sensor voltage of sensor 1 at the upper mechanical stop (V11) Actual learned sensor voltage of sensor 1 at the bower mechanical stop				commanded on Battery voltage	>	7.5	V		
			(V21) Actual learned sensor voltage of sensor 2				OR					
			at the lower mechanical stop (V22) Actual learned sensor voltage of sensor 2				Power save is active for bank 2	=	TRUE	-		
			at the upper mechanical stop				) Limp home driving mode requested for bank	=	FALSE	-		
							2 Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2	=	FALSE FALSE	-		
							) ( Long term and short term adaptation chosen	=	FALSE	-		
							OR ( Long term and short term adaptation	=	TRUE	-		
							chosen Long term and short term is released )	=	TRUE	-		
							) OR (					
							( First learning performed	=	FALSE	-		
							OR Limp air position is not plausible	=	TRUE	-		
							OR External trigger to start offset learning	=	TRUE	-		
							) ( ECU is in drive state	=	TRUE	-		
							OR ECU is in post drive state for time )	>	5	sec		
							) OR ECU is in post drive state for time	>	5	sec		
							) Offset learning will be enabled when below conditions are satisfied (	=	TRUE	-		
							( ( Offset learning active OR	=	TRUE	-		
							( Offset learning active	=	FALSE	-		
							( The powerstage of the throttle actuator for bank 2 is	=	TRUE	-		
							commanded on Battery voltage	>	7.5	v		

BD GROUP: KGMXOBDG	)7		DIAGNOST TEST GROUP: 1		IMARY TABLES - 1.2088	- ECM			E	EMISSION	S STDS: C	ALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ıs	Tin	ne Required	MIL IIIum
							) ) OR Power save is active for bank 2 ) Limp home driving mode requested for bank 2 Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2 Vehicle speed Engine speed Battery voltage Intake air temperature before throttle valve Intake air temperature before throttle valve Engine coolant temperature Ro pending or confirmed DTCs Basic enable conditions met	= = = <= <= <= <= >= = = = = = = = = = =	TRUE FALSE FALSE FALSE FALSE FALSE 0.62150404 300 655.34 10 143.26 5.26 100.46 5.26 see sheet inhibit tables see sheet enable	mph rpm V V dea C dea C dea C			
		Path 4: Throttle valve return spring failure while spreading the	Position of the throttle valve	<=	(D1 + D2) - D3	%	(Meet learning charted	=	FALSE		0.2	sec once per	1 Trip
		return soring for Bank 2	Where: (D1) Limp home position of the throttle valve	=	Calculated parameter	%	Offset learning aborted OR Offset learning successful	=	FALSE	_		driving cycle	
			(D2) Value by which return spring is spread	=	15	%	) Offset check at cold temperature conditions	=	FALSE	-			
			starting from power off position (D3) Range for actual position (offset to desired value) to check whether return spring spread	=	2	%	active ( (						
			position is reached				( Return spring check aborted	=	TRUE	-			
							OR Return spring check successful	=	TRUE	-			
							Return spring check fault for bank 2 is set )	=	FALSE	-			
							OR Device type	>	0	-			
							Offset learning will be enabled during ECU is in drive state when below conditions are satisfied for time	>	29	sec			
							( ( Offset learning active OR	=	TRUE	-			
							( Offset learning active	=	FALSE	-			
							The powerstage of the throttle actuator for bank 2 is commanded on	=	TRUE	-			
							Battery voltage ) )	>	7.5	V			
							) OR Power save is active for bank 2	=	TRUE	-			
							) Limp home driving mode requested for bank	=	FALSE	-			
							Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2	=	FALSE FALSE	-			
							) ( Long term and short term adaptation	=	FALSE	-			
							chosen OR (	=	TRUE	-			
							Long term and short term adaptation chosen  Long term and short term is released	=	TRUE				
							) ) OR						

GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: N	FIC SUMMARY TABLES ECI (GMXV04.2088	M		Е	MISSION	NS STDS: C	ALULEV125, F	EDBIN1
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs	Tir	me Required	MIL III
					( ( First learning performed		FALSE				
					OR Limp air position is not plausible	_	TRUE				
					OR  External trigger to start offset learning	_	TRUE				
					)	=	TRUE				
					ECU is in drive state OR						
					ECU is in post drive state for time )	>	5	sec			
					OR ECU is in post drive state for time	>	5	sec			
					) Offset learning will be enabled when below conditions are satisfied	=	TRUE	-			
					(						
					Offset learning active OR	=	TRUE	-			
					Offset learning active	=	FALSE	-			
					The powerstage of the throttle actuator for bank 2 is	=	TRUE	-			
					commanded on Battery voltage )	>	7.5	V			
					OR Power save is active for bank 2	=	TRUE				
					) Limp home driving mode requested for bank	=	FALSE				
					2 Safety fuel cut off requested for bank 2 Torque limitation requested for bank 2	=	FALSE FALSE	-			
					) Vehicle speed	<=	0.62150404	mph			
					Engine speed Battery voltage Battery voltage	<= <=	300 655.34 10	rpm V V			
					Intake air temperature before throttle valve Intake air temperature before throttle valve	>= <=	143.26 5.26	deq C dea C			
					Engine coolant temperature	>= <=	100.46	deg C			
					Engine coolant temperature No pending or confirmed DTCs	>=	5.26 see sheet inhibit tables	deg C			
					Basic enable conditions met	=	see sheet enable tables	-			
	P210A	Path 1 : Diagnosis of the Throttle Actuator Control Bank 2 H bridge circuit for open circuit fault	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit: ≥ 200 K Ω impedance between ECU pin and load	( ECU is in DRIVE state	=	TRUE	-	0.799805	sec continuo	ıs
				·	OR ECU is in POSTDRIVE state	=	TRUE				
					) The powerstage of the actuator is switched on, following conditions:	=	TRUE	-			
					( State of the thottle valve powerstage bank 2	>	0	-			
					) Release of adaptation	=	FALSE	-			
					Actual position is valid Request safety fuel cut off SKA bank 2, following condition:	=	TRUE FALSE	-			
					( Request reversible safety fuel cut off SKA bank 2, which has following condition:	=	FALSE	-			
					Battery voltage for throttle valve operation sufficient bank 2	>	7.5	٧			
					OR Engine speed	>	1000				
								rpm			

GROUP: KGMXOBDO	€07		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM KGMXV04.2088		E	MISSION	S STDS: CALULEV125, FED	DBIN1:
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condition	s	Time Required	MIL III
	Т				No pending or confirmed DTCs  Basic enable conditions met	= see sheet inhibit tables = see sheet enable tables	-		
		Path 2: Check throttle valve power stage IC for over temperature	Over temperature error from the power stage is detected	= TRUE -	( ECU is in DRIVE state OR	= TRUE	-	continuous	1
					ECU is in POSTDRIVE state ) The powerstage of the actuator is switched	= TRUE = TRUE	-		
					on, following conditions: ( State of the thottle valve powerstage bank 2	> 0	_		
					) Release of adaptation Actual position is valid Request safety fuel cut off SKA bank 2,	= FALSE = TRUE = FALSE			
					following condition: ( Request reversible safety fuel cut off SKA	= FALSE	-		
					bank 2, which has following condition: ( Battery voltage for throttle valve operation sufficient bank 2	> 7.5	٧		
					OR Engine speed	> 1000	rpm		
					) Limp home position not reached bank 2	= FALSE	-		
					No pending or confirmed DTCs	see sheet inhibit tables	-		
					Basic enable conditions met	= see sheet enable tables	-		
		Path 3 : Diagnoses the Turbine bypass valve H bridge high side driver circuit at out 1 for circuit low fault	Voltage low during driver ON state (indicates short circuit to ground)	= Short to ground: ≤ 0.5 - Ω impedance between signal and controller ground	( ECU is in DRIVE state	= TRUE	·	continuous	
		Diagnoses the Turbine bypass valve H bridge low side driver circuit at out 2 for circuit high fault	OR Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: ≤ 0.5 - Ω impedance between signal and controller	OR ECU is in POSTDRIVE state )	= TRUE	-		
				power	The powerstage of the actuator is switched on, following conditions:	= TRUE	-		
					State of the thottle valve powerstage bank 2	> 0	-		
					Release of adaptation Actual position is valid Request safety fuel cut off SKA bank 2, following condition:	= FALSE = TRUE = FALSE	:		
					( Request reversible safety fuel cut off SKA bank 2, which has following condition:	= FALSE	-		
					( Battery voltage for throttle valve operation sufficient bank 2	> 7.5	٧		
					OR Engine speed	> 1000	rpm		
					Limp home position not reached bank 2	= FALSE	-		
					No pending or confirmed DTCs	= see sheet inhibit tables	-		
					Basic enable conditions met	= see sheet enable tables	-		
		Path 1: Monitoring of valve drift at closed position	(		Actuator is completely closed	= TRUE	-	continuous	
rge Wastegate Actuator - H-	P2B93			1	/				1
arge Wastegate Actuator - H- ig 1 - B1	P2B93		( Slope of the sensor  Actuator position is set at 0% which means that	>= 0 = TRUE -	Actuator position is set at 0% which means that actuator is closed	= TRUE	-		

D GROUP: KGMXOBDO	307		DIAGNOST TEST GROUP: K		MARY TABLES 2088	ECM				EMISSIONS	STDS: CALULEV125, F	EDBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditi	ions	Time Required	MIL IIIun
			Average sensor voltage from turbine bypass valve 1 position sensor	>	2.0026	V	Suspect for reaching mechanical minimum bound of valve	=	TRUE			
			OR ( Average sensor voltage from turbine bypass valve	<	0.424	V	( Internal desired value for governor Actuator position is unchanged	< =	0 TRUE	%		
			1 position sensor Average sensor voltage from turbine bypass valve	>=	0.244	٧	(					
			1 position sensor )				Absolute value of the gradient of the actuator speed	<	350	mV/s		
			) ) OR				for events ) )	=	2	-		
			Slope of the sensor curve	<	0 FALSE		for time		0.01	sec		
			Actuator position is set at 0% which means that actuator is closed (	=	FALSE	-	OR  Actuator position is set at 0% which means	-	FALSE	-		
			Average sensor voltage from turbine bypass valve 1 position sensor	>	2.0026	V	that actuator is closed (					
			OR				Current actuator torque (See Look-up table #P2B93-2)	>=	134	Ncm		
			( Average sensor voltage from turbine bypass valve	<	0.424	V	Suspect for reaching mechanical maximum bound of valve	=	TRUE	-		
			1 position sensor Average sensor voltage from turbine bypass valve	>=	0.244	v	Internal desired value for governor	>	100	%		
			1 position sensor )				Actuator position is unchanged	=	TRUE	-		
			) 				Absolute value of the gradient of the actuator speed	<	350	mV/s		
			OR ( Slope of the sensor	>=	0		for events ) )	=	2	-		
			Actuator position is set at 0% which means that actuator is closed	=	FALSE	-	()		0.04			
			( Average sensor voltage from turbine bypass valve 1 position sensor	<	0.424	٧	for time )		0.01	sec		
			OR ( Average sensor voltage from turbine bypass valve	>	2.0026	V	Offset learning is active ( Battery voltage	= >=	TRUE	- V		
			1 position sensor Average sensor voltage from turbine bypass valve	<=	4.0726	v	Battery voltage	<=	655.34	v		
			1 position sensor )				Environmental pressure[See Look Up Table #P2B93-3]	>	0	kPa		
			) )				Engine is in running state for time	=	TRUE 0	sec		
			OR (		0		Air temperature Air temperature	>= <=	-3549.94 143.96	deg C deg C		
			Slope of the sensor Actuator position is set at 0% which means that actuator is closed	=	TRUE	-	Exhaust temperature Exhaust temperature	>= <=	-40.04 149.96	deg C deg C		
			( Average sensor voltage from turbine bypass valve 1 position sensor	<	0.424	٧	Engine temperature Engine temperature	<= >=	129.96 -40.04	deg C deg C		
			OR (				Brake is not pressed Number of cycles since brake active	= <=	TRUE 0			
			Average sensor voltage from turbine bypass valve 1 position sensor Average sensor voltage from turbine bypass valve	> <=	2.0026 4.0726	v v	Pressure disturbance Injection quantity	<	3276.7 327.67	kPa mg/hub		
			1 position sensor				Engine speed	<	3000	rpm		
			) ) )				( ( Torque for offset learning based on actuator	<=	А	%		
			OR (				position where (A) Maximum of minimum torque required to perform offset learning at default position					
			Raw learned value at the closed mechanical	<=	4.0726	V	and negation of torque limitation value based on actuator position					
			endstop Raw learned value at the closed mechanical endstop	>=	0.244	V	OR					
			( Raw learned value at the closed electrical endstop OR	>	2.0026	٧	( Torque for offset learning based on actuator position where	>=	Α	%		

GROUP: KGMXOBD	G07		DIAGNOST TEST GROUP: K		MARY TABLES 2088	ECM				EMISSIONS	STDS: CALULEV125, FE	DBIN12
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ns	Time Required	MIL IIIu
			Raw learned value at the closed electrical endstop	<	0.244	٧	(A) Minimum of minimum torque required to perform offset learning not at default position and torque limitation value based on actuator position					
			)				) ) Clean and verify function is active Number of clean and verify function completed	= >=	TRUE 1	-		
							) Timer for starting offset learning No pending or confirmed DTCs Basic enable conditions met	>= =	0.01 see sheet inhibit tables see sheet enable	sec -		
									tables			
		Path 2: Monitoring of valve drift at open position	( Slope of the sensor Actuator position is set at 0% which means that	>= =	0 TRUE		Actuator is completely open ( Actuator position is set at 0% which means	=	TRUE TRUE	-	continuous	s 21
			actuator is closed ( Average sensor voltage from turbine bypass valve 1 position sensor	<	2.347	٧	that actuator is closed ( Current actuator torque (See Look-up table #P2B93-1)	<=	-134	Ncm		
			OR (				Suspect for reaching mechanical minimum bound of valve	=	TRUE	-		
			Average sensor voltage from turbine bypass valve 1 position sensor Average sensor voltage from turbine bypass valve 1 position sensor	> <=	4.057 4.0726	v v	Internal desired value for governor  Actuator position is unchanged	> =	100 TRUE	%		
			) )				( Absolute value of the gradient of the actuator speed	<	350	mV/s		
			OR (				for events )	=	2	-		
			Slope of the sensor curve Actuator position is set at 0% which means that actuator is closed	< =	0 FALSE	-	fortime		0.01	sec		
			( Average sensor voltage from turbine bypass valve 1 position sensor OR	<	2.347	V	OR Actuator position is set at 0% which means that actuator is closed (	=	FALSE	-		
			( Average sensor voltage from turbine bypass valve	>	4.057	V	Current actuator torque (See Look-up table #P2B93-2) Suspect for reaching mechanical maximum	>=	134 TRUE	Ncm		
			1 position sensor  Average sensor voltage from turbine bypass valve 1 position sensor	<=	4.0726	v	bound of valve (	-				
			) ) )				Internal desired value for governor Actuator position is unchanged (	=	0 TRUE	% -		
			OR (				Absolute value of the gradient of the actuator speed for events	< =	350 2	mV/s -		
			Slope of the sensor Actuator position is set at 0% which means that actuator is closed	>= =	0 FALSE	-	)					
			Average sensor voltage from turbine bypass valve 1 position sensor OR	>	4.057	V	fortime		0.01	sec		
			( Average sensor voltage from turbine bypass valve 1 position sensor	<	2.347	V	Offset learning is active (	=	TRUE	-		
			Average sensor voltage from turbine bypass valve 1 position sensor	>=	0.244	V	Battery voltage	>=	9	V		
			)				Battery voltage Environmental pressure[See Look Up Table #P2B93-3] Engine is in running state	>	655.34 0 TRUE	V kPa		
			OR (				for time Air temperature	>=	0 -3549.94	sec deg C		
			Slope of the sensor Actuator position is set at 0% which means that actuator is closed	=	0 TRUE	-	Air temperature Exhaust temperature	<= >=	143.96 -40.04	deg C deg C		
			( Average sensor voltage from turbine bypass valve 1 position sensor	>	4.057	٧	Exhaust temperature Engine temperature	<=	149.96 129.96	deg C deg C		
			OR (				Engine temperature Brake is not pressed	>=	-40.04 TRUE	deq C		

	OBD GROUP: KGMXOBDG07	7		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES KGMXV04.2088	ECM				EMISSION	NS STDS: CALULEV125, FE	DBIN125
ı	Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters		Enable Conditio	ns	Time Required	MIL IIIum.
				Average sensor voltage from turbine bypass valve 1 position sensor Average sensor voltage from turbine bypass valve 1 position sensor 1 position sensor 1	< 2.347 >= 0.244	v v	Number of cycles since brake active  Pressure disturbance  Injection quantity  Engine speed	<= < < <	0 3276.7 327.67 3000	kPa mg/hub rpm		
				)			( ( Torque for offset learning based on actuator position where ( (A) Maximum of minimum torque required to perform offset learning at default position and negation of torque limitation value based on actuator position ) ) OR	<=	А	%		
							Torque for offset learning based on actuator position where (A) Minimum of minimum torque required to perform offset learning not at default position and torque limitation value based on actuator position	>=	А	%		
							) Clean and verify function is active Number of clean and verify function completed )	= >=	TRUE 1	-		
							Timer for starting offset learning No pending or confirmed DTCs Basic enable conditions met	>= = =	0.01 see sheet inhibit tables see sheet enable tables	sec - -		
		P25B4	Monitoring of turbine bypass valve 1 jammed at closed position	Actual position of turbine bypass valve 1	> 50		Control valve was detected as jammed for time ) Rapid heat-up mode No pending or confirmed DTCs Basic enable conditions met	> = = =	TRUE  1 FALSE see sheet inhibit tables see sheet enable tables	sec - -	continuous	2 Trips
		P25B3	Monitoring of turbine bypass valve 1 jammed at open position	Actual position of turbine bypass valve 1	<= 50	%	( Control valve was detected as jammed for time ) Rapid heat-up mode No pending or confirmed DTCs Basic enable conditions met	= > = =	TRUE 1 FALSE see sheet inhibit tables see sheet enable tables	sec - -	continuous	2 Trips
		P25B4	Monitoring of turbine bypass valve 1 jammed at closed position	Actual position of turbine bypass valve 1	> 50	%	Control valve was detected as jammed for time ) Rapid heat-up mode No pending or confirmed DTCs Basic enable conditions met	> = = =	TRUE  1 FALSE see sheet inhibit tables see sheet enable tables	sec - -	continuous	2 Trips

OBD GROUP: KGMXOBDGO	)7		DIAGNOS <sup>*</sup> TEST GROUP: I		IMARY TABLES - 1.2088	- ECM			E	MISSION	NS STDS:	CALULE	EV125, FEC	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	•		Time Requir	ed	MIL IIIum.
	P2ABD	Path 1: Diagnoses the Turbine bypass valve H bridge circuit for over current fault	Current flow at any path of the H-bridge	>	5.75	A	Power stage (H-bridge circuit) is switched on No open load diagnosis active Basic enable conditions met No Pending or Confirmed DTCs		TRUE  See sheet enable tables  see sheet inhibit tables		1.5	sec	continuous	2 Trips
	P2ABD	Path 2: Diagnoses the Turbine bypass valve H bridge circuit for over temperature fault	Temperature within the H-bridge powerstage circuit	>	175	deg C	Power stage (H-bridge circuit) is switched on No open load diagnosis active Basic enable conditions met No Pending or Confirmed DTCs		TRUE  TRUE  see sheet enable  tables  see sheet inhibit  tables	- - -	1	sec	continuous	2 Trips
	P103A	Diagnoses the Turbine bypass valve H bridge circuit for short circuit over load fault	Voltage low between signals H-bridge output 1 + 2 (indicates short circuit over load)	=	Short over load: ≤ 0.5 Ω impedance between signal output 1 + 2	-	Power stage (H-bridge circuit) is switched on No open load diagnosis active Basic enable conditions met No Pending or Confirmed DTCs		TRUE  TRUE  see sheet enable  tables  see sheet inhibit  tables	-	1.5	sec	continuous	2 Trips
	P1038	Diagnoses the Turbine bypass valve H bridge circuit for undervoltage fault	ECM internal voltage supply of turbine bypass valve/control circuit	<	3.1	V	Power stage (H-bridge circuit) is switched on No open load diagnosis active Basic enable conditions met No Pending or Confirmed DTCs		TRUE TRUE see sheet enable tables see sheet inhibit tables	-	5	sec	continuous	2 Trips
	P0246	Diagnoses the Turbine bypass valve H bridge low side driver circuit at out 1 for circuit high fault	Voltage high (indicates short circuit to battery)	=	Short to power $\leq$ 0.5 $\Omega$ impedance between signal and controller power	-	Power stage (H-bridge circuit) is switched on  No open load diagnosis active Basic enable conditions met  No Pending or Confirmed DTCs	1 11 1	TRUE  TRUE  see sheet enable tables  see sheet inhibit tables	:	1.5	sec	continuous	1 Trip
	P0245	Diagnoses the Turbine bypass valve H bridge high side driver circuit at out 1 for circuit low fault	Voltage low (indicates short circuit to ground)	=	Short to ground: ≤ 0.5 Ω impedance between signal and controller ground	-	Power stage (H-bridge circuit) is switched on  No open load diagnosis active Basic enable conditions met  No Pending or Confirmed DTCs		TRUE  TRUE  see sheet enable tables  see sheet inhibit tables	-	1.5	sec	continuous	1 Trip
	P0243	Diagnoses the Turbine bypass valve H bridge circuit for open circuit fault	Voltage low during driver OFF state (indicates open circuit)	=	Open Circuit: ≥ 200 K Ω impedance between ECU pin and load	-	Power stage (H-bridge circuit) is switched off  Engine speed ( ( ( ) Open Load Diagnosis during temporary Governor OFF: Absolute value of qovernor deviation Absolute value of desired valve position gradient Sprina break detection ) OR ( Enable Open Load Diagnosis when actuator is deacrivated: Soft shut active Actuator temporary active ( Engine in Standby mode Engine state before current state afterrun OR	=	TRUE  350  0.0122 0  FALSE  FALSE FALSE TRUE TRUE	- rpm % %/s	1.5	sec	continuous	1 Trip

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: P		MMARY TABLES - 4.2088	- ECM				MISSION	NS STDS:	CALULE	EV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition			ime Require		MIL IIIum.
							Engine state afterrun for time	= >=	TRUE 0.01	- sec				
							) Basic enable conditions met No Pending or Confirmed DTCs	=	see sheet enable tables see sheet inhibit tables	-				
Turbocharge Wastegate Actuator - H- Bridge Leg 2 - B1	P30E9	Diagnoses the Turbine bypass valve H bridge high side driver circuit at out 2 for circuit high fault	Voltage high (indicates short circuit to battery)	=	Short to power: ≤ 0.5 Ω impedance between signal and controller power	-	Power stage (H-bridge circuit) is switched on	=	TRUE	-	1.5	sec	continuous	1 Trip
							No open load diagnosis active Basic enable conditions met No Pending or Confirmed DTCs	=	TRUE see sheet enable tables see sheet inhibit tables	-				
	P30E8	Diagnoses the Turbine bypass valve H bridge high side driver circuit at out 2 for circuit low fault	Voltage low (indicates short circuit to ground)	=	Short to ground: ≤ 0.5 Ω impedance between signal and controller	-	Power stage (H-bridge circuit) is switched on	=	TRUE		1.5	sec	continuous	1 Trip
					ground		No open load diagnosis active Basic enable conditions met No Pending or Confirmed DTCs	-	TRUE see sheet enable tables see sheet inhibit tables	-				
Turbocharge Wastegate Actuator - H- Bridge Leg 1 - B2	P2B94	Path 1: Monitoring of valve drift at closed position	(				Actuator is completely closed	=	TRUE	-			continuous	2 Trips
			( Slope of the sensor  Actuator position is set at 0% which means that	>=	0 TRUE	-	( Actuator position is set at 0% which means that actuator is closed (	=	TRUE	-				
			actuator is closed (  Average sensor voltage from turbine bypass valve 1 position sensor	>	2.0026	٧	Current actuator torque (See Look-up table #1) Suspect for reaching mechanical minimum bound of valve	<= =	-134 TRUE	Ncm -				
			OR ( Average sensor voltage from turbine bypass valve 1 position sensor	<	0.424	٧	( Internal desired value for governor Actuator position is unchanged	< =	0 TRUE	%				
			Average sensor voltage from turbine bypass valve 1 position sensor )	>=	0.244	V	( Absolute value of the gradient of the actuator speed for events	< =	350 2	mV/s				
			) OR ( Slope of the sensor curve Actuator position is set at 0% which means that	< =	0 FALSE	_	) ) for time OR		0.01	sec				
			actuator is closed ( Average sensor voltage from turbine bypass valve	>	2.0026	٧	Actuator position is set at 0% which means that actuator is closed (	=	FALSE	-				
			1 position sensor OR				Current actuator torque (See Look-up table #2) Suspect for reaching mechanical maximum bound of valve	>=	134 TRUE	Ncm -				
			Average sensor voltage from turbine bypass valve 1 position sensor Average sensor voltage from turbine bypass valve 1 position sensor	>=	0.424 0.244	v v	( Internal desired value for governor Actuator position is unchanged	> =	100 TRUE	%				
			) ) ) OR				( Absolute value of the gradient of the actuator speed for events	< =	350 2	mV/s				
			( Slope of the sensor Actuator position is set at 0% which means that actuator is closed (	>= =	0 FALSE	-	) ) for time		0.01	sec				
			t Average sensor voltage from turbine bypass valve 1 position sensor OR	<	0.424	V	or time ) Offset learning is active	=	TRUE	- -				

D GROUP: KGMXOBDO	607		DIAGNOST TEST GROUP: k		MARY TABLES	ECM				MISSION	IS STDS: CALULEV125, F	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	s	Time Required	MIL IIIur
			(		2.0026	V	(		9	V		
			Average sensor voltage from turbine bypass valve 1 position sensor	>			Battery voltage	>=		V		
			Average sensor voltage from turbine bypass valve 1 position sensor	<=	4.0726	V	Battery voltage	<=	655.34	-		
			)				Environmental pressure[See Look Up Table #3]	>	0	kPa		
			) )				Engine is in running state for time	=	TRUE 0	sec		
			OR (				Air temperature Air temperature	>= <=	-3549.94 143.96	deg C deg C		
			Slope of the sensor Actuator position is set at 0% which means that	< =	0 TRUE		Exhaust temperature Exhaust temperature	>= <=	-40.04 149.96	deg C deg C		
			actuator is closed				Engine temperature	<=	129.96	deg C		
			Average sensor voltage from turbine bypass valve	<	0.424	V	Engine temperature	>=	-40.04	deg C		
			OR				Brake is not pressed	=	TRUE	-		
			( Average sensor voltage from turbine bypass valve	>	2.0026	V	Number of cycles since brake active Pressure disturbance	<= <	0 3276.7	kPa		
			1 position sensor Average sensor voltage from turbine bypass valve	<=	4.0726	٧	Injection quantity	<	327.67	mg/hub		
			1 position sensor				Engine speed	<	3000	rpm		
			<u> </u>				( (		2300			
			j				Torque for offset learning based on actuator	<=	Α	%		
			OR				position where					
			(				(A) Maximum of minimum torque required to perform offset learning at default position					
							and negation of torque limitation value based on actuator position					
			Raw learned value at the closed mechanical endstop	<=	4.0726	٧	)					
			Raw learned value at the closed mechanical endstop	>=	0.244	٧	OR					
			( Raw learned value at the closed electrical endstop	>	2.0026	٧	( Torque for offset learning based on actuator position	>=	А	%		
			OR Raw learned value at the closed electrical endstop	<	0.244	٧	where  (A) Minimum of minimum torque required to perform offset learning not at default position and torque limitation value based on actuator position					
			)				) ) Clean and verify function is active Number of clean and verify function completed	= >=	TRUE 1	- -		
							) Timer for starting offset learning	>=	0.01	sec		
							No pending or confirmed DTCs	=	see sheet inhibit tables	-		
							Basic enable conditions met	=	see sheet enable tables			
		Dath 2. Manitoring of union drift at one providing	(				A atuatas in completely on an		TDUE			us 2 Trip
		Path 2: Monitoring of valve drift at open position	( Slope of the sensor Actuator position is set at 0% which means that actuator is closed	>= =	0 TRUE		Actuator is completely open ( Actuator position is set at 0% which means that actuator is closed	=	TRUE TRUE	-	continuo	us 21m
			( Average sensor voltage from turbine bypass valve	<	2.347	٧	( Current actuator torque (See Look-up table	<=	-134	Ncm		
			1 position sensor OR	,	2.0	•	#1) Suspect for reaching mechanical minimum	=	TRUE	-		
			,				bound of valve	=	IKUE	-		
			( Average sensor voltage from turbine bypass valve	>	4.057	٧	( Internal desired value for governor	>	100	%		
			position sensor     Average sensor voltage from turbine bypass valve     position sensor	<=	4.0726	٧	Actuator position is unchanged	=	TRUE	-		
			) )				( Absolute value of the gradient of the	<	350	mV/s		
			) OR				actuator speed for events	=	2	-		
			(		_		[					
	i i		Slope of the sensor curve Actuator position is set at 0% which means that	<	0 FALSE	_	) for time		0.01	sec	ĺ	

BD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K		IARY TABLES -	- ECM				EMISSION	IS STDS: CALULEV125, FI	EDBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Condition	ons	Time Required	MIL IIIum
			Average sensor voltage from turbine bypass valve 1 position sensor OR	<	2.347	V	Actuator position is set at 0% which means that actuator is closed	=	FALSE			
			(				Current actuator torque (See Look-up table #2)	>=	134	Ncm		
			Average sensor voltage from turbine bypass valve 1 position sensor	>	4.057	V	Suspect for reaching mechanical maximum bound of valve	=	TRUE	-		
			Average sensor voltage from turbine bypass valve 1 position sensor	<=	4.0726	V	(					
			)				Internal desired value for governor Actuator position is unchanged	< =	0 TRUE	%		
			) OR				( Absolute value of the gradient of the actuator speed	<	350	mV/s		
			( Slope of the sensor	>=	0		for events )	=	2	-		
			Actuator position is set at 0% which means that actuator is closed	=	FALSE	-	)					
			Average sensor voltage from turbine bypass valve 1 position sensor OR	>	4.057	V	fortime		0.01	sec		
			( Average sensor voltage from turbine bypass valve	<	2.347	V	Offset learning is active	=	TRUE	-		
			1 position sensor Average sensor voltage from turbine bypass valve	>=	0.244	V	Battery voltage	>=	9	v		
			1 position sensor )				Battery voltage Environmental pressure[See Look Up Table	<= >	655.34 0	V kPa		
							#3] Engine is in running state	=	TRUE	-		
			OR (				for time Air temperature	>=	0 -3549.94	sec deg C		
			Slope of the sensor Actuator position is set at 0% which means that	< =	0 TRUE	-	Air temperature Exhaust temperature	<= >=	143.96 -40.04	deg C deg C		
			actuator is closed ( Average sensor voltage from turbine bypass valve	>	4.057	V	Exhaust temperature Engine temperature	<= <=	149.96 129.96	deg C deg C		
			position sensor     OR     (     Average sensor voltage from turbine bypass valve	<	2.347	V	Engine temperature Brake is not pressed Number of cycles since brake active	>= = <=	-40.04 TRUE 0	deg C		
			1 position sensor  Average sensor voltage from turbine bypass valve	>=	0.244	v	Pressure disturbance	<	3276.7	kPa		
			1 position sensor				Injection quantity	<	327.67	mg/hub		
			)				Engine speed ( (	<	3000	rpm		
							Torque for offset learning based on actuator position where	<=	Α	%		
							(A) Maximum of minimum torque required to perform offset learning at default position and negation of torque limitation value based on actuator position					
							) OR					
							( Torque for offset learning based on actuator	>=	A	%		
							position where (A) Minimum of minimum torque required to perform offset learning not at default position					
							and torque limitation value based on actuator position					
							) ) Clean and worth function in action		TRUE			
							Clean and verify function is active Number of clean and verify function completed	>=	TRUE 1	-		
							) Timer for starting offset learning No pending or confirmed DTCs	>=	0.01 see sheet inhibit	sec -		
							Basic enable conditions met	=	tables see sheet enable tables	-		
									tables			
	P25B6	Monitoring of turbine bypass valve 2 jammed at closed position	Actual position of turbine bypass valve 2	>	50	%	(				1 sec continuou	us 2 Trips
							Control valve was detected as jammed for time	= >	TRUE 1	sec		

OBD GROUP: KGMXOBDG0	7		DIAGNOS <sup>*</sup> TEST GROUP: I	TIC SUMMARY TABLES ECM KGMXV04.2088	_	EMISSIONS	STDS: CALULEV125, FEI	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					) Rapid heat-up mode No pending or confirmed DTCs Basic enable conditions met	= FALSE - = see sheet inhibit - tables = see sheet enable - tables		
	P25B5	Monitoring of turbine bypass valve 2 jammed at open position	Actual position of turbine bypass valve 2	<= 50 %	Control valve was detected as jammed for time ) Rapid heat-up mode No pending or confirmed DTCs Basic enable conditions met	= TRUE -  > 1 sec  = FALSE -  = see sheet inhibit - tables  = see sheet enable - tables	1 sec continuous	2 Trips
	P2ABE	Diagnoses the Turbine bypass valve H bridge circuit for over current fault	Current flow at any path of the H-bridge	> 5.75 A	Power stage (H-bridge circuit) is switched on No open load diagnosis active Basic enable conditions met No Pending or Confirmed DTCs	= TRUE - = TRUE - = see sheet enable - tables = see sheet inhibit - tables	1.5 sec continuous	2 Trips
	P2ABE	Diagnoses the Turbine bypass valve H bridge circuit for over temperature fault	Temperature within the H-bridge powerstage circuit	> 175 deg C	Power stage (H-bridge circuit) is switched on No open load diagnosis active Basic enable conditions met No Pending or Confirmed DTCs	= TRUE - = TRUE - = see sheet enable tables = see sheet inhibit tables	1 sec continuous	2 Trips
	P10BE	Diagnoses the Turbine bypass valve H bridge circuit for short circuit over load fault	Voltage low between signals H-bridge output 1 + 2 (indicates short circuit over load)	= Short over load: ≤ 0.5 - Ω impedance between signal output 1 + 2	Power stage (H-bridge circuit) is switched on No open load diagnosis active Basic enable conditions met No Pending or Confirmed DTCs	= TRUE -  = TRUE -  = see sheet enable tables  = see sheet inhibit tables	1.5 sec continuous	2 Trips
	P10BD	Diagnoses the Turbine bypass valve H bridge circuit for undervoltage fault	ECM internal voltage supply of turbine bypass valve/control circuit	< 3.1 V	Power stage (H-bridge circuit) is switched on No open load diagnosis active Basic enable conditions met No Pending or Confirmed DTCs	= TRUE - = TRUE - = see sheet enable tables = see sheet inhbit tables	5 sec continuous	2 Trips
	P0250	Diagnoses the Turbine bypass valve H bridge low side driver circuit at out 2 for circuit high fault	Voltage high (indicates short circuit to battery)	= Short to power ≤ 0,5 Ω - impedance between signal and controller power	Power stage (H-bridge circuit) is switched on No open load diagnosis active Basic enable conditions met No Pending or Confirmed DTCs	= TRUE -  = TRUE -  = see sheet enable - tables  = see sheet inhibit - tables	1.5 sec continuous	1 Trip
	P0249	Diagnoses the Turbine bypass valve H bridge high side driver circuit at out 1 for circuit low fault	Voltage low (indicates short circuit to ground)	= Short to ground: ≤ 0.5 - Ω impedance between signal and controller ground	Power stage (H-bridge circuit) is switched on No open load diagnosis active Basic enable conditions met No Pending or Confirmed DTCs	= TRUE -  = TRUE -  = see sheet enable - tables  = see sheet inhbit tables	1.5 sec continuous	1 Trip

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: 1	TIC SUMMARY TABLES ECM KGMXV04.2088			E	MISSION	IS STDS:	CALULI	EV125, FEI	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Condition	ıs		Time Requir	ed	MIL IIIum.
	P0247	Diagnoses the Turbine bypass valve H bridge circuit for open circuit fault	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit: ≥ 200 K - Ω impedance between ECU pin and load	Power stage (H-bridge circuit) is switched off  Engine speed	= <=	TRUE	- rpm	1.5	sec	continuous	1 Trip
					(     Open Load Diagnosis during temporary     Governor OFF:     Absolute value of governor deviation     Absolute value of desired valve position     gradient     Spring break detection ) OR	< <= =	0.0122 0 FALSE	% %/s -				
					( Enable Open Load Diagnosis when actuator is deactivated: Soft shut active Actuator temporary active ( Engine in Standby mode Endine state before current state afterrun	= = =	FALSE FALSE TRUE TRUE	-				
					OR Engine state afterrun for time )	= >=	TRUE 0.01	- sec				
					) Basic enable conditions met No Pending or Confirmed DTCs	=	see sheet enable tables see sheet inhibit tables	-				
Turbocharge Wastegate Actuator - H- Bridge Leg 2 - B2	P30EB	Diagnoses the Turbine bypass valve H bridge low side driver circuit at out 2 for circuit high fault	Voltage high (indicates short circuit to battery)	= Short to power: ≤ 0.5 - Ω impedance between signal and controller power	Power stage (H-bridge circuit) is switched on	=	TRUE	-	1.5	sec	continuous	1 Trip
					No open load diagnosis active Basic enable conditions met No Pending or Confirmed DTCs	= =	TRUE see sheet enable tables see sheet inhibit tables	-				
	P30EA	Diagnoses the Turbine bypass valve H bridge high side driver circuit at out 2 for circuit low fault	Voltage low (indicates short circuit to ground)	= Short to ground: ≤ 0.5 - Ω impedance between signal and controller ground	Power stage (H-bridge circuit) is switched on	=	TRUE	-	1.5	sec	continuous	1 Trip
				ground	No open load diagnosis active Basic enable conditions met No Pending or Confirmed DTCs	= =	TRUE see sheet enable tables see sheet inhibit tables	-				
Engine Cooling Fan	P0692	Diagnoses Fan 1 control circuit low side driver circuit for circuit high fault	Voltage high during driver ON state (indicates short circuit to battery)	= Short to power: ≤ 0.5 Ω impedance between signal and controller power	Battery voltage	>	10.9	V	2	sec		2 Trips
					for time No pending or confirmed DTCs Basic enable conditions met	>= =	0 see sheet inhibit tables see sheet enable tables	sec -				
	P0691	Diagnoses Fan 1 control circuit low side driver circuit for circuit low fault	Voltage low during driver OFF state (indicates short circuit to ground)	= Short to ground; ≤ 0.5 - Ω impedance between signal and controller ground	Battery voltage	>	10.9	V	2	sec		2 Trips
					for time No pending or confirmed DTCs Basic enable conditions met	>= =	0 see sheet inhibit tables see sheet enable tables	sec -				
	P0480	Path 1: Diagnoses Fan 1 control circuit low side driver circuit for open circuit fault	Voltage low during driver OFF state (indicates open circuit)	= Open Circuit: ≥ 200 K Ω impedance between ECU pin and load	Battery voltage	>	10.9	V	2	sec		1 Trip

OBD GROUP: KGMXOBDG	607		DIAGNOST TEST GROUP: K	TIC SUMMARY TABLES	ECM		EMISSIONS	S STDS: CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
						for time No pending or confirmed DTCs Basic enable conditions met	>= 0 sec = see sheet inhibit - = see sheet enable - tables		
	P0480	Path 2: Fan 1 control circuit over temperature	Fan 1 control circuit over temperature detected by ECM hardware	= TRUE		ECM in pre-drive state  ECM in post-drive state  Battery voltage  Battery voltage  ECM in Prepare Shutdown state  No pending or confirmed DTCs  Basic enable conditions met	= FALSE -  = FALSE - > 8.9 V < 36 V = FALSE - FALSE - = see sheet inhbit - tables = see sheet enable - tables	1 sec	
ECM 5 Volt Sensor Reference - 1	P0641	Sensor supply voltage circuit over temperature	Circuit temperature	> 170	deg C	Ignition is ON No pending or confirmed DTCs Basic enable conditions met	= TRUE - = see sheet inhibit - tables = see sheet enable - tables	0.5 sec Continous	1 Trip
		Sensor supply voltage circuit overvoltage	Voltage ratio between supply voltage output and reference voltage (+5V)	> 1.06		Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	= TRUE -  = see sheet inhibit - tables = see sheet enable tables	0.5 sec	
		Sensor supply voltage short circuit to ground	Supply voltage	< 1	V	Ignition is ON No pending or confirmed DTCs Basic enable conditions met	= TRUE - = see sheet inhibit - tables = see sheet enable tables	0.5 sec	
		Sensor supply voltage circuit undervoltage	Voltage ratio between supply voltage output and reference voltage (+5V)	< 0.94	-	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	= TRUE -  = see sheet inhibit - tables = see sheet enable - tables	0.5 sec	
ECM 5 Volt Sensor Reference - 2	P0651	Sensor supply voltage circuit over temperature	Circuit Temperature	> 170	deg C	lgnition is ON No pending or confirmed DTCs Basic enable conditions met	= TRUE - = see sheet inhibit - tables = see sheet enable - tables	0.5 sec Continous	1 Trip
		Sensor supply voltage circuit overvoltage	Voltage ratio between supply voltage output and reference voltage (+5V)	> 1.06	-	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	= TRUE -  = see sheet inhibit - tables = see sheet enable tables	0.5 sec	
		Sensor supply voltage short circuit to Ground	Supply voltage	< 1	V	Ignition is ON No pending or confirmed DTCs Basic enable conditions met	= TRUE - = see sheet inhibit - tables = see sheet enable tables	0.5 sec	
		Sensor supply voltage circuit undervoltage	Voltage ratio between supply voltage output and reference voltage (+5V)	< 0.94	-	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	= TRUE -  = see sheet inhibit - tables = see sheet enable tables	0.5 sec	
ECM 5 Volt Sensor Reference - 3	P0697	Sensor supply voltage circuit over temperature	Circuit Temperature	> 170	deg C	Ignition is ON No pending or confirmed DTCs Basic enable conditions met	= TRUE - = see sheet inhbit - tables = see sheet enable - tables	0.5 sec Continous	s 1 Trip

OBD GROUP: KGMXOBDGO	07		DIAGNOS TEST GROUP: 1		MARY TABLES 4.2088	ECM			E	MISSION	IS STDS: (	CALULE	EV125, FED	BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	•	т	ime Require	ed	MIL IIIum.
		Sensor supply voltage circuit overvoltage	Voltage ratio between supply voltage output and reference voltage (+5V)	>	1.06	-	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	= =	TRUE see sheet inhibit tables see sheet enable tables	- - -	0.5	sec		
		Sensor supply voltage short circuit to Ground	Supply voltage	<	1	V	Ignition is ON No pending or confirmed DTCs Basic enable conditions met		TRUE see sheet inhibit tables see sheet enable tables	-	0.5	sec		
		Sensor supply voltage circuit undervoltage	Voltage ratio between supply voltage output and reference voltage (+5V)	<	0.94	-	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	= = =	TRUE see sheet inhibit tables see sheet enable tables	-	0.5	sec		
ECM 5 Volt Sensor Reference - 4	P06A3	Sensor supply voltage circuit over temperature	Circuit Temperature	>	170	deg C	Ignition is ON No pending or confirmed DTCs Basic enable conditions met		TRUE see sheet inhibit tables see sheet enable tables	-	0.5	sec	Continous	1 Trip
		Sensor supply voltage circuit overvoltage	Voltage ratio between supply voltage output and reference voltage (+5V)	>	1.06	-	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	=	TRUE see sheet inhibit tables see sheet enable tables	-	0.5	sec		
		Sensor supply voltage short circuit to Ground	Supply voltage	<	1	V	lanition is ON No pending or confirmed DTCs Basic enable conditions met	= =	TRUE see sheet inhibit tables see sheet enable tables	-	0.5	sec		
		Sensor supply voltage circuit undervoltage	Voltage ratio between supply voltage output and reference voltage (+5V)	<	0.94	-	Ignition is ON  No pending or confirmed DTCs  Basic enable conditions met	= = =	TRUE see sheet inhibit tables see sheet enable tables	-	0.5	sec		
TZM 5 Volt Sensor Reference - 1	P1176	The FTZM raw sensor reference voltage is measured and provided via CAN to the ECM. The ECM monitors value provided from the FTZM and is rationalized for Sensor Supply 1.	Following conditions for time	>	2	sec	Ignition ON	=	FALSE	-	40	counts	Continuous	1 Trips
			FTZM reference 1 voltage (converted in ECM to percent of reference to rationalize)  OR FTZM reference 1 voltage (converted in ECM to percent of reference to rationalize)  OR  [(a) - (b) ]	<	92.24854 86.00006	% %	ECM and CAN bus awake for transmission (meaning CAN awaken by BCM or ECM) Battery Voltaqe No pending or confirmed DTCs Basic enabling conditions are met	^ =	0 see sheet inhibit tables see sheet enable tables	- V -				
			where: (a) is the filtered FTZM supply voltage 1 (b) is FTZM raw supply voltage 1	= =	calculated parameter measured parameter									
TZM 5 Volt Sensor Reference - 2	P1177	The FTZM raw sensor reference voltage is measured and provided via CAN to the ECM. The ECM monitors value provided from the FTZM and is rationalized for Sensor Supply 2.	Following conditions for time  FTZM reference 2 voltage (converted in ECM to percent of reference to rationalize)	>	2 92.24854	sec %	Ignition ON  ECM and CAN bus awake for transmission (meaning CAN awaken by BCM or ECM)	" "	FALSE TRUE		40	counts	Continuous	1 Trips
			OR FTZM reference 2 voltage (converted in ECM to percent of reference to rationalize)	<	86.00006	%	Battery Voltage No pending or confirmed DTCs	> =	0 see sheet inhibit tables	V -				

OBD GROUP: KGMXOBDG	07		DIAGNOS <sup>*</sup> TEST GROUP: I		MARY TABLES 4.2088	ECM			E	MISSION	NS STDS:	CALULEV125, FE	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Parameters		Enable Conditions	S	т	ime Required	MIL IIIum.
			OR    (a) - (b)   where:  (a) is the filtered FTZM supply voltage 2  (b) is FTZM raw supply voltage 2	> = =	1.10016 calculated parameter measured parameter	% - -	Basic enabling conditions are met	=	see sheet enable tables	-			
FTZM Fuel Level Sensor Reference - 1	P1178	The FTZM raw fuel level sensor 1 voltage is rationalized within the ECM by comparing the raw signal to an upper limit, lower limit, and the difference between the filtered and raw fuel level 1 voltage	Following conditions for time	>	2	sec	Ignition ON	=	FALSE	•	40	counts Continuou	s 1 Trips
		1 voltage	FTZM fuel level sensor 1 reference voltage (converted in ECM to percent of reference to rationalize)	<	92.24854	%	ECM and CAN bus awake for transmission (meaning CAN awaken by BCM or ECM)	=	TRUE	-			
			OR FTZM fuel level sensor 1 reference voltage (converted in ECM to percent of reference to rationalize)	<	86.00006	%	Battery Voltage No pending or confirmed DTCs	=	0 see sheet inhibit tables	· ·			
			OR   (a) - (b)   where:	>	1.10016	%	Basic enabling conditions are met	=	see sheet enable tables	-			
			(a) is the filtered FTZM fuel level sensor 1 supply voltage (b) is the raw FTZM fuel level sensor 1 supply voltage	=	calculated parameter measured parameter	-							
FTZM Fuel Level Sensor Reference - 1	P1179	The FTZM raw sensor reference voltage is measured and provided via CAN to the ECM. The ECM monitors value provided from the FTZM and is rationalized for Sensor Supply	Following conditions for time	>	2	sec	Ignition ON	=	FALSE	-	40	counts Continuou	1 Trips
		2.	FTZM fuel level sensor 2 reference voltage (converted in ECM to percent of reference to rationalize)	<	92.24854	%	ECM and CAN bus awake for transmission (meaning CAN awaken by BCM or ECM)	=	TRUE	-			
			OR FTZM fuel level sensor 2 reference voltage (converted in ECM to percent of reference to rationalize)	<	86.00006	%	Battery Voltage No pending or confirmed DTCs	> =	0 see sheet inhibit tables	· ·			
			OR   (a) - (b)   where:	>	1.10016	%	Basic enabling conditions are met	=	see sheet enable tables	-			
			(a) is the filtered FTZM fuel level sensor 2 supply voltage (b) is the raw FTZM fuel level sensor 2 supply voltage	=	calculated parameter measured parameter	-							
ECM Main Relay	P0690	Detection of sticky main realy for non permanently supplied system	ECU is switched on after the Main Relay was not opened	=	TRUE	-	Current control state of the Main Relay is set to open	=	TRUE	-	Execution Rate	Once per driving cycl	1 Trip
			ECU was still powered during shutdown for time	>	0.5	sec	Basic enable conditions met  No pending or confirmed DTC's	=	see sheet enable tables see sheet inhibit tables	-			
	P0689	Monitoring of ECM/PCM Power Relay Circuit Low fault	ECU is switched off before "End of Shutdown" was reached	=	TRUE	-	Engine is in running state	=	TRUE	-	Execution Rate	continuous	1 Trip
			for number of counts	>	3	counts	End of shutdown was not reached Basic enable conditions met	=	TRUE see sheet enable tables	-			
Auxiliary Coolant Pump Relay	P2603	Diagnoses supplementary coolant pump 1 low side driver circuit for circuit high fault	Output (driver) current	>=	1.2	Α	Battery voltage for time	> >=	10.9	V	2	sec	2 Trips
							Power stage (driver) is switched on No pending or confirmed DTCs Basic enable conditions met	= =	TRUE see sheet inhibit tables see sheet enable tables	-			
	P2602	Diagnoses supplementary coolant pump 1 low side driver circuit for circuit low fault	Output (driver) voltage	<=	2.74	V	Battery voltage for time Power stage (driver) is switched off No pending or confirmed DTCs	> >= =	10.9 0 TRUE see sheet inhibit	V sec	2	sec	2 Trips

OBD GROUP: KGMXOBDO	607		DIAGNOST TEST GROUP: 1			TABLES	ECM			E	MISSION	IS STDS:	CALULE	V125, FED	)BIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thresh	hold Value		Secondary Parameters		Enable Condition	s		Time Require	d	MIL IIIum.
								Basic enable conditions met	=	see sheet enable tables	-				
	P2600	Diagnoses supplementary coolant pump 1 low side driver circuit for open circuit fault	Output (driver) voltage Output (driver) voltage	> <=	3.26 4.7		v v	Battery voltage for time Power staqe (driver) is switched off No pending or confirmed DTCs Basic enable conditions met	> = = =	0 TRUE see sheet inhibit tables see sheet enable tables	V sec	2	sec		2 Trips
	P2600	Diagnoses supplementary coolant pump 1 low side driver circuit for overtemperature fault	Low side driver component temperature	>=	165		degC	Battery voltage for time ( Power stage (driver) is switched on OR Power stage (driver) is switched off due to overtemperature shutdown ) No pending or confirmed DTCs Basic enable conditions met	> >= = = = = =	0 TRUE TRUE see sheet inhibit tables see sheet enable tables	V sec	2	sec		-
idle Speed Control	P0507	Detects a negative deviation between commanded and current idle speed - engine operation mode: warm operation	Deviation of idle speed precontrol (set point - current) and Engine speed Integral part of the idle speed control at its lower limit, which is the following conditions:  A - (B+C) Where: A: Maximum torque of idle speed control B: Precontrol of the drag torque C: Current idle speed governor torque ) OR Number of fuel cut-out phases	<= <= >=	32	-200 276.7 255	rpm Nm counts	ECU Sub-State in DRIVE  Engine start has finished  ( No external torque demand (engine is running in idle) ) for time Catalyst heating is active Limp-home operation is not active Safety fuel cut off is not active Valid crankshaft signal is present Altitude correction factor Vehicle speed Intake air temperature Engine coolant temperature Engine coolant temperature Time after end of start No pending or confirmed DTCs Basic enabling conditions are met	= = = = = = = = = = = = = = = = = = =	TRUE TRUE  10 FALSE TRUE TRUE TRUE TRUE 10 0 39.8 143.3 39.8 0 see sheet inhibit tables see sheet enable tables	sec	5	sec	multiple	2 Trips
	P0506	Detects a positive deviation between commanded and current idle speed - engine operation mode: warm operation	Deviation of idle speed precontrol (set point - current) and Engine speed Integral part of the idle speed control at its upper limit, which is the following conditions:  (A+B)-C  Where:  A: Maximum torque of idle speed control B: Precontrol of the drag torque C: Current idle speed governor torque	> <=		100	rpm Nm	ECU Sub-State in DRIVE  Engine start has finished ( No external torque demand (engine is running in idle) ) tor time Catalyst heating is active  Limp-home operation is not active Safety fuel cut of it is not active Valid crainshaft signal is present Altitude correction factor Vehicle speed Intake air temperature Engine coolant temperature Engine coolant temperature Engine coolant temperature Time after end of start No pending or confirmed DTCs Basic enabling conditions are met	= = = = = = = = = = = = = = = = = = =	TRUE TRUE  10 FALSE TRUE TRUE TRUE TRUE 0 0 -39.8 143.3 -39.8 0 see sheet inhibit tables see sheet enable tables	sec mph dea C dea C dea C sec	5	sec	multiple	2 Trips

OBD GROUP: KGMXOBDG	07		DIAGNOST TEST GROUP: K	· · · · · · · · · · · · · · · · · · ·		E	MISSION	IS STDS	: CALU	LEV125, FEI	)BIN125	
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions	s		Time Req	uired	MIL IIIum.
Turbocharger Boost System	P0234	Monitoring of the delta-boost pressure control deviation against rationality threshold for overcharge detection	Delta-boost pressure control deviation (see Look- Up-Table #P0234-1)	> 37.5 to 75 kPa	Measured pressure at upstream throttle valve is valid No pending or confirmed DTCs Basic enable conditions met	= =	TRUE see sheet inhibit tables see sheet enable tables		1.5	sec	Continuous	2 Trips
	P0299	Monitoring of the delta-boost pressure control deviation against rationality threshold for undercharge detection	Filtered delta-boost pressure control deviation	>= 25 kPa	( ( Boost pressure control is active	=	TRUE	-			Continuous	2 Trips
					( Difference between desired pressure of upstream throttle valve of bank 1 and minimum pressure after air filter	>	2	kPa				
					OR Difference between desired pressure of upstream throttle valve of bank 2 and minimum pressure after air filter	>	2	kPa				
					) Engine end of start reached Enabling condition for lifting boost pressure actuator	=	TRUE TRUE	Ī				
					Vehicle is in idle condition	=	TRUE	-				
					Difference between propulsion torque of cruise control and driver torque propulsion after step limitation OR	<	0.5	Nm				
					Coordinated status of acceleration request ) Difference between minimum wheel	>=	FALSE 0	- Nm				
					torque with internal combustion engine firing and driver torque value after limitation							
					Enabling condition to detect DLDR minimum error due to cross effects	-	TRUE	-				
					Safety fuel cut-off from throttle valve monitoring for bank 1 is active	=	FALSE	-				
					Limp-home mode request from throttle valve monitoring for bank 1 is active	=	FALSE	-				
					Safety fuel cut-off from throttle valve monitoring for bank 2 is active Limp-home mode request from throttle	-	FALSE	•				
					valve monitoring for bank 2 is active  Measured pressure upstream throttle	_	TRUE					
					valve is valid  Measured pressure of intake manifold is valid  )	=	TRUE	-				
					) Engine speed (see Look-Up-Table #P0299	- >	2800 to 3200	rpm				
					Difference between desired pressure of upstream throttle valve and base boost pressure	>	10	kPa				
					Ambient Pressure Difference between desired throttle position of bank 1 and the actual throttle angle during which 95% is reached, Wide open throttle is active	>	70 0	kPa -				
					for time	>=	3	sec				
					Time counter for delta boost pressure control deviation calculation	>	6	sec				
					No pending or confirmed DTCs	=	see sheet inhibit tables	-				
					Basic enable conditions met	=	see sheet enable tables	-				
	P02CA	Monitoring of the delta-boost pressure control deviation of bank 2 against rationality threshold for overcharge detection	Delta-boost pressure control deviation of bank 2 (see Look-Up-Table #P02CA-1)	> 37.5 to 75 kPa	Measured pressure at upstream throttle valve is valid	=	TRUE	-	1.5	sec	Continuous	2 Trips
					No pending or confirmed DTCs	-	see sheet inhibit	-				

OBD GROUP: KGMXOBDG0	7		DIAGNOST TEST GROUP: M	TIC SUMMARY TABLES ECM			EMISSION	NS STDS: CALULEV125, FED	DBIN125
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditio	ns	Time Required	MIL IIIum.
					Basic enable conditions met	= see sheet enable tables			
	P02CB	Monitoring of the delta-boost pressure control deviation of bank 2 against rationality threshold for undercharge detection	Filtered delta-boost pressure control deviation of bank 2	>= 25 kPa	(			Continuous	2 Trips
					Boost pressure control is active	= TRUE	-		
					Difference between desired pressure of upstream throttle valve of bank 1 and minimum pressure after air filter OR	> 2	kPa		
					Difference between desired pressure of upstream throttle valve of bank 2 and minimum pressure after air filter	> 2	kPa		
					Engine end of start reached Enabling condition for lifting boost pressure actuator	= TRUE = TRUE	-		
					Vehicle is in idle condition	= TRUE	-		
					Difference between propulsion torque of cruise control and driver torque propulsion after step limitation OR	< 0.5	Nm		
					No acceleration request ) Difference between minimum wheel	= TRUE >= 0	- Nm		
					torque with internal combustion engine firing and driver torque value after limitation	<i>-</i> - •	1411		
					Enabling condition to detect DLDR minimum error due to cross effects	= TRUE			
					Safety fuel cut-off from throttle valve monitoring for bank 1 is active Limp-home mode request from throttle	= FALSE = FALSE	-		
					valve monitoring for bank 1 is active Safety fuel cut-off from throttle valve monitoring for bank 2 is active	= FALSE	-		
					Limp-home mode request from throttle valve monitoring for bank 2 is active Measured pressure upstream throttle	= FALSE = TRUE	-		
					valve is valid  Measured pressure of intake manifold is valid  )	= TRUE = TRUE	-		
					) Engine speed (see Look-Up-Table #P0299-	> 2800 to 3200	rpm		
					Difference between desired pressure of upstream throttle valve and base boost pressure	> 10	kPa		
					Ambient Pressure Difference between desired throttle position of bank 1 and the actual throttle angle during which 95% is reached, Wide open throttle is active	> 70 > 0	kPa -		
					) for time )	>= 3	sec		
					Time counter for delta boost pressure control deviation calculation	> 6	sec		
					No pending or confirmed DTCs	= see sheet inhibit tables	-		
					Basic enable conditions met	= see sheet enable tables	-		

End of Table

OBD GR	OUP: KGMXOBDG07			OSTIC SUMMARY TABL COUP: KGMXV04.2088	ES EC	M			EMISSIONS STDS: CALULEV125, FEDBIN125
		Label							
Table no.		Label	Fault Codes						
P0420-1	High window exhaust gas mass flow bank 1		P0420, P0430, P013A, P013E, P2270						
	rpm	1000	1500 90	2000 100	2500 100	3000 100	3500 100		
	kg/h	80	901	100	100	100	100		
P0420-2	Low window exhaust gas mass flow bank 1		P0420, P0430, P013A, P013E, P2270						
	rpm kg/h	1000		2000 100	2500 100	3000 100	3500 100		
	KQ/II	00	301	100	100	1001	1001		
P0420-3	integrated exhaust gas mass flow bank 2 since engine start		P0420, P0430, P013A, P013E						
	deg C	-40.04 2.85	-20.04 2.337	-10.04 2.163	19.96 1.919	39.96 1.8	89.96 1.6	119.96 1.6	
	kg	2.83	2.337	2.163	1.919	1.8	1.0	1.0	
P0420-4	engine load @ full engine mode		P0420, P0430, P013A, P013E, P2270						
	rpm	920 19,992	1000	1240 12	1520 12.492	1800 12.492	2000 12.492		
	%	19.992	15	12]	12.492	12.492	12.492		
P0420-5	Threshold OSC normalization map bank 1		P0420						
	kg/h / deg C	450.06 100	500.06 100	550.06 100	600.06 122	650.06 146	700.06 152	750.06 165	800.06 165
	20	102	102	102	125	146	152	172	172
	30			110 118	137 142	160 168	162 170	175 182	175 182
	50	128	128	128	152	175	180	190	190
	60		132 136	132 136	158 160	180 185	190 195	200 205	200 205
	90	136		136	160	190	195	205	205
P0430-1	Threshold OSC normalization map bank 2		P0430						
	kg/h / deg C	450.06	500.06	550.06	600.06	650.06	700.06	750.06	800.06
	10		100 102	100 102	122 125	146 146	152 152	165 172	165 172
	30	110	110	110	137	160	162	175	175
				118 128	142 152	168 175	170 180	182 190	182 190
	60	132	132	132	158	180	190	200	200
	70		136 136	136 136	160 160	185 190	195 195	205 205	205 205
P0300-1	Method 1: Angular acceleration of crankshaft in idle state, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire		P0300,P0301,P0302,P0303,P030 4,P0305,P0306,P0307,P0308						
	%	5.00031	6.50024	8.50067	10.00061	13.00049	17.99927		
	rad/s^2	95	110	140	150	170	180		
P0300-2	Method 3: Filtered angular acceleration of		P0300,P0301,P0302,P0303,P030						
	% rad/s^2	5.00031 75	6.50024				17.99927 135		
	liamaz	/5	95	135	135	135	135		

#### **DIAGNOSTIC SUMMARY TABLES -- ECM** TEST GROUP: KGMXV04.2088

Table no. P0300-4

OBD GROUP: KGMXOBDG07

Method 1: Angular acceleration of crankshaft in transmission grip state (clutch is engaged), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire

Fault Codes P0300,P0301,P0302,P0303,P030 4,P0305,P0306,P0307,P0308

rpm / %	8.00018	14.99939	25.99945	32.00073	39.99939	50	60.00061	69.99969
650	100	225	385	490	550	685	725	750
1200	113.375	230	395	495	570	700	740	780
1900	110	220	408.313	506.188	613	736	783	800
2700	106.313	198.125	393.438	491.5	597.75	756.125	1000	1050
3500	110	213.75	415	500	603.875	758	1000	1050
4200	115	235.375	410	515	605	704	920	1050
5000	120	241.625	438.063	532.313	649.75	795.75	1000	1050
5800	125	290	500	700	885	1050	1000	1050

P0300-5 Method 3: Filtered angular acceleration of crankshaft in transmission grip state (clutch is engaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires

P0300,P0301,P0302,P0303,P030 4,P0305,P0306,P0307,P0308

rpm / %	8.00018	14.99939	25.99945	32.00073	39.99939	50	60.00061	69.99969
650	60	90	210	255	250	275	275	275
1200	60	100	235	265	250	275	275	275
1900	80	150	255	285	250	345	345	345
2700	85	170	230	285	325	370	370	370
3500	85	125	240	300	375	375	375	375
4200	85	115	255	310	405	465	465	465
5000	85	165	240	295	405	600	600	600
5800	85	165	320	370	445	815	815	815

P0300-7 Method 1: Angular acceleration of crankshaft in transmission open state (clutch is disengaged), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire

P0300,P0301,P0302,P0303,P030 4,P0305,P0306,P0307,P0308

rpm / %	8.00018	14.99939	25.99945	32.00073	39.99939	50	60.00061	69.99969
650	100	225	385	490	550	685	725	750
1200	113.375	230	395	495	570	700	740	780
1900	110	220	408.313	506.188	613	736	783	800
2700	106.313	198.125	393.438	491.5	597.75	756.125	1000	1050
3500	110	213.75	415	500	603.875	758	1000	1050
4200	115	235.375	410	515	605	704	920	1050
5000	120	241.625	438.063	532.313	649.75	795.75	1000	1050
5800	125	290	500	700	885	1050	1000	1050

P0300-8 Method 3: Filtered angular acceleration of crankshaft in transmission open state (clutch is disengaged), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires

P0300,P0301,P0302,P0303,P030 4,P0305,P0306,P0307,P0308

rpm / %	8.00018	14.99939	25.99945	32.00073	39.99939	50	60.00061	69.99969
650	60	90	210	255	250	275	275	275
1200	60	100	235	265	250	275	275	275
1900	80	150	255	285	250	345	345	345
2700	85	170	230	285	325	370	370	370
3500	85	125	240	300	375	375	375	375
4200	85	115	255	310	405	465	465	465
5000	85	165	240	295	405	600	600	600
5800	85	165	320	370	445	815	815	815

P0300-10 Method 1: Angular acceleration of crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire

P0300,P0301,P0302,P0303,P030 4,P0305,P0306,P0307,P0308 EMISSIONS STDS: CAL--ULEV125, FED--BIN125

# DIAGNOSTIC SUMMARY TABLES -- ECM OBD GROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125, FED--BIN125

Table no. Label Fault Codes

rpm / %	8.00018	14.99939	25.99945	32.00073	39.99939	50	60.00061	69.99969
650	100	225	385	490	550	685	725	750
1200	113.375	230	395	495	570	700	740	780
1900	110	220	408.313	506.188	613	736	783	800
2700	106.313	198.125	393.438	491.5	597.75	756.125	1000	1050
3500	110	213.75	415	500	603.875	758	1000	1050
4200	115	235.375	410	515	605	704	920	1050
5000	120	241.625	438.063	532.313	649.75	795.75	1000	1050
5800	125	290	500	700	885	1050	1000	1050

P0300-11 Method 3: Filtered angular acceleration of crankshaft in transmission slip state (clutch is slipping), compared to threshold primarily used to detect various forms of single cylinder and multiple cylinder continuous misfires P0300,P0301,P0302,P0303,P030 4,P0305,P0306,P0307,P0308

rpm / %	8.00018	14.99939	25.99945	32.00073	39.99939	50	60.00061	69.99969
650	60	90	210	255	250	275	275	275
1200	60	100	235	265	250	275	275	275
1900	80	150	255	285	250	345	345	345
2700	85	170	230	285	325	370	370	370
3500	85	125	240	300	375	375	375	375
4200	85	115	255	310	405	465	465	465
5000	85	165	240	295	405	600	600	600
5800	85	165	320	370	445	815	815	815

P0300-14 Method 1: Angular acceleration of crankshaft in half-engine mode state, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire P0300,P0301,P0302,P0303,P030 4,P0305,P0306,P0307,P0308

rpm / %	5.00031	10.00061	14.99939	17.99927	25	30.00031	35.00061	39.99939
650	100	190	250	300	400	500	2047.938	2047.938
1000	100	190	250	300	400	500	2047.938	2047.938
1500	74	190	293	335	400	500	2047.938	2047.938
2000	66	173	260	331	400	500	2047.938	2047.938
2500	100	173	260	334	400	500	2047.938	2047.938
3000	100	173	260	334	400	500	2047.938	2047.938
3500	2047.938	2047.938	2047.938	2047.938	2047.938	2047.938	2047.938	2047.938
4000	2047.938	2047.938	2047.938	2047.938	2047.938	2047.938	2047.938	2047.938

P0300-15 Method 1: Angular acceleration of crankshaft in catalyst heating, compared to threshold primarily used to detect single random misfire as well as single cylinder continuous misfire P0300,P0301,P0302,P0303,P030 4,P0305,P0306,P0307,P0308

%	2.99988	5.99976	8.99963	11.99951	14.99939	17.99927
rad/s^2	175	175	200	245	305	550

P0300-18 Method 3: Filtered angular acceleration of crankshaft in half-engine mode state, compared to threshold primarily used to detect various forms of single cylinder and multiple

P0300,P0301,P0302,P0303,P030 4,P0305,P0306,P0307,P0308

cylinder continuous mistires								
rpm / %	5.00031	10.00061	14.99939	17.99927	25	30.00031	35.00061	39.99939
650	100	200	300	400	500	600	2047.938	2047.938
1000	100	200	300	400	500	600	2047.938	2047.938
1500	82.063	200	300	400	500	600	2047.938	2047.938
2000	82.063	190.625	276	400	500	600	2047.938	2047.938
2500	60	190	276.125	400	500	600	2047.938	2047.938
3000	2047.938	2047.938	2047.938	2047.938	2047.938	2047.938	2047.938	2047.938
3500	2047.938	2047.938	2047.938	2047.938	2047.938	2047.938	2047.938	2047.938
4000	2047.938	2047.938	2047.938	2047.938	2047.938	2047.938	2047.938	2047.938

OBD GR	OUP: KGMXOBDG07			OSTIC SUMMARY TAB	LES E	СМ			EMIS	SSIONS STD	S: CALU	JLEV125. F	EDBIN12
Table no.		Label	Fault Codes P0300,P0301,P0302,P0303,P030 4,P0305,P0306,P0307,P0308							3.0		,	
	% rad/s^2	2.99988 250		8.99963 250	11.99951 250	14.99939 335	17.99927 335						
P0300-20	[A] Threshold zero torque at crankshaft, driving state		P0300,P0301,P0302,P0303,P030 4,P0305,P0306,P0307,P0308										
	rpm %	5.32074	1500 6.06995	2000 6.30035	2500 7.09991	3000 7.51038	4000 10.40039	5000 14.05029	6000 16.07971				
P0300-23	[D] Threshold zero torque at crankshaft, idle state	050	P0300,P0301,P0302,P0303,P030 4,P0305,P0306,P0307,P0308	2000	2500	2000	4000	5000	cono				
	rpm %	650 5.32074	1500 6.06995	2000 6.30035	2500 7.09991	3000 7.51038	4000 8.14972	5000 9.28955	6000 10.09064				
P0300-24	[E] Threshold zero torque, half-engine mode state, driving		P0300,P0301,P0302,P0303,P030 4,P0305,P0306,P0307,P0308										
	rpm %	650 2.00043	1500 4.89044	2000 5.11932	2500 5.52979	3000 5.90057	4000 5.90057	5000 5.90057	5.90057				
P0300-25	[F] Threshold zero torque, half-engine mode state, idle	650	P0300,P0301,P0302,P0303,P030 4,P0305,P0306,P0307,P0308	2000	2500	3000	4000	5000	6000				
	rpm %	2.00043	1500 4.89044	2000 5.11932	2500 5.52979	3000 5.90057	4000 5.90057	5000 5.90057	6000 5.90057				
P0422-1	Difference between max. tank differential pressure & min. tank differential pressure (A-B)		P0442										
	I / °C	-7.5 5.50049	-2.3 5.50049	3.8 5.50049	9 5.50049	14.3 5.50049	20.3 5.50049	25.5 5.50049	30.8 5.50049	36.8 5.50049			
	15	4.49951	4.49951	4.49951	4.49951	4.49951	4.49951	4.49951	4.49951	4.49951			
	22 29	4.00024 3.49976	4.00024 3.49976	4.00024 3.49976	4.00024 3.49976	4.00024 3.49976	4.00024 3.49976	4.00024 3.49976	4.00024 3.49976	4.00024 3.49976			
	36	5	5	5	5	5	5	5	5	5			
	43 50	5 3,49976	5 3.49976	5 3.49976	3,49976	3,49976	3,49976	5 3,49976	5 3,49976	3.49976			
	57 64	3.00049 3.00049	3.00049 3.00049	3.00049 3.00049	3.00049 3.00049	3.00049 3.00049	3.00049 3.00049	3.00049 3.00049	3.00049 3.00049	3.00049 3.00049			
P0422-2	Tank pressure gradient	7.5	P0442	20.5	27	33.5	40	46.5	53	59.5	66		
	hPa/sec	0.00701	0.00999	0.015998	0.015998	0.015998	0.015998	0.02501	0.029993	0.029993	0.029993		
P2177-1	Torque commanded to charge control		P2177, P2178, P2179, P2180, P2187, P2188, P2189, P2190										
	Engine Speed (rpm)	0	4160	4800	4840								
	Torque change (%)	44.99969	44.99969	39.99939	0								
P2177-2	Torque commanded to charge control		P2177, P2178, P2179, P2180, P2187, P2188, P2189, P2190										
		760	920	1120 8.00018	6000 8.00018								
	Engine Speed (rpm)		35 00004										
	Engine Speed (rpm) Torque change (%)  Blocking time for activation LC after acceleration enrichment	99.98932	35.00061 P2177, P2178, P2179, P2180, P2E68, P2E69, P2E6A, P2E6B, P2187, P2188, P2189, P2190	0.000101	8.00010								
	Torque change (%)  Blocking time for activation LC after		P2177, P2178, P2179, P2180, P2E68, P2E69, P2E6A, P2E6B, P2187, P2188, P2189, P2190	-9.8	0	20.3	39.8 0.4	60	90 0.3				

			DIAGNO	STIC SUMMARY TAE	LES EC	М			
OBD GR	OUP: KGMXOBDG07		TEST GR	OUP: KGMXV04.2088					EMISSIONS STDS: CALULEV125, FEDBIN125
Table no.		Label	Fault Codes						
P2177-6	Blocking time for activation LC after deceleration enleanment		P2177, P2178, P2179, P2180, P2E68, P2E69, P2E6A, P2E6B, P2187, P2188, P2189, P2190						
	Temperature (Grad C) Time (s)	-39.8 1	-20.3 1	-9.8 1	0	20.3 0.5	39.8 0.5	60 0.5	90 0.5
P2E68-1	Torque commanded to charge control		P2E68, P2E69, P2E6A, P2E6B						
	Engine Speed (rpm) Torque change (%)	1000	1160 30.00031	2320 30.00031	2520 2.99988				
P2E68-2	Torque commanded to charge control		P2E68, P2E69, P2E6A, P2E6B						
	Engine Speed (rpm) Torque change (%)	1000 99.98932	1200 8.99963	1400 3.99933	2520 3.99933				
P2187-1	Torque commanded to charge control		P2187, P2188, P2189, P2190						
	rpm %	0 14.99939	800 14.99939	920 11.99951	960 0				
P2187-2	Torque commanded to charge control		P2187, P2188, P2189, P2190						
	rpm %	440 99.98932	480 3.99933	600 3.99933	6000 3.99933				
P2096-2	Relative air mass		P2096, P2097, P2098, P2099, P2195, P2196, P2197, P2198						
	rpm %	800 90	1000 90	1200 80.3	1400 75	1800 60	2400 50.3	2600 39.8	3600 30
P2096-3	Relative air mass		P2096, P2097, P2098, P2099, P2195, P2196, P2197, P2198						
	rpm %	800 20.3	1000 20.3	1200 20.3	1400 20.3	1800 20.3	2400 20.3	2600 24.8	3600 24.8
P2096-4	Relative air mass		P2096, P2097, P2098, P2099, P2195, P2196, P2197, P2198						
	rpm %	800 90	1000 90	1200 80.3	1400 75	1800 60	2400 50.3	2600 39.8	3600 30
P2096-5	Relative air mass		P2096, P2097, P2098, P2099, P2195, P2196, P2197, P2198						
	rpm %	800 15	1000 15	1200 15	1400 15	1800 17.3	2400 20.3	2600 20.3	3600 20.3
P2237-1	Ratio of heat quantity for dew-point end detection sensor 1 and heat quantity thresho for dew-point end detection sensor 1 bank 1		P2237						
	deg C / deg C	-40.04	-10.04	-0.04	9.96	19.96	59.96	99.96	
	-40. -10.	04 0.40625 04 0.203125	0.203125 0.203125	0.203125 0.101563	0	0	0	0	
	-0. 9.	0.203125	0.101563	0.101563	0	0	0	0	
	19.	96 0	0	0	0	0	0	0	
	59. 99.			0	0	0	0	0	
	99.	U	U	U	U	U	U	U	

DIAGNOSTIC SUMMARY TABLES -- ECM OBD GROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125, FED--BIN125 Table no. Label Fault Codes P2240-1 Ratio of heat quantity for dew-point end P2240 detection sensor 1 and heat quantity threshold for dew-point end detection sensor 1 bank 2 deg C / deg C -10.04 0.20312 -40.04 0.4062 0.20312 -10.04 0.20312 0.20312 -0.04 9.96 19.96 P0138-1 (b) Downstream O2 sensor heat threshold for P0138, P0036, P0037, P0038 release of heating (kJ) -40 04 -10.04 -5.04 9 96 19 96 29.96 44 96 59 96 99 96 -40 04 108 100 80 60 53 58 -10.04 120 64 64 48 80 43 -5.04 120 80 60 47 41 -0.04 120 80 64 58 40 9.96 19.96 120 43 26 29.96 120 64 38 59.96 120 64 34 79.96 120 P0138-2 (c) adjustment factor P0138, P0036, P0037, P0038 19.96 0.25 -20.04

P0138-3 (b) Downstream O2 sensor heat threshold for

release of heating (kJ)

P0138, P0036, P0037, P0038

deg C / deg C	-40.04	-10.04	-5.04	-0.04	9.96	19.96	29.96	44.96	59.96	99.96
-40.04	96	88	84	80	74	74	74	74	68	64
-10.04	96	64	57	54	52	52	52	50	36	32
-5.04	96	64	52	48	47	45	45	42	30	25
-0.04	96	64	50	42	40	38	36	34	27	20
9.96	96	60	48	40	36	33	30	24	18	12
19.96	96	60	48	39	34	28	24	20	12	4
29.96	96	60	48	39	34	26	21	15	0	0
59.96	96	56	46	39	33	24	20	12	0	0
79.96	96	56	46	39	32	22	18	9	0	0
99.96	96	54	46	39	29	21	15	6	0	0

P0138-4 (c) adjustment factor

P0138, P0036, P0037, P0038

-	deg C	-20.04	-0.04	19.96	54.96
-	=	0.4	0.5	0.25	0

P0158-1 (b) Downstream O2 sensor heat threshold for release of heating (kJ)

P0158, P0056, P0057, P0058

deg C / deg C	-40.04	-10.04	-5.04	-0.04	9.96	19.96	29.96	44.96	59.96	99.96
-40.04	120	120	108	100	80	80	72	60	53	40
-10.04	120	80	72	68	64	64	58	48	43	32
-5.04	120	80	68	64	60	58	56	47	41	31
-0.04	120	80	64	62	58	56	54	45	40	30
9.96	120	80	62	60	48	48	43	36	32	24
19.96	120	72	56	54	43	36	35	29	26	20
29.96	120	64	50	48	38	31	27	24	9	9
59.96	120	64	46	42	34	27	21	15	0	0
79.96	120	64	40	36	29	23	18	9	0	0
99.96	120	60	40	36	29	23	18	9	0	0

P0158-2 (c) adjustment factor

P0158, P0056, P0057, P0058

			DIAGNO	OSTIC SUMMARY TAB	LES E	СМ							
OBD GR	OUP: KGMXOBDG07			ROUP: KGMXV04.2088					EMISSION	IS STDS: CA	LULEV12	5, FEDB	IN125
Table	• • •	hal -	·		_	·					_	_	
Table no.	deg C	-20.04	ault Codes -0.04		54.96								
	-	0.4	0.5	0.25	0								
P0158-3	(b) Downstream O2 sensor heat threshold for release of heating (kJ)		P0158, P0056, P0057, P0058										
	deg C / deg C	-40.04	-10.04	-5.04	-0.04	9.96	19.96	29.96		9.96 99.96			
	-40.04 -10.04	96 96	88 64	84 57	80 54	74 52	74 52	74 52	74 50	68 64 36 32			
	-10.04 -5.04	96	64 64	52	48	47	45	45	42	30 25			
	-0.04	96	64	50	42	40	38	36	34	27 20			
	9.96 19.96	96 96	60	48 48	40 39	36 34	33 28	30 24	24	18 12 12 4			
	19.96 29.96	96	60 60	48	39	34	28	21	15	12 4 0 0			
	59.96	96	56	46	39	33	24	20	12	0 0			
	79.96	96	56	46	39	32	22	18	9	0 0			
	99.96	96	54	46	39	29	21	15	6	0 0			
P0158-4	(c) adjustment factor		P0158, P0056, P0057, P0058										
	deg C	-20.04	-0.04	19.96	54.96								
	-	0.4	0.5	0.25	0								
P013A-1	(b) Exhaust mass flow dependent correction for transition response time of secondary O2 S2B1 Lean to Rich												
	kg/h	10	30	40	60	80	120						
	S	0.06	0.06	0.06	0.07	0.07	0.07						
P013A-2	(b) Exhaust mass flow dependent correction for transition response time of secondary O2 S2B1 Rich to Lean												
	kg/h	10 0.05	30 0.07	40 0.07	60 0.1	80 0.1	120 0.1						
	S	0.05	0.071	0.07	0.1	0.1	0.1						
P0141-1	Internal resistance of Secondary O2 HEGO sensor bank 1		P0141,										
	-/°C	350.006	500.006	599.991	699.998	849.998							
	0.6 0.65	16200 1000	3500 850	3150 750	3000 650	3000 500							
	0.03	1000	850	750	650	500							
	0.85	1000	850	750	650	500							
	1	1000	850	750	650	500							
P0141-2	engine speed for normal, non-repeated, key starts		,										
	hPa / deq C	-40.04	-0.04	39.96	79.96								
	800	700	600	600	600								
	900 1000	700 700	600 600	600 600	600 600								
	1100	700	600	600	600								
P0141-3	engine speed fo rrepeated key starts and Stop- Start		,										
	hPa / deq C	-40.04	-0.04	39.96	79.96								
	800 900	700 700	600 600	400 400	400 400								
	1000	700	600 600	400	400								
	1100	700	600	400	400								
P0141-4	detection of end of start by engine speed threshold and injection counts		,										
	deg C	-40.04	-0.04	39.96	79.96								
	-	32	-0.04 16	39.96	4								

BD GR	OUP: KGMXOBDG07		DIAGNOSTIC S TEST GROUP: K	SUMMARY TABLES ECM GMXV04.2088		EMISSIONS STDS:	CALULEV125, FEDBIN125	<b>i</b>
ible no.		Label Fault Codes						
ibic iio.		Tauk Oode.	•					
0161-1	Internal resistance of Secondary O2 HEGO sensor bank 2		P0161,					
	-/°C	350.006	500.006	599.991 699.998 849.998				
	0.6		3500	3150 3000 3000 750 650 500				
	0.50		850 850	750 650 500 750 650 500				
	0.85		850	750 650 500				
		1000	850	750 650 500				
)B-1	Charge pressure and air mass-dependent characteristic curve for calculating the monitoring limit of crankcase differential pressure		P04DB					
	kg/h / hPa	1300	1500	1700 1900 2100	2300 2500	2700		
	140		0.1	-0.55 -1.11 -1.71	-1.71 -1.71	-1.71		
	200 260	-1.34 -7.2	-1.4 -7.34	-2.05 -2.61 -3.21 -2.5 -2.97 -4.14	-3.21 -3.21 -6 -4.14	-3.21 -4.14		
	320		-7.34 -9.2	-2.5 -2.97 -4.14 -4.5 -3.2 -5.1	-6 -4.14 -7 -5	-4.14 -5		
	380	-10	-10.99	-6 -4.13 -6.06	-8 -6.06	-6.06		
	440	-13	-14	-8.13 -4.13 -9.88	-11 -9.88	-9.88		
	500 560		-17 -17	-11 -4.13 -12.88 -11 -4.13 -12.88		-12.88 -12.88		
	300	-10]	-1/	11] -4.10] -12.00	17] -12.00	.2.00		
8-1	(d1) temperatue model correction dependent on vehicle speed and ambient temperature		,					
	km/h / deg C	-40.04	-15.04	-10.04 -0.04 19.96		79.96		
	(	-0.0000488	-0.0000488	-0.0000488 -0.0000488 -0.0000488		00488		
	30		-0.0360596 -0.0510498	-0.0350586 -0.0330566 -0.0310547 -0.0500488 -0.0480469 -0.0460449		80518 43042		
	80		-0.0510498	-0.0500488 -0.0480489 -0.0480449		80469		
	120		-0.0620605	-0.0610596 -0.0590576 -0.0570557		40527		
	150		-0.068042	-0.067041 -0.0650391 -0.0630371	-0.0620605 -0.0610596 -0.06	00586		
	180		-0.0740479	-0.0730469 -0.0710449 -0.069043		06604		
	200	-0.0810547	-0.0800537	-0.0790527 -0.0770508 -0.0750488	-0.0740479 -0.0730469 -0.07	20459		
-2	(c ) correction factor for temperature difference over the radiator	,	,					
	K	-20	-10	0 5 10	15 20	25 30	35 40 50 0 0.0179932 0.0300049	60 0.05 0.
	deq C/s	U U	0]	0] 0] 0	0  0	0 0	0 0.0179932 0.0300049	0.05
-3	(a) temperature increment depending on inner torque and ambient temperature		,					
	deq C / W -5.04	0	508.9 0.0050049	2507 4995.1 7502.1 0.05 0.075 0.0824951		0007.3 99996.9 15000 0.125 0.15 0.1800		
	-5.0 <sup>4</sup> 29.90		0.0050049	0.051001 0.0764893 0.0841553			938 0.2040039 0.2243896	
ı	(b) Correction factor dependent on vehicle speed and ambient temperature							
	deg C / km/h	0	4	7 10 20	40 60		100 120 160	
	-40.04		1	1 1 1.040039	1.060059 1.089966 1.1	09985 1.130005 1.140	015 1.150024 1.160034	
	-10.04		1	1 1 1.030029		94971 1.11499 1.		
	9.96		1	1 1 1.02002 1 1 1.001953		79956 1.099976 1.109 62012 1.082031 1.092		
	29.96 39.96		1 1	1 1 1.001953 1 1 1.000977		62012 1.082031 1.092 61035 1.081055 1.090		
	69.96	1	1	1 1 1	1.02002 1.040039 1.0	60059 1.079956 1.089	966 1.099976 1.109985	
3-5	monitoring delay time since engine start							
	K	-40	-10	0 10 30	50 70	90		
	s	60	45	25 15 10	10 10	10		
50A-1	Temperature inside first brick of front catalyst during start		,					

				STIC SUMMARY TAB	LES EC	CM								
OBD GR	OUP: KGMXOBDG07		TEST GR	OUP: KGMXV04.2088					EMISS	IONS STE	S: CAL	ULEV125,	FEDBIN	125
Table no.		Label F	ault Codes											
	deg C	0.200012 439.96	0.5 429.96	0.700012 419.96	399.96									
P053F-1			P053F, P05CC , P05CD											
	-/°C	-15.04	-10.04	-0.04	9.96	19.96	39.96							
	0.700012 0.799988	2 45 3 42.5	45 42.5	42.5 40	40 37.5	40 35	40 35							
	0.900024	40	40	37.5	35	30	30							
	1	40	40	35	30	25	25							
P05CC-1	for time		P05CC , P05CD											
	deg C	-20.04	-0.04	19.96	39.96	59.96	79.96							
	S	4	4)	3	2	2	2							
P05CC-2	Engine Speed		P05CC, P05CD											
	deg C rpm	-20.04 1150	-0.04 1000	119.96 1000	139.96 1000									
	Ipin	1130	1000	1000	1000									
P0111-1	Integrated Air mass flow		P0111											
	deq C	-30.04 20.02	-20.04 10.01	-0.04 1										
	NU	20.02	10.011	I I										
P00AB-1	Integrated Air mass flow		P00AB											
	deg C kg	-30.04 20.02	-20.04 10.01	-0.04										
	KQ	20.02	10.011	II.										
P0096-1	Integrated Air mass flow		P0096											
	Deg C	-30.04 20.02	-20.04	-0.04										
	Kq	20.02	10.01	1										
P00A6-1	Integrated Air mass flow		P00A6											
	Deg C	-30.04	-20.04	-0.04										
	Kq	20.02	10.01	1										
P057B-1	difference of the brake sensor voltage corresponds to a corrected value of		3											
	mV	0	34.6	35	40	45	51	51.2	4999	5000				
	-	0	0	0	0	0	0	1	1	1				
P0191-1	difference threshold for plausibility error detection high pressure dual sensor		y											
	-	0	300	1000	2000	3500								
	<u> -</u>	100	100	100	200	200								
P0326-1			P0326, P0331, P032B, P033B											
	Engine Speed (rpm)	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500
	Lower Threshold (V*ms)	0.525	0.675	0.75	0.825	0.9	0.975	0.9	0.975	1.05	1.125	1.2	1.275	1.35
P0326-2			P0325, P0326, P032A, P032B, P0330, P0331, P033A, P033B, P06B6											

	OUD. KOMYODDOOZ		DIAGNOSTIC S		ES EC	, IVI			E14100	10110 077	0. 041	III EV405	FED 5	
SD GF	ROUP: KGMXOBDG07		TEST GROUP: K	JIVI X VU4.2088					EMISS	IONS STD	5: CAL	ULEV125,	FEDBIN	1125
ole no.	Label	Fault Co	des											
	Threshold (%) \ Engine Speed (rpm)	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6
	45	120	120	120	120	120	120 120	120	100	100	100	100	100	
	60 100	120 120	120 120	120 120	120 120	120 120	120	120 120	100 100	100	100	100 100	100 100	
	140	240	240	240	240	240	240	240	200	200	200	200	200	
2138-1	Curve to calculate permitted maximum for difference of signal voltages of Accelerator pedal sensor 1 and sensor 2		P2138											
	Accelerator Pedal Voltage (mV)	500	2100	2100.2										
	Permitted difference signal voltage between		180											
	Accelerator Pedal sensor 1 and sensor 2	400		400										
	(mV)	120		180										
121-1	Absolute difference between relative actual angle calculated based on voltages from sensor 1 and sensor 2		P0121, P0221											
	%	0	5	10	15	100								
	%	5	5	6.25	6.25	6.25								
226-1	Absolute difference between relative actual angle calculated based on voltages from sensor 1 and sensor 2		P0226, P212B											
	%	0	5	10	15	100								
	%	5	5	6.25	6.25	6.25								
24-1	minimal required oil pressure depending on operation point		P0524		ı									
	Engine coolant temp (degC)/Engine speed (rpm)	100	600	2500	3000	3500	4000	5000	6000					
	-0.04	-70	35	35	49	66	86	130	182					
	19.96	-70	35	35	49	66	86	130	182					
	39.96	-70	35	35	49	66	86	130	182					
	59.96	-70 70	35	35	49 49	66	86	130	182					
	79.96 99.96	-70 -70	35 35	35 35	49	66 66	86 86	130 130	182 182					
	119.96	-70	35	35	49	66	86	130	182					
	139.96	-70	35	35	49	66	86	130	182					
24-2	debounce time for low oil pressure warning		P0524											
	deg C	-40.04	-20.04	-0.04	20.96									
	s	15	10	3.5	2.2									
DD-1	maximum threshold oil pressure control		P06DD											
DD-1	Engine coolant temp (degC)/Engine speed		P06DD											
DD-1	Engine coolant temp (degC)/Engine speed (rpm)	0	400	550	800	2400	2800	4000	4800	5400	6000			
DD-1	Engine coolant temp (degC)/Engine speed (rpm) -40.04	800	400 800	300	300	300	300	300	300	300	300			
DD-1	Engine coolant temp (degC)/Engine speed (rpm) -40.04 -10.04	800 800	400 800 800	300 300										
DD-1	Engine coolant temp (degC)/Engine speed (rpm) -40.04 -10.04 -0.04 19.96	800 800 800 800	400 800 800 800 800	300 300 100 100										
DD-1	Engine coolant temp (degC)/Engine speed (rpm)  -40.04  -10.04  -0.04  19.96  39.96	800 800 800 800 800	400 800 800 800 800 800	300 300 100 100 100	300 300 100 100 100	300 300 100 100	300 300 100 100	300 300 100 100	300 300 100 100	300 300 100 100 100	300 300 100 100			
DD-1	Engine coolant temp (degC)/Engine speed (rpm)  -40,04  -10,04  -0,04  19,96  39,96  59,96	800 800 800 800 800 800	800 800 800 800 800 800 800 800	300 300 100 100 100 100	300 300 100 100 100 100	300 300 100 100 100	300 300 100 100 100	300 300 100 100 100 100	300 300 100 100 100 100	300 300 100 100 100	300 300 100 100 100			
DD-1	Engine coolant temp (degC)/Engine speed (rpm)  -40.04  -10.04  -19.96  39.96  59.96  79.96	800 800 800 800 800 800 800	400 800 800 800 800 800 800 800 800	300 300 100 100 100 100 100	300 300 100 100 100 100 100	300 300 100 100 100 100 100	300 300 100 100 100 100 100	300 300 100 100 100 100 100	300 300 100 100 100 100 100	300 300 100 100 100 100	300 300 100 100 100 100			
DD-1	Engine coolant temp (degC)/Engine speed (rpm)  -40.04  -10.04  -0.04  19.96  39.96  59.96  79.96	800 800 800 800 800 800 800 800	400 800 800 800 800 800 800 800	300 300 100 100 100 100 100 100	300 300 100 100 100 100 100	300 300 100 100 100 100 100 100	300 300 100 100 100 100 100 100	300 300 100 100 100 100 100 100	300 300 100 100 100 100 100	300 300 100 100 100 100 100	300 300 100 100 100 100 100			
DD-1	Engine coolant temp (degC)/Engine speed (rpm)  -40.04  -10.04  -19.96  39.96  59.96  79.96	800 800 800 800 800 800 800	400 800 800 800 800 800 800 800 800	300 300 100 100 100 100 100	300 300 100 100 100 100 100	300 300 100 100 100 100 100	300 300 100 100 100 100 100	300 300 100 100 100 100 100	300 300 100 100 100 100 100	300 300 100 100 100 100	300 300 100 100 100 100			
	Engine coolant temp (degC)/Engine speed (fpm)  -40.04  -10.04  -19.96  39.96  59.96  79.96  99.96  119.96	800 800 800 800 800 800 800 800 800	400 800 800 800 800 800 800 800 800 800	300 300 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100			
	Engine coolant temp (degC)/Engine speed (rpm)  -40.04  -10.04  -19.96  39.96  59.96  79.96  99.96  1119.96  149.96	800 800 800 800 800 800 800 800 800	400 800 800 800 800 800 800 800	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100			
	Engine coolant temp (degC)/Engine speed (fpm)  -40.04  -10.04  -19.96  39.96  59.96  79.96  99.96  119.96  149.96  minimum threshold oil pressure control  Engine coolant temp (degC)/Engine speed (fpm)	800 800 800 800 800 800 800 800 800 800	400 800 800 800 800 800 800 800	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100			
	Engine coolant temp (degC)/Engine speed (rpm)  -40.04  -10.04  -19.96  -39.96  -59.96  -79.96  -99.96  -119.96  -149.96  minimum threshold oil pressure control  Engine coolant temp (degC)/Engine speed (rpm)  -40.04	800 800 800 800 800 800 800 800 800 800	400 800 800 800 800 800 800 800	300 300 100 100 100 100 100 100	300 300 100 100 100 100 100 100	300 300 100 100 100 100 100 100	300 300 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100			
	Engine coolant temp (degC)/Engine speed (fpm)  -40.04  -10.04  -19.96  39.96  59.96  79.96  99.96  119.96  149.96  minimum threshold oil pressure control  Engine coolant temp (degC)/Engine speed (fpm)	800 800 800 800 800 800 800 800 800 800	400 800 800 800 800 800 800 800	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100	300 300 100 100 100 100 100 100 100 100			

				SUMMARY TABLES	S ECM				
BD GR	OUP: KGMXOBDG07		TEST GROUP: 1	GMXV04.2088			E	MISSIONS STDS:	CALULEV125, FEDBIN1
able no.	Label	Fault Cod	loe.						
able 110.	39.96	-800	-800	-70	-70 -70	-70	-70	-70 -70	-70
	59.96 79.96	-800 -800	-800 -800	-50 -50	-70 -70 -70 -70				-70 -70
	99.96	-800	-800	-40	-70 -70	-70	-70	-70 -70 -70 -70	-70 -70
	119.96	-800	-800	-40	-70 -70	-70	-70	-70 -70	-70
	149.96	-800	-800	-40	-70 -70	-70	-70	-70 -70	-70
P0616-1	dynamic thresholds for SCG detection		P0616, P26E5						
	mV	4000	5000		7000 8000				
	mV	1950	2500	2950	3350 4000	4500			
P2261-1	Ratio pressure downstream to upstream compressor		P2261,P00C4						
	dm^3/s	17.625	34.969		8.094 155.813				
	-	1.069946	1.50293	2.302979 2.73	3.259033	3.445923			
P2261-2	Ratio pressure downstream to upstream compressor (bank 2)		P2261,P00C4						
	dm^3/s	18.25	32.688		9.875 150.688				
	<u> -  </u>	1.069946	1.505005	2.296997 2.6	3.220947	3.407959			
P2261-3	Set intake manifold pressure		P2261,P00C4						
	rpm hPa	1000	2000 100	4000 250	350				
	nPa	U	100]	250	350				
P3499-1	for time	, ozal		4500	2000		1000		
	rpm s	650 0.84	1000 0.78	1500 0.62	2000 2500 0.54 0.5	3000 0.46	4000 0.42		
P00C6-1	Fuel rail pressure								
	deg C MPa	-40.04 12	-20.04 12	-10.04 7	7 19.96		89.96 109 7	7	
P00C6-2	for number of synchronous counts	124	12]	.,	.,			<u></u>	
	deq C	-30.04	-20.04	-0.04	19.96 59.96	89.96			
	-	48	40	16	16 16				
P00C6-3	for time								
	deq C	-30.04	-20.04	-0.04 1	19.96 59.96	89.96			
	S	ь	51	4]	3] 2	2			
P00C6-4	A: Number of working cycle during preinjection								
	deq C	-40.04	-10.04	-5.04					
	<u>-</u>	1	1	0					
P3499-2	for time								
	rpm	650	1000		2000 2500		4000		
	s	0.85	0.77	0.65	0.6	0.6	0.6		
P0234-1	Delta-boost pressure control deviation								
	hPa	-500	-250	0	250 500	750	1000 12	270	
	hPa	750	750	550	450 400	400	375	375	

			DIAGNO	OSTIC SUMMARY TA	BLES E	СМ							
OBD GR	OUP: KGMXOBDG07		TEST GR	OUP: KGMXV04.2088					EMIS	SIONS ST	DS: CAL	ULEV125	, FEDBIN125
Table no. P02CA-1		Label	Fault Codes										
	hPa hPa	-500 750		0 550		500 400	750 400	1000 375	1270 375				
P0171-1	Canister purge mass flow												
	- kg/h	3	0.25	0.5 0.5	1								
P0299-1	Engine speed												
	hPa rpm	600 3200											
P0628-1	Pre Supply Pump output voltage												
	mV mV	4000 1950		6000 2950	7000 3350	8000 4000	9000 4500						
P262B-4	Accumulated ecu-on-time since last ignition-off event												
	- S	120		0.100098 240	0.200195 600	0.299805 1200	0.399902 2400	0.5 3600	0.600098 4800	0.700195 6000	0.799805 7200	0.899902 8400	1 9600
P262B-2	Accumulated ecu-on-time since last ignition-off event												
	<u>-</u> S	120		0.100098 240	0.200195 600	0.299805 1200	0.399902 2400	0.5 3600	0.600098 4800	0.700195 6000	0.799805 7200	0.899902 8400	1 9600
P262B-3	Threshold value of calculated engine off time												
	- min	60		0.1001 120	0.1499 180	0.2002 240	0.2998 300	0.3999 400	0.5 550	0.6001 700	0.7002 900	0.7998 1200	1 2000
P262B-1	Threshold value of calculated engine off time												
	- min	0	0.0700	0.1001 0	0.1499 10	0.2002 20	0.2998 40	0.3999 80	0.5 160	0.6001 240	0.7002 300	0.7998 360	1 420
P16D8-1	Power stage feedback voltage												
	mV mV	4000 1950		6000 2950	7000 3350	8000 4000	9000 4500						

This document is intended to meet the requirements documented in section 1998,2 of Title 13, California Code of Regulations entitled Modifications to Multinuction and Diagnosis System Requirements for 2004 and Subsequent Model Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines (OBD II), persgraphs (I)(2.2) for a table detailing supplemental california parameter data.

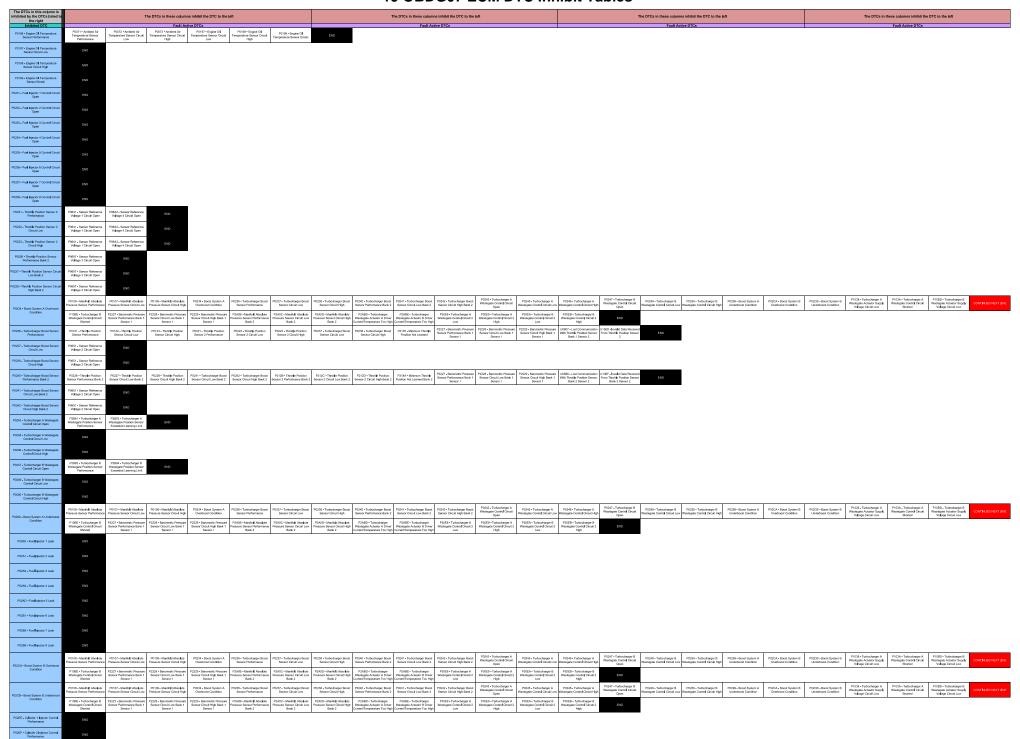
iote: If the same DTC appears in the "Inhibited DTC" column and again the "Fault Active DTCs" list, this indicate that the test is stopped for the remainder of the current drive ovide after test completion or fault detection.

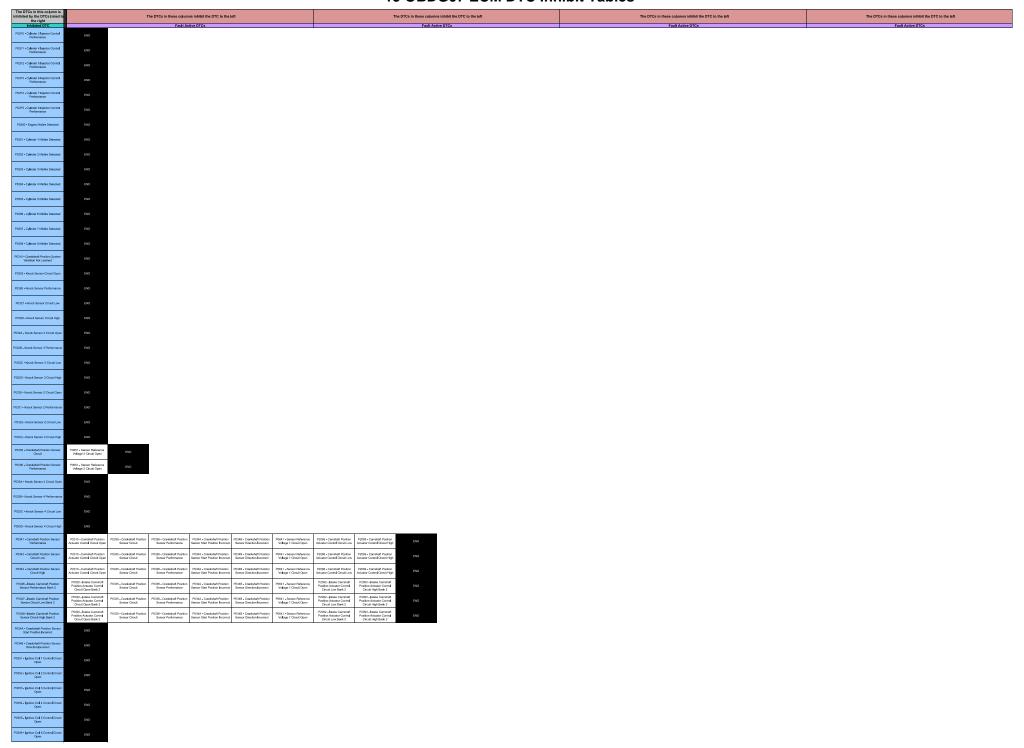
The DTCs in this column is inhibited by the DTCs listed to the right		occurs.	The DTCs in these colum		o left				The DTCs in these colum		left			1	The DTCs in these colum		left				e columns inhibit the DTC to	he left	
Inhibited DTC  9071F - Transmission Range Indicator	END		Fault A	ctive DTCs					Fault Ac	tive DTCs					Fault Ad	tive DTCs					Fault Active DTCs		
BZAGO - Door Open Switch Signal - Door Ajar Switch Signal Correlation B2800 - Central Gateway Module																							
82500 - Central Gateway Module Ignition Switch Run Start Position Circuit Low																							
805005 - Central Galeway Module Ignition Switch Run Start Position Circuit High																							
B2B11 - Central Gateway Module System Voltage Low																							
82812 - Central Galeway Module Control Module Memory																							
B2B13 - Central Catenay Module Control Module Internal Performance	END																			_			
P000A - Carrishalt Position System Slow Response Bank 1	P0010 - Carrishaft Position Actuator Control Circuit Oper	P0016 - Crankshaft to Carnehaft Correlation	P0017 - Crankshaft to Exhau Camahaft Correlation Bank	st P0018 - Crankshaft to Irrak Carrelation Bank	P0019 - Crankshaft to Exhau Carrehaft Correlation Bank 2	est P0005 - Crankshaft Position 2 Sensor Circuit	P0336 - Crankshaft Position Seneor Performance	P0941 - Carrishaft Position Sensor Performance	P0342 - Camshaft Position Sensor Circuit Low	P0343 - Camshaft Position Sereor Circuit High	P0346 - Intake Carrishaft Position Sensor Performand Bank 2	P0347 - Intake Camehaft Position Sensor Circuit Low Bank 2	P0348 - Intake Camehaft Position Sensor Circuit High Bank 2	P034A - Crankshaft Position Seneor Start Position Incorrect	P034B - Crankshaft Position Sensor Direction Incorrect	P0641 - Sensor Reference Voltage 1 Circuit Open	P2038 - Carrishaft Position Actualor Control Circuit Lov	P2089 - Camshaft Position Actuator Control Circuit High	END				
P0008 - Exhaust Camehaft Position System Slow Response Bank 1	P0013 - Exhaust Camehaft Position Actuator Control Circuit Open Bank 1	P0016 - Crankshell to Carrishall Cornilation	P0017 - Crankshaft to Exhau Camshaft Correlation Bank	st P0018 - Crankshoft to Intak Carrahaft Correlation Bank	P0019 - Crankshaft to Exhau Carrishaft Correlation Bank 2	est P0035 - Crankshaft Position 2 Sensor Circuit	P0336 - Crankshaft Position Sensor Performance	P034A - Crankshaft Position Sensor Start Position Income	P034B - Crankshaft Position Sensor Direction Incomect	P0366 - Exhaust Carrahaft Position Sensor Performance Bank 1	P0387 - Exhaust Carrelnal Position Sensor Circuit Los Bank 1	t P0368 - Exhaust Carrahaft Position Sensor Circuit High Bank 1	P0391 - Eshaust Carrahaft Position Sensor Performance Bank 2	P0362 - Exhaust Carrehaft Position Sensor Circuit Low Bank 2	P0393 - Exhaust Carrelraft Position Sensor Circuit High Bank 2	P0641 - Sensor Reference Voltage 1 Circuit Open	P2030 - Exhaust Carrehaft Position Actuator Control Circuit Low Bank 1	Position Actuator Control Circuit High Bank 1	END				
P000C - Intake Carrishaft Position System Slow Response Bank 2	P0016 - Crankshaft to Camshaft Correlation	P0017 - Cranksheft to Exhau Carnshaft Correlation Bank	pt P0018 - Crankshaft to Intake Camshaft Correlation Bank :	P0019 - Crankshaft to Exhau Camshaft Correlation Bank	P0020 - Intake Camshaft Position Actuator Control Circuit Open Bank 2	P0005 - Crankshaft Position Sensor Circuit	P0336 - Crankshaft Position Sensor Performance	P0341 - Carrehaft Position Sensor Performance	P0342 - Camehaft Position Sensor Circuit Low	P0343 - Camshaft Position Sensor Circuit High	P0346 - Intake Camshaft Position Sensor Performanc Bank 2	P0947 - Intake Carrishart pe Position Sensor Circuit Low Bank 2	P0348 - Intake Carnshaft Position Seneor Circuit High Bank 2	P034A - Crankshaft Position Sensor Start Position Incorrect	P034B - Grankshaft Position Sensor Direction Incorrect	P0641 - Sensor Reference Voltage 1 Circuit Open	P2092 - Insake Carnshaft Position Actuator Control Circuit Low Bank 2	P2093 - Intake Camshaft Position Actastor Control Circuit High Bank 2	END				
P000D - Edward Carrelath Position System Slow Response Bank 2	P0016 - Crankshaft to Camshaft Correlation	P0017 - Crankshaft to Exhau Camehaft Correlation Bank	P0018 - Crankshaft to Intake Camshaft Correlation Bank :	P0019 - Crankshaft to Exhau Carrishaft Correlation Bank		PCCC35 - Crankshaft Position Sensor Circuit	P0336 - Crankshaft Position Sensor Performance	P034A - Crankahaft Position Sensor Start Position Incorrec	P034B - Crankshaft Position Sensor Direction Incomect	P0366 - Exhaust Carrishoft Position Sensor Performance Bank 1	P097 - Exhaust Camshal Position Sensor Circuit Los Bank 1	t P0368 - Exhaust Carrishaft Position Sensor Circuit High Bank 1	P0391 - Exhaust Carrishaft Position Sensor Performance Bank 2	P0062 - Exhaust Camshaft Position Sensor Circuit Low Bank 2	P(093 - Exhaust Carnshaft Position Sensor Circuit High Bank 2	PD641 - Seneor Reference Voltage 1 Glouit Open	P2094 - Exhaust Carrishaft Position Actuator Control Circuit Low Bank 2		END				
P0010 - Cernshelf Position Actuator Control Circuit Open	P0010 - Carrishaft Position Actuator Control Circuit Open	P2068 - Carrishaft Position Actuator Control Circuit Lov	P2089 - Carnshaft Position Actuator Control Circuit High	END							ų.									_			
P0011 - Carnshaft Position System Parformance	P0010 - Carrishaft Position Actuator Control Circuit Open	P0016 - Crankshaft to Carrahaft Correlation	P0017 - Crankshaft to Exhau Clamshaft Complation Bank	st P0018 - Crankshaft to Intak Carnahaft Correlation Bank	e P0019 - Crankshaft to Exhau 2 Cernshaft Cornelation Bank 2	est P0335 - Crankshaft Position 2 Sensor Circuit	P0336 - Crankshaft Position Sensor Performance	P(G41 - Carrishaft Position Sensor Performance	P0342 - Camshaft Position Sensor Circuit Low	P0343 - Camshaft Position Sensor Circuit High	P0346 - Intake Carrelhaft Position Sensor Performano Bank 2	PCS47 - Intelos Cerretreft Position Sensor Circuit Low Bank 2	P0345 - Intako Carrobath Position Sensor Circuit High Bank 2	P034A - Crankshaft Position Sensor Start Position Incorrect	P034B - Crankshaft Position Sensor Direction Incorrect	P0641 - Sensor Reference Voltage 1 Circuit Open	P2088 - Carrishaft Position Actuator Control Circuit Los	P2089 - Camshaft Position Actuator Control Circuit High	END				
P0013 - Exhaust Camehaft Position Actuator Control Circuit Open Bank 1	P0013 - Exhaust Carrishaft Position Actuator Control Circuit Open Bank 1	P2000 - Exhaust Cerrshoft Position Actuator Control Circuit Low Bank 1	P2091 - Exhaust Carrishaft Position Actuator Control Circuit High Bank 1	END				1	1		1					J.							
P0014 - Eshazat Carrahaft Position System Performance Bank 1	P0013 - Exhaust Camshaft Position Actuator Control Circuit Open Bank 1	P0016 - Crankshaft to Carrehaft Correlation	P0017 - Crankshirt to Exhau Camphatt Correlation Bank	nt PC018 - Crankabelt to Intel Camphalt Correlation Bank	P0019 - Crankahaft to Exhau 2 Cernshell Correlation Bank 2	est PCCCSS - Creenkohert Position 2 Sensor Circuit	P0336 - Craniolast Position Sensor Performance	P034A - Crankshaft Position Sensor Start Position Incorns	P034B - Crankabatt Position Sensor Direction Incomect	P0366 - Exhaust Carrishoft Position Sensor Performance Bank 1	P0967 - Exhaust Carrishat Position Sensor Circuit Los Bank 1	t P0368 - Exhaust Carnshaft Position Sensor Circuit High	P0391 - Exhaust Carrishaft Position Sensor Performance Bank 2	P0992 - Exhaust Carrishaft Position Sensor Circuit Low Bank 2	P(093 - Exhaust Carrishaft Position Service Circuit High Bank 2	P0641 - Senacr Reference Voltage 1 Circuit Open	P2090 - Exhaust Camshaft Position Actuator Control Circuit Low Bank 1	P2091 - Exhaust Carnshaft Position Actuator Control Circuit High Stenk 1	END	Ī			
P0016 - Cranishalt to Carrihalt Completion	Circuit Open Bank 1  P0SSS - Crankshaft Position Sensor Circuit								P0851 - Sensor Reference Voltage 2 Circuit Open	Bank 1	stank 1	stank 1	usank 2	usek 2	mark 2		CIPCUE COW Blank 1	Carous High Blenk 1					
P0017 - Crankshaft to Exhaust Carnshaft Cornelation Bank 1	P0006 - Crankshaft Position Bensor Circuit		PEGAA - Crankshaft Position Sensor Start Position Income	P034B - Crankshaft Positio	P0366 - Exhaust Carrahaft		P0965 - Exhaust Carrelsali	DOGSS - General Bullemann	P0851 - Sensor Reference Voltage 2 Circuit Open	END													
Carrelati Correlation Blank 1  P0018 - Crankohart to Intake Carrehart Correlation Blank 2	P0035 - Crankshaft Position Sensor Circuit	+	P0346 - Intake Carrehaft Position Senecr Performano	P0347 - Intalos Carrishaft	Position Sensor Performance Bank 1 P0348 - Intake Carrelhaft Position Sensor Circuit High		Position Sensor Circuit High Bank 1 PCOSB - Crankshaft Position Sensor Direction Incorrect	P0641 - Sensor Reference Voltage 1 Circuit Open	Voltage 2 Circuit Open  P0651 - Sensor Reference  Voltage 2 Circuit Open	END													
P0019 - Crankshaft to Exhaust Carrisheft Correlation Bank 2	POSSS - Crankshaft Position Sensor Circuit		Bank 2	Position Sensor Circuit Los Bank 2 P034B - Crankatert Position Sensor Direction Incorrect	Position Sensor Circuit High Bank 2 P0391 - Exhaust Carnshaft Position Sensor Performance Bank 2					END													
Carrishaft Correlation Bank 2  P0020 - Intake Carrishaft Position Actualor Control Circuit Open Bank 2	P0020 - Intake Camshaft	P2092 - Intake Carrishaft	P2093 - Intake Carneteff	END	Bank 2	Back 2	Bank 2	Voltage 1 Circuit Open	Voltage 2 Circuit Open														
Actuator Control Circuit Open Bank 2  P0021 - Intake Cornshaft Position System Performance Bank 2	Position Actuator Control Circuit Open Bank 2 P0016 - Crankshaft to Camahaft Correlation	Position Actuator Control Circuit Low Bank 2 P0017 - Crankshaft to Exhau Carrelath Correlation Bank			P0020 - Intake Carminati Position Actuator Control Circuit Open Bank 2	P0335 - Crankshaft Position	P0336 - Crankshaft Position Sensor Performance	P0341 - Carrishoft Position Sensor Performance	P0342 - Camshaft Position Sensor Circuit Low	P0343 - Camshaft Position Sensor Circuit High	P0346 - Intake Carminali Position Sensor Performanc Bank 2	P0347 - Intake Corrected position Sensor Circuit Low Bank 2	P0348 - Intake Carrelreft Position Sensor Circuit High Bank 2	P034A - Crankshaft Position Sensor Start Position Incorrect	P004B - Crankshaft Position d. Sensor Direction Incorrect	P0641 - Sensor Reference Voltage 1 Circuit Open	P2022 - Intake Carrelnett Position Actuator Control Circuit Low Bank 2	P2093 - Intake Carrelasti Position Actuator Control Circuit High Bank 2		ı			
	P0023 - Exhaust Comshell	P2094 - Exhaust Ceresheft			Circuit Open Bank 2	Sensor Circuit	Sensor Performance	Sersior Performance	Sensor Circuit Low	Sensor Circuit High	Bank 2	Bank 2	Position Sensor Circuit High Bank 2	Sensor Start Position Incorrect	Sensor Direction Incorrect	Voltage 1 Circuit Open	Circuit Low Blank 2	Circuit High Bank 2	END				
P0023 - Exhaust Cernstell Position Actuator Central Circuit Open Bank 2	Position Actuator Control Circuit Open Bank 2	Position Actuator Control Circuit Low Bank 2			P0023 - Exhaust Carrishaft	I more contracting	Towns Constitution	Provide Company Residence	more control forting	P0366 - Exhaust Carrishoft	P0967 - Exhaust Carrishal	t P0368 - Exhaust Carrishaft	P0391 - Exhaust Carrishaft	P0392 - Exhaust Camshaft	P0993 - Exhaust Camshaft	Press Consultations	P2094 - Exhaust Carrishalt	P2096 - Exhaust Carrishaft		Ī			
P0024 - Exhaust Carrehalt Position System Performance Bank 2	P0016 - Crankuhafi to Camshafi Correlation	Carnshaft Correlation Bank	P0018 - Crankshaft to Intake Camshaft Correlation Bank :	Carrehaft Correlation Bank	P0023 - Exhaust Conshell Position Actuator Control Circuit Open Bank 2	Sensor Circuit	Sensor Performance	Sensor Start Position Incorrec	P0348 - Cranidateit Position Sensor Direction Incorrect	P0366 - Exhaust Carrishell Position Sensor Performance Bank 1	P0367 - Exhaust Carrishal Position Sensor Circuit Los Bank 1	Position Sensor Circuit High Bank 1	P0391 - Exhaust Carrishaft Position Sensor Performance Bank 2	Position Sensor Circuit Low Bank 2	P(093 - Exhaust Camshaft Position Sensor Circuit High Bank 2	P0611 - Senacr Reference Voltage 1 Circuit Open	P2094 - Exhaust Carrishalt Position Actuator Control Circuit Low Bank 2	P2096 - Exhaust Carrishaft Position Actuator Control Circuit High Bank 2	END				
P0030 - Oxygen Sensor Heater Control Circuit Open Bank 1 Sensor 1																							
P0031 - Oxygen Sensor Heater Control Circuit Low Bank 1 Sensor 1																							
P0002 - Oxygen Sensor Heater Control Circuit High Bank 1 Sensor 1																							
P00035 - Boost Bypass Valve A Control Circuit Open																							
P0034 - Boost Bypass Valva A Control Grout Low																							
P0036 - Boost Bypass Valve A Control Circuit High																							
P0005 - Grygen Sensor Heater Control Circuit Open Bank 1 Sensor 2																							
P0037 - Grygen Sensor Heater Control Circuit Low Bank 1 Sensor 2																							
P0058 - Oxygen Sensor Heater Control Circuit High Bank 1 Sensor 2																							
P0350 - Oxygen Sensor Heater Control Circuit Open Bank 2 Sensor 1																							
P0051 - Oxygen Sensor Heater Control Circuit Low Bank 2 Sensor 1																							
P0052 - Grygen Sensor Heater Control Circuit High Bank 2 Sensor 1																							
P0056 - Oxygen Sensor Heater Control Circuit Open Bank 2 Sensor 2																							
P0057 - Oxygen Sensor Heater Control Circuit Low Bank 2 Sensor 2																							
P0058 - Oxygen Sensor Heater Control Circuit High Bank 2 Sensor 2																							
PCC71 - Ambient Air Temperature Sensor Performance	P0072 - Arribient Air Temperaturu Sensor Circuit Low	P0073 - Ambient Air Temperature Sensor Circuit High	P0116 - Engine Coolant Terroperature Sensor Performance	P0117 - Engine Codent Temperature Sensor Circu Low	P0118 - Engine Coolant Temperature Sensor Circuit High	P0119 - Engine Coolant Temperature Sensor Circuit Erretic	END																
P0072 - Ambient Air Temperature Sensor Clouit Low	END				1																		
P0073 - Ambient Air Temperature Sensor Circuit High																							
P0074 - Arrbiert Air Temperature Sansor Circuit Intermittent	P0072 - Arrbéent Air Temperature Senecr Circuit Low	P0073 - Arribient Air Temperature Sensor Circus High	END	Ī																			
P0089 - Fuel Pressure Regulator Performance	Low P0050 - Fuel Pressure Regulator Control Circuit Ope	P0191 - Puel Rail Pressure	P10E8 - Fuel Pressure Regulator High Control Circu	P229C - Fuel Pressure Regulator Ecosodiad Contro	P228D - Fuel Pressure Regulator Escended Control	P2C02 - Fuel Pressure Regulator Control Circuit Open Bank 2	P313A - Fuel Pressure Regulator High Control Circ. Shorted to Control Circ.	END	Ī														
P0000 - Fuel Pressure Regulator Control Circuit Open	END	outer Palumanos	Shorted to Control Circuit	Limits - Pressure Too Low	Limits - Pressure Too High	Bank 2	2																
Control Circuit Open  P0091 - Fuel Pressure Regulator Control Circuit Low																							
P0092 - Fuel Pressure Regulator Control Circuit High	END																						

The DTCs in this column is												IC inn											
inhibited by the DTCs listed to the right Inhibited DTC			The DTCs in these column		left				The DTCs in these colum Fault A	ns inhibit the DTC to the tive DTCs	jeft			,	Fault Ac	ns inhibit the DTC to the tive DTCs				The DTCs in	Fault Active DTCs	DTC to the left	
P0006 - Intake Air Temperature Sensor 2 Performance	P0007 - Intaku Air Temperatum Sensor 2 Circuit Low	PCCSS - Intuine Air Terriperatur Sensor 2 Circuit High	P0029 - Intake Air Temperature Sensor 2 Grouit Erratio	P0101 - Mass Air Plaw Sensor Performance	P0102 - Mass Air Flow Sense Gircuit Low	or P0103 - Mass Air Flow Senso Circuit High	P0106 - Marrifold Absolute Pressure Sensor Performance	P0107 - Manifold Absolute Pressure Sensor Circuit Low	PD108 - Manifold Absolute Pressure Sensor Circuit High	P010B - Mass Air Plan Serso 2 Performance	P010C - Mass Air Play Senso 2 Grout Low	or POTOD - Mass Air Flow Sensor 2 Circuit High	P0116 - Engine Coolant Temperature Sensor Performance	P0117 - Engine Coolant Temperature Sensor Circuit Low	P0118 - Engine Coolant Temperature Sensor Circuit High	P0119 - Engine Coolant Temperature Sensor Circuit Ensitic	P2A0B - Manifold Absolute Pressure Sensor Performance Sank 2	P2A0C - Manifold Absolute Pressure Sensor Circuit Low Bank 2	P2AGD - Manifold Absolute Pressure Sensor Circuit High Bank 2	END			
P0067 - Intake Air Temperature Sensor 2 Circuit Low	END																				•		
P0096 - Intake Air Temperature Sensor 2 Circuit High	END																						
P0099 - Intake Air Temperature Sensor 2 Circuit Erratio	END																						
P02A5 - Intake Air Temperature Sensor 2 Performance Bank 2	PCOA7 - Intake Air Temperature Sensor 2 Circuit	P00A8 - Make Air Temperature Sensor 2 Circuit	P00A9 - Intake Air Temperature Sensor 2 Circuit	P0101 - Mass Air Flow Sensor	P0102 - Mass Air Flow Sens Circuit Low	or P0103 - Mass Air Row Senso Grout High	P0106 - Marrifold Absolute	PO107 - Manifold Abecause	P0103 - Manifold Absolute Pressure Sensor Grout High	P010S - Mass Air Plans Senso 2 Performance	P010C - Mass Air Flow Senso 2 Circuit Low	or P0100 - Mass Air Flow Sensor 2 Circuit High	P0116 - Engine Coolent Temperature Sensor Performance	P0117 - Engine Cockent Temperature Sensor Circuit	P0118 - Engine Coolant Temperature Sensor Circuit	P0119 - Engine Coclant Temperature Sensor Circuit	P2A08 - Manifold Absolute Pressure Sensor Performance Bank 2	P2A0C - Manifeld Absolute Pressure Sensor Circuit Low Bank 2	P2AGD - Manifold Absolute Pressure Sensor Circuit High Bank 2	END			
P01A7 - Intake Air Temperature Sensor 2 Circuit Low Bank 2	Low Bank 2 END	High Bank 2	Erratic Bank 2	Perprisance	CHURCOW	Cattorings	Pressure densur Perumanue	Pressure obligation	Pressue senso caron rigi	2 Penginance	2 Catalition	Zuturngi	Performance	Law	High	Emalic	Bank 2	Bank 2	Bank 2				
PODAS - Istake Air Temperature Sensor 2 Circuit High Bank 2	END																						
	END																						
P03A9 - Intoke Air Temperature Sensor 2 Circuit Erratic Bank 2	PODAC - Intake Air	PODAD - Intake Air	POOAE - Intake Air	many the control	PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPERTY AND PROPE	TOTAL Mary Sty Berr Service	more thanks make	MALOY MANGELLANGE	P0103 - Manifold Absolute	MALINE Many to Charles	Marine Marine to Plan Surrey	more than to the form	P0116 - Engine Coolant	P0117 - Engine Coolant Temperature Sensor Circuit	P0118 - Engine Coolant	P0119 - Engine Coolant	many Consultants	P2A0B - Manifold Absolute	P2AGC - Manifold Absolute	P2ACO - Manifold Absolute			
POOAB - Intake Air Temperature Sensor 1 Performance Bank 2	Temperature Sensor 1 Circuit Low Bank 2 U0612 - Lost Communication	Temperature Sensor 1 Circuit High Bank 2	POOAE - Intake Air Temperature Sensor 1 Circuit Erratic Bank 2 U1372 - Invalid Data Received From Intake Air Temperature	P0101 - Mass Air Flow Sensor Performance	PD102 - Mass Air Flow Sens Circuit Low	Circuit High	P0106 - Manifold Absolute Pressure Sensor Performance	P0107 - Manifold Absolute Pressure Sensor Grout Low	Pressure Sensor Circuit High	P010S - Mass Air Plou Senso 2 Performance	P010C - Mass Air Flow Senso 2 Circuit Low	or PD10D - Mass Air Flow Sensor 2 Circuit High	P0116 - Engine Coolent Temperature Sensor Performance	Temperature Sensor Circuit Low	P0118 - Engine Cockant Temperature Sensor Circuit High	P0119 - Engine Coolant Temperature Sensor Circuit Erratic	P0005 - Control Module Internal Performance	Pressure Sensor Performance Bank 2	P2AGC - Manifold Absolute Pressure Sensor Circuit Low Bank 2	Pressure Sensor Circuit High Bank 2	CONTINUED NEXT LINE		
	With Intake Air Temperature Sensor Bank 2 Sensor 1	U1349 - Engine Control Module LIN Bus 5	From Intake Air Temperature Sensor Bank 2 Sensor 1	ENO																			
PODAC - Intake Air Temperature Sensor 1 Circuit Low Bank 2	END																						
PSOAD - Intake Air Temperature Sensor 1 Circuit High Bank 2	END			ı	ı	1		ii															
PODAE - Intake Air Temperature Serecr 1 Circuit Errafic Bank 2	P00AC - Intoke Air Temperature Sensor 1 Circuit Low Bank 2	P00AD - Intako Air Temperature Sensor 1 Circuit High Bank 2	P0606 - Control Module Internal Performance	U0812 - Lost Communication With Intake Air Temperature Sensor Bank 2 Sensor 1	U1349 - Engine Control Module LIN Bus 5	U1372 - Invalid Data Receive From Intake Air Temperature Sensor Bank 2 Sensor 1	END																
P00C0 - Boost Bypass Wiles B Control Circuit Open	END																						
P00C1 - Boost Bypass Valve B Control Circuit Low	END																						
P0002 - Boost Bypass Valve B Control Circuit High	END																						
	P000A - Carnahaft Position System Slow Response Bank 1	P000B - Exhaust Carrishaft Position System Slow Response Bank 1	P000C - Intake Camshaft Position System Slow Response Bank 2	P000D - Exhaust Carrishaft Position System Store Response Bank 2	P0010 - Carrelati Position Actuator Control Girost Ope	P0011 - Carrelatt Position on System Performance	P0013 - Exhaust Carrishaft Position Actuator Control Circuit Open Bank 1	P0014 - Exhaust Camshaft Position System Performance Bank 1	P0020 - Intake Camshaft Position Actuator Control Circuit Open Bank 2	P0021 - Intake Camshaft Position System Performance Bank 2	P0023 - Exhaust Correlati Position Actuator Control Circuit Open Bank 2	P0024 - Exhaust Comshaft Position System Performance Bonk 2	P0033 - Boost Bypses Valve A Control Circuit Open	P0034 - Boost Bypses Valve A Control Circuit Low	PCC35 - Boost Bypeen Valve A Control Clouit High	P0071 - Ambient Air Temperature Sensor Performance	P0072 - Ambient Air Temperature Sensor Circuit Low	P0073 - Arribient Air Temperature Sensor Circuit High	CCSS - Intaku Air Temperature Sensor 2 Performance	P0037 - Intake Air Temperatur Sensor 2 Girosit Low	P0296 - Intake Air Temperature Sensor 2 Circuit High	P0059 - Intaku Air Terriperature Sensor 2 Circuit Erratic	CONTINUED NEXT LINE
	PCOA5 - Intake Air Temperature Sensor 2 Performance Bank 2	P00A7 - Intako Air Temperature Sensor 2 Circuit Low Bank 2	P00A8 - Intoko Air Temperature Sensor 2 Circuit High Bank 2	P00A9 - Jetake Air Temperature Sensor 2 Circuit Erratic Bank 2	P00C0 - Boost Bypess Walve Control Circuit Open	B P00C1 - Boost Bypass Valve Control Circuit Low	B P00C2 - Boost Bypans Valve B Control Circuit High	P0101 - Mass Air Flow Senso Performance		P0103 - Mass Air Flow Sonso Circuit High	P0106 - Manifold Absolute Pressure Sensor Performano		P0108 - Manifold Absolute Pressure Sensor Circuit High	P010B - Mass Air Flow Sensor 2 Performance	P010C - Mass Air Flow Sensor 2 Circuit Low	P010D - Mass Air Flow Senso 2 Circuit High	P0121 - Throttle Position Sensor Performance	P0122 - Throttle Position Sensor Circuit Low	P0123 - Throttle Position Sensor Circuit High	P0221 - Throttle Position Sensor 2 Performance	P0222 - Throdio Position Sensor 2 Circuit Low	P0223 - Throttle Position Sessor 2 Clouit High	CONTINUED NEXT LINE
P00C4 - Boost Bypess Valve B Stuck	P0226 - Throttle Position Sensor Performance Bank 2	P0227 - Throttle Position Sensor Circuit Low Bank 2	P0228 - Throttle Position Sensor Circuit High Bank 2	P0236 - Turbocharger Boost Sensor Performance	P0237 - Turbocharger Boos Sensor Circuit Low	P0238 - Turbocharger Boos Sensior Circuit High	P0240 - Turbocharger Boost Sersior Performance Bank 2	P0241 - Turbocharger Boost Sensor Circuit Low Bank 2	t P0242 - Turbocharger Boost Sensor Circuit High Bank 2	P2068 - Carrishaft Position Actuator Control Circuit Low	P2069 - Carnshaft Position Advance Control Circuit High	P2000 - Exhaust Carrotrelt Position Actuator Control Circuit Low Bank 1	P2091 - Estesast Carrelhaft Position Actuator Control Circuit High Bank 1	P2092 - Intake Carrelnaft Position Actuator Control Circuit Low Bank 2	P2003 - Intake Carrehaft Position Actuator Control Circuit High Bank 2	P2094 - Exhaust Carretrett Position Actuator Control Circuit Low Bank 2	P2025 - Exhaust Carrelhaft Position Actuator Control Circuit High Bank 2	P212B - Throttle Position Sensor 2 Performance Bank 2	P212C - Throdie Position Sensor 2 Circuit Low Bank 2	P2120 - Throttle Position Sensor 2 Circuit High Bank 2	P2176 - Minimum Throttle Position Not Learned	P2227 - Barometric Pressure Sensor Performance Bank 1 Sensor 1	CONTINUED NEXT LINE
	P2228 - Barometric Pressure Seneor Circuit Low Bank 1 Sensor 1	P2229 - Barometric Pressure Sensor Clouit High Bank 1 Sensor 1	P2ACB - Manifeld Absolute Pressure Sensor Performance Bank 2	P2A0C - Manifold Absolute Pressure Sensor Circuit Low Bank 2	P2A0D - Manifeld Absolute Pressure Sensor Circuit High Bank 2	u0907 - Lost Communication th With Throttle Position Senso	U0668 - Lost Communication With Throttle Position Sensor Bank 2 Sensor 2	U196D - Invalid Data Receive From Throttle Position Senso	ed U136F - Invalid Data Receive or From Throble Position Senso Bank 2 Sensor 2	END		CHOSE DAY DANK 1	Citating Care	CHICAL CON CAMP. 2	CHOOL FIGHT DATE.	CHOILDH CHELZ	Citating Care 2	1				Control 1	
P0006 - Pool Rail Pressure Low During Engine Cranking	PECSO - Fuel Pressure Regulator Control Circuit Open	P0191 - Puel Rul Pressure Sensor Performance	P10E8 - Fuel Pressure Regulator High Control Circuit Shorted to Control Circuit	P2002 - Fuel Pressure Regulator Control Circuit Open Bank 2	P313A - Fuel Pressure Regulator High Control Circs Shorted to Control Circuit Bar	Bank 1 Sensor 2	Bank 2 Sensor 2	Z	Sans 2 Sensor 2														
P00C0 - Fuel Pressure Regulator High Control Circuit Low	END		Shorted to Control Circuit	Bank 2	2																		
P00CA - Fuel Pressure Regulator High Central Circuit High	END																						
Control Circuit High	P000A - Carreteff Position System Slow Response Bank 1	P000B - Exhaust Carrishaft Position System Slow Response Bank 1	P000C - Intake Carrishaft Position System Slow Response Bank 2	P0000 - Exhaust Carrehalt Position System Stow Response Bank 2	P0010 - Carrishaft Position Actuator Control Circuit Ope	P0011 - Camshaft Position on System Performance	P0013 - Edward Carrishaft Position Actuator Control Circuit Open Bank 1	P0014 - Eshaust Carrishaft Position System Performano Bonk 1	P0020 - Intake Carrishaft Position Actuator Control Circuit Open Bank 2	P0021 - Intake Carrelraft Position System Performance Bank 2	P0023 - Exhaust Cerrshaft Position Actuator Control Circuit Open Bank 2	P0024 - Exhaust Camshaft Position System Performance Bonk 2	P0101 - Mass Air Flow Senson Performance	P0102 - Mass Air Flow Sensor Circuit Low	P0103 - Mass Air How Sensor Circuit High	P0106 - Manifold Absolute Pressure Sensor Performance	P0107 - Manifeld Absolute Pressure Sensor Circuit Low	P0108 - Manifold Absolute Pressure Sensor Circuit High	010B - Mass Air Flow Sensor 2 Performance	P010C - Mass Air Flow Senso 2 Girouit Low	P010D - Mass Air Flow Sensor 2 Circuit High	P0121 - Throttle Position Sensor Performance	CONTRACTO NEXT UNI
	System Slow Response Bank 1 P0122 - Throttle Position	Response Bank 1  P0123 - Throttle Position Sensor Circuit High	P0221 - Throttle Position Sensor 2 Performance	Response Bank 2 P0222 - Throttle Position Sensor 2 Circuit Low		n System Performance P0226 - Throttle Position	Circuit Open Bank 1  P0227 - Throthe Position Sensor Circuit Low Bank 2	P0228 - Throttle Position Sensor Circuit High Bank 2						Circuit Low P0242 - Turbocharger Boost	P0638 - Throttle Actuator	Pressure Sensor Performance P0639 - Throttle Actuator Control Command Performance Bank 2	Pressure Sensor Circuit Low P1551 - Throide Real Position		2 Performance P2089 - Carrelhalt Position Actuator Control Circuit High	P2090 - Exhaust Carrshaft	P2091 - Exhaust Carrishaft		CONTINUED NEXT LINE
P0101 - Mass Air Flow Sensor Performance	Sensor Circuit Low				P0223 - Throttle Position Sensor 2 Circuit High	Sensor Performance Bank 2			P0236 - Turbocherger Boost Sensor Performance	P0237 - Turbocharger Boost Sensor Circuit Low P2128 - Throthe Position	P0226 - Turbodseger Boost Sensor Circuit High P212C - Throttle Position	P0240 - Turbocharger Boost Sensor Performance Bank 2 P2120 - Throttle Position	P0041 - Turbocherger Boost Sensor Circuit Low Bank 2 P2176 - Winimum Throthe	Sensor Circuit High Bank 2 P216A - Minimum Throttle	Control Command Performance  P2227 - Barometric Pressure	P222A - Barcenettic Pressure	Not Reached During Learn P2229 - Barometric Pressure	P2058 - Carminal Position Actuator Control Grout Low P222B - Barometric Pressure Sensor Performance Bank 2 Sensor 1	2222C - Rarometric Pressure	Position Actuator Control Circuit Low Bank 1 P2220 - Barometric Pressure	Position Actuator Control Circuit High Bank 1 P2278 - Barometric Pressure	P2092 - Intake Carrishaft Position Actuator Control Circuit Low Bank 2 P227C - Barometric Pressure	CONTINUED NEXT LINE
	P2093 - Intake Camshaft Position Actuator Control Circuit High Bank 2 P227D - Barcreetric Pressure	P2094 - Exhaust Carrehalt Position Actuator Control Circuit Low Bank 2 P2AGB - Manifold Absolute	P2005 - Exhaust Carrehalt Position Actuator Control Circuit High Bank 2 P2ADC - Manifeld Absolute	P2100 - Throite Actuator Control Motor Control Circuit Open	P2101 - Throttle Actuator Position Performance P3006 - Control Module	P210A - Throotie Actuator Control Motor Control Circui Open Bank 2 P3007 - Control Module		P2119 - Throttle Closed Position Performance P3054 - Closed Throttle	Position Performance Bank 2 P2005 - Closed Throttle	Sessor 2 Performance Bank 2 P2006 - Closed Throble	Sensor 2 Circuit Low Bank 2 P2007 - Throttle Real Position	Sensor 2 Circuit High Bank 2	Position Not Learned	Position Not Learned Bank 2	P2227 - Barometric Pressure Bensor Performance Bank 1 Sessor 1 U136F - Invelid Data Received	Sensor Circuit Low Bank 1 Sensor 1	Sensor Circuit High Bank 1 Sensor 1	Sensor Performance Bank 2 Sensor 1	Sensor Circuit Low Bank 2 Sensor 1	Sensor Circuit High Bank 2 Sensor 1	P2278 - Barometric Pressure Sensor Performance Bank 1 Sensor 2	P227C - Barometric Pressure Sensor Circuit Low Bank 1 Sensor 2	CONTINUED NEXT LINE
	PZZ7D - Barcmetric Pressure Sensor Circuit High Bank 1 Sensor 2	PZAGB - Manifold Absolute Pressure Sensor Performance Bank 2	P2ACC - Manifold Absolute Pressure Sensor Circuit Low Bank 2	P2ADD - Manifold Absolute Pressure Sensor Circuit High Bank 2	P30D6 - Control Module Processor Serial Perigheral Interface Bus 1	P3007 - Control Module Processor Serial Peripheral Interface Bus 2	Position Exceeded Maximum Learning Limit	Position Exceeded Minimum Learning Limit	Position Exceeded Maximum Learning Limit Bank 2	Position Exceeded Minimum Learning Limit Bank 2	Not Reached During Learn Bank 2	With Throate Position Sensor Bank 1 Sensor 2	U0000 - Lost Communication With Throtile Position Sensor Bank 2 Sensor 2	U1360 - Invalid Data Received From Throttle Position Sensor 2	U136F - Invalid Data Received From Throttle Position Sensor Bank 2 Sensor 2	END							
P0102 - Mass Air Flow Sensor Circuit Low	END																						
P0103 - Mass Air Flow Sensor Circuit High	END	PROSE Educat Constant	P000C - Intake Camehatt	P000D - Exhaust Camshaft	1		P0013 - Exhaust Camshaft	P0014 - Exhaust Camshaft	Provide Manday Company	P0021 - Intake Camshaft	P0023 - Exhaust Camshaft	P0024 - Exhaust Camphaft			1	1	1			1	1		
	P000A - Carrishaft Position System Slow Response Bank 1	P0008 - Exhaust Camehatt Position System Stow Response Bank 1	Position System Stow Response Bank 2	Position System Stow Response Bank 2	P0010 - Carrahalt Position Actuator Control Grout Ope	n System Performance	Position Actuator Control Circuit Open Bank 1	Position System Performano Bank 1	Position Acquator Control Circuit Open Bank 2	Position System Performance Bank 2	Position Actuator Control Circuit Open Bank 2	Position System Performance Bank 2	P0096 - Intake Air Temperatur Sensor 2 Performance	P0007 - Make Air Temperature Sensor 2 Circuit Loss		P0029 - Intake Air Temperatur Seneor 2 Gircuit Ernalic	P0108 - Manifold Absolute Pressure Sensor Performance	P0107 - Manifeld Absolute Pressure Sensor Circuit Low	P0108 - Marrifold Absolute Pressure Sensor Grouit High	P0121 - Throtal Position Sensor Performance	P0122 - Throthe Position Sensor Circuit Low	P0123 - Throttle Position Sensor Circuit High	CONTINUED NEXT LINE
P0106 - Manifold Absolute Pressure Sensor Performance	P0221 - Throttle Position Sensor 2 Performence	P0222 - Throtte Position Sensor 2 Circuit Low	P0223 - Throtte Position Sensor 2 Circuit High	P0236 - Turbotharger Boost Sensor Performance	PC237 - Turbocharger Boos Sensor Circuit Low	M P0238 - Turbocharger Boos Sensor Circuit High	P0335 - Crankshaft Position Sensor Circuit	P0336 - Crankshaft Position Sensor Performance	P034A - Crankshaft Position Sensor Start Position Incorrec	P0348 - Crankshaft Position Sensor Direction Incorrect	P2068 - Carnshaft Position Actuator Control Circuit Low	P2089 - Carnshaft Position Actuator Control Circuit High	P2090 - Eshaust Carrishaft Position Actuator Control Circuit Low Bank 1	P2091 - Exhaust Carnehaft Position Actuator Control Circuit High Bank 1	P2002 - Intake Carnahaft Position Actuator Control Circuit Low Bank 2	P2003 - Intake Correhalt Position Actuator Control Circuit High Bank 2	P2094 - Eshaust Camshaft Position Actuator Control Circuit Low Bank 2	P2095 - Estewal Cornehalt Position Actuator Control Circuit High Bank 2	P2176 - Minimum Throtto Position Not Learned	P2227 - Barometric Pressure Sensor Performance Bank 1 Sensor 1	P2228 - Barometric Pressure Sensor Girouit Low Bank 1 Sensor 1	P2229 - Barometric Pressure Sensor Circuit High Bank 1 Sensor 1	CONTINUED NEXT UNE
	U6807 - Lost Communication With Throtile Position Sensor Bank 1 Sensor 2	U138D - Invalid Data Receive From Throttle Position Sensor 2	END																				
P0107 - Manifold Absolute Pressure Sensor Circuit Low	P0541 - Sensor Reference Voltage 1 Circuit Open	END																					
P0108 - Manifold Absolute Pressure Sensor Circuit High	P0841 - Sensor Reference Voltage 1 Circuit Open	END																					
	P000A - Carrishaft Position System Slow Response Bank 1	P0008 - Exhaust Carrehalt Position System Slow Response Bank 1	P000C - Intake Carretraft Position System Slow Response Bank 2	PODD - Exhaust Camehaft Position System Slow Response Bank 2	P0010 - Carrishaft Position Actuator Control Circuit Ope	P0011 - Carrishaft Position System Performance	P0013 - Exhaust Carrehalt Position Actuator Control Circuit Open Bank 1	P0014 - Exhaust Carrishaft Position System Performance Bank 1	P0020 - Intake Camehalt Position Actuator Control Circuit Open Bank 2	P0021 - Intake Carrehalt Position System Performance Bank 2	P0023 - Exhaust Carrehalt Position Actuator Control Circuit Open Bank 2	P0024 - Exhaust Carrishaft Position System Performance Bank 2	P0101 - Mass Air Flow Sensor Performance	P0102 - Mass Air Flow Sensor Circuit Low	P0103 - Mass Air Flow Sensor Circuit High	P0106 - Manifold Absolute Pressure Sensor Performance	P0107 - Manifold Absolute Pressure Sensor Circuit Low	P0108 - Manifold Absolute Pressure Sensor Circuit High	010B - Mass Air Flow Sensor 2 Performance	P010C - Mass Air Flow Senso 2 Circuit Low	P010D - Mass Air Flow Sensor 2 Circuit High	P0121 - Throde Position Sensor Performance	CONTINUED NEXT LINE
POLON Mars II II	P0122 - Throttle Position Sensor Circuit Low	P0123 - Throttle Position Sensor Circuit High	P0221 - Throttle Position Sensor 2 Performance	P0222 - Throttle Position Sensor 2 Circuit Low	P0223 - Throttle Position Sensor 2 Circuit High	P0226 - Throttle Position Sensor Performance Bank 2	P0227 - Throttle Position Sensor Circuit Low Bank 2	P0228 - Throttle Position Sensor Circuit High Bank 2	P0236 - Turbochenger Boost Sensor Performance	P0237 - Turbochanger Boost Bansor Circuit Low	P0238 - Turbochanger Boost Sensor Circuit High	P0240 - Turbocharger Bocst Sensor Performance Bank 2	P(Q41 - Turbocherger Boost Sensor Circuit Low Bank 2	P0242 - Turbochanger Boost Sensor Circuit High Bank 2	P0638 - Throdie Actuator Control Commend Performance	P0639 - Throttle Actuator Control Command Performance Bank 2	P1551 - Throttle Rest Position Not Reached During Learn	P2088 - Camshaft Position Actuator Control Circuit Low	P2089 - Camshaft Position Actuator Control Circuit High	P2090 - Exhaust Carrehaft Position Actuator Control Circuit Low Bank 1	P2001 - Exhaust Carrelhaft Position Actuator Control Circuit High Bank 1	P2002 - Intake Carrahaft Position Actuator Control Circuit Low Bank 2	
P010B - Mass Air Flow Sensor 2 Performance	P2093 - Intake Camshaft Position Actuator Control Circuit High Bank 2	P2094 - Exhaust Correlati Position Actuator Control Circuit Low Bank 2	P2095 - Exhaust Camshaft Position Actuator Control Circuit High Bank 2	P2100 - Throtile Actuator Control Motor Control Circuit Open	P2101 - Throttle Actuator Position Performance	P210A - Throttle Actuator Control Motor Control Circui Open Bank 2	P2108 - Throttle Actuator Position Performance Bank 2	P2119 - Throttle Closed Position Performance	P211D - Throttle Closed Position Performance Bank 2	P212B - Throtile Position Sensor 2 Performance Bank 2	P212C - Throttle Position Sensor 2 Circuit Low Bank 2	P212D - Throttle Position Sensor 2 Circuit High Bank 2	P2176 - Winimum Throttle Position Not Learned	P216A - Minimum Throttle Position Not Learned Bank 2	P2227 - Barometic Pressure Sensor Performance Bank 1 Sensor 1	P2228 - Barometric Pressure Sensor Circuit Low Bank 1 Sensor 1	P2229 - Barometric Pressure Sensor Circuit High Bank 1 Sensor 1	P222B - Barometric Pressure Sensor Performance Bank 2 Sensor 1	*222C - Barometric Pressure Sensor Circuit Low Bank 2 Sensor 1	P2220 - Barometric Pressure Sensor Circuit High Bank 2 Sensor 1	P227B - Barometric Pressure Sensor Performance Bank 1 Sensor 2	P227C - Barometric Pressure Sensor Circuit Low Bank 1 Sensor 2	CONTINUED NEXT LINE
	Circuit High Bank 2 P227D - Barcmetric Pressure Sensor Circuit High Bank 1 Sensor 2	P2AGB - Manifold Absolute Pressure Sensor Performance Bank 2	P2ACC - Monifold Absolute Pressure Sensor Circuit Low Bank 2	P2ADD - Manifold Absolute Pressure Sensor Circuit High Bank 2	P30D6 - Control Modele Processor Serial Peripheral Interface Bus 1			P30E4 - Closed Throttle Position Exceeded Minimum Learning Limit	P30E5 - Closed Throttle Position Exceeded Maximum Learning Limit Bank 2	P30E6 - Closed Throttle Position Exceeded Minimum	P30E7 - Throde Rest Position Not Reached During Learn Bank 2	U0607 - Lost Communication With Throttle Position Sensor Bank 1 Sensor 2	U0688 - Lost Communication With Throttle Position Sensor Bank 2 Sensor 2	U1360 - Invalid Data Received From Throttle Position Sensor 2	Sensor 1  U136F - Invalid Data Received From Throttle Position Sensor Bank 2 Sensor 2	Sensor 1 END	ae/80/ 1	oexis0f 1	omist 1	om/60f 1	omativ z	omm#2	
P010C - Mass Air Flow Sensor 2 Circuit Low	Sensor 2 END	nank 2	cenk 2	comit 2	Intertace Bus 1	morrisce Bus 2	Learning Limit	Learning Limit	Learning Limit Bank 2	Learning Limit Bank 2	pank 2	Dank 1 Senecr 2	cons z Serecr 2	2	mans a Sensor 2								
P010D - Mass Air Flow Sensor 2 Circuit High	END																						
		P0102 - Mass Air Flow Senso Circuit Low	r P0103 - Mass Air Flow Sensor Circuit High	P0105 - Manifold Absolute Pressure Sensor Performance	P0107 - Manifold Absolute Pressure Sensor Circuit Lov	PO1GS - Manifold Absolute	P010B - Mass Air Flow Sensor	P010C - Mass Air Flow Senso	or P010D - Mass Air Flow Senso	P0112 - Intaku Air Temperatur	o PD113 - Jatako Air Temperatu	ns P0114 - Jatoke Air Temperature Sensor Circuit Ematic	P0116 - Engine Coolant Temperature Sensor Performance	P0117 - Engine Coolant Temperature Sensor Circuit	P0118 - Engine Coolant Temperature Sensor Circuit High	P0119 - Engine Coolant Temperature Sensor Circuit Essalic	P0606 - Control Module Internal Performance	P2A/IB - Manifold Absolute Pressure Sensor Performance	P2AGC - Manifold Absolute Pressure Sensor Circuit I ***	P2ACO - Manifold Absolute Pressure Sensor Circuit High Bank 2	CONTINUED NEXT LIVE		
P0111 - Intake Air Temperature Sensor Performance	U0611 - Lost Communication	Circuit Low  U1346 - Engine Control  Module LIN Bus 2	Circuit High  U1370 - Invalid Data Received From Intake Air Temperature Sensor 1	Pressure Sensor Performance	r-ressure Sensor Circuit Lov	w Pressure Sensor Circuit High	2 Performance	2 Grout Low	2 Carcuit High	Sensor Circuit Low	Sensor Circuit High	Sensor Circuit Erratio	Performance	Low	High	Ensic	Insernal Performance	Pressure Sensor Performance Bank 2	Bank 2	Benk 2			
P0112 - Intake Air Temperatum Sunacr	With Insake Air Temperature Sensor Bank 1 Sensor 1	Module LIN Bus 2	Sensor 1																				
P0112 - Intake Air Temperature Sensor Circuit Low	END																						
P0113 - Intake Air Temperature Sensor Circuit High	END			LIBERT LINES Communication	ı	111370 - Insplit Don Re-	4	Ì															
P0114 - Intake Air Temperature Seneor Circuit Erratio	P0112 - Intake Air Temperature Sensor Circuit Low P0117 - Engine Coolent	P0113 - Intake Air Temperatur Sensor Circuit High	POEDS - Control Module Internal Performance P0119 - Engine Coolant	U0811 - Lost Communication With Intake Air Temperature Sensor Bank 1 Sensor 1	U1346 - Engine Control Module LIN Bus 2	U1370 - Invalid Data Receive From Intake Air Temperatur Sensor 1	END																
P0116 - Engine Coolint Temperature Seasor Performance	P0117 - Engine Coolent Temperature Sensor Circuit Low	P0118 - Engine Coolant Temperature Sensor Circuit High	P0119 - Engine Coolant Temperature Sensor Circuit Erratic	END																			
P0117 - Engine Coolant Temperature Sensor Circuit Low	END																						
P0118 - Engine Coolant Temperature Sensor Circuit High	END																						

The DTCs in this column is inhibited by the DTCs listed to	The DTCs in these columns inhibit the DTC to the Jeft	The DTCs in these columns inhibit the DTC to the Mt	The DTCs in these columns inhibit the DTC to the left	The DTCs in these columns inhibit the DTC to the left
the right Inhibited DTC  P0119 - Engine Coolert Temperature Sensor Circuit Errolic	Fault Active DTCs	Fault Active DTCs	Fault Active DTCs	Fault Active DTCs
Sensor Circuit Errotic  P0121 - Throtile Position Sensor Performance	POSI-1 Sensor Privance POSI-1 Sensor Privance Valgor Class Cype Valgor Class Cype Valgor Class Cype 100			
Performance P0122 - Throttle Position Sensor Circuit				
Low P0123 - Throttle Position Sensor Circuit High	2004 Same Defense 2004 Same Defense			
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Temperature P0130 - H02S Circuit Bank 1 Sensor 1	responders Sensor voter responder Sensor Creat recognition Sensor Creat recognition Sensor Creat recognition Sensor Creat recognition Sensor Creat recognition Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Research Sensor Creat Rese	respectively of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the c	5 Molfe	PODD - Cargin Sensor PODDI - Carried Module
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	U0005 - Lost Communication: U13020 - provid Data Received: U1306 F - provid Data Received: With Throst Position Sensor 2 From Timosth Position Sensor 2 Provided Data Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2 Provided Sensor 2			

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Inhibited DTC	P000A - Carrahaft Position System Slow Response Bank 1	P0018 - Exhaust Carrishaft Position System Slow Response Bank 1	P000C - Istake Camshaft Position System Slow Response Bank 2	PICCO - Exhaust Carrehaft Position System Stor Response Bank 2	P0010 - Carnshaft Position Actuator Control Grout Open	P0011 - Carrahaft Position System Performance	P0013 - Exhaust Carrehaft Position Actuator Control Grout Open Bank 1	P0014 - Exhaust Camshaft Position System Performance Bank 1	P0020 - Intake Camshaft Position Actuator Control Circuit Open Bank 2	P0021 - Intake Camshaft Position System Performance Bank 2	P0023 - Exhaust Comshaft Position Actuator Control Grout Open Bank 2	P0024 - Exhaust Camshaft Position System Performance Bank 2	P0030 - Oxygen Sensor Heate Control Circuit Open Bank 1 Sensor 1	P0031 - Oxygen Sensor Hec Control Circuit Low Bank 1 Sensor 1	Fault As ater P0032 - Oxygen Sensor Heate 1 Control Circuit High Bank 1 Sensor 1	P0036 - Oxygen Sensor Heat Control Circuit Open Bank 1 Sensor 2	er P0037 - Oxygen Sensor Hea Control Circuit Low Bank 1 Sensor 2	ter P0038 - Oxygen Sensor Heo Control Circuit High Bank 1 Sensor 2	ter P0101 - Mass Air How Serso Performance	r P0102 - Nasa Air P <b>l</b> os Seras Grout Low	Fault Active DTCs  PO103 - Mass Air Flow Serroor  Circuit High	P0105 - Manifold Absolute ressure Sensor Performance	CONTINUED NEXT LINE
	P0107 - Manifold Absolute Pressure Sensor Circuit Low	P0108 - Manifold Absolute Pressure Sessor Grout High	P010B - Mass Air Flow Sensi 2 Performance	P010C - Mass Air Flow Senso 2 Circuit Low	or P010D - Mass Air Flow Senso 2 Circuit High	P0116 - Engine Cookert Temperature Sensor Performance	P0117 - Engine Coctant Temperature Sensor Circuit	P0110 - Engine Codent Temperature Sensor Circuit High	P0119 - Engine Coolent Temperature Sensor Circuit	P0121 - Throdie Position Sensor Performance	P0122 - Throttle Position Seneor Circuit Low	P0123 - Throttle Position Sensor Circuit High	P0128 - Engine Coolant Temperature Below Thermostal Regulating	P0130 - H028 Circuit Bank Sensor 1		P0137 - Oxygen Sensor Circi Low Bank 1 Sensor 2	alt P0138 - Oxygen Bensor Circ High Bank 1 Sensor 2	P013A - Oxygen Sensor Sto Response - Rich to Lean Ba 1 Sensor 2	ev P013B - Oxygen Sensor Slov nk. Response - Lean to Rich Bani 1 Sensor 2	P013E - Oxygen Sensor IX Debyed Response - Rich to Lean Bank 1 Sensor 2	P013F - Oxygen Sensor Delayed Response - Lean to Rich Bank 1 Sensor 2	0140 - Oxygen Sensor Circuit Insufficient Activity Bank 1 Sensor 2	CONTINUED NEXT LINE
	P0141 - Oxygen Sensor Heater Performance Bank 1 Sensor 2	P0171 - Fuel Trim System Lean Bank 1	P0172 - Fuel Trim System Rin Bank 1	h P0221 - Throttle Position Sensor 2 Performance	P0222 - Throttle Position Sensor 2 Circuit Low	P0223 - Throttle Position Sensor 2 Circuit High	P0226 - Throttle Position Sensor Performance Sens 2	P0227 - Throttle Position Sensor Circuit Low Bank 2	P0228 - Throttle Position Sensor Circuit High Bank 2	P0300 - Engine Mistire Detected	P0301 - Cylinder 1 Mistire Detected	P0002 - Cylinder 2 Nistire Detected	Temperature P0303 - Cylinder 3 Missire Distacted	P0304 - Cylinder 4 Mistire Detected		PC006 - Cylinder 6 Misfire Detected	P0307 - Cylinder 7 Misfire Detected	P0306 - Cylinder 8 Mistire Detected	P0443 - Evaporative Emission Purge Solenoid Control Circui Open	P0458 - Evaporative Emission Purge Selencid Control Circui Low	PO489 - Evaporative Emission I Purge Solenoid Control Circuit High	D406 - Evaponative Emission System How During Non- Purge	CONTINUED NEXT LINE
P013E - Oxygen Sensor Delayed Response - Rich to Lean Bank 1 Sensor 2	P0497 - Exaporative Emission System No Flow During Purge	P04AB - Exaporative Emission Purge Selencid Control Circui Open Bank 2	POAAC - Evaporative Emissic Purge Sciencid Control Circu Low Bank 2	e P04AD - Evaporative Emissio It Purge Solemaid Control Circui High Bank 2	n PO4AE - Evaporative Emission El Purge Solemoid Performance	P04DF - Exaporative Emission Purge Sciencid Performance Bank 1	P0641 - Sensor Relevence Vortage 1 Circuit Open	P0651 - Sensor Reference Vallage 2 Circuit Open	P0697 - Sensor Reference Votage 3 Circuit Open	POSA3 - Sensor Reference Votage 4 Circuit Open	P2000 - Carnshaft Position Actuator Control Circuit Low	P2089 - Carrehalt Position Actuator Control Circuit High	P2090 - Exhaust Carrehaft Position Actuator Control Circuit Low Bank 1	P2091 - Exhaust Carrishal Position Actuator Control Circuit High Bank 1	ft P2052 - Intake Cernstelf Position Actualor Control Circuit Low Bank 2	P2003 - Make Carrishaft Position Adustor Control Circuit High Bank 2	P2094 - Exhaust Carrellal Position Actuator Control Circuit Low Bank 2	P2095 - Exhaust Cernshaf Position Actuator Control Circuit High Bank 2	P2096 - Post Catalyst Fuel Trim System Low Limit Bank	P2097 - Post Catalyst Fuel Trim Sustem High Limit Bank	P2128 - Throttle Position 1 Sensor 2 Performance Bank 2	P212C - Throide Position Sensor 2 Circuit Low Bank 2	CONTINUED NEXT LINE
	P212D - Throite Position Sensor 2 Circuit High Bank 2	P2177 - Fuel Trim System Lean Off Ide Bank 1	P2175 - Fuel Trim System Ris Off Ide Bank 1	th P2187 - Fuel Trim System Lean at Ide Bank 1	P2188 - Fuel Trim System Rick of Ide Book 1	P2195 - Crygen Sensor Signs Blased Lean Bank 1 Sensor 1	P2196 - Caygen Sensor Signs Blased Rich Bank 1 Sensor 1	P2232 - Oxygen Sensor Signa Circuit Shorted to Heater	P2270 - Oxygen Sensor Sign Stuck Lean Bank 1 Sensor 2	at P2271 - Oxygen Sensor Signs Stuck Rich Bank 1 Sensor 2	P2AGB - Manifold Absolute Pressure Sensor Performance	P2ADC - Manifold Absolute Pressure Sensor Circuit Low	P2A00 - Manifeld Absolute Pressure Sensor Circuit High	P2E68 - Fuel Trim System Lean During Cylinder Descrivation Bank 1		P318A - Cylinder 2 Reactivation Performance Trapped High Pressure	P318B - Cylinder 3 Reactivation Performance Trapped High Pressure	P318D - Oylinder 5 Reactivation Performance Tropped High Pressure	P3190 - Cylinder 8 Reactivation Performance - Trapped High Pressure	P3409 - Cylinder 2 Deachwarion Schemold Contro	P3411 - Cylinder 2 Dauctivation Schmold Control	P3412 - Cylinder 2 Nectivation Sciencid Control	CONTINUED NEXT LINE
	P3417 - Cylinder 3 Deactivation Sciencid Control Circuit Opin	P3419 - Cylinder 3 Deactivation Sciencid Control	P3420 - Cylinder 3 Deactivation Sciencid Contro Circuit High	P3433 - Cylinder 5 Deachvation Sciencial Contro Circuit Open	P3435 - Cylinder 5 Descrivation Scienceid Control Circuit Low	P3436 - Cylinder 5 Deactivation Sciencid Control Circuit High	P3457 - Cylinder 8 Deactivation Sciencid Control Circuit Deen	Circuit Benk 1 Seneor 2 P3459 - Cylinder 8 Deactivation Sciencid Control Circuit Low	P3460 - Gylinder 8 Deachivation Stemoid Contro Circuit High	P3499 - Cylinder 2 Descrivation Performance	Bank 2 P349A - Cylinder 3 Deactivation Performance	P349C - Cylinder 5 Deschvation Performance	Bank 2 P349F - Cylinder 8 Deschasion Performance	U0027 - Lost Communicati With Throttle Position Sens Bank 1 Sensor 2		Ethausi Charge U136D - Invalid Data Receive From Throtae Position Senso 2	Exhausi Charge and U136F - Invalid Data Receive From Throdie Position Sens Bank 2 Sensor 2	Exhaust Charge and or END	Exhaust Charge	Circuit Open	Girouit Low	Circuit High	
	P000A - Carrishoft Position System Slow Response Benk 1	P0008 - Exhaust Carretorh Position System Slow Response Bank 1	P000C - Intake Carretraft Position System Slow Response Bank 2	P0000 - Extravel Correhelt Position System Slow Response Bank 2	P0010 - Carrishaft Position Actuator Control Circuit Open	P0011 - Camshaft Position System Performance	P5013 - Exhaust Carretwit Position Actuator Control Circuit Open Bank 1	P0014 - Eshaust Carrelrati Position System Performance Bank 1	P0020 - Intake Carrelraft Position Actuator Control Circuit Open Bank 2	P0021 - Istake Carreteit Position System Performance Bank 2	P0003 - Extrauet Correlant Position Actuator Control Circuit Open Bank 2	P0024 - Eshaust Carrishaft Position System Performance Bank 2	P003D - Oxygen Sensor Heats Control Circuit Open Bank 1 Sensor 1	POCS1 - Oxygen Sensor Hea Control Circuit Low Bank : Sensor 1	ater PCCC2 - Oxygen Sensor Heate	P0036 - Oxygen Sensor Heat Control Circuit Open Bank 1 Sensor 2	er P0337 - Crygen Senecr Hea Control Circuit Low Bank 1 Sensor 2	ter P0038 - Caygen Sensor Hea Control Circuit High Bank 1 Sensor 2	P0101 - Mass Air Flow Senso Performance	r P0102 - Mass Air Flow Senso Circuit Low	P0103 - Mass Air Flow Sensor Circuit High	P0106 - Manifold Absolute ressure Sensor Performence	CONTINUED NEXT LINE
	P0107 - Manifold Absolute Pressure Sensor Circuit Low	P0108 - Manifold Absolute Pressure Sensor Grouit High	P010B - Mass Air Flow Sensi 2 Performance	P010G - Mass Air Flow Senso 2 Circuit Low	or P010D - Mass Air Flow Senso 2 Circuit High	P0116 - Engine Coctant Temperature Sensor Performance	P0117 - Engine Coctant Temperature Sensor Circuit Low	P0118 - Engine Contant Temperature Sensor Grout High	P0119 - Engine Coctant Temperature Sensor Circuit Erratio	P0121 - Throttle Position Sensor Performance	P0122 - Throttle Position Sensor Circuit Low	P0123 - Throide Position Sensor Circuit High	P0128 - Engine Coolint Temperature Below Thermostat Regulating	P0130 - HO2S Grout Bank Sensor 1	Response Bank 1 Sensor Slow	P0137 - Oxygen Sensor Circu Low Bank 1 Sensor 2	at P0138 - Caygen Sensor Circ High Bank 1 Sensor 2	P013A - Chygen Sensor Sto Response - Rich to Lean Ba 1 Sensor 2	ev P013B - Oxygen Sensor Stor nk Response - Leon to Rich Bani 1 Sensor 2	P013E - Oxygen Sensor Debyed Response - Rich to Leon Bank 1 Sensor 2	P01SF - Oxygen Sensor F Delayed Response - Lean to Rich Bank 1 Sensor 2	0140 - Oxygen Sensor Circuit Treufficient Activity Bank 1 Sensor 2	CONTINUED NEXT LINE
	P0141 - Oxygen Sensor Heater Performance Bank 1 Sensor 2	P0171 - Fuel Trim System Lean Bank 1	P0172 - Puel Trim System Ris Bank 1	h P0221 - Throile Position Sensor 2 Performance	P0222 - Throide Position Sensor 2 Circuit Low	P0223 - Throttle Position Sensor 2 Circuit High	P0225 - Throttle Position Sensor Performance Bank 2	P0227 - Throttle Position Sensor Glouit Low Bank 2	P0228 - Throttle Position Sensor Circuit High Bank 2	P0200 - Engine Malire Detected	P0301 - Cylinder 1 Mistire Detected	PC002 - Cylinder 2 Missire Detected	Temperature P0303 - Cylinder 3 Marke Detected	P0304 - Cylinder 4 Marine Detected	P0305 - Cylinder 5 Missire Detected	PCCDS - Cytender S Marline Detected	P0307 - Cylender 7 Marke Detected	P0306 - Cylinder 8 Mistine Detected	P0443 - Evaporative Emission Purge Schenoid Control Circui Open	P0458 - Evaporative Emission Purge Schenoid Control Circuit	P0459 - Exaporative Emission I Purge Solenoid Control Circuit High	0496 - Evaporative Emission System Row During Non- Purge	CONTINUED NEXT LINE
P013F - Oxygen Sensor Delayed Response - Lean to Rich Bank 1 Sensor 2	P0497 - Evaporative Emission System No Flow During Purge	POIAB - Exaporative Emission Purge Solenoid Control Circuit Open Bank 2	POMAC - Evaporative Emission Purge Sciencid Control Circu Low Bank 2	n POAAD - Evaporative Emissio Purge Solenoid Control Circui High Bank 2	on POARE - Evaporative Emission it Purge Solanoid Performance Bank 2	P04DF - Exaporative Emission Purge Solemoid Performance Bank 1	P0641 - Sensor Reference Voltage 1 Circuit Open	P0651 - Sensor Reference Voltage 2 Circuit Open	P0697 - Sensor Reference Voltage 3 Circuit Open	P06A3 - Sensor Reference Voltage 4 Circuit Open	P2088 - Carrelhaft Position Actuator Control Circuit Low	P2089 - Cernshaft Position Actuator Control Circuit High	P2090 - Exhaust Camshalt Position Actuator Control Circuit Low Bank 1	P2091 - Exhaust Camehal Position Actuator Control Circuit High Bank 1	ff P2092 - Intake Carnetell Position Actuator Control Circuit Low Bank 2	P2093 - Intake Carretraft Position Actuator Control Circuit High Bank 2	P2094 - Exhaust Camshall Position Actuator Control Circuit Low Bank 2	P2095 - Exhaust Camehal Position Actuator Control Circuit High Bank 2	P2006 - Post Catalyst Fuel Trim System Low Limit Bank	P2097 - Post Catalyst Fuel Trim System High Limit Bank	P2128 - Throttle Position 1 Sensor 2 Performance Bank 2	P212C - Throtile Position Sensor 2 Circuit Low Bank 2	CONTINUED NEXT LINE
	P212D - Throttle Position Sensor 2 Circuit High Bank 2	P2177 - Fuel Trim System Lean Off Ide Bank 1	P2178 - Fuel Trim System Ris Off Ide Bank 1	h P2187 - Fuel Trim System Lean at Ide Bank 1	P2188 - Fuel Trim System Rid at Idle Benk 1	P2196 - Oxygen Sensor Signo Blassed Lean Bank 1 Sensor 1	P2196 - Oxygen Sensor Signo Blassed Rich Bank 1 Sensor 1	P2232 - Oxygen Sensor Signa Circuit Shorted to Heater	P2270 - Oxygen Sensor Sign Stuck Lean Bank 1 Sensor 2	al P2271 - Oxygen Sensor Signs Studk Rich Bank 1 Sensor 2	P2ACB - Manifold Absolute Pressure Sensor Performance Bank 2	P2ACC - Manifold Absolute Pressure Sensor Circuit Low Bank 2	P2A0D - Manifold Absolute Pressure Sensor Circuit High Bank 2	P2EES - Fuel Trim System Lean During Cylinder Deactivation Bank 1		P318A - Cylinder 2 Reactivation Performance - Trapped High Pressure Exhaust Charge	P318B - Cylinder 3 Reactivation Performance Trapped High Pressure Exhaust Charge	P318D - Cylinder 5 Reactivation Performance Trapped High Pressure	P3190 - Cythider 8 Readdivation Performance Trapped High Pressure	P3409 - Cylinder 2 Deactivation Sciencid Contro Circuit Open	P3411 - Cylinder 2 Deachisation Solenoid Control Circuit Low	P3412 - Cylinder 2 Resclivation Solenoid Control Circuit High	CONTINUED NEXT LINE
	P3417 - Cylinder 3 Deacthration Sciencid Control Circuit Open	P3419 - Cylinder 3 Deacthration Solenoid Control Circuit Low	P3420 - Cylinder 3 Descrivation Sciencid Contro Circuit High	P3433 - Cylinder 5 Deactivation Solenaid Contro Circuit Open	P3435 - Cylinder 5 Deschation Selected Control Circuit Low	P3436 - Cylinder 5 Deactivation Scienced Control Circuit High	P3457 - Cylinder 8 Descrivation Sciencid Contro Circuit Open	P3459 - Cylinder 8 Deschvation Sciencid Control Circuit Low	P3460 - Cylinder 8 Deactivation Sciencial Contro Circuit High	P3499 - Cylinder 2 Deactivation Performance	P349A - Cylinder 3 Deactivation Performance	P349C - Cylinder 5 Deactivation Performance	P349F - Cylinder 8 Descrivation Performance	U0907 - Lost Communicate With Throttle Position Sens Bank 1 Sensor 2	ion U0668 - Lost Communication	Exhaust Charge U136D - Invalid Data Receive From Throttle Position Senso	d U156F - Irreald Data Receiv	Exhaust Charge ad or BNB	Exhaust Charge	Circui Open	Grout Low	CHURNIN	
P0140 - Oxygen Sensor Circuit Insufficient Activity Bank 1 Sensor 2	P0096 - Oxygen Sensor Heater Control Circuit Open Bank 1 Sensor 2	P0037 - Oxygen Sensor Heate Control Circuit Low Bank 1 Sensor 2	Carcus High P0038 - Oxygen Sensor Heat Control Circuit High Bank 1 Sensor 2	Citut Open END	Citout Low	Circuit High	Circuit Open	Carcuit Low	Отсисную		1			Balla 1 Sensor 2	Bank 2 Sensor 2	Z.	Bank 2 Bensor 2		_				
P0141 - Oxygen Sensor Heater Performance Bank 1 Sensor 2	P0006 - Oxygen Sensor Heater Control Circuit Open Bank 1 Sensor 2	P0037 - Oxygen Sensor Heate Control Circuit Low Bank 1 Sensor 2	P0038 - Oxygen Sensor Heat Control Circuit High Bank 1 Sensor 2	END																			
	P000A - Carrishoft Position System Slow Response Bank 1	P0008 - Educat Carretost Position System Slow Response Bank 1	P000C - Inteles Carretwit Position System Slow Response Bank 2	P000D - Edward Correlett Position System Slow Response Bank 2	P0010 - Carnshaft Position Actuator Control Circuit Open	P0011 - Camshaft Position System Performance	P0013 - Edward Correlati Position Actuator Control Circuit Open Bank 1	P0014 - Eshaset Carrotraft Position System Performance Bank 1	P0020 - Intake Carrelraft Position Actuator Control Circuit Open Bank 2	P0021 - Intelio Carretett Position System Performance Bank 2	P0003 - Edward Correlett Position Actuator Control Circuit Open Bank 2	P0024 - Eshasat Carrobatt Position System Performance Bank 2	P0050 - Oxygen Sensor Heats Control Circuit Open Bank 2	P0051 - Coygen Sereor Her Control Circuit Low Bank : Sensor 1	oter PC052 - Oxygen Sensor Heate 2 Control Circuit High Bank 2 Sensor 1	P0056 - Oxygen Sensor Heat Control Circuit Open Benk 2 Bensor 2	er P0357 - Cizygen Senecr Hee Control Circuit Low Bank 2 Sensor 2	ter P0058 - Oxygen Sensor Hea Control Circuit High Bank 2 Sensor 2	P0101 - Mass Air Flow Senso Performance	r P0102 - Mans Air Filow Senso Circuit Low	P0103 - Mass Air Flow Sensor Circuit High	P0106 - Manifold Absolute resource Sensor Performence	CONTINUED NEXT LINE
	P0107 - Manifold Absolute Pressure Sensor Circuit Low	P0108 - Manifold Absolute Pressure Sensor Circuit High	P010B - Mass Air Flow Sens 2 Performance	P010C - Mass Air Flow Senso 2 Circuit Low	or P010D - Mass Air Flow Senso 2 Circuit High	P0116 - Engine Cockent Temperature Sensor Performance	P0117 - Engine Cockent Temperature Sensor Circuit Low	P0118 - Engine Codlent Temperature Sensor Grouit High	P0119 - Engine Coolint Temperature Sensor Circuit Erratio	P0121 - Throttle Position Sensor Performance	P0122 - Throttle Position Sensor Circuit Low	P0123 - Throdie Position Sensor Circuit High	P0128 - Engine Coolent Temperature Below Thermostat Regulating		ow P013D - Oxygen Sensor Slow	P014A - Oxygen Sensor Debyed Response - Rich to Lean Bank 2 Sensor 2	P014B - Oxygen Sensor Delayed Response - Lean t Rich Bank 2 Sensor 2	P0150 - HO2S Circuit Bank Sensor 1	2 P0153 - Oxygen Sensor Slow Response Bank 2 Sensor 1	P0157 - Oxygen Sensor Circu Low Bank 2 Sensor 2	t P0156 - Caygen Sensor Circuit F High Bank 2 Sensor 2	0160 - Oxygen Semior Circuit   Insufficient Activity Bank 2   Semsor 2	CONTINUED NEXT LINE
mu	P0161 - Caygen Sensor Heater Performance Bank 2 Sensor 2	P0174 - Fuel Trim System Lean Bank 2	PD175 - Fuel Trim System Ris Bank 2	h P0221 - Throttle Position Sensor 2 Performance	P0222 - Throttle Position Sensor 2 Circuit Low	P0223 - Throttle Position Sensor 2 Circuit High	P0226 - Throttle Position Sensor Performance Bank 2	P0227 - Throttle Position Sensor Circuit Low Bank 2	P0228 - Throttle Position Sensor Circuit High Bank 2	P0200 - Engine Minfre Detected	P0301 - Cylinder 1 Minfire Detected	PCXX2 - Cylender 2 Minfire Detected	Temperature P0303 - Cylinder 3 Misthre Detected	P0304 - Cylinder 4 Mintee Detected		PCODS - Cylinder 6 Minfine Detected	P0307 - Cylinder 7 Methos Detected	P0306 - Cylinder 5 Martin Detected	P0443 - Evoporative Emission Purge Selenced Control Circui Open	P0458 - Evaporative Emission Purge Selencid Control Circui Low	P0459 - Exaporative Emission I Rusge Solemoid Control Circuit High	0496 - Evaporative Emission System How During Non- Purge	CONTINUED NEXT LINE
P014A - Dxygen Sensor Delayed Response - Rich to Lean Bank 2 Sensor 2	P0497 - Evaponative Emission System No Flow During Purgs	POIAB - Exeporative Emission Purge Solemoid Control Circuit Open Bank 2	POMAC - Evoporative Emissis Purge Solenoid Control Circu Low Bank 2	e PO4AD - Evaporative Emissio R Pusge Solenoid Control Circui High Bank 2	on POAAE - Evaporative Emission it Purge Solonoid Performance Bank 2	P04DF - Exsporative Emission Purge Solanoid Performance Bank 1	P0641 - Sensor Reference Voltage 1 Circuit Open	P0651 - Sensor Reference Voltage 2 Circuit Open	P0897 - Sensor Reference Vollage 3 Circuit Open	P08A3 - Sensor Reference Voltage 4 Clicali Open	P2088 - Carrelhaft Position Actuator Control Circuit Low	P2089 - Carrishaft Position Actuator Control Circuit High	P2090 - Exhaust Camshaft Position Actuator Control Circuit Low Bank 1	P2091 - Exhaust Carrishal Position Actuator Control Circuit High Bank 1	P2092 - Intake Carnetell Position Actuator Control Circuit Low Bank 2	P2000 - Intake Carretaft Position Actuator Control Circuit High Bank 2	P2094 - Exhaust Camshafi Position Actuator Control Circuit Low Bank 2	P2096 - Exhaust Carnehal Position Actuator Control Circuit High Bank 2	P2008 - Post Catalyst Fuel Trim System Low Limit Bank :	P2099 - Post Catalyst Field 2 Trim System High Limit Bank	P212B - Throttle Position 2 Sensor 2 Performance Bank 2	P212C - Throthe Position Sensor 2 Circuit Low Bank 2	CONTINUED NEXT LINE
	P212D - Throttle Position Sensor 2 Circuit High Bank 2	P2179 - Fuel Trim System Lean Off Ide Bank 2	P2190 - Fuel Trim System Ric Off Ide Bank 2	h P2189 - Fuel Trim System Lean at Ide Bank 2	P2190 - Fuel Trim System Rid at Ide Bank 2	P2197 - Oxygen Sensor Signo Blood Lean Bank 2 Sensor 1	P2198 - Oxygen Sensor Signo Blassed Rich Bank 2 Sensor 1	P2235 - Oxygen Sensor Signs Circuit Shorted to Heater Circuit Bank 2 Sansor 2	P2272 - Oxygen Sensor Sign Stock Lean Bank 2 Sersor 2	al P2273 - Oxygen Sensor Signs 8 Stuck Rich Bank 2 Sensor 2	P2ACB - Manifold Atsocioso Pressure Sensor Performance Bank 2	P2ACC - Manifold Absolute Pressure Sensor Circuit Low Bank 2	P2A00 - Manifold Absolute Pressure Sensor Circuit High Bank 2	P2ESA - Fuel Trim System Lean During Cylinder Deactivation Bank 2		P318A - Cylinder 2 Reactivation Performance - Trapped High Pressure	P318B - Cylinder 3 Reactivation Performance Trapped High Pressure	P318D - Cylinder 5 Reactivation Performance Trapped High Pressure	P3190 - Cylinder 8 Reactivation Performance Trapped High Pressure	P3409 - Cylender 2 Deactivation Sciencial Contro Circuit Open	P3411 - Cylinder 2 Deactivation Solenoid Control Circuit Low	P3412 - Cylinder 2 leactivation Solenoid Control Circuit High	CONTINUED NEXT LINE
	P3417 - Cylinder 3 Deacthation Sciencid Control	P3419 - Cylinder 3 Deactivation Selencid Control Circuit Low	P3420 - Cylinder 3 Deactivation Solenoid Contro Circuit High	P3435 - Cylinder 5 Deschedion Solenoid Contro	P3435 - Cylinder 5 Deschadon Solenoid Control Circuit Low	P3436 - Cylinder 5 Descrivation Solenoid Control Circuit High	P3457 - Cylinder 8 Descrivation Sciencid Contro	P3459 - Oylindar 8 Deschartion Solenoid Control Circuit Low	P3460 - Cylinder 8 Deschadon Solanoid Contro Circuit High	P3499 - Cylinder 2 Deactivation Performance	P349A - Cylinder 3 Deactivation Performance	P349C - Cylinder 5 Deactivation Performance	P349F - Cylinder 8 Descrivation Performance	U0907 - Lost Communication With Throttle Position Sens Bank 1 Sensor 2		Eshaust Charge U199D - Invalid Data Receive Prom Throttle Position Senso	Eshaud Charge ed U136F - Irreald Data Receive or From Throttle Position Sens Bank 2 Sensor 2	Exhaust Charge ad or BNB	Exhaust Change	Circui Opini	Great Low	Citating	
	P000A - Carretelf Position System Slow Response Bank 1	P000B - Exhaust Carrishaft Position System Slow Response Bank 1	P000C - Issale Carrishaft Position System Slow Response Bank 2	P0000 - Exhaust Corrishoft Position System Store Response Bank 2	P0010 - Carreladt Position Actuator Control Circuit Open	P0011 - Carrelatt Position System Performance	P0013 - Exhaust Corrishoft Position Actuator Control Circuit Open Bank 1	P0014 - Exhaust Carrishaft Position System Performance Book 1	P0020 - Insake Camshaft Position Actuator Control Circuit Open Bank 2	P0021 - Insake Camphaft Position System Performance Bank 2	P0023 - Exhaust Carrishoft Position Actuator Control Circuit Open Bank 2	P0024 - Exhaust Camshaft Position System Performance Bank 2	P0050 - Oxygen Sensor Heats Control Circuit Open Bank 2 Sensor 1	P0061 - Oxygen Sensor Hos Control Circuit Low Bank : Sensor 1	ated P0062 - Oxygen Sensor Heats	P0056 - Oxygen Sensor Heat Control Circuit Open Benk 2 Sensor 2	er P0357 - Oxygen Sensor Hea Control Circuit Low Bank 2 Sensor 2	ter P0069 - Oxygen Sensor Hea Control Circuit High Bank 2 Sensor 2	P0101 - Mass Air Plow Senso Performance	r P0102 - Mass Air Plass Senso Circuit Low	P0103 - Mass Air Flow Sensor Circuit High	P0105 - Manifold Absolute ressure Sensor Performance	CONTINUED NEXT LINE
	P0107 - Manifold Absolute Pressure Sensor Circuit Low	P0108 - Marifold Absolute Pressure Sensor Grout High	P010B - Mass Air Flow Sense 2 Performance	P010C - Mass Air Flow Senso 2 Circuit Low	or P010D - Mass Air Flow Senso 2 Circuit High	P0116 - Engine Cookert Temperature Sensor Performence	P0117 - Engine Codent Temperature Sensor Circuit Low	P0118 - Engine Coolant Temperature Sensor Circuit High	P0119 - Engine Coolant Temperature Sensor Circuit Erratic	P0121 - Throttle Position Sensor Performance	P0122 - Throthe Position Sensor Circuit Low	P0123 - Throdge Position Sensor Circuit High	P0128 - Engine Coolant Temperature Below Thermostal Regulating Temperature	P013C - Gaygen Sensor St Response - Rich to Lean Ba 2 Sensor 2		P014A - Oxygen Sensor Delayed Response - Rich to Lean Bank 2 Sensor 2	P014B - Oxygen Sensor Delayed Response - Lean t Rich Back 2 Sensor 2	P0150 - H028 Circuit Bank Sensor 1	2 P0153 - Oxygen Sensor Slow Response Bank 2 Sensor 1	P0157 - Oxygen Sensor Circu Low Bank 2 Sensor 2	k P0158 - Osygen Sensor Circuit F High Bank 2 Sensor 2	0160 - Oxygen Sensor Circuit Insufficient Activity Bank 2 Sensor 2	CONTINUED NEXT LINE
P014B - Oxygen Sensor Delayed	P0161 - Oxygen Sensor Heater Performance Bank 2 Sersor 2	P0174 - Fuel Trim System Lean Bank 2	P0175 - Fuel Trim System Rin Bank 2	h P0221 - Throttle Position Sensor 2 Performance	P0222 - Throttle Position Sensor 2 Circuit Low	P0223 - Throttle Position Sensor 2 Circuit High	P0226 - Throttle Position Sensor Performence Bank 2	P0227 - Throtile Position Sensor Circuit Low Bank 2	P0228 - Throttle Position Sensor Circuit High Benk 2	P0300 - Engine Misfire Detected	P0301 - Cylinder 1 Mistire Detected	P0302 - Cylinder 2 Wisfire Detected	P0303 - Cylinder 3 Misfire Detected	P0304 - Cylinder 4 Misline Detected		P0306 - Cylinder 6 Misfire Detected	P0307 - Cylinder 7 Misfire Detected	P0308 - Cylinder 8 Misline Detected	PG443 - Evaporative Emission Purge Solenoid Control Circui Open	PO458 - Evaporative Emission Purge Saleroid Control Circui Low	PO459 - Exsperative Emission I Purge Solenoid Control Circuit High	10496 - Exaposative Emission System How During Non- Purge	CONTINUED NEXT LINE
P014B - Oxygen Sensor Delayed Response - Lean to Rich Bank 2 Sensor 2	P0497 - Exaporative Emission System No Flow During Purge	P04AB - Exaponative Emission Purge Selencid Control Circuit Open Bank 2	POAAC - Evaporative Ernissis Punge Selenoid Control Circu Low Bank 2	e PO4AD - Evaporative Emissio It Purge Solensid Control Circui High Bank 2	on POAAE - Evaporative Emission ill Purge Solemoid Performance Bank 2	P04DF - Exaponative Emission Purge Solenoid Performance Bank 1	P0641 - Sensor Reference Voltage 1 Circuit Open	P0651 - Sensor Reference Willage 2 Circuit Open	P0697 - Sensor Reference Voltage 3 Circuit Open	POSA3 - Sensor Reference Voltage 4 Circuit Open	P2088 - Carrishaft Position Actuator Control Circuit Low	P2089 - Carrehaft Position Actuator Control Circuit High	P2090 - Exhaust Carrelhalt Position Actuator Control Circuit Low Bank 1	P2001 - Exhaust Carrelate Position Actuator Control Grouit High Bank 1	ft P2002 - Intake Corrected Position Actuator Control Grout Low Bank 2	P2003 - Insake Cernshaft Position Actuator Control Circuit High Bank 2	P2034 - Exhaust Carrelad Position Actuator Control Circuit Low Bank 2	P2006 - Exhaust Cernshaf Position Actuator Control Circuit High Bank 2	P2098 - Post Catalyst Fuel Trim System Low Limit Bank 2	P2099 - Post Catalyst Fuel 2 Trim System High Limit Bank:	P2128 - Throttle Position 2 Sensor 2 Performance Bank 2	P212C - Throife Position Sensor 2 Circuit Low Bank 2	CONTINUED NEXT LINE
	P212D - Throdge Position Sensor 2 Grouit High Bank 2	P2179 - Fuel Trim System Lean Off kile Bank 2	P2180 - Fuel Trim System Ris Off kile Bank 2	b P2189 - Fuel Trim System Lean at Ide Bank 2	P2150 - Fuel Trim System Rid at Idle Bank 2	P2197 - Oxygen Sensor Signo Biased Lean Bank 2 Sensor 1	P2198 - Caygen Sensor Signs Blased Rich Bank 2 Sensor 1	P2235 - Oxygen Sensor Signa Circuit Shorted to Heater Circuit Bank 2 Sensor 2	P2272 - Oxygen Sensor Sign Stuck Lean Bank 2 Sensor 2	el PZZ73 - Oxygen Senecr Signs 2 Stuck Rich Bank 2 Senecr 2	P2AIB - Manifold Absolute Pressure Sensor Performance Benk 2	P2ACC - Manifold Absolute Pressure Sensor Circuit Low Bank 2	P2A0D - Mamifold Absolute Pressure Sensor Circuit High Bank 2	P2E6A - Fuel Trim System Lean During Cylinder Deactivation Bank 2	n P2E68 - Fuel Trim System Rich During Cylinder Desclivation Bank 2	P318A - Cylinder 2 Reactivation Performance - Trapped High Pressure Exhaust Charge	P318B - Cylinder 3 Reactivation Performance Trapped High Pressure	P318D - Cylinder 5 Reactivation Performance Trapped High Pressure	P3190 - Cylinder 8 Reactivation Performance - Trapped High Pressure	P3409 - Cylinder 2 Deactivation Sciencid Contro Circuit Open	P3411 - Cylinder 2 Description Solemoid Control Circuit Low	P3412 - Cylinder 2 headmation Solemoid Control Circuit High	CONTINUED NEXT LINE
	P3417 - Cylinder 3 Descrivation Solenoid Control Circuit Open	P3419 - Cylinder 3 Deactivation Solenoid Control Circuit Low	P3420 - Cylinder 3 Deactivation Solenoid Contro Circuit High	P3433 - Cylinder 5 Deactivation Solenoid Contro Grout Open	P3435 - Cylinder 5 Deactivation Solenoid Control Grout Law	P3436 - Cylinder 5 Deactivation Sciencid Control Circuit High	P3457 - Cylinder 8 Deactivation Solenoid Contro Circuit Open	P3459 - Cylinder 8 Deactivation Sciencid Control Circuit Low	P3460 - Cylinder 8 Deactivation Solenoid Contro Circuit High	P3499 - Cylinder 2 Deactivation Performance	P349A - Cylinder 3 Deactivation Performance	P349C - Cylinder 5 Deactivation Performance	P349F - Cylinder 8 Deschasion Performance	U0907 - Lost Communicate With Throttle Position Sens Bank 1 Sensor 2	ion U0668 - Lost Communication for With Throttle Position Sensor Bank 2 Sensor 2	U136D - Invalid Data Receive From Throttle Position Senso 2	Exhaust Charge and U136F - Insald Data Receive From Throdie Position Sens Bank 2 Sensor 2	ed or END	Exhaust Charge		1	-	
P0150 - HO2S Circuit Bank 2 Sensor 1	P0050 - Caygen Sensor Heater Control Circuit Open Bank 2 Sensor 1	P0051 - Oxygen Sensor Heate Control Circuit Low Bank 2 Sensor 1	PD052 - Dxygen Sensor Heat Control Circuit High Bank 2 Sensor 1	P0150 - HO2S Circuit Bank 2 Sensor 1	2 P0151 - Oxygen Sensor Circui Low Bank 2 Sensor 1	t P0162 - Oxygen Sensor Circu High Bank 2 Sensor 1	P(G0) - Engine Misfire Detected	P0301 - Cylinder 1 Wisfire Detected	P0302 - Cylinder 2 Misfire Detected	P0303 - Cylinder 3 Misline Detected	P0304 - Cylinder 4 Misfire Detected	P0305 - Cylinder 5 Misfire Detected	P0306 - Cy4nder 6 Misfire Detected	P0307 - Cylinder 7 Mistire Detected	P0308 - Cylinder 8 Misfire Detected	P054E - Control Module Oxygen Sensor Bank 2 Sens 1 System Performance	P2240 - Doygen Sensor or Pumping Current Control Circuit Open Bank 2 Sensor	P2254 - Oxygen Sensor Lor Reference Circuit Open Bank 1 Sensor 1	P2629 - Caygen Sensor 2 Pumping Current Trim Circuit Open Bank 2 Sensor 1	P3009 - Control Module Processor Serial Peripheral Interface Bus 4	640		
P0151 - Coygen Sensor Circuit Low Bank 2 Sensor 1	P0050 - Oxygen Sensor Heater Control Circuit Open Bank 2 Sensor 1	P0061 - Oxygen Sensor Heate Control Circuit Low Bank 2 Sensor 1	P0052 - Oxygen Sensor Heat Control Circuit High Bank 2 Sensor 1	P0150 - HD2S Circuit Bank 2 Sensor 1	P0151 - Oxygen Sensor Circui Low Bank 2 Sensor 1	P0152 - Oxygen Sensor Grou High Bank 2 Sensor 1	P064E - Control Module Oxygen Sensor Bank 2 Senso 1 System Performance	P2240 - Oxygen Sensor Pumping Current Control Circuit Open Bank 2 Sensor 1	P2254 - Oxygen Sensor Low Reference Circuit Open Bank Sensor 1	P2629 - Oxygen Sensor 2 Pumping Current Trim Circuit Open Bank 2 Sensor 1	PS0D9 - Control Module Processor Serial Peripheral Interface Bus 4	END											
P0152 - Oxygen Sensor Circuit High Book 2 Sensor 1	P0050 - Oxygen Sensor Heater Control Circuit Open Bank 2 Sensor 1	P0061 - Oxygen Sensor Heate Control Circuit Low Bank 2 Sensor 1	r P0052 - Oxygen Sensor Heat Control Circuit High Bank 2 Sensor 1	PD150 - HD2S Clrouil Bank 2 Sensor 1	2 P0151 - Oxygen Sensor Circu Low Bank 2 Sensor 1	t P0152 - Oxygen Sensor Circu High Bank 2 Sensor 1	P064E - Control Module Oxygen Sensor Bank 2 Senso 1 System Performance	P2240 - Oxygen Sensor Pumping Current Control Circuit Open Bank 2 Sensor 1	P2254 - Oxygen Sensor Low Reference Circuit Open Bank Sensor 1	P2629 - Oxygen Sensor 2 Pumping Current Trim Circuit Open Bank 2 Sensor 1	P3009 - Control Module Processor Serial Perpheral Interface Bus 4	END											
	P000A - Carrehalt Position System Slow Response Bank 1	P0008 - Exhaust Carrishaft Position System Salow Response Bank 1	P000C - Intake Carrishaft Position System Stow Response Bank 2	P0000 - Exhaust Comshoft Position System Stow Response Bank 2	P0010 - Carrahalt Position Actuator Control Circuit Open	P0011 - Carrahalt Position System Performance	P0013 - Exhaust Carrehaft Position Actuator Control Circuit Open Bank 1	P0014 - Exhaust Camshaft Position System Performance Bank 1	P0020 - Intake Carrishaft Position Actuator Control Circuit Open Bank 2	P0021 - Intake Camshaft Position System Performance Bank 2	P0023 - Exhaust Camehaft Position Actuator Control Circuit Open Bank 2	P0024 - Exhaust Carrishaft Position System Performance Bank 2	P0050 - Oxygen Sensor Heats Control Circuit Open Bank 2 Sensor 1	P0061 - Oxygen Sensor Hec Control Circuit Low Bank : Sensor 1	oter P0052 - Oxygen Sensor Heate 2 Control Circuit High Bank 2 Sensor 1	P0056 - Oxygen Sensor Heat Control Circuit Open Bank 2 Sensor 2	er P0357 - Oxygen Sensor Hea Control Circuit Low Bank 2 Sensor 2	ter P0058 - Oxygen Sensor Hea Control Circuit High Bank S Sensor 2	P0101 - Mass Air Flow Senso Performance	r P0102 - Mass Air Flow Senso Circuit Low	r P0103 - Mass Air Flow Sensor Circuit High	P0106 - Manifeld Absolute ressure Sensor Performance	CONTINUED NEXT LINE
	P0107 - Manifold Absolute Pressure Sensor Circuit Low	P0108 - Manifold Absolute Pressure Sensor Circuit High	P010B - Mass Air Flow Sens 2 Performance	r P010C - Mass Air Flow Senso 2 Circuit Low	or P010D - Mass Air Row Senso 2 Circuit High	P0116 - Engine Cootent Temperature Sensor Performance	P0117 - Engine Coolant Temperature Sensor Circuit Low	P0116 - Engine Codant Temperature Sensor Grouit High	P0119 - Engine Cookert Temperature Sensor Gircuit Erratic	P0121 - Throate Position Sensor Performance	P0122 - Throtte Position Sensor Circuit Low	P0123 - Throttle Position Sensor Circuit High	P0128 - Engine Coolent Temperature Below Thermostal Regulating Temperature	P013C - Oxygen Sensor St Response - Rich to Lean Ba 2 Sensor 2	ow P013D - Oxygen Sensor Slov ank Response - Lean to Rich Bani 2 Sensor 2	P014A - Oxygen Sensor Delayed Response - Rich to Lean Bank 2 Sensor 2	P014B - Oxygen Sensor Delayed Response - Lean t Rich Bank 2 Sensor 2	P0150 - H028 Circuit Bank Sensor 1	2 P0151 - Oxygen Sensor Girou Low Bank 2 Sensor 1	it P0152 - Oxygen Sensor Circu High Bank 2 Sensor 1	R P0153 - Oxygen Sensor Stew Response Bank 2 Sensor 1	0167 - Oxygen Sensor Circuit Low Bank 2 Sensor 2	CONTINUED NEXT LINE
	P0158 - Oxygen Sensor Circuit High Bank 2 Sensor 2	P0160 - Oxygen Sensor Circu Insufficient Activity Bank 2 Sensor 2	P0161 - Oxygen Sensor Heat Performance Bank 2 Sensor	P0174 - Fuel Trim System Lean Bank 2	P0175 - Fuel Trim System Rici Bank 2	P0221 - Throttle Position Sensor 2 Performance	P0222 - Throttle Position Sensor 2 Circuit Low	P0223 - Throtile Position Sensor 2 Circuit High	P0226 - Throde Position Sensor Performance Bank 2	P0227 - Throttle Position Bensor Circuit Low Bank 2	P0228 - Throtile Position Sensor Circuit High Bank 2	P0300 - Engine Misfire Detected	P0301 - Cylinder 1 Misline Detected	P0302 - Cylinder 2 Misline Datected	P0303 - Cylinder 3 Mistire Detected	P0004 - Cylinder 4 Misfire Detected	P0305 - Cylinder 5 Misline Detected	P0306 - Cylinder 6 Misline Detected	P0307 - Cylinder 7 Mistire Detected	P0308 - Cylinder 8 Mistire Detected	P0443 - Evaporative Emission   Purge Solenoid Control Circuit   Open	0458 - Evaponative Emission urge Solenoid Control Circuit Low	CONTINUED NEXT LINE
PD153 - Oxygen Sensor Stow Response Bank 2 Sensor 1	P0459 - Evaporative Emission Purge Sciencid Control Circuit High	P0496 - Evaporative Emission System How During Non- Purge	P0497 - Evaporative Emissio System No Flow During Purg	P04AB - Evaporative Emissio Purge Solemoid Control Circui Open Bank 2	n P04AC - Evaporative Emission it Purge Solenoid Control Circui Low Bank 2	P04AD - Evaporative Emissio Purge Selencid Control Circui High Bank 2	POAAE - Evaporative Emission Purge Sciencid Performance Bank 2	P04DF - Evaporative Emission Purge Salenaid Performence Bank 1	P0541 - Sensor Reference Voltage 1 Circuit Open	P064E - Control Module Oxygen Sensor Bank 2 Senso 1 System Performance	POEST - Sensor Reference Voltage 2 Circuit Open	P0097 - Seneor Reference Voltage 3 Circuit Open	P06A3 - Seneor Reference Voltage 4 Circuit Open	P2088 - Carrishat Position Actuator Control Circuit Lo	n P2009 - Carrehalt Position w Actuator Control Circuit High	P2090 - Exhaust Carrishaft Position Actuator Control Circuit Low Bank 1	P2091 - Exhaust Carrishall Position Actuator Control Circuit High Bank 1	P2092 - Intake Carrishaft Position Actuator Control Circuit Low Bank 2	P2063 - Intake Cornshaft Position Actuator Control Circuit High Bank 2	P2094 - Exhaust Camshaft Position Actuator Control Circuit Low Bank 2	P2095 - Exhaust Camshaft Position Actuator Control Circuit High Bank 2	P2096 - Post Catalyst Fuel rim System Low Limit Bank 2	CONTINUED NEXT LINE
	P2009 - Post Catalyst Fuel Trim System High Limit Bank 2	P2128 - Throdle Position Sensor 2 Performance Bank 2	P212C - Throdie Position Sensor 2 Grout Low Bank 2	P2120 - Throttle Position Sensor 2 Circuit High Bank 2	P2179 - Fuel Trim System Lean Off [de Bank 2	P2180 - Fuel Trim System Rici Off Jole Bank 2	P2189 - Fuel Trim System Lean at Icle Bank 2	P2190 - Fuel Trim System Rich at Jdle Bank 2	h P2197 - Oxygen Sensor Sign Blased Leon Bank 2 Sensor	al P2196 - Oxygen Sensor Signs 1 Blased Rich Bank 2 Sensor 1	P2235 - Oxygen Sensor Signs Circuit Shorted to Heater Circuit Bank 2 Sensor 2	P2240 - Oxygen Sensor Pumping Current Control Circuit Open Bank 2 Sensor 1	P2254 - Oxygen Sensor Low Reference Circuit Open Bank : Sensor 1	P2272 - Oxygen Sensor Sig Stuck Lean Bank 2 Sensor	prof P2273 - Chygen Sensor Signs 2 Stuck Rich Bank 2 Sensor 2	P2298 - Oxygen Sensor Out- Range During Deceleration Bank 2 Sensor 1	P2629 - Oxygen Sensor Pumping Current Trim Circu Open Bank 2 Sensor 1	P2A0B - Manifold Absolute Pressure Sensor Performany Bank 2	P2AGC - Manifold Absolute Pressure Sensor Circuit Low Bank 2	P2ACO - Manifold Absolute Pressure Sensor Circuit High Bank 2	P2B6A - Fuel Trim System Lean During Cylinder Deactivation Bank 2	P2E68 - Fuel Trim System Rich During Cylinder Descrivation Bank 2	CONTINUED NEXT LINE
	P30D9 - Control Module Processor Serial Peripheral Interface Bus 4	P316A - Cylinder 2 Reactivation Performance - Trapped High Pressure Exhaust Charge	Reactivation Performance - Trapped High Pressure Exhaust Charge	P318D - Cylinder 5 Reactivation Performance - Trapped High Pressure Exhaust Charge	P3190 - Cylinder 8 Reactivation Performance Trapped High Pressure Exhaust Charge	P3409 - Cylinder 2 Deactivation Solenoid Control Circuit Open	P3411 - Cylinder 2 Deactivation Sciencid Contro Circuit Low	P3412 - Cylinder 2 Deactivation Solenoid Control Circuit High	P3417 - Cylinder 3 Deactivation Sciencid Contro Circuit Open	P3419 - Cylinder 3 Deactivation Sciencid Contro Circuit Low	P3423 - Cylinder 3 Deactivation Salenoid Control Circuit High	P3433 - Cylinder 5 Deadlwation Salenoid Control Circuit Open	P3435 - Cylinder 5 Deactivation Solenoid Control Circuit Low	P3436 - Cylinder 5 Deactivation Sciencid Cont Circuit High	P3457 - Cylinder 8 Deactivation Solenoid Control Circuit Open	P3459 - Cylinder 8 Deactivation Sciencid Contro Circuit Low	P3460 - Cylinder 6 Deactivation Solenoid Contr Circuit High	P3499 - Cylinder 2 Deactivation Performance	P349A - Cylinder 3 Deactivation Performance	P349C - Cylinder 5 Deactivation Performance	P349F - Cylinder 8 Deactivation Performance	,0607 - Lost Communication Nith Throdse Position Sensor Bank 1 Sensor 2	CONTINUED NEXT LINE
	U0688 - Lost Communication With Throttle Position Sensor Bank 2 Sensor 2	U138D - Invalid Data Receive From Throttle Position Sensor 2	1 U198F - Invalid Data Receiva From Throttle Position Senso Bank 2 Sensor 2	d END																			
P0157 - Doygen Sensor Circuit Low Bank 2 Sensor 2	END				_																		
P0158 - Oxygen Sensor Circuit High Bank 2 Sensor 2	P0056 - Oxygen Sensor Heater Control Circuit Open Bank 2 Sensor 2	P0067 - Caygen Sensor Heate Control Circuit Low Bank 2 Sensor 2	CP0058 - Oxygen Sensor Heat Control Circuit High Bank 2 Sensor 2	END																			
P0160 - Oxygen Sensor Circuit Insufficient Activity Bank 2 Sensor 2	P0056 - Caygen Seneor Heater Control Circuit Open Bank 2 Seneor 2	P0057 - Oxygen Sensor Heate Control Circuit Low Bank 2 Sensor 2	r P0058 - Oxygen Sensor Heat Control Circuit High Bank 2 Sensor 2	END																			
P0161 - Oxygen Sensor Heeter Performance Bank 2 Sensor 2	P0056 - Caygen Sensor Heater Control Circuit Open Bank 2 Sensor 2	P0067 - Oxygen Sensor Heats Control Cleouit Low Bank 2 Sensor 2	P0058 - Oxygen Sensor Heat Control Circuit High Bank 2 Sensor 2	END																			
P0171 - Fuel Trim System Lean Bank 1	END																						
P0172 - Fuel Trim System Rich Bank 1	END																						
P0174 - Fuel Trim System Lean Bank 2	END																						
P0175 - Fuel Trim System Rich Bank 2	END				_																		
P0188 - Fuel Pressure Sensor Performance	P018C - Puel Pressure Sensor Circuit Low	P018D - Fuel Pressure Senso Circuit High	P0541 - Senecr Reference Voltage 1 Circuit Open	END																			
P018C - Fuel Pressure Sensor Circuit Low	P0641 - Serson Reference Voltage 1 Circuit Open																						
P018D - Fuel Pressure Sensor Circuit. High	Property of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the content of the con																						

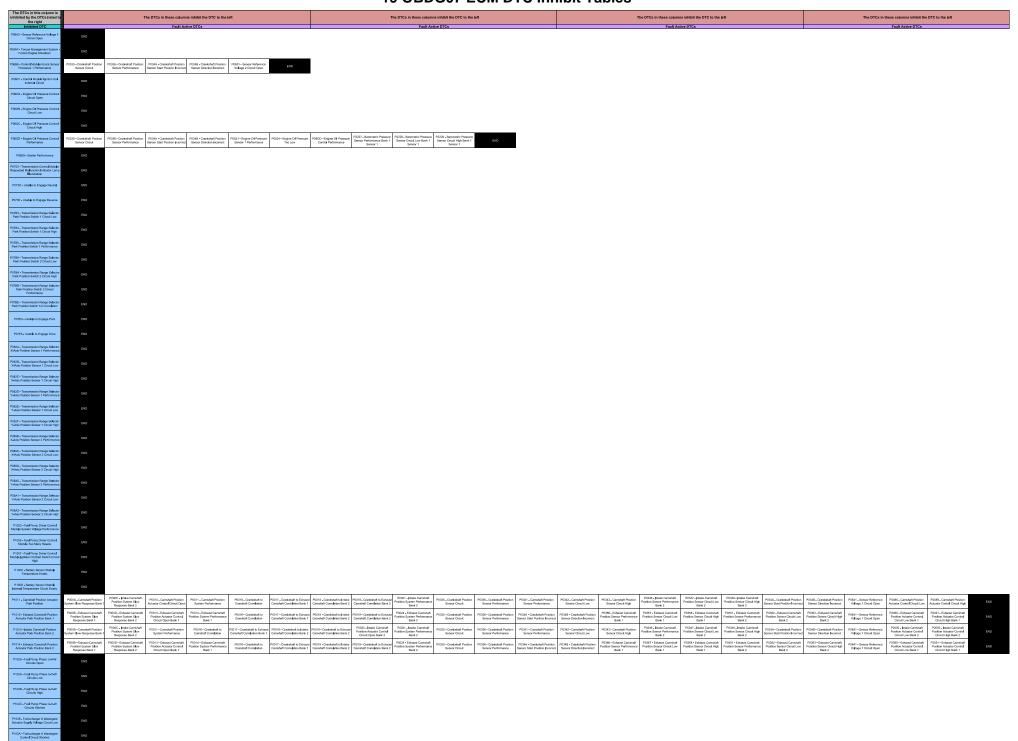


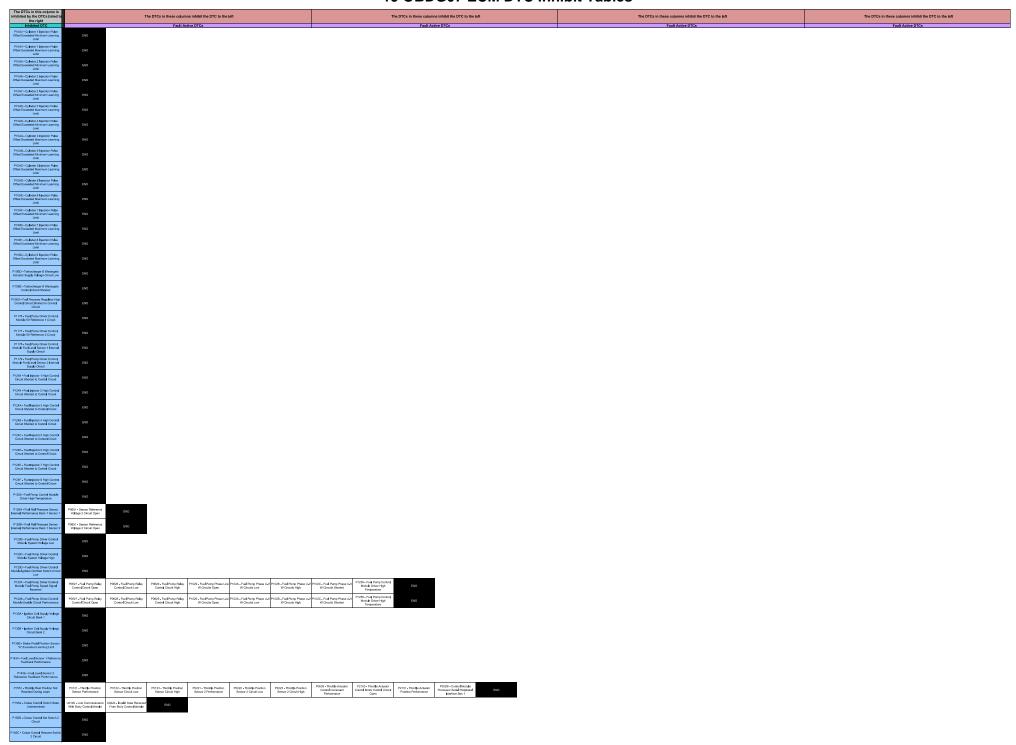


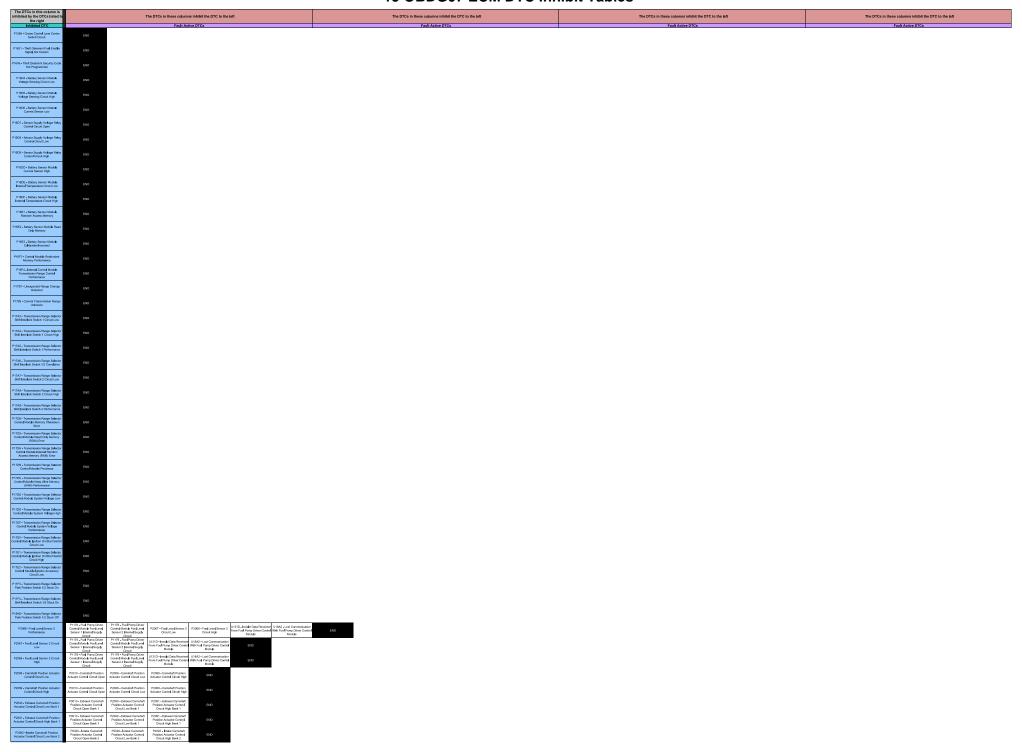
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Inhibited DTC P0357 - Ignition Col 7 Control Circuit Open	Fault Ar	ctive DTCs			Fault A	active DTCs				Fault Act	tive DTCs					Fault Active DTCs		
P0358 - Ignition Coll 8 Control Circuit	END																	
P0366 - Exhaust Carrishaft Position Sensor Performance Bank 1	P0313 - Eshward Carreltell Position Actuator Control Circuit Open Bank 1 P0335 - Crankshaft Position Sensor Parlomanoe	P034A - Crankshaft Position P034B - Crankshaft Position Incornect Sansor Direction Inco	ostion P0641 - Sensor Reference P2550 - Ed Postion A Coult	trausi Carrelnet P2001 - Eshausi Carrelne cluster Control Position Actuator Contro Low Bank 1 Circuit High Bank 1	t. END													
P0367 - Exhaust Camshaft Position Sensor Circuit Low Bank 1	P0015 - Exhaust Carrishift Position Adaptor Control Circuit Open Bonk 1  P0005 - Crankshift Position Sensor Circuit Sensor Performance	PCG4A - Crankshaft Position PCG4B - Crankshaft Pt Sensor Start Position Incornect Sensor Direction Inco	ostion P0641 - Sensor Reference P2090 - Exi	Dow Bank 1 Crout High Bank 1  Treat Carrehalt Position Actuator Control  Low Bank 1 Circuit High Bank 1	t.													
P0368 - Exhaust Carrehaft Position Sensor Circuit High Bank 1	P0013 - Exhaust Carrelatell Position Actuator Control Circuit Open Bank 1 P0003 - Crandatwit Position Sensor Circuit Sensor Performance	PESSA - Crankaturi Position Sensor Stari Position Incorrect Sensor Direction Inco	P2090 - Ed	Tausi Committed  Tausi Committed  Page 1 - Enhaust Committed  Tausi Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1 - Enhaust Committed  Page 1														
P0391 - Exhaust Carrishaft Position Sensor Performance Bank 2	P0023 - Exhaust Cernshell P0035 - Crankshaft Position P0036 - Crankshaft Position	P034A - Craréshaft Position P034B - Craréshaft P1 Sensor Start Position Incorrect Sensor Clirection Inco	ssition P0841 - Sensor Reference Position &	.ow Bank 1 Circuit High Bank 1  seast Comehalt P0995 - Exhaust Comeha thistor Control .ow Bank 2 Circuit High Bank 2														
P0392 - Exhaust Carrishaft Position Sensor Circuit Low Bank 2	Cricuit Open Blank 2 Sensor Curcuit Sensor versormanos  P0223 - Estreua Camandir, P0600n Assastor Control Cricuic Open Blank 2 Sensor Circuit Sensor Circuit Sensor Performanos	P034A - Crankshaft Position P034B - Crankshaft Position Incornect Sansor Direction Inco	CHOOK I	treat Certain P2005 - Ethaust Carraha P2005 - Ethaust Carraha Position Aduator Centre Low Bank 2 Circuit High Bank 2	t. END													
P0393 - Exhaust Carrishaft Position Sensor Circuit High Bank 2	P0225 - Eshaust Careshalt Position P0235 - Crankohalt Position P0236 - Crankohalt Position Circuit Core Bonk 2 Bensor Circuit P0236 - Crankohalt Position Sensor Performance	PCG4A - Crankshaft Position PCG4B - Crankshaft Position Incorrect Sensor Direction Inco	ostion P0641 - Sensor Reference Postion A	haust Carrishaft P2005 - Eshaust Carrisha dualer Centrel Position Aduator Centre Low Bank 2 Circuit High Bank 2	t ENG													
	P005A - Cerrateri Position Position System Stow Response Bank 1 Response Bank 1 Response Bank 2	P0000 - Exhaust Comehoft Position System Store Response Bank 2 Aduator Control Circuit		naust Comshaft P0014 - Exhaust Comsha dustor Control   Position System Performer lipen Bank 1   Bonk 1	ft P0020 - Intake Camphaft ce Position Actuator Control Circuit Open Bank 2	P0021 - Istalie Comstatt Position System Performance Bank 2 Circuit Open Bank 2	oft P0024 - Exhaust Camshaft Position System Parformano Bank 2	P0030 - Oxygen Sensor Heate Control Circuit Open Bank 1 Sensor 1	or P0001 - Oxygen Sensor Heater P0003 Control Circuit Low Bank 1 Con Sensor 1	32 - Oxygen Sensor Heater introl Circuit High Bank 1 Sensor 1	P0036 - Oxygen Sensor Heater Control Circuit Open Benk 1 Sensor 2	P0037 - Oxygen Sensor Heat Control Circuit Low Bank 1 Sensor 2	r P0038 - Oxygen Sensor Heate Control Circuit High Bank 1 Sensor 2	P0101 - Mass Air Flow Sensor Performance	P0102 - Mans Air Flow Serec Circuit Low	P0103 - Mass Air Flow Senso Circuit High	P0105 - Manifold Absolute Pressure Sensor Performance	CONTINUED NEXT LINE
	P0107 - Manifold Absolute P0108 - Manifold Absolute Pressure Sensor Clicuit High Pressure Sensor Clicuit High	P010C - Mass Air How Sensor P010D - Mass Air How 2 Circuit Low 2 Circuit High	P0116 - Engine Coolant P0117 - E	ngine Coolant a Sensor Circuit Low High	P0119 - Engine Coolent Temperature Sensor Circuit Erratic	P0121 - Throttle Position P0122 - Throttle Position Sensor Performance Sensor Gircuit Low	P0123 - Throttle Position Sensor Circuit High	P0128 - Engine Coolant Temperature Below Thermostal Regulating Temperature	P0130 - HO28 Circuit Bank 1 P013	31 - Oxygen Sensor Circuit Low Bank 1 Sensor 1	P0132 - Oxygen Bensor Circuit High Bank 1 Sensor 1	P0133 - Oxygen Sensor Size Response Bank 1 Sensor 1	P0137 - Oxygen Sensor Circui Low Bank 1 Sensor 2	t P0138 - Oxygen Sensor Circui High Bank 1 Sensor 2	P012A - Oxygen Sensor Slov Response - Rich to Lean Ban 1 Sensor 2	v P013B - Oxygen Sensor Slow K Response - Lean to Rich Bank 1 Sensor 2	P013E - Oxygen Sensor Delayed Response - Rich to Lean Bank 1 Sensor 2	CONTINUED NEXT LINE
	P013F - Oxygen Sensor Ddisyed Response - Lean to Rich Bank 1 Sensor 2 P0140 - Oxygen Sensor Hoate Insufficient Activity Bank 1 Pentamance Bank 1 Sensor 2	P0171 - Fuel Trim System P0172 - Fuel Trim Syste 2 Lean Bank 1 Bank 1		rotte Position P0223 - Throtte Position Circuit Low Sensor 2 Circuit High	P0226 - Throttle Position Sensor Performance Bank 2	P0227 - Throttle Position P0228 - Throttle Position Sensor Circuit Low Bank 2 Sensor Circuit High Ban	n P(300 - Engine Misfire 2 Detected	P0301 - Cylinder 1 Misfire Detected	P0302 - Cylinder 2 Misline P0 Detected	1303 • Cylinder 3 Misfire Detected	P0004 - Cylinder 4 Wisfire Detected	P0305 - Cylinder 5 Missire Detected	P0306 - Cylinder 6 Missine Detected	P0307 - Cylinder 7 Mistire Detected	P(308 - Cylinder 8 Misfire Detected	PO443 - Exaporative Emission Purge Solenoid Control Circuit Open	P0458 - Exaponative Emission Purge Solenoid Control Circuit Low	CONTINUED NEXT LINE
P0420 - Catalyst System Low Efficiency	P0466 - Evaporativa Emission P0466 - Evaporativa Emission P0467 - Evaporative Emission System North High Purge Purge Selected Control Circuit Purge Purge Selected Control Circuit Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge Purge P	P04AB - Evaporative Emission P04AC - Exaporative En Purge Soleroid Control Circuit Purge Soleroid Control Control Low Bank 2	mission P04AD - Evaponativa Emission P04AE - Evap Circuit Purge Selencid Control Circuit Purge Selen High Bank 2	constive Emission old Performance ank 2 Bonk 1	ion De P0641 - Sensor Reference Voltage 1 Circuit Open	P0640 - Control Module Oxygen Sensor Bank 1 Sensor 1 System Performance P0601 - Sensor Referen Voltage 2 Circuit Open	P0697 - Sensor Reference Voltage 3 Circuit Open	P06A3 - Seneor Reference Voltage 4 Circuit Open	P2068 - Camshaft Position P21 Actuator Control Circuit Low Actu	1069 - Carrishaft Position sator Control Circuit High	P2090 - Exhaust Carrishaft Position Actuator Control Circuit Low Bank 1	P2091 - Exhaust Carrishaft Position Actuator Control Circuit High Bank 1	P2092 - Intake Carrishaft Position Actuator Control Circuit Low Bank 2	P2053 - Intake Cerrsheft Position Actuator Control Circuit High Bank 2	P2094 - Exhaust Carrishaft Position Actuator Control Circuit Low Bank 2		P2096 - Post Catalyst Fuel Trim System Low Limit Bank 1	
	P2097 - Post Catelyst Fuel P2128 - Throde Position P212C - Throde Position Trim System High Limit Bank 1 Sensor 2 Performance Bank 2 Sensor 2 Circuit Low Bank 2	P212D - Throttle Position P2177 - Fuel Trim Sy Sensor 2 Circuit High Bank 2 Lean Off Ide Bank	atem P2178 - Fuel Trim System Rich P2187 - Fu 1 Off Idle Bank 1 Lean at	el Trim System P2185 - Fuel Trim System F Idle Bank 1 at Idle Bank 1	tich P2195 - Oxygen Sensor Sign Blased Leon Bank 1 Sensor	nal P2196 - Chygen Sensor Signal Circuit Shorad to Heat Gircuit Shorad to Heat Circuit Bank 1 Sensor 1		P2251 - Oxygen Sensor Low Reference Circuit Open Bank 1 Sensor 1	P2270 - Oxygen Seneor Signal P227 Stuck Lean Bank 1 Sensor 2 Stuck	71 - Oxygen Sensor Signal ick Rich Bank 1 Sensor 2	P2297 - Oxygen Sensor Out of Range During Deceleration Bank 1 Sensor 1	P2626 - Oxygen Sensor Pumping Current Trim Circui Open Bank 1 Sensor 1	P2A0B - Manifold Absolute Pressure Sensor Performence Bank 2	P2AGC - Manifold Absolute Pressure Sensor Circuit Low Bank 2	P2ACO - Manifold Absolute Pressure Sensor Circuit High Bank 2	P2E68 - Fuel Trim System Lean During Cylinder Deactivation Bank 1	P2E69 - Fuel Trim System Rich During Cylinder Descrivation Bank 1	
	P300 - Coetro Modely Processor Serial Peripheral Interface Bas 3  P318A - Oylinder 2 P318B - Oylinder 2 P318B - Oylinder 3 Pasactivation Performance Trapped High Pressure Exhaust Charge Exhaust Charge Exhaust Charge	P3180 - Cylinder 5 Reactivation Performance Taxpool High Pressure Exhaust Charge Exhaust Charge Exhaust Charge	8 P3409 - Cylinder 2 P3411 - Deactivation Scienced Control Deactivation Circ.	Cylinder 2 P3412 - Cylinder 2 Solenoid Control Deactivation Solenoid Control sit Low Circuit High	P3417 - Cylinder 3 Deactivation Solenoid Contri Circuit Open	P3419 - Cylinder 3 P3420 - Cylinder 3 P3420 - Cylinder 3 Deactivation Sciencid Commit Deactivation Sciencid Co Circuit High	P3433 - Cylinder 5 Deactivation Sciencid Contro Circuit Open	P3435 - Cylinder 5 Deactivation Solenoid Control Circuit Low	P3436 - Cylinder 5 Deactivation Solenoid Control Circuit High	P3457 • Cylinder 8 schwitten Selleneid Control Circuit Open	P3459 - Cylinder 8 Deactivation Sciencid Control Circuit Low	P3460 - Cylinder 8 Deactivation Solenoid Contro Circuit High	P3499 - Cylinder 2 Deactivation Performance	P349A - Cylinder 3 Descrivation Performance	P349C - Cylinder 5 Descrivation Performance	P349F - Cylinder 8 Deacthration Performance	U0907 - Lost Communication With Throdie Position Sensor Bank 1 Sensor 2	
	U0895 - Lost Communication With Throttle Position Sensor Bank 2 Sensor 2  U1997 - Invalid Data Received From Throttle Position Sensor Bank 2 Sensor 2  U1997 - Invalid Data Received From Throttle Position Sensor Bank 2 Sensor 2	d END	•															
	P000A - Carretert Position System Slow Response Bank 1 P000B - Edward Carretert Powlion System Slow Response Bank 1 P000C - Inside Carretert Powlion System Slow Response Bank 2	P0000 - Edward Carrishaft Position System Slee Response Bank 2 P0010 - Carrishaft Po Actuator Control Circuit	eillen P0011 - Camshaft Position P0013 - Ed Position A Circuit C	naust Carrishaft P0014 - Exhaust Carrisha daster Control Ipen Bank 1 Bank 1	t P0020 - Intake Carrelnatt cos Position Actuator Control Circuit Open Bank 2	P0021 - Intalio Carrohalt P0023 - Edward Carroh Position System Performance Bank 2 Circuit Open Bank 2	art P0024 - Exhaust Carrishaft Position System Performance Bank 2	P0350 - Oxygen Sensor Heats 6 Control Clincuit Open Bank 2 Sensor 1	or P0061 - Oxygen Sensor Heater P005; Control Circuit Low Bank 2 Con Sensor 1	52 - Oxygen Sensor Heater setro  Circuit High Bank 2 Sensor 1	P0056 - Oxygen Sensor Heater Control Circuit Open Bank 2 Sensor 2	P0357 - Oxygen Sensor Heat Control Circuit Low Bank 2 Sensor 2	r P0068 - Osygen Sensor Heate Control Clicuit High Bank 2 Sensor 2	P0101 - Mass Air Flow Sensor Performance	P0102 - Mass Air Flow Senso Circuit Low	r P0103 - Mass Air Flow Senso Circuit High	P0105 - Manifold Absolute Pressure Sensor Performance	
	P0107 - Manifold Absolute P0108 - Manifold Absolute P010B - Absolute Pressure Sensor Circuit Low Pressure Sensor Circuit High 2 Performance	PD10C - Mass Air Flow Sussor PD10D - Mass Air Flow 2 Girosk Low 2 Circuit High	Temperature Sensor Temperature	ngine Coolant a Sensor Circuit Low P0118 - Engine Coolant Temperature Sensor Circuit High	P0119 - Engine Coolant Temperature Sensor Circuit Erratic	B P0121 - Throttle Position P0122 - Throttle Position Sensor Performance Sensor Gircuit Low	P0123 - Throdia Position Sensor Circuit High	P0128 - Engine Coolant Temperature Below Thermostat Regulating Temperature	P013C - Oxygen Sensor Slow Response - Rich to Lean Bank 2 Sensor 2	3D - Oxygen Sensor Slow ponse - Lean to Rich Bank 2 Sensor 2	P014A - Oxygen Sensor Delayed Response - Rich to Leon Bank 2 Sensor 2	P014B - Oxygen Sensor Delayed Response - Lean to Rich Bank 2 Sensor 2	P0150 - HO2S Circuit Bank 2 Sensor 1	P0151 - Oxygen Sensor Circui Low Bank 2 Sensor 1	t P0152 - Caygen Seneor Circs High Bank 2 Sensor 1	it P0153 - Coygen Sensor Slow Response Bank 2 Sensor 1	P0157 - Oxygen Sensor Circuit Low Bank 2 Sensor 2	
	P0158 - Oxygen Sensor Circust High Bank 2 Sensor 2 P0160 - Oxygen Sensor Circust Insufficient Activity Bank 2 Sensor 2	P0174 - Fuel Trim System P0175 - Fuel Trim Syste 2 Lean Bank 2 Bank 2	om Rich P0221 - Throttle Position P0222 - Th Sensor 2 Performance Sensor 2	P0223 - Throttle Position Closel Low Sensor 2 Circuit High	P0226 - Throdie Position Sensor Performance Bank 2	P0227 - Throttle Position P0228 - Throttle Position Sensor Circuit Low Bank 2 Sensor Circuit High Ban	n P0300 - Engine Misfire Detected	P0301 - Cylinder 1 Misfire Detected	P0302 - Cylinder 2 Misline P0 Detected	3503 - Cylinder 3 Misfire Detected	P0304 - Cylinder 4 Misfire Detected	P0305 - Cylinder 5 Missiere Detected	P0306 - Cylinder 6 Mistine Detected	P0507 - Cylinder 7 Misfire Detected	P0308 - Cylinder 8 Misfire Detected	P0643 - Evaporative Emission Purge Solenoid Control Circuit Open	P0458 - Evaporative Emission Purge Solenoid Control Circuit Low	
P0430 - Catalyst System Low Efficiency Bank 2	P0450 - Evaporative Emission Parge Selenoid Control Circuit High Purge Selenoid Control Circuit High Purge Purge Purge Purge	POAAD - Evaporative Emission Purge-Solenoid Control Circuit Open Bank 2 Low Bank 2	mission POAD - Evaporative Emission Circuit Purge Seleneld Control Circuit Purge Selen High Bank 2 B	contive Emission POADF - Evaporative Emiss old Performance Purge Salenoid Performan ank 2 Bank 1	P0641 - Sensor Reference Vollage 1 Circuit Open	P064E - Control Module Oxygen Sensor Bank 2 Sensor 1 System Performance Voltage 2 Circuit Open	P0697 - Sensor Reference Voltage 3 Circuit Open	P06A3 - Sensor Reference Vollage 4 Circuit Open	P2068 - Camshaft Position P21 Actuator Control Circuit Low Actu	2009 - Carrishaft Position sator Control Circuit High	P2090 - Exhaust Carrelreft Position Actuator Control Circuit Low Bank 1	P2021 - Eshaust Carminaft Position Actuator Control Circuit High Bank 1	P2002 - Intake Carrehaft Position Actuator Control Circuit Low Bank 2	P2003 - Intake Correlati Position Actuator Control Circuit High Bank 2	P2094 - Edward Carreloft Position Actuator Control Circuit Low Bank 2	P2095 - Exhaust Carrelraft Position Actuator Control Circuit High Bank 2	P2096 - Post Catalyst Fuel Trim System Low Limit Bank 2	
	P2099 - Post Catalyst Fuel P2108 - Throttle Position Triin System High Limit Bank 2 Sensor 2 Performance Bank 2 Sensor 2 Circuit Low Bank 2  P2100 - Count Models P318A - Optimizer 2  P318B - Optimizer 2  P318B - Optimizer 2	P212D - Throothe Position Sensor 2 Circuit High Bank 2 P2179 - Fuel Trism Sy Lean Off Idle Bank P318D - Cylinder 5 P3180 - Cylinder	2 Official Bank 2 Lean at	Idle Bank 2 at Idle Bank 2	Blased Lean Bank 2 Sensor	P2196 - Oxygen Sensor Signal 1 Blased Rich Bank 2 Sensor 1 Circuit Shotted to Heat Circuit Bank 2 Sensor	gnal P2240 - Oxygen Bensor r Pumping Current Centrol Circuit Open Bank 2 Sensor	P2254 - Oxygen Sensor Low Reference Circuit Open Bank : Sensor 1		73 - Oxygen Sensor Signal Ick Rich Bank 2 Sensor 2	P2298 - Oxygen Sensor Out of Range During Deceleration Bank 2 Sensor 1	P2629 - Oxygen Sensor Pumping Current Trim Circui Open Bank 2 Sensor 1	P2A0B - Manifold Absolute Pressure Sensor Performance Bank 2	PZAGC - Manifold Absolute Pressure Sensor Circuit Low Bank 2	P2ADD - Manifold Absolute Pressure Sensor Circuit High Bank 2	P2EBA - Fuel Trim System Lean During Cylinder Deactivation Bank 2	P2E68 - Fuel Trim System Rich During Cylinder Deactivation Bank 2	
	Processor Sertal Paripheral Processor Sertal Propheral Trapped High Pressure Eshaust Charge Eshaust Charge Eshaust Charge	Reactivation Performance Trapped High Pressure Exhaust Charge Exhaust Charge Exhaust Charge	ince a rotor cyanoria	Cylinder 2 Selemeid Control Descrivation Selemeid Cont alt Low Circuit High	P3417 - Cylinder 3 rol Descrivation Sciencid Contra Circuit Open	P3419 - Cylinder 3 P3420 - Cylinder 3 Deactivation Sciencid Control Circuit Low Choult High	P3433 - Cylinder 5 and Descrivation Sciencid Contro Circuit Open	P3435 - Cylinder 5 Description Solemoid Control Circuit Low	P3496 - Cylinder 5 Deacthration Sciencid Control Circuit High	P3457 - Cylinder 8 ctivation Selencid Control Circuit Open	P3459 - Cylinder 8 Deactivation Sciencid Control Circuit Low	P3460 - Cylinder 8 Deacthration Sciencid Contro Circuit High	P3499 - Cyfinder 2 Deactivation Performance	P349A - Cylinder 3 Deactivation Performance	P349C - Cylinder 5 Deactivation Performance	P346F - Cylinder 8 Deactivation Performance	U0907 - Lost Communication With Throtile Position Sensor Bank 1 Sensor 2	CONTINUED NEXT LINE
	U0008 - Lost Communication With Throde Position Sensor Bank 2 Sensor 2 U1000 - Invelid Data Received With Throde Position Sensor Bank 2 Sensor 2 U1000 - Invelid Data Received From Throde Position Sensor Bank 2 Sensor 2	d END		1					, ,			1				1		
P0442 - Evaporative Emission System Small Loak Detected	P0271 - Arnbient Air Temperature Sensor Chroit Pufformation Poffarmation P04AB - Exponsible Emission P04AB - Exponsible Emission P04AB - Exponsible Emission P04AB - Exponsible Emission	P0074 - Ambient Air Temperature Sensor Circuit Intermittant  P04AE - Evaporative Emission P04AE - Evaporative Emission		rgine Codant e Sensor Circuit figh P0119 - Engine Codant Temperature Sensor Circuit figh Enatic outral Module U0076 - Control Module		om P0446 - Evaporative Ernission Vent System Parformance Vent Solonoid Control Ca Open	Non P0451 - Fuel Tank Pressure Sersor Performance	P0452 - Fuel Tank Pressure Sensor Circuit Low	P0453 - Fuel Tank Pressure P04 Sensor Clincoll High Se	454 - Fuel Tank Pressure erace Circuit Intermittent	P0455 - Evaporative Emission System Large Leak Detected	PD458 - Exeponative Emissio Purge Solenoid Control Circu Low	P0459 - Evaporative Emission Purge Solemoid Control Circuit High	P0496 - Evaporative Emission System How During Non- Purge	P0497 - Evaporative Emissio System No Plan During Pung	PO495 - Evaporative Emission Vent Sciencid Control Circuit Low	P0499 - Evaporative Emission Vent Solenoid Control Circuit High	CONTINUED NEXT LINE
	PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission   PSAGE - Evaporative Emission	n POARE - Evaporative Ermisson (POARE - Evaporative E R Purge Sciencid Performance Bank 2 Purge Sciencid Perfor Bank 1		tion High Speed Communication Powerter Bus Off Sensor CAN Bus Off	UISTD - Invalid Data Moone From Fuel Pump Driver Cont Module	With Fuel Pump Driver Control  Module  END												
P0443 - Evaporative Emission Purge Solenoid Control Circuit Open	END	Trough Committee Control			Posts Committee Control							1	David December December	Daniel Description Description				
P0446 - Evaporative Emission Vent System Performance	P0108 - Manifeld Absolute Pressure Sensor Performance Pressure Sensor Circuit Loss P2405 - Manifeld Absolute P2405 - Manifeld Absolute P2405 - Manifeld Absolute P2405 - Manifeld Absolute P2405 - Manifeld Absolute	Open Sensor Performan	po452 - Fuel Tank Pressure on Sensor Circuit Low Sensor	Tank Pressure P0454 - Fuel Tank Pressur Grout High Sensor Circuit Internitien	Purge Solenoid Control Circ. Low	on P0456-Evaporative Emission P0448 - Evaporative Emission Purge Sciencid Control Circuit Purge Sciencid Control Circuit Purge Sciencid Control Circuit Open Bank 2	cuit Purge Salenaid Control Circu Low Bank 2	ti Purge Solenoid Control Circui High Bank 2	P0841 - Sensor Reference P08 Voltage 1 Circuit Open V	1651 - Sensor Reference Vollage 2 Circuit Open	P0697 - Sensor Reference Voltage 3 Circuit Open	P06A3 - Sensor Reference Voltage 4 Circuit Open	P2227 - Barometric Pressure Sensor Performance Bank 1 Sensor 1	P2228 - Barometric Pressure Sensor Circuit Low Bank 1 Sensor 1	P2229 - Barometric Pressure Sensor Circuit High Bank 1 Sensor 1	CONTINUED NEXT LINE		
	Pressure Sensor Performance Bank 2 Pressure Sensor Circuit Low Bank 2 Pressure Sensor Circuit High	END																
P0449 - Evaporative Emission Vent Solenoid Control Circuit Open	POIDS - Manifold Absolute POIDS - Manifold Absolute POIDS - Manifold Absolute POIDS - Manifold Absolute	P0443 - Evaporative Emission Puspe Solared Control Circuit	P0449 - Evaporative Emission poetro - Due	Tank Pressure PD453 - Fuel Tank Pressure	P0458 - Evaporative Emissio	on P0459 - Evaporative Emission P0456 - Evaporative Emission If Purgs Scienced Control Circuit System Flore During No	ion	P0498 - Evaporative Emission	P0499 - Evaporative Emission P04A	A8 - Evaporative Emission	P04AC - Evaporative Emission	PO4AD - Evaporative Emissio	POAAE - Evaporative Emission	P040F - Evaporative Emission		T		
P0451 - Fuel Tank Pressure Sensor Performance	Pressure Sensor Performance Pressure Sensor Circuit Low Pressure Sensor Circuit High	Open Valid System Perform	ance Vert Scienced Control Circuit Sensor Spen P2AGE - Manifeld Absolute P2AGC - M	Circuit Low Sensor Circuit High snifeld Absolute P2ADD - Manifold Absolut	Low B LR073 - Control Module	High Purge		0	P0499 - Evaporative Emission Vent Salentid Control Circuit High	ge Schenold Control Circuit Open Bank 2	Purge Salenoid Control Circuit Low Bank 2	Purge Solenoid Control Circu High Bank 2	Purge Solenoid Performance Bank 2	Purge Schenold Performance Bank 1	PDS41 - Sensor Reference Votage 1 Circuit Open	P0651 - Sensor Reference Voltage 2 Circuit Open	P0007 - Sensor Reference Voltage 3 Circuit Open	CONTINUED NEXT LINE
P0452 - Fuel Tank Pressure Sensor Grout Low	P08.43 - Sensor Reference Voltage 4 Circuit Opes  P1170 - Fuel During Oriver Control Module 97 Reference 1 Circuit 1 Sensor 1 Sensor 1 Sensor 1	P2228 - Berometric Pressure Sensor Circuit Low Bank 1 Sensor Circuit High B Sensor 1	ank 1 Pressure Sensor Performance Pressure Se Bank 2 B	nsor Circuit Low Pressure Sensor Circuit Hi ank 2 Bank 2	gh Communication High Speed GAN Bus Off	d Communication Powertrain Sensor CAN Bus Off From Fuel Pump Driver Ci Module	ived U18A2 - Lost Communication nord With Full Pump Driver Contra Module	END END										
Circuit Low P0453 - Fuel Tank Pressure Sensor Circuit High	END																	
Circuit High	P0105 - Manifold Absolute P0107 - Manifold Absolute P0108 - Manifold Absolute	P0443 - Evaporative Emission P0449 - Evaporative En	mission P0452 - Fuel Tank Pressure P0453 - Fue	Tank Pressure Dura Scharold Control Co.	ion P0459 - Evaporative Emissio	on P0496 Evaporative Emission p0497 Evaporative Emission System How During Non-Suntan No Group Purion D	P0498 - Evaporative Emissio Want Schwoold Control Control	n P0499 - Evaporative Emission	n P04AB - Evaporative Emission P04A Purge Sciencid Control Circuit Purg Open Bank 2	AC - Evaporative Emission	P04AO - Evaporative Emission Burne Sylamid Control Circuit	POARE - Evaporative Emissio	P04DF - Evaporative Emission	P0641 - Sensor Reference	P0031 - Seneor Reference Voltage 2 Circuit Open	P0897 - Sensor Reference Voltage 3 Circuit Open	P0SA3 - Sensor Reference Voltage 4 Circuit Open	CONTINUED NEXT LINE
P0454 - Fuel Tank Pressure Sensor Circuit (relemblent	Pressure Sensor Penformanoe Pressure Sensor Circuit Loui Pressure Sensor Circuit High  P1176 - Fuel Pump Driver  Commit Module SV Reference Sensor Penformanoe Bank 1  Sensor I Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit High  Pressure Sensor Circuit Loui Pressure Sensor Circuit High  Pressure Sensor Circuit Loui Pressure Sensor Circuit High  Pressure Sensor Circuit Loui Pressure Sensor Circuit High  Pressure Sensor Circuit Loui Pressure Sensor Circuit High  Pressure Sensor Circuit High  Pressure Sensor Circuit High  Pressure Sensor Circuit High  Pressure Sensor Circuit High  Pressure Sensor Circuit High  Pressure Sensor Circuit High  Pressure Sensor Circuit Loui Pressure Sensor Circuit High  Pressure Sensor Circuit Loui Pressure Sensor Circuit High  Pressure Sensor Circuit High  Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure Sensor Circuit Loui Pressure	Purge Solimitid Central Circuit Verst Solendid Control Open P2229 - Bercorretric Pressure Bersor Circuit High Bank 1 Sensor 1 P2409 - Menifold Alexandro Bank 2 Bank 2	coline P2AGC - Manifold Absolute P2AGD - Ma	nifold Absolute U0073 - Control Module	High U0076 - Control Module od Communication Proventrain	U131D - Involid Data Received U18A2 - Lost Communic	Low fon stel BND	High	Open Bank 2	Low Bank 2	High Bank 2	Bank 2	Bank 1	Voltage 1 Circuit Open	Voltage 2 Girouit Open	Voltage 3 Circuit Open	Voltage 4 Circuit Open	CONTROLD TEXT DIE
	P0106 - Manifold Absolute P0107 - Manifold Absolute P0106 - Manifold Absolute	PD443 - Evaporative Emission	mission P0461 - Fuel Tank Pressure P0462 - Fue	I Tank Pressure Circuit Low Can Bus Off  P0453 - Fuel Tank Pressure Senaor Circuit High	Sensor CAN Bus Off re P0454 - Fuel Tank Pressure Sensor Circuit Intermittent	P0456 - Evaporative Emission P0459 - Evaporative Emis	sion P0496 - Evaporative Emissio	P0497 - Exaporative Emission System No Flow During Purge	PO4AB - Exsporative Emission PD4A Purge Solenoid Control Circuit Purg	AC - Evaporative Emission ge Solenoid Control Circuit	PDAAD - Evaporative Emission Purge Soleroid Control Circuit	PO4DF - Evaporative Emissio Purse Solenoid Performance	P0641 - Sensor Reference Voltage 1 Circuit Open	P0661 - Sensor Reference Voltage 2 Circuit Open	P0697 - Sensor Reference Voltage 3 Circuit Open	P06A3 - Sensor Reference Voltage 4 Circuit Open	P2227 - Barometric Pressure Sensor Performance Bank 1 Sensor 1	CONTINUED NEXT LINE
P0455 - Evaporative Emission System Large Leak Detected	Pressure Sensor Performance Pressure Sensor Circuit Loe Pressure Sensor Circuit Loe Pressure Sensor Circuit Loe Sensor Circuit Loe Wash 1 Sensor Circuit High Bank 1 Sensor Circuit Loe Wash 1 Sensor Circuit High Bank 1 Sensor Circuit Loe Sensor Circuit High Bank 1 Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit High Bank 1 Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor Circuit Loe Sensor	Purge Solenoid Control Circuit Open  P2A0C - Manifold Absolute Pressure Sensor Circuit Low Pressure Sensor Circuit Low		Circuit Low Sensor Circuit High	Sanor Circle (rearmoun)	Purge Solenoid Control Circuit Purge Solenoid Control C High	System Flow During Non- Purge	System no How During Purge	Purge Selenoid Control Circuit Purg Open Bank 2	Low Bank 2	High Bank 2	Purge Solenoid Performance Bank 1	vorage i Circui Open	vorage 2 Circuit Open	varige 3 Circui Open	Votage + Circle Open	Sensor 1	
P0458 - Evaporative Emission Purge Sciencid Control Circuit Low	Sensor 1 Sensor 1 Bank 2	Bank 2																
P0450 - Evaporative Errission Purge Solenoid Control Circuit High	END																	
P0461 - Fuel Lovel Sensor Performance	P0462 - Field Lovel Sensor P0463 - Field Lovel Sensor Control Module Field Lovel Sensor 1 Internal Supply	P1179 - Feet Parry Driver Corrol Module Foot Lovel Servor 2 Internal Supply Climate Module  U131D - Involed Date Ro From Feet Parry Driver Module	soshed U18A2 - Lost Communication Control With Fuel Pump Driver Control	END														
P0462 - Fuel Lovel Sensor Circuit Low	Control Module Fuel Level Control Module Fuel Level From Fuel Pump Driver Control Spring Street Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spring Spri	Glouit With Fuel Pump Driver Control Module	NOOJE															
P0463 - Fuel Level Sensor Circuit High	Circuit Control Module Philips Foul Fung Driver Control Module Philips Foul Fung Driver Control Module Fung Level Scincol Lineard Supply Sensor 2 Internal Supply Sensor 2 Internal Supply Circuit Module Philips Fung Fund Pump Driver Control Module Philips Fund Philips Driver Control Module Philips Fund Philips Driver Control Module Philips Fund Philips Driver Control Module Philips Fund Philips Driver Control Module Philips Fund Philips Driver Control Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips Philips	d U18A2 - Lost Communication of With Fuel Pump Driver Control Module																
P0480 - Cooling Fan Rolley 1 Control Circuit Open	Circuit Circuit	100-010 <b>47</b>																
P0496 - Evaporative Emission System Plaw During Non-Purge	P0109 - Manifold Absolute P0107 - Manifold Absolute Pressure Sensor Performance Pressure Sensor Circuit Low Pressure Sensor Circuit High	PDHD - Evaporative Emission Purge Solennial Control Circuit Open	mission P0456 - Evaporative Emission P0459 - Evap Circuit Purge Selencid Control Circuit Purge Selenci	contine Emission PD498 - Evaporative Emission id Control Circuit Vent Solenoid Control Circuit Info	ion PDR99 - Exaporative Emission Vent Sciencid Control Circu	on POAAB - Exsporative Emission POAAC - Evaporative Emission Purge Sciencid Control Circuit Purge Sciencid Control C Love Bank 2 Love Bank 2	sion PDAAD - Evaporative Emission test Purge Solemoid Control Circu High Rank 9	P0506 - Ide Speed Low	P0507 - Idle Speed High P223	727 - Barometric Pressure rsor Performance Bank 1 Sensor 1	P2228 - Barcrostric Pressure Sensor Clouit Low Bank 1 Sensor 1	P2229 - Barometric Pressure Sensor Circuit High Bank 1 Service 1	P2A0B - Manifold Abecilus Pressure Sensor Performance Bank 2	P2AGC - Manifold Absolute Pressure Sensor Circuit Low Bank 2	P2ADD - Manifold Absolute Pressure Sensor Circuit High Bank 2	END	Ī	
P0497 - Evaporative Emission System No Flow During Purge	P0109 - Manifold Absolute P0107 - Manifold Absolute Pressure Sensor Circuit Low Pressure Sensor Circuit High	PD443 - Evaporative Emission PO449 - Evaporative En Purge Solennist Control Circuit Vent Solenoid Control Open	mission P0456 - Evaponative Emission P0459 - Evap Circuit Purge Sciencid Control Circuit Purge Science	contine Emission P0498 - Evaporative Emissi aid Control Circuit Vent Sciencid Control Circuit High I now	ion P0429 - Exaperative Emissio Vent Sciencid Control Circu High	nn PAAB - Exsperiative Emission PAAC - Evaposative Emis it Parge Selenoid Control Circuit Purge Selenoid Control Circuit Purge Selenoid Control Circuit Purge Selenoid Control Circuit Purge Selenoid Control Circuit Purge Selenoid Control Circuit Purge Selenoid Control Circuit Purge Selenoid Control Circuit Purge Selenoid Control Circuit Purge Selenoid Control Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circuit Purge Selenoid Circui	sion P044D - Evaporative Emission test Purge Sciencid Control Circu High Rank 2	P0506 - Ide Speed Low	P223	127 - Barometric Pressure neor Performance Bank 1 Sensor 1	P2228 - Barcreatric Pressure Sensor Circuit Low Bank 1 Sensor 1	P2229 - Berometric Pressure Sensor Circuit High Bank 1 Sensor 1		PZACC - Manifeld Absolute Pressure Sensor Circuit Low Bank 2	P2ACO - Manifold Absolute Pressure Sensor Circuit High Bank 2	END		
P0490 - Evaporative Emission Vent Sciencid Control Circuit Low	END	-there. Admin			1			1	1									
P0499 - Evaporative Emission Went Solenoid Control Circuit High	END																	
PO4AB - Evaporative Emission Purge Solemat Control Circuit Open Bank 2	END																	
POSAC - Evaporative Emission Punge Solenaid Control Circuit Low Bank 2	END																	

	19 OBDG07 ECM DTC Inhibit Tables												
The DTCs in this column is inhibited by the DTCs listed to the right	The DTCs in these columns inhibit the DTC to the left	The DTCs in these columns inhibit the DTC to the left	The DTCs in these columns inhibit the DTC to the left	The DTCs in these columns inhibit the DTC to the left									
Inhibited DTC  PDIAD - Evaporative Errication Purge Solenoid Control Circuit High Bank 2	Fault Active DTCs	Fault Active DTCs	Fault Active DTCs	Fault Active DTCs									
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P04DB - Crankcase Ventilation System Disconnected	POZZ - Trivota Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Pozzo Poz	PO224 - Tutochrayer Bosti   Po235 - Canalahali Practico   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Po236 - Canalahali Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Postor   Post											
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Inside Air Terryconium PC07 -	POSSA - Index Az Temporature Sereor 2 Cross Temporature Sereor 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cross Employed Laber 2 Cro	H P0121 Threctle Position P0122 Threctle Position P0122 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle Position P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P0123 Threctle P	Span Span									
P0507 - Idle Speed High	P085 - Essponsiva Emission P0450 - Essponsiva Emission P0440 - Essponsiva Emission P0440 - Essponsiva Emission P0440 - Essponsiva Emission P0440 - Essponsiva Emission P0440 - Essponsiva Emission P0440 - Essponsiva Emission P0440 - Essponsiva Emission P0440 - Essponsiva Emission P0440 - Essponsiva Emission P0440 - Essponsiva Emission P0440 - Essponsiva Emission P0440 - Essponsiva Emission P0440 - Essponsiva Emission P0440 - Essponsiva Emission P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - Essponsiva P0440 - 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Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - Thretda Aduator P2108 - 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P0618 - Crankcase Vapor Pressure Sansor Performance	P0510 - Crankosov Vapor P0510 - Crankosov Vapor Phessure Sensor Circuit Low   Pessure Sensor Circuit Low												
P051C - Crankcase Vapor Pressure Sensor Circuit Low	ING.												
P051D - Crankcase Vapor Pressure Sensor Circuit High	ଅନ୍ତର												
P0521 - Engine Oil Pressure Sensor 1 Performance	PG522 - Engine OI Pressure PG523 - Engine OI Pressure Sensor Croxxi Low Sensor 1 Clorusi High Sensor 1 Clorusi High Sensor 1 Clorusi High Sensor 1 Clorusi High Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Sensor 1 Senso												
P0522 - Engine Oil Pressure Sensor 1 Circuit Low	P051 - Sensor Reference Votage 2 Creat Opes												
P0523 - Engine Oil Pressure Sensor 1 Circuit High	P0551 - Service Polemona Visiting 2 Circle Code												
P0524 - Engine Oil Pressure Too Low	P0221- Engins Of Pressure P0221- Engins Of Pressure Seroor 1 Performance Seroor 1 Performance Seroor 1 Corol Low Wileye 2 Cloud Open												
P0532 - Air Conditioning Refrigerent Pressure Sensor Glouit Low	PIO												
P0533 - Air Conditioning Reingerant Pressure Sensor Circuit High	ENO												
Pressure Sensor Circuit High  P0GSF - Cold Start Fiel Pressure Performance	POSSO - Full Pressure Regulator Control Colour Open Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione Beauth Professione												
Posco - System Voltage Low	Regulator Control Close Sense Performance Shorted to Control Close Sovie 2 Storted to Control Close Etc.  EVO.												
P0683 - System Vollage High	EN0												
P0564 - Cruise Control Multi-Function Switch 1 Circuit	USFA Late Communication   USE22 - Invalid Casa Received   With Body Commit Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   From Body Costeel Miscale   F												
Switch 1 Circuit P0565 - Cruise Control Switch Circuit	U0140 - Lost Communication U0422 - Insald Data Received												
P0565 - Cruise Control Switch Circuit  P0567 - Cruise Control Resume Switch 1 Circuit	With Body Control Module From Body Control Module												
P0568 - Cruise Control Set Switch 1 Circuit  P1560 - Cruise Control Cannel Switch	van sony Control Module Prom sody Control Module												
P056C - Cruise Control Cancel Switch Circuit	USRA Lost Communication With Body Control Modula From Body Control Modula From Body Control Modula												
P0572 - Brake Switch Circuit 1 Low	END .												
P0573 - Brakes Switch Circuit 1 High	ENO												
P057B - Brake Pedia Position Sensor Performance	P02Ds - Basin Probal Production Sensor Proference Sensor Proference Sensor Clear High ENO Sensor Clear High ENO Sensor Clear High												
P057C - Brake Pedal Position Sensor Circuit Low	840												
P057D - Brake Pedal Position Sensor Circuit High	ENO												
P0580 - Cruise Control Multi-Function Switch 1 Circuit Low	exo .												
P0581 - Cruise Control Multi-Function Switch 1 Circuit High	U0140 - Leat Communication With Blody Coving Module From Blody Coving Module From Blody Coving Module END												
P0589 - Cruise Control Multi-Function Switch 2 Circuit	END												
P058A - Battery Sensor Module	END.												









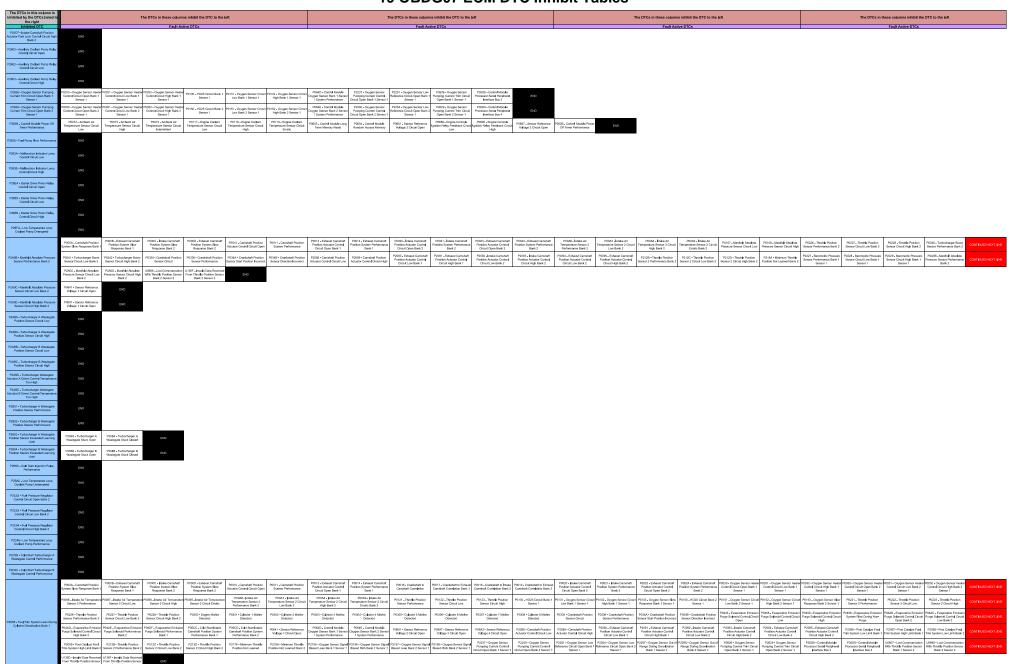
	19 OBDG07 ECM DTC Inhibit Tables																				
The DTCs in this column is inhibited by the DTCs listed to the right	is The DTCs in these columns inhibit the DTC to the Jeft Fact Active DTCs							The DTCs in these columns inhibit the DTC to the left  Fauth Active DTCs							The DTCs in these colum	ns inhibit the DTC to the	The DTCs in these columns inhibit the DTC to the left				
P2003 - Make Certafult Position Actuator Control Circuit High Bank 2	P0020 - Intake Camphalt Position Actuator Control Circuit Open Bank 2	P2092 - Intake Carrishaft Position Actuator Control Circuit Low Bank 2	P2063 - Intake Correlati Position Actuator Control Circuit High Bank 2	END				Fault Av	tive DTCs					Fault Ac	tive DTCs	Fault /	Active DTCs				
P2094 - Exhaust Carrelhalt Position Actuator Control Circuit Low Bank 2	P0023 - Exhaust Carretell Position Actuator Control Circuit Open Bank 2	P2004 - Exhaust Carnehoft Position Actuator Control Circuit Low Bank 2	P2095 - Exhaust Carrehalt Position Actuator Control Grout High Bank 2	END																	
P2095 - Exhaust Carrishaft Position Actuator Control Circuit High Bank 2	P0023 - Eshaust Carrahaft Position Actuator Control Circuit Open Bank 2	P2094 - Exhaust Cerrehelt Position Actuator Control	P2095 - Edward Carretolt Position Actuator Control	END																	
	P0030 - Oxygen Bensor Heate Control Claust Open Bank 1 Sensor 1	Circuit Low Bank 2 PECG1 - Oxygen Sensor Heat Control Circuit Low Bank 1 Sensor 1	Circuit High Bank 2 or P0032 - Oxygen Sensor Heate Control Circuit High Bank 1 Sensor 1	ter P0036 - Oxygen Sensor Heate Control Circuit Open Bank 1 Sensor 2	er P0037 - Oxygen Sensor Heats Control Circuit Low Bank 1 Sensor 2	or P0038 - Oxygen Sensor Heate Control Grout High Bank 1 Sensor 2	P0101 - Mass Air Flow Sensor Performance	P0102 - Mass Air Flow Sensor Circuit Low	P01(0) - Mass Air Flow Senso Circuit High	r P0106 - Manifold Absolute Pressure Sensor Performance	P0107 - Manifold Absolute Pressure Sensor Circuit Low	P0108 - Manifold Absolute Pressure Sensor Circuit High	P0108 - Mass Air Flow Senso 2 Performance	or P010C - Mass Air Fibre Sensor 2 Circuit Low	or P0100 - Mass Air Flow Senson 2 Gircuit High	P0130 - HO25 Circuit Bank 1 Sensor 1	1 P0131 - Coygen Sensor Circ. Low Bank 1 Sensor 1	et P0132 - Oxygen Sensor Grou High Bank 1 Sensor 1	t P0133 - Oxygen Sensor Slow P0137 - Oxygen Sensor Circuit P0130 - Oxy Rosponse Bank 1 Sensor 1 Low Bank 1 Sensor 2 High Ba	igen Sensor Circuit Insufficient Activity Bank 1 CONTINUED NEXT Sensor 2 Sensor 2	
	P0141 - Caygen Sensor Heats Performance Bank 1 Sensor 2	P0300 - Engine Mistire Detected	POSD1 - Cyfreder 1 Marine Delecied	PC002 - Cylinder 2 Missine Detected	P0303 - Cylender 3 Markes Detected	P0304 - Cylinder 4 Matine Delected	P0305 - Cylinder 5 Missine Detected	PCCIOS - Cydroder S Missiene Detected	P0307 - Cylender 7 Markes Detected	P0306 - Cylinder 6 Maline Detected	P0443 - Evaporative Emission Purga Sciencid Control Circuit Open	P0458 - Evaporative Emissio Purge Saleraid Control Circu	P0459 - Exaporative Emission Purge Solenoid Control Circui	n P0496 - Evaporative Emission it System Riow During Non- Purge	P0407 - Evaporative Emission System No Flow During Purge	POSAB - Evaporative Emissio Purge Sateroid Control Circu Open Bank 2	in P04AC - Exaporative Emissio it Purge Solenoid Control Circu Low Bank 2	n P04AD - Evaporative Emission Purge Scienced Control Circuit High Bank 2	P04AE - Evaporative Emission P04DF - Evaporative Emission P0641 - 8	ersor Reference 1 Circle Open 1 System Performance 1 System Performance	
P2006 - Post Catalyst Fuel Trim System Low Limit Blank 1	P0651 - Sensor Reference Voltage 2 Circuit Open	P0697 - Sensor Reference Voltage 3 Circuit Open	P06A3 - Sensor Reference Voltage 4 Circuit Open	P2232 - Oxygen Sensor Signa Circuit Shorted to Heater	el P2237 - Oxygen Sensor Pumping Current Control Circuit Open Bank 1 Sensor 1	P2251 - Oxygen Sensor Low Reference Circuit Open Bank	P2270 - Oxygen Sensor Signal Stuck Lean Bank 1 Sensor 2	P2271 - Oxygen Sensor Signa Stuck Rich Bank 1 Sensor 2	P2297 - Oxygen Sensor Out o Range During Decempation	P2026 - Claygen Sensor Pumping Current Trim Circuit	P2ACE - Manifold Absolute Pressure Sensor Performance	P2ADC - Manifold Absolute Pressure Sensor Circuit Low	P2A0D - Manifold Absolute Pressure Sensor Circuit High	Purge P3006 - Control Module Processor Serial Peripheral Interface Bus 3	P318A - Cylinder 2 Reactivation Parformance Trapped High Pressure	Open Bank 2 P3188 - Cylinder 3 Reactivation Performance Trapped High Pressure	Low Bank 2 P318D - Cylinder 5 Reactivation Performance Trapped High Pressure	P3190 - Cylinder 8 Reactivation Performance Trapped High Pressure	P3409 - Cylinder 2 P3411 - Cylinder 2 P3412 Dearthotion Statement Control Dearthotion Statement Control Dearthotion	2 - Cylinder 2 P3417 - Cylinder 3 P Salvonid Contral Description Salvonid Contral CONTRALED NEX	
	P3419 - Cylinder 3 Deactivation Solenoid Control Circuit Low	P3420 - Cylinder 3	P3433 - Cylender 5	Circuit Bank 1 Sensor 2 P3435 - Cylinder 5 Deactivation Solenoid Control	Circuit Open Bank 1 Sensor 1 P3436 - Cylinder 5	P3457 - Cylinder 8 Deactivation Sciencid Control	P3459 - Cylinder 8 Descrivation Sciencid Control	P3460 - Cylinder 8 Deackwaten Sciencid Control	Range During Decembers Bank 1 Sensor 1  P3499 - Cylinder 2	Open Bank 1 Sensor 1 P349A - Cylinder 3 Possibilities Beforesses	Bank 2 P349C - Cylinder 5	Bank 2 P349F - Cylinder 8	Bank 2 END	Interface Bus 3	Exhaust Change	Exhaust Charge	Exhaust Charge	Exhaust Charge	Circuit Open Circuit Low Cir	rout High Circuit Open	
	Circuit Low P0030 - Crygen Sensor Heats Control Circuit Open Bank 1 Sensor 1	Deactivation Sciencid Contro Circuit High P5631 - Oxygen Sensor Heats Control Circuit Law Bank 1 Sensor 1	Deactivation Sciencid Control Circuit Open or P0032 - Oxygen Sensor Heate Control Circuit High Bank 1 Sensor 1	Circuit Low last P0036 - Oxygen Sensor Heate	Describation Sciencid Contro Circuit High ar P0037 - Oxygen Bensor Heats Control Circuit Low Bank 1	Deactivation Sciencid Control Circuit Open or P0038 - Oxygen Sensor Heats Control Circuit High Bank 1	P0101 - Mass Air Flow Sensor	Circuit High P0102 - Mass Air Flow Sensor Circuit Low	P0103 - Mass Air Flow Senso	P0105 - Manifold Absolute	PO107 - Nanifold Absolute	P0108 - Manifold Absolute	P0108 - Mass Air Flow Senso 2 Performance	or P010C - Mass Air Flow Sensor 2 Circuit Low	or P0100 - Mass Air Flow Sensor	r P0130 - HO2S Circuit Bank 1 Sensor 1	1 P0131 - Oxygen Sensor Ciro. Low Bank 1 Sensor 1	il P0132 - Oxygen Sensor Circu High Bank 1 Sensor 1	P0133 - Coygen Sensor Slow Rosponse Bank 1 Sensor 1 Low Bank 1 Sensor 2 High Ba	ogen Sensor Circuit P0140 - Oxygen Sensor Circuit Insufficient Activity Bank 1 CONTINUED NEXT	
	Sensor 1  P0141 - Guygen Sensor Heats Performance Bank 1 Sensor 2	P0300 - Engine Maline Detected	Sensor 1 P0301 - Cylinder 1 Malire	Control Circuit Open Bank 1 Sensor 2 P0302 - Cylinder 2 Missine	Control Circuit Low Bank 1 Sensor 2 P0303 - Cylinder 3 Marke	Gosted Circuit High Bank 1 Sensor 2 P0304 - Cylinder 4 Maline	Possis - Cylinder S Missine	PC005 - Cylinder 6 Missine	Circuit High P0307 - Cylinder 7 Missins	Pressure Sensor Performance P0306 - Cylinder 6 Mistine	Pressure Sensor Circuit Low P0443 - Evaporative Emission Purge Selencid Control Circuit Open	Pressure Sensor Circuit High P0458 - Evaporative Emissio Purge Sciencid Control Circui Low	P0459 - Evaporative Emission Purse Solenoid Control Circui	P0496 - Evaporative Emission Bystem Flow During Non- Purge	2 Circuit High  P0467 - Evaporative Errission	P04AB - Evaporative Emissio Purge Salenaid Control Circu Open Bank 2	n P04AC - Exaporative Emissio	n P04AD - Evaporative Emission		MA 1 Sensor 2 Sensor 2 Sensor 2 P0640 - Control Module Chock Open 1 Circuit Open 1 System Performance 1 System Performance	
P2097 - Post Catalyst Fuel Trim System High Limit Bank 1	Performance Bank 1 Sensor 2 P0851 - Sensor Reference Voltage 2 Circuit Open	P0607 - Sensor Reference Vollage 3 Circuit Open	P06A3 - Sensor Reference Voltage 4 Circuit Open	P2232 - Oxygen Sensor Signa Circuit Shorted to Heater	al P2237 - Oxygen Sensor	P2251 - Oxygen Sensor Low Reference Circuit Open Bank	P2270 - Chygen Sensor Signal Stuck Lean Bank 1 Sensor 2	Detected  P2271 - Oxygen Sensor Signa Stuck Rich Bank 1 Sensor 2	P2297 - Oxygen Sensor Out o Range During Deceleration Bank 1 Sensor 1	P2626 - Oxygen Sensor	P2A08 - Manifold Absolute	P2ADC - Manifold Absolute	High P2A0D - Manifold Absolute Process Sensor Cloud Mich	Purge P3006 - Control Modele Processor Serial Peripheral Interface Bus 3	System No Flow During Purge P318A - Cylinder 2 Reactivation Parformance - Trapped High Pressure	P318B • Cylinder 3	Parge Solanoid Control Circu Low Bank 2 P318D - Cylinder 5 Reactivation Performance - Trapped High Pressure	Purge Sciencid Control Circui High Bank 2 P3190 - Cylinder 8 Reactivation Performance Trapped High Pressure	P3409 - Cylinder 2 P3411 - Cylinder 2 P3412	1 Gircuk Open 1 System Performance Pr-Cylinder 2 P3417 - Cylinder 3 Control Descrivation Scienced Control CONTINUED NEX	
	Voltage 2 Circuit Open P3419 - Cylinder 3 Description Solenoid Control Circuit Low	Voltage 3 Circuit Open P3420 - Cylinder 3 Deactivation Sciencid Contro Circuit High	Voltage 4 Circuit Open  P3433 - Cylinder 5 Deactivation Salenoid Control Circuit Open	Circuit Bank 1 Sensor 2  P3435 - Cylinder 5 Deackwaten Solenoid Control Circuit Low	Pumping Current Control Circuit Open Bank 1 Sensor 1 P3436 - Cylinder 5 Describation Sciencid Contro Circuit High	P3457 - Cylinder 8 Deactivation Solenoid Control Circuit Open	P3439 - Cylinder 8 Deactivation Sciencid Control Circuit Low	Stuck Rich Bank 1 Sensor 2  P3460 - Cylinder 8  Deactivation Sciencid Control  Circuit High	Bank 1 Sensor 1  P3499 - Cylinder 2 Description Performance	Pumping Current Trim Circuit Open Bank 1 Sensor 1 P349A - Cylinder 3 Deactivation Performance	Pressure Sensor Performance Bank 2 P345C - Cylinder 5 Description Deformance	Pressure Sensor Circuit Low Bank 2 P349F - Cylinder 8 Description Performance	Bank 2	Interface Bus 3	Trapped High Pressure Exhaust Charge	Trapped High Pressure Exhaust Charge	Trapped High Pressure Exhaust Charge	Trapped High Pressure Exhaust Charge	Circuit Open Circuit Low Cir	Circuit Open	
			or P0052 - Oxygen Sensor Heate	ter P0056 - Oxygen Sensor Heate	er P0067 - Oxygen Sensor Heats	r P0068 - Oxygen Sensor Heate			Descrivation Performance P0103 - Mass Air Flow Senso		P0107 - Manifold Absolute			or P010C - Mass Air Flow Sensor	or PO10D - Mass Air Flow Sensor	P0150 - HO2S Circuit Bank 2	P0151 - Oxygen Sensor Circ.	it P0152 - Oxygen Sensor Grou	P0153 - Oxygen Sensor Slow P0157 - Oxygen Sensor Grouit P0159 - Oxy	igen Sensor Circus P0160 - Oxygen Sensor Circuit	
	P0060 - Caygeri Sensor Heats Control Claudi Open Bank 2 Sensor 1 P0161 - Caygeri Sensor Heats	P0061 - Oxygen Sensor Heats Control Clecult Low Bank 2 Sensor 1 P0300 - Engine Metire Detected	Control Circuit High Bank 2 Sensor 1 P0301 - Cylinder 1 Mielire Detected	Gontrol Circuit Open Bank 2 Sensor 2 PC002 - Cylinder 2 Misrine Detected	Control Circuit Low Bank 2 Sensor 2 P0303 - Cylinder 3 Martine Detected	Control Circuit High Bank 2 Sensor 2 P0304 - Cylinder 4 Matins Detected	P0101 - Mass Air Flow Sensor Performance P0305 - Cylinder 5 Mieline Detected	P0102 - Mass Air Flow Sensor Circuit Low P0306 - Cylinder 6 Misfine Detected	Circuit High P0307 - Cylinder 7 Martins Detected	P0106 - Manifold Absolute Pressure Sensor Performance P0306 - Cylinder 8 Mintire Detected	Pressure Sensor Circuit Low P0443 - Evaporative Emission Purge Schenold Control Circuit	P0108 - Manifold Absolute Pressure Sensor Circuit High P0458 - Evaporative Emissio Burne Schannid Control Circuit	P0108 - Mass Air Row Senso 2 Performance P0459 - Exaporative Emission	or P010C - Mass Air Flow Sensor 2 Circuit Low P0496 - Evaporative Emission	P010D - Mass Air Flow Sensor 2 Gircuit High	Sensor 1  P04AB - Evaporative Emissio	2 P0151 - Oxygen Sensor Circu Low Bank 2 Sensor 1 in P04AC - Exaporative Emissio	et P0152 - Coygen Sensor Circui High Bank 2 Sensor 1 n P04AD - Evaporative Emission	P04AE - Evaporative Emission P04DF - Evaporative Emission P0841 - S	gen Senoor Circuit   PotRol - Oxygen Sensor Circuit   routfleare Activity Stank 2   CONTINUED NOX   Sensor 2   CONTINUED NOX   Sensor 2   CONTINUED NOX   Sensor Stank 2 Sensor CONTINUED NOX   1 Circuit Open   ContinueDec	
P2008 - Post Catalyst Fiel Trim System Low Limit Bank 2	P0161 - Oxygen Sensor Heats Performance Bank 2 Sensor 2 P0651 - Sensor Reference				al P2240 - Oxygen Sensor					Detected  # P2629 - Oxygen Sensor	Purge Sciencid Control Circuit Open P2AGB - Manifold Absolute	Purge Sciencid Control Circu Low P2ADC - Manifold Absolute	Purge Solenoid Control Circui High P2A0D - Manifold Absolute	P0496 - Evaporative Emission System Flow During Non- Purge P3006 - Control Modele	System No Flow During Purge	Purge Sciencid Control Circu Open Bank 2 P3188 - Oylinder 3 Reactivation Parformings	it Purge Solenoid Control Circu Low Bank 2 P318D - Cylinder 5 Reactivation Performance -	It Purge Selencid Control Circui High Bank 2 P3190 - Cylinder 8 Reactivation Performance	Purge Solened Performance		
	Voltage 2 Circuit Open P3419 - Cylinder 3 Deactivation Solenoid Control	P0697 - Sensor Reference Voltage 3 Circuit Open P3420 - Cylinder 3	P06A3 - Sensor Reference Vottage 4 Circuit Open P3433 - Cylinder 5	P2235 - Oxygen Sensor Signa Circuit Shorted to Heater Circuit Senk 2 Sensor 2 P3435 - Cylinder 5	Pumping Current Control Circuit Open Bank 2 Sensor 1	P2254 - Oxygen Sensor Low Reference Circuit Open Bank : Sensor 1 P3457 - Cylinder 8	P2272 - Oxygen Sensor Signal Stuck Lean Bank 2 Sensor 2 P3409 - Cylinder 5	P2273 - Oxygen Sensor Signa Stuck Rich Bank 2 Sensor 2 P3460 - Cylinder 8	P2298 - Oxygen Sensor Out o Range During Deceleration Bank 2 Sensor 1 P3499 - Calledor 2	Pumping Current Trim Circuit Open Bank 2 Sensor 1 P349A - Cylinder 3	Pressure Sensor Performance Bank 2 P349C - Cylinder 6	Pressure Sensor Circuit Low Bank 2	Pressure Sensor Circuit High Bank 2	P3009 - Control Module Processor Serial Peripheral Interface Bas 4	Reactivation Performance - Trapped High Pressure Exhaust Charge	Reactivation Parformance - Trapped High Pressure Exhaust Charge	Reactivation Performance - Trapped High Pressure Exhaust Charge	Trapped High Pressure Exhaust Charge	Deactivation Sciencid Control Deactivation Sciencid Control Circuit Low Circuit Low	P- Cylinder 2 n Solenoid Control cust High	
	Circuit Low	Descrivation Sciencid Contro Circuit High P0051 - Oxygen Sensor Heat	Deactivation Sciencid Control Circuit Open or P0052 - Oxygen Sensor Heate	Deactivation Submid Control Circuit Low No. P0056 - Oxygen Sensor Heate	P3436 - Cylinder 5 Descrivation Solvanid Contro Circuit High or P0567 - Crygen Sensor Heats	Deactivation Sciencid Control Circuit Open or P0068 - Coygen Sensor Heato	Deactivation Sciencid Control Circuit Low	Deactivation Sciencid Control Circuit High	Deactivation Performance	Deactivation Performance	Deactivation Performance	P349F - Cylinder 8 Descrivation Performance	END DOUGH - Mass & Dou Sens	or DOMO - Mare He Elver Secure	er 20100 - Marco Air Eleve Senson	PO150 - MO25 Chrost Back S	PO151 - Course Sensor Circ	el B0153 - Domen Sensor Clone	1 DOMA - Decrea Server Show DOMA - Decrea Server Circuit DOMA - Dec	one Secure Circuit P0160 - Oxygen Semior Circuit	
	P0060 - Chygen Sensor Heats Control Circuit Open Bank 2 Sensor 1 P0161 - Chygen Sensor Heats	P0061 - Oxygen Sensor Heath Control Circuit Low Bank 2 Sensor 1	of P0052 - Oxygen Sensor Heate Control Circuit High Bank 2 Sensor 1 P0301 - Cylinder 1 Mistire	ter P0056 - Oxygen Sensor Heate Control Circuit Open Bank 2 Sensor 2 P0002 - Cylinder 2 Misrine	er P0067 - Oxygen Sensor Heats ! Control Circuit Low Bank 2 Sensor 2 P0303 - Cylinder 3 Mixtee	or P0068 - Oxygen Sensor Heats Control Clicuit High Bank 2 Sensor 2 P0304 - Cultrater 4 Martin	P0101 - Mass Air Flow Sensor Performance	P0102 - Mass Air Flow Sensor Circuit Low P0005 - Cylinder 6 Marine	P0103 - Mass Air Flow Senso Circuit High P0307 - Cylinder 7 Martes	P0106 - Manifold Absolute Pressure Sensor Performance	P0107 - Manifold Absolute Pressure Sensor Circuit Low P0443 - Evaporative Emission	P0108 - Manifold Absolute Pressure Sensor Circuit High P0468 - Evaporative Emissio Purge Salemoid Control Circuit	P0108 - Mass Air How Senso 2 Performance 1 P0459 - Exaporative Emission	P010C - Mass Air Flow Sensor 2 Circuit Low n P0496 - Evaporative Emission 8 yatem Flow During Non-	PO100 - Mass Air Flow Sensor 2 Circuit High	P0150 - HO2S Circuit Bank 2 Sensor 1 P04AB - Evaporative Emissio	n P04AC - Exaporative Emissio	et P0152 - Oxygen Sensor Circui High Bank 2 Sensor 1 n P04AD - Evaporative Emission	P04AE - Evaporative Emission P04DF - Evaporative Emission	gen Sensor Circust P0160 - Oxygen Sensor Circust Insufficient Activity Stant 2 Sensor 2 CONTINUED NEX Sensor 2 P0665 - Control Module	
P2009 - Post Catalyst Fuel Trim System High Limit Bank 2	P0161 - Gaygen Sensor Heals Performance Bank 2 Sensor 2 Bhillist Sensor Beforessor	P0300 - Engine Medice Detected	Detected	Detected	Detected  P2240 - Oxygen Sensor	P0304 - Cylinder 4 Mintee Detected  P2254 - Oxygen Sensor Low	POSDS - Cylinder S Minfre Detected	Detected	Detected	P0306 - Cylinder 8 Mintee Detected  # P2629 - Oxygen Sensor	P0443 - Evaporative Emission Purge Scienced Control Circuit Open P2AGB - Manifeld Absolute	Purge Sciencid Control Circu Low P2A0C - Manifold Absolute	Purge Solemoid Control Circui High P2A0D - Manifold Absolute		System No Flow During Purge P318A • Cylinder 2	Purge Saleroid Control Circu Open Bank 2 P3188 - Cylinder 3	it Purge Solemoid Control Circu Low Bank 2 P318D - Cylinder 5	Purge Solenoid Control Circui High Bank 2 P3190 - Cylinder 8 Bootharine Bootnessess	Bank 2 Bank 1 Voltage	1 Gircuit Open 1 System Performance	
	P0651 - Sensor Polemence Voltage 2 Circuit Open P3419 - Cylinder 3	P0697 - Sansor Perlanence Voltage 3 Circuit Open P3420 - Cylinder 3	P06A3 - Sensor Perference Voltage 4 Circuit Open P3433 - Cylinder 5	P2235 - Oxygen Sensor Signa Circuit Shorted to Heater Circuit Bank 2 Sensor 2 P3435 - Oylindar 5	Pumping Current Control Circuit Open Bank 2 Sensor 1 P3426 - Cylinder 5	P2254 - Oxygen Sensor Low Reference Circuit Open Bank : Sensor 1 P3457 - Cylinder 8	P2272 - Caygen Sensor Signal Stuck Leen Bank 2 Sensor 2 P2459 - Cylinder 8	P2273 - Oxygen Sensor Signa Stuck Rich Bank 2 Sensor 2 P3460 - Cylinder 5	P2298 - Oxygen Sensor Out o Range During Deceleration Bank 2 Sensor 1 P3499 - Cylinder 2	P2629 - Oxygen Seneor Pumping Current Trim Circuit Open Bank 2 Seneor 1 P349A - Cylinder 3	Pressure Sensor Performance Bank 2 P349C - Cylinder 5	Bunk 2	P2A0D - Manifeld Absolute Pressure Sensor Circuit High Bank 2	P3009 - Control Modele Processor Serial Peripheral Interface Bas 4	Reactivation Parformance - Trapped High Pressure Exhaust Charge	Reactivation Performance - Trapped High Pressure Exhaust Charge	Trapped High Pressure Exhaust Charge	Trapped High Pressure Exhaust Charge	P3409 - Cylinder 2 P3411 - Cylinder 2 P3412 Deactivation Scienced Control Chroat Open Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Chroat Low Ch	2- Cylinder 2 P3417 - Cylinder 3 Boldmoid Control Deactivation Schanold Control Circuit Open Control	
	Descrivation Sciencid Control Circuit Low	Deactivation Solemoid Contro Circuit High	Deactivation Solenoid Control Circuit Open	Descrivation Solenoid Control Circuit Low	Descrivation Solenoid Contro Circuit High	Deactivation Sciencid Control Circuit Open	Deactivation Solenoid Control Circuit Low	Deactivation Sciencid Control Circuit High	Descrivation Performance	Deactivation Performance	Deactivation Performance	P349F - Cylinder 8 Descrivation Performance	EN0								
P2100 - Throttle Actuator Control Motor Control Circuit Open																					
P2101 - Throdis Actuator Position Performance																					
P210A - Throttle Actuator Control Motor Control Circuit Open Bank 2																					
P2108 - Throttle Actuator Position Performence Benk 2	EMD.						P0638 - Throthe Actuator	P2100 - Throthe Actuator		P30D6 - Control Module		1									
P2119 - Throttle Closed Position Performance	P0121 - Throttle Position Sensor Performance	P0122 - Throttle Position Sensor Circuit Low	P0123 - Throttle Position Sensor Circuit High	P0221 - Throttle Position Sensor 2 Performance	P0222 - Throttle Position Sensor 2 Circuit Low	P0223 - Throttle Position Sensor 2 Circuit High	Control Command Performance	Control Motor Control Circuit Open	P2101 - Throttle Actuator Position Performance	Processor Serial Peripheral Interface Bus 1	END										
P211D - Throttle Glosed Position Performance Bank 2	P0226 - Throttle Position Sensor Performance Bank 2	P0227 - Throdije Position Sensor Circuit Low Bank 2	P0228 - Throttle Position Sensor Circuit High Bank 2	P0639 - Throttle Actuator Control Command Performance Bank 2	P210A - Throttle Actuator Control Motor Control Circuit Open Bank 2	P2108 - Throlle Actuator Position Performance Bank 2	P2128 - Throttle Position ! Sensor 2 Performance Bank 2	P212C - Throttle Position Sensor 2 Girouk Low Bank 2	P212D - Throthe Position Sensor 2 Circuit High Bank 2	P3007 - Control Module Processor Serial Peripheral Interface Bus 2	END										
P2122 - Accelerator Pedal Position Sensor 1 Circuit Low	P08A3 - Sensor Reference Voltage 4 Circuit Open	END																			
P2123 - Accelerator Pedal Position Sensor 1 Circuit High	P06A3 - Sensor Reference Voltage 4 Circuit Open	END																			
P2127 - Accelerator Pedal Position Sensor 2 Circuit Low	P0697 - Sensor Reference Voltage 3 Circuit Open	END																			
P2125 - Accelerator Pedal Position Sensor 2 Circuit High	P0097 - Sensor Reference Voltage 3 Circuit Open	END																			
P2128 - Throttle Position Sensor 2 Performence Bank 2	P0897 - Sensor Reference Voltage 3 Circuit Open	END																			
P212C - Throtte Position Sensor 2 Circuit Low Bank 2	P0697 - Sensor Reference Voltage 3 Circuit Open	END																			
P212D - Throttle Position Sensor 2 Circuit High Bank 2	P0897 - Sensor Reference Voltage 3 Circuit Open	END	I																		
P2138 - Accelerator Pedal Position Sensor 1-2 Correlation																					
P2146 - Fuel Injector High Control Circuit 1 Open																					
P2149 - Fuel Mijector High Control Circuit 2 Open																					
P2152 - Fuel Injector High Control Circuit 3 Open																					
P2155 - Puel Injector High Control Circuit 4 Open																					
P216A - Fool lejector High Control Grout 5 Open																					
P2160 - Fuel Injector High Control Circuit 6 Open	END											1									
P2176 - Minimum Throttle Position Not Learned	P0121 - Throttle Position Sensor Performance	P0122 - Throttle Position Sensor Circuit Low	P0123 - Throttle Position Sensor Circuit High	P0221 - Throttle Position Sensor 2 Performance	P0222 - Throttle Position Sensor 2 Circuit Low	P0223 - Throttle Position Sensor 2 Circuit High	P0638 - Throtile Actuator Control Command Performance	P2100 - Throttle Actuator Control Motor Control Circuit Open	P2101 - Throttle Actuator Position Performance	P3006 - Control Modele Processor Serial Peripheral Interface Bus 1	END			1	1						
	P000A - Carnebaft Poetkon System Slow Response Bank	P0018 - Exhaust Carrishaft Position System Slow Response Bank 1	P000C - Intake Carnshaft Position System Slow Response Bank 2	P0000 - Exhaust Comshaft Position System Slow Response Bank 2	P0010 - Camshaft Position Actuator Control Circuit Oper	P0011 - Camshaft Position System Performance	P0013 - Exhaust Carrishaft Position Actuator Control Circuit Open Bank 1	P0014 - Exhaust Camshaft Position System Performance Book 1	P0016 - Crankshaft to Camshaft Correlation	P0017 - Constatuteff to Extraum Compliati Correlation Bank 1	P0016 - Crankshaft to Intake Camphaft Correlation Bank 2	P0019 - Cranfoshert to Exhaus Camshaft Correlation Bank S	P0020 - Intake Camshaft Position Actuator Control Circuit Open Bank 2	P0021 - Intake Camshaft Position System Performance Bank 2	P0023 - Exhaust Comshaft Position Actuator Control Circuit Open Bank 2	P0024 - Exhaust Carrishaft Position System Performance Book 2	P0030 - Oxygen Sensor Heat Control Circuit Open Bank 1 Sensor 1	er P0031 - Oxygen Sensor Heate Control Circuit Low Bank 1 Sensor 1	P0032 - Oxygen Sensor Heater Coeted Circuit High Bank 1 Coeted Circuit Open Bank 2 Coeted Circuit Open Bank 2 Coeted Circuit Open Bank 2 Sensor 1 S	rgen Sensor Heater P0052 - Oxygen Sensor Heater Ircuit Low Bank 2 Control Cleout High Bank 2 CONTINUED NEX- tensor 1 CONTINUED NEX	
	P0096 - Intake Air Temperatur Sensor 2 Performance	PCC07 - Intake Air Temperatu Sensor 2 Circuit Low	e PCC98 - Intalio Air Temperatur Sensor 2 Circuit High	ne P0239 - Intake Air Temperatum Sensor 2 Circuit Erratic	re PCGAS - Intake Air Temperature Sensor 2 Performence Benk 2	P00A7 - Intako Air Temperature Sensor 2 Circuit Low Bank 2	P00A6 - Intoko Air Temperature Sensor 2 Circuit High Bank 2	P00A9 - Intake Air Temperature Sensor 2 Circuit Erratic Bank 2	P0116 - Engine Coolent Temperature Sensor Performance	P0117 - Engine Cookert Temperature Sensor Circuit Low	P0118 - Engine Coolant Temperature Sensor Circuit High	P0119 - Engine Codant Temperature Sensor Circuit Erratic	P0121 - Throttle Position Sensor Performance	P0122 - Throttle Position Sensor Circuit Low	P0123 - Throttle Position Sensor Circuit High	P0130 - HO28 Clivxit Bank 1 Seneor 1	1 P0131 - Oxygen Sensor Circ. Low Bank 1 Sensor 1	et P0132 - Oxygen Sensor Circui High Bank 1 Sensor 1		ogen Sensor Circuit nk 2 Sensor 1 High Bank 2 Sensor 1 CONTINUED NEX	
P2177 - Fuel Trim System Lean Of Idle Bank 1	P0163 - Oxygen Sensor Slow Response Bank 2 Sensor 1	P0221 - Throttle Position Sensor 2 Performence	P0222 - Throttle Position Sensor 2 Circuit Low	P0223 - Throdio Position Sensor 2 Circuit High	P0226 - Throttle Position Sensor Performance Bank 2	P0227 - Throttle Position Sensor Circuit Low Bank 2	P0228 - Throdie Position Sensor Circuit High Bank 2	P0300 - Engine Misfire Detected	P0301 - Cylinder 1 Misfire Detected	P0302 - Cylinder 2 Mistine Detected	P0S03 - Cylinder 3 Misfire Detected	P0304 - Cylinder 4 Wisfine Detected	P0305 - Cylinder 5 Misfire Detected	P0306 - Cylinder 6 Mistine Detected	P0307 - Cylinder 7 Misfire Detected	P0308 - Cylinder 8 Wisfire Detected	P0335 - Crankshaft Position Sensor Circuit	P0396 - Crankshaft Position Sensor Performance		apcrative Emission P0456 - Evaporative Emission noid Control Circuit Purge Sciencid Control Circuit Open Low	
Bark 1	P0459 - Exaponative Emission Purge Solenoid Control Circuit High	PO496 - Evaponative Emission System Flow During Non- Purge	P04AB - Evaponativa Emission Punge Solenoid Control Circuit Open Bank 2	on POAAC - Evaporative Entission alt Purge Solencid Control Circuit Low Bank 2	on PO4AD - Exaponative Emissio di Purge Solenoid Control Circui High Bank 2	P04AE - Exaporative Emission Purge Solenoid Performance Bank 2	PO4DF - Evaponativa Errisaion Punge Solescid Performance Bank 1	P05CC - Cold Start letate Carnshell Position System Performance Bank 1	P05CD - Cold Start Intake Carnehoff Position System Performance Bank 2	P0641 - Sensor Reference Voltage 1 Circuit Open	P064D - Control Module Oxygen Sensor Bank 1 Senso 1 System Performance	P064E - Control Module Oxygen Sensor Bank 2 Senso 1 System Performance	P0651 - Sensor Reference Voltage 2 Circuit Open	P0897 - Sensor Reference Voltage 3 Circuit Open	P06A3 - Sensor Reference Voltage 4 Circuit Open	P2088 - Carnshaft Position Actuator Control Circuit Low	P2089 - Carrehaft Position Actuator Control Circuit High	P2050 - Exhaust Carrahaft Position Actuator Control Circuit Low Bank 1	Position Actuator Control Position Actuator Control Position / Circuit High Bank 1 Circuit Low Bank 2 Circuit	Intelior Cerrohalt P2004 - Estrecut Cerrohalt Position Actasion Control High Bank 2 Circuit Low Bank 2 CONTINUED NEXT	
	P2096 - Exhaust Carrishaft Position Actuator Control Circuit High Bank 2	P2096 - Post Catalyst Fuel Trim System Low Limit Bank	P2007 - Post Catalyst Fuel 1 Trim System High Limit Bank	P2038 - Post Catalyst Fuel 1 Trim System Low Limit Bank 2		P2125 - Throite Position 2 Sensor 2 Performance Bank 2	P212C - Throttle Position Sensor 2 Circuit Low Bank 2	P2120 - Throttle Position Sensor 2 Circuit High Bank 2	P2176 - Minimum Throttle Position Not Learned	P218A - Minimum Theotile Position Not Learned Bank 2	P2155 - Caygen Sereor Signa Biased Loan Bank 1 Sensor 1	P2195 - Oxygen Sensor Sign Blased Rich Bank 1 Sensor	P2197 - Oxygen Sensor Signs Blased Lean Bank 2 Sensor 1	P2196 - Oxygen Seneor Signe Blased Rich Bank 2 Sensor 1	P2237 - Oxygen Sensor Pumping Current Control Circuit Open Bank 1 Sensor 1	P2240 - Oxygen Sensor Pumping Current Control Circuit Open Bank 2 Sensor	P2251 - Onygen Sensor Low Reference Circuit Open Bank 1 Sensor 1	P2254 - Oxygen Sensor Low 1 Reference Circuit Open Bank : Sensor 1	P2297 - Oxygen Bensor Out of P2298 - Oxygen Sensor Out of P2626 -	Oxygen Sensor  seriest Trim Circuit  Purping Current Trim Circuit  Open Bank 2 Sensor 1  Open Bank 2 Sensor 1	
	P30D8 - Control Modele Processor Serial Peripheral Interface Bus 3	P3008 - Control Module Processor Serial Peripheral Interface Bus 4	U0607 - Lost Communication With Throttle Position Sensor Bank 1 Sensor 2	n U0689 - Lost Communication With Throttle Position Sensor Bank 2 Sensor 2	U136D - Invalid Data Receive From Throttle Position Senso 2	d U136F - Invalid Data Receiver From Throttle Position Sensor Bank 2 Sensor 2	END														

The DTCs in this column is inhibited by the DTCs listed to	The DTCs in these columns inhibit the DTC to the just The DTCs in these columns inhibit the DTC to the just												The DTCs in these column	ns inhibit the DTC to the	The DTCs in these columns inhibit the DTC to the left						
the right Inhibited DTC	Fault Active		P0013 - Pubaust Carrelati	PD014 - February Complete	Fault Ac	tive DTCs		PDD19 - Creative by February	P0020 - Intake Carnshaft	P0021 - Intake Carnshaft	Fault Ac	tive DTCs	P0030 - Ovuseo Sensor Heate	P0001 - Causen Secsor Heate	PERSO - Churges Section Heatin	P1050 - Oxygen Sensor Heat	Fault Active DTCs	P0052 - Causen Secret Heater			
P2170 - Puel Trem System Rich Off Me Bank 1	P000A - Cernshaft Position   P001B - Exhaust Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cernshaft   P000B - Istake Cer	Position System Slow Response Bank 2	P0010 - Carrahalt Position Ictuator Control Girost Open P00A5 - Intake Air	P0011 - Carmhaft Position System Performance P00A7 - Intake Air	P0013 - Exhaust Cornshaft Position Actuator Control Circuit Open Bank 1 P00A6 - Intake Air	Position System Performance Bank 1 P00AG - Intake Air	P0016 - Cranicalnaft to Camehalt Correlation P0116 - Engine Coolent	P0017 - Crankaheft to Extraset Correlation Bank 1 P0117 - Engine Cookert	P0018 - Crankshaft to Intake Camshaft Correlation Bank 2 P0118 - Engine Coolant	P0019 - Crankoltelt to Exhaust Camshaft Correlation Bank 2 P0119 - Engine Codent	Position Actuator Control Circuit Open Bank 2	Position System Performance Bank 2	Position Actuator Control Circuit Open Bank 2	Position System Performance Bank 2	Control Circuit Open Bank 1 Sensor 1	Control Circuit Low Bank 1 Sensor 1	Control Circuit High Bank 1 Sensor 1	Control Circuit Open Bank 2 Sensor 1	Control Circuit Low Bank 2 Sensor 1	Control Circuit High Bank 2 Sensor 1	CONTINUED NEXT LINE
	Sensor 2 Performance Sensor 2 Circuit Low Sensor 2 Circuit High	199 - Intake Air Temperature Sensor 2 Circuit Errolic	Temperature Sensor 2 Performance Bank 2	Temperature Sensor 2 Circuit Low Bank 2	Temperature Sensor 2 Circuit High Bank 2	Temperature Sensor 2 Circuit Errotic Bank 2	Temperature Sensor Performance	Temperature Sensor Circuit Low	Temperature Sensor Circuit High	Temperature Sensor Circuit Emate	P0121 - Throde Position Sensor Performance	P0122 - Throttle Position Sensor Grouit Low	P0123 - Throttle Position Sensor Circuit High	P0130 - HO28 Circuit Bank 1 Sensor 1	P0131 - Oxygen Bensor Circui Low Bank 1 Sensor 1	t P0132 - Oxygen Sensor Circui High Bank 1 Sensor 1	t P0133 - Oxygen Sensor Slow Response Bank 1 Sensor 1	P0150 - HO28 Circuit Bank 2 Sensor 1	P0151 - Oxygen Sensor Circui Low Bank 2 Sensor 1	it P0152 - Oxygen Sensor Circuit High Bank 2 Sensor 1	CONTINUED NEXT LINE
		-	P0226 - Throtile Position Bensor Performance Bank 2	P0227 - Throttle Position Sensor Circuit Low Bank 2	P0228 - Throttle Position Sensor Circuit High Bank 2	P0300 - Engine Misfire Detected	P0301 - Cylinder 1 Misfire Detected	P0302 - Cylinder 2 Mistire Datected	P0303 - Cylinder 3 Mistire Detected	P0304 - Cylinder 4 Misfire Detected	P0305 - Cylinder 5 Mistire Detected	P0306 - Cylinder 6 Mistire Detected	P0307 - Cylinder 7 Mislire Detected	PC008 - Cylinder 8 Mislire Detected	P0335 - Crankshaft Position Sensor Circuit	P0036 - Crankshaft Position Sensor Performance	P034A - Crankshaft Position Sensor Start Position Income:	P(G4B - Crankshaft Position Sensor Direction Incorrect	PD443 - Exsponitive Emission Purge Solenoid Control Circuit Open	P0458 - Evaponative Emission Purge Solenoid Control Circuit Low	CONTINUED NEXT LINE
		IAC - Evaporative Emission P0 rge Solenoid Control Circuit Pu Low Bank 2	04AD - Evaporative Emission urge Solenoid Control Circuit High Bank 2	P04AE - Evaporative Emission F Purge Solenoid Performance Bank 2	PD4DF - Evaponative Emission Purge Sciencid Performance Bank 1	P06CC - Cold Start Intake Corneladi Position System Performance Bank 1	P05CD - Coté Start Intake Correbalt Position System Performance Bank 2	P0641 - Sensor Reference Voltage 1 Circuit Open	P064D - Control Module Oxygen Sensor Bank 1 Senso 1 System Performance	P064E - Convot Module Dxygen Sensor Bank 2 Sensor 1 System Performance	P0651 - Sensor Reference Voltage 2 Circuit Open	P0897 - Sensor Reference Votage 3 Circuit Open	P06A3 - Sensor Reference Vottage 4 Circuit Open	P2088 - Carnshaft Position Actuator Control Circuit Low	P2089 - Carnshaft Position Actuator Control Grouit High	P2090 - Exhaust Cernshoft Position Actuator Control Circuit Low Bank 1	P2091 - Exhaust Cornshaft Position Actuator Control Grouit High Bank 1	P2092 - Make Correhalt Position Adustor Control Circuit Low Bank 2	P2093 - Intake Carrishaft Position Aduator Control Circuit High Bank 2	P2094 - Exhaust Carrishelt Position Actuator Control Circuit Low Bank 2	
	P2096 - Exhaust Cernshell P2006 - Post Celasyst Poet Post Celasyst Poet Post Celasyst Poet Tries System Low Limit Bank 1 Trim System High Limit Bank 1 Tries	2095 - Poet Catalyst Fuel F n System Low Limit Bank 2 Tri	P2099 - Post Catalyst Fuel rim System High Limit Book 2	P2128 - Throdie Position Sensor 2 Performance Bank 2	P212G - Throttle Position Sensor 2 Circuit Low Bank 2	P2120 - Throttle Position Sensor 2 Circuit High Bank 2	P2176 - Minimum Throt <b>is</b> Position Not Learned	P218A - Minimum Throttle Position Not Learned Bank 2	P2195 - Caygen Sensor Signa Biased Lean Bank 1 Sensor 1	P2196 - Oxygen Sensor Signal Blased Rich Bank 1 Sensor 1	P2197 - Oxygen Sensor Signal Blased Leon Bank 2 Sensor 1	P2196 - Oxygen Sensor Signal Blased Rich Bank 2 Sensor 1	P2237 - Oxygen Sensor Pumping Current Control Circuit Open Bank 1 Sensor 1	P2240 - Oxygen Sensor Pumping Current Control Circuit Open Bank 2 Sensor 1	P2251 - Oxygen Sensor Low Reference Circuit Open Bank 1 Sensor 1	P2254 - Oxygen Sensor Low Reference Circuit Open Bank : Sensor 1	P2297 - Oxygen Sensor Out o Range During Deceleration Bank 1 Sensor 1	P2298 - Oxygen Sensor Out o Range During Deceleration Bank 2 Sensor 1	P2626 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 1 Sensor 1	P2629 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 2 Sensor 1	
	P3008 - Control Module Processor Serial Pringherar Heristee Bas 3  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19  Page 19	th Throtte Position Sensor Bank 2 Sensor 2	136D - Invalid Data Received rom Throttle Position Sensor 2	U136F - Invalid Data Received From Throtte Position Sensor Bank 2 Sensor 2																	
	P000A - Correted Position P000B - Enhance Correted Position System Stow Response Bank 1 P000C - Intelligence Bank 1 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank 2 P000C - Intelligence Bank	Position System Slow Response Bank 2	P0010 - Carrishalt Position Intuator Control Circuit Open	P0011 - Camshaft Position System Performance	P0013 - Exhaust Carrehalt Position Actuator Control Circuit Open Bank 1	P0014 - Exhaust Carrishaft Position System Performance Bank 1	P0016 - Crankshaft to Camahaft Correlation	P0017 - Grankshaft to Exhaust Carrehalt Correlation Bank 1	P0018 - Crankshaft to Intake Carnshaft Correlation Bank 2	P0019 - Crankshaft to Exhaust Camahaft Correlation Bank 2	P0020 - Intake Carrishaft Position Actuator Control Circuit Open Bank 2	P0021 - Intake Carretraft Position System Performance Bank 2	P0003 - Exhaust Carretolt Position Actuator Control Circuit Open Bank 2	P0024 - Exhaust Carridraft Position System Performance Bank 2	P0020 - Chygen Sensor Heate Control Circuit Open Bank 1 Sensor 1	P0031 - Oxygen Sensor Heats Control Circuit Low Bank 1 Sensor 1	PCCC2 - Oxygen Sensor Heate Control Circuit High Bank 1 Sensor 1	P0050 - Oxygen Sensor Heat Control Circuit Open Bank 2 Sensor 1	er P0351 - Cizygen Sensor Heate Control Circuit Low Bank 2 Sensor 1	or P0052 - Caygen Sensor Heater Control Circuit High Bank 2 Sensor 1	
	P0066 - Intake Air Temperature P0067 - Intake Air Temperature P0088 - Istake Air Temperature P009 Sensor 2 Performance Sensor 2 Circuit Lore Sensor 2 Circuit High	199 - Intake Air Temperature Sensor 2 Circuit Ematic	PCOA6 - treake Air Temperature Sensor 2 Performance Bank 2	PCOA7 - Wake Air Temperature Sensor 2 Circuit Low Bank 2	P00A8 - Ivake Air Temperature Seneor 2 Circuit High Bank 2	PODAD - Intake Air Temperature Sensor 2 Circuit Errotic Bank 2	P0116 - Engine Cootent Temperature Sensor Performance	P0117 - Engine Coctant Temperature Sensor Circuit Low	P0118 - Engine Coctant Temperature Sensor Circuit High	P0119 - Engine Coctant Temperature Sensor Circuit Enatio	P0121 - Throide Position Sensor Performance	P0122 - Throttle Position Sensor Circuit Low	P0123 - Throttle Position Sensor Circuit High	P0130 - HD25 Circuit Bank 1 Sensor 1	P0131 - Caygen Sensor Circui Low Bank 1 Sensor 1	t P0132 - Oxygen Sensor Grou High Bank 1 Sensor 1	P0133 - Oxygen Sensor Slow Response Bank 1 Sensor 1	P0150 - HC25 Circuit Bank 2 Sensor 1	P0151 - Caygen Sensor Circui Low Bank 2 Sensor 1	it P0152 - Oxygen Sensor Grout High Bank 2 Sensor 1	
	P0153 - Oxygen Sensor Store Response Bank 2 Sensor 1 Sensor 2 Performance Sensor 2 Circuit Low	P0223 - Throelle Position Sensor 2 Circuit High S	P0226 - Throite Position Sensor Performance Bank 2	P0227 - Throate Position Sensor Circuit Low Bank 2	P0228 - Throttle Position Sensor Grout High Bank 2	P0300 - Engine Misrine Detected	P0301 - Cylinder 1 Misfine Detected	P0302 - Cylinder 2 Mistine Detected	P0303 - Cylinder 3 Mistire Detected	PCSS4 - Cylinder 4 Missine Detected	P0305 - Cylinder 5 Markes Detected	P0306 - Cylinder 6 Mistine Detected	P0207 - Cylinder 7 Misline Detected	PC003 - Cylinder 8 Missine Detected	P0335 - Crankshaft Position Sensor Circuit	P0006 - Crankahari Position Sensor Performance	P034A - Crankshaft Position Sensor Start Position Incorrec	PICHB - Crankshaft Position Sensor Direction Incorrect	P0643 - Evaporative Emission Purge Solemoid Control Circuit Open	P0458 - Evaporative Emission Purge Solenoid Control Circuit Low	
P2179 - Fuel Trim System Lean Off Ide Bank 2	PD459 - Biognositive Emission PD460 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evoporative Emission PD470 - Evopora	SAC - Exaporative Emission Po age Solonoid Control Circuit Pu Low Bank 2	04AD - Exsporative Emission urge Selencid Control Circuit High Bank 2	POIAE - Exaporative Emission F Purge Solanoid Performance Bank 2	POIDF - Evaporative Emission Purge Sollenoid Performance Bank 1	P05CC - Cold Start Intake Carrishoft Position System Performance Bank 1	P05CD - Cold Start Intake Carrishaft Position System Performance Bank 2	P0641 - Sensor Reference Voltage 1 Circuit Open	P064D - Control Module Oxygen Sensor Bank 1 Senso 1 System Performance	P054E - Control Module Oxygen Sensor Bank 2 Sensor 1 System Performance	P0651 - Sensor Reference Vollage 2 Circuit Open	P0897 - Sensor Reference Voltage 3 Circuit Open	P06A3 - Sensor Reference Voltage 4 Circuit Open	P2083 - Cernshaft Position Actuator Control Circuit Low	P2089 - Carrishaft Position Actuator Control Grout High	P2090 - Exhaust Carrishelt Position Actuator Control Circuit Low Bank 1	P2091 - Exhaust Camehalt Position Actuator Control Grout High Bank 1	P2092 - Intake Camehalt Position Actuator Control Circuit Low Bank 2	P2093 - Intake Camehaft Position Actuator Control Circuit High Bank 2	P2094 - Exhaust Camshell Position Actuator Control Circuit Low Bank 2	CONTINUED NEXT LINE
	P2095 - Estavast Carrahaff P2096 - Post Catalyst Fuel P2097 - Post Catalyst Fuel P2	2098 - Post Catalyst Fuel F in System Low Limit Bank 2 Tri	P2099 - Post Catalyst Fuel rim System High Limit Bank 2	P2128 - Throdie Position Sensor 2 Performance Bank 2	P212C - Throttle Position Sensor 2 Circuit Low Bank 2	P2120 - Throttle Position Sensor 2 Circuit High Bank 2	P2176 - Minimum Throdie Position Not Learned	P218A - Minimum Throttle Position Not Learned Bank 2	P2195 - Oxygen Sensor Signa Based Lean Bank 1 Sensor 1	P2196 - Oxygen Sensor Signal Bissed Rich Bank 1 Sensor 1	P2197 - Oxygen Sensor Signal Biased Lean Bank 2 Sensor 1	P2196 - Oxygen Sensor Signal Biased Rich Bank 2 Sensor 1	P2237 - Gaygen Seneor Pumping Current Control Circuit Open Bank 1 Sensor 1	P2240 - Oxygen Sensor Pumping Current Control Circuit Open Bank 2 Sensor 1	P2251 - Oxygen Sensor Low Reference Circuit Open Bank 1 Sensor 1	P2254 - Oxygen Sensor Low Reference Circuit Open Bank : Sensor 1	P2297 - Oxygen Sensor Out o Ronge During Deceleration Bank 1 Sensor 1	P2258 - Oxygen Sensor Dut o Range During Deceleration Bank 2 Sensor 1	P2626 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 1 Sensor 1	P2829 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 2 Sensor 1	CONTINUED NEXT LINE
	P30D6 - Control Module P30D9 - Control Module U0807 - Lost Communication U08	688 - Lost Communication U1 th Throttle Position Sensor Fr		U136F - Invalid Data Received From Throttle Position Sensor	END								Circuit Open Sana 1 Sensor 1	Carout Open Bank 2 Sensor 1	Sersor 1	Sensor 1	Bank 1 Sensor 1	Bank 2 Sensor 1	Open Bank 1 Sensor 1	Open Bank 2 Sensor 1	
P217A - Fuel Injector High Control Circuit 7 Open	Interface Bus 3 Interface Bus 4 Bank 1 Sensor 2  END	Bank 2 Sensor 2	2	Bank 2 Sensor 2																	
P217D - Field Injector High Control Cloud & Open	END																				
Circuit & Open		0000 - Exhaust Carrehaft Position System Slow Response Bank 2	P0010 - Carnshaft Position Intuator Control Circuit Open	P0011 - Camshaft Position	P0013 - Edward Carretelt Position Actuator Control Circuit Open Bank 1	P0014 - Eshaust Carrolraft Dusling Sustan Deformance	P0016 - Crankshaft to	P0017 - Cranksheft to Exhaust	P0018 - Crankshaft to Intake	P0019 - Crankshaft to Exhaust	P0020 - Intake Carrelvalt Bookking Arthury Control	PDD21 - Intelo Carrelott Drekkon Sustan Barbanasan	P0003 - Edward Correlati Doubles Schuster Control	P0024 - Exhaust Carrelinit Dualities Sustan Deformance	P0030 - Caygen Sensor Heats	PODS1 - Caygen Sensor Heats Control Circuit Low Bank 1	PCCC2 - Oxygen Servior Heate Control Circuit High Bank 1	r P0050 - Oxygen Sensor Heat Control Circuit Open Bank 2	er P0351 - Cizygen Senecr Heate Control Circuit Low Bank 2	P0052 - Caygen Sereor Heater Control Circuit High Bank 2	CONTINUED AND THE
	P0096 - Intake Air Temperature P0097 - Intake Air Temperature P0098 - Intake Air Temperature P009	199 - Jotsko Air Temperature	PEGAS - Intake Air Temperature Sensor 2	System Performance PEGAY - Intake Air	Circuit Open Bank 1 P00A8 - Irraite Air	Posaon system Performance Bank 1 POSAO - Intake Air	Camshaft Correlation  P0116 - Engine Coolant Temperature Sensor Performance	Correlat Correlation Bank 1  P0117 - Engine Cookert Temperature Sensor Circuit	Carrelation Bank 2 P0118 - Engine Coolant	Camahaft Correlation Bank 2 P0119 - Engine Coclant	Circuit Open Bank 2  P0121 - Throtile Position	Poston system Performance Bank 2 P0122 - Throttle Position	Circuit Open Bank 2  P0123 - Throttle Position	Poston system Performance Bank 2 P0130 - HO2S Circuit Bank 1	Bersor 1  P0131 - Oxygen Sensor Circuit	P0132 - Oxygen Sensor Circui	t P0133 - Oxygen Sensor Slow	P0150 - HO2S Circuit Bank 2	P0151 - Oxygen Sensor Circui	t P0152 - Oxygen Sensor Circuit	CONTINUED NEXT LINE
	Sensor 2 Performance Sensor 2 Circuit Low Sensor 2 Circuit High	Bensor 2 Circuit Erratic	Pozza - Throde Poston	Low Bank 2  P0227 - Throthis Position Sensor Circuit Low Bank 2	Temperature Sensor 2 Circuit High Bank 2 P0228 - Throdia Position	Temperature Sensor 2 Circuit Erratio Bank 2 PC000 - Engine Mafine Detected	P0301 - Cylinder 1 Market	P0302 - Cylinder 2 Minfre	Temperature Sensor Circuit High P0303 - Cylinder 3 Mistire	PCCO4 - Cylender 4 Martins Dates And	Sensor Performance P0305 - Cylinder 5 Marine	Sensor Circuit Low P0306 - Cylinder 6 Mintee	Sensor Circuit High P0307 - Cylinder 7 Midfre	Posos - Cylinder & Warfen	Low Bank 1 Sensor 1 P3335 - Crankshaft Position	High Bank 1 Sensor 1  P0336 - Crankabalt Position Sensor Profession	Response Bank 1 Sensor 1  P034A - Crankshaft Position Sensor Start Position Income:	PCS4B - Crankahafi Position Sensor Direction Incorrect	Low Bank 2 Sensor 1	High Bank 2 Sensor 1	CONTROLL NEXT LINE
P2180 - Fuel Trim System Rich Off Ide Bank 2	PO459 - Evaporative Emission PO496 - Evaporative Emission PO448 - Evaporative Emission PO4	P0223 - Throtile Position Sensor 2 Circuit High S 84G - Evaporative Emission P0	04AD - Exaporative Emission	POIAE - Exsporative Emission F	P0228 - Throtile Position Sensor Circuit High Bank 2 P06DF - Evaporative Emission	P05CC - Cold Start Intake	POSCD - Cold Start Intake	Detected P0841 - Samsor Reference	P064D - Control Module	P064E - Control Nockde	Detected P0851 - Sensor Reference	Detected P0897 - Sensor Reference	Detected P06A3 - Sensor Reference	Detected P2088 - Correlate Position	Sensor Circuit  P2089 - Currelat Position	P2090 - Exhaust Carnshaft	P2091 - Exhaust Carrehaft	P2092 - Intake Camehaft	P0443 - Evaporative Emission Purge Solemoid Control Circuit Open P2093 - Intake Camehaft	Purge Solanoid Control Circuit Low P2094 - Exhaust Camshaft	CONTINUED NEXT LINE
			urge Bolenoid Control Circuit High Bank 2 P2099 - Post Catalist Fuel	Purge Sciencid Performance Bank 2 P2128 - Throde Position	Purge Solenoid Performance Bank 1 P212C - Throttle Position	Carrishoft Position System Performance Bank 1	Camshaft Position System Performance Bank 2	Voltage 1 Circuit Open	Oxygen Sensor Bank 1 Senso 1 System Performance	Oxygen Sensor Bank 2 Sensor 1 System Performance P2196 - Oxygen Sensor Signal	Voltage 2 Circuit Open	Voltage 3 Circuit Open	Votage 4 Circuit Open  P2237 - Oxygen Senecr	Actuator Control Circuit Low P2240 - Oxygen Sensor	Actuator Control Circuit High	Position Actuator Control Circuit Low Bank 1 P2254 - Oxygen Sensor Low	Position Actuator Control Circuit High Bank 1 P2297 - Causen Sensor Out o	Position Actuator Control Circuit Low Bank 2 P2298 - Oscoun Sensor Dut o	Position Actuator Control Circuit High Bank 2 P2626 - Doggan Sensor	Position Actuator Control Circuit Low Bank 2 P2629 - Oxygen Sensor	CONTINUED NEXT LINE
	P2006 - Exhaust Cannahatt Poolikin Ackshold Control Circuit High Bank 2  P3006 - Costrol Module P3006 - Costrol Module P3006 - Costrol Module P3006 - Costrol Module P3006 - Costrol Module P3006 - Costrol Module P3006 - Costrol Module P3006 - Costrol Module P3006 - Costrol Module P3006 - Costrol Module P3006 - Costrol Module P3006 - Costrol Module	2098 - Post Catalyst Fuel Fin System Low Limit Bank 2 Tri	P2099 - Post Catalyst Fuel rim System High Limit Bank 2 136D - Invalid Data Received	P2128 - Throde Position Sensor 2 Performance Bank 2 U138F - Invalid Data Received	P212C - Throttle Position Sensor 2 Circuit Low Bank 2	P212D - Throttle Position Servicer 2 Circuit High Bank 2	P2176 - Minimum Throdle Position Not Learned	P218A - Minimum Throttle Position Not Learned Bank 2	P2195 - Oxygen Sensor Signa Blassot Lean Bank 1 Sensor 1	P2196 - Oxygen Sensor Signal Bissed Rich Bank 1 Sensor 1	P2197 - Oxygen Sensor Signal Blased Lean Bank 2 Sensor 1	P2196 - Oxygen Sensor Signal Blased Rich Bank 2 Sensor 1	Pumping Current Control Circuit Open Bank 1 Sensor 1	Pumping Current Control Circuit Open Bank 2 Sensor 1	Reference Circuit Open Bank 1 Sensor 1	Reference Circuit Open Bank : Sensor 1	2 Range During Deceleration Bank 1 Sensor 1	Range During Deceleration Bank 2 Sensor 1	Pumping Current Trim Circuit Open Bank 1 Sensor 1	Pumping Current Trim Circuit Open Bank 2 Sensor 1	CONTINUED NEXT LINE
	Processor Serial Peripheral Processor Serial Peripheral With Throttle Position Sensor With Interface Bus 3 With Throttle Position Sensor 2 With Bank 1 Sensor 2	th Throttle Position Sensor Fr Bank 2 Sensor 2	rom Throttle Position Sensor 2	From Throttle Position Sensor Bank 2 Sensor 2	END			1		1			T	P0024 - Exhaust Carrishaft	L	L	L		L		
		0000 - Exhaust Carrishaft Position System Store Response Bank 2	P0010 - Carrelsaft Position Ictuator Control Girouit Open	P0011 - Carrelsaft Position System Performance	P0013 - Exhaust Camshaft Position Actuator Control Circuit Open Bank 1	P0014 - Exhaust Camshaft Position System Performance Bank 1	P0016 - Crankshaft to Camshaft Correlation	P0017 - Crankshaft to Extraust Correlation Bank 1	P0016 - Crankshaft to Intake Camshaft Correlation Bank 2	P0019 - Cranfodust to Exhaust Camshaft Correlation Bank 2	P0020 - Intake Camshaft Position Actuator Control Circuit Open Bank 2	P0021 - Intake Camshaft Position System Performance Bank 2	P0023 - Exhaust Cornshoft Position Actuator Control Circuit Open Bank 2	P0024 - Exhaust Carrishaft Position System Performance Bank 2	P0030 - Oxygen Sensor Heate Control Circuit Open Bank 1 Sensor 1	P0031 - Oxygen Sensor Heats Control Circuit Low Bank 1 Sensor 1	of P0032 - Oxygen Sensor Heato Control Circuit High Bank 1 Sensor 1	d P0050 - Oxygen Sensor Heat Control Circuit Open Berik 2 Sensor 1	or P0051 - Oxygen Sensor Heate Control Circuit Low Bank 2 Sensor 1	or P0052 - Caygen Sensor Heater Control Clicuit High Bank 2 Sensor 1	CONTINUED NEXT LINE
	P0096 - Intake Air Temperature P0097 - Intake Air Temperature P0098 - Intake Air Temperature P009 Sensor 2 Derformance Sensor 2 Circuit Low Sensor 2 Circuit High	135 - Intako Air Yemperature Sensor 2 Circuit Erratic	PCOA5 - Intake Air Temperature Sensor 2 Performence Bank 2	P00A7 - Irtako Air Temperature Sensor 2 Circuit Low Bank 2	P00A8 - Intolos Air Temperature Bensor 2 Circuit High Bank 2	P00A9 - Intake Air Temperature Sensor 2 Circuit Erratic Bank 2	P0116 - Engine Coolent Temperature Sensor Performance	P0117 - Engine Cookert Temperature Sensor Circuit Low	P0118 - Engine Coolant Temperature Sensor Circuit High	P0119 - Engine Codent Temperature Sensor Circuit Erratic	P0121 - Throtile Position Sensor Performance	P0122 - Throttle Position Sensor Cleouit Low	P0123 - Throttle Position Sensor Circuit High	P0130 - HO28 Circuit Bank 1 Seneor 1	P0131 - Oxygen Berser Circui Low Bank 1 Sensor 1	t P0132 - Oxygen Sensor Circui High Bank 1 Sensor 1	t P0133 - Oxygen Sensor Slow Response Bank 1 Sensor 1	P0150 - HO28 Circuit Bank 2 Seneor 1	P0151 - Oxygen Sensor Circui Low Bank 2 Sensor 1	t P0152 - Oxygen Sensor Circuit High Bank 2 Sensor 1	
P2187 - Fuel Trim System Lean at Me Bank 1	P0153 - Oxygen Sensor Slow P0221 - Throttle Position P0222 - Throttle Position Sensor 2 Performance Sensor 2 Circuit Low P0229 - Throttle Position P0222 - Throttle Position P0222 - Throttle Position P0222 - Throttle Position P0222 - Throttle Position P0222 - Throttle Position P0222 - Throttle Position P0222 - Throttle Position P0222 - Throttle Position P0222 - Throttle Position P0222 - Throttle Position P0222 - Throttle Position P0222 - Throttle Position P0222 - Throttle Position P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Throttle P0222 - Thrott	P0223 - Throttle Position Sensor 2 Circuit High S	P0226 - Throttle Position Sensor Performance Bank 2	P0227 - Throttle Position Sensor Circuit Low Bank 2	P0228 - Throttle Position Sensor Circuit High Bank 2	P0300 - Engine Misfire Detected	P0301 - Cylinder 1 Misfire Detected	P0302 - Cylinder 2 Misline Detected	P0303 - Cylinder 3 Mistire Detected	P(304 - Cylinder 4 Mis/ire Detected	P0305 - Cylinder 5 Misfire Detected	P0306 - Cylinder 6 Misline Detected	P0307 - Cylinder 7 Mistire Detected	P0308 - Cylinder 8 Mis/ire Detected	P0335 - Crankshaft Position Sensor Circuit	P0396 - Crankshaft Position Sensor Performance	P034A - Crankshaft Position Sensor Start Position Income:	P034B - Crankshaft Position Sensor Direction Incorrect	PD643 - Exsporative Emission Purge Solenoid Control Circuit Open	Low	
Bask 1	P0459 - Eugonative Emission Purge Scienced Control Cloud High	IAC - Evaporative Emission P0 ige Solenoid Control Circuit Pu Low Bank 2	04AD - Exaponative Emission urge Solenoid Control Circuit High Bank 2	PD4AE - Exaporative Emission F Purge Sciencid Performance Bank 2	PDADF - Evaponative Emission Purge Solenoid Performance Bank 1	P05CC - Cold Start Intake Corneltoff Position System Performance Bank 1	POSCD - Cold Start Intake Correlant Position System Performance Bank 2	P0641 - Sensor Reference Voltage 1 Circuit Open	P064D - Control Module Oxygen Sensor Bank 1 Senso 1 System Performance	P084E - Control Module Oxygen Sensor Bank 2 Sensor 1 System Performance	P0651 - Sensor Reference Voltage 2 Circuit Open	P0697 - Sensor Reference Voltage 3 Circuit Open	P06A3 - Sensor Reference Voltage 4 Circuit Open	P2088 - Carnshaft Position Actuator Control Circuit Low	P2089 - Carnshaft Position Actuator Control Circuit High	P2000 - Exhaust Comshell Position Actualor Control Circuit Low Bank 1	P2001 - Exhaust Cernshaft Position Actuator Control Circuit High Bank 1	P2002 - Intake Correhalt Position Adustor Control Circuit Low Bank 2	P2093 - Intake Carrishaft Position Actuator Control Circuit High Bank 2	P2004 - Exhaust Comshell Position Actuator Control Circuit Low Bank 2	
	Trim System Low Limit Bank 1 Trim System High Limit Bank 1 Trim	2008 - Poet Catalyst Fuel F in System Low Limit Bank 2 Tri	P2039 - Post Catalyst Fuel rim System High Limit Bonk 2	P2128 - Throde Position Sensor 2 Performance Bank 2	P212C - Throttle Position Sensor 2 Circuit Low Bank 2	P2120 - Throttle Position Sensor 2 Circuit High Bank 2	P2176 - Minimum Throtile Position Not Learned	P218A - Minimum Throite Position Not Learned Bank 2	P2195 - Caygen Sensor Signs Biased Lean Bank 1 Sensor 1	P2196 - Oxygen Sensor Signal Biased Rich Bank 1 Sensor 1	P2197 - Oxygen Sensor Signel Blased Leon Bank 2 Sensor 1	P2196 - Oxygen Senecr Signal Blased Rich Bank 2 Sensor 1	P2237 - Oxygen Sensor Pumping Current Control Circuit Open Bank 1 Sensor 1	P2240 - Oxygen Sensor Pumping Current Control Circuit Open Bank 2 Sensor 1	P2251 - Oxygen Sensor Low Reference Circuit Open Bank 1 Sensor 1	P2254 - Oxygen Sensor Low Reference Circuit Open Bank : Sensor 1	P2297 - Oxygen Sensor Out o Plange During Deceleration Bank 1 Sensor 1	P2298 - Oxygen Sensor Out o Range During Deceleration Bank 2 Sensor 1	P2626 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 1 Sensor 1	P2629 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 2 Sensor 1	
	P3006 - Costel Module P1009 - Costel Module P10090 Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill Projector Strill	th Throttle Position Sensor Bank 2 Sensor 2	136D - Invalid Data Received rom Throttle Position Sensor 2	U136F - Invalid Data Received From Throttle Position Sensor Bank 2 Sensor 2																	
	PODDS - Exhaust Carreliat P0000 - Intelio Carreliat P0	Position System Slow Response Bank 2	P0010 - Carrishalt Position Intuator Control Circuit Open	P0011 - Carrishaft Position System Performance	P0013 - Exhaust Correlvelt Position Actuator Control Circuit Open Bank 1	P0014 - Exhaust Carridraft Position System Performance Bank 1	P0016 - Crankshaft to Camahaft Correlation	P0017 - Crankshaft to Exhaust Carrehalt Cometation Bank 1	P0018 - Crankshaft to Intake Camahaft Correlation Bank 2	P0019 - Cronkshaft to Exhaust Carmshaft Correlation Bank 2	P0020 - Jetake Carretselt Position Actuator Control Circuit Open Bank 2	PD021 - Intales Carretreft Position System Performance Bank 2	P0023 - Exhaust Corretelt Position Actuator Control Circuit Open Bank 2	P0024 - Exhaust Carrelnaft Position System Performance Bank 2	P0020 - Oxygen Sensor Heate Control Circuit Open Bank 1 Sensor 1	P0031 - Oxygen Sensor Heate Control Circuit Low Bank 1 Sensor 1	PCCC2 - Oxygen Sensor Heate Control Circuit High Bank 1 Sensor 1	P0050 - Oxygen Sensor Heat Control Circuit Open Bank 2 Sensor 1	er P0051 - Oxygen Seneor Heate Control Circuit Low Bank 2 Sensor 1	or P0052 - Oxygen Sensor Heater Control Circuit High Bank 2 Sensor 1	
		199 - Intake Air Temperature Sensor 2 Circuit Ematic	P00A6 - treake Air Temperature Sensor 2 Performance Bank 2	PODA? - Make Air Temperature Senecr 2 Grouit Low Bank 2	P03A8 - Make Air Temperature Sensor 2 Circuit High Bank 2	P00A0 - Intake Air Temperature Sensor 2 Circuit Erratio Bank 2	P0116 - Engine Cootent Temperature Sensor Performance	P0117 - Engine Coctant Temperature Sensor Circuit Low	P0118 - Engine Coctant Temperature Sensor Circuit High	P0119 - Engine Costant Temperature Sensor Circuit Englis	P0121 - Throble Position Sensor Performance	P0122 - Throttle Position Sensor Circuit Low	P0123 - Throttle Position Sensor Circuit High	P0130 - HC2S Circuit Bank 1 Sensor 1	P0131 • Oxygen Sensor Circuit Low Bank 1 Sensor 1	t P0132 - Oxygen Sensor Grou High Bank 1 Sansor 1	P0133 - Oxygen Sensor Slow Response Bank 1 Sensor 1	P0150 - HD2S Circuit Bank 2 Sensor 1	P0151 - Oxygen Sensor Circui Low Bank 2 Sensor 1	It P0152 - Oxygen Sensor Circuit High Bank 2 Sensor 1	
	P0153 - Oxygen Sensor Store P0221 - Throttle Position P0222 - Throttle Position P0222 - Throttle Position P0222 - Throttle Position P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Throttle P0322 - Th	P0223 - Throttle Position Sensor 2 Circuit High S	P0226 - Throttle Position Sensor Performance Bank 2	P0227 - Throdile Position Sensor Circuit Low Bank 2	P0225 - Throtile Position Sensor Grout High Bank 2	PC000 - Engine Misfire Detected	P0301 - Cylinder 1 Misline Detected	P0302 - Cylinder 2 Maline Detected	P0303 - Cylinder 3 Mielire Detected	PC004 - Cylinder 4 Missine Detected	P0305 - Cylinder 5 Misline Detected	P0306 - Cylinder 6 Maline Detected	P0307 - Cylinder 7 Mielire Detected	P0005 - Cylinder 8 Misline Detected	P0335 - Crankshaft Position Sensor Circuit	P0336 - Crankshaft Position Sensor Performance	P034A - Crankshaft Position Sensor Start Position Income:	PCS4B - Grankshaft Position Sensor Direction Incorrect	P0443 - Evaporative Emission Purge Solenoid Control Circuit	P0458 - Evaporative Emission Purge Sciencid Control Circuit Low	CONTINUED NEXT LINE
P2185 - Fuel Trim System Rich at Me Bank 1		SAC - Exaporative Emission Po age Solonoid Control Circuit Pu Low Bank 2	04AD - Exsporative Emission urge Setenoid Control Circuit High Bank 2	POLAE - Exaporative Emission F Purge Schanoid Performance Bank 2	POIDF - Evaporative Emission Purge Sciencid Performance Bank 1	P05CC - Cold Start Intake Carrishaft Position System Performance Bank 1	P05CD - Cold Start Intake Carrishaft Position System Performance Bank 2	P0841 - Sensor Reference Voltage 1 Circuit Open	P064D - Control Module Oxygen Sensor Bank 1 Senso 1 System Performance	P054E - Control Module Oxygen Sensor Bank 2 Sensor 1 System Performance	P0651 - Sensor Reference Voltage 2 Circuit Open	P0697 - Sensor Reference Voltage 3 Circuit Open	P06A3 - Sensor Reference Voltage 4 Circuit Open	P2083 - Cerrshaft Position Actuator Control Circuit Low	P2089 - Carrishaft Position Actuator Control Grout High	P2090 • Exhaust Carnshell Position Actuator Control Circuit Low Bank 1	P2091 - Exhaust Corretolt Position Actuator Coretol Circuit High Bank 1	P2062 - Intake Camehaft Position Actuator Control Circuit Low Bank 2	P2093 - Intake Camphaft Position Actuator Control Circuit High Bank 2	P2094 - Exhaust Camshaft Position Actuator Control Circuit Low Bank 2	CONTINUED NEXT LINE
		2098 - Post Catalyst Fuel F in System Low Limit Bank 2 Tri	P2099 - Post Catalyst Fuel rim System High Limit Sank 2	P2128 - Throtte Position Sensor 2 Performance Bank 2	P212C - Throttle Position Sensor 2 Circuit Low Sens 2	P2120 - Throtte Position Sensor 2 Circuit High Bank 2	P2176 - Minimum Throttle Position Not Learned	P218A - Minimum Throtte Position Not Learned Bank 2	P2196 - Oxygen Sensor Signa Based Lean Bank 1 Sensor 1	P2196 - Oxygen Sensor Signal Blookd Fisch Bank 1 Sensor 1	P2197 - Oxygen Sensor Signar Stased Lean Bank 2 Sensor 1	P2196 - Oxygen Sensor Signal Blassed Rich Bank 2 Sensor 1	P2237 - Oxygen Seneor Pumping Current Control Circuit Open Bank 1 Sensor 1	P2240 - Oxygen Sensor Pumping Current Control Circuit Open Bank 2 Sensor 1	P2251 - Oxygen Sensor Low Reference Circuit Open Bank 1 Sensor 1	P2254 - Oxygen Sensor Low Reference Circuit Open Bank : Sensor 1	P2257 - Oxygen Sensor Out o Range During Deceleration	P2298 - Oxygen Sensor Dut o Range During Deceleration Bank 2 Sensor 1	P2626 - Oxygen Sensor Pumping Current Trim Circuit	P2929 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 2 Sensor 1	CONTINUED NEXT LINE
	P3506 - Control Modele P3506 - Control Modele P3509 - Control Modele P3509 - Control Modele P3509 - Control Modele P3509 - Control Modele With Throlle Position Service With Throlle Position Service With Throlle Position Service	1688 - Lost Communication U1 th Throite Position Sensor Fr	136D - Invalid Data Received rom Throttle Position Sensor	U198F - Invalid Data Received From Throttle Position Sensor	END		1						Circui Open Suns 1 Sensor 1	Circuit Open Bank 2 Semsor 1	Sereor I	CAPTROP 1	Sunt   Suntor	Bark 2 Serrior 1	Open bank 1 bensor 1	Open bank 2 bereter 1	
		Bank 2 Sensor 2 0000 - Exhaust Comshaft Position System Store Response Bank 2	P0010 - Camehaft Position Ictuator Control Circuit Open	Bank 2 Sensor 2  P0011 - Camshaft Position System Performance	P0013 - Exhaust Carrishaft Position Actuator Control Circuit Open Bank 1	P0014 - Exhaust Camshaft Position System Performance Bank 1	P0016 - Crankshaft to Camshaft Correlation	P0017 - Crankshaft to Extraust Comphaft Correlation Bank 1	P0016 - Crankshaft to Intake Camphatt Combine Rank 2	P0019 - Crankshaft to Exhaust Camshaft ComMisso Rank 2	P0020 - Intake Camshaft Position Actuator Control Circuit Open Bank 2	P0021 - Intake Camshaft Position System Performance Bank 2	P0023 - Exhaust Camshoft Position Actuator Control Circuit Open Bank 2	P0024 - Exhaust Camshaft Position System Performence Bank 2	P0030 - Oxygen Sensor Heate Control Circuit Open Bank 1 Sensor 1	P0031 - Oxygen Sensor Heate Control Circuit Low Bank 1 Sensor 1	or P0032 - Oxygen Sensor Heate Control Circuit High Bank 1 Sensor 1	r P0050 - Oxygen Sensor Heat Control Circuit Open Bank 2	ar P0051 - Oxygen Sensor Heate Control Circuit Low Bank 2	or P0062 - Oxygen Sensor Heater Control Circuit High Bank 2 Sensor 1	CONTINUED NEXT LINE
	P0006 - Intaka Air Temperatura P0007 - Intaka Air Temperatura P0008 - Intaka Air Temperatura P001	139 - Intake Air Temperature	P00A6 - Intake Air	PODAT - Make Air Temperature Sensor 2 Circuit	Circuit Open Bank 1  P00A6 - Intake Air  Temperature Bensor 2 Circuit	Bank 1 PODAS - Intake Air Temperature Sensor 2 Circuit	P0116 - Engine Coolent	P0117 - Engine Cockett Temperature Sensor Circuit	P0118 - Engine Coolant Temperature Sensor Circuit	P0119 - Engine Coolant Temperature Sensor Circuit	Circuit Open Bank 2 P0121 - Throthe Position	P0122 - Throdie Position Sensor Grout Low	Circuit Open Bank 2 P0123 - Throttle Position Sensor Circuit High	Book 2 P0130 - HO2S Circuit Bank 1 Sensor 1	P0131 - Oxygen Sensor Circui Low Bank 1 Sensor 1	Sensor 1 I P0132 - Oxygen Sensor Circu High Bank 1 Sensor 1	Sensor 1  P0133 - Oxygan Sansor Slow Response Bank 1 Sensor 1	P0150 - HO28 Circuit Bank S Seneor 1	Sensor 1 P0151 - Caygan Sensor Circui Low Bank 2 Sensor 1	Sensor 1 If P0152 - Oxygen Sensor Circuit High Bank 2 Sensor 1	CONTINUED NEXT LINE
		Sensor 2 Circuit Ernatic  P0223 - Throttle Position Sensor 2 Circuit High S	Temperature Sensor 2 Performence Benk 2 P0226 - Throttle Position Sensor Performence Bank 2	Low Bank 2 P0227 - Throttle Position Sensor Circuit Low Bank 2	High Bank 2 P0228 - Throttle Position Sensor Circuit High Bank 2	Erratic Bank 2 P0300 - Engine Misfire Detected	Temperature Sensor Performance P0301 - Cylinder 1 Missine Detected	P0302 - Cylinder 2 Missine Detected	High P0303 - Cylinder 3 Mistire Detected	Erratic P0304 - Cylinder 4 Misfire Detected	P0305 - Cylinder 5 Missire Detected	P0306 - Cylinder 6 Misline Detected	P0307 - Cylinder 7 Misfire Detected	P0008 - Cylinder 8 Misfire Detected	P0336 - Crankshaft Position Sensor Circuit	P0396 - Crankshaft Position Sensor Performance	P034A - Cranishat Position Sensor Start Position Income	P034B - Crankshaft Position Sensor Director Incorrect	PD443 - Exaporative Emission	PO458 - Evaporative Emission	CONTRA ICO NEXT UND
P2169 - Fuel Trim System Lean at Me Bank 2	PO450 - Evaponativa Emission PO456 - Evaponativa Emission PO4A8 - Evaponativa Emission PO4	MC - Evaporative Emission PO	04AD - Exaponativa Emission	P04AE - Exaponative Emission F	PO4DF • Evaponativa Emission	P06CC - Cold Start Intake	POSCD - Cold Start Intake	P0541 • Sensor Reference	P064D - Control Module Coygen Sensor Bank 1 Senso	POS4E - Control Module	P0651 - Sensor Reference		P06A3 - Sensor Reference	P2088 - Carrehaft Position	P2089 • Camehaft Position	P2000 - Exhaust Correlett	P2001 - Exhaust Cerrshaft	P2002 - Intake Correlati	Purge Solenoid Control Circuit Open P2003 - Insalus Carrelhaft	Purge Sciencid Control Circuit Low P2004 - Eshaust Carnshelt	CONTINUED NEXT LINE
		rge Solenoid Control Circuit Pu Low Bank 2	urge Solenold Control Circuit High Bank 2 P2009 - Post Catalins Fuel	Purge Sciencid Performance Bank 2 P2128 - Throbse Position	Purge Solenoid Performance Bank 1	Carrehaft Position System Performance Bank 1 P212D - Throttle Position	Carrehalt Position System Performance Bank 2 P2176 - Minimum Throttle	Voltage 1 Circuit Open	1 System Performance P2195 - Causen Sensor Signs	Doygen Sensor Bank 2 Sensor 1 System Performance	Voltage 2 Circuit Open	P0897 - Sensor Reference Voltage 3 Circuit Open	Voltage 4 Circuit Open P2237 - Oxygen Sensor Parreles Contest	Actuator Control Circuit Low P2240 - Oxygen Sensor Parasina Carrent Control	Actuator Control Circuit High P2251 - Oxygen Sensor Low	Position Actuator Control Circuit Low Bank 1 P2254 - Oxygen Sensor Low	Position Actuator Control Circuit High Bank 1 P2297 - Oxygen Sensor Out o	Position Actuator Control Circuit Low Bank 2 P2298 - Oxygen Sensor Out of	Position Actuator Control Circuit High Bank 2	Position Actuator Control Circuit Low Bank 2 P2829 - Oxygen Sensor Dumaino Current Trim Circuit	
	Circuit High Benk 2 Trim System Low Limit Bank 1 Trim System High Limit Bank 1 Trim	n System Low Limit Bank 2 Tri	rim System High Limit Bank 2 136D - Invalid Data Received	Sensor 2 Performance Bank 2 U136F - Invalid Data Received	Sensor 2 Circuit Low Bank 2	Sensor 2 Circuit High Bank 2	Position Not Learned	P218A - Minimum Throttle Position Not Learned Bank 2	Blased Lean Bank 1 Sensor 1	Blased Rich Bank 1 Sensor 1	Blased Lean Bank 2 Sensor 1	Blased Rich Bank 2 Sensor 1	Pumping Current Control Circuit Open Bank 1 Sensor 1	Pumping Current Control Circuit Open Bank 2 Sensor 1	Reference Circuit Open Bank 1 Sensor 1	Reference Circuit Open Bank : Sensor 1	2 Range During Deceleration Bank 1 Sensor 1	Range During Deceleration Bank 2 Sensor 1	Pumping Current Trim Circuit Open Bank 1 Sensor 1	Pumping Current Trim Circuit Open Bank 2 Sensor 1	CONTINUED NEXT LINE
	Processor Serial Peripheral Processor Serial Peripheral With Throatie Position Sersor With Interface Bus 4 Bank 1 Sensor 2	th Throttle Position Sensor Fr Bank 2 Sensor 2 PDE39 - Throttle Actuator	rom Throttle Position Sensor 2 P21GA - Throttle Actuator	From Throttle Position Sensor Bank 2 Sensor 2	END		T	P30D7 - Control Module		i											
P218A - Minimum Throdie Position Not Learned Bank 2		Performance Bank 2	Open bank 2	Position Performance Bank 2			P212D - Throttle Position Sensor 2 Circuit High Bank 2	Processor Serial Peripheral Interface Bus 2	END		P0020 Janes Combat	P0021 - legio Constr <sup>®</sup>	PRODA - Endyment Council - C	POCOL - Enhanced Council - A	P0030 - Orange Posses i	PODD - Cause Proces	PERSON Conserve Services	PROSE Drages Seems	PROST - Orașes Possos /	P0050 - Course Process No.	
			P0010 - Carrishaft Position totuator Control Circuit Open	P0011 - Camshaft Position System Performance	P0013 - Exhaust Carrishaft Position Actuator Control Circuit Open Bank 1	P0014 - Exhaust Carrohalt Position System Performance Bank 1	P0016 - Crankshaft to Camshaft Correlation	P0017 - Cranksheft to Exhaust Carrishaft Correlation Bank 1	P0018 - Crankshaft to Intake Carrishaft Correlation Bank 2		P0020 - Intake Carrehalt Position Actuator Control Circuit Open Bank 2	P0021 - Intake Carrehaft Position System Performance Bank 2	P5023 - Edward Carrehalt Position Actuator Control Circuit Open Bank 2				r P0032 - Oxygen Sensor Heats Control Circuit High Bank 1 Sensor 1		or P0351 - Oxygen Sensor Heate Control Circuit Low Bank 2 Sensor 1		CONTINUED NEXT LINE
	P0096 - Jetaka Air Temperatura P0097 - Jetaka Air Temperatura P0095 - Jetaka Air Temperatura P0095 - Jetaka Air Temperatura P0095 - Sensor 2 Performance Sensor 2 Circuit Low Sensor 2 Circuit High	199 - Intake Air Temperature Sensor 2 Circuit Erratio	P00A6 - Intake Air Temperature Sensor 2 Performance Bank 2	P00A7 - Irrako Air Temperature Sensor 2 Circuit Low Bank 2	P03A9 - Insako Air Temperatura Senacr 2 Circuit High Bank 2	P00/69 - Intake Air Temperature Sensor 2 Circuit Erretic Bank 2	P0116 - Engine Coolant Temperature Sensor Performance	P0117 - Engine Coolant Temperature Sensor Circuit Low	P0118 - Engine Coolant Temperature Sensor Circuit High	P0119 - Engine Codant Temperature Sensor Circuit Erratic	P0121 - Throttle Position Sensor Performance	P0122 - Throttle Position Sensor Circuit Low	P0123 - Throttle Position Sensor Circuit High	P0130 - HD25 Circuit Bank 1 Sensor 1	P0131 - Coygen Sensor Circul Low Bank 1 Sensor 1	t P0132 - Oxygen Sensor Circui High Bank 1 Sensor 1	t P0133 - Oxygen Sensor Slow Response Bank 1 Sensor 1	P0150 - HO25 Circuit Bank 2 Sensor 1	P0151 - Caygen Sensor Circui Low Bank 2 Sensor 1	t P0152 - Oxygen Sensor Circuit High Bank 2 Sensor 1	CONTINUED NEXT LINE
P2190 - Fuel Trim System Rich at Idle Bank 2			P0226 - Throttle Position Sensor Performance Bank 2	P0227 - Throttle Position Sensor Circuit Low Bank 2	P0228 - Throttle Position Sensor Circuit High Bank 2	P0300 - Engine Misfine Detected	P0301 - Cylinder 1 Missine Detected	P0302 - Cylinder 2 Misline Detected	P0S03 - Cylinder 3 Mistire Detected	P0304 - Cylinder 4 Misfire Detected	P0305 - Cylinder 5 Missine Detected	P0306 - Cylinder 6 Mistine Detected	P0307 - Cylinder 7 Mistire Detected	PCS08 - Cylinder 8 Misfine Detected	P0335 - Crankshaft Position Sensor Circuit	P0006 - Crankshaft Position Sensor Performance	P034A - Crankshaft Position Sensor Start Position Income	PtG4B - Crankshaft Position Sensor Direction Incorrect	P0643 - Exaporative Emission Purge Solenoid Control Circuit Open		
Bank 2	Purge Solenoid Control Circuit System Flow During Non-Purge Solenoid Control Circuit Purge Upon Bank 2	IAC - Evaporative Emission age Solenoid Control Circuit Low Bank 2	04AD - Exsporative Emission urge Solenoid Control Circuit High Bank 2	P04AE - Exsporative Emission F Purge Solenoid Performance Bank 2	PDIDF - Evaporative Emission Punge Solenoid Performance Bank 1	P05CC - Cold Start Intelio Carrishaft Position System Performance Bank 1	P05CD - Crid Start Intake Carrishaft Position System Performance Bank 2	P0841 - Sensor Reference Voltage 1 Circuit Open	P054D - Control Module Oxygen Sensor Bank 1 Senso 1 System Performance	P054E - Control Module Oxygen Sensor Bank 2 Sensor 1 System Performance	P0951 - Sensor Reference Voltage 2 Circuit Open	P0697 - Sensor Reference Vollage 3 Circuit Open	P06A3 - Sensor Reference Voltage 4 Circuit Open	P2088 - Carrishaft Position Actuator Control Circuit Low	P2089 - Carrishaft Position Actuator Control Circuit High	P2000 - Exhaust Carrehaft Position Actuator Control Circuit Low Bank 1	P2091 - Exhaust Corretoft Position Actuator Control Circuit High Bank 1	P2092 - Intaku Carretreft Position Actuator Control Circuit Low Bank 2	P2003 - Intelos Carmshaft Position Actuator Control Circuit High Benk 2	P2004 - Exhaust Carnshaft Position Actuator Control Circuit Low Bank 2	
	Cittol rigil sale 2	2098 - Post Catalyst Fuel F in System Low Limit Bank 2 Tri	P2099 • Post Catalyst Fuel rim System High Limit Bank 2	P2128 - Throt <b>š</b> e Position Sensor 2 Performance Bank 2	P212C - Throttle Position Sensor 2 Circuit Low Bank 2	P2120 - Throttle Position Sensor 2 Circuit High Benk 2	P2176 - Minimum Throtile Position Not Learned	P218A - Minimum Throttle Position Not Learned Bank 2	P2195 - Crugen Sensor Signa Blased Lean Bank 1 Sensor 1	P2196 - Oxygen Sensor Signal Blased Rich Bank 1 Sensor 1	P2197 - Oxygen Sensor Signel Blased Lean Bank 2 Sensor 1	P2196 - Oxygen Sensor Signel Blased Rich Bank 2 Sensor 1	P2237 - Chygen Bensor Pumping Current Control Circuit Open Bank 1 Sensor 1	P2240 - Oxygen Sensor Pumping Current Control Circuit Open Bank 2 Sensor 1	P2251 - Onygen Sensor Low Reference Circuit Open Bank 1 Sensor 1	P2254 - Oxygen Sensor Love Reference Circuit Open Bank : Sensor 1	P2297 - Onygen Sensor Out o 2 Range During Deceleration Bank 1 Sensor 1	P2298 - Oxygen Sensor Out o Range During Deceleration Bank 2 Sensor 1	P2626 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 1 Sensor 1	P2629 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 2 Sensor 1	
	P3006 - Control Module Processor Serial Projection Interface Sus 3 Processor Serial Pagebanal Interface Sus 3 Processor Serial Pagebanal Interface Sus 3	689 - Lost Communication U1	136D - Invalid Data Received	U196F - Invalid Data Received	END																

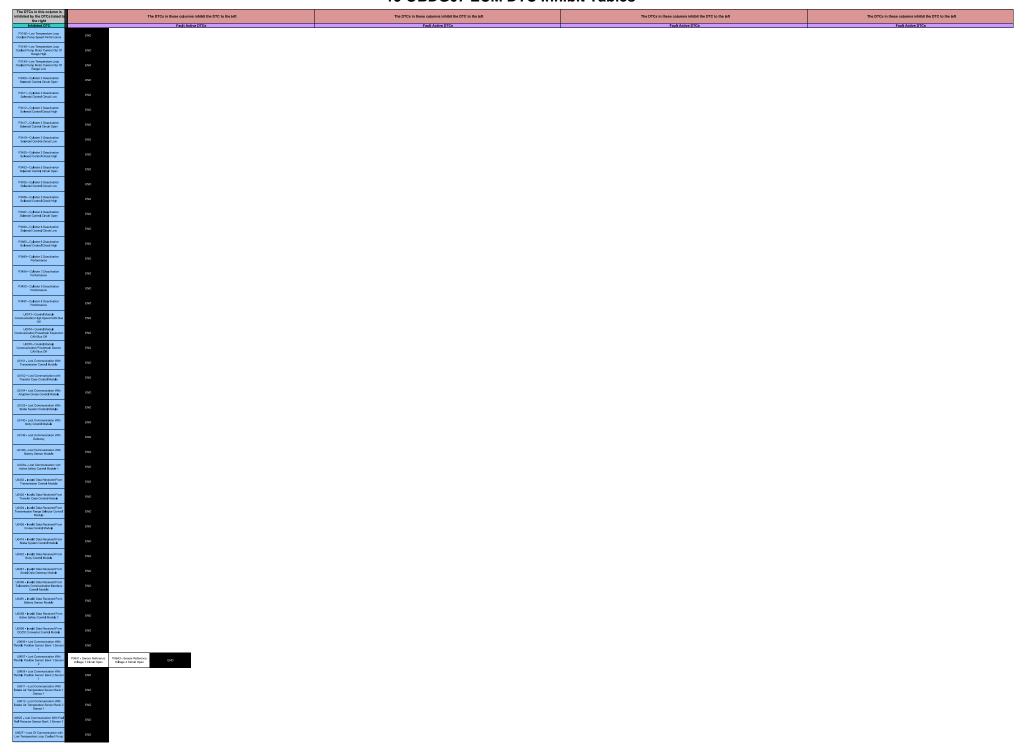
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Inhibited DTC	Fault Active  P0000 - Gruppen Sensor Heater P0001 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor I Control Circuit Discuss High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Control Circuit High Bank 1 Con	DTCs  036 - Oxygen Sensor Heater P0037 - Oxygen Sensor Heater Control Circuit Copen Bank 1  Sensor 2  Sensor 2  Sensor 2	noter P0038 - Oxygen Sensor Heater 11 Control Circuit High Bank 1 Performance Sensor 2	P0102 - Name Air Plan Sermor Circuit Low	PO103 - Mass Air Now Sessor Circuit High	P0105 - Marrield Absolute P0107 - Marrield Absolute Pressure Sensor Performance Pressure Sensor Circuit Lo.	P0108 - Marrifold Absolute Pressure Sensor Circuit High	P0108 - Mass Air How Sensor 2 Performance	POICC - Meas Air Flow Sensor 2 Circuit Low 2 Circuit High	or P0130 - H025 Circuit Bank 1 Sensor 1	P0131 - Oxygen Sensor Circul Low Bank 1 Sensor 1	t P0132 - Oxygen Semeor Circuit High Bank 1 Sensor 1	P0133 - Oxygen Sensor Slow Response Bank 1 Sensor 1	P0137 - Oxygen Seraor Circu Low Bank 1 Sensor 2	Fault Active DTCs P0138 - Caygen Sensor Circul High Bank 1 Sensor 2	P0140 - Oxygen Sensor Circuit Insufficient Activity Bank 1 Sensor 2	CONTINUED NEXT LINE
		PC002 - Cylinder 2 Missire PC003 - Cylinder 3 Missir Detected Pconcerd	te P0304 - Cylinder 4 Misline P0305 - Cylinder 5 Misline Delected Delected	P0306 - Cylinder 6 Misfine Detected	P0307 - Cylinder 7 Missire Detected	P0306 - Cylinder 8 Missine Detected Purge Sciencid Control Circl Osen	on P0458 - Evaporative Emission at Purge Sciencial Control Circuit Low	PO439 - Exaporative Emission Purge Solonoid Control Circuit High	PD496 - Evaporative Emission System How During Non- System No Flow During Purp Purps	PDIAB - Evaporative Emission Purge Sciencial Control Circuit Open Bank 2	POAC - Exsporative Emission Purge Solenoid Control Circuit Low Bank 2	PO4AD - Evaporative Emission Purge Sciencid Control Circuit High Bank 2	PDIAE - Exsporative Emission Purge Solenoid Performance Bank 2	PDIDF - Evaporative Emission Purge Solenoid Performance Bank 1	P0641 - Sensor Reference Voltage 1 Circuit Open	PDS4D - Control Module Oxygen Sensor Bank 1 Sensor 1 System Performance	CONTINUED NEXT LINE
P2195 - Oxygen Sensor Signal Biased Lean Bank 1 Sensor 1	P0651 - Sensor Reference Vollage 2 Circuit Open Vollage 4 Circuit Open P0667 - Sensor Reference Vollage 4 Circuit Open P0667 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0643 - Sensor Reference P0	202 - Oxygen Sensor Signal Circuit Shorled to Healer Circuit Sank 1 Sensor 2 Circuit Opin Bank 1 Sensor 2	r P2251 - Oxygen Sensor Low Reference Circuit Open Bank 1 or 1 Sensor 1 Stuck Lean Bank 1 Sensor 3	al P2271 - Oxygen Sensor Signal Stuck Rich Bank 1 Sensor 2	P2297 - Oxygen Sensor Out of Range During Deceleration Bank 1 Sensor 1	P2626 - Oxygen Sensor Pumping Current Trim Circuit Open Sanit 1 Sensor 1 Bank 2	P2ADC - Manifold Absolute Pressure Sensor Circuit Low Bank 2	P2A0D - Manifold Absolute Pressure Sensor Circuit High Bank 2	P3008 - Costeol Module Processor Serial Peripheral Interface Bus 3 P310A - Cylinder 2 Readvasion Performance Trapped High Presions Exhaust Distance	P3166 - Cylinder 3 Readination Performance Trapped High Pressure	P318D - Cylinder 5 Reactivation Performance Trapped High Pressure	P3190 - Cylinder 8 Reactivation Performance - Trapped High Pressure	P3402 - Cylinder 2 Deactivation Sciencid Control Circuit Open	P3411 - Cylinder 2 Deadlivation Solenoid Contro Circuit Low	P3412 - Cylinder 2 Deactivation Solenoid Control Girouit High	P3417 - Cylinder 3 Descrivation Solenoid Control Circuit Open	CONTINUED NEXT LINE
	P3419 - Cylinder 3 Deachistion Sciencid Control Circuit Righ Deachistion Sciencid Control Circuit Righ Deachistion Sciencid Control Circuit Righ Deachistion Sciencid Control Circuit Righ	P3435 - Cylinder 5 sactivation Solimoid Control Circuit Low Gircuit High	P3457 - Cylinder 8 P3457 - Cylinder 8 Ford Descrivation Sciencid Control Circuit Open Circuit Low	P3460 - Cylinder 8 Descrivation Sciencid Control Circuit High	P3499 - Cylinder 2 Deactivation Performance	P349A - Cylinder 3 P349C - Cylinder 5 Deactivation Performance Deactivation Performance	P349F • Cylinder 8 Deactivation Performance	END	Exhaust Charge	Estimat Charge	Eshaud Charge	Exhaust Charge					
	P0000 - Oxygen Sensor Heater P0001 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0002 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen Sensor Heater P0003 - Oxygen S	036 - Oxygen Sensor Heater P0037 - Oxygen Sensor He tortrol Circuit Open Bank 1 Control Circuit Low Bank Sensor 2 Sensor 2		or P0102 - Mass Air Plan Sensor Grout Low	P0103 - Mass Air Flow Sensor Circuit High	P0105 - Marrield Absolute P0107 - Marrield Absolute Pressure Sensor Performance Pressure Sensor Circuit Lov	PO108 - Manifold Absolute Pressure Sensor Circuit High	P0108 - Mass Air Flow Sensor 2 Performance	PO10C - Mass Air Plan Sensor 2 Circuit Low 2 Circuit High	or P0130 - HC25 Circuit Bank 1 Sensor 1	P0131 - Oxygen Sensor Circui Low Bank 1 Sensor 1	t PD132 - Oxygen Sensor Circuit High Bank 1 Sensor 1	P0133 - Oxygen Sensor Slow Response Bank 1 Sensor 1	P0137 - Geygen Sensor Circu Low Bank 1 Sensor 2	P0138 - Oxygen Sensor Circul High Bank 1 Sensor 2	P0140 - Oxygen Sensor Circuit Insufficient Activity Bank 1 Sensor 2	CONTINUED NEXT LINE
D1106 - Oursen Genery Grand Bissert	P0141 - Crygen Sensor Heater P0300 - Engine Misfire P0301 - Cylinder 1 Misfire Performance Bank 1 Sensor 2 Detected P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylinder 1 Misfire P0301 - Cylin	PC902 - Cyfinder 2 Missine P0903 - Cyfinder 3 Missin Delected	P0304 - Cylinder 4 Misfire P0305 - Cylinder 5 Misfire Detected	PC306 - Cylinder 6 Missire Detected	P0307 - Cylinder 7 Misfire Detected	P0308 - Cylinder 8 Misline P0443 - Evoporative Emissic Purge Sciencid Control Circle Open	n P0458 - Evaporative Emission at Purge Sciencid Control Circuit Low	P0459 - Exaporative Emission Purge Solenoid Control Circuit High	P0496 Evaporative Emission System Flow During Non- Purge Purge P0497 - Evaporative Emission System No Flow During Purg	POIAB - Evaporative Emission Purge Salemoid Control Circuit Open Bank 2	POAAC - Evaporative Emission Purge Sciencid Control Circuit Low Bank 2	P04AD - Exaporative Emission Purge Sciencid Control Circuit High Bank 2	PDIAE - Exsporative Emission Purge Sciencid Performance Bank 2	POIDF - Evaporative Emission Purge Sciencid Performance Bank 1	P0641 - Sensor Reference Voltage 1 Circuit Open	P064D - Control Module Oxygen Sensor Bank 1 Sensor 1 System Performance	CONTINUED NEXT LINE
P2196 - Oxygen Sensor Signal Biased Rich Bank 1 Sensor 1	P0651 - Sensor Reference Votage 2 Circuit Open P0667 - Sensor Reference Votage 2 Circuit Open P0667 - Sensor Reference Votage 3 Circuit Open P0667 - Sensor Reference Votage 4 Circuit Open P22	232 - Oxygen Sensor Signal Gircuit Shorled to Heater Circuit Sank 1 Sensor 2 Circuit Open Bank 1 Sensor	r P2251 - Oxygen Sensor Low Reference Circuil Open Bank 1 Sensor 1 Sensor 1	of P2271 - Oxygen Sensor Signal Stuck Rich Bank 1 Sensor 2	P2297 - Oxygen Sensor Out of Range During Deceleration Bank 1 Sensor 1	P2626 - Grygen Sensor Pumping Current Trim Circuit Open Bank 1 Sensor 1 Bank 2	P2ADC - Manifold Absolute Pressure Sensor Grouit Low Bank 2	P2ADD - Manifold Abecius Pressure Sensor Circuit High Bank 2	P3006 - Control Module Processor Serial Perigheral Interface Bus 3 Exhaust Change	P3188 - Cylinder 3 Reactivation Performance Trappad High Pressure Exhaust Charce	P318D - Cylinder 5 Reactivation Performance Trapped High Pressure Exhaust Charge	P3190 - Cylinder 8 Reactivation Performance Trapped High Pressure Exhaust Chance	P3409 - Cylinder 2 Deactivation Sciencid Control Circuit Open	P3411 - Cylinder 2 Deactivation Solenoid Contro Circuit Low	P3412 - Cylinder 2 Deactivation Solenoid Control Girout High	P3417 - Cylinder 3 Deactivation Sciencid Control Circuit Open	CONTINUED NEXT UNE
	P3419 - Cylinder 3 Deactivation Sciencid Control Circuit Low Deactivation Sciencid Control Circuit High Deactivation Sciencid Control Circuit High	P3435 - Cylinder 5 sectivation Solenaid Control Circuit Low P3436 - Cylinder 5 Desctivation Solenaid Con Circuit High	P3467 - Cylinder 8 P3469 - Cylinder 8 Deschvation Sciencid Control Circuit Open Circuit Low	P3460 - Cylinder 6 Deactivation Sciencid Control Circuit High	P3499 - Cylinder 2 Deactivation Performance	P349A - Cylinder 3 P349C - Cylinder 5 Deactivation Performance Deactivation Performance	P349F - Cylinder 8 Deadwation Performance	ENG	1								
	P0060 - Oxygen Sensor Heater P0061 - Oxygen Sensor Heater P0052 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen S	056 - Oxygen Sensor Heater P0567 - Oxygen Sensor He control Circuit Open Bank 2 Sensor 2 Sensor 2	otter P0068 - Oxygen Sensor Heater 2 Control Circuit High Bank 2 Sensor 2 Performance	or P0102 - Mass Air Flow Sensor Grout Low	P0103 - Mass Air Flow Sensor Circuit High	P0105 - Manifold Absolute Pressure Sensor Performance Pressure Sensor Circuit Lov	P0108 - Manifold Absolute Pressure Sensor Circuit High	P0108 - Mass Air Flow Sensor 2 Performance	P010C - Mass Air Flow Sensor P010D - Mass Air Flow Sensor 2 Circuit Low 2 Circuit High	or P0150 - HO2S Circuit Bank 2 Sensor 1	P0151 - Oxygen Sensor Circui Low Bank 2 Sensor 1	t P0152 - Oxygen Sensor Circuit High Bank 2 Sensor 1	P0153 - Oxygen Sensor Slow Response Bank 2 Sensor 1	P0157 - Oxygen Sensor Circu Low Bank 2 Sensor 2	P0158 - Oxygen Sensor Circul High Bank 2 Sensor 2	P0160 - Oxygen Sensor Circuit Insufficient Activity Bank 2 Sensor 2	CONTINUED NEXT LINE
P2197 - Oxygen Sensor Signal Biased	P0161 - Chygen Sensor Heater P0300 - Engine Misfire P0301 - Cylinder 1 Misfire Performance Bank 2 Sensor 2 Delected Delected	P0303 - Cylinder 2 Missine Detected P0303 - Cylinder 3 Missin	P0304 - Cylinder 4 Misfire P0305 - Cylinder 5 Misfire Detected	P0306 - Cylinder 6 Missine Detected	P0307 - Cylinder 7 Missine Detected	P0308 - Cylinder 8 Misline Detected Purge Scienced Control Circo Open	nn P0458 - Evaporative Emission at Purge Salenoid Control Circuit Lizav	PD459 - Exaporative Emission Purge Solenoid Control Circuit High	P0496 Evaporative Emission System How During Non- Purge Purge P0497 - Evaporative Emission System No How During Purg	POSAB - Evaporative Emission Purge Salernoid Control Circuit Open Bank 2	POMAG - Evaporative Emission Purge Solenoid Control Circuit Low Bank 2	PS4AD - Exaporative Emission Purge Solenoid Control Circuit High Bank 2	PONAE - Exaporative Emission Purge Solenoid Performance Bank 2	POIDF - Evaporative Emission Purge Solenoid Performance Bank 1	P0641 - Sensor Reference Voltage 1 Circuit Open	PD64E - Control Modele Oxygen Sensor Bank 2 Sensor 1 System Performance	CONTINUED NEXT LINE
P2197 - Oxygen Sensor Signal Biased Lean Bank 2 Sensor 1	P0851 - Sensor Reference Voltage 2 Circuit Open P0867 - Sensor Reference Voltage 2 Circuit Open P0867 - Sensor Reference Voltage 4 Circuit Open P0867 - Sensor Reference Voltage 4 Circuit Open P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P0867 - Sensor Reference P086	235 - Oxygen Sensor Signal Circuit Shorled to Heater Circuit Sent 2 Sensor 2 Circuit Open Bank 2 Sensor	r P2254 - Oxygen Sensor Low Reference Circuii Open Bank 2 or 1 Sensor 1	P2273 - Oxygen Sensor Signal Stuck Rich Bank 2 Sensor 2	P2238 - Oxygen Sensor Out of Range During Deceleration Bank 2 Sensor 1	P2829 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 2 Sensor 1 Pressure Sensor Performant Bank 2	P2ADC - Manifold Absolute te Pressure Sensor Grouit Low Bank 2	P2A0D - Manifold Absolute Pressure Sensor Circuit High Bank 2	P3009 - Control Module Processor Serial Perigheral Warface Bus 4 P318A - Cylinder 2 Reactivation Performance Trapped High Pressure Exhaust Change	P318B - Cylinder 3 Reactivation Performance Trapped High Pressure Exhaust Charge	P318D - Cylinder 5 Reactivation Performance Trapped High Pressure Exhaust Charge	P3100 - Cylinder 8 Reactivation Performance Trapped High Pressure Exhaust Change	P3409 - Cylinder 2 Deactivation Solenoid Control Circuit Open	P3411 - Cylinder 2 Deactivation Soleroid Contro Circuit Low	P3412 - Cylinder 2 Deactivation Solenoid Control Circuit High	P3417 - Cylinder 3 Deactivation Solenoid Control Circuit Open	CONTINUED NEXT LINE
	P3419 - Cylinder 3 Deactivation Scienced Control Circuit Low Deactivation Scienced Control Circuit High Deactivation Scienced Control Circuit High	P3435 - Cylinder 5 sectivation Soleraid Control Circuit Low Circuit High	P3457 - Cylinder 8 Deschvation Sciencid Control Circuit Open P3459 - Cylinder 8 Deschvation Sciencid Control Circuit Low	P3460 - Cylinder 6 Deactivation Sciencid Control Circuit High	P3499 - Cylinder 2 Deactivation Performance	P349A - Cylinder 3 P349C - Cylinder 5 Deactivation Performance Deactivation Performance	P349F - Cylinder 8 Deactivation Performance	END									
	P0060 - Oxygen Sensor Heater P0061 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen Sensor Heater P0062 - Oxygen S	056 - Oxygen Sensor Heater P0057 - Oxygen Sensor He centrol Circuit Open Sens 2 Control Circuit Low Bank Sensor 2 Sensor 2	eater P0068 - Oxygen Sensor Heator 2 Control Circuit High Bank 2 Sensor 2 P0101 - Mass Air Plow Sens	or P0102 - Mass Air Plow Sensor Grout Low	PD103 - Mass Air How Sensor Circuit High	P0105 - Manifold Absolute Pressure Sensor Performance Pressure Sensor Circuit Lov	P0108 - Manifold Absolute Pressure Sensor Circuit High	P0108 - Mass Air How Sensor 2 Performance	P010C - Mass Air Plaw Sensor P010D - Mass Air Plaw Sensor 2 Circuit Low 2 Circuit High	or P0150 - HO25 Circuit Bank 2 Sensor 1	P0151 - Caygen Sensor Circui Low Bank 2 Sensor 1	t P0152 - Oxygen Sensor Circuit High Bank 2 Sensor 1	P0153 - Oxygen Sensor Slow Response Bank 2 Sensor 1	P0157 - Oxygen Sensor Circu Low Bank 2 Sensor 2	t P0158 - Oxygen Sensor Circui High Bank 2 Sensor 2	P0160 - Oxygen Sensor Circuit Traufficient Activity Bank 2 Sensor 2	CONTINUED NEXT LINE
P2196 - Oxygen Sensor Signal Biased	P0181 - Chrygen Benecr Heater P0500 - Engine Misfire P0501 - Cylinder 1 Misfire Performance Bank 2 Sensor 2 Detected Detected	P0302 - Cylinder 2 Misthe Detected P0303 - Cylinder 3 Misthe Detected	P0304 - Cylinder 4 Mistine P0305 - Cylinder 5 Mistine Detected Detected	P0306 - Cylinder 6 Misfine Detected	P0307 - Cylinder 7 Misfire Detected	P0306 - Cylinder 8 Mistee Detected Purge Sciencid Control Circle Open	n P0458 - Evaporative Emission at Purge Salenoid Control Circuit Low	P0659 - Exaporative Emission Purge Solenoid Control Circuit High	P0496 - Evaporative Emission System Rice During Non- Purge Purge P0407 - Evaporative Emission System No Flow During Purg	POSAB - Evaporative Emission Purge Solenoid Control Circuit Open Bank 2	PO4AC - Evaporative Emission Purge Solonoid Control Circuit Low Bank 2	P04AD - Exaporative Emission Purge Solenoid Control Circuit High Bank 2	PDIAE - Exsporative Emission Purge Solenoid Performance Bank 2	POSDF - Evaporative Emission Purge Solenoid Performance Bank 1	P0841 - Sensor Reference Voltage 1 Circuit Open	P064E - Control Modele Oxygen Sensor Bank 2 Sensor 1 System Performance	CONTINUED NEXT LINE
P2196 - Oxygen Sensor Signal Biased Rich Bank 2 Sensor 1	Voltage 2 Circuit Open Voltage 3 Circuit Open Voltage 4 Circuit Open	235 - Oxygen Sersor Signal Circuit Shorled to Heater Circuit Sank 2 Sensor 2 Circuit Open Bank 2 Sensor	Reference Circuit Open Bank 2 Stack Lesin Bank 2 Sensor 1	P2273 - Oxygen Sensor Signal Stuck Rich Bank 2 Sensor 2	P2238 - Oxygen Sensor Out of Range During Deceleration Bank 2 Sensor 1	P2829 - Cirygen Sensor Pumping Current Trim Circuit Open Bank 2 Bensor 1 Pressure Sensor Performance Bank 2	P2ADC - Manifold Absolute te Pressure Sensor Grout Low Bank 2	P2A0D - Manifold Absolute Pressure Sensor Circuit High Bank 2	P3009 - Costo Modele Processor Serial Perigheral Interface Bas 4 Processor Serial Perigheral Interface Bas 4 Processor Serial Perigheral Extraction Processor Page 1997 (Processor Processor P3109 - Cylinder 3 Reactivation Performance Trapped High Pressure Exhaust Charge	P318D - Cylinder 5 Reactivation Performance - Trapped High Pressure Exhaust Charge	P3190 - Cylinder 8 Reactivation Performance - Tripped High Pressure Exhaust Change	P3402 - Cylinder 2 Deactivation Sciencid Control Circuit Open	P3411 - Cylinder 2 Deactivation Solenoid Contro Circuit Low	P3412 - Cylinder 2 Deacthration Solenoid Control Circuit High	P3417 - Cylinder 3 Descrivation Sciencid Control Circuit Open	CONTINUED NEXT LINE	
	P3419 - Cylinder 3 Describation Solvenold Control Circuit Low P3420 - Cylinder 3 Describation Solvenold Control Circuit Low P3433 - Cylinder 5 Describation Solvenold Control Circuit Low Circuit Nigh Circuit Open	P3435 - Cylinder 5 sactivation Solumoid Control Circuit Low P3438 - Cylinder 5 Deactivation Solumoid Control Circuit High	P3457 - Cylinder 8 Descrivation Seleccid Control Circuit Open P3459 - Cylinder 8 Descrivation Seleccid Control Circuit Low	P3460 - Cylindar 8 Descrivation Solenoid Control Circuit High	P3499 - Cylinder 2 Deactivation Performance	P349A - Cylinder 3 P349C - Cylinder 5 Deactivation Performance Deactivation Performance	P349F - Cylinder 8 Deactivation Performance	END								•	
	P0006 - Cernahert Position System Stow Response Bank 1 P0068 - Enhanct Camshaft Position System Stow Response Bank 1 Position System Stow Response Bank 2	POCCO - Exhaust Carrishaft Position System Store Response Bank 2 POCCO - Carrishaft Positio Actuator Control Circuit Op	on P0011 - Carminati Position pen System Performance P0013 - Exhaust Carminati Position Actisiter Control Circuit Open Bank 1	P0014 - Exhaust Camshaft Position System Performence Bank 1	P0020 - Intake Camshaft Position Actuator Control Circuit Open Bank 2	P0021 - Istalice Camehaft Position System Performance Bank 2 Position Actualor Control Circuit Open Bank 2	P0024 - Exhaust Carnshaft Position System Performance Bank 2	P0000 - Oxygen Sensor Heater Control Circuit Open Bank 1 Sensor 1	P0031 - Oxygen Sensor Heater Control Circuit Low Bank 1 Sensor 1 Sensor 1 Sensor 1	ter P0050 - Oxygen Sensor Heate Control Circuit Open Benk 2 Sensor 1	P0351 - Oxygen Sensor Heate Control Circuit Low Bank 2 Sensor 1	r P0062 - Oxygen Sensor Heater Control Circuit High Bank 2 Sensor 1	P0101 - Mass Air Mow Sensor Performance	P0102 - Mass Air Plan Serso Circuit Low	P0103 - Mass Air Flow Senson Circuit High	P0105 - Manifeld Absolute Pressure Sensor Performance	CONTINUED NEXT LINE
	P0107 - Manifeld Absolute P0108 - Manifeld Absolute P0108 - Manifeld Absolute P0108 - Manifeld Absolute P0108 - Manifeld Absolute 2 Performance	10C - Mass Air Flow Sensor 2 Circuit Low 2 Choult High	nsor P0130 - H028 Circuit Bank 1 P0131 - Oxygen Sensor Circ Sensor 1 Low Bank 1 Sensor 1	nit P0152 - Oxygen Sensor Circuit High Bank 1 Sensor 1	P0133 - Oxygen Sensor Silve Response Bank 1 Sensor 1	P0150 - H028 Circuit Bank 2 P0151 - Oxygen Sensor Circ Sensor 1 Low Bank 2 Sensor 1	uit P0152 - Oxygen Sensor Circuit High Bank 2 Sensor 1	t P0153 - Oxygen Sensor Slow Response Bank 2 Sensor 1	P0171 - Fuel Trim System P0172 - Fuel Trim System Ri Leon Bank 1 Bank 1	ch P0174 - Fuel Trim System Lean Bank 2	P0175 - Fuel Trim System Rich Bank 2	P0335 - Crankshaft Position Sensor Circuit	P0396 - Crankshaft Position Sensor Performance	Pt/S4A - Crankshaft Position Sensor Start Position Incorrec	P034B - Crankshaft Position Sensor Direction Incorrect	P0443 - Evaporative Emission Purge Solenoid Control Circuit Open	CONTINUED NEXT LINE
P219C - Cylinder 1 Fuel Trim Cylinder Bulance	PD455 - Evaporative Emission PD450 - Evaporative Emission PD455 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporative Emission PD755 - Evaporat	HAC - Exaporative Emission age Solenoid Control Circuit Low Bank 2 Page Solenoid Control Cir High Bank 2	sion P064D - Control Mockule P064D - Control Mockule Oxygen Sensor Bank 1 Sensor Oxygen Sensor Bank 2 Sensor 1 System Performance 1 System Performance	P2088 - Carrishaft Position Actuator Control Circuit Low	P2089 - Carrishaft Position Actuator Control Circuit High	P2000 - Extremel Cernshelf P2001 - Extremel Cernshelf Position Actuator Control Circuit Low Bank 1 Ceruit High Bank 1	P2092 - Intake Corrected Position Actuator Control Circuit Low Bank 2	P2093 - Intake Carrelvelt Position Actuator Control Circuit High Bank 2	P2004 - Exhaust Carnsheft Position Actuator Control Circuit Low Bank 2  P2005 - Exhaust Carnsheft Position Actuator Control Circuit High Bank 2	P2096 - Post Catalyst Fuel Trim System Low Limit Bank 1	P2097 - Post Catalyst Fuel Trim System High Limit Bank 1	P2098 - Post Catalyst Fuel Trim System Low Limit Bank 2	P2069 - Post Catalyst Fuel Trim System High Limit Bank 2	P2177 - Fuel Trim System Lean Off Idle Bank 1	P2178 - Fuel Trim System Rich Off Idle Bank 1	P2179 - Fuel Trim System Lean Off Ide Bank 2	CONTINUED NEXT LINE
	Off Idle Bank 2 Lean at Idle Bank 1 at Idle Bank 1	P2189 - Fuel Trim System Lean at Idle Bank 2 P2180 - Fuel Trim System I at Idle Bank 2	PSch P2195 - Oxygen Sensor Signal P2195 - Oxygen Sensor Sign Blased Lean Bank 1 Sensor 1 Blased Rich Bank 1 Sensor	P2197 - Oxygen Sensor Signal Blased Lean Bank 2 Sensor 1	P2198 - Oxygen Sensor Signal Blased Rich Bank 2 Sensor 1	P2237 - Oxygen Sensor P2240 - Oxygen Sensor Purrping Gurrent Control Circuit Open Bank 1 Sensor 1 Circuit Open Bank 2 Sensor	P2251 - Oxygen Sensor Low Reference Circuit Open Bank 1 Sensor 1	P2254 - Oxygen Sensor Low Reference Circuit Open Sank 2 Sensor 1	P2297 - Oxygen Sensor Out of Range During Deceleration Bank 1 Sensor 1 Bank 2 Sensor 1	of P2606 - Oxygen Bensor Pumping Current Trim Circuit Open Bank 1 Sensor 1	P2629 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 2 Sensor 1	P2A0B - Manifeld Absolute Pressure Sensor Performance Bank 2	P2AGC - Manifold Absolute Pressure Sensor Circuit Low Bank 2	P2AIO - Manifold Absolute Pressure Sensor Circuit High Bank 2	P2E68 - Fuel Trim System Lean During Cylinder Deactivation Bank 1	P2E69 - Fuel Trim System Rich During Cylinder Deactivation Bank 1	CONTINUED NEXT LINE
	P256A - Fuel Trim System Lean During Cylinder Descrivation Stank 2  P256B - Fuel Trim System Rich During Cylinder Descrivation Stank 2  P1003 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Control Module P10068 - Contro	P30D9 - Control Module Processor Serial Peripheral Intertace Bus 4															
	P000A - Carrishelt Position Position System Slow Response Bank 1 Position System Slow Response Bank 2 Position System Slow Response Bank 2	Position System Slov Response Bank 2 P0010 - Carrelhaft Positio Aduator Control Circuit Op	on P0011 - Carrohalt Position P0013 - Edisset Corrobalt Position Actuator Control Cleralt Open Bank 1	P0014 - Eshaust Camshaft Position System Performance Bank 1	P0020 - Intake Camshaft Position Actuator Control Circuit Open Bank 2	P0021 - Intake Camehaft P0023 - Exhaust Camehaft Position System Performance Bank 2 Circuit Open Bank 2	P0024 - Exhaust Carnshaft Position System Performance Bank 2	P0030 - Oxygen Sensor Heater Control Circuit Open Bank 1 Sensor 1	P0001 - Caygen Sensor Heater P0002 - Oxygen Sensor Heat Control Circuit Low Bank 1 Control Circuit High Bank 1 Sensor 1 Sensor 1	tor P0050 - Oxygen Sensor Heate Control Circuit Open Benix 2 Sensor 1	P0351 - Oxygen Sensor Heate Control Circuit Low Bank 2 Sensor 1	r P0052 - Grygen Sensor Heater Control Circuit High Bank 2 Sensor 1	P0101 - Mass Air Flow Sensor Performence	P0102 - Wass Air Fibre Senso Circuit Low	P0103 - Mass Air Flow Sensor Circuit High	P0106 - Manifold Absolute Pressure Sensor Performance	CONTINUED NEXT LINE
	P0107 - Manifeld Absolute Pressure Sensor Circuit Low Pressure Sensor Circuit High Pressure Sensor Circuit High Pressure Sensor Circuit High	10C - Mass Air Flow Sensor P010D - Mass Air Flow Sen 2 Circuit Low 2 Circuit High	nsor P0130 - H026 Circuit Sank 1 P0131 - Oxygen Sensor Circ Sensor 1 Low Bank 1 Sensor 1	nt P0132 - Oxygen Sensor Circuit High Bank 1 Sensor 1	P0133 - Oxygen Sensor Slow Response Bank 1 Sensor 1	P0150 - H028 Circuit Bank 2 P0151 - Oxygen Sensor Circ Sensor 1 Low Bank 2 Sensor 1	uit P0152 - Oxygen Sensor Circuit High Bank 2 Sensor 1	t P0153 - Oxygen Sensor Slow Response Bank 2 Sensor 1	P0171 - Fuel Trim System P0172 - Fuel Trim System Ri Leum Benk 1 Benk 1	ch P0174 - Fuel Trim System Lean Bank 2	P0175 - Fuel Trim System Rich Bank 2	P0035 - Crankshaft Position Sensor Circuit	P0396 - Crankshaft Position Sensor Performence	Pt04A - Crankshaft Position Sensor Start Position Incorrec	P034B - Crankshaft Position Sensor Direction Incorrect	P0443 - Evaporative Emission Purge Solenoid Control Circuit Open	CONTINUED NEXT LINE
P2190 - Cylinder 2 Fuel Trim Cylinder Bulance	Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Control Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid Circuit   Purge Solenoid	MAC - Evaporative Emission age Solenoid Control Circuit Low Bank 2 Page Solenoid Control Cir High Bank 2	sion P094D - Control Module P094E - Control Module could Caygen Sensor Bank 1 Sensor 1 System Performance 1 System Performance	P2088 - Carrehalt Position Actuator Control Circuit Low	P2089 - Carrebaft Position Actuator Control Circuit High	P2000 - Exhaust Cernshell P2001 - Exhaust Cernshell Position Actualor Control Circuit Low Bank 1 Circuit High Bank 1	P2092 - Insake Carrishaft Position Aduator Control Circuit Low Bank 2	P2093 - Intake Carrelnaft Position Actuator Control Circuit High Bank 2	P2094 - Exhaust Cernshell P2095 - Exhaust Cernshell Position Actualor Centre Position Actualor Centre Position Actualor Centre Centre Position Actualor Centre Position Actualor Centre Position Actualor Centre P2095 - Exhaust Cernshell P2095 - Exhaust Cernshell P2095 - Exhaust Cernshell P2095 - Exhaust Cernshell P2095 - Exhaust Cernshell P2095 - Exhaust Cernshell P2095 - Exhaust Cernshell P2095 - Exhaust Cernshell P2095 - 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	P2160 - Fuel Trim System Rich P2167 - Fuel Trim System P2165 - Fuel Trim System Rich P Cf Idle Bank 2 Lean at Idle Bank 1 at Idle Bank 1	P2100 - Fuel Trim System P2100 - Fuel Trim System I Lean at Idle Bank 2 at Idle Bank 2	P3195 - Oxygen Sensor Signet Blased Lean Sank 1 Sensor 1 Blased Lean Sank 1 Sensor 1	P2197 - Oxygen Sensor Signal Blased Lean Bank 2 Sensor 1	P2195 - Oxygen Sensor Signal Blased Rich Bank 2 Sensor 1	P2237 - Oxygen Sensor P2240 - Oxygen Sensor Purrping Current Control Circuit Open Bank 1 Sensor 1 Circuit Open Bank 2 Sensor	P2251 - Oxygen Sensor Low Reference Circuit Open Bank 1 Sensor 1	P2254 - Oxygen Sensor Low 1 Reference Circuit Open Bank 2 Sensor 1	P2297 - Oxygen Sensor Out of Rainge During Decidention Bank 1 Sensor 1 Bank 2 Sensor 1	of P2626 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 1 Sensor 1	P2629 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 2 Sensor 1	P2A0B - Manifold Absolute Pressure Sensor Performance Bank 2	P2AGC - Manifold Absolute Pressure Sensor Circuit Low Bank 2	P2ACO - Manifold Absolute Pressure Sensor Circuit High Benk 2	P2E66 - Fuel Triin System Lean During Cylinder Deactivation Bank 1	P2E69 - Fuel Trim System Rich During Cylinder Deadlystion Bank 1	CONTINUED NEXT LINE
		P30D9 - Control Module Processor Serial Peripheral Intertace Gus 4	P0013 - Edward Correbat	PC014 - Eshaud Carrohat	P0020 - Intake Carrelost	PSS21 - Intake Carrelraft PSS23 - Exhaust Carrelraft	PD024 - Eshausi Carrofush	P003D - Grucen Senacr Heater	P0001 - Covers Servor Heater P0002 - Covers Servor Heat	I	L		T	T	1		
	System Slow Response Bank 1 Position System Slow Response Bank 2	Position System Slow Response Bank 2 P0010 - Carrishalt Positi Aduator Control Circuit Op	pin Bystem Performance Position Actuator Control Circuit Open Bank 1	Position System Performance Bank 1	Position Actuator Control Circuit Open Bank 2	Position System Performance Bank 2  Position Actuator Control Circuit Open Bank 2	Position System Performance Bank 2	Control Circuit Open Bank 1 Sensor 1	Control Circuit Low Bank 1 Control Circuit High Bank 1 Sensor 1 Sensor 1	Control Circuit Open Bank 2 Sensor 1	Control Circuit Low Bank 2 Sensor 1	Control Circuit High Bank 2 Sensor 1	P0101 - Mass Air Flow Sensor Performance	P0102 - Wass Air Flow Senso Circuit Low	P01(3 - Mass Air Flow Sensor Circuit High	P0106 - Manifold Absolute Pressure Sensor Performance	CONTINUED NEXT LINE
	P0107 - Manifold Abodule P0108 - Manifold Abodule P0108 - Mass Air Flow Sensor P01 Pessure Sensor Circuit Lev Pessure Sensor Circuit High 2 Porformence P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - Evipcontive Emission P0456 - E	10C - Mass Air Flow Sensor 2 Circuit Llow P010D - Mass Air Flow Sen 2 Circuit High MAC - Evaporative Emission P04AD - Evaporative Emis	reor P0130 - HO2S Grout Bank 1 P0131 - Grygen Sensor Ciro Sensor 1 Low Bank 1 Sensor 1 sion P0640 - Control Module P064E - Control Module	it P0132 - Grygen Sensor Circuit High Bank 1 Sensor 1	P0133 - Oxygen Sensor Slow Response Bank 1 Sensor 1	P0150 - H025 Circuit Bank 2 P0151 - Oxygen Sensor Circ Low Bank 2 Sensor 1 P2090 - Exhaust Carrishaft P2091 - Exhaust Carrishaft P2091 - Exhaust Carrishaft	uit P0152 - Grygen Sensor Girculi High Bank 2 Sensor 1 P2092 - Intake Camshaft	Response Bank 2 Sensor 1  P2093 - Istake Camshaft	P0171 - Fuel Trim System P0172 - Fuel Trim System Ri Bank 1 Bank 1 P2094 - Exhaust Carnshall P2094 - Exhaust Carnshall P2096 - Exhaust Carnshall	ch P0174 - Fuel Trim System Lean Bank 2	P0175 - Fuel Trim System Rich Bank 2	P0035 - Crankshaft Position Sensor Circuit	P0396 - Crankshaft Position Sensor Performance	P(G4A - Grankshaft Position Sensor Start Position Incorrec	P034B - Crankshaft Position Sensor Direction Incorrect	Purge Solenoid Control Circuit Open	CONTINUED NEXT LINE
P219E - Cylinder 3 Fuel Trim Cylinder Bolance	Purge Solenoid Central Circuit Purge Solenoid Contral Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Solenoid Circuit Purge Soleno	rge Solanoid Control Circuit Purge Solanoid Control Cir Low Bank 2 High Bank 2	Coygen Sensor Bank 1 Sensor Coygen Sensor Bank 2 Sens 1 System Performance 1 System Performance	P2035 - Cerrehaft Position Actuator Control Circuit Low	P2039 - Carrebalt Position Actuator Control Circuit High	Position Adustor Control Circuit Low Bank 1  Position Adustor Control Circuit Low Bank 1  Position Adustor Control Circuit High Bank 1	Position Actuator Control Circuit Low Bank 2	Position Actuator Control Circuit High Bank 2	Position Actualor Control Gircuit Low Bank 2  Position Actuator Control Gircuit Low Bank 2  POSITION Courses Sensor Out of POSITION Courses Sensor Out	P2036 - Post Catalyst Fuel Trim System Low Limit Bank 1 of P2036 - Oxygen Sensor	P2037 - Post Catalyst Fuel Trim System High Limit Bank 1 P2029 - Oxygen Sensor	P2096 - Post Catalyst Fuel Trim System Low Limit Bank 2	P2009 - Post Catalyst Fuel Trim System High Limit Bank 2	P2177 - Fuel Trim System Lean Off Idle Bank 1  P2000 - Missish Markton	P2178 - Fuel Trim System Rich Off Idle Bank 1	P2179 - Fuel Trim System Lean Off Ide Bank 2	CONTINUED NEXT LINE
	P2180 - Fuel Trim System Rich P2187 - Fuel Trim System P2183 - Fuel Trim System Rich P2184 - Fuel Trim System Rich P2184 - Fuel Trim System P2185 - Fuel Trim System P2185 - Fuel Trim System P2185 - Control Module P2185 - Fuel Trim System P2185 - Control Module P2185 - Fuel Trim System	P2169 - Fuel Trim System Lean at Ide Bank 2 P2009 - Control Module	Rich P216 - Oxygen Sensor Signal Blassed Levin Bank 1 Sensor 1 Blassed Rich Bank 1 Sensor 1	P2197 - Oxygen Sensor Signal Blassed Lean Bank 2 Sensor 1	P2198 - Oxygen Sensor Signel Blassed Rich Bank 2 Sensor 1	Purrying Current Control Circuit Open Bank 1 Sensor 1 Circuit Open Bank 2 Sensor	Reference Circuit Open Bank 1 Sensor 1	1 Reference Circuit Open Bank 2 Sensor 1	Range During Deceteration Bank 1 Sensor 1 Bank 2 Sensor 1	Pumping Current Trim Circuit Open Bank 1 Sersor 1	Pumping Current Trim Circuit Open Bank 2 Sensor 1	Pressure Sensor Performance Bank 2	Pressure Sensor Circuit Low Bank 2	P2ACO - Monifold Absolute Pressure Sensor Circuit High Bank 2	Lean During Cylinder Deactivation Bank 1	P2589 - Fuel Trim System Rich During Cylinder Descrivation Sank 1	CONTINUED NEXT LINE
	Lean During Cylinder Rich During Cylinder Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Processor Serial Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral Peripheral	Processor Serial Peripheral Interface Bus 4	on P0011 - Camshaft Position Pusition Adjuster Control Pusition Adjuster Control	P0014 - Exhaust Carrishalt	P0020 - Intake Camshaft Position Actuator Control	P0021 - Intalia Carrolnatt P0023 - Edward Carrolnatt Desirion Sertem Barborrance Desirion Sertem Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Serteman Portion Portion Serteman Portion Portion Serteman Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Portion Por	P0024 - Exhaust Carrohalt Doubles Sustan Deformacy	P0050 - Chygen Sensor Heater Control Circuit Open Bank 1	P0031 - Oxygen Sensor Heater P0032 - Oxygen Sensor Heat	aer P0050 - Oxygen Sensor Heate	r P0351 - Oxygen Sensor Heate	r P0062 - Oxygen Sensor Heater	P0101 - Mass Air Flow Sensor	P0102 - Mass Air Flow Senso	P0100 - Mass Air Flow Sensor	P0106 - Manifold Absolute	
	Position System Slow Position System Slow Position System Slow Response Bank 1 Response Bank 2	Position System Slow Response Bank 2  Actuator Control Circuit Open Control Circuit Open Control Circuit Open Control Circuit Open Control Circuit Open Control Circuit Open Control Circuit Open Control Circuit Open Control Circuit Open Control Circuit Open Control Circuit Open Control Circuit Open Control Circuit Open Control Circuit Open Control Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit Open Circuit	pen System Performance Circuit Open Bank 1	Position System Performance Bank 1	Position Actuator Control Circuit Open Bank 2	Bank 2 Circuit Open Bank 2	Bank 2	Sensor 1	P0031 - Chrygen Sensor Heater P0032 - Chrygen Sensor Heater Control Circuit Low Bank 1		r P0051 - Oxygen Sensor Heate Control Circuit Low Bank 2 Sensor 1	r P0062 - Chaygen Sensor Heater Control Circuit High Bank 2 Sensor 1	Performance	Circuit Low	Circuit High	Pressure Sensor Performance P0443 - Evaporative Emission	CONTINUED NEXT LINE
DOOR Olested Building Oleste	Pressure Sensor Circuit Low Pressure Sensor Circuit High 2 Performance  P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0458 - Evaporative Emission P0	HDC - Mass Air Flow Sensor 2 Grout High MAC - Evaporative Emission P04AD - Evaporative Emis	Sensor 1 Low Bank 1 Sensor 1	at P0132 - Grygen Sensor Circuit High Bank 1 Sensor 1 P2088 - Cemshaft Position	Response Bank 1 Sensor 1  P2039 - Carrehalt Position	P0150 - H025 Grout Bank 2 P0151 - Oxygen Sensor Circ Sensor 1 Low Bank 2 Sensor 1 P2090 - Exhaust Cernshaft P2091 - Exhaust Cernshaft P2091 - Exhaust Cernshaft	uit P0152 - Crygen Sereor Circui High Bank 2 Sensor 1 P2092 - Intake Camehalt	t P0153 - Oxygen Sensor Slav Response Bank 2 Sensor 1 P2093 - Intake Camshaft	P0171 - Fuel Trim System P0172 - Fuel Trim System Ri Leon Bank 1 Bank 1  P2094 - Exhaust Carretell P2095 - Exhaust Carretell	ch PD174 - Fuel Trim System Lean Bank 2 P2006 - Post Catalyst Fuel	P0175 - Fuel Trim System Rich Bank 2 P2097 - Post Carefrot Fuel	P0035 - Crankshaft Position Sensor Circuit P2056 - Post Catalinat Foal	P0036 - Crankshaft Position Sensor Performance P2009 - Post Catalyst Fuel	PCSVA - Crankshaft Position Sensor Start Position Income: P2177 - Fuel Trim System	P034B - Crankshaft Position Sensor Direction Incorrect P2178 - Fuel Trim System Rich	Purge Sciencid Control Circuit Open P2179 - Fuel Trim System	CONTINUED NEXT LINE
P219F - Cylinder 4 Fuel Trim Cylinder Balance	Purge Selencid Control Circuit Purge Selencid Control Circuit Purge Selencid Control Circuit Purge Selencid Control Circuit Purge Selencid Control Circuit Purge Selencid Control Circuit Purge Selencid Control Circuit Pu	rige Solanoid Control Circuit Purge Solanoid Control Cir Low Bank 2 Purge Solanoid Control Cir High Bank 2	Oxygen Bensor Bank 1 Sensor Oxygen Sensor Bank 2 Sens 1 System Performance 1 System Performance Bith P2165, Oxygen Sensor Stored P2166, Oxygen Sensor Stored	Actuator Control Circuit Low	Actuator Control Circuit High	Position Actuator Control Circuit Low Bank 1  P2237 - Guygen Sensor  P2240 - Guygen Sensor	Position Advator Control Circuit Low Bank 2 P2251 - Oxygen Sereor Low	Position Actuator Control Circuit High Bank 2 P2254 - Oxygen Sensor Loss	Position Actuator Control Circuit Low Bank 2  P2297 - Gaygen Sensor Out of P2296 - Gaygen Sensor Out	Trim System Low Limit Bank 1 of P2626 - Oxygen Sensor	Trim System High Limit Bank 1 P2829 - Oxygen Sensor	Trim System Low Limit Bank 2 P2AGB - Manifold Absolute	Trim System High Limit Bank 2 P2ACC - Manifold Absolute	Lean Off (d)e Bank 1 P2ADD - Namifold Absolute	Off (d) Bank 1 P2008-Fuel Trim System	Lean Off Ide Bank 2  P2559 - Fuel Trim System Rich During Cylinder Deactivation Bank 1	CONTINUED NEXT LINE
	P2180 - Foot Trim System Rich CH18b Bark 2         P2187 - Foot Trim System Learn at Irb Bark 1         P2188 - Foot Trim System at Irb Bark 1         P2188 - Foot Trim System at Irb Bark 1           P2584 - Foot Trim System Learn During Cylinder Learn During Cylinder Learn During Cylinder         P2588 - Foot Trim System P2588 - Foot	Leon at Idle Bank 2 at Idle Bank 2  P90D9 - Control Module Processor Serial Peripheral	Blased Lean Bank 1 Sensor 1 Blased Rich Bank 1 Sensor	Bissed Lean Bank 2 Sensor 1	Blassed Flich Bank 2 Sensor 1	Circuit Open Bank 1 Sensor 1 Circuit Open Bank 2 Sensor	Reference Circuit Open Bank 1 Sensor 1	1 Reference Circuit Open Bank 2 Bensor 1	Bank 1 Sensor 1 Bank 2 Sensor 1	Open Bank 1 Sensor 1	Open Bank 2 Sensor 1	Bank 2	Pressure Sensor Circuit Low Bank 2	Pressure Sensor Circuit High Bank 2	Lean During Cylinder Deactivation Bank 1	Deactivation Bank 1	CONTINUED NEXT LINE
	Deactivation Bank 2 Deactivation Bank 2 Interface Bus 3  P000B - Enhance Comphatt P000C - Intale Comphatt P	Interface Bus 4  POCCO - Exhaust Correlant Position System Stev Rescores Rank 2  Actuator Control Circuit Og	proper System Performance Cause Inc. Description P0011 - Camelath Position Position Advanter Central Cause Basis Canad Deen Basis Canad Deen Basis Canad Deen Basis Canad Deen Basis Canad Deen Basis Canad Deen Basis Canad	P0014 - Exhaust Carrishaft	P0020 - Intake Camshaft Position Actuator Control Circuit Open Bank 2	P0021 Intake Comshaft P0023 - Exhaust Comshaft	P0024 - Exhaust Carrishaft	P0030 - Oxygen Sensor Heater Control Circuit Open Bank 1	P0031 - Okygen Sensor Heater P0032 - Okygen Sensor Heater Control Circuit Low Bank 1 Control Circuit High Sensor 1 Sensor 1	ter P0050 - Oxygen Sensor Heate Control Orcust Open Benk 2	r P0051 - Oxygen Sensor Heate Control Circuit Low Bank 2	r P0052 - Oxygen Sensor Heater Control Circuit High Bank 2 Sensor 1	P0101 - Mass Air Flow Sensor	P0102 - Mass Air Flow Senso	P0103 - Mass Air Flow Sensor Circuit High	P0105 - Manifold Absolute	courts see seed the
	P0107 - Marrifold Absolute P0108 - Marrifold Absolute P0108 - Maris Air Flow Sensor P01	10C - Mass Air How Sensor P010D - Mass Air How Sen	nsor P0130 - HO2S Circuit Swist 1 P0131 - Oxygen Sensor Circ	Position System Performance Bank 1 iit P0132 - Oxygen Sensor Circuit	Circuit Open Bank 2  P0133 - Caygen Bensor Slove Response Bank 1 Sensor 1	Position System Performance Bank 2 PO150 - HO2S Circuit Sent 2 PO150 - HO2S Circuit Sent 2 PO151 - Oxygen Sensor Circ	Position System Performance Book 2 at P0152 - Oxygen Sensor Circuit	Sensor 1  E P0153 - Oxygen Bensor Blow Response Bank 2 Sensor 1	P0171 - Fuel Trim System P0172 - Fuel Trim System Ri	ch P0174 - Fuel Trim System	P0175 - Fuel Trim System Rich	P0335 - Crankshaft Position	Performance P0336 - Crankshaft Position Sensor Performance	PCS4A - Crankshaft Position	P034B - Crankshaft Position	Pressure Sensor Performance P0443 - Evaporative Emission Purge Selenoid Control Circuit	CONTINUED NEXT LINE
P21A0 - Cylinder 5 Fuel Trim Cylinder	Pressure Sensor Circuit Low Pressure Sensor Cloud High 2 Performance  PD456 - Evaporative Emission PD456 - Evaporative Emission PD4AB - Evaporative Emission PD	2 Circuit Low 2 Circuit High  HAG - Exsporative Emission POHAD - Exsporative Emis	Sensor 1 Low Bank 1 Sensor 1	P0132 - Oxygen Bensor Circuit High Bank 1 Sensor 1 P2088 - Correhatt Position		Sensor 1 Low Bank 2 Sensor 1	High Bank 2 Sensor 1  P2092 - Intake Carretoft	Response Bank 2 Sensor 1  P2033 - Intake Carretraft	Leon Bank 1 Bank 1  P2094 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaft P2005 - Exhaust Cornshaf	Loan Bank 2 P2096 - Post Catalyst Fuel	Bank 2 P2097 - Post Catalyst Fuel	Sensor Circuit  P2096 - Post Catalyst Fuel	P2000 Door Cambri God	Sensor Start Position Income: P2177 - Fuel Trim System	Sensor Direction Incorrect P2178 - Fuel Trim System Rich	Open P2179 - Fuel Trim System	CONTINUED NEXT LINE
P21AU - Cylinder is Fuel Inim Cylinder Bolance		rage Solenoid Control Circuit  Low Blank 2  P2189 - Fuel Trim System  Loan at Me Blank 2  P2180 - Fuel Trim System  Loan at Me Blank 2	1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 State Chart State State P2196 - Chapter Service State Blased Lean Bank 1 Sensor 1 Blased Rich Bank 1 Sensor	P2088 - Carrishaft Position Actuator Control Circuit Low P2197 - Caygen Sensor Signal	Actuator Control Circuit High P2198 - Oxygen Sensor Signal	Circuit Low Bank 1 Circuit High Bank 1 P2237 - Oxygen Sensor P2240 - Oxygen Sensor Parento Current Control Parento Current Control Parento Current Control	Circuit Low Bank 2  P2251 - Oxygen Sensor Low Pathware Circuit Oxygen Bank 1	Circuit High Bank 2  P2254 - Caygan Sensor Low	Circuit Low Bank 2 Crout High Bank 2 P2297 - Oxygen Sensor Out of P298 - Oxygen Sensor Out			Trim System Low Limit Bank 2  P2A/IB - Manifold Absolute Pressure Senters Defermence			Off Idle Bank 1  P2568 - Fuel Trim System Lean During Odlinter	Lean Off Idle Bank 2  P2E69 - Fuel Trim System Rich During Cylinder Deactivation Bank 1	CONTINUED NEXT LINE
	P256A - Fuel Trim System Lean During Collinder Rich During Collinder Rich During Collinder Processor Statial Perichaseal P	P30D9 - Control Module Processor Serial Perioheral	Blased Loan Sank 1 Sensor 1 Blased Rich Bank 1 Sensor	1 Blased Leen Bank 2 Sensor 1	Blased Rich Bank 2 Sensor 1	Circuit Open Bank 1 Sensor 1 Circuit Open Bank 2 Sensor	1 Sensor 1	Sensor 1	Bank 1 Sensor 1 Bank 2 Sensor 1	Open Bank 1 Sensor 1	Open Bank 2 Sensor 1	Bank 2	Bank 2	Bank 2	Lean During Cylinder Deactivation Bank 1	Deactivation Bank 1	oski jedini text (jaj
		Interface Bus 4  Position System Slow Response Bank 2  PO010 - Carrelant Position Response Bank 2	on P0011 - Carrelnath Position Points Actuator Control Carrel Carrel Control Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Carrel Ca	P0014 - Exhaust Camshaft Position System Parformance Bank 1	P0020 - Intake Camphatt Position Actuator Control Circuit Open Bank 2	P0021 - Istalio Carrichaft P0023 - Exhaust Carrichaft Position System Performance Position Actuator Control Circuit Open Bank 2	P0024 - Exhaust Carrishaft Position System Performance	P0030 - Oxygen Sensor Heater Control Circuit Oxen Ran's	P0031 - Caygen Sensor Heator P0032 - Caygen Sensor Heator Control Circuit Low Bank 1 Control Circuit High Bank 1 Sensor 1	ter P0050 - Oxygen Sensor Heate Coated Circle Oxon Russ 9	r P0051 - Oxygen Sensor Heate Control Circuit Low Rush 1	r P0052 - Oxygen Sensor Heater Control Circuit Hank Rank 1	P0101 - Mass Air Flow Sensor Performence	P0102 - Nass Air Flow Senso	P0103 - Mass Air Flow Sensor Circuit High	P0108 - Manifold Absolute	CONTINUED NEXT LINE
	P0107 - Manifold Absolute P0108 - Manifold Absolute P0108 - Mass Air Flow Sensor P01	10C - Mass Air Flow Sensor P010D - Mass Air Flow Sen					uit P0152 - Oxugen Sensor Circuit	R P0153 - Oxygen Sensor Slow	P0171 - Fuel Trim System P0172 - Fuel Trim System Ri	ch P0174 - Fuel Trim System		P0335 - Crankshaft Position	P0336 - Crankshaft Position	Circuit Low P094A - Crankshaft Position Sensor Start Position Incorne		P0443 - Exsporative Emission Purge Solenoid Control Circuit	CONTINUED NEXT LINE
P21A1 - Cylinder 6 Fuel Trim Cylinder Bolance	Pressure Sener Chroil Low Pessure Sener Cloud High 2 Performance  PD555 - Eugenoriès Enteixer PD555 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenoriès Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories Enteixer PD545 - Eugenories E	2 Circuit Low 2 Circuit High  MAC - Exaporative Emission Inge Solenoid Control Circuit Low Bank 2 High Bank 2			Passer Bank 1 Sensor 1  P2389 - Carestart Position Actuator Control Circuit High		regn blank 2 bereiter 1	rossporasi para. 2 Sistaor 1	P2004 - Eshward Cernshelf Position Actuator Control Circuit Low Bank 2 Circuit High Bank 2	Ligan bank 2	Bank 2 P2097 - Post Catalyst Fuel Trim System High Limit Bank 1	Sereor Circus	Senace Premamanos	P2177 - Fuel Trim System Lean Off Idle Bank 1	Sensor Direction Incorrect P2178 - Fuel Trim System Rich Off Idle Bank 1	Open P2179 - Fuel Trim System Lean Off Idle Bant 2	CONTINUED NEXT LINE
Bilance	P2180 - Fuel Trim System Rich P2187 - Fuel Trim System P2188 - Fuel Trim System Rich P		1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 State 1 System Performance 1 State 1 System Performance 1 State 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 System Performance 1 Syst				Circuit Low Bank 2  P2251 - Oxygen Sensor Low Retease Circuit Open Bank 1	P2254 - Oxygen Sensor Low	P2297 - Oxygen Sensor Out of P2298 - Oxygen Sensor Out	of P2626 - Oxygen Sensor	P2629 - Oxygen Sensor	P2A/R - Manifekt Absolute	P2AGC - Manifold Absolute	P2ACO - Manifold Absolute	P2E68 - Fuel Trim System	P2E69 - Fuel Trim System	CONTINUED NEXT LINE
		Lean at Ide Bank 2 at Ide Bank 2  P0009 - Commit Module Processor Sanial Peripheral Interface Data 4	grased Lean Bank 1 Sensor 1 Blased Rich Bank 1 Sensor	sased Lean Bank 2 Sensor 1	Islased Rich Bank 2 Sensor 1	Circuit Open Bank 1 Sensor 1 Circuit Open Bank 2 Sensor	Reference Circuit Open Bank 1 1 Sensor 1	1 Reference Circuit Open Barris 2 Sensor 1	Range Daring Deceleration Bank 1 Sensor 1 Bank 2 Sensor 1	Open Bank 1 Sensor 1	Pumping Current Trên Circuit Open Bank 2 Sensor 1	Pressure Sensor Performence Bank 2	Pressure Sensor Circuit Low Bank 2	Pressure Senacr Circuit High Benik 2	Lean During Cylinder Deactivation Bank 1	Rich During Cylinder Descrivation Bank 1	and the street of the
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Inhibited DTC	P000A - Carnahaft Position System Slow Response Bank	P0018 - Exhaust Carrishaft Position System Slow Response Bank 1	P000C - Intake Carrishart. Position System Slow Response Bank 2	PICCO - Exhaust Carrehalt Position System Slow Response Bank 2	P0010 - Carrahalt Position Actuator Control Circuit Open	P0011 - Carrelat Position System Performance	P0013 - Exhaust Comshaft Position Actuator Control Circuit Open Bank 1	P0014 - Exhaust Camshaft Position System Performance Book 1	P0020 - Intake Camphatt Position Actuator Control	P0021 - Istake Camshaft Position System Performanc Bank 2	P0023 - Exhaust Correlate Position Actuator Control Circuit Open Bank 2	P0024 - Exhaust Carrishaft Position System Performance Benk 2	P0030 - Oxygen Sensor Heater Control Circuit Open Bank 1 Sensor 1	P0(G1 - Oxygen Sensor Heat Control Circuit Low Bank 1 Sensor 1	Fault Ac ter P0032 - Oxygen Sensor Heate Control Circuit High Bank 1 Sensor 1	r P0050 - Oxygen Sensor Heate Control Circuit Open Sensor 2 Sensor 1	P0051 - Oxygen Sensor Heals Control Circuit Low Bank 2 Sensor 1	or P0052 - Oxygen Sensor Heater Control Circuit High Bank 2 Sensor 1	P0101 - Mass Air Moss Sensor Performance	P0102 - Name Air Plans Sereso Groun Low	Fault Active DTCs  PO103 - Mass Air Flow Serred  Circuit High	PD105 - Manifold Absolute Pressure Sensor Performance	CONTINUED NEXT LINE
	P0107 - Manifold Absolute Pressure Sensor Circuit Los		P010B - Mass Air Flow Senso 2 Performance	P010C - Mass Air Flow Senso 2 Circuit Low	or P010D - Mass Air Flow Sensor 2 Circuit High	P0130 - HO28 Circuit Bank 1 Sensor 1	P0131 - Oxygen Sensor Circu Low Bank 1 Sensor 1	# P0132 - Oxygen Sensor Circu High Bank 1 Sensor 1	P0133 - Oxygen Sensor Silon Response Bank 1 Sensor 1	P0150 - HO28 Circuit Bank Sensor 1	2 P0151 - Oxygen Sensor Circu Low Bank 2 Sensor 1	# P0152 - Oxygen Sensor Circuit High Bank 2 Sensor 1	P0153 - Oxygen Sensor Slow Response Bank 2 Sensor 1	P0171 - Fuel Trim System Leon Bank 1	P0172 - Fuel Trim System Rich Bank 1	P0174 - Fuel Trim System Lean Bank 2	P0175 - Fuel Trim System Ric Bank 2	h P0335 - Crankshaft Position Sensor Circuit	P0336 - Crankshaft Position Senacr Performance	PCS4A - Crankshaft Position Sensor Start Position Incorne	P034B - Crankshaft Position Sensor Direction Incomed	P0443 - Evaporative Emission Purge Solenoid Control Circuit	CONTINUED NEXT LINE
P21A2 - Cylinder 7 Fuel Trim Cylinder Balance	P0455 - Evaporative Errisaio Purge Solenoid Control Circ.	on P0450 - Evaporative Emission ut Purge Solemoid Control Circu High	PDAAB - Eveponetive Emission it Purge Sciencid Control Circui Open Bank 2	n POHAC - Evaporative Emission It Purge Solenoid Control Circu Low Bank 2	on POAAD - Exaponative Emission ill Purge Selenoid Control Circuit High Bank 2	P064D - Control Module Oxygen Sensor Bank 1 Sensor 1 System Performance	P064E - Control Module Oxygen Sensor Bank 2 Sensor 1 System Performance	P2088 - Carrishaft Position	P2089 - Carnshaft Position Actuator Control Circuit High	P2000 - Extraust Corneted Position Actuator Control Circuit Low Bank 1	P2001 - Edward Correlati Position Actuator Control Circuit High Bank 1	P2002 - Ivados Correlant Position Actuator Control Circuit Low Bank 2	P2023 - Intake Carretraft Position Actuator Control Circuit High Bank 2	P2094 - Extraust Corneted Position Actualor Control Circuit Low Bank 2	P2005 - Edward Correlate Position Actualor Control Circuit High Bank 2	P2096 - Post Catalyst Fuel Trim System Low Limit Bank 1	P2097 - Post Catalyst Fuel Trim System High Limit Bank	P2098 - Post Catalyst Fuel	P2009 - Post Catalyst Fuel Trim System High Limit Bank 2	P2177 - Fuel Trim System	P2178 - Fuel Trim System Ric	Open th P2179 - Fuel Trim System Lean Off Me Bank 2	CONTINUED NEXT LINE
	Low P2180 - Fuel Trim System Ri Off lefte Bank 2	High  ch P2187 - Fuel Trim System Loan at title Bank 1	Open Bank 2 P2188 - Fuel Trim System Ric at bise Bank 1	b P2189 - Fuel Trim System Lean at title Bank 2	Figh Bank 2  P2190 - Fuel Trim System Rich at tide Bank 2	1 System Performance P2195 - Guygen Seneor Signal Biased Lean Bank 1 Sensor 1	1 System Performance P2196 - Oxygen Sensor Sign: Biased Rich Bank 1 Sensor 1	P2197 - Oxygen Sensor Signa Biased Lean Bank 2 Sensor 1	II P2198 - Oxygen Sensor Signe Biased Rich Bank 2 Sensor 1	Circuit Low Bank 1  P2237 - Oxygen Bensor Pumping Gument Control Circuit Open Bank 1 Sensor	P2240 - Oxygen Bersor Pumping Current Control 1 Circuit Open Bank 2 Sensor	P2251 - Oxygen Sensor Low Reference Circuit Open Bank 1	P2254 - Oxygen Bensor Low Reference Circuit Open Bank 2	P2297 - Oxygen Sensor Out o Range During Deceleration	of P2258 - Oxygen Sensor Out o Range During Deceleration	P2626 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 1 Sensor 1	P2629 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 2 Sensor 1	P2A0B - Manifold Absolute Pressure Sensor Performance	P2ACC - Manifold Absolute Pressure Sensor Circuit Low	P2ACO - Manifold Absolute Pressure Sensor Circuit High	P2E68 - Fuel Trim System Lean During Cylinder Deactivation Bank 1	P2E69 - Fuel Trim System Rich During Cylinder Deadlystion Bank 1	CONTINUED NEXT LINE
	P2B6A - Fuel Trim System Lean During Cylinder Deactivation Bank 2	P2E68 - Fuel Trim System Rich During Cylinder Deachysion Bank 2	P3003 - Control Module Peocessor Serial Periphenal Interface Bus 3	P30D9 - Control Module Processor Serial Peripheral Intertace Illus 4	END	DESCO COST COST T DETGO T	District Tool Service Tool Service	CORRECTION AND AND AND AND AND AND AND AND AND AN	Design Teles Court 2 Design T	Circuit Open Bank 1 Sensor	1 Circuit Open Bank 2 Sensor	Sensor 1	Sensor 1	Bank 1 Sensor 1	Bank 2 Sensor 1	Open Bank 1 Sensor 1	Open Bank 2 Sensor 1	Bank 2	Bank 2	Bank 2	Deactivation Bank 1	Deadlivation Bank 1	
	Descrivation Bank 2 P000A - Constail Position System Slow Response Bank	P0008 - Exhaust Carrehalt P0008 - Exhaust Carrehalt P00000 System Slow Response Bank 1	P000C - Intoke Camphatt Position System Stow Response Bank 2	P0000 - Exhaust Camehatt Position Bystem Stow Response Sent 2	P0010 - Carrelhalt Position Actuator Control Circuit Open	P0011 - Carrishalt Position System Performance	P0013 - Exhaust Camehaft Position Actuator Control Circuit Open Bank 1	P0014 - Exhaust Camshaft Position System Performance Bank 1	P0020 - Intake Camphaft Position Actuator Control Circuit Open Bank 2	P0021 - Intake Camehaft Position System Performanc Bank 2	P0003 - Exhaust Camehalt Position Actuator Control Grouit Open Bank 2	P0024 - Exhaust Carrishaft Position System Performance Bank 2	P0000 - Oxygen Sensor Heater Control Circuit Open Bank 1 Sensor 1	P0001 - Caygen Sensor Heat Control Circuit Low Bank 1 Sensor 1	ter P0032 - Oxygen Sensor Heate Control Circuit High Bank 1 Sensor I	r P0050 - Oxygen Sensor Heate Control Circuit Open Bank 2 Sensor 1	P0051 - Grygen Sensor Heate Control Circuit Low Bank 2 Sensor 1	P0002 - Oxygen Sensor Heater Control Circuit High Bank 2 Sensor 1	P0101 - Mass Air Row Sensor Performance	P0102 - Wass Air Flow Senso Grout Low	r P0103 - Mass Air Flow Senso Circuit High	P0106 - Manifeld Absolute	CONTINUED NEXT LINE
	P0107 - Manifold Absolute Pressure Sensor Circuit Lor	Potos Manifold Absolute Potos Sensor Grout High	P010B - Mass Air Flow Senso	Response Bank 2 in P010C - Mass Air Flow Senso 2 Circuit Low	or P010D - Mass Air Row Sensor 2 Circuit High	P0130 - HO2S Circuit Bank 1 Sensor 1	Circuit Open Bank 1 P0131 - Oxygen Sensor Circu Low Bank 1 Sensor 1	Bank 1 it P0132 - Oxygen Sensor Circu High Bank 1 Sensor 1	Circuit Open Bank 2 R P0133 - Oxygen Sensor Slow Response Bank 1 Sensor 1	Bank 2 P0150 - H028 Glouit Bank Sensor 1	Circuit Open Bank 2  P0151 - Oxygen Sensor Circu Low Bank 2 Sensor 1	Bank 2 it P0152 - Oxygen Sensor Circuit High Bank 2 Sensor 1	P0153 - Oxygen Sensor Slow Response Bank 2 Sensor 1	P0171 - Fuel Trim System Lean Bank 1	P0172 - Fuel Trim System Rich	Sensor 1 h P0174 - Fuel Trim System Lean Bank 2	P0175 - Fuel Trim System Ric	Sensor 1 h P0035 - Crankshaft Position Sensor Circuit	P0395 - Crankshaft Position Sensor Performance	P(G4A - Crankshaft Position Semior Start Position Income	P034B - Crankshaft Position Sensor Direction Incornect	P0443 - Evaporative Emission Purge Sciencid Control Circuit	CONTINUED NEXT LINE
P21A3 - Cylinder 8 Fuel Trim Cylinder Botance	P0458 - Evaporative Emissio Purge Sciencid Control Circ.		POAAB - Evaporative Emission It Purge Solenoid Control Circui Open Bank 2	PO4AC - Evaporative Emission Purge Solemoid Control Circu Low Bank 2	on PO4AD - Evaporative Emission iti Purge Solenoid Control Circuit	P064D - Control Monke Oxygen Sensor Bank 1 Sensor 1 System Performance	P064E - Control Module Coxygen Sensor Bank 2 Sensor	P2085 - Carnehalt Position Actuator Control Circuit Low	P2089 - Camshaft Position Actuator Control Circuit High	P2060 - Exhaust Carrishaft	P2001 - Exhaust Carrishaft	P2092 - Imake Carrishaft Position Aduator Control Circuit Low Bank 2	P2003 - Intake Carrishaft Position Actuator Control Circuit High Bank 2	P2094 - Exhaust Carrishaft	P2005 - Exhaust Carrishaft Position Actuator Control	P2096 - Post Catalyst Fuel	P2097 - Post Catalyst Fuel Trim System High Limit Bank	P2090 - Post Catalyst Fuel 1 Trim System Low Limit Bank 2	P2099 - Post Gatalyst Fuel Trim System High Limit Bank 2	P2177 - Fuel Trim System Lean Off Mae Bank 1	P2178 - Fuel Trim System Ric Off title Bank 1	Open th P2179 - Fuel Trim System Lean Off Idle Bank 2	CONTINUED NEXT LINE
Counce	Low P2160 - Fuel Trim System Pl Off Ide Bank 2	High  th P2187 - Fuel Trim System Lean at kile Bank 1	Open Bank 2 P2185 - Foot Trim System Ric at Mile Bank 1	Low Bank 2 b P2189 - Fuel Trim System Lean at Me Bank 2	High Bank 2 P2190 - Fuel Trim System Rich ol Ide Book 2	1 System Performance P2195 - Oxygen Sensor Signal Biased Lean Bank 1 Sensor 1	1 System Performance P2196 - Coygen Sensor Sign: Blased Rich Bank 1 Sensor 1	P2197 - Oxygen Sensor Sign Bissed Lean Bank 2 Sensor 1	P2195 - Oxygen Sensor Signs Blased Righ Bank 2 Sensor 1	Presiden Actuator Control Circuit Low Bank 1 P2237 - Oxygen Sensor Pumping Current Control Circuit Open Bank 1 Sensor	Position Actuator Control Grout High Bank 1 P2240 - Oxygen Sensor Pumping Current Control 1 Circuit Open Bank 2 Sensor	Grout Low Bank 2  P2251 - Oxygen Sensor Low Reference Circuit Open Bank 1 Sensor 1	Circuit High Bank 2 P2254 - Oxygen Sensor Low Reference Circuit Open Bank 2 Sensor 1	Position Actuator Control Circuit Low Bank 2 P2297 - Oxygen Sensor Out o Range During Deceleration	Position Actuator Control Circuit High Bank 2 of P2298 - Oxygen Sensor Out o Range During Deceleration Bank 2 Sensor 1	P2626 - Oxygen Sensor Pumping Current Trim Circuit	P2629 - Oxygen Sensor Purreing Current Trim Circuit	P2A0B - Manifold Absolute Pressure Sensor Performence	P2AGC - Manifold Absolute Pressure Sensor Circuit Loss	P2ACO - Manifold Absolute Pressure Sensor Circuit High Bank 2	P2E68 - Fuel Trim System Lean During Cylinder Deactivation Bank 1	P2E69 - Fuel Trim System Rich During Cylinder Deachvotion Bank 1	CONTINUED NEXT LINE
	P2DSA - Fuel Trim System	P2008 - Fuel Trim System Rich During Cylinder Descrivation Bank 2	P30D8 - Control Module	P30D9 - Control Module Processor Serial Peripheral Intertace Sus 4	END END	Besse Lean Bank 1 Series 1	Baseu raut bark 1 sensur 1	00300 C681 B8 K 2 301901	Dayson Numbank 2 detaut 1	Circuit Open Bank 1 Sensor	1 Circuit Open Bank 2 Sensor	Sensor 1	Sensor 1	Bank 1 Sensor 1	Bank 2 Sensor 1	Open Bank 1 Sensor 1	Open Bank 2 Sensor 1	Bank 2	Bank 2	Bank 2	Deactivation Bank 1	Deactivation Bank 1	
	Lean During Cylinder Deactivation Bank 2 P0121 - Throttle Position Sansor Performance	P0122 - Throttle Position Sensor Circuit Low	Processor Serial Peripheral Interface Bus 3 P0123 - Throttle Position Serior Circuit High	P0221 - Throtile Position Sensor 2 Performance	P0222 - Throde Position Sensor 2 Circuit Low	P0223 - Throttle Position Sensor 2 Circuit High	P0226 - Throttle Position Sensor Performance Bank 2	P0227 • Throdie Position Sensor Circuit Low Benk 2	P0228 - Throttle Position Sensor Circuit High Bank 2	P0236 - Turbocharger Boos Sensor Performence	P0237 - Turbochanger Boost Sensor Circuit Low	P0238 - Turbocharger Boost Sensor Circuit High	P(Q4) - Turbochenger Boost Sensor Performence Benk 2	P0241 - Turbocharger Boosl Sensor Circuit Low Bank 2	t P0242 - Turbochanger Boost Sensor Circuit High Bank 2	P212B - Throttle Position Sensor 2 Performence Benk 2	P212C - Throttle Position Sensor 2 Circuit Low Bank 2	P212D - Throttle Position Sensor 2 Circuit High Bank 2	P2176 - Minimum Throttle Position Not Learned	P2227 - Barcmetric Pressure Sensor Performance Bank 1 Sensor 1	P2228 - Barometric Pressure Sensor Grouit Low Bank 1 Sensor 1	P2229 - Barometric Pressure Sensor Circuil High Bank 1 Sensor 1	CONTINUED NEXT LINE
P2227 - Barometric Pressure Sensor Performance Bank 1 Sensor 1	U0907 - Lost Communicatio	n U0688 - Lost Communication	1 U198D - Invalid Data Receive From Throttle Position Senso	d U136F - Irvalid Data Receiva	d ENG	Senact 2 Circus regil	Delata Personal de Care 2	CHILD CHOILDING CHILD	Janua Catta Ingi Cale 2	Select Perchands	Setud Cecus Con	Select Citcle right	Sensor Perdiration Dark 2	SHIELD CHEEK CON CHIK I	Data Circuit I gir Lain 1	Dated 17 elements back 2	SHIRL Z CHOICE COV DAIN. I	Sensor I Circuit I girl Latin I	Postal Fox Cashing	Sensor 1	Sensor 1	Sensor 1	
P2228 - Barometric Pressure Sensor Circuit Low Bank 1 Sensor 1	With Throttle Position Senec Bank 1 Sensor 2 EN9	With Throttle Position Sensor Bank 2 Sensor 2	2	Prom Throttle Position Senso Bank 2 Sensor 2		ı																	
Circuit Low Bank 1 Sensor 1  P2229 - Barometric Pressure Sensor Circuit High Bank 1 Sensor 1																							
P222B - Barometric Pressure Sensor Performance Bank 2 Sensor 1	P2227 - Barometric Pressue Sensor Performance Bank	e P2228 - Barometric Pressure 1 Sensor Circuit Low Bank 1 Sensor 1	P2229 - Barcenetric Pressure Sensor Circuit High Bank 1 Sensor 1	END	1																		
P222C - Barometric Pressure Sensor 1 Circuit Low Bank 2 Sensor 1	P2227 - Barometric Pressure Sensor Deformers a Bank 1	P2228 - Barometric Pressure 1 Sensor Circuit Low Bank 1 Sensor 1	P2229 - Barcenetic Pressure Sensor Circuit High Bank 1 Sensor 1	END																			
P222D - Barcmetic Pressure Sensor 1  P222D - Barcmetic Pressure Sensor Circuit High Bank 2 Sensor 1	Sensor 1 P2227 - Barometric Pressur Sansor Performance Bank Sensor 1	e P2228 - Barometric Pressure	P2229 - Barcrietic Pressure Sensor Circuit High Bank 1 Sensor 1	END																			
P2232 - Oxygen Sensor Signal Circuit Shorted to Heater Circuit Bank 1 Sensor 2	P0006 - Oxygen Sensor Heat Control Circuit Open Bank 1	ter P0007 • Oxygen Sensor Heat	er P0038 - Oxygen Sensor Heate Control Circuit High Bank 1	END																			
Sensor 2 P2235 - Oxygen Sensor Signal Circuit Shorted to Heater Circuit Bank 2 Sensor 2	Sensor 2 P0056 - Caygen Sensor Heat Control Circuit Open Bank 2 Sensor 2		Sensor 2 or P0058 - Dxygen Sensor Hosto Control Circuit High Bank 2 Sensor 2	END																			
Sensor 2  P2237 - Oxygen Sensor Pumping Gument Control Clouit Open Bank 1 Sensor 1	Sensor 2 P0030 - Caygen Sensor Heat Control Circuit Open Bank 1 Sensor 1	ter P0031 - Oxygen Sensor Heat	Sensor 2 or P0032 - Oxygen Sensor Heate Control Circuit High Bank 1 Sensor 1	P0130 - HO2S Carouit Bank Sensor 1	P0131 - Oxygen Sensor Circuit     Low Bank 1 Sensor 1	t P0132 - Oxygen Sensor Circuit High Bank 1 Sensor 1	P084D - Control Wodule Doygen Sensor Bank 1 Sensor	P2237 - Oxygen Sensor or Pumping Current Control	P2251 - Oxygen Sensor Low Reference Circuit Open Sank		PSODS - Control Module Processor Serial Peripheral Interface Bus 3	END	Ī										
Sensor 1  P2240 - Oxygen Sensor Pumping Current Control Circuit Open Bank 2 Sensor 1	Sensor 1  P0060 - Oxygen Sensor Heat Control Circuit Open Bank 2 Sensor 1	Sensor 1 ter P0051 - Oxygen Sensor Heat 2 Control Circuit Low Bank 2 Sensor 1	Sensor 1 er P0052 - Oxygen Sensor Heate Control Circuit High Bank 2 Sensor 1	PD150 - HD25 Clincuit Bank 2 Sensor 1	PD151 - Coygen Sensor Circui	P0152 - Oxygen Sensor Circuit	System Performance     P064E - Control Module     Oxygen Sensor Bank 2 Sensor     1 System Performance	Circuit Open Bank 1 Sensor 1 P2240 - Oxygen Sensor Pumping Current Control	Sensor 1  P2254 - Oxygen Sensor Low Reference Circuit Open Bank :	Open Bank 1 Sensor 1 P2629 - Oxygen Sensor	P3009 - Control Module	END											
Sensor 1 P2251 - Oxygen Sensor Low Reference Circuit Open Bank 1 Sensor 1	Sensor 1  P0000 - Gaygen Sensor Heat Control Circuit Open Bank 1	ter P0031 - Oxygen Sensor Heati	Sensor 1 er P0032 - Oxygen Sensor Heate Control Circuit High Bank 1	P0130 - HO28 Circuit Bank	P0131 - Oxygen Sensor Circui Low Bank 1 Sensor 1	P0132 - Oxygen Sensor Circuit High Bank 1 Sensor 1	P064D - Control Module Oxygen Sensor Bank 1 Sensor	Circuit Open Bank 2 Sensor 1  P2237 - Coygen Sensor Pumping Current Control	P2251 - Oxygen Sensor Low Reference Circuit Open Bank	Open Bank 2 Sensor 1  P2526 - Oxygen Sensor Pumping Current Trim Circu	PROCESSOR Section Perspectual Interface Bus 4  PROCES - Control Module Processor Serial Peripheral	END											
P2254 - Oxygen Sensor Low Reference Circuit Open Benk 2 Sensor 1	Sensor 1 P0050 - Caygen Sensor Heat Control Circuit Open Bank 2 Sensor 1	Sensor 1 for PCCS1 - Coygun Sensor Heat 2 Control Circuit Low Bank 2 Sensor 1	Sensor 1 er P0032 - Oxygen Sensor Heate Control Circuit High Bank 2 Sensor 1	P0150 - H028 Circuit Bank 2 Sensor 1	2 P0151 - Oxygen Sensor Circui Low Sank 2 Sensor 1	P0162 - Oxygen Sensor Circuit High Bank 2 Sensor 1	System Performance     P054E - Control Module     Oxygen Sensor Bank 2 Sensor     System Performance	Circuit Open Bank 1 Sensor 1 P2240 - Oxygen Sensor Pumping Current Control Circuit Open Bank 2 Sensor 1	Sensor 1  P2254 - Oxygen Sensor Low Reference Circuit Open Bank 3  Sensor 1	Pumping Current Trim Circu Open Bank 1 Sensor 1 P2629 - Oxygen Sensor Pumping Current Trim Circu Open Bank 2 Sensor 1	P3009 - Control Module II Processor Serial Perioberal	END											
Cital Opin Date 2 Drive 1	Sensor 1  P000A - Camshaft Position System Slow Response Bank	P0008 - Exhaust Carrshaft Position System Slow Response Bank 1	P000C - Intake Carrishaft Position System Slow Response Bank 2	P000D - Exhaust Carrehaft Position System Slow Response Bank 2	P0010 - Camshaft Position Actuator Control Circuit Open	P0011 - Camshaft Position System Performance	1 System Performance P0013 - Exhaust Carrishaft Position Actuator Control Circuit Open Bank 1	Circuit Open Bank 2 Sensor 1 P0014 - Exhaust Carrelnaft Position System Performance Bank 1	P0020 - Intake Carrelnalt Position Actuator Control Circuit Open Bank 2	Open Benit 2 Sensor 1 P0021 - Intake Carrishaft Position System Performanc Bank 2	P0023 - Exhaust Cerrshelt e Position Actualor Control Circuit Open Bank 2	P0024 - Eshassi Carrishalt Position System Performance Bonk 2	P00233 - Boost Bypass Valve A Control Circuit Open	P0004 - Boost Bypess Volve Control Circuit Low	A P0035 - Boost Bypers Valve A Control Circuit High	P0071 - Ambient Air Temperature Sensor Performance	P0072 - Ambient Air Temperature Sessor Circuit	P0073 - Ambient Air Temperature Senacr Circuit	P0096 - Israke Air Temperature Sensor 2 Performance	P0097 - Intake Air Temperatur Sansor 2 Circuit Low	e P0096 - Intake Air Temperatur Sensor 2 Circuit High	re P0069 • Intake Air Temperature Sensor 2 Circuit Emaile	CONTINUED NEXT UNE
	PEOA6 - Intake Air Temperature Sensor 2 Performance Book 2	POOA7 - Make Air Temperature Sensor 2 Group	P01A8 - Intake Air I Temperature Sensor 2 Circuit	PODAS - Intake Air Temperature Serpor 2 Circui	PCCCO - Boost Bypeas Valve B Control Circuit Open	P00C1 - Boost Bypess Valve B Control Circuit Low	Circuit Open Bank 1  P00C2 - Boost Bypses Valve Control Grouit High	Bank 1  PO101 - Mass Air Flow Senso Performance	Circuit Open Bank 2 PD102 - Mass Air Flow Sesso Circuit Low	Bank 2 P0103 - Mass Air Flow Sens Circuit High	Circuit Open Bank 2  P0105 - Manifold Absolute Pressure Sensor Performance	PO107 - Manifold Absolute Possure Sessor Climit Low	PD103 - Manifold Absolute Pressure Sensor Circuit High	PO105 - Mass Air Flow Senso 2 Performance	or PO10C - Mass Air Flow Sensor 2 Ground Low	Potton - Mass Air Flow Sesso 2 Gircuit High	P0121 - Throttle Position Sensor Performance	High P0122 - Throttle Position Sensor Grout Low	PD123 - Throttle Position Sensor Circuit High	P0221 - Throite Position Sensor 2 Performance	P0222 - Throige Position Sensor 2 Girost Low	P0223 - Throttle Position Sensor 2 Circuit High	CONTINUED NEXT LINE
P2261 - Boost Bypass Valve A Stuck	Performance Bank 2  P0228 - Throde Position Sensor Deformance Bank 3	Low Bank 2 P0227 - Throdie Position Sensor Circuit Low Bank 2	High Bank 2 P0228 - Throttle Position Sensor Circuit High Bank 2	Errotic Bank 2  P0238 - Turbocharger Boost Sensor Performance	P0237 - Turbocharger Boost Sensor Gircuit Low	P0238 - Turbocharger Boost Sensor Circuit High	P0240 - Turbocharger Boost Service Derformance Bank 2	P0241 - Turbocharger Boost Sensor Circuit Low Bank 2	P0242 - Turbocharger Boost Sensor Circuit High Bank 2	P2068 - Carmhalt Position Actuator Control Grout Lov	P2069 - Carrelhaft Position Actuator Control Circuit High	P2090 - Exhaust Carrishaft Position Actuator Control Circuit Low Bank 1	P2091 - Exhaust Carrehalt Position Actuator Corntol Circuit High Bank 1	P2092 - Intake Carrishaft Position Actuator Control Circuit Low Bank 2	P2060 - Intake Cametell Position Actuator Control Circuit High Bank 2	P2094 - Exhaust Carrehalt Position Actuator Control Circuit Low Bank 2	P2095 - Exhaust Carrishaft Position Actuator Control Circuit High Bank 2	P2128 - Throtile Position Sensor 2 Performance Bank 2	P212C - Throdie Position Sensor 2 Circuit Low Bank 2	P2120 - Throttle Position Sensor 2 Circuit High Bank 2	P2176 - Winimum Throttle Position Not Learned	P2227 - Barometric Pressure Sensor Performance Bank 1 Sensor 1	CONTINUED NEXT LINE
	P2228 - Barometric Pressur Sensor Circuit Low Bank 1 Sensor 1	e P2229 - Barometri: Pressure Sensor Grout High Bank 1 Sensor 1	P2ACE - Manifold Absolute Pressure Segrar Performance	P2ADC - Manifold Absolute Passage Season Circuit Low	P2A0D - Manifold Absolute Pressure Sensor Circuit High	U0607 - Last Communication With Throttle Position Sensor	U0588 - Lost Communication With Throttle Position Sensor	U136D - Invalid Data Receive From Throttle Position Senso	d U136F - Invalid Data Received From Throtile Position Sensor	END		Circuit Low Bank 1	Circuit High Blank 1	Circuit Low Bank 2	Grouit High Bank 2	Circuit Low Blank 2	Circuit High Bank 2					Sensor 1	
	P000A - Carretell Position System Stow Response Bank	P000B - Exhaust Carrehalt Position System Slow Response Bank 1	P000C - Inside Carrishaft Position System Slow Response Bank 2	Bank 2 P0000 - Exhaust Carrehalt Position System Slow Response Bank 2	P0010 - Camshaft Position Actuator Control Circuit Open	Bank 1 Sensor 2  P0011 - Camshaft Position System Performance	Bank 2 Sensor 2 P0013 - Exhaust Cerrishelt Position Actualor Control Grout Open Bank 1	2 P0014 - Exhaust Camshalt Position System Performance Bonk 1	Bank 2 Sensor 2 P0020 - Intake Carmhalt Position Actuator Control Circuit Open Bank 2	P0021 - Intake Carrishaft Position System Performand Bank 2	P0023 - Exhaust Carrishaft e Position Actualor Control Circuit Open Bank 2	P0024 - Eshaust Carrishalt Position System Performance Bonk 2	P0050 - Oxygen Sensor Heater Control Circuit Open Bank 1 Sensor 1	P0031 - Oxygen Bensor Heat Control Circuit Low Bank 1 Sensor 1	ter P0032 - Oxygen Sensor Heate Control Circuit High Bank 1 Sensor 1	r P0036 - Oxygen Sensor Heate Control Circuit Open Bank 1 Sensor 2	P0337 - Oxygen Sensor Heats Control Circuit Low Bank 1 Sensor 2	er P0008 - Oxygen Sensor Heater Gostrol Circuit High Bank 1 Sensor 2	P0101 - Mass Air Flow Sensor Parformance	P0102 - Mass Air Flow Senso Climit Low	r P0103 - Mass Air Flow Senso Circuit High	P0106 - Manifold Absolute	CONTINUED NEXT LINE
	P0107 - Manifeld Absolute Pressure Sensor Circuit Lov	P0105 - Marafold Absolute	P010B - Mass Air Flow Senso 2 Performance	Response Bank 2 or PD10C - Mass Air Flow Senso 2 Girout Low	or POICD - Mass Air Row Sensor 2 Circuit High	P0116 - Engine Coclant Temperature Sensor Performance	P0117 - Engine Coolant Temperature Sensor Circuit	P0118 - Engine Coolant Temperature Sensor Circuit	P0119 - Engine Coolant Temperature Sensor Circuit	P0121 - Throlife Position Sensor Performance	Circuit Open Bank 2  PD122 - Throthe Position Sensor Circuit Low	P0123 - Throtile Position Sensor Circuit High	Sensor 1 P0128 - Engine Cootent Temperature Below Thermostat Regulating	P0130 - HO2S Grout Bank Sensor 1	Sensor 1  1 P0133 - Oxygen Sensor Slow Response Bank 1 Sensor 1	P0137 - Grygen Seneor Circui Low Bank 1 Sensor 2	P0138 - Oxygen Sensor Circu High Bank 1 Sensor 2	P013A - Oxygen Sensor Slow Response - Rich to Lean Bank	P013B - Oxygen Sensor Slow Response - Lean to Rich Bank	P013E - Oxygen Sensor Delayed Response - Rich to	P013F - Oxygen Sensor Detayed Response - Lean to	P0140 - Oxygen Sensor Circuit Insufficient Activity Bank 1	CONTINUED NEXT LINE
	P0141 - Oxygen Sensor Heat Performance Bank 1 Sensor	ter P0171 - Fuel Trim System 2 Lean Bank 1	P0172 - Foet Trim System Ric	h P0221 - Throtte Position Sensor 2 Performance	P0222 - Throttle Position Sensor 2 Circuit Low	Performance P0223 - Throttle Position Sensor 2 Glouit High	PCC26 - Throttle Position Service Performance Bank 2	P0227 - Throttle Position Sensor Grout Low Sens 2	P0228 - Throttle Position Sensor Circuit High Bank 2	P0300 - Engine Mafre Detected	P0301 - Cylinder 1 Misfire	P0002 - Cylender 2 Missine Detected	Temperature P0903 - Cylinder 3 Missine Detected	P0304 - Cylinder 4 Misline Delected	P0305 - Cylinder 5 Misfire Detected	PCS06 - Cylinder 6 Missine Detected	P0907 - Cylinder 7 Missins Detected	1 Sensor 2 P0308 - Cylinder 8 Maline Detected	1 Sensor 2  P0443 - Evaporative Emission Purge Scennid Control Circuit Open	Lean Bank 1 Sensor 2  P0458 - Evaporative Emission Purge Salenoid Control Circuit	Rich Bank 1 Sensor 2  P0459 - Exaporative Emission Purge Solenoid Control Circui High	Sensor 2  P0496 - Evaporative Emission System Row During Non- Purps	CONTINUED NEXT LINE
P2270 - Oxygen Sensor Signal Stuck Lean Bank 1 Sensor 2	P0497 - Evaporative Emissic System No Flow During Purp	POAAB - Exsporative Emissio	n PDIAC - Evaporative Emissio it Purge Sciencid Control Circui Low Bank 2	e POIAD - Evaporative Emissio t Purge Solenoid Control Circu	on POARE - Evaporative Emission R Purge Solonoid Performance Bank 2	PO4DF - Exaporative Emission Purge Sciencid Performance Bank 1	P0641 - Sensor Reference Voltage 1 Circuit Open	P0651 - Sensor Reference Voltage 2 Circuit Open	P0697 - Sensor Reference Voltage 3 Circuit Open	P06A3 - Sensor Reference Voltage 4 Circuit Open	P2068 - Carrishaft Position Actuator Control Circuit Low	P2089 - Carrishaft Position Actuator Control Circuit High	P2090 - Eshaust Carrishaft Position Actuator Control Circuit Low Bank 1	P2091 - Exhaust Carrehaft Position Actuator Control Circuit High Bank 1	P2002 - Intake Carrehalt Position Actualor Control Circuit Low Bank 2	P2093 - Intake Certefult Position Actuator Control Circuit High Bank 2	P2094 - Eshaust Carrehaft Position Actuator Control Circuit Low Bank 2	P2095 - Exhaust Carrehaft Position Actuator Control Circuit High Bank 2	Open P2096 - Post Catalyst Fuel Trim System Low Limit Bank 1	P2097 - Post Cotatyst Fuet Trim System High Limit Bank	P2128 - Throtte Position Sensor 2 Performance Senk :	Purge P212C - Throtte Position Sensor 2 Circuit Low Bank 2	CONTINUED NEXT UNE
	P212D - Throttle Position Sensor 2 Circuit High Bank		Low Bank 2 P2178 - Fuel Trim System Ric Off title Bank 1	High Bank 2 b P2187 - Fuel Trim System Lean at Me Bank 1	Bank 2 P2168 - Fuel Trim System Rich stribe Bank 1	Bank 1 P2195 - Oxygen Sensor Signal Biased Lean Bank 1 Sensor 1	P2196 - Oxygen Sensor Signs Biased Rich Bank 1 Sensor 1	P2232 - Oxygen Sensor Signa Circuit Shorted to Meeter	P2270 - Oxygen Sensor Signa Studi Lean Bank 1 Sensor 2	P2271 - Oxygen Sensor Sign Study Right Bank 1 Sensor 2	P2A08 - Manifest Absente Pressure Security Performance	P2ADC - Manifold Absolute Descript Sensor Clockl Low	P2A0D - Manifeld Absolute Pressure Security Circuit High	Circuit High Bank 1 P2E68 - Fuel Trim System Lean During Cylinder Deactivation Bank 1	Circuit Low Bank 2  P2589 - Foat Trim System Rich During Cylinder Deactivation Bank 1	P318A - Cylinder 2 Reactivation Performance Trapped High Pressure	P318B - Cylinder 3 Reactivation Performance - Trapped High Pressure	Circuit High Bank 2 P318D - Cylinder 5 Reactivation Performance Trapped High Pressure	P3190 - Cylinder 8 Reactivation Performance - Trapped High Pressure	P3409 - Cylinder 2 Deactivation Scienced Contro	P3411 - Cylinder 2 Deactivation Solemoid Contro	P3412 - Cylinder 2 Deactivation Sciencid Control	CONTINUED NEXT UNE
	P3417 - Cylinder 3 Descrivation Scienced Contro	P3419 - Cylinder 3 Deactivation Sciencid Contro	P3420 - Cylinder 3 Deactivation Sciencid Contro	P3433 - Cylinder 5 Deactivation Solemoid Contro Grouk Open	P3436 - Cylinder 5 Descrivation Sciencid Control	P3436 - Cylinder 6	P3457 - Cylinder 8	Circuit Bank 1 Sensor 2 P3459 - Cylinder 8 Deactivation Sciencid Contro	P3460 - Cylinder 8	P3499 - Cylinder 2 Deactivation Performance	P349A - Cylinder 3 Deaplivation Performance	P349C - Cylinder S Deactivation Performance	Bank 2 P349F - Cylinder 8 Description Performance	Deactivation Sank 1 U0907 - Lost Communication With Throdie Position Sensor Bank 1 Sensor 2	Deactivation Bank 1  L0588 - Lost Communication With Throttle Position Sensor Bank 2 Sensor 2	Eshaud Charge  U196D - Invalid Data Receiver From Throtile Position Samon	Exhaust Charge	Exhaust Charge	Exhaust Charge	Circuit Open	Circuit Low	Circuit High	
	Circuit Open P000A - Carrelant Position System Slow Response Bank	Circuit Low P0008 - Exhaust Camshaft	Circuit High  P000C - Intake Camehalt Position System Slow Response Bank 2	Girouit Open  P0000 - Exhaust Camehatt Position Bystem Slow Response Bank 2	P0010 - Carrahaft Position Actuator Control Gircuit Open	Deactivation Scienced Control Circuit High P0011 - Carnshaft Position System Performance	Deactivation Scienced Contro Circuit Open P0013 - Exhaust Camehaft Position Actuator Control	Circuit Low P0014 - Exhaust Camshaft Position System Performance Bank 1	Deactivation Solaroid Control Circuit High P0020 - Intake Camphalt Position Actuator Control Circuit Open Bank 2	P0021 - Istake Camshaft Position System Performanc Bank 2	P0023 - Exhaust Camehalt Position Actuator Control	P0024 - Exhaust Camshaft Position System Performance Bank 2	P0000 - Oxygen Sensor Heater Control Circuit Open Bank 1 Sensor 1	Bank 1 Sensor 2 P0001 - Oxygen Sensor Heat Control Circuit Low Bank 1 Sensor 1	Bank 2 Sensor 2 ter P0032 - Oxygen Sensor Heate Control Circuit High Bank 1 Sensor 1	2 r P0036 - Oxygen Sensor Heate Control Circuit Open Bank 1 Sensor 2	Bank 2 Sensor 2 P0037 - Oxygen Sensor Heatr Control Circuit Low Bank 1 Sensor 2	er P0008 - Oxygen Sensor Heater Control Circuit High Bank 1 Sensor 2	P0101 - Mass Air Flow Sensor Performance	P0102 - Mass Air Plow Senso Circuit Low	r P0103 - Mass Air Flow Senso Gircuit High	P0108 - Manifold Absolute Pressure Sensor Performance	CONTINUED NEXT LINE
	P0107 - Manifold Absolute Pressure Sensor Circuit Los		P010B - Mass Air Flow Senso 2 Performance	Response Bank 2 in P010C - Mass Air Flow Senso 2 Circuit Low	P010D - Mass Air Flow Sensor 2 Circuit High	PD116 - Engine Cockert Temperature Sensor Parformance	Circuit Open Bank 1  P0117 - Engine Coclant Temperature Sensor Circuit Low	Bank 1  P0118 - Engine Coolant Temperature Sensor Grouit High	Circuit Open Bank 2  P0119 - Engine Coolent Temperature Sensor Circuit Erratic	Bank 2 P0121 - Throttle Position Sensor Performance	Circuit Open Bank 2 P0122 - Throttle Position Sensor Circuit Low	P0123 - Throttle Position Sensor Circuit High	Sensor 1 P0128 - Engine Coolent Temperature Below Thermostat Regulating	Sensor 1 P0130 - H028 Circuit Bank Sensor 1		Seneor 2 P0137 - Oxygen Sensor Circui Low Bank 1 Sensor 2	Sensor 2 P0138 - Oxygen Sensor Circu High Bank 1 Sensor 2	Sensor 2 PD13A - Guygen Seneor Slow Response - Rich to Lean Bank 1 Sensor 2	P013B - Coygen Sensor Slow Response - Lean to Rich Bank 1 Sensor 2	P012E - Doygen Sensor Debyed Response - Rich to Lean Bank 1 Sensor 2	P013F - Oxygen Sensor Delayed Response - Lean to Rich Bank 1 Sensor 2	PD140 - Oxygen Sensor Circuit Insufficient Activity Bank 1 Sensor 2	CONTINUED NEXT LINE
	P0141 - Oxygen Sensor Heat Porformance Bank 1 Sensor	ter P0171 - Fuel Trim System 2 Lean Bank 1	P0172 - Fuel Trim System Ric Bank 1	h P0221 - Throttle Position Sensor 2 Performance	P0222 - Throttle Position Sensor 2 Circuit Low	Parformance P0223 - Throttle Position Sensor 2 Circuit High	P0226 - Throttle Position Bersor Performance Bank 2	High P0227 - Throttle Position Sensor Circuit Low Bank 2	Erratic  P0228 - Throttle Position Sensor Circuit High Bank 2	P0300 - Engine Mistire Datacted	P0301 - Cylinder 1 Mistire Detected	P0002 - Cylinder 2 Mistire Descript	Temperature P0303 - Cylinder 3 Mistre Datacted	P0304 - Cylinder 4 Mistine Datacted	P0305 - Cylinder 5 Mistire Detected	P0306 - Cylinder 6 Wishre Detected	P0307 - Cylinder 7 Mistre Described	1 Sensor 2 P0308 - Cylinder 8 Mistire Datected	P0443 - Evaporative Emission Purge Sciencid Control Circuit	P0458 - Evaporative Emission Purge Sciencid Control Circuit	P0469 - Evaporative Emission Purge Solenoid Control Circuit	P0496 - Evaponativa Emission	CONTINUED NEXT UNE
P2271 - Oxygen Sensor Signal Stuck Rich Bank 1 Sensor 2	PO497 - Exaporative Emissio System No Flow During Purg	P04AB - Exaporative Emissio Purge Solenoid Control Circu Open Bank 2	n POAAC - Evaporative Emissio it Purge Salencid Control Circui Low Bank 2	n P04AD - Evaporative Emission Purge Solemoid Control Circu High Bank 2	on POARE - Evaporative Emission iii Purge Solemoid Performance Bank 2	P04DF - Exaporative Emission Purga Schmold Performance Bank 1	P0641 - Sensor Reference Votage 1 Circuit Open	PDEST - Sensor Reference Williage 2 Girost Open	P0037 - Sensor Reference Voltage 3 Circuit Open	POSA3 - Sensor Reference Voltage 4 Circuit Open	P2003 - Carrehalt Position Actuator Control Circuit Low	P2009 - Correlati Position Actuator Control Circuit High	P2090 - Exhaust Carrishaft Position Actuator Control Circuit Low Bank 1	P2091 - Exhaust Cernsheft Position Actuator Control Circuit High Bank 1	P2062 - Intake Correlati Position Actuator Control Circuit Low Bank 2	P2093 - Intake Carrehaft Position Adsator Control Circuit High Bank 2	P2094 - Exhaust Carrishaft Position Actuator Control Circuit Low Bank 2	P2056 - Exhaust Comshaft Position Actuator Control Circuit High Bank 2	Open P2006 - Post Catalyst Fuel Trim System Low Limit Bank 1	Low P2097 - Post Catalyst Fuel Trim System High Limit Bank	P2128 - Throthe Position	Purge P212C - Throthe Position 2 Sensor 2 Circuit Low Bank 2	CONTINUED NEXT LINE
	P212D - Throdie Presiden Sensor 2 Clinuit High Bank	P2177 - Fuel Trim System	Low Bank 2 P2178 - Fuel Trim System Ric Of Ide Bank 1	High Bank 2 ht P2187 - Fuel Trim System Lean at Idle Bank 1	Bank 2 P2188 - Fuel Trim System Rich at John Stock 1		P2198 - Oxygen Sensor Sign Blased Rich Bank 1 Sensor 1	P2232 - Oxygen Sensor Signs Circuit Shorted to Heater	P2270 - Oxygen Sensor Signs Stuck Lean Bank 1 Sensor 2	P2271 - Oxygen Sensor Sign Stuck Right Bank 1 Sensor 2	P2AGB - Manifold Absolute Pressure Sensor Performano	P2ADC - Manifold Absolute Pressure Sensor Circuit Low	P2A0D - Manifold Absolute Pressure Sensor Circuit High	Circuit High Bank 1  P2E66 - Fuel Trim System Lean During Cylinder	Circuit Low Bank 2 P2E69 - Fuel Trim System Rich During Cylinder	Circuit High Bank 2 P318A - Cylinder 2 Reactivation Performance Trapped High Pressure	Gircuit Low Bank 2 P318B - Cylinder 3 Reactivation Performance - Trapped High Pressure	Circuit High Bank 2 P318D - Cylinder 5 Reactivation Performance Trapped High Pressure	P3190 - Cylinder 8 Posschwiden Performance Trapped High Pressure	P3409 - Cylinder 2 Deactivation Solemoid Contro	P3411 - Cylinder 2	P3412 - Cylinder 2 Deactivation Sciencid Control	CONTINUED NEXT LINE
	P3417 - Cylinder 3 Descrivation Solenoid Contro Circuit Open	P3419 - Cyfnder 3 Deactivation Selenoid Contro Circuit Low	Off jele Bank 1  P3420 - Cyfinder 3 Desetivation Selenoid Contro Circuit High	Lean at Me Bank 1  P3433 - Cylinder 5  Deactivation Solenoid Contro Circuit Open	P3425 - Cylinder 5 Descrivation Solenoid Control Circuit Low	P3436 - Cylinder 5 Deactivation Sciencid Control	P3457 - Cylinder &	Circuit Bank 1 Sensor 2  P3459 - Cylinder 5  Description Scienced Control	P3460 - Cylinder 6	P3499 - Cylinder 2 Deadlystian Performance	Bank 2 P349A - Cylinder 3 Descrivation Performance	P349C - Cylinder 6 Description Performance	Bank 2 P349F - Cylinder 8 Deacthration Performance	Descrivation Bank 1 LI0927 - Lost Communication With Throdie Position Senso Bank 1 Sensor 2	Descrivation Bank 1	Trapped High Pressure Exhaust Charge  U1365 - Invalid Data Received From Throttle Position Sensor 2		Trapped High Pressure Exhaust Charge	Ednaust Charge	Circuit Open	Circuit Low	Circuit High	
	Circuit Open P000A - Carreteff Position System Slow Response Bank	P000B - Exhaust Carribat	P000C - Intake Carrehalt	P000D - Exhaust Comshelt	P0010 - Carrishaft Position Actuator Control Circuit Open	Circuit High  P0011 - Camshaft Position System Performance	P0013 - Edward Carrishaft Position Actuator Control	P0014 - Exhaust Carrelnatt Position System Performance	Circuit High  P0020 - Intake Carrelraft Position Actuator Control Circuit Open Bank 2	P0021 - Intako Carrohaft	P0023 - Exhaust Correlati	P0024 - Exhaust Carrohaft	P0050 - Oxygen Sensor Heater	P0051 - Oxygen Sensor Heat	ter P0052 - Oxygen Sensor Heate	P0056 - Occupen Sensor Heate	POINT - Orwan Sensor Heats	r P0058 - Oxygen Sensor Heater	P0101 - Mass Air Flow Sensor Performance	P0102 - Mass Air Flow Senso Circuit Low	r P0103 - Mass Air Flow Senso Circuit High	r P0106 - Manifold Absolute	CONTINUED NEXT UNE
	Potor - Manifold Absolute Pressure Sensor Circuit Los		Position System Slow Response Bank 2 P010B - Mass Air Flow Senso 2 Performance	Position System Slow Response Bank 2 or PDIOC - Mass Air Flow Senso 2 Circuit Low	Actuator Control Circuit Open or PO10D - Mass Air Flow Sensor 2 Circuit High	P0116 - Engine Coolant Temperatura Sensor Performance	Position Actuator Control Circuit Open Bank 1 P0117 - Engine Coolant Temperature Sensor Circuit Low	Position System Performance Bank 1 P0118 - Engine Coolant Temperature Sensor Circuit High	Circuit Open Bank 2  P0119 - Engine Coolant Temperature Sensor Circuit Erratic	Position System Performance Bank 2 P0121 - Throttle Position Sensor Performance	e Position Actuator Control Circuit Open Bank 2 PD122 - Throotis Position Sensor Circuit Low	Position System Performance Bank 2 P0123 - Theotile Position Sensor Circuit High	Control Circuit Open Bank 2 Sensor 1 P0128 - Engine Coolant Temperature Below Thermostat Regulating	Control Circuit Low Bank 2 Sensor 1 P013C - Oxygen Sensor Slot Response - Rich to Lean Ban 2 Sensor 2		Sensor 2	P014B - Oxygen Sensor Delayed Response - Lean to	Sensor 2 P0150 - HG2S Circuit Bank 2	Porformance PO153 - Oxygen Sensor Slow Response Bank 2 Sensor 1		P0156 - Osygen Sergor Circu	Pressure Sensor Performance # P0160 - Oxygen Sensor Circuit Insufficient Activity Bank 2 Sensor 2	CONTINUED NEXT LINE
	Pressure Sensor Circuit Los P0161 - Caygan Sensor Heal Performance Bank 2 Sensor		2 Performance P0175 - Fuel Trim System Ric Bank 2		2 Circuit High P0222 - Throttle Position Sensor 2 Circuit Low	Performance P0223 - Throttle Position Sensor 2 Clearlt High	Low P0226 - Throttle Position Sensor Performance Bank 2	High P0227 - Throttle Position Sensor Clouit Low Sens 2	Erratic P0228 - Throttle Position Sensor Circuit High Bank 2	Sensor Performance P0300 - Engine Misfire Detected	Sensor Circuit Low P0S01 - Cylinder 1 Mistine	Sensor Circuit High P0302 - Cylinder 2 Wisfine	Thermostat Regulating Temperature P0303 - Cylinder 3 Marke	2 Sensor 2 P0304 - Cylinder 4 Mistine	2 Sensor 2	Lean Bank 2 Sensor 2	Rich Bank 2 Sensor 2 P0307 - Cylinder 7 Misfins	Sensor 1 P0306 - Cylinder 6 Martine	Response Bank 2 Sensor 1  P0443 - Evaporative Emission Purge Solenoid Control Circuit Open	Low Bank 2 Sensor 2  P0459 - Evaporative Emission Purge Solemoid Control Circuit	High Bank 2 Sensor 2  P0659 - Evaporative Emission Purse Solanoid Control Circuit	Sensor 2  P0496 - Evaporative Emission it System Flow During Non- Purge	CONTINUED NEXT LINE
P2272 - Oxygen Sensor Signal Stuck Lusen Bank 2 Sensor 2	P0497 - Evaporativa Emissio	PD4AB - Exaporative Emissio		Sensor 2 Performance  PD4AD - Exaporative Emission Purge Solenoid Control Circu		Sensor 2 Circuit High  PO4DF - Exaporative Emission Purge Solenoid Performance	P0641 - Sensor Reference	P0651 - Sensor Reference	P0997 - Sensor Reference	POSA3 - Sensor Reference	P2099 - Carrishaft Position	P2099 - Carrishaft Position	P2090 - Exhaust Carrelatt Position Adjustor Control	P2091 - Extraust Correlati Position Actuator Control	P2002 - Intake Carrahaft Position Actuator Control	P2000 - Intaku Carrehaft Position Actuator Control	P2024 - Eshaust Carrelhaft Position Actuator Control	P2005 - Exhaust Carrahaft Position Actuator Control	P2066 - Post Catalyst Fuel	P2099 - Post Catalyst Fuel	Purge Solenoid Control Circui High P2128 - Throttle Position	P212C - Throttle Position	CONTINUED NEXT LINE
	System No Flow During Purp P212D - Throttle Position Sensor 2 Circuit High Bank :	Parge scienced Control Circle Open Bank 2  P2179 - Fuel Trim System Loan Off Ide Bank 2	Low Bank 2  P2180 - Fuel Trim System Ric Off Me Bank 2	th P2189 - Fuel Trim System Lean at Idle Bank 2	Parge season reformance Bank 2 P2190 - Fuel Trim System Rich at Idle Bank 2	Parge Scienced Performance Bank 1 P2197 - Oxygen Sensor Signal Blased Loan Bank 2 Sensor 1	Voltage 1 Circuit Open	Voltage 2 Circuit Open  P2235 - Oxygen Sensor Signi Circuit Shorted to Monte.	Voltage 3 Circuit Open  P2272 - Oxygen Sensor Signe Stuck Lean Bank 2 Sensor 2	Voltage 4 Circuit Open  P2273 - Oxygen Sensor Sign Stuck Rich Bank 2 Sensor 2	Actuator Control Circuit Low P2A08 - Manifold Absolute Document Server Derkermann	Actuator Control Circuit High  P2ADC - Manifold Absolute  Page 19 September Circuit Low	Circuit Low Bank 1 P2A0D - Manifold Absolute	Circuit High Bank 1  P2E6A - Fuel Trim System Lean During Cylinder Deactivation Bank 2	Circuit Low Bank 2	Circuit High Bank 2 P318A - Cylinder 2 Reactivation Performance Trapped High Pressure Educated Charge	Circuit Low Bank 2 P318B - Cylender 3 Reactivation Performance - Trapped High Pressure Eshaud Charge	Circuit High Bank 2 P318D - Cylinder 5	Trim System Low Limit Bank 2 P3190 - Cylinder 8 Reactivation Performance -	Trim System High Limit Bank: P3409 - Cylinder 2 Describerion Sylandid Control	P3411 - Cylinder 2 Deacheston Solenoid Contro Circuit Low	2 Sereor 2 Circuit Low Bank 2 P3412 - Cylinder 2 Description Schoold Control	CONTINUED NEXT LINE
	P3417 - Cylinder 3	P3419 - Cylinder 3	P3420 - Cv4nder 3	P3433 - Cylinder 5	P3435 - Cylinder 5	P3436 - Culinder 6	P3457 - Cvfinder 8	P2235 - Oxygen Sensor Signa Circuit Shorted to Heater Circuit Sents 2 Sensor 2 P3459 - Oxinder 8	P3460 - Cylinder 8		Pressure Sensor Performano Bank 2 P349A - Cylinder 3	Pressure Sensor Circuit Low Bank 2 P349C - Cylinder 5	Bank 2	U0907 - Lost Communication	n U0668 - Lost Communication	U136D - Invalid Data Received	U136F - Invalid Data Receive	Reactivation Performance Trapped High Pressure Entreust Change	Reactivation Performance - Trapped High Pressure Extrems Charge	Deactivation Selenoid Contro Circuit Open	Circuit Low	Deactivation Sciencid Control Circuit High	COMPUED NEXT LINE
	Descrivation Solanoid Contra Circuit Open	Descrivation Scienced Contro Circuit Low	Descrivation Sciencid Contro Circuit High	Descrivation Solanoid Contro Circuit Open	Description Solanoid Control Circuit Low	Descrivation Scienced Control Circuit High	Descrivation Scienced Contro Circuit Open	Descrivation Sciencid Contro Circuit Low	Deactivation Solanoid Control Circuit High	P3699 • Cylinder 2 Deactivation Performance	Deactivation Performance	P349C - Cylinder 5 Deactivation Performance	P349F • Cylinder 8 Deactivation Performance	With Throttle Position Senso Bank 1 Sensor 2	With Throttle Position Sensor Bank 2 Sensor 2	Prom Throtile Position Sensor 2	From Throttle Position Senso Bank 2 Sensor 2	END					

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The DTCs in this column is inhibited by the DTCs listed to the right			The DTCs in these colum	ins inhibit the DTC to the	ı jeft				The DTCs in these colur	nns inhibit the DTC to th	o jeft				The DTCs in these colum	nns inhibit the DTC to the	jeft			The DTCs in	these columns inhibit t	the DTC to the Jeft	
Inhibited DTC			Fault Ad	tive DTCs					Fault A	ctive DTCs					Fault A	ctive DTCs					Fault Active DTCs	_	
	P000A - Curretoft Position System Slow Response Bank	P0018 - Exhaust Carrishaft Position System Slow Response Bank 1	P000C - Istake Carrishaft Position System Slow Response Bank 2	P0000 - Exhaust Carrishaft Position System Slow Response Bank 2	P0010 - Carrahalt Position Actuator Control Circuit Ope		P0013 - Exhaust Carrishaft Position Actuator Control Circuit Open Bank 1	P0014 - Exhaust Camshaft Position System Performence Bank 1	P0020 - Intake Carnshaft Position Actuator Control Circuit Open Bank 2	P0021 - Intake Carrishaft Position System Performanc Bank 2	P0023 - Exhaust Carrehaft Position Actuator Control Circuit Open Bank 2	P0024 - Exhaust Camshaft Position System Performance Benk 2	P0050 - Oxygen Sensor Hea Control Circuit Open Bank : Sensor 1		er P0052 - Oxygen Sensor Heat Control Circuit High Bank 2 Sensor 1	P0056 - Oxygen Sensor Heater Control Circuit Open Bank 2 Sensor 2	P0057 - Oxygen Sensor Heater Control Circuit Low Bank 2 Sensor 2	P0068 - Oxygen Sensor Heat Control Circuit High Bank 2 Sensor 2	POTO1 - Mass Air How Senso Performance	P0102 - Ness Air Plan Serson Grout Low	PO103 - Mass Air F <b>l</b> ow Sers Circuit High	resor P0105 - Manifold Absolute Pressure Sensor Performance	CONTINUED NEXT LINE
	P0107 - Manifold Absolute Pressure Sensor Circuit Low	P0108 - Manifold Absolute Pressure Sensor Circuit Fig	P010B - Mass Air Flow Senso 2 Performance	P010C - Mass Air Flow Sens 2 Circuit Low	or P010D - Mass Air How Sens 2 Circuit High	P0116 - Engine Cookert Temperature Sensor Performance	P0117 - Engine Codent Temperature Sensor Circuit Low	P0118 - Engine Coulant Temperature Sensor Circuit High	P0119 - Engine Coolent Temperature Sensor Circuit Errutic	P0121 - Throdie Position Sensor Performance	P0122 - Throttle Position Sensor Circuit Low	P0123 - Throttle Position Sensor Circuit High	P0128 - Engine Coolers Temperature Below Thermostal Regulating Temperature		P013D - Oxygen Sensor Six Response - Lean to Rich Ban 2 Sensor 2		P014B - Oxygen Sensor Delayed Response - Lean to Rich Bank 2 Sensor 2	P0150 - HO28 Circuit Bank : Sensor 1	2 P0153 - Oxygen Sensor Slow Response Bank 2 Sensor 1	P0157 - Oxygen Sensor Circui Low Bank 2 Sensor 2	it P0158 - Oxygen Sensor Cin High Bank 2 Sensor 2	P0160 - Oxygen Sensor Circuit Insufficient Activity Bank 2 Sensor 2	CONTINUED NEXT LINE
P2273 - Oxygen Sensor Signal Stuck	P0161 - Oxygen Sensor Heate Performance Bank 2 Sensor 2	P0174 - Fuel Trim System Lean Bank 2	P0176 - Fuel Trim System Ric Bank 2	P0221 - Throttle Position Sensor 2 Performance	P0222 - Throtile Position Sensor 2 Circuit Low	P0223 - Throttle Position Sensor 2 Circuit High	P0226 - Throttle Position Sensor Performance Sank 2	P0227 - Throtile Position Sensor Circuit Low Bank 2	P0228 - Throttle Position Sensor Circuit High Bank 2	P0300 - Engine Mistire Detected	P0301 - Cylinder 1 Misfire Detected	P0302 - Cylinder 2 Misfire Detected	P0303 - Cylinder 3 Misfire Detected	P0304 - Oylinder 4 Misline Datected	P0305 - Cylinder 5 Mislire Detected	PCG06 - Cylinder 6 Misfire Detected	P0307 - Cylinder 7 Missire Detected	P0306 - Cylinder 8 Misline Detected	PG443 - Evaporative Emission Purge Solenoid Control Groui Open			sion PO496 - Evaponative Emission rould System How During Non- Purge	
Rich Bank 2 Sensor 2	PO497 - Evaporative Emission System No Flow During Purge	P04AB - Evaporative Emissis Purge Sciencid Control Circl Open Bank 2	POAAC - Evaporative Emissio Purge Sciencid Control Circui Low Bank 2					P0651 - Sensor Reference Vortage 2 Circuit Open	P0697 - Sensor Reference Votage 3 Circuit Open	P06A3 - Sensor Reference Votage 4 Circuit Open	P2088 - Carrishaft Position Actuator Control Circuit Low	P2089 - Camehall Position Actuator Control Circuit High	P2090 - Exhaust Carrishall Position Actuator Control Circuit Low Bank 1	P2061 - Exhaust Comshell Position Actuator Control Circuit High Bank 1	P2062 - Intake Cernshell Position Actualor Control Circuit Low Bank 2	P2093 - Make Carrishaft Position Aduator Control Circuit High Bank 2	P2094 - Exhaust Carrishaft Position Actuator Control Circuit Low Bank 2	P2096 - Exhaust Correshoft Position Actuator Control Circuit High Bank 2	P2098 - Post Catalyst Fuel Trim System Low Limit Bank 2	P2099 - Post Catalyst Fuel 2 Trim System High Limit Bank 2			CONTINUED NEXT LINE
	P212D - Throite Position Sensor 2 Circuit High Bank 2	P2179 - Fuel Trim System Lean Off Ide Bank 2	P2180 - Puel Trim System Ric Off Ide Bank 2	h P2189 - Puel Trim System Lean at Ide Bank 2	P2150 - Fuel Trim System R at Ide Bank 2		nat P2198 - Oxygen Sensor Signs 1 Blased Rich Bank 2 Sensor 1	P2235 - Oxygen Sensor Signa Circuit Shorted to Heater Circuit Bank 2 Senecr 2	P2272 - Oxygen Sensor Sign Stuck Lean Bank 2 Sensor :		P2ASB - Manifold Absolute Pressure Sensor Performano Bank 2	P2ADC - Manifold Absolute Pressure Sensor Circuit Low Bank 2	P2A00 - Manifeld Absolute Pressure Sensor Circuit Hig Bank 2	P266A - Fuel Trim System h Lean During Cylinder Deactivation Bank 2	P2E68 - Fuel Trim System Rich During Cylinder Deschasion Bank 2	P318A - Cylinder 2 Reactivation Performance Trapped High Pressure Exhaust Charge	P318B - Cylinder 3 Reactivation Performance - Trapped High Pressure Exhaust Charge	P318D - Cylinder 5 Reactivation Performance - Trapped High Pressure Exhaust Charge	P3190 - Cylinder 8 Reactivation Performance - Trapped High Pressure Exhaust Charge	P3409 - Cy4nder 2 Deactivation Sciencid Control Circuit Open	P3411 - Cylinder 2 Dauctivation Solemoid Cont Circuit Low	P3412 - Cylinder 2 troi Descrivation Sciencid Control Circuit High	CONTINUED NEXT LINE
	P3417 - Gylinder 3 Deactivation Sciencid Control Circuit Open	P3419 • Cylinder 3 Deactivation Sciencid Contro Circuit Low	P3420 - Cylinder 3 Deactivation Sciencid Contro Grout High	P3433 - Cylinder 5 Deactivation Soteroid Contro Grout Open	P3435 - Cylinder 5 Descrivation Setenaid Contr Circuit Low	P3436 - Cylinder 5 rea Deactivation Scienced Contro Circuit High	P3457 - Cylinder 8 Deactivation Sciencid Control Circuit Open	P3459 - Cylinder 8 Deactivation Sciencid Control Circuit Lore	P3460 - Cylinder 8 Descrivation Sciencid Contri Circuit High	PS499 - Cytinder 2 Deactivation Performance	P349A - Cytinder 3 Deactivation Performance	P349C - Cytinder 5 Deschalion Performance	P349F • Cylinder 8 Deactivation Performance	U0007 - Lost Communication With Throtte Position Sensor Bank 1 Sensor 2	U0588 - Lost Communication With Throtte Position Sensor Bank 2 Sensor 2	U136D - Invalid Data Received From Throtte Position Sensor 2	U136F - Invalid Data Received From Throtte Position Sensor Bank 2 Sensor 2						
P227B - Barometric Pressure Sensor Performance Bank 1 Sensor 2	P2227 - Barametric Pressure Sensor Performance Bank 1 Sensor 1	P2223 - Barometric Pressur Sensor Circuit Low Bank 1 Sensor 1		640															_				
P227C - Barometric Pressure Sensor Circuit Low Bank 1 Sensor 2	P2227 - Barometric Pressure Sensor Performance Bank 1 Sensor 1		P2229 - Barcreetic Pressure Sensor Grout High Bank 1 Sensor 1	6740																			
P227D - Barometic Pressure Sensor Circuit High Bank 1 Sensor 2	P2227 - Barometric Pressure Sensor Parformance Bank 1 Sensor 1		P2229 - Barcreetic Pressure Sansor Circuit High Bank 1 Sensor 1	END																			
P228C - Fuel Pressure Regulator Exceeded Control Limits - Pressure Too Low	P0000 - Fuel Pressure Regulator Control Circuit Oper	P0191 - Fuel Rail Pressure Sensor Performance	P10EB - Fuel Pressure Regulator High Control Circuit Shorted to Control Circuit	P2O02 - Fuel Pressure Regulator Control Circuit Ope Bank 2	P313A - Fuel Pressure Regulator High Control Circ Shorted to Control Circuit Be	uit mun																	
P228D - Fuel Pressure Regulator Exceeded Control Limits - Pressure Too High	P0090 - Fuel Pressure Regulator Control Circuit Open	P0191 - Fuel Rail Pressure Sensor Performence	P10ES - Fuel Pressure Regulator High Control Circuit Shorted to Control Circuit	P2C32 - Fuel Pressure Regulator Control Circuit Ope Bank 2	P313A - Fuel Pressure Regulator High Control Circ Shorted to Control Circuit Be	or.																	
P2297 - Oxygen Sensor Out of Range During Deceloration Bank 1 Sensor 1	P0030 - Chygen Sensor Heats Control Circuit Open Bank 1 Sensor 1	P0031 - Oxygen Sensor Hear Control Circuit Low Bank 1 Sensor 1		P0130 - HO25 Circuit Bank Sensor 1	P0131 - Oxygen Sensor Circ Low Bank 1 Sensor 1	out P0132 - Oxygen Sensor Ciro High Bank 1 Sensor 1	P064D - Control Module Oxygen Sensor Bank 1 Senso 1 System Performance		P2196 - Oxygen Sensor Sign Blased Rich Bank 1 Sensor		Reference Circuit Open Bank	P2609 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 1 Sensor 1	P30D8 - Control Module Processor Serial Periphera Interface Bus 3	END									
P2298 - Oxygen Sensor Out of Range During Deceleration Bank 2 Sensor 1	P0060 - Oxygen Sensor Heats Control Circuit Open Bank 2 Sensor 1		or P0052 - Oxygen Sensor Heate Control Circuit High Bank 2 Sensor 1	P0150 - HC25 Circuit Bank Sensor 1	P0151 - Oxygen Sensor Circ Low Bank 2 Sensor 1	ouit P0152 - Oxygen Sensor Ciro High Bank 2 Sensor 1	P064E - Control Module Oxygen Sensor Bank 2 Senso 1 System Performance		P2198 - Oxygen Sensor Sign Blased Rich Bank 2 Sensor		Reference Circuit Open Bank	P2629 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 2 Sensor 1	P30D9 - Control Module Processor Serial Periphera Interface Bus 4	END									
P2300 - Ignition Coll 1 Control Circuit Low																							
P2301 - Ignition Coll 1 Control Circuit																							



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Inhibited DTC	P000A - Carrateft Position System Slow Response Bank	P0018 - Exhaust Carrishaft Position System Slow Response Bank 1	P000C - Istake Carristant Position System Slow Response Bank 2	P0000 - Exhaust Comshoft Position System Store Response Bank 2	P0010 - Carrahaft Position Actuator Control Grout Oper	P0011 - Carrelast Position	P0013 - Exhaust Comshaft Position Actuator Control Grout Open Bank 1	P0014 - Exhaust Carrishaft Position System Performance Book 1	P0016 - Crankahalt to Camshalt Correlation	P0017 - Crankshaft to Extraor	P0018 - Crankahafi to Intake Carrelati Cornalities Book 2	P0019 - Cranicularit to Exhaust Camehalt Correlation Bank 2	P0020 - Islake Camshaft Position Actuator Control Circuit Open Bank 2	P0021 - Islake Camshaft Position System Performanc Bank 2	Fault A  P0023 - Exhaust Cornshoft Position Actuator Control	P0024 - Exhaust Carrishaft Position System Performance Bank 2	P0030 - Oxygen Sensor Heat Control Circuit Open Bank 1 Sensor 1	er P0031 - Oxygen Sensor Heatr Control Circuit Low Bank 1 Sensor 1	er P0032 - Oxygen Sensor Heate Control Circuit High Bank 1 Sensor 1	er P0050 - Oxygen Sensor Heat Control Circuit Open Bank J	Fault Active DTCs er P0051 - Oxygen Sensor Heate Control Circuit Low Bank 2	P0052 - Oxygen Sensor Heater Control Circuit High Bank 2 Sensor 1	CONTINUED NEXT LINE
	P0066 - Intake Air Temperatur	Response Bank 1 e P0097 - Irrake Air Temperatu	Response Bank 2 e P0038 - Intake Air Temperatur Sensor 2 Circuit High	Response Bank 2 se P0019 - Intake Air Temperatur Sensor 2 Circuit Ermitic	re PCOAS-Intake Air Temperature Sensor 2 Performance Bank 2	PODAT - Intake Air Temperature Sensor 2 Circui	PODAS - Intoke Air Temperature Sensor 2 Gircui	PODAS - Josses Air	P0121 - Throttle Position Sensor Performance	P0122 - Throde Position Sensor Grout Low	P0123 - Throtile Position Sensor Circuit High	P0130 - HC2S Circuit Bank 1	P0131 - Oxygen Sensor Circuit Low Bank 1 Sensor 1	Bank 2 P0132 - Oxygen Sensor Circ High Bank 1 Sensor 1		P0150 - HO2S Circuit Bank 2	Sensor 1 P0151 - Oxygen Sensor Circ. Low Bank 2 Sensor 1	Sensor 1 it P0152 - Oxygen Sensor Circu High Bank 2 Sensor 1	Sensor 1 if P0153 - Oxygen Sensor Slow Response Dank 2 Sensor 1	V P0221 - Throtile Position Sensor 2 Performance	P0222 - Throtile Position Sensor 2 Circuit Low	Sensor 1 P0223 - Throtale Position Sensor 2 Circuit High	CONTINUED NEXT LINE
	P0226 - Throttle Position Sensor Performance Bank 2	P0227 - Throttle Position Sensor Circuit Low Bank 2	P0228 - Throttle Position Sensor Circuit High Bank 2	P0300 - Engine Misfire Detected	Performance Bank 2 P0301 - Cylinder 1 Misline Datected	Low Bank 2 P0302 - Oylinder 2 Misline Datected	High Bank 2 P0303 - Cylinder 3 Mistire Detected	it. Temperature Sensor 2 Circuit Emitic Blank 2 P(304 - Cylinder 4 Misfire Detected	P0305 - Cylinder 5 Missire Detected	P0306 - Cylinder 6 Misline Detected	P0507 - Cylinder 7 Mistire Detected	PC003 - Cylinder 8 Mistire Detected	P0336 - Crankshaft Position Sensor Circuit	P036 - Crankshaft Positio Sensor Performance		PCG4B - Cranksheft Position st Sensor Direction Incorrect	P0443 - Exaponitive Emissio Purge Solenoid Control Circu Open	PO455 - Evaponative Emission Purge Solenoid Control Circui Low	PO459 - Evaporative Emission It Purge Solenoid Control Circui High	n P0496 - Evaporative Emissio it System Flow During Non- Purge		POAAC - Evaporative Emission Purge Solenoid Control Circuit Low Bank 2	CONTINUED NEXT LINE
P2509 - Fuel Trim System Rich During Cylinder Deactivation Bank 1	PO4AD - Evaporative Emission	P04AE - Evaporative Emissio	P040F - Evaponativa Emission	n P06CC - Coad Start Intake	P05CD - Cold Start Intake	P0641 - Sensor Reference Votage 1 Circuit Open	P084D - Control Module	P064E - Control Module	P0651 - Sensor Reference	POSS7 - Sensor Reference Votage 3 Circuit Open	P06A3 - Sensor Reference Vortage 4 Circuit Open	P2008 - Carnehall Position Actuator Control Circuit Low	P2089 - Carrehalt Position Actuator Control Circuit High	P2050 - Exhaust Cernshell	ft P2001 - Exhaust Correlat	P2092 - Wales Correlat Pasition Adustor Control Circuit Low Bank 2	P2093 - Intake Camshaft	P2094 - Exhaust Cernsheft	P2066 - Exhaust Corrishoft	P2096 - Post Catalyst Fuel	P2097 - Post Catalyst Fuel	P2096 - Post Catalyst Fuel	CONTINUED NEXT LINE
	Purge Sciencid Control Circuit High Bank 2 P2009 - Post Catalyst Fuel	Purge Sciencid Performance Bank 2 P2128 - Throttle Position Sensor 2 Performance Bank 2	Purge Sciencid Performance Bank 1 P212G - Throttle Position	Carnebell Position System Performance Bank 1 P212D - Throttle Position	Correbat Position System Performance Bank 2 P2176 - Minimum Throttle	P216A - Minimum Throttle	Oxygen Sensor Bank 1 Senso 1 System Performance P2195 - Oxygen Sensor Sign	or Oxygen Sensor Bank 2 Senso 1 System Performance # P2196 - Oxygen Sensor Signa	Votage 2 Circuit Open  P2197 - Oxygen Sensor Signs Blased Leon Bank 2 Sensor	Votage 3 Circuit Upon  IP 2196 - Oxygen Sensor Signs Blased Rich Bank 2 Sensor 1	P2237 - Oxygen Sensor Pumping Current Control Circuit Open Bank 1 Sensor 1	P2240 - Oxygen Sensor Pumping Current Control Grout Open Bank 2 Sensor 1	P2251 - Oxygen Sensor Low Reference Circuit Open Sens 1 Sensor 1	Position Actuator Control Circuit Low Bank 1 P2254 - Oxygen Sensor Lo Ballacarco Circuit Oxan Bank	Position Actuator Control Circuit High Bank 1 ow P2297 - Oxygen Sensor Out- ik 2 Range During Deceleration Bank 1 Sensor 1	Grout Low Bank 2  P 2298 - Oxygen Sensor Out of Banks During Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Daniel Dani	Position Actuator Control Circuit High Bank 2 of P2626 - Oxygen Sensor Purping Current Trim Circuit	Position Actuator Control Circuit Low Bank 2 P2629 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 2 Sensor 1	Position Actuator Control Circuit High Bank 2 P3008 - Control Module	Processor Santal Parintensia	Trim System High Limit Bank     U6607 - Lost Communication     With Thereta Province Sensor	Trim System Low Limit Bank 2  U0688 - Lost Communication With Thronta Position Samer	CONTINUED NEXT LINE
	Trim System High Limit Book 2 U13ED - Invalid Data Received From Throttle Position Sensor	1 U136F - Invalid Data Receive	Sensor 2 Circuit Low Bank 2 END	Sensor 2 Circuit High Bank 2	Position Not Learned	Position Not Learned Bank 2	Biased Lean Bank 1 Sensor	1 Blased Rich Bank 1 Sensor 1	Blased Leon Bank 2 Sensor 1	Blased Rich Bank 2 Sensor 1	Circuit Open Bank 1 Sensor 1	Circuit Open Bank 2 Sensor 1	Sensor 1	Sensor 1	Bank 1 Sensor 1	Bank 2 Sensor 1	Purping Current Trim Circui Open Bank 1 Sensor 1	Open Blank 2 Sensor 1	Interface Bus 3	Processor Sarial Peripheral Interface Bus 4	Bonk 1 Sensor 2	With Throttle Position Sensor Bank 2 Sensor 2	
	P000A - Carretati Postion System Slow Response Bank	From Throtte Position Senso Bank 2 Sensor 2 P0008 - Exhaust Carrelant Desiring Senters Sing	P000C - Intellor Carrestwit Position System Slow Response Bank 2	PODDO - Exhaust Comehaft Position System Slow Response Bank 2	P0010 - Carrishaft Position Actuator Control Circuit Oper	P0011 - Camshaft Position System Performance	P0013 - Exhaust Correliati Position Actuator Control Circuit Open Bank 1	P0014 - Exhaust Carrelraft Position System Performance Bank 1	P0016 - Crankshaft to Camshaft Correlation	P0017 - Crankshaft to Exhaus	P0018 - Crankshaft to Intake Camahaft Corestation Bank 2	P0019 - Cronkshaft to Exhaust Camahaft Correlation Bank 2	P0020 - Intake Carrelnaft Position Actuator Control Circuit Open Bank 2	P0021 - Intake Carretell Design System Barbonne	t P0003 - Exhaust Correlati ne Position Actuator Control Circuit Open Bank 2	P0024 - Exhaust Carrehalt Position System Performance Bank 2	P0020 - Oxygen Sensor Heat Control Circuit Open Bank 1 Sensor 1	er P0031 - Caygen Sensor Heats Control Circuit Low Bank 1 Sensor 1	er PCCC2 - Oxygen Sensor Heate Control Circuit High Bank 1 Sensor 1	er P0050 - Oxygen Sensor Heat Control Circuit Cree Breis S	er P0351 - Oxygen Senecr Heate Control Circuit Low Bank 2 Sensor 1	P0062 - Caygen Sensor Heater Control Glouit High Bank 2 Sensor I	CONTRA IED NEVT LINE
	Bystem Slow Response Bank : P0096 - Intake Air Temperatum Sensor 2 Performance	Position System Slow Response Bank 1 P0097 - Intake Air Temperatu Sensor 2 Circuit Low	Response Bank 2 P0098 - Intake Air Temperatur	Response Bank 2 re P0099 - Intake Air Temperatur Bensor 2 Circuit Ernatio	PEGAB - Intake Air Temperature Sensor 2 Performance Bank 2	PODA? - Make Air Temperature Seneor 2 Circu Low Bank 2	P00A8 - Intake Air	P00A9 - Intake Air	P0121 - Throtile Position Sensor Performance	P0122 - Throttle Position Sensor Circuit Low	Carrishalt Correlation Bank 2 P0123 - Throttle Position Sensor Circuit High	Camshaft Correlation Bank 2  P0130 - HO2S Circuit Bank 1  Sensor 1	Circuit Open Bank 2 P0131 - Oxygen Sensor Circui	Position System Performans Bank 2 P0132 - Oxygen Sensor Circ High Bank 1 Sensor 1	Circuit Open Bank 2 out P0133 - Oxygen Sensor Stor Response Bank 1 Sensor 1	Bank 2 P0150 - HD25 Circuit Bank 2 Sensor 1	Sensor 1 P0151 - Caygen Sensor Circu	Sensor 1 it P0152 - Oxygen Sensor Circu	Sensor 1  If P0153 - Oxygen Sensor Slow Response Bank 2 Sensor 1	Sensor 1  P0221 - Throdile Position Sensor 2 Performance	Bersor 1  P0222 - Throtile Position Sensor 2 Circuit Low	Sensor 1  P0223 - Throtile Position Sensor 2 Circuit High	CONTRACTOR
	P0226 - Throise Position	Sensor 2 Circuit Low P0227 - Throdile Position Sensor Circuit Low Bank 2	Sensor 2 Circuit High  P0228 - Throttle Position Sensor Circuit High Bank 2	Sensor 2 Circuit Erratio  P0300 - Engine Markes  Detected	Performance Bank 2 P0301 - Cylinder 1 Markes Detected	Low Bank 2 P0302 - Cylinder 2 Meline Detected	High Bank 2  POSCS - Cylinder 3 Minfre Detected	# Temperature Sensor 2 Circuit Erratic Bank 2 PC004 - Cylinder 4 Misfire Detected	Sensor Performance P0305 - Cylinder 5 Missine	P0306 - Cylinder 6 Mistine	Sensor Circuit High  P0307 - Cylinder 7 Misline Detected	PC003 - Cylinder 8 Minfire Detected	Low Bank 1 Sensor 1  P0335 - Crankshaft Position Sensor Circuit.	P0036 - Crankshaft Positio	on POS4A - Crankshaft Position	PCS4B - Crankshaft Position	Low Bank 2 Sensor 1  P0643 - Evaporative Emissio Purge Solanoid Control Circu	High Bank 2 Sensor 1  P0458 - Evaporative Emissio It Purge Schenoid Control Circui	n P0459 - Evaporative Emission	Sensor 2 Performance  P0496 - Evaporative Emissio it System Flow During Non-	n P04AB - Evaporative Emission	POSAC - Evaporative Emission Purge Solenoid Control Circuit	CONTINUED NEXT LINE
P2E6A - Fuel Trim System Lean During Cylinder Deactivation Bank 2	Sensor Performance Bank 2 PO4AD - Exaporative Emission	Sensor Circuit Low Bank 2  PD4AE - Exaporative Emission Purge Solenoid Performance Bank 2	DMDE - Evaporativa Emission	P05CC - Cold Start Intake Carrishaft Position System Performance Bank 1	P05CD - Cold Start Intake Camshaft Position System Performance Bank 2	P0841 - Sensor Reference Voltage 1 Circuit Open	P064D - Control Module Oxygen Sensor Bank 1 Senso 1 System Performance	P064E - Control Module or Oxygen Sensor Bank 2 Senso 1 System Performance	P0851 - Sensor Reference Vollage 2 Circuit Open	P0507 - Sensor Reference Voltage 3 Circuit Open	PS6A3 - Sensor Reference Voltage 4 Circuit Open	P2098 - Carnshaft Position Actuator Control Circuit Low	Sensor Circuit  P2089 - Carrehalt Position Actuator Control Circuit High	P2090 - Exhaust Carretel Position Actuator Control Circuit Low Bank 1	Sensor Start Position Income the P2091 - Exhaust Carnehalt Position Actuator Control Circuit High Bank 1	P2092 - Intake Cametall Position Actuator Control Circuit Law Bank 2	Open P2093 - Intake Camehalt Position Actuator Control Circuit High Bank 2	Low P2094 - Exhaust Carrishell Position Actuator Control Circuit Low Bank 2	Purge Selembid Control Circui High  P2005 - Exhaust Cornehalt  Problem Actuator Control	Purge Purge P2008 - Post Catalyst Fuel Trip Sestem Low Limit Bank	Open Bank 2	Low Bank 2  P2016 - Post Catalyst Fuel Trim System Low Limit Bank 2	CONTINUED NEXT LINE
	POMAD - Exaporative Emission Purge Selencid Control Circuit High Bank 2 P2099 - Post Catalyst Fuel	Bank 2 P2128 - Throttle Position	Purge Solencid Performance Bank 1 P212C - Throttle Position	Performance Bank 1  P212D - Throttle Position Sensor 2 Circuit High Bank 2									P2251 - Oxygen Sensor Low	P2254 - Oxygen Sensor Lo	ow P2257 - Oxygen Sensor Out	P2298 - Oxygen Sensor Dut o	of P2626 - Oxygen Sensor		Circuit High Bank 2	P2009 - Control Module	U0607 - Lost Communication	U0688 - Lost Communication	CONTINUED NEXT LINE
	P2099 - Post Catalyst Fuel Trim System High Limit Sank 2 U1360 - Invalid Data Received From Throttle Position Sensor	Sensor 2 Performance Bank	Sensor 2 Circuit Low Bank 2	Sensor 2 Circuit High Bank 2	P2176 - Minimum Throtile Position Not Learned	Position Not Learned Bank S	P2195 - Oxygen Sensor Sign Blassed Lean Bank 1 Sensor	1 Blassed Rich Bank 1 Sensor 1	P2197 - Oxygen Sensor Signa Biased Lean Bank 2 Sensor 1	P2196 - Oxygen Sensor Signs Blassed Rich Bank 2 Sensor 1	P2237 - Oxygen Sensor Pumping Current Control Circuit Open Bank 1 Sensor 1	P2240 - Oxygen Sensor Pumping Current Control Circuit Open Bank 2 Sensor 1	Reference Circuit Open Bank 1 Sensor 1	Reference Circuit Open Bank Sensor 1	k 2 Range During Deceleration Bank 1 Sensor 1	Range During Deceleration Bank 2 Sensor 1	Pumping Current Trim Circui Open Bank 1 Sensor 1	P2629 - Oxygen Sensor Pumping Current Trim Circuit Open Benk 2 Sensor 1	Processor Serial Peripheral Interface Bus 3	Interface Bus 4	With Throttle Position Sensor Bank 1 Sensor 2	With Throtile Position Sensor Bank 2 Sensor 2	CONTINUED NEXT LINE
	2	Bank 2 Sensor 2		P0000 - Exhaust Corrishoft	P0010 - Carrehalt Position	P0011 - Campbalt Position	P0013 - Exhaust Comshaft	P0014 - Exhaust Carnshaft	P0016 - Crankshaft to	P0017 - Crankshaft to Extraor	P0018 - Crankshaft to Intake Camshaft Correlation Bank 2	P0019 - Crankshaft to Exhaust	P0020 - Issake Camshaft	P0021 - Insake Carnshaft	t P0023 - Exhaust Camshaft	P0024 - Exhaust Carrishaft	P0030 - Oxygen Sensor Heat	er P0031 - Oxygen Sensor Heat	er P0032 - Oxygen Sensor Heats	er P0050 - Oxygen Sensor Heat	er P0051 - Oxygen Sensor Heats	P0062 - Oxygen Sensor Heater	
	P000A - Carrehaft Position System Slow Response Bank P000B - Intelle for Terroportion	P001B - Exhaust Carrishaft Position System Slow Response Bank 1  P0007 - Intaka Air Temperatu	P000C - Intake Camshaft Position System Slow Response Bank 2 a P0008 - Intake Air Temperatur	P0000 - Exhaust Carrishaft Position System Slow Response Bank 2	P0010 - Carrahaft Position Actuator Control Circuit Oper P00A5 - Intake Air	P0011 - Camshaft Position System Performance P00A7 - Intake Air	P0013 - Exhaust Camshaft, Position Actuator Control Groutt Open Bank 1 P00A6 - Intake Air Temperature Sensor 2 Circuit	P0014 - Exhaust Camshaft Position System Performance Bank 1 P0040 - Intake Air Temperature Sensor 2 Circuit Ernatic Bank 2	P0016 - Crankshaft to Camphaft Correlation	P0017 - Crankshaft to Exhaus Correlation Bank 1			P0020 - Istake Camshaft Position Actuator Control Circuit Open Bank 2	P0021 - Istake Camshaft Position System Performant Bank 2		P0024 - Exhaust Carrishaft Position System Performance Bank 2	P0030 - Oxygen Sensor Heat Control Circuit Open Bank 1 Sensor 1	P0031 - Oxygen Sensor Heats Control Circuit Low Bank 1 Sensor 1	P0032 - Oxygen Sensor Heate Control Circuit High Bank 1 Sensor 1			P0062 - Oxygen Sensor Heater Control Circuit High Bank 2 Sensor 1	CONTINUED NEXT LINE
	P0006 - Intako Air Temperatur Sensor 2 Performance P0226 - Throttle Position	Sensor 2 Circuit Low	Sensor 2 Circuit High P0228 - Thrortie Position	90009 - Intake Air Temperatur Sensor 2 Circuit Erratic	Performance Bank 2 P0301 - Cylinder 1 Misfire	Low Bank 2 P0302 - Cylinder 2 Misfire	High Bank 2	Erratic Bank 2 P0304 - Cylinder 4 Misfire	P0121 - Throttle Position Sensor Performance P0305 - Cylinder 5 Misfire	P0122 - Throttle Position Sensor Circuit Low P0306 - Cylinder 6 Mistire	P0123 - Throttle Position Sensor Circuit High P0307 - Cylinder 7 Misfire	P0130 - HCQS Circuit Bank 1 Senecr 1 P0308 - Cylinder 8 Mistire	P0131 - Oxygen Sensor Circuit Low Bank 1 Sensor 1	P0132 - Oxygen Sensor Circ High Bank 1 Sensor 1 P0396 - Crankshaft Positio	P0133 - Oxygen Sensor Slov Response Bank 1 Sensor 1	P0150 - H028 Circuit Bank 2 Sensor 1	P0151 - Oxygen Sensor Circ. Low Bank 2 Sensor 1 P0413 - Exsporative Emissio	et P0152 - Oxygen Sensor Circu High Bank 2 Sensor 1 P0455 - Evaporative Emission	P0153 - Oxygen Sensor Slow Response Bank 2 Sensor 1 P0459 - Evaponsive Emission		P0222 - Throtile Position Sensor 2 Circuit Low n P04AB - Evaporative Emission	P0223 - Throdie Position Sessor 2 Circuit High P04AC - Exspositive Emission	CONTINUED NEXT LINE
P2008 - Fuel Trim System Rich During Cylinder Deactivation Bank 2	P0226 - Throttle Position Sensor Performance Bank 2 P04AD - Evaporative Emission	P0227 - Throttle Position Sensor Circuit Low Bank 2 P04AE - Exaponative Emissio	P0228 - Throttle Position Sensor Circuit High Bank 2 P040F - Evaponative Emission	P0900 - Engine Misfire Detected  P0900 - Cold Start Intake	P05CD - Cold Start Intake	Detected  P0841 - Sensor Reference	P064D - Control Module	P064E - Control Module	Defected P0651 - Sensor Reference	Detected P0897 - Sensor Reference	Detected P06A3 - Sensor Reference	Denocaso	P0335 - Crankshaft Position Sensor Circuit  P2089 - Carretraft Position	Sensor Performance P2000 - Exhaust Cerrishel	Sensor Start Position Income  ft P2091 - Exhaust Cerrelwit	P2002 - Inside Coment Pasition Adaptor Control	Purge Solenoid Control Circu Open P2093 - Intake Carrehalt	Purge Sciencid Control Circui Low P2094 - Exhaust Carrehalf	Purge Selenoid Control Circui High P2006 - Exhaust Correlat	P0496 - Evaporative Emission it System Flow During Non- Purge  P2096 - Post Catalyst Fire	Purge Selenold Control Circuit Open Bank 2 P2097 - Post Catalyst Fuel	PO4AC - Exaponative Emission Purge Selenoid Control Circuit Low Bank 2 P2096 - Post Catalyst Fuel	CONTINUED NEXT LINE
	Purge Selenold Control Circuit High Bank 2	Purge Solenoid Performance Bank 2	Purge Sejencid Performance Bank 1	Carnebaff Position System Performance Bank 1	Carrehaft Position System Performance Bank 2	Voltage 1 Circuit Open	Oxygen Sensor Bank 1 Senso 1 System Performance	or Oxygen Sensor Bank 2 Senso 1 System Performance	Voltage 2 Circuit Open	Voltage 3 Circuit Open	Voltage 4 Circuit Open	P2088 - Carrehaft Position Actuator Control Circuit Low P2240 - Oxygen Sensor	Actuator Control Circuit High	Position Actuator Control Circuit Low Bank 1 P2254 - Oxygen Sensor Lov	Circuit High Bank 1	Circuit Low Bank 2	Position Actuator Control Circuit High Bank 2 F2626 - Oxygen Sensor	Position Actuator Control Circuit Low Bank 2 P2629 - Oxygen Sensor	Position Actuator Control Circuit High Bank 2 P3008 - Control Module	Trim System Low Limit Bank	1 Trim System High Limit Bank	Trim System Low Limit Bank 2	сомтрыев мехт цме
	P2009 - Post Catalyst Fuel Trim System High Limit Bank 2 U1360 - Invelid Data Received	P2125 - Throdis Position 2 Sensor 2 Performance Bank : 1 U136F - Invelid Data Receive	P212C - Throttle Position Sensor 2 Circuit Low Bank 2	P212D - Throthis Position Sensor 2 Circuit High Bank 2	P2176 - Minimum Throtile Position Not Learned	Position Not Learned Bank 2	Blased Lean Bank 1 Sensor	P2196 - Oxygen Serreor Signe 1 Biased Rich Bank 1 Sensor 1	P2197 - Oxygen Sensor Signs Blased Lean Bank 2 Sensor	P2195 - Oxygen Senecr Signs Blased Rich Bank 2 Sensor 1	P2237 - Oxygen Sensor Pumping Current Control Circuit Open Bank 1 Sensor 1	P2240 - Oxygen Sensor Pumping Current Control Circuit Open Bank 2 Sensor 1	P2251 - Oxygen Sensor Low Reference Circuit Open Bank 1 Sensor 1	P2254 - Oxygen Sensor Lo Reference Circuit Open Bani Sensor 1	P2297 - Oxygen Sensor Out- Range During Deceleration Bank 1 Sensor 1	F P2298 - Oxygen Sensor Out o Range During Deceleration Bank 2 Sensor 1	P2626 - Oxygen Sensor Purping Current Trim Circui Open Bank 1 Sensor 1	P2629 - Oxygen Sensor Pumping Cumant Trim Circui Open Bank 2 Sensor 1	P3008 - Control Module Processor Serial Perphenal Interface Bus 3	P30D9 - Control Module Processor Serial Peripheral Interface Bus 4	U0607 - Lost Communication With Throttle Position Sensor Bank 1 Sensor 2	U0688 - Lost Communication With Throtale Position Sensor Bank 2 Sensor 2	CONTINUED NEXT LINE
20074 2020 2000 400 400	From Throttle Position Sensor 2	From Throttle Position Senso Bank 2 Sensor 2	END																				
P3061 - DC/DC Convertor Output Voltage Sensing Circuit 1 Low																							
P3052 - DC/DC Converter Output Voltage Sensing Circuit 2 Low																							
P3063 - DCIDC Convertor Output Voltage Sensing Circuit 1 High																							
P9854 - OCIDC Conventor Output Voltage Sensing Circuit 2 High																							
P3056 - OCIDC Convertor Output Voltage 1 Performance																							
P3056 - DC/DC Convertor Output Voltage 2 Performance																							
P2008 - DCIDC Converter Ignition Switch Run/Start Position Circuit High																							
PS05C DC/DC Conventer Ignition Switch RuryStart Position Circuit Low																							
P305D - DCIDC Converter Crank Input Signal Circuit High Voltage																							
P305E - DCIDC Converier Crank Input Signal Circuit Low Votage																							
P2006 - Control Module Processor Serial Peripheral Interface Bus 1																							
PSECT - Control Module Processor Sectal Peripheral Interface Bus 2	END POSAD - Control Module																						
PS0D8 - Control Module Processor Sensi Peripheral Interface Bus 3	Oxygen Sensor Bank 1 Sensor 1 System Performance P564E - Control Module	END																					
P2009 - Control Module Processor Serial Peripheral Interface Bus 4	Oxygen Sensor Bank 2 Sensor 1 System Performance	END		T	1	T	P0638 - Thorste Activator	P2100 - Thursde Actuator	T	PNDS - Control Module													
P30E3 - Clased Throttle Position Exceeded Maximum Learning Limit	P0121 - Throtile Position Sensor Performance	P0122 - Throttle Position Sensor Circuit Low	P0123 - Throttle Position Sensor Circuit High	P0221 - Throttle Position Sensor 2 Performance	P0222 - Throttle Position Sensor 2 Circuit Low	P0223 - Throttle Position Sensor 2 Grout High	P0638 - Throttle Actuator Control Command Performance P0638 - Throttle Actuator	P2100 - Throttle Actuator Control Motor Control Circuit Open  P2100 - Throttle Actuator	P2101 - Throtile Actuator Position Performance	P3006 - Control Module Processor Serial Peripheral Interface Bus 1	END												
P30E4 - Closed Throthe Position Exceeded Minimum Learning Limit P30E5 - Closed Throthe Position	P0121 - Throttle Position Sensor Performance	P0122 - Throttle Position Sensor Circuit Low	P0123 - Throtile Position Sensor Circuit High	P0221 - Throttle Position Sensor 2 Performance	P0222 - Throttle Position Sensor 2 Circuit Low	P0223 - Throttle Position Sensor 2 Circuit High	Control Command Performance	Control Motor Control Circuit Open	P2101 - Throtile Actuator Position Performance	P3506 - Control Module Processor Serial Peripheral Interface Bus 1	END												
Bank 2	P0226 - Throttle Position Sensor Performance Bank 2	P0227 - Throttle Position Sensor Circuit Low Bank 2	P0228 - Throtile Position Sensor Circuit High Bank 2	P0639 - Throttle Actuator Control Command Performance Bank 2 P0639 - Throttle Actuator	P210A - Throttle Actuator Control Motor Control Circuit Open Bank 2 P210A - Throttle Actuator	P2108 - Throttle Actuator Position Performance Bank	P2128 - Throde Position Sensor 2 Performance Bank	P212C - Throttle Position 2 Sensor 2 Circuit Low Bank 2	P212D - Throttle Position Sensor 2 Circuit High Bank 2	P3007 - Control Module Processor Serial Peripheral Interface Bus 2 P3007 - Control Module	END												
P3056 - Closed Throttle Position Esceeded Minimum Learning Limit Bank 2	P0226 - Throttle Position Sensor Performance Bank 2	P0227 - Throttle Position Sensor Circuit Low Bank 2	P0228 - Throtile Position Sensor Circuit High Bank 2	Control Command Performance Bank 2	Control Motor Control Circuit Open Bank 2	P2108 - Throttle Actuator Position Performance Bank :	P212B - Throde Position Sensor 2 Performance Bank	P212C - Throttle Position 2 Sensor 2 Circuit Low Bank 2	P212D - Throttle Position Sensor 2 Circuit High Bank 2	Processor Serial Peripheral Interface Bus 2	END												
P30E7 - Throttly Rest Position Not Reached During Learn Bank 2	P0226 - Throttle Position Sensor Performance Bank 2	P0227 - Throdie Position Sensor Circuit Low Bank 2	P0228 - Throttle Position Sensor Circuit High Bank 2	P0639 - Throttle Actuator Control Command Performance Bank 2	P210A - Throttle Accustor Control Motor Control Circuit Open Bank 2	P2108 - Throofis Actuator Position Performance Bank	P2128 - Throde Position Sensor 2 Performance Bank	P212C - Throitis Position 2 Sensor 2 Circuit Low Bank 2	P212D - Throdie Position Sensor 2 Circuit High Bank 2	P3007 - Control Module Processor Serial Peripheral Interface Bus 2	END												
P30E8 - Turbochinger A Westegelde Control Circuit 2 Low																							
P30E9 - Turbocharger A Wastegate Control Circuit 2 High																							
P30EA - Turbochanger B Wastegate Control Circuit 2 Low																							
P30EB - Turbochseger B Wastegete Control Circuit 2 High																							
P3138 - Fuel Pressure Regulator High Control Circuit Low Bank 2																							
P3139 - Fuel Pressure Regulator High Control Circuit High Bank 2																							
P313A - Fuel Pressure Regulator High Control Clinuit Shorted to Control Circuit Bank 2																							
P318A - Cylinder 2 Reactivation Performance - Trapped High Pressure Exhaust Charge																							
P3169 - Cylinder 3 Reactivation Performance - Triapped High Pressure Entreust Charge																							



The DTCs in these columns inhibit the DTC to the left

The DTCs in this column is				
The DTCs in this column is nhibited by the DTCs listed to the right Inhibited DTC		The DTCs in these columns inhibit the DTC to the left Fault Active DTCs	The DTCs in these columns inhibit the DTC to the left Fault Active DTCs	
1644 - Lost Communication With bocharger A Wastegate Position Sensor	END			
4 - Lost Communication With charger B Wastegate Position Sensor	END			
80 - Lost Communication With metric Pressure Sensor Bank 2 Sensor 1	END			
Lost Communication With sition Sensor Bank 2 Sensor 2	P0097 - Sensor Reference Votage 3 Circuit Open	END		
- Lost Communication With the Pressure Sensor Bank 1 Sensor 2	END			
Lost Communication With Fuet Issue Sensor Bank 1 Sensor 2	P0651 - Sensor Reference Voltage 2 Circuit Open	END		
D - Invalid Data Received From I Pump Driver Control Module	END			
- Engine Control Module LIN Bus 1	END			
Engine Control Module LIN Bus 2	END			
Engine Control Module LIN Bus 4	END			
9 - Engine Control Module LIN Bus 5	END			
35E - Lost Communication with snamission Control Module on gine Control Module LIN Bus 1	END			
gine Control Module UN Bus 1 6C - Invalid Data Received From Throttle Position Sensor 1	END			
ID - Invalid Data Received From Throdge Position Sensor 2	P0841 - Sensor Reference Voltage 1 Circuit Open	P0963 - Bereior Reference Weltings 4 Clocal Open END		
E - Invalid Data Received From Position Sensor Bank 2 Sensor	END	- Andrew Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communication Communi		
1 F - Invalid Data Received From a Position Sensor Bank 2 Sensor	P0897 - Sensor Reference Voltage 3 Circuit Open	END		
2 1 - Invalid Data Received From the Air Temperature Sensor 1	END			
Invalid Data Received From metric Pressure Sensor 2	END			
- Invalid Data Received From ir Temperature Sensor Bank 2 Sensor 1	END			
Sensor 1 did Data Received From Pressure Sensor Bank 2 Sensor 1	P0551 - Sensor Reference Voltage 2 Circuit Open	END		
Sensor 1 rvolki Data Received From Rail Pressure Sensor 1	Votage 2 Circuit Open END			
M Pressure Sensor 1	P0851 - Sensor Reference Voltage 2 Circuit Open	END		
Reil Pressure Sensor 2 Invelid Data Received From larger Wastegate Position Bersor Bank 1	Voltage 2 Circuit Open END			
Sensor Bank 1  Invalid Data Received From harger Wastegate Position Sensor Bank 2	END			
Sensor Bank 2  Eyenjid Data Received From perature Coolant Loop Pump	END			
emperature Coolant Loop Pump 2 - Lost Communication With Fuel Pump Driver Control Module	END			
	END			
IBA7 - Lost Communication with DC Converter Control Module on towerthain Expansion CAN Bus 26 - Transmission Range Selector into Module Lost Communication ECM on Powertrain Sensor CAN				
ECM on Powertrain Sensor CAN Bus C7 - Transmission Range Selector and Models Lost Communication in ECM on Powertrain Expansion CAN Bus	END			
th ECM on Powertrain Expansion CAN Bus 18D2 - Lost Communication with nomission Range Selector Commu- ule on Powertrain Sensor CAN Bus	END			
ssion Range Selector Control in Powertrain Sensor CAN Bus  1 - Lost Communication with	END			
Lost Communication with ssion Range Selector Control in Powerbain Expansion CAN Bus  Central Gelevier Module Lost	END			
Sentral Gateway Module Lost ilization with Engine Control Module Sentral Gateway Module Lost	END			
Central Gateway Module Lost unication with Transmission Control Module Central Gateway Module Lost	END			
Central Gateway Module Lost unication with Brake System Control Module 1	END			
Transmission Range Selector lodgle Powertrain Expansion CAN Bus Off	END			
E - Transmission Range Selector rol Module Sensor CAN Bus Off	END			
H3 - Central Gateway Module High Speed CAN Bus Off	END			
3414 - Central Cateway Module High Speed Extension CAN Bus Off	END			
2500 - Invested Data Received From ransmission Control Module on LIN Bus	END			

The DTCs in these columns inhibit the DTC to the left

This document is intended to meet the requirements documented in section 1968.2 of Title 13, California Code of Regulations entitled Modifications to Malfunction and Diagnosis System Requirements for 2004 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles and Engines (OBD II), paragraphs (i)(2.2) for a table detailing **supplemental** calibration parameter data.

DTC				Additional Basic Enable Conc	itio
B071F - Transmission Range Indicator	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
B2A00 - Door Open Switch Signal - Door Ajar Switch Signal Correlation	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
B2B0D - Central Gateway Module Ignition Switch Run/Start Position Circuit Low	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END		
B2B0E - Central Gateway Module Ignition Switch Run/Start Position Circuit High	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END		
B2B11 - Central Gateway Module System Voltage Low	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END		
B2B12 - Central Gateway Module Control Module Memory	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END		
B2B13 - Central Gateway Module Control Module Internal Performance	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END		
P000A - Camshaft Position System Slow Response Bank 1	Battery saver mode not active	END			
P000B - Exhaust Camshaft Position System Slow Response Bank 1	Battery saver mode not active	END			
P000C - Intake Camshaft Position System Slow Response Bank 2	Battery saver mode not active	END			
P000D - Exhaust Camshaft Position System Slow Response Bank 2	Battery saver mode not active	END			
P0010 - Camshaft Position Actuator Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0011 - Camshaft Position System Performance	Battery saver mode not active	END			
P0013 - Exhaust Camshaft Position Actuator Control Circuit Open Bank 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0014 - Exhaust Camshaft Position System Performance Bank 1	Battery saver mode not active	END			
P0016 - Crankshaft to Camshaft Correlation	Battery saver mode not active	END			
P0017 - Crankshaft to Exhaust Camshaft Correlation Bank 1	Battery saver mode not active	END			
P0018 - Crankshaft to Intake Camshaft Correlation Bank 2	Battery saver mode not active	END			
P0019 - Crankshaft to Exhaust Camshaft Correlation Bank 2	Battery saver mode not active	END			
P0020 - Intake Camshaft Position Actuator Control Circuit Open Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0021 - Intake Camshaft Position System Performance Bank 2	Battery saver mode not active	END			
P0023 - Exhaust Camshaft Position Actuator Control Circuit Open Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0024 - Exhaust Camshaft Position System Performance Bank 2	Battery saver mode not active	END			
P0030 - Oxygen Sensor Heater Control Circuit Open Bank 1 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0031 - Oxygen Sensor Heater Control Circuit Low Bank 1 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0032 - Oxygen Sensor Heater Control Circuit High Bank 1 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0033 - Boost Bypass Valve A Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0034 - Boost Bypass Valve A Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0035 - Boost Bypass Valve A Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0036 - Oxygen Sensor Heater Control Circuit Open Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
20037 - Oxygen Sensor Heater Control Circuit Low Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0038 - Oxygen Sensor Heater Control Circuit High Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
20050 - Oxygen Sensor Heater Control Circuit Open Bank 2 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0051 - Oxygen Sensor Heater Control Circuit Low Bank 2 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0052 - Oxygen Sensor Heater Control Circuit High Bank 2 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	

P0056 - Oxygen Sensor Heater Control Circuit Open Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal	Battery saver mode not active	Additional Basic E	Enable Conditions
Sensor 2  P0057 - Oxygen Sensor Heater Control Circuit Low Bank 2 Sensor 2	Battery voltage is equal to or above 10.9 V	to run mode)  Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0058 - Oxygen Sensor Heater Control Circuit High Bank 2 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0071 - Ambient Air Temperature Sensor Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0072 - Ambient Air Temperature Sensor Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0073 - Ambient Air Temperature Sensor Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0074 - Ambient Air Temperature Sensor Circuit Intermittent	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	Engine is not in ready state (which is active when the ignition is on or following a stall of the engine)	END
P0089 - Fuel Pressure Regulator Performance	Battery saver mode not active	END			
P0090 - Fuel Pressure Regulator Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0091 - Fuel Pressure Regulator Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0092 - Fuel Pressure Regulator Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0096 - Intake Air Temperature Sensor 2 Performance	Battery saver mode not active	END			
P0097 - Intake Air Temperature Sensor 2 Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0098 - Intake Air Temperature Sensor 2 Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0099 - Intake Air Temperature Sensor 2 Circuit Erratic	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	Engine is not in ready state (which is active when the ignition is on or following a stall of the engine)	END
P00A6 - Intake Air Temperature Sensor 2 Performance Bank 2	Battery saver mode not active	END			•
P00A7 - Intake Air Temperature Sensor 2 Circuit Low Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P00A8 - Intake Air Temperature Sensor 2 Circuit High Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P00A9 - Intake Air Temperature Sensor 2 Circuit Erratic Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	Engine is not in ready state (which is active when the ignition is on or following a stall of the engine)	END
P00AB - Intake Air Temperature Sensor 1 Performance Bank 2	Battery saver mode not active	END			1
P00AC - Intake Air Temperature Sensor 1 Circuit Low Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P00AD - Intake Air Temperature Sensor 1 Circuit High Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P00AE - Intake Air Temperature Sensor 1 Circuit Erratic Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	Engine is not in ready state (which is active when the ignition is on or following a stall of the engine)	END
P00C0 - Boost Bypass Valve B Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P00C1 - Boost Bypass Valve B Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P00C2 - Boost Bypass Valve B Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P00C4 - Boost Bypass Valve B Stuck P00C9 - Fuel Pressure	Battery saver mode not active	END			1
Regulator High Control Circuit Low  P00CA - Fuel Pressure	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)  Engine not in starting mode (defined	Battery saver mode not active	END	
Regulator High Control Circuit High	Battery voltage is equal to or above 10.9 V	as engine crank with speed not equal to run mode)  Engine not in starting mode (defined	Battery saver mode not active	END	
P0101 - Mass Air Flow Sensor Performance	Battery voltage is equal to or above 10.9 V	as engine crank with speed not equal to run mode)  Engine not in starting mode (defined	Battery saver mode not active	END	
P0102 - Mass Air Flow Sensor Circuit Low	Battery voltage is equal to or above 10.9 V	as engine crank with speed not equal to run mode)  Engine not in starting mode (defined	Battery saver mode not active	END	
P0103 - Mass Air Flow Sensor Circuit High	Battery voltage is equal to or above 10.9 V	as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0106 - Manifold Absolute Pressure Sensor Performance P0107 - Manifold Absolute	Battery voltage is equal to or above	END  Engine not in starting mode (defined			I
Pressure Sensor Circuit Low	Battery voltage is equal to or above 10.9 V	as engine crank with speed not equal to run mode)  Engine not in starting mode (defined	Battery saver mode not active	END	
P0108 - Manifold Absolute Pressure Sensor Circuit High P010B - Mass Air Flow Sensor	Battery voltage is equal to or above 10.9 V	as engine crank with speed not equal to run mode)  Engine not in starting mode (defined	Battery saver mode not active	END	
P010B - Mass Air Flow Sensor 2 Performance P010C - Mass Air Flow Sensor	Battery voltage is equal to or above 10.9 V  Battery voltage is equal to or above	as engine crank with speed not equal to run mode)  Engine not in starting mode (defined	Battery saver mode not active	END	
P010C - Mass Air Flow Sensor 2 Circuit Low	Battery voltage is equal to or above 10.9 V	as engine crank with speed not equal to run mode)	Battery saver mode not active	END	

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P010D - Mass Air Flow Sensor 2 Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	Additional Basic E	Enable Conditions
P0111 - Intake Air Temperature Sensor Performance	Battery saver mode not active	END			'
P0112 - Intake Air Temperature Sensor Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0113 - Intake Air Temperature Sensor Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0114 - Intake Air Temperature Sensor Circuit Erratic	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	Engine is not in ready state (which is active when the ignition is on or following a stall of the engine)	END
P0116 - Engine Coolant Temperature Sensor Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0117 - Engine Coolant Temperature Sensor Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0118 - Engine Coolant Temperature Sensor Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0119 - Engine Coolant Temperature Sensor Circuit Erratic	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	Engine is not in ready state (which is active when the ignition is on or following a stall of the engine)	END
P0128 - Engine Coolant Temperature Below Thermostat Regulating Temperature	Battery saver mode not active	END			
P0130 - HO2S Circuit Bank 1 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0131 - Oxygen Sensor Circuit Low Bank 1 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0132 - Oxygen Sensor Circuit High Bank 1 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0133 - Oxygen Sensor Slow Response Bank 1 Sensor 1	Battery saver mode not active	END			'
P0137 - Oxygen Sensor Circuit Low Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0138 - Oxygen Sensor Circuit High Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P013A - Oxygen Sensor Slow Response - Rich to Lean Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		'
P013B - Oxygen Sensor Slow Response - Lean to Rich Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		
P013C - Oxygen Sensor Slow Response - Rich to Lean Bank 2 Sensor 2	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		
P013D - Oxygen Sensor Slow Response - Lean to Rich Bank 2 Sensor 2	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		
P013E - Oxygen Sensor Delayed Response - Rich to Lean Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		
P013F - Oxygen Sensor Delayed Response - Lean to Rich Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		
P0140 - Oxygen Sensor Circuit Insufficient Activity Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0141 - Oxygen Sensor Heater Performance Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P014A - Oxygen Sensor Delayed Response - Rich to Lean Bank 2 Sensor 2	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		•
P014B - Oxygen Sensor Delayed Response - Lean to Rich Bank 2 Sensor 2	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		
P0150 - HO2S Circuit Bank 2 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0151 - Oxygen Sensor Circuit Low Bank 2 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0152 - Oxygen Sensor Circuit High Bank 2 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0153 - Oxygen Sensor Slow Response Bank 2 Sensor 1	Battery saver mode not active	END			
P0157 - Oxygen Sensor Circuit Low Bank 2 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0158 - Oxygen Sensor Circuit High Bank 2 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0160 - Oxygen Sensor Circuit Insufficient Activity Bank 2 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0161 - Oxygen Sensor Heater Performance Bank 2 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0171 - Fuel Trim System Lean Bank 1	Battery saver mode not active	END			
P0172 - Fuel Trim System Rich Bank 1	Battery saver mode not active	END			
P0174 - Fuel Trim System Lean Bank 2	Battery saver mode not active	END			

				Additional Basic	
DTC P0175 - Fuel Trim System Rich Bank 2	Battery saver mode not active	END		Additional Basic I	Enable Conditions
P018B - Fuel Pressure Sensor Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P018C - Fuel Pressure Sensor Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P018D - Fuel Pressure Sensor Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0191 - Fuel Rail Pressure Sensor Performance	Battery saver mode not active	END			
P0196 - Engine Oil Temperature Sensor Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0197 - Engine Oil Temperature Sensor Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0198 - Engine Oil Temperature Sensor Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0199 - Engine Oil Temperature Sensor Erratic	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	Engine is not in ready state (which is active when the ignition is on or following a stall of the engine)	END
P0201 - Fuel Injector 1 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0202 - Fuel Injector 2 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0203 - Fuel Injector 3 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0204 - Fuel Injector 4 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0205 - Fuel Injector 5 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0206 - Fuel Injector 6 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0207 - Fuel Injector 7 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0208 - Fuel Injector 8 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0234 - Boost System A Overboost Condition	Battery saver mode not active	END			•
P0236 - Turbocharger Boost Sensor Performance	Battery saver mode not active	END			
P0237 - Turbocharger Boost Sensor Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0238 - Turbocharger Boost Sensor Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0240 - Turbocharger Boost Sensor Performance Bank 2	Battery saver mode not active	END			•
P0241 - Turbocharger Boost Sensor Circuit Low Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0242 - Turbocharger Boost Sensor Circuit High Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0243 - Turbocharger A Wastegate Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0245 - Turbocharger A Wastegate Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0246 - Turbocharger A Wastegate Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0247 - Turbocharger B Wastegate Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0249 - Turbocharger B Wastegate Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0250 - Turbocharger B Wastegate Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0299 - Boost System A Underboost Condition	Battery saver mode not active	END			
P029D - Fuel Injector 1 Leak	Battery saver mode not active	END			
P02A1 - Fuel Injector 2 Leak	Battery saver mode not active	END			
P02A5 - Fuel Injector 3 Leak	Battery saver mode not active	END			
P02A9 - Fuel Injector 4 Leak	Battery saver mode not active	END			
P02AD - Fuel Injector 5 Leak	Battery saver mode not active	END			
P02B1 - Fuel Injector 6 Leak	Battery saver mode not active	END			

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P02B5 - Fuel Injector 7 Leak	Battery saver mode not active	END		Additional Basic
P02B9 - Fuel Injector 8 Leak	Battery saver mode not active	END		
P02CA - Boost System B Overboost Condition	Battery saver mode not active	END		
P02CB - Boost System B Underboost Condition	Battery saver mode not active	END		
P02EE - Cylinder 1 Injector Control Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P02EF - Cylinder 2 Injector Control Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P02F0 - Cylinder 3 Injector Control Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P02F1 - Cylinder 4 Injector Control Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P02F2 - Cylinder 5 Injector Control Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P02F3 - Cylinder 6 Injector Control Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P02F4 - Cylinder 7 Injector Control Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P02F5 - Cylinder 8 Injector Control Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P0300 - Engine Misfire Detected	Battery saver mode not active	END		
P0301 - Cylinder 1 Misfire Detected	Battery saver mode not active	END		
P0302 - Cylinder 2 Misfire Detected	Battery saver mode not active	END		
P0303 - Cylinder 3 Misfire Detected	Battery saver mode not active	END		
P0304 - Cylinder 4 Misfire Detected	Battery saver mode not active	END		
P0305 - Cylinder 5 Misfire Detected	Battery saver mode not active	END		
P0306 - Cylinder 6 Misfire Detected	Battery saver mode not active	END		
P0307 - Cylinder 7 Misfire Detected	Battery saver mode not active	END		
P0308 - Cylinder 8 Misfire Detected	Battery saver mode not active	END		
P0315 - Crankshaft Position System Variation Not Learned	Battery saver mode not active	END		
P0325 - Knock Sensor Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P0326 - Knock Sensor Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P0327 - Knock Sensor Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P0328 - Knock Sensor Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P032A - Knock Sensor 3 Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P032B - Knock Sensor 3 Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P032C - Knock Sensor 3 Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P032D - Knock Sensor 3 Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P0330 - Knock Sensor 2 Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P0331 - Knock Sensor 2 Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P0332 - Knock Sensor 2 Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P0333 - Knock Sensor 2 Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P0335 - Crankshaft Position Sensor Circuit	Battery saver mode not active	END		
P0336 - Crankshaft Position Sensor Performance	Battery saver mode not active	END		
P033A - Knock Sensor 4 Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
		<u> </u>	<u> </u>	

DTC				Additional Pagio	
P033B - Knock Sensor 4 Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	Enable Conditions
P033C - Knock Sensor 4 Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P033D - Knock Sensor 4 Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0341 - Camshaft Position Sensor Performance	Battery saver mode not active	END			
P0342 - Camshaft Position Sensor Circuit Low	Battery saver mode not active	END			
P0343 - Camshaft Position Sensor Circuit High	Battery saver mode not active	END			
P0346 - Intake Camshaft Position Sensor Performance Bank 2	Battery saver mode not active	END			
P0347 - Intake Camshaft Position Sensor Circuit Low Bank 2	Battery saver mode not active	END			
P0348 - Intake Camshaft Position Sensor Circuit High Bank 2	Battery saver mode not active	END			
P034A - Crankshaft Position Sensor Start Position Incorrect	Battery saver mode not active	END			
P034B - Crankshaft Position Sensor Direction Incorrect	Battery saver mode not active	END			_
P0351 - Ignition Coil 1 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0352 - Ignition Coil 2 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0353 - Ignition Coil 3 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0354 - Ignition Coil 4 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0355 - Ignition Coil 5 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0356 - Ignition Coil 6 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0357 - Ignition Coil 7 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0358 - Ignition Coil 8 Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0366 - Exhaust Camshaft Position Sensor Performance Bank 1	Battery saver mode not active	END			
P0367 - Exhaust Camshaft Position Sensor Circuit Low Bank 1	Battery saver mode not active	END			
P0368 - Exhaust Camshaft Position Sensor Circuit High Bank 1	Battery saver mode not active	END			
P0391 - Exhaust Camshaft Position Sensor Performance Bank 2	Battery saver mode not active	END			
P0392 - Exhaust Camshaft Position Sensor Circuit Low Bank 2	Battery saver mode not active	END			
P0393 - Exhaust Camshaft Position Sensor Circuit High Bank 2	Battery saver mode not active	END			
P0420 - Catalyst System Low Efficiency	Battery saver mode not active	END			
P0430 - Catalyst System Low Efficiency Bank 2	Battery saver mode not active	END			
P0442 - Evaporative Emission System Small Leak Detected	Battery saver mode not active	END			•
P0443 - Evaporative Emission Purge Solenoid Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0446 - Evaporative Emission Vent System Performance	Battery saver mode not active	END			•
P0449 - Evaporative Emission Vent Solenoid Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0451 - Fuel Tank Pressure Sensor Performance	Battery saver mode not active	END			•
P0452 - Fuel Tank Pressure Sensor Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0453 - Fuel Tank Pressure Sensor Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0454 - Fuel Tank Pressure Sensor Circuit Intermittent	Battery saver mode not active	END			
P0455 - Evaporative Emission System Large Leak Detected	Battery saver mode not active	END			
P0458 - Evaporative Emission Purge Solenoid Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	

	END	Battery saver mode not active	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery voltage is equal to or above 10.9 V	P0459 - Evaporative Emission Purge Solenoid Control Circuit High
			END	Battery saver mode not active	P0461 - Fuel Level Sensor Performance
END	System Power Mode is run	Battery saver mode not active	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery voltage is equal to or above 10.9 V	P0462 - Fuel Level Sensor Circuit Low
END	System Power Mode is run	Battery saver mode not active	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery voltage is equal to or above 10.9 V	P0463 - Fuel Level Sensor Circuit High
	END	Battery saver mode not active	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery voltage is equal to or above 10.9 V	P0480 - Cooling Fan Relay 1 Control Circuit Open
			END	Battery saver mode not active	P0496 - Evaporative Emission system Flow During Non-Purge
			END	Battery saver mode not active	P0497 - Evaporative Emission System No Flow During Purge
	END	Battery saver mode not active	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery voltage is equal to or above 10.9 V	P0498 - Evaporative Emission Vent Solenoid Control Circuit Low
	END	Battery saver mode not active	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery voltage is equal to or above 10.9 V	P0499 - Evaporative Emission Vent Solenoid Control Circuit High
	END	Battery saver mode not active	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery voltage is equal to or above 10.9 V	P04AB - Evaporative Emission Purge Solenoid Control Circuit Open Bank 2
	END	Battery saver mode not active	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery voltage is equal to or above 10.9 V	P04AC - Evaporative Emission Purge Solenoid Control Circuit Low Bank 2
	END	Battery saver mode not active	Engine not in starting mode (defined as engine crank with speed not equal	Battery voltage is equal to or above 10.9 V	P04AD - Evaporative Emission Purge Solenoid Control Circuit
			to run mode)	Battery saver mode not active	High Bank 2  P04AE - Evaporative Emission  Purge Solenoid Performance  Bank 2
	END	Battery saver mode not active	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery voltage is equal to or above 10.9 V	P04DB - Crankcase Ventilation System Disconnected
			END	Battery saver mode not active	P04DF - Evaporative Emission Purge Solenoid Performance
			END	Battery saver mode not active	Bank 1 P0506 - Idle Speed Low
			END	Battery saver mode not active	P0507 - Idle Speed High
		END	Battery saver mode not active	Engine not in starting mode (defined as engine crank with speed not equal	P050A - Cold Start Idle Speed System
		END	Battery saver mode not active	to run mode)  Battery voltage is equal to or above 10.9 V	P050B - Cold Start Ignition Timing System
			END	Battery saver mode not active	P0513 - Theft Deterrent Key
			END	Battery saver mode not active	P051B - Crankcase Vapor Pressure Sensor Performance
	END	Battery saver mode not active	Engine not in starting mode (defined as engine crank with speed not equal	Battery voltage is equal to or above	P051C - Crankcase Vapor
	END	Battery saver mode not active	to run mode)  Engine not in starting mode (defined as engine crank with speed not equal	10.9 V  Battery voltage is equal to or above	Pressure Sensor Circuit Low  P051D - Crankcase Vapor
			to run mode)	10.9 V  Battery saver mode not active	Pressure Sensor Circuit High  P0521 - Engine Oil Pressure
	END	Battery saver mode not active	Engine not in starting mode (defined as engine crank with speed not equal	Battery voltage is equal to or above	P0522 - Engine Oil Pressure
	END	Battery saver mode not active	to run mode)  Engine not in starting mode (defined as engine crank with speed not equal	10.9 V  Battery voltage is equal to or above	Sensor 1 Circuit Low P0523 - Engine Oil Pressure
END	Engine is not in ready state (which is active when the ignition is on or	Battery saver mode not active	to run mode)  Engine is not in standby state (standby state occurs after ECM	10.9 V  Engine not in starting mode (defined as engine crank with speed not equal	Sensor 1 Circuit High  P0524 - Engine Oil Pressure
END	active when the ignition is on or following a stall of the engine)	Battery saver mode not active	(standby state occurs after ELM initialization or following after-run)  Engine not in starting mode (defined as engine crank with speed not equal	to run mode)  Battery voltage is equal to or above	Too Low  P0532 - Air Conditioning Refrigerant Pressure Sensor
	END	Battery saver mode not active	to run mode)  Engine not in starting mode (defined as engine crank with speed not equal	10.9 V  Battery voltage is equal to or above	Circuit Low  P0533 - Air Conditioning Refrigerant Pressure Sensor
		END	to run mode)  Battery saver mode not active	10.9 V  Battery voltage is equal to or above	Circuit High P053F - Cold Start Fuel
		END	Battery saver mode not active	10.9 V  Engine not in starting mode (defined as engine crank with speed not equal	Pressure Performance P0562 - System Voltage Low
				to run mode)  Engine not in starting mode (defined	
EN0	System Device	END Rattery saver mode not active	Battery saver mode not active  Engine not in starting mode (defined	as engine crank with speed not equal to run mode)  Battery voltage is equal to or above	P0563 - System Voltage High  P0564 - Cruise Control Multi-
END	System Power Mode is run	Battery saver mode not active	as engine crank with speed not equal to run mode)  Engine not in starting mode (defined	10.9 V  Battery voltage is equal to or above	Function Switch 1 Circuit  P0565 - Cruise Control Switch
END	System Power Mode is run	Battery saver mode not active	as engine crank with speed not equal to run mode)  Engine not in starting mode (defined	10.9 V	Circuit
END	System Power Mode is run	Battery saver mode not active	as engine crank with speed not equal to run mode)  Engine not in starting mode (defined	Battery voltage is equal to or above 10.9 V	0567 - Cruise Control Resume Switch 1 Circuit
END	System Power Mode is run	Battery saver mode not active	as engine crank with speed not equal to run mode)	Battery voltage is equal to or above 10.9 V	P0568 - Cruise Control Set Switch 1 Circuit

DTC				Additional Basic F	Enable Conditions
P0572 - Brake Switch Circuit 1 Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	Trable Conditions
P0573 - Brake Switch Circuit 1 High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P057B - Brake Pedal Position Sensor Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P057C - Brake Pedal Position Sensor Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P057D - Brake Pedal Position Sensor Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0580 - Cruise Control Multi- Function Switch 1 Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END
P0581 - Cruise Control Multi- Function Switch 1 Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END
P0589 - Cruise Control Multi- Function Switch 2 Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END
P058A - Battery Sensor Module Performance	Battery saver mode not active	END			
P058B - Battery Sensor Module Current Sensor Performance	Battery saver mode not active	END			
P058C - Battery Sensor Module Temperature Sensor Performance	Battery saver mode not active	END			
P058D - Battery Sensor Module Voltage Sensing Performance	Battery saver mode not active	END			
P058E - Battery Sensor Module Temperature High	Battery saver mode not active	END			
P058F - Battery Sensor Module Temperature Low	Battery saver mode not active	END			
P0592 - Cruise Control Multi- Function Switch 2 Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END
P0593 - Cruise Control Multi- Function Switch 2 Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END
P05CC - Cold Start Intake Camshaft Position System Performance Bank 1	Battery saver mode not active	END			
P05CD - Cold Start Intake Camshaft Position System Performance Bank 2	Battery saver mode not active	END			
P05D1 - Driver Mode Select Switch Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P05D2 - Driver Mode Select Switch Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P05D3 - Driver Mode Select Switch Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0602 - Control Module Not Programmed	Battery saver mode not active	END			
P0603 - Control Module Long Term Memory Reset	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0604 - Control Module Random Access Memory	Battery saver mode not active	END			
P0606 - Control Module Internal Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0615 - Starter Relay Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0616 - Starter Relay Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0617 - Starter Relay Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0621 - Generator L-Terminal Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0625 - Generator F-Terminal Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0626 - Generator F-Terminal Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0627 - Fuel Pump Relay Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0628 - Fuel Pump Relay Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0629 - Fuel Pump Relay Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P062B - Control Module Fuel Injector Control Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0630 - VIN Not Programmed or Mismatched - Engine Control Module	Battery saver mode not active	END			
P0633 - Theft Deterrent Key Not Programmed	Battery saver mode not active	END			

DTC				Additional Basic	Enable Conditions
P0645 - Air Conditioning Clutch Relay Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	Enable Conditions
P0646 - Air Conditioning Clutch Relay Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0647 - Air Conditioning Clutch Relay Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P064D - Control Module Oxygen Sensor Bank 1 Sensor 1 System Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P064E - Control Module Oxygen Sensor Bank 2 Sensor 1 System Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0650 - Malfunction Indicator Lamp Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0689 - Engine Controls Ignition Relay Feedback Circuit Low	Battery saver mode not active	END			
P0690 - Engine Controls Ignition Relay Feedback Circuit High	Battery saver mode not active	END			_
P0691 - Cooling Fan Relay 1 Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P0692 - Cooling Fan Relay 1 Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P06AF - Torque Management System - Forced Engine Shutdown	Battery saver mode not active	END			_
P06B6 - Control Module Knock Sensor Processor 1 Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P06D1 - Control Module Ignition Coil Internal Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P06DA - Engine Oil Pressure Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P06DB - Engine Oil Pressure Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P06DC - Engine Oil Pressure Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P06DD - Engine Oil Pressure Control Performance	Battery saver mode not active	END			
P0700 - Transmission Control Module Requested Malfunction Indicator Lamp Illumination	Battery saver mode not active	END			
P073D - Unable to Engage Neutral	Battery saver mode not active	END			
P073E - Unable to Engage Reverse	Battery saver mode not active	END			_
P07B3 - Transmission Range Selector Park Position Switch 1 Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P07B4 - Transmission Range Selector Park Position Switch 1 Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P07B5 - Transmission Range Selector Park Position Switch 1 Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P07B9 - Transmission Range Selector Park Position Switch 2 Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P07BA - Transmission Range Selector Park Position Switch 2 Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P07BB - Transmission Range Selector Park Position Switch 2 Circuit Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P07BE - Transmission Range Selector Park Position Switch 1/2 Correlation	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P07E4 - Unable to Engage Park	Battery saver mode not active	END			
P07E5 - Unable to Engage Drive	Battery saver mode not active	END			_
P082A - Transmission Range Selector X-Axis Position Sensor 1 Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P082B - Transmission Range Selector X-Axis Position Sensor 1 Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P082C - Transmission Range Selector X-Axis Position Sensor 1 Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P082D - Transmission Range Selector Y-Axis Position Sensor 1 Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P082E - Transmission Range Selector Y-Axis Position Sensor 1 Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P082F - Transmission Range Selector Y-Axis Position Sensor 1 Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P089B - Transmission Range Selector X-Axis Position Sensor 2 Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P089C - Transmission Range Selector X-Axis Position Sensor 2 Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	

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PIGES - Purplement UV  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V  Wheterpa Angel V			as engine crank with speed not equal	Battery saver mode not active	System Power Mode is run	END
Setting voted in a design of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the setting of the set			as engine crank with speed not equal	Battery saver mode not active	System Power Mode is run	END
Westings Cortical Registery  PERSA. Purples of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options of Typestor Plans Options			as engine crank with speed not equal	Battery saver mode not active	System Power Mode is run	END
Available Science Consult  Stroke Cylinder Typiction Particular Cylinder Typiction Particular Cylinder Typiction Particular Cylinder Typiction Particular Cylinder Typiction Particular Cylinder Typiction Particular Cylinder Typiction Particular Cylinder Typiction Particular Cylinder Typiction Particular Cylinder Cylinder Typiction Particular Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cylinder Cy	Wastegate Actuator Supply		as engine crank with speed not equal	Battery saver mode not active	END	
Public Christ Exceeded Mariamm Learning Limit Battery saver mode not active Battery saver mode not active Mariamm Learning Limit Battery saver mode not active Mariamm Learning Limit Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Battery saver mode not active Batt	Wastegate Control Circuit		as engine crank with speed not equal	Battery saver mode not active	END	
Pulso - Cylinder 2 procedure  Place - Cylinder 2 procedure  Minimum Learning Limit  Place - Cylinder 2 procedure  Minimum Learning Limit  Place - Cylinder 2 procedure  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Place - Cylinder 3 procedure  Place - Cylinder 3 procedure  Place - Cylinder 3 procedure  Place - Cylinder 3 procedure  Minimum Learning Limit  Place - Cylinder 4 procedure  Minimum Learning Limit  Place - Cylinder 4 procedure  Minimum Learning Limit  Place - Cylinder 4 procedure  Minimum Learning Limit  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Place - Cylinder 1 procedure  Minimum Learning Limit  Place - Cylinder 5 procedure  Minimum Learning Limit  Place - Cylinder 5 procedure  Minimum Learning Limit  Place - Cylinder 5 procedure  Minimum Learning Limit  Place - Cylinder 5 procedure  Minimum Learning Limit  Place - Cylinder 5 procedure  Minimum Learning Limit  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery saver mode not active  Battery	Pulse Offset Exceeded	Battery saver mode not active	END			
Puter Offset Exceeded Minimum Learning Limit  P10AD - Cylinder 3 liyection Puter Offset Exceeded Minimum Learning Limit  Battery sever mode not active P10AD - Cylinder 3 liyection Puter Offset Exceeded Minimum Learning Limit  Battery sever mode not active P10AD - Cylinder 4 liyection Puter Offset Exceeded Minimum Learning Limit  Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Battery sever mode not active Batte	Pulse Offset Exceeded	Battery saver mode not active	END			
Pulse Chief Exceeded Maximum Learning Limit  P10A7 - Cylinder's Injection Pulse Chief Exceeded Maximum Learning Limit  P10A7 - Cylinder's Injection Pulse Chief Exceeded Maximum Learning Limit  P10A8 - Cylinder's Injection Pulse Chief Exceeded Minimum Learning Limit  Battery saver mode not active  END  Battery saver mode not active  END  P10A8 - Cylinder's Injection Pulse Chief Exceeded Maximum Learning Limit  Battery saver mode not active  END  P10A8 - Cylinder's Injection Pulse Chief Exceeded Maximum Learning Limit  Battery saver mode not active  Battery saver mode not active  END  P10A8 - Cylinder's Injection Pulse Chief Exceeded Maximum Learning Limit  Battery saver mode not active  Battery saver mode not active  END  P10A9 - Cylinder's Injection Pulse Chief Exceeded Maximum Learning Limit  P10A8 - Cylinder's Injection Pulse Chief Exceeded Maximum Learning Limit  Battery saver mode not active  END  P10A8 - Cylinder's Injection Pulse Chief Exceeded Maximum Learning Limit  P10A8 - Cylinder's Injection Pulse Chief Exceeded Maximum Learning Limit  Battery saver mode not active  END  P10A8 - Cylinder's Injection Pulse Chief Exceeded Maximum Learning Limit  Battery saver mode not active  END  P10A8 - Cylinder's Injection Pulse Chief Exceeded Maximum Learning Limit  Battery saver mode not active  END  Battery saver mode not active  END  P10A8 - Cylinder's Injection Pulse Chief Exceeded Maximum Learning Limit  Battery saver mode not active  END  Battery saver mode not active  END  Battery saver mode not active  END  Battery saver mode not active  END  Battery saver mode not active  END  Battery saver mode not active  END  Battery saver mode not active  END  Battery saver mode not active  END  Battery saver mode not active  END  Battery saver mode not active  END  Battery saver mode not active  END  Battery saver mode not active  END  Battery saver mode not active  END  Battery saver mode not active  END  Battery saver mode not active  END  Battery saver mode not active  END  Battery saver mode not active  END  Batte	Pulse Offset Exceeded	Battery saver mode not active	END			
Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singetton Pulsa Cylinder Singet	Pulse Offset Exceeded	Battery saver mode not active	END			
Pulso Offset Exceeded Maximum Learning Limit  P10A9 - Cylinder 4 Injection Pulso Offset Exceeded Minimum Learning Limit  P10AA - Cylinder 5 Injection Pulso Offset Exceeded Minimum Learning Limit  P10AB - Cylinder 5 Injection Pulso Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 5 Injection Pulso Offset Exceeded Minimum Learning Limit  P10AB - Cylinder 5 Injection Pulso Offset Exceeded Minimum Learning Limit  P10AB - Cylinder 5 Injection Pulso Offset Exceeded Minimum Learning Limit  P10AB - Cylinder 5 Injection Pulso Offset Exceeded Minimum Learning Limit  P10AB - Cylinder 5 Injection Pulso Offset Exceeded Minimum Learning Limit  P10AB - Cylinder 7 Injection Pulso Offset Exceeded Minimum Learning Limit  P10BB - Cylinder 7 Injection Pulso Offset Exceeded Minimum Learning Limit  P10BB - Cylinder 8 Injection Pulso Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10BB - Cylinder 8 Injection Pulso Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10BB - Cylinder 8 Injection Pulso Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10BB - Cylinder 8 Injection Pulso Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  END  P10BB - Cylinder 8 Injection Pulso Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  END  END  END  END  END  END  EN	Pulse Offset Exceeded	Battery saver mode not active	END			
Pulse Offset Exceeded Minimum Learning Limit  P10AA - Cylinder 4 Injection Pulse Offset Exceeded Maximum Learning Limit  P10AA - Cylinder 5 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 5 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 5 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 6 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 6 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 6 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 6 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 6 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 7 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 7 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 7 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit	Pulse Offset Exceeded	Battery saver mode not active	END			
Pulse Offset Exceeded Maximum Learning Limit  P10AD - Cylinder 5 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AC - Cylinder 5 Injection Pulse Offset Exceeded Maximum Learning Limit  P10AD - Cylinder 6 Injection Pulse Offset Exceeded Maximum Learning Limit  P10AD - Cylinder 6 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10AF - Cylinder 6 Injection Pulse Offset Exceeded Maximum Learning Limit  Battery saver mode not active  END  P10AF - Cylinder 7 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10BO - Cylinder 7 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10BO - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10BO - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10BO - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10BO - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10BO - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  END  END  END  END  END  END  EN	Pulse Offset Exceeded	Battery saver mode not active	END			
Pulse Offset Exceeded Maximum Learning Limit  P10AD - Cylinder 6 Injection Pulse Offset Exceeded Maximum Learning Limit  P10AD - Cylinder 6 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AD - Cylinder 6 Injection Pulse Offset Exceeded Maximum Learning Limit  P10AE - Cylinder 6 Injection Pulse Offset Exceeded Maximum Learning Limit  P10AF - Cylinder 7 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AF - Cylinder 7 Injection Pulse Offset Exceeded Minimum Learning Limit  P10BO - Cylinder 7 Injection Pulse Offset Exceeded Maximum Learning Limit  P10BO - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10B1 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10B2 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10B3 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10B4 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10B5 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10B5 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10B5 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10B5 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10B5 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10B5 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10B5 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10B5 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit	Pulse Offset Exceeded	Battery saver mode not active	END			
Pulse Offset Exceeded Maximum Learning Limit  P10AD - Cylinder 6 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AE - Cylinder 6 Injection Pulse Offset Exceeded Maximum Learning Limit  P10AF - Cylinder 7 Injection Pulse Offset Exceeded Minimum Learning Limit  P10AF - Cylinder 7 Injection Pulse Offset Exceeded Minimum Learning Limit  P10BO - Cylinder 7 Injection Pulse Offset Exceeded Minimum Learning Limit  P10BO - Cylinder 7 Injection Pulse Offset Exceeded Maximum Learning Limit  P10BO - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10BO - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  P10BO - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10BO - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10BO - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10BO - Cylinder 8 Injection Pulse Offset Exceeded Maximum Learning Limit  Battery saver mode not active  END	Pulse Offset Exceeded	Battery saver mode not active	END			
Pulse Offset Exceeded Minimum Learning Limit  P10AE - Cylinder 6 Injection Pulse Offset Exceeded Maximum Learning Limit  P10AF - Cylinder 7 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  Battery saver mode not active  END  Battery saver mode not active  END  P10BO - Cylinder 7 Injection Pulse Offset Exceeded Maximum Learning Limit  Battery saver mode not active  END  P10B1 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  Battery saver mode not active  END  P10B2 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  END  END  END  END  END  END  EN	Pulse Offset Exceeded	Battery saver mode not active	END			
Pulse Offset Exceeded Maximum Learning Limit  P10AF - Cylinder 7 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10B0 - Cylinder 7 Injection Pulse Offset Exceeded Maximum Learning Limit  Battery saver mode not active  END  P10B1 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10B2 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  Battery saver mode not active  END  P10B2 - Cylinder 8 Injection Pulse Offset Exceeded Maximum Learning Limit  Battery saver mode not active  END  END  END  END  END  END  END  EN	Pulse Offset Exceeded	Battery saver mode not active	END			
Pulse Offset Exceeded Minimum Learning Limit  P10B0 - Cylinder 7 Injection Pulse Offset Exceeded Maximum Learning Limit  Battery saver mode not active  Battery saver mode not active  END  P10B1 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  P10B2 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  END  END  END  END  END  END  END  EN	Pulse Offset Exceeded	Battery saver mode not active	END			
Pulse Offset Exceeded Maximum Learning Limit  P10B1 - Cylinder 8 Injection Pulse Offset Exceeded Minimum Learning Limit  Battery saver mode not active  Battery saver mode not active  END  P10B2 - Cylinder 8 Injection Pulse Offset Exceeded Maximum Learning Limit  Battery saver mode not active  END  END  END  END  END  END	Pulse Offset Exceeded	Battery saver mode not active	END			
Pulse Offset Exceeded Minimum Learning Limit  P1082 - Cylinder 8 Injection Pulse Offset Exceeded Maximum Learning Limit  Battery saver mode not active  END  END  END  END  END	Pulse Offset Exceeded	Battery saver mode not active	END			
Pulse Offset Exceeded Maximum Learning Limit  Battery saver mode not active  END  Figure and in starting mode (defined)	Pulse Offset Exceeded	Battery saver mode not active	END			
P10RD - Turbocharger R	Pulse Offset Exceeded	Battery saver mode not active	END			
Wastegate Actuator Supply Voltage Circuit Low  Battery voltage is equal to or above 10.9 V  as engine crank with speed not equal to run mode)  Battery saver mode not active	P10BD - Turbocharger B Wastegate Actuator Supply Voltage Circuit Low	Battery voltage is equal to or above 10.9 V		Battery saver mode not active	END	
P10BE - Turbocharger B Wastegate Control Circuit Shorted  Battery voltage is equal to or above 10.9 V  Engine not in starting mode (defined as engine crank with speed not equal to run mode)  Battery saver mode not active	Wastegate Control Circuit		as engine crank with speed not equal	Battery saver mode not active	END	

DTC				Additional Basic E	Enable Conditions			
P10E8 - Fuel Pressure Regulator High Control Circuit Shorted to Control Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P1176 - Fuel Pump Driver Control Module 5V Reference 1 Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P1177 - Fuel Pump Driver Control Module 5V Reference 2 Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P1178 - Fuel Pump Driver Control Module Fuel Level Sensor 1 Internal Supply Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P1179 - Fuel Pump Driver Control Module Fuel Level Sensor 2 Internal Supply Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P1248 - Fuel Injector 1 High Control Circuit Shorted to Control Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P1249 - Fuel Injector 2 High Control Circuit Shorted to Control Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P124A - Fuel Injector 3 High Control Circuit Shorted to Control Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P124B - Fuel Injector 4 High Control Circuit Shorted to Control Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P124C - Fuel Injector 5 High Control Circuit Shorted to Control Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P124D - Fuel Injector 6 High Control Circuit Shorted to Control Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P124E - Fuel Injector 7 High Control Circuit Shorted to Control Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P124F - Fuel Injector 8 High Control Circuit Shorted to Control Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P1255 - Fuel Pump Control Module Driver High Temperature	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END			
P128A - Fuel Rail Pressure Sensor Internal Performance Bank 1 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P128B - Fuel Rail Pressure Sensor Internal Performance Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P129B - Fuel Pump Driver Control Module System Voltage Low	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END				
P129C - Fuel Pump Driver Control Module System Voltage High	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END				
P129D - Fuel Pump Driver Control Module Ignition On/Start Switch Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END			
P129F - Fuel Pump Driver Control Module Fuel Pump Speed Signal Incorrect	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	System Power Mode is run	END				
P12A6 - Fuel Pump Driver Control Module Enable Circuit Performance	Battery saver mode not active	System Power Mode is run	END					
P135A - Ignition Coil Supply Voltage Circuit Bank 1	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END					
P135B - Ignition Coil Supply Voltage Circuit Bank 2	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END					
P138B - Brake Pedal Position Sensor "A" Exceeded Learning Limit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P1434 - Fuel Level Sensor 1 Reference Feedback Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END			
P143E - Fuel Level Sensor 2 Reference Feedback Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END	,		
P155A - Cruise Control Switch State Undetermined	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
P155B - Cruise Control Set Switch 2 Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END			
P155C - Cruise Control Resume Switch 2 Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END			
P1589 - Cruise Control Lane Center Switch Circuit	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END			
P1631 - Theft Deterrent Fuel Enable Signal Not Correct	Battery saver mode not active	END						
P1649 - Theft Deterrent Security Code Not Programmed	Battery saver mode not active	END						
P16D4 - Battery Sensor Module Voltage Sensing Circuit Low	Battery saver mode not active	END						
P16D5 - Battery Sensor Module Voltage Sensing Circuit High	Battery saver mode not active	END						
P16D6 - Battery Sensor Module Current Sensor Low	Battery saver mode not active	END						
P16D7 - Sensor Supply Voltage Relay Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P16D8 - Sensor Supply Voltage Relay Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				

DTC				Additional Basic I	Enable Conditions
P16D9 - Sensor Supply Voltage Relay Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P16DD - Battery Sensor Module Current Sensor High	Battery saver mode not active	END			
P16DE - Battery Sensor Module Internal Temperature Circuit Low	Battery saver mode not active	END			
P16DF - Battery Sensor Module Internal Temperature Circuit High	Battery saver mode not active	END			
P16E1 - Battery Sensor Module Random Access Memory	Battery saver mode not active	END			
P16E2 - Battery Sensor Module Read Only Memory	Battery saver mode not active	END			
P16E3 - Battery Sensor Module Calibration Incorrect	Battery saver mode not active	END			
P16F4 - Internal Control Module Transmission Range Control Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P1787 - Unexpected Range Change Detected	Battery saver mode not active	END			•
P1789 - Current Transmission Range Unknown	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17A3 - Transmission Range Selector Shift Interlock Switch 1 Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17A4 - Transmission Range Selector Shift Interlock Switch 1 Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17A5 - Transmission Range Selector Shift Interlock Switch 1 Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17A6 - Transmission Range Selector Shift Interlock Switch 1/2 Correlation	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17A7 - Transmission Range Selector Shift Interlock Switch 2 Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17A8 - Transmission Range Selector Shift Interlock Switch 2 Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17A9 - Transmission Range Selector Shift Interlock Switch 2 Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17D8 - Transmission Range Selector Control Module Memory Checksum Error	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17D9 - Transmission Range Selector Control Module Read Only Memory (ROM) Error	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17DA - Transmission Range Selector Control Module Internal Random Access Memory (RAM) Error	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17DB - Transmission Range Selector Control Module Processor	Battery saver mode not active	END			
P17DC - Transmission Range Selector Control Module Keep Alive Memory (KAM) Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17DD - Transmission Range Selector Control Module System Voltage Low	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END		
P17DE - Transmission Range Selector Control Module System Voltage High	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END		
P17DF - Transmission Range Selector Control Module System Voltage Performance	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END		
P17E0 - Transmission Range Selector Control Module Ignition On/Start Switch Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17E1 - Transmission Range Selector Control Module Ignition On/Start Switch Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17E2 - Transmission Range Selector Control Module Ignition Accessory Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17F3 - Transmission Range Selector Park Position Switch 1/2 Stuck On	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P17F4 - Transmission Range Selector Shift Interlock Switch 1/2 Stuck On	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P189D - Transmission Range Selector Park Position Switch 1/2 Stuck Off	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2066 - Fuel Level Sensor 2 Performance	Battery saver mode not active	END			
P2067 - Fuel Level Sensor 2 Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END
P2068 - Fuel Level Sensor 2 Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END
P2088 - Camshaft Position Actuator Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2089 - Camshaft Position Actuator Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2090 - Exhaust Camshaft Position Actuator Control Circuit Low Bank 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
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				Additional Design
P2091 - Exhaust Camshaft Position Actuator Control Circuit High Bank 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	Additional Basic
P2092 - Intake Camshaft Position Actuator Control Circuit Low Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P2093 - Intake Camshaft Position Actuator Control Circuit High Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P2094 - Exhaust Camshaft Position Actuator Control Circuit Low Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P2095 - Exhaust Camshaft Position Actuator Control Circuit High Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P2096 - Post Catalyst Fuel Trim System Low Limit Bank 1	Battery saver mode not active	END		
P2097 - Post Catalyst Fuel Trim System High Limit Bank 1	Battery saver mode not active	END		
P2098 - Post Catalyst Fuel Trim System Low Limit Bank 2	Battery saver mode not active	END		
P2099 - Post Catalyst Fuel Trim System High Limit Bank 2	Battery saver mode not active	END		
P2146 - Fuel Injector High Control Circuit 1 Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P2149 - Fuel Injector High Control Circuit 2 Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P2152 - Fuel Injector High Control Circuit 3 Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P2155 - Fuel Injector High Control Circuit 4 Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P216A - Fuel Injector High Control Circuit 5 Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P216D - Fuel Injector High Control Circuit 6 Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P2177 - Fuel Trim System Lean Off Idle Bank 1	Battery saver mode not active	END		
P2178 - Fuel Trim System Rich Off Idle Bank 1	Battery saver mode not active	END		
P2179 - Fuel Trim System Lean Off Idle Bank 2	Battery saver mode not active	END		
P217A - Fuel Injector High Control Circuit 7 Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P217D - Fuel Injector High Control Circuit 8 Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END
P2180 - Fuel Trim System Rich Off Idle Bank 2	Battery saver mode not active	END		
P2187 - Fuel Trim System Lean at Idle Bank 1	Battery saver mode not active	END		
P2188 - Fuel Trim System Rich at Idle Bank 1	Battery saver mode not active	END		
P2189 - Fuel Trim System Lean at Idle Bank 2	Battery saver mode not active	END		
P2190 - Fuel Trim System Rich at Idle Bank 2	Battery saver mode not active	END		
P2195 - Oxygen Sensor Signal Biased Lean Bank 1 Sensor 1	Battery saver mode not active	END		
P2196 - Oxygen Sensor Signal Biased Rich Bank 1 Sensor 1	Battery saver mode not active	END		
P2197 - Oxygen Sensor Signal Biased Lean Bank 2 Sensor 1	Battery saver mode not active	END		
P2198 - Oxygen Sensor Signal Biased Rich Bank 2 Sensor 1	Battery saver mode not active	END		
P219C - Cylinder 1 Fuel Trim Cylinder Balance	Battery saver mode not active	END		
P219D - Cylinder 2 Fuel Trim Cylinder Balance	Battery saver mode not active	END		
P219E - Cylinder 3 Fuel Trim Cylinder Balance	Battery saver mode not active	END		
P219F - Cylinder 4 Fuel Trim Cylinder Balance	Battery saver mode not active	END		
P21A0 - Cylinder 5 Fuel Trim Cylinder Balance	Battery saver mode not active	END		
P21A1 - Cylinder 6 Fuel Trim Cylinder Balance	Battery saver mode not active	END		
P21A2 - Cylinder 7 Fuel Trim Cylinder Balance	Battery saver mode not active	END		
P21A3 - Cylinder 8 Fuel Trim Cylinder Balance	Battery saver mode not active	END		

DTC				Additional Basic I	Enable Conditions
P2227 - Barometric Pressure Sensor Performance Bank 1 Sensor 1	Battery saver mode not active	END		Additional Busices	Thable Conditions
P2228 - Barometric Pressure Sensor Circuit Low Bank 1 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2229 - Barometric Pressure Sensor Circuit High Bank 1 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P222B - Barometric Pressure Sensor Performance Bank 2 Sensor 1	Battery saver mode not active	END			
P222C - Barometric Pressure Sensor Circuit Low Bank 2 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P222D - Barometric Pressure Sensor Circuit High Bank 2 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2232 - Oxygen Sensor Signal Circuit Shorted to Heater Circuit Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2235 - Oxygen Sensor Signal Circuit Shorted to Heater Circuit Bank 2 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2237 - Oxygen Sensor Pumping Current Control Circuit Open Bank 1 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2240 - Oxygen Sensor Pumping Current Control Circuit Open Bank 2 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2251 - Oxygen Sensor Low Reference Circuit Open Bank 1 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2254 - Oxygen Sensor Low Reference Circuit Open Bank 2 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2261 - Boost Bypass Valve A Stuck	Battery saver mode not active	END			
P2270 - Oxygen Sensor Signal Stuck Lean Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		
P2271 - Oxygen Sensor Signal Stuck Rich Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		
P2272 - Oxygen Sensor Signal Stuck Lean Bank 2 Sensor 2	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		
P2273 - Oxygen Sensor Signal Stuck Rich Bank 2 Sensor 2	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		
P227B - Barometric Pressure Sensor Performance Bank 1 Sensor 2	Battery saver mode not active	END			•
P227C - Barometric Pressure Sensor Circuit Low Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P227D - Barometric Pressure Sensor Circuit High Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P228C - Fuel Pressure Regulator Exceeded Control Limits - Pressure Too Low	Battery saver mode not active	END			
P228D - Fuel Pressure Regulator Exceeded Control Limits - Pressure Too High	Battery saver mode not active	END			
P2297 - Oxygen Sensor Out of Range During Deceleration Bank 1 Sensor 1	Battery saver mode not active	END			
P2298 - Oxygen Sensor Out of Range During Deceleration Bank 2 Sensor 1	Battery saver mode not active	END			•
P2300 - Ignition Coil 1 Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2301 - Ignition Coil 1 Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2303 - Ignition Coil 2 Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2304 - Ignition Coil 2 Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2306 - Ignition Coil 3 Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2307 - Ignition Coil 3 Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2309 - Ignition Coil 4 Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2310 - Ignition Coil 4 Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2312 - Ignition Coil 5 Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2313 - Ignition Coil 5 Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2315 - Ignition Coil 6 Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2316 - Ignition Coil 6 Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2318 - Ignition Coil 7 Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	

DTC				Additional Basic I	Enable Conditions
P2319 - Ignition Coil 7 Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	Enable Conditions
P2321 - Ignition Coil 8 Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2322 - Ignition Coil 8 Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2500 - Generator L-Terminal Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2501 - Generator L-Terminal Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2534 - Ignition On/Start Switch Circuit Low	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		
P2535 - Ignition On/Start Switch Circuit High	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		
P2537 - Ignition Accessory Switch Circuit Low	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		
P2538 - Ignition Accessory Switch Circuit High	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		
P257D - Engine Hood Switch Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P257E - Engine Hood Switch Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P257F - Engine Hood Switch Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P25A2 - Brake System Control Module Requested MIL Illumination	Battery saver mode not active	END			
P25B3 - Turbocharger A Wastegate Stuck Open	Battery saver mode not active	END			
P25B4 - Turbocharger A Wastegate Stuck Closed	Battery saver mode not active	END			
P25B5 - Turbocharger B Wastegate Stuck Open	Battery saver mode not active	END			
P25B6 - Turbocharger B Wastegate Stuck Closed	Battery saver mode not active	END			•
P25CA - Camshaft Position Actuator Park Lock Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P25CB - Camshaft Position Actuator Park Lock Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P25CC - Camshaft Position Actuator Park Lock Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P25CD - Intake Camshaft Position Actuator Park Lock Control Circuit Open Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P25CE - Intake Camshaft Position Actuator Park Lock Control Circuit Low Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P25CF - Intake Camshaft Position Actuator Park Lock Control Circuit High Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2600 - Auxiliary Coolant Pump Relay Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2602 - Auxiliary Coolant Pump Relay Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2603 - Auxiliary Coolant Pump Relay Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2626 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 1 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2629 - Oxygen Sensor Pumping Current Trim Circuit Open Bank 2 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P262B - Control Module Power Off Timer Performance	Battery saver mode not active	END			
P2635 - Fuel Pump Flow Performance	Battery saver mode not active	END			1
P263A - Malfunction Indicator Lamp Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P263B - Malfunction Indicator Lamp Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P26E4 - Starter Drive Pinion Relay Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P26E5 - Starter Drive Pinion Relay Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P26E6 - Starter Drive Pinion Relay Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P26FA - Low Temperature Loop Coolant Pump Overspeed	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2A0B - Manifold Absolute Pressure Sensor Performance Bank 2	Battery saver mode not active	END			

DTC				Additional Basic	Enable Conditions
P2A0C - Manifold Absolute Pressure Sensor Circuit Low Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	Litable Conditions
P2A0D - Manifold Absolute Pressure Sensor Circuit High Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2AB8 - Turbocharger A Wastegate Position Sensor Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2AB9 - Turbocharger A Wastegate Position Sensor Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2ABB - Turbocharger B Wastegate Position Sensor Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2ABC - Turbocharger B Wastegate Position Sensor Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2ABD - Turbocharger Wastegate Actuator A Driver Current/Temperature Too High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2ABE - Turbocharger Wastegate Actuator B Driver Current/Temperature Too High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2B81 - Turbocharger A Wastegate Position Sensor Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2B82 - Turbocharger B Wastegate Position Sensor Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2B93 - Turbocharger A Wastegate Position Sensor Exceeded Learning Limit	Battery saver mode not active	END			
P2B94 - Turbocharger B Wastegate Position Sensor Exceeded Learning Limit	Battery saver mode not active	END			
P2B95 - Cold Start Injection Pulse Performance	Battery voltage is equal to or above 10.9 V	Battery saver mode not active	END		_
P2BA0 - Low Temperature Loop Coolant Pump Underspeed	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2C02 - Fuel Pressure Regulator Control Circuit Open Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2C03 - Fuel Pressure Regulator Control Circuit Low Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2C04 - Fuel Pressure Regulator Control Circuit High Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2C48 - Low Temperature Loop Coolant Pump Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2C9B - Cold Start Turbocharger A Wastegate Control Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2C9C - Cold Start Turbocharger B Wastegate Control Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P2E68 - Fuel Trim System Lean During Cylinder Deactivation Bank 1	Battery saver mode not active	END			
P2E69 - Fuel Trim System Rich During Cylinder Deactivation Bank 1	Battery saver mode not active	END			
P2E6A - Fuel Trim System Lean During Cylinder Deactivation Bank 2	Battery saver mode not active	END			
P2E6B - Fuel Trim System Rich During Cylinder Deactivation Bank 2	Battery saver mode not active	END			
P3051 - DC/DC Converter Output Voltage Sensing Circuit 1 Low	Battery saver mode not active	END			
P3052 - DC/DC Converter Output Voltage Sensing Circuit 2 Low	Battery saver mode not active	END			
P3053 - DC/DC Converter Output Voltage Sensing Circuit 1 High	Battery saver mode not active	END			
P3054 - DC/DC Converter Output Voltage Sensing Circuit 2 High	Battery saver mode not active	END			
P3055 - DC/DC Converter Output Voltage 1 Performance	Battery saver mode not active	END			
P3056 - DC/DC Converter Output Voltage 2 Performance	Battery saver mode not active	END			
P305B - DC/DC Converter Ignition Switch Run/Start Position Circuit High	Battery saver mode not active	END			
P305C - DC/DC Converter Ignition Switch Run/Start Position Circuit Low	Battery saver mode not active	END			
P305D - DC/DC Converter Crank Input Signal Circuit High Voltage	Battery saver mode not active	END			
P305E - DC/DC Converter Crank Input Signal Circuit Low Voltage	Battery saver mode not active	END			
P30D8 - Control Module Processor Serial Peripheral Interface Bus 3	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P30D9 - Control Module Processor Serial Peripheral Interface Bus 4	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	
P30E8 - Turbocharger A Wastegate Control Circuit 2 Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END	

DTC				Additional Basic E	Enable Conditions			
P30E9 - Turbocharger A Wastegate Control Circuit 2 High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P30EA - Turbocharger B Wastegate Control Circuit 2 Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P30EB - Turbocharger B Wastegate Control Circuit 2 High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3138 - Fuel Pressure Regulator High Control Circuit Low Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3139 - Fuel Pressure Regulator High Control Circuit High Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P313A - Fuel Pressure Regulator High Control Circuit Shorted to Control Circuit Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P318A - Cylinder 2 Reactivation Performance - Trapped High Pressure Exhaust Charge	Battery saver mode not active	END						
P318B - Cylinder 3 Reactivation Performance - Trapped High Pressure Exhaust Charge	Battery saver mode not active	END						
P318D - Cylinder 5 Reactivation Performance - Trapped High Pressure Exhaust Charge	Battery saver mode not active	END						
P3190 - Cylinder 8 Reactivation Performance - Trapped High Pressure Exhaust Charge	Battery saver mode not active	END						
P3196 - Low Temperature Loop Coolant Pump Speed Performance	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3198 - Low Temperature Loop Coolant Pump Motor Current Out Of Range High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3199 - Low Temperature Loop Coolant Pump Motor Current Out Of Range Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3409 - Cylinder 2 Deactivation Solenoid Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3411 - Cylinder 2 Deactivation Solenoid Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3412 - Cylinder 2 Deactivation Solenoid Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3417 - Cylinder 3 Deactivation Solenoid Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3419 - Cylinder 3 Deactivation Solenoid Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3420 - Cylinder 3 Deactivation Solenoid Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3433 - Cylinder 5 Deactivation Solenoid Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3435 - Cylinder 5 Deactivation Solenoid Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3436 - Cylinder 5 Deactivation Solenoid Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3457 - Cylinder 8 Deactivation Solenoid Control Circuit Open	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3459 - Cylinder 8 Deactivation Solenoid Control Circuit Low	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3460 - Cylinder 8 Deactivation Solenoid Control Circuit High	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
P3499 - Cylinder 2 Deactivation Performance	Battery saver mode not active	END						
P349A - Cylinder 3 Deactivation Performance	Battery saver mode not active	END						
P349C - Cylinder 5 Deactivation Performance	Battery saver mode not active	END						
P349F - Cylinder 8 Deactivation Performance	Battery saver mode not active	END		<del></del>				
U0073 - Control Module Communication High Speed CAN Bus Off	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END			
U0074 - Control Module Communication Powertrain Expansion CAN Bus Off	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END			
U0076 - Control Module Communication Powertrain Sensor CAN Bus Off	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	System Power Mode is run	END			
U0101 - Lost Communication With Transmission Control Module	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
U0102 - Lost Communication with Transfer Case Control Module	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
U0104 - Lost Communication With Adaptive Cruise Control Module	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
U0129 - Lost Communication With Brake System Control Module	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
U0140 - Lost Communication With Body Control Module	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END

DTC				Additional Basic E	Enable Conditions			
U0146 - Lost Communication With Gateway	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
U01B0 - Lost Communication With Battery Sensor Module	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
U023A - Lost Communication with Active Safety Control Module 1	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
U0402 - Invalid Data Received From Transmission Control Module	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	System Power Mode is run	END			
U0403 - Invalid Data Received From Transfer Case Control Module	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)		System Power Mode is run	END			
U0404 - Invalid Data Received From Transmission Range Selector Control Module	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	System Power Mode is run	END			
U0405 - Invalid Data Received From Cruise Control Module	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	System Power Mode is run	END			
U0418 - Invalid Data Received From Brake System Control Module	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	System Power Mode is run	END			
U0422 - Invalid Data Received From Body Control Module	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	System Power Mode is run	END			
U0447 - Invalid Data Received From Serial Data Gateway Module	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)		System Power Mode is run	END			
U0499 - Invalid Data Received From Telematics Communication Interface Control Module	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	System Power Mode is run	END			
U04B1 - Invalid Data Received From Battery Sensor Module	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	END				
U053B - Invalid Data Received From Active Safety Control Module 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	System Power Mode is run	END			
U0599 - Invalid Data Received From DC/DC Converter Control Module	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	System Power Mode is run	END			
U0611 - Lost Communication With Intake Air Temperature Sensor Bank 1 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
U0612 - Lost Communication With Intake Air Temperature Sensor Bank 2 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
U062F - Loss Of Communication with Low Temperature Loop Coolant Pump	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
U0644 - Lost Communication With Turbocharger A Wastegate Position Sensor	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	END				
U0674 - Lost Communication With Turbocharger B Wastegate Position Sensor	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	END		,		
U0680 - Lost Communication With Barometric Pressure Sensor Bank 2 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
U068A - Lost Communication With Barometric Pressure Sensor Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
U101B - Lost Communication With Fuel Rail Pressure Sensor Bank 1 Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	END				
U131D - Invalid Data Received From Fuel Pump Driver Control Module	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	System Power Mode is run	END			
U1345 - Engine Control Module LIN Bus 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)		System Power Mode is run	END			
U1346 - Engine Control Module LIN Bus 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	System Power Mode is run	END			
U1348 - Engine Control Module LIN Bus 4	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	System Power Mode is run	END			
U1349 - Engine Control Module LIN Bus 5	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	System Power Mode is run	END			
U135E - Lost Communication with Transmission Control Module on Engine Control Module LIN Bus 1	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
U1370 - Invalid Data Received From Intake Air Temperature Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	END				
U1371 - Invalid Data Received From Barometric Pressure Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	END				
U1372 - Invalid Data Received From Intake Air Temperature Sensor Bank 2 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	END				
U1373 - Invalid Data Received From Barometric Pressure Sensor Bank 2 Sensor 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)	Battery saver mode not active	END				
U1375 - Invalid Data Received From Fuel Rail Pressure Sensor 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)		END				
U1376 - Invalid Data Received From Turbocharger Wastegate Position Sensor Bank 1	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)		END				
U1377 - Invalid Data Received From Turbocharger Wastegate Position Sensor Bank 2	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)		END				
U1378 - Invalid Data Received From Low Temperature Coolant Loop Pump	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equa to run mode)		System Power Mode is run	END			
U18A2 - Lost Communication With Fuel Pump Driver Control Module	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
			_					

DTC				Additional Basic I	Enable Conditions			
U18A7 - Lost Communication with DC/DC Converter Control Module on Powertrain Expansion CAN Bus	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	END		
U18C6 - Transmission Range Selector Control Module Lost Communication With ECM on Powertrain Sensor CAN Bus	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	END	
U18C7 - Transmission Range Selector Control Module Lost Communication With ECM on Powertrain Expansion CAN Bus	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	END	
U18D2 - Lost Communication with Transmission Range Selector Control Module on Powertrain Sensor CAN Bus	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
U18D3 - Lost Communication with Transmission Range Selector Control Module on Powertrain Expansion CAN Bus	Battery voltage is equal to or above 10.9 V	Engine not in afterrun mode (defined as engine stopped with ignition off)	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Engine is not in standby state (standby state occurs after ECM initialization or following after-run)	Battery saver mode not active	Engine not in stopping mode (defined as engine speed greater than 0 rpm with ignition off)	System Power Mode is run	END
U18D5 - Central Gateway Module Lost Communication with Engine Control Module	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END					
U18D7 - Central Gateway Module Lost Communication with Transmission Control Module	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END					
U18DC - Central Gateway Module Lost Communication with Brake System Control Module 1	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END					
U240D - Transmission Range Selector Control Module Powertrain Expansion CAN Bus Off	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
U240E - Transmission Range Selector Control Module Sensor CAN Bus Off	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				
U2413 - Central Gateway Module High Speed CAN Bus Off	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END					
U2414 - Central Gateway Module High Speed Extension CAN Bus Off	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END					
U250D - Invalid Data Received From Transmission Control Module on LIN Bus	Battery voltage is equal to or above 10.9 V	Engine not in starting mode (defined as engine crank with speed not equal to run mode)	Battery saver mode not active	END				

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Backup Transmissio n Range Command Message Counter Incorrect	C1201	UPDATE The diagnostic monitor detects an alive rolling count error or protection value (checksum) error in the LIN bus frame containing the Electronic Transmission Range Selector (ETRS) signal data. The alive rolling count sequences 0, 1, 2, 3 repeatedly. As each serial data frame is broadcast by the transmitting controller, the transmitting controller increments the alive rolling count in this sequence manner. The receiving controller compares the most recent received alive rolling count value to the previous value plus one. If the values are not equal, an alive rolling count error has occurred. The protection value is based on the checksum of the ETRS data parameters in the transmit message frame, and is incorporated in the transmit message frame. If the TCM receives the ECM/CHCM ETRS data	rolling count value received from ECM/CHCM and expected TCM calculated value not equal	= TRUE	Loop rate calibration either 10 milliseconds or 12.5 milliseconds service mode \$04 active battery voltage battery voltage time ETRS ECM/CHCM frame recieved	= CeCFMD_e_DEC_Time Base_12p5 = FALSE ≥ 11.00 volts ≥ 300.000 seconds = TRUE	alive rolling count errors ≥ 8 out of 10 sample counts	Type B, 2 Trips

DIAGNOSTIC SUMMARY TABLES -- TCM
TEST GROUP: KGMXV04 2088

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		message frame, the TCM calculates the protection value, again based on the ETRS data parameters, in the receive message frame. If the TCM calculated protection value does not equal the protection value incorporated in the ECM/CHCM ETRS data message frame, a or protection value error has occurred. If continuous alive rolling count errors or protection value errors occur, the DTC is set.						

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Steering Wheel Angle Sensor Signal Message Counter Incorrect	C1211	This DTC monitors for an error in the Steering Wheel Angle Sensor Signal Message Counter  Emission neutral default action sets steering angle to 0.0.	Communication of the Alive Rolling Count or Protection Value from the Steering Wheel Angle Sensor over CAN bus is incorrect for out of total samples	>= 8.00 counts >= 10.00 counts	Message frame  All the following conditions are met for  Power Mode  Powertrain Relay Voltage  Run/Crank Ignition Voltage	= Is available  >= 300.00 milliseconds  = Run  >= 11.00 Volts  >= 11.00 Volts	Executes in 10ms loop.	Emissio ns Neutral Diagnost ic – Type C

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lateral Acceleration Sensor Circuit Low	C124F	Controller specific analog circuit diagnoses the raw lateral acceleration signal for a short to ground or open fault by comparing raw signal value to fail thresholds.  Emission neutral default state sets lateral acceleration signal = 0.0 g.	raw lateral acceleration signal when sensor type is directly proportional OR raw lateral acceleration signal when sensor type is inversely proportional update raw lateral acceleration signal stability time, fail and sample time, 50 millisecond update rate	≤ -3.8500 g  ≥ -3.8500 g  (≤ 0.5 Ω impedance between signal and controller ground)	battery voltage run crank voltage diagnostic monitor enable sensor type is either directly proportional or inversely proportional U0073 fault active U0073 test fail this key on	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = CeLATR_e_VoltageDirec tProp = FALSE = FALSE	raw lateral acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Emissio ns Neutral Diagnost ic – Type C

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lateral Acceleration Sensor Circuit High	C1250	Controller specific analog circuit diagnoses the raw lateral acceleration signal for a short to power or open fault by comparing raw signal value to fail thresholds.  Emission neutral default state sets lateral acceleration signal = 0.0 g.	raw lateral acceleration signal when sensor type is directly proportional OR raw lateral acceleration signal when sensor type is inversely proportional update raw lateral acceleration signal stability time, fail and sample time, 50 millisecond update rate	≥ 3.8500 g ≤ 3.8500 g (≤ 0.5 Ω impedance between signal and controller power)	battery voltage run crank voltage diagnostic monitor enable sensor type is either directly proportional or inversely proportional U0073 fault active U0073 test fail this key on	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = CeLATR_e_VoltageDirec tProp = FALSE = FALSE	raw lateral acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Emissio ns Neutral Diagnost ic – Type C

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lateral Acceleration Sensor Performance	C1251	Controller specific analog circuit diagnoses the raw lateral acceleration signal for a signal value that is stuck in a valid range by comparing raw signal value to fail thresholds.  Emission neutral default state sets lateral acceleration signal = 0.0 g.	ABS(raw lateral acceleration signal) AND ABS(raw lateral acceleration signal) update raw lateral acceleration signal fail, 50 millisecond update rate	≥ 0.5300 g ≤ 3.8500 g	battery voltage run crank voltage diagnostic monitor enable  update raw lateral acceleration signal stablity time: TOSS vehicle speed automatic transmission is clutch to clutch OR dual clutch high side drive 1 enable high side drive 2 enable diagnsotic fault sequence gear active P0716 fault active P0717 fault active P0717 test fail this key on P07BF fault active P07BF test fail this key on P07C0 fault active P07C0test fail this key on attained gear  ABS(raw lateral acceleration signal) update sample time  U0073 fault active U0073 test fail this key on DTCs not fault active	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean ≥ 15.0 KPH = TRUE = TRUE = TRUE = FALSE = SALSE = FALSE = hicleSpeedSensor_FA	raw lateral acceleration signal stability time ≥ 10.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Emissio ns Neutral Diagnost ic – Type C

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Longitudinal Acceleration Sensor Circuit Low	C1252	Controller specific analog circuit diagnoses the raw longitudinal acceleration signal for a short to ground or open fault by comparing raw signal value to fail thresholds.  Emission neutral default state sets lateral longitudinal acceleration signal = 0.0 g.	raw longitudinal acceleration signal when sensor type is directly proportional OR raw longitudinal acceleration signal when sensor type is inversely proportional update raw longitudinal acceleration signal stability time, fail and sample time, 50 millisecond update rate	≤ -3.8500 g  ≥ -3.8500 g  (≤ 0.5 Ω impedance between signal and controller ground)	battery voltage run crank voltage diagnostic monitor enable sensor type is either directly proportional or inversely proportional U0073 fault active U0073 test fail this key on	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = CeLATR_e_VoltageDirec tProp = FALSE = FALSE	raw longitudinal acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Emissio ns Neutral Diagnost ic – Type C

## DIAGNOSTIC SUMMARY TABLES -- TCM

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Longitudinal Acceleration Sensor Circuit High	C1253	Controller specific analog circuit diagnoses the raw longitudinal acceleration signal for a short to power or open fault by comparing raw signal value to fail thresholds.  Emission neutral default state sets lateral longitudinal acceleration signal = 0.0 g.	raw longitudinal acceleration signal when sensor type is directly proportional OR raw longitudinal acceleration signal when sensor type is inversely proportional  update raw longitudinal acceleration signal stability time, fail and sample time, 50 millisecond update rate	≥ 3.8500 g ≤ 3.8500 g (≤ 0.5 Ω impedance between signal and controller power)	battery voltage run crank voltage diagnostic monitor enable sensor type is either directly proportional or inversely proportional U0073 fault active U0073 test fail this key on	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = CeLATR_e_VoltageDirec tProp = FALSE = FALSE	raw longitudinal acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Emissio ns Neutral Diagnost ic – Type C

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

EMISSIONS STDS: CAL--ULEV125; FED--BIN125

	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Longitudinal Acceleration Sensor Performance	C1254	Controller specific analog circuit diagnoses the raw longitudinal acceleration signal rationalized against the TOSS vehicle speed acceleration. The diagnostic monitor can be designed to detect an invalid longitudinal acceleration signal based on the TOSS vehicle speed windows and TOSS vehicle speed windows and TOSS vehicle speed acceleration, 4 windows can be enabled. The delta between the TOSS vehicle speed acceleration and longitudinal acceleration signal is taken within each window to verify the delta is small, no failure indicated, or the delta is large indicating the longitudinal acceleration signal is in error.  Emission neutral default state sets lateral longitudinal acceleration signal = 0.0 g.	ABS(TOSS vehicle speed acceleration - raw longitudinal acceleration signal)  update raw longitudinal acceleration signal region 1 fail time, 50 millisecond update rate	≥ 0.0800 g	battery voltage run crank voltage diagnostic monitor enable region 1 specific enable  update raw lateral longitudinal acceleration signal stablity time: TOSS vehicle speed TOSS vehicle speed acceleration automatic transmission is clutch to clutch OR dual clutch high side drive 1 enable high side drive 2 enable diagnsotic fault sequence gear active P0716 fault active P0717 fault active P0717 test fail this key on P0717 fault active P0718 fault active P0718 fault active P0719 test fail this key on P0706 fault active P07C0test fail this key on P07C0 fault active P07C0test fail this key on attained gear ABS(raw longitudinal acceleration signal) AND ABS(raw longitudinal acceleration signal)  update region 1 sample time: brake pedal position engine torque TOSS vehicle speed acceleration TOSS vehicle speed	= FALSE	raw lateral longitudinal acceleration signal stability time ≥ 10.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate  region 1 fail time ≥ 4.0 seconds out of region 1 sample time ≥ 5.0 seconds, 50 millisecond update rate	Emissio ns Neutral Diagnos ic – Type C

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					ABS(raw longitudinal acceleration signal) update sample time	< 0.5300 g		
					U0073 fault active U0073 test fail this key on DTCs not fault active	= FALSE = FALSE VehicleSpeedSensor_FA VehicleSpeedSensorError		
			ABS(TOSS vehicle speed acceleration - raw longitudinal acceleration signal)  update raw longitudinal acceleration signal region 2 fail time, 50 millisecond update rate	≥ 0.0000 g	battery voltage run crank voltage diagnostic monitor enable region 2 specific enable  update raw lateral longitudinal acceleration signal stablity time: TOSS vehicle speed TOSS vehicle speed acceleration automatic transmission is clutch to clutch OR dual clutch high side drive 1 enable high side drive 2 enable diagnsotic fault sequence gear active P0716 fault active P0717 test fail this key on P0717 test fail this key on P07BF fault active P07BF test fail this key on P07C0 fault active P07C0test fail this key on ABS(raw longitudinal acceleration signal) AND ABS(raw longitudinal acceleration signal)	= FALSE = FALSE = FALSE	raw lateral longitudinal acceleration signal stability time ≥ 10.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	

# DIAGNOSTIC SUMMARY TABLES -- TCM

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					update region 2 sample time: brake pedal position engine torque TOSS vehicle speed acceleration TOSS vehicle speed TOSS vehicle speed ABS(raw longitudinal acceleration signal) update sample time U0073 fault active U0073 test fail this key on DTCs not fault active	≤ 0.70 % ≥ 80.0 Nm ≥ 0.1500 g ≥ 0.0 KPH ≤ 0.0 KPH < 0.5300 g  = FALSE = FALSE VehicleSpeedSensor_FA VehicleSpeedSensorError	region 2 fail time ≥ 75.0 seconds out of region 2 sample time ≥ 120.0 seconds, 50 millisecond update rate	
			ABS(TOSS vehicle speed acceleration - raw longitudinal acceleration signal)  update raw longitudinal acceleration signal region 3 fail time, 50 millisecond update rate	≥ 0.0000 g	battery voltage run crank voltage diagnostic monitor enable region 3 specific enable  update raw lateral longitudinal acceleration signal stablity time: TOSS vehicle speed TOSS vehicle speed acceleration automatic transmission is clutch to clutch OR dual clutch high side drive 1 enable high side drive 2 enable diagnsotic fault sequence gear active P0716 fault active P0717 test fail this key on P07BF fault active P07BF test fail this key on	= FALSE = FALSE = FALSE	raw lateral longitudinal acceleration signal stability time ≥ 10.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	

# DIAGNOSTIC SUMMARY TABLES -- TCM

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P07C0 fault active P07C0test fail this key on attained gear ABS(raw longitudinal acceleration signal) AND ABS(raw longitudinal acceleration signal)	= FALSE = FALSE = 1st thru 10th ≥ 0.5300 g ≤ 3.8500 g		
					update region 3 sample time: brake pedal position engine torque ABS(TOSS vehicle speed acceleration) TOSS vehicle speed ABS(raw longitudinal acceleration signal) update sample time	≤ 0.70 % ≥ 80.0 Nm ≤ 0.1000 g ≥ 0.0 KPH < 0.5300 g	region 3 fail time ≥ 75.0 seconds out of region 3 sample time ≥ 120.0 seconds, 50 millisecond update rate	
					U0073 fault active U0073 test fail this key on DTCs not fault active	= FALSE = FALSE VehicleSpeedSensor_FA VehicleSpeedSensorError		
			ABS(TOSS vehicle speed acceleration - raw longitudinal acceleration signal)  update raw longitudinal acceleration signal region 4 fail time, 50 millisecond update rate	≥ 0.1700 g	battery voltage run crank voltage diagnostic monitor enable region 3 specific enable  update raw lateral longitudinal acceleration signal stablity time: TOSS vehicle speed TOSS vehicle speed acceleration automatic transmission is clutch to clutch OR dual clutch	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = 1 Boolean ≥ 15.0 KPH ≤ 0.5300 g = TRUE	raw lateral longitudinal acceleration signal stability time ≥ 10.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	
					clutch high side drive 1 enable high side drive 2 enable	= TRUE = TRUE		

### DIAGNOSTIC SUMMARY TABLES -- TCM

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					diagnsotic fault sequence gear active P0716 fault active P0716 test fail this key on P0717 fault active P0717 test fail this key on P07BF fault active P07BF test fail this key on P07C0 fault active P07C0test fail this key on attained gear ABS(raw longitudinal acceleration signal) AND ABS(raw longitudinal acceleration signal) update region 4 sample time: brake pedal position engine torque TOSS vehicle speed acceleration TOSS vehicle speed TOSS vehicle speed ABS(raw longitudinal acceleration TOSS vehicle speed UOSS vehicle speed TOSS vehicle speed TOSS vehicle speed TOSS vehicle speed	= FALSE = FALSE = FALSE = FALSE = FALSE	region 4 fail time ≥ 2.0 seconds out of region 4 sample time ≥ 2.5 seconds, 50 millisecond update rate	

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System Voltage Performance	P0561	Detects a low performing 12V battery system. This	Run Crank voltage low and high	ABS(Battery voltage - Run Crank voltage) > 3.00	Battery voltage B+ line present = TRUE	1.00	40 failures out of 50 samples	Type A, 1 Trips
		diagnostic reports the DTC when the absolute value of the difference between the battery			Battery voltage low and high diag enable = TRUE  Run Crank voltage	1.00 Voltage ≥5.00 volts	100 ms / sample	
		voltage and the run/ crank voltage exceeds a calibrated value.			Truit Oralik voltage	voltage = 5.00 volts		

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Read Only Memory (ROM)	P0601	This DTC will be stored if the calibration check sum is incorrect or the flash memory detects an uncorrectable error via the Error Correcting Code.	The Primary Processor's calculated checksum does not match the stored checksum value. Covers all software and calibrations.	1 failure if the fault is detected during the first pass. 5.00 failures if the fault occurs after the first pass is complete.			Diagnostic runs continuously in the background.	Type A, 1 Trips
			The Primary Processor's Error Correcting Code hardware in the flash memory detects an error. Covers all software and calibrations.	254 failures detected via Error Correcting Code			Diagnostic runs continuously via the flash hardware.	
			The Primary Processor's calculated checksum does not match the stored checksum value for a selected subset of the calibrations.	2 consecutive failures detected or 5 total failures detected.			Diagnostic runs continuously. Will report a detected fault within 200 ms.	
				In all cases, the failure count is cleared when controller shuts down				

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Not Programmed		This DTC will be stored if the DEC ECU has not been flash programmed with production software and calibration.		= 0 Boolean	controller normal power up initialization, ignition run crank transtions from low to high service Mode \$04 active during one second loop	= FALSE	at controller power up intitalization one time (one event/ occurance) OR in one second time loop	Type A, 1 Trips

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Long Term	P0603	This DTC detects an invalid NVM which includes a Static NVM,	Static NVM region error detected during initialization				Diagnostic runs at controller power up.	Type A, 1 Trips
Memory Reset		Perserved NVM, ECC ROM in NVM Flash Region, and Perserved NVM during shut down.	Perserved NVM region error detected during initialization				Diagnostic runs at controller power up.	
		_	Perserved NVM region error detected during shut down.				Diagnostic runs at controller power down.	

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module RAM Failure	P0604	Indicates that the controller has detected a RAM fault. This includes Primary Processor System RAM Fault, Primary Processor Cache RAM Fault, Primary Processor TPU RAM Fault, Primary	Indicates that the primary processor is unable to correctly read data from or write data to system RAM. Detects data read does not match data written >=	254 counts			Will finish first memory scan within 30 seconds at all engine conditions - diagnostic runs continuously (background loop)	Type A, 1 Trips
		Processor Update Dual Store RAM Fault, Primary Processor Write Protected RAM Fault, and Secondary Processor RAM Fault. This diagnostic runs continuously.	Indicates that the primary processor is unable to correctly read data from or write data to cached RAM. Detects data read does not match data written >=	3 counts			Will finish first memory scan within 30 seconds at all engine conditions - diagnostic runs continuously (background loop)	
			Indicates that the primary processor is unable to correctly read data from or write data to TPU RAM. Detects data read does not match data written >=	5 counts			Will finish first memory scan within 30 seconds at all engine conditions - diagnostic runs continuously (background loop)	
			Indicates that the primary processor detects a mismatch between the data and dual data is found during RAM updates. Detects a mismatch in data and dual data updates >	0.40000 s			When dual store updates occur.	

### DIAGNOSTIC SUMMARY TABLES -- TCM

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Indicates that the primary processor detects an illegal write attempt to protected RAM. Number of illegal writes are >	65,534 counts			Diagnostic runs continuously (background loop)	

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal Processor	P0606	Indicates that the conroller has detected	Time new seed not received exceeded			always running	409.594 seconds	Type A, 1 Trips
Integrity Fault	integrity fault. These include diagnostics done on the SPI Communication as well as a host of diagnostics for both the primary and secondary	MAIN processor receives seed in wrong order			always running	18 / 17 counts intermittent. 50 ms/count in the ECM main processor		
		and secondary processsors.	2 fails in a row in the MAIN processor's ALU check			Test is Enabled: CPU1 0 CPU2 1 CPU3 0 CPU4 0 (If 0, this test is disabled)	25 ms	
			2 fails in a row in the MAIN processor's configuration register masks versus known good data			Test is Enabled: 1 (If 0, this test is disabled)	12.5 to 25 ms	
			Checks number of stack over/under flow since last powerup reset >=	5.00		Test is Enabled: 1 (If 0, this test is disabled)	variable, depends on length of time to corrupt stack	
			Voltage deviation >	0.4950		Test is Enabled: 1 (If 0, this test is disabled)	5 / 10 counts or 0.450 seconds continuous; 50 ms/count in the ECM main processor	
			Checks for ECC (error correcting code) circuit	3 (results in MIL), 5 (results in MIL and		Test is Enabled: 1	variable, depends on	

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			test errors reported by the hardware for flash memory. Increments counter during controller initialization if ECC error occured since last controller initialization. Counter >=	remedial action)		(If 0, this test is disabled)	length of time to access flash with corrupted memory	
			Checks for ECC (error correcting code) circuit test errors reported by the hardware for RAM memory circuit. Increments counter during controller initialization if ECC error occured since last controller initialization. Counter >=	3 (results in MIL), 5 (results in MIL and remedial action)		Test is Enabled: 1 (If 0, this test is disabled)	variable, depends on length of time to write flash to RAMvariable, depends on length of time to write flash to RAM	
			MAIN processor DMA transfer from Flash to RAM has 1 failure			Test is Enabled: 1 (If 0, this test is disabled)	variable, depends on length of time to write flash to RAM	
			Safety critical software is not executed in proper order.	>= 1 incorrect sequence.		Test is Enabled: P0606 Program Sequence Watch Enable f(CPU#, loop time or event) (If 0, this test is disabled)	Fail Table, f(Loop Time). See supporting tables: P0606_PSW Sequence Fail f (Loop Time)	
							Sample Table, f (Loop Time)See supporting tables: P0606_PSW Sequence Sample f(Loop Time)	

DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07	TEST GROUP: KGMXV04.2088	EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
							counts	
							50 ms/count in the ECM main processor	
			MAIN processor determines a seed has not changed within a specified time period within the 50ms task.	Previous seed value equals current seed value.		Test is Enabled: 1 (If 0, this test is disabled)	Table, f(Loop Time). See supporting tables: P0606_Last Seed Timeout f (Loop Time)	

### DIAGNOSTIC SUMMARY TABLES -- TCM

TEST GROUP: KGMXV04.2088

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal Processor Integrity Performance	P0607	Indicates that the controller has detected an internal processor integrity performance.	Performs the failure diagnostic for the offline and online BIST results.		calibration enable	= 1 Boolean	5 counts  background task/ count in the ECM main processor	Type A, 1 Trips
			Checks for ECC (error correcting code) circuit test errors reported by the hardware for flash memory. Increments counter during controller initialization if ECC error occured since last controller initialization. Counter >=	3 (results in MIL), 5 (results in MIL and remedial action)	calibration enable	= 1 Boolean	variable, depends on length of time to access flash with corrupted memory	
			Checks for ECC (error correcting code) circuit test errors reported by the hardware for RAM memory circuit. Increments counter during controller initialization if ECC error occured since last controller initialization. Counter >=	3 (results in MIL), 5 (results in MIL and remedial action)	calibration enable	= 1 Boolean	variable, depends on length of time to write flash to RAMvariable, depends on length of time to write flash to RAM	

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal Control	P062F	This DTC detects a NVM long term performance. There are	HWIO reports that writing to NVM (at shutdown) will not succeed				Diagnostic runs at controller power up.	Type A, 1 Trips
Module EEPROM Error		two types of diagnostics that run during controller power up. One for HWIO reports that writing to NVM (at shutdown) will not succeed, and the other HWIO reports the assembly calibration integrity check has failed.	HWIO reports the assembly calibration integrity check has failed				Diagnostic runs at controller power up.	

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Actuator Supply Voltage Circuit Low	P0658	Controller specific output driver circuit diagnoses the high sided driver circuit for a short to ground failure, or where controller H/W cannot differentiate, diagnoses the high sided driver circuit for a short to ground failure or open circuit failure, when the output is powered on, by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range during driver on state indicates short to ground failure.  Controller specific output driver circuit voltage thresholds are set to meet the following controller specification for a short to ground or an open circuit.	≤ 0.5 Ω impedance between signal and controller ground OR ≥ 200 K Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail count and increment sample count, otherwise increment only sample count	(ground short diagnostic monitor enable calibration OR open circuit diagnostic monitor enable calibration) high side drive ON service mode \$04 active	= 1 Boolean = 1 Boolean = TRUE = FALSE	ground short fail count ≥ 6 counts within sample count of 2,400 counts OR open circuit fail count ≥ 6 counts within sample count of 2,400 counts  6.25 millisecond update rate	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Fluid Temperature (TFT) Sensor Performance	P0711	The diagnostic monitor will verify the time to transmission fluid temperature warm up based on the raw transmission fluid temperature sesnor, any intermittent signal that causes multiple	raw transmission fluid temperature and the transmission fluid temperature warm up time has elapsed	≤ 15.0 °C			transmission fluid temperature warm up time ≥ transmission fluid temperature warm up time seconds	Type B, 2 Trips
	changes (intermittent faults) based on the raw transmission fluid	unrealistic delta changes (intermittent			diagnsotic monitor enable P0712 NOT fault active P0713 NOT fault active	= 1 Boolean		
					battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
	sesnor signal stuck in valid range.			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds		
				warm up test enable TFT rationality diagnostic monitor enabled	= 1 Boolean = VeTFSR_b_TFT_RatlEnbl			
					driver accelerator pdeal position	≥ 5.0 %		
					engine torque engine speed vehicle speed engine coolant	≥ 50.0 Nm ≥ 500.0 RPM ≥ 10.0 KPH ≥ -40.0 °C		
					temperature engine coolant temperature	≤ 150.0 °C		
				raw transmission fluid temperature raw transmission fluid temperature	≥ -40.0 °C ≤ 150.0 °C			
					P2818 fault active P2818 test fail this key on	= FALSE = FALSE		
				DTCs not fault active				

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						EngineTorqueEstInaccura te AcceleratorPedalFailure CrankSensor_FA ECT_Sensor_FA VehicleSpeedSensor_FA		
			current transmission fluid temperature string length = previous transmission fluid temperature transmission temperature string length + (raw transmission fluid temperature - previous raw transmission fluid temperature, update rate 100 milliseconds, increment sample count	≥ 80.0 °C			sample count ≥ 10 counts evaluate fail temperature threshold, 100 millisecond update rate, if transmission fluid temperature string length above fail threshold increment fail time  fail time ≥ 8.0 seconds out of sample time ≥ 12.0 seconds	
					diagnsotic monitor enable P0712 NOT fault active P0713 NOT fault active	= 1 Boolean		
					battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
					run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
					intermittent test enable propulsion system active	= 1 Boolean = TRUE		
			raw transmission fluid temperature previous	≤ 0.0000 °C			fail time ≥ 600.0 seconds	

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			raw transmission fluid temperature, update rate 100 milliseconds,		diagnsotic monitor enable P0712 NOT fault active P0713 NOT fault active	= 1 Boolean		
			update fail time		battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
					run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
					stuck in range test enable propulsion system active raw transmission fluid temperature raw transmission fluid temperature	= 1 Boolean = TRUE ≥ -40.0 °C ≤ 150.0 °C		

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Fluid Temperature Sensor Circuit Low Voltage	P0712	Controller specific analog circuit diagnoses the transmission fluid temperature sensor and wiring for a short to ground fault by comparing a voltage measurement to controller specific voltage thresholds, converted to a resistance value.	circuit resistance update fail time 1 seconds update rate	≤ 13.000 Ω	diagnostic monitor enable battery voltage run crank voltage run crank voltage in range time	= 1 Boolean ≥ 9.00 volts ≥ 9.00 volts	fail time ≥ 5.00 seconds out of sample time ≥ 6.00 seconds 1 seconds update rate  battery voltage in range time ≥ 0.100 seconds  run crank voltage in range time ≥ 0.100 seconds	

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Fluid Temperature Sensor Circuit Low Voltage	P0713	Controller specific analog circuit diagnoses the transmission fluid temperature sensor and wiring for an open circuit or short to voltage failure by comparing a voltage measurement to controller specific voltage thresholds, converted to a resistance value.	circuit resistance update fail time 1 seconds update rate	≥206,875.0 Ω	diagnostic monitor enable battery voltage run crank voltage run crank voltage in range time	= 1 Boolean ≥ 9.00 volts ≥ 9.00 volts	fail time ≥ 5.00 seconds out of fail time ≥ 6.00 seconds 1 seconds update rate  battery voltage in range time ≥ 0.100 seconds  run crank voltage in range time ≥ 0.100 seconds	

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Input Speed Sensor Performance	P0716	Detects unrealistic drop in raw transmission input speed signal RPM. Drop events are counted up to fail threshold. A drop event is defined by a sudden delta change in RPM from one value to a lower value. The raw transmission input speed must achieve a value high enough to record an unrealistic drop sample to sample. Once the drop threshold is met, fail time is accumualted indicating the raw transmission input speed has not recovered above a threshold, allowing the fail event count to increment. Multiple fail event counts must occur, but if the signal remains low, no further	delta raw transmission input speed  delta raw transmission input speed = raw transmission input speed - last valid raw transmission input speed, 25 millisecond update rate	≥ 2,000.0 RPM	service mode \$04 active diagnostic monitor enable P0717 test fail this key on P07BF test fail this key on P07C0 test fail this key on High Side Driver 1 and 2 Run Crank Voltage Service Fast Learn Run Crank Active last valid raw transmission input speed OR valid raw transmission input speed input speed	= FALSE = 1 Boolean (0 is disable, 1 is enable) = FALSE = FALSE = FALSE = TRUE ≥ 9.0 Volts = FALSE = TRUE ≥ 240.0 RPM ≥ 240.0 RPM	fail time ≥ 1.500 seconds updated fail event count, fail event count ≥ 5 counts, 25 millisecond update rate  raw transmission input speed time ≥ 2.000 seconds	Type A 1 Trips
		deltas occur, the "Input Speed Sensor Circuit Low Voltage" DTC will set before P0716, as P0716 is designed to set based on an intermittent raw transmission input speed signal RPM.			(before drop event) ************************************	*************************************	stability time ≥ 0.100 seconds	

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					speed) raw transmission output speed accelerator pedal position engine torque engine torque hydraulic system pressure available	≤ 8,191.9 Nm ≥ 30.0 Nm		
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccura te		

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Input Speed Sensor Circuit Low Voltage	P0717	Detects no activity in raw transmission input speed signal RPM due to open ciruit electrical failure mode or sensor internal faults, or, controller internal failure modes. The raw transmission input speed signal RPM is rationalized against vehicle conditions in which the the powertrain is producing torque available at the drive wheels, but raw transmission input speed signal RPM remains low. After a sudden drop in raw transmission input speed signal RPM, a race condition can occur between P0717 and "Input Speed Sensor Performance" depending on the true nature of the failure.	raw transmission input speed OR TISS/TOSS fault (single power supply to TISS and TOSS) = TRUE, update fail time 25 millisecond update rate	≤ 168.0 RPM < 175.0 RPM	service mode \$04 active diagnostic monitor enable run crank active service fast learn active run crank voltage hydraulic pressure avail P0722 fault active P0772 fault active P077C fault active P077D fault active P077B fault active brake pedal position P0716 test fail this key on P07BF test fail this key on P07C0 test fail this key on accelerator pedal position engine torque engine torque engine torque AND ***********************************	= FALSE  = 1 Boolean (0 is disable, 1 is enable) = TRUE = FALSE ≥ 9.0 volts = TRUE  = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = CR_Fourth ≥ CeCGSR_e_CR_First ≥ 250.0 RPM  ≤ CeCGSR_e_CR_Tenth ≥ CeCGSR_e_CR_Fourth ≥ CeCGSR_e_CR_Fourth ≥ TeCGSR_E_CR_Tenth ≥ CeCGSR_E_CR_Fourth	fail time ≥ 4.00 seconds  run crank voltage time ≥ 25 milliseconds	Type A, 1 Trips

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					AND (P0717 fault active OR P0717 test fail this key on) ***********************************	= FALSE = FALSE  ***********************************		

# **DIAGNOSTIC SUMMARY TABLES -- TCM**

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

<b>EMISSIONS</b>	STDS: CAL	UI FV125	: FEDBIN125
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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Performance	P0721	The diagnostic monitor determines if the direction TOSS value is coherent based on the on period time of the directional sensor and TOSS raw. When the on period time indicates a transitional state, the direction must also be transitional as measured by very slow TOSS raw RPM. When the on period time indicates a non-transitional state, forward or reverse, the direction must also be transition, not forward and not reverse.	TOSS raw direction when TOSS transitional period = FALSE AND (TOSS raw direction when TOSS transitional period = FALSE OR TOSS raw when TOSS transitional period = TRUE)  update fail and sample time 6.25 ms update rate	≠FORWARD  ≠REVERSE  ≥ 225.0 RPM	service mode \$04 active diagnostic monitor enable TOSS count sample period (P0721 fault active OR P0721 test fail this key on) senor type is directional senor type cailbration  ***********************************	= FALSE = 1 Boolean ≠ 0 counts = FALSE = FALSE = CeTOSR_e_Directional ************************************	fail time ≥ 3.500 seconds out of sample time ≥ 5.000 seconds	Type A, 1 Trips

DIAGNOSTIC SUMMARY TABLES -- TCM
TEST GROUP: KGMXV04 2088

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					on period when direction unknown			

## **DIAGNOSTIC SUMMARY TABLES -- TCM**

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Circuit Low Voltage	P0722	Detects no activity in raw transmission output speed signal RPM due to open ciruit electrical failure mode or sensor internal faults, or, controller internal failure modes. The raw transmission output speed signal RPM is rationalized against vehicle conditions in which the the powertrain is producing torque, but raw transmission output speed signal RPM remains low. After a sudden drop in raw transmission output speed signal RPM, a race condition can occur between P0722 and "Output Speed Sensor Circuit Intermittent" depending on the true nature of the failure.	raw transmission output speed, update fail time 6.25 millisecond update rate use high gear fail time threshold when: (attained gear attained gear)  ELSE use low gear fail time threshold	≥ CeCGSR_e_CR_First ≤ CeCGSR_e_CR_Tenth > CeCGSR_e_CR_Four th	service mode \$04 active diagnostic monitor enable  ***********************************	= FALSE = 1 Boolean ************************************	fail time ≥4.00 seconds high gear OR fail time ≥ 3.00 seconds low gear	Type A 1 Trips

# DIAGNOSTIC SUMMARY TABLES -- TCM

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					OR TCC mode))	≠ Off Mode		
					when not neutral range occurs: (attained gear engine torque accelerator pedal (TCC slip OR TCC mode))	≤     CeCGSR_e_CR_Fourth ≥ 50.0 Nm ≥ 3.5 % > 100.00 rpm  ≠ Off Mode ************************************		
					(TISS AND TISS) OR (Engine Speed AND Engine Speed)	≤ 8,191.9 RPM  ≥ 175.0 RPM  ≤ 8,191.9 RPM  ≥ 3,500.0 RPM  ***********************************		
					P0716 test fail this key on P0717 test fail this key on P07BF test fail this key on P07C0 test fail this key on	= FALSE		
					PTO check: PTO enable calibration is FALSE OR	= 1 Boolean		
					(PTO enable calibration is TRUE AND PTO active)	= 1 Boolean = FALSE		
					run crank voltage	≥ 5.00 volts	run crank voltage time ≥ 25 milliseconds	
					service fast learn active run crank voltage	= FALSE ≥ 9.00 volts		

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					transmission fluid temperature P0723 test fail this key on P077C test fail this key on P077D test fail this key on (P0722 fault active OR P0722 test fail this key on) (Hydraulic Pressure Avail Trans Engaged State)	= FALSE	Pressure and Trans Engaged for delay time P0722 OSS Direction Change Delay	
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccura te		

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Circuit Intermittent	P0723	Detects unrealistic drop in raw transmission output speed signal RPM. Drop events are counted up to fail threshold. A drop event is defined by a sudden delta change in RPM from one value to a lower value. The raw transmission output speed must achieve a value high enough to record an unrealistic drop sample to sample. Once the drop threshold is met, fail time is accumualted indicating the raw transmission output speed has not recovered above a	4WD low fail threshold: delta raw transmission output speed OR NOT 4WD low fail threshold, update fail time, delta raw transmission output speed = raw transmission output speed previous loop - raw transmission output speed, 25 millisecond update rate	≥ 1,755.0 RPM ≥ 650.0 RPM	service mode \$04 active diagnostic monitor enable	= FALSE = 1 Boolean	fail time ≥ 1.500 seconds updated fail event count, fail event count ≥ 5 counts, 25 millisecond update rate	Type A, 1 Trips
		threshold, allowing the fail event count to increment. Multiple fail event counts must occur, but if the signal remains low, no further deltas occur, the "Output Speed Sensor Circuit Low Voltage" DTC will set before P0723, as P0723 is			transmission engaged state	≠ not engaged	transmission engaged state time ≥ P0723 transmission engaged state time threshold	
		designed to set based on an intermittent raw transmission output			4WD low state	= 4WD low state previous loop, 25 millisecond update rate	4WD low change time ≥ 3.0 seconds	
		speed signal RPM.			PTO check: PTO disable calibration is FALSE OR	≠ 1 Boolean		

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					(PTO disable calibration is TRUE AND PTO active)	= 1 Boolean = FALSE		
					run crank voltage	≥ 5.00 volts	run crank voltage time ≥ 25 milliseconds	
					service fast learn active run crank voltage P077C test fail this key on P077D test fail this key on	= FALSE ≥ 9.00 volts = FALSE = FALSE	miniseconds	
					when PRNDL is moved to NEUTRAL allow transmission engaged state time before enabling fail evaluation, or, if raw raw transmission output speed is active in NEUTRAL enable fail			
					evaluation: PRNDL OR	= CeTRGR_e_PRNDL_Neu tral		
					PRNDL OR	= CeTRGR_e_PRNDL_Tra nsitional1 N-D transitional		
					PRNDL OR	= CeTRGR_e_PRNDL_Tra nsitional4 R-N transitional		
					raw transmission output speed OR	≥ 250.0 RPM		
					last valid raw transmission output speed	≥ 250.0 RPM		
					determine if raw transmission input speed is stable:			

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					(raw transmission input speed - raw transmission input speed previous, 25 millisecond update AND raw transmission input speed)	≤ 4,095.9 RPM ≥ 200.0 RPM	raw transmission input speed stability time ≥ 2.00 seconds	
					OR (TISS/TOSS has single power supply calibration AND	= 0 Boolean	no time required	
					raw transmission input speed)	= 0.0 RPM		
					select delta RPM fail theshold: (4WD low state AND 4WD low valid) select P0723 4WD TOSS delta fail threshold otherwise use P0723 TOSS delta fail threshold	= TRUE = TRUE		
					last valid raw transmission output speed	> 36.0 RPM	raw transmission output speed	
					OR valid raw transmission output speed (before drop event)	> 36.0 RPM	time ≥ 2.00 seconds	
					last valid raw transmission output speed updates every 25 milliseconds when stablity time complete as long as (delta delta raw transmission output speed	≤ 140.0 RPM	stability time ≥	
					AND raw transmission output speed)	≥ 36.0 RPM	0.100 seconds	
					hydraulic pressure avail	= TRUE		

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					PRNDL  AND PRNDL  AND ((PRNDL  OR PRNDL)  AND (Output Speed raw transmission output speed - raw transmission output speed previous, 25 millisecond update)) OR PRNDL  AND PRNDL  AND PRNDL  AND PRNDL  AND PRNDL  AND PRNDL	### ### ### ### ### #### #### ### #### ####	Delta met time > 2.00	
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccura te		

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Torque Converter Clutch (TCC) System Performance - GR10 specific	P0741	The GR10 diagnostic monitor detects the transmission torque converter control valve failed hydraulically on. The torque converter hydraulic control circuit is multiplexed with the transmission clutch select valve hydraulic control circuit, allowing for the torque converter	calculated transmission torque converter K factor = engine speed / SQR (engine torque) increment fail count 25 millisecond update rate	> P0741 GR10 torque converter K factor fail limit see supporting table	diagnostic monitor enable (TCC stuck off enable OR TCC stuck on enable) hydraulic pressure available:	= 1 Boolean = 1 Boolean = 1 Boolean	fail count ≥ 4 counts in 100 count sample 25 millisecond update rate	Type A, 1 Trips
		control valve stuck on test to execute when the clutch select valve solenoid is commanded ON. When the clutch select valve solenoid is commanded ON as the vehicle speed decreases toward zero KPH, and, if the torque converter control valve			engine speed	≥ 500.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table	
		is stuck on, the torque converter slip speed rate of change will have a large slope while			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		decreasing toward zero RPM, and the torque converter slip speed			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		will remain low near zero RPM.			P281B falut active P281D falut active P281E falut active P0722 fault pending P0723 fault pending PRNDL PRNDL transmission fluid temperature transmission fluid temperature	= FALSE = FALSE = FALSE = FALSE = FALSE ≠ PARK ≠ NEUTRAL ≥ -6.66 °C ≤ 130.0 °C		

# DIAGNOSTIC SUMMARY TABLES -- TCM

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					engine speed  intrusive shift active (intrusive shift due to fault maturing for clutch pressure control solenoid stuck off/on P0746, P0747, P0776, P0777, P0796, P0797, P2714, P2715, P2723, P2724, P2732, P2733, P2820, P2821) P0741 test fail this key on range shift state  attained gear slip engine torque accelerator pedal position accelerator pedal position transmission torque converter speed ratio (transmission turbine shaft speed / engine speed)  DTCs not fault active	≥ 1,500.0 RPM  = FALSE  = range shift complete (steagy state gear) ≤ 75.0 RPM ≥ 5.00 Nm ≥ 0.00 % ≤ 100.0 % ≤ 100.0 % ≤ 0.950  AcceleratorPedalFailure EngineTorqueEstInaccura te CrankSensor_FA P0716, P0717, P07BF, P07C0 P0722, P0723, P077C, P077D		

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Stuck Off (GR10)	P0746	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C1 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 1.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
		the solenoid is			********	*********	upuale	
		electrically functional. In the failure mode the			system-level enables:			
		clutch slip speed, and gear box gear slip, will be excessive, not near			use battery voltage calibration is FALSE OR	= 1 Boolean		
		or at zero RPM. The clutch slip speed is calculated based on			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		the transmission lever node design, requiring transmission input shaft			battery voltage)	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		speed, transmission output shaft speed, and, one transmission			use run crank voltage calibration is FALSE OR	= 0 Boolean	Goodiido	
		intermediate shaft speed. The clutch pressure control			(use run crank voltage calibration is TRUE	= 0 Boolean		
		solenoid is tested after an automatic transmission shift			run crank voltage)	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		occurs and has been considered shift			TCM output driver high side driver 1, clutch			
		complete, or, steady state gear is deemed active, range shift			pressure control solenoid driver circuit enabled	= TRUE Boolean		
		complete. When the automatic transmission			TCM output driver high side driver 2, clutch			
		shift is complete, steady state gear is considered, the clutch			pressure control solenoid driver circuit enabled	= TRUE Boolean		
		pressure control solenoid is mapped to			service fast learn active	= FALSE Boolean		
		transmission line			service solenoid cleaning			

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			procedure active	= FALSE Boolean		
		normally allows the						
		clutch to maintain full			hydraulic pressure			
		torque holding capacity			available	= TRUE		
		at the given engine						
		crankshaft torque, to			hydraulic line pressure	≥ -999.00 kPa		
		maintain true gear						
		ratio. When the clutch			********	*********		
		pressure control			enable C1 clutch slip			
		solenoid is failed			speed fail compare when:			
		hydraulically off, the						
1		clutch does not maintain holding			((startle mitigation active OR	= FALSE		
		capacity at any engine crankshaft torque, and			(startle mitigation active AND	= TRUE		
		the clutch slip speed is			startle mitigation gear))	≠ initial startle mitigation		
		uncontrollable. The			(see startle mitigation	gear		
		clutch pressure control			active NOTE below)	geal		
		solenoid test is			active NOTE below)			
		suspended if the higher			unintended deceleration			
		level safety startle			fault pending	= FALSE		
		mitigation function is			OR	I - I ALGE		
		active. The safety			unintended deceleration			
		startle mitigation			fault pending enable cal is	= 0 (0 to enable, 1 to		
		function is triggered			FALSE	disable)		
		when a sudden vehicle			(startle mitigation)	uisable)		
		deceleration occurs			(Startie Hilligation)			
		due to a clutch						
		pressure control			clutch steady state			
		solenoid that has failed			adaptive active	= FALSE		
		in the opposite sense,			adaptive active	I - I ALOL		
		clutch pressure control	ĺ		(transmission output shaft	≥ 36.0 RPM		
		solenoid failed	ĺ		speed	= 30.0 Ki Wi		
		hydraulically on, while	ĺ		OR	l		
		the solenoid is	ĺ		(accelerator pedal	≥ 0.50 %		
		electrically functional,	ĺ		position	2 0.50 /6		
		which must take priority	ĺ		OR	l		
		over any clutch	ĺ		engine speed)	≥ 1,000.0 RPM	≥ 1.000 seconds	
		pressure control	ĺ		engine speed)	2 1,000.0 KFW	= 1.000 Seconds	
		solenoid stuck off	ĺ		C1 alutab alia appad valid	_ TRUE (all apped		
			ĺ		C1 clutch slip speed valid	= TRUE (all speed		
		diagnostic monitor. All clutch pressure control	ĺ			sensors are functional for lever node clutch slip		

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off				speed calculation)		
		diagnostic monitors are				<b>.</b>		
		emission MIL DTCs.			C1 clutch pressured map	= mapped to line		
		System voltage must			· · · · · · · · · · · · · · · · · · ·	pressure, C1 clutch		
		be normal, all clutch				pressure has reached		
		pressure control				fully applied state		
		solenoid driver circuits				I any applied state		
		must be functional, no			(enable forward gear cal	= 1 (1 to enable, 0 to		
		clutch pressure control			AND	disable)		
		solenoid electrical or			driver direction request	= FORWARD		
		performance faults can			AND	= FORWARD		
						a FORWARD sacs		
		be present, and no			Attained Gear)	= a FORWARD gear		
		speed sensor electrical			OR	0/4/1		
		or performance faults			(enable reverse gear cal	= 0 (1 to enable, 0 to		
		can be present, or the			AND	disable)		
		clutch pressure control			driver direction request	= REVERSE		
		solenoid stuck off test			AND			
		is disabled. This			Attained Gear)	= REVERSE		
		diagnostic monitor is						
		relative to C1 (GR10			range shift state	= range shift complete		
		CB123456R) clutch						
		pressure control			********	*******		
		solenoid.			DTCs not fault pending	P17CE P1783 P178F		
					' "	P17C6 P17C4 P17C7		
						P17D3 P17C5 P0721		
						P172A P172B P0716		
						P0717 P07C0 P07BF		
						P0723 P0722 P077D		
						P077C P176C P176D		
						P176B P17D6		
						F170B F17D0		
					DTCs mat facility actives	D0504 D0707 D0700		
					DTCs not fault active	P2534 P0707 P0708		
						P0716 P0717 P07C0		
	I					P07BF P077D P077C		1
						P126C P176D P17CC		
	I					P17CD P0962 P0966		
						P0970 P2720 P2729		
						P2738 P0963 P0967		
						P0971 P2721 P2730		
						P2739 P0960 P0964		
						P0968 P2718 P2727		
		1	1			P2736 P17CE P1783	I	1

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on	P17D3 P17C5 P0721 AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0723 P0722 P176B P17D6 P0747 P0777 P0797 P2715 P2724 P2733 P0746 P0776 P0796 P2714 P2723 P2732 P2821 P2820 P178F P17C6 P17C4 P17C7 P172A P172B		
					NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC)	P0747	Each pressure control solenoid stuck on	shift type is power down shift:				Base fail time:	Type A, 1 Trips
Solenoid A Stuck On		diagnostic monitor detects a clutch	C1 clutch slip speed OR	< 50.0 RPM			shift type is power down	
		pressure control solenoid failed hydraulically on, while the solenoid is	shift type is garage shift: C1 clutch slip speed ELSE shift is another type:	< 100.00 RPM			shift: fail time ≥ 0.60 seconds	
		electrically functional. The clutch pressure control solenoid is	C1 clutch slip speed update fail time	< 50.0 RPM			shift type is garage shift: fail time ≥ 0.25	
		tested during an automatic transmission	6.25 milliscond update				shift type is	
		shift by monitoring the off going clutch slip speed. With the clutch					another type: fail time ≥ 0.150 seconds	
	pressure control solenoid failed on, still allowing hydraulic pressure to the clutch					Add fail time offset according to shift type:		
		being commanded off, the intended off going clutch continues to maintain torque capacity during the transmission automatic					open throttle upshift: Clutch Stuck On Fail Offset Time PU Shifts	
		shift. In the failure mode, the off going clutch slip speed will remain near zero RPM when the clutch pressure control					open throttle downshift: Clutch Stuck On Fail Offset Time PD Shifts	
	to an off p normal op release th clutch. Th	solenoid is commanded to an off pressure in the normal operation to release the holding clutch. The clutch slip					garage shift: Clutch Stuck On Fail Offset Time GS Shifts	
		speed is calculated based on the transmission lever node design, requiring					closed throttle downshift:	

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft					Clutch Stuck	
		speed, transmission					On Fail Offset	
		output shaft speed,					Time CD Shifts	
		and, one transmission						
		intermediate shaft					negative torque	
		speed. As part of the					upshift:	
		pressure control					Clutch Clip	
		solenoid stuck on					Press NU Shifts	
		diagnostic monitor, the						
		safety startle mitigation					clutch staging	
		function executes when					shift:	
		in steady state gear, no					Clutch Stuck	
1		automatic transmission					On Fail Offset	
		shift in progress. The					Time STGR	
		safety startle mitigation					Shifts	
		function is triggered						
		when a sudden vehicle					update fail count,	
		deceleration occurs					fail count ≥ 3	
		due to a clutch					counts	
		pressure control					6.25 milliscond	
		solenoid that has failed			*********	*******	update	
		hydraulically on, while						
		the solenoid is			system-level enables:			
		electrically functional.						
		All clutch pressure			use battery voltage	4 Danlana		
		control solenoid stuck			calibration is FALSE OR	= 1 Boolean		
		on diagnostic monitors			_			
		are emission MIL			(use battery voltage	4 Declara		
		DTCs. System voltage must be normal, all			calibration is TRUE AND	= 1 Boolean		
		clutch pressure control				≥ 9.00 volts	battery voltage	
		solenoid driver circuits			battery voltage)	2 9.00 VOIIS	time ≥ 0.100	
		must be functional, no					seconds	
		clutch pressure control			use run crank voltage	= 0 Boolean	Seconds	
		solenoid electrical or			calibration is FALSE	- 0 boolean		
		performance faults can			OR			
		be present, and no			(use run crank voltage	= 0 Boolean		
		speed sensor electrical			calibration is TRUE	- 0 boolean		
		or performance faults	l		AND			
		can be present, or the	l		run crank voltage)	≥ 9.00 volts	run crank voltage	
		clutch pressure control			Tan orani voltago,	- 0.00 VOILO	time ≥ 0.100	
		solenoid stuck on test	ĺ				seconds	

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		is disabled. This diagnostic monitor is relative to the GR10 C1 CB123456R clutch pressure control			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		solenoid.			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
					service fast learn active	= FALSE Boolean		
					service solenoid cleaning procedure active	= FALSE Boolean		
					hydraulic pressure available	= TRUE		
					hydraulic pressure	≥ -999 kPa ************************************		
					range shift state	≠ range shift complete		
					diagnostic clutch test	= OFF GOING CLUTCH TEST		
					transmission output shaft speed	≥ 36.0 RPM		
					((C1 off going clutch pressure control ramp time out complete AND off going clutch pressure	= TRUE		
					ramp control ramp time out enable) OR	= 1 (1 to enable, 0 to disable)		
					C1 off going clutch command pressure )	≤ 350.0 kPa	exhaust delay by shift type:	

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
							closed throttle upshift: C1 exhaust delay closed throttle lift foot up shift	
							open throttle upshift: C1 exhaust delay open throttle power on up shift	
							garage shifts: C1 exhaust delay garage shift	
							closed throttle downshift: C1 exhaust delay closed throttle down shift	
							negative torque upshift: C1 exhaust delay negative torque up shift	
							open throttle downshift: C1 exhaust delay open throttle power down shift	
					(engine torque AND Primary oncoming stuck	≥ 8,191.8 Nm = 0 (0 is enable, 1 is		

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					on torque enable cal)	enable)		
					OR			
					( primary oncoming clutch active	= TRUE		
					primary on coming control state	≠ clutch fill phase		
					primary on coming commanded pressure)	≥ pressure clip threshold according to shift type:		
						closed and open throttle upshifts:	Post-torque phase delay for powered upshifts	
						pressure clip threshold is dependent on the oncoming clutch:	is dependent on the oncoming clutch:	
						C2 Torque-Based Pressure Clip	C2_Oncoming Post-Torque Phase Delay	
						OR	OR	
						C3 Torque-Based Pressure Clip	C3_Oncoming Post-Torque Phase Delay	
						OR	OR Delay	
						C4 Torque-Based	C4_Oncoming	
						Pressure Clip	Post-Torque Phase Delay	
						OR	OR	
						C5 Torque-Based Pressure Clip	C5_Oncoming Post-Torque	
						OR	<b>Phase Delay</b> OR	
						C6 Torque-Based Pressure Clip	C6_Oncoming Post-Torque Phase Delay	
						clip thresholds for all other shift types:		

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						garage shifts: Clutch Clip Press GS Shifts		
						closed throttle downshift: Clutch Clip Press CD Shifts		
						negative torque upshift: Clutch Clip Press NU Shifts		
						open throttle downshift: Clutch Clip Press PD Shifts		
					C1 clutch slip speed valid, all speed sensors are functional for lever node clucth slip speed calculation	= TRUE		
					******	******		
					conditions needed to trigger test:			
					(current shift type	≠ Garage shift		
					AND shift type enable cal for current shift type)	Clutch Stuck On Shift = Type Enable		
					OR	(0 table value will disable, 1 will enable)		
					(Intrusive shift active AND	= FALSE		
					shift type enable cal for garage shift	= 1 (0 will enable, 1 will enable)		
					AND Attained Gear AND	= NEUTRAL OR commanded gear		
					(stuck on enable cal for forward garge shifts	= 1 (0 to disable, 1 to		

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					AND driver requested direction AND commanded gear) OR (stuck on enable cal for reverse garage shifts AND driver requested direction AND commanded gear))	enable) = FORWARD = a FORWARD gear = 1 (0 to disable, 1 to enable) = REVERSE = REVERSE		
					clutch stuck off intrusive shift active startle mitigation active (see note on startle mitigation below)	= FALSE = FALSE		
					(new clutch controller has been initalized OR transitioning to a different clutch controller)	= TRUE = TRUE		
					current clutch solenoid test state	transitions to TestState or TUT_HOLD (see note below about state transitions)		
					DTCs not fault pending	P17CE P1783 P178F P17C6 P17C4 P17C7 P17D3 P17C5 P0721 P172A P172B P0716 P0717 P07C0 P07BF P0723 P0722 P077D P077C P176C P176D P176B P17D6		
					DTCs not fault active	P2534 P0707 P0708		

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						P0716 P0717 P07C0 P07BF P077D P077C P126C P176D P17CC P17CD P0962 P0966 P0970 P2720 P2729 P2738 P0963 P0967 P0971 P2721 P2730 P2739 P0960 P0964 P0968 P2718 P2727 P2736 P17CE P1783 P17D3 P17C5 P0721 AcceleratorPedalFailure		
					DTCs not test fail this key on	P0707 P0708 P0723 P0707 P0708 P0723 P0722 P176B P17D6 P0747 P0777 P0797 P2715 P2724 P2733 P0746 P0776 P0796 P2714 P2723 P2732 P2821 P2820 P178F P17C6 P17C4 P17C7 P172A P172B		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions: Current value of clutch control solenoid test state			

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					is TIE UP TEST TEST			<u>†                                      </u>
					STATE, when one off			
					going clutch pressure			
					control solenoid stuck on			
					diagnostic monitor is			
					currently executing.			
					AND			
					That off going clutch			
					pressure control solenoid			
					stuck on diagnostic			
			1		monitor currently	l		
			1		executing passes, the	l		
					corresponding clutch slip	l		
					speed ≥ clutch slip speed			
					fail threshold.			
					Once clutch control			
					solenoid test state is set			
					to TIE UP TEST HOLD, it			
					remains TIE UP TEST			
					HOLD during the			
					automatic transmission			
					shift, until:			
					An additional off going			
					clutch occurs, as			
					indicated by solenoid			
					stuck on test trigger =			
					TRUE, subsequently			
					clutch control solenoid			
					test state is reset to TIE			
					UP TEST TEST STATE, to			
					allow the additional			
			1		corresponding off going	l		
					clutch pressure control			
					solenoid stuck on	l		
					diagnostic monitor to	l		
					execute.	l		
					OR	l		
			1		The automatic	l		
			1		transmission shift	l		
					completes, range shift	l		
					state = range shift	l		
					complete.		1	1

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control solenoid stuck on failure mode that occurs during steady state gear, not during an automatic transmission shift. The startle mitigation active then forces the transmission clutch
pressure control system to a safe gear or neutral state, based on the active and inactive clutches, when the unintended vehicle deceleration occurred. Once a safe vehicle gear state is attained, the gear and clutch pressure control system allows transitions of the clutches on and off, to sequence automatic transmission shifts, single step shifts. As each single step automatic transmission shift occurs the normal pressure control solenoid stuck on diagnostic monitors execute to verify which

DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0777, P0797, P2715, P2724, P2733, P2821.			

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Stuck Off (GR10)	P0776	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C2 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 1.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A 1 Trips
		the solenoid is			********	******	ириию	
	electrically functional. In the failure mode the clutch slip speed, and gear box gear slip, will be excessive, not near  electrically functional.  system-level enables:  use battery voltage calibration is FALSE  OR							
		or at zero RPM. The clutch slip speed is calculated based on	e (use battery voltage = 1 Boolean calibration is TRUE					
		the transmission lever node design, requiring transmission input shaft		battery voltage) ≥ 9.00 volts battery votime ≥ 0.	battery voltage time ≥ 0.100 seconds			
		speed, transmission output shaft speed, and, one transmission			use run crank voltage calibration is FALSE OR	= 0 Boolean	00001140	
		intermediate shaft speed. The clutch pressure control			(use run crank voltage calibration is TRUE	= 0 Boolean		
		solenoid is tested after an automatic transmission shift			run crank voltage)	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		occurs and has been considered shift			TCM output driver high side driver 1, clutch			
		complete, or, steady state gear is deemed active, range shift  pressure control solenoid driver circuit enabled  = TRUE Boolean						
		complete. When the automatic transmission shift is complete,			TCM output driver high side driver 2, clutch pressure control solenoid			
		steady state gear is considered, the clutch			driver circuit enabled	= TRUE Boolean		
		pressure control solenoid is mapped to transmission line			service fast learn active	= FALSE Boolean		

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			procedure active	= FALSE Boolean		
		normally allows the						
		clutch to maintain full			hydraulic pressure			
		torque holding capacity			available	= TRUE		
		at the given engine						
		crankshaft torque, to			hydraulic line pressure	≥ -999.00 kPa		
		maintain true gear						
		ratio. When the clutch			********	**********		
		pressure control			enable C2 clutch slip			
		solenoid is failed			speed fail compare when:			
		hydraulically off, the						
		clutch does not maintain holding			((startle mitigation active OR	= FALSE		
		capacity at any engine crankshaft torque, and			(startle mitigation active AND	= TRUE		
		the clutch slip speed is			startle mitigation gear))	≠ initial startle mitigation		
		uncontrollable. The			(see startle mitigation	gear		
		clutch pressure control			active NOTE below)	goal		
		solenoid test is			donve ive i E solow)			
		suspended if the higher			unintended deceleration			
		level safety startle			fault pending	= FALSE		
		mitigation function is			OR	===		
		active. The safety			unintended deceleration			
		startle mitigation			fault pending enable cal is	= 0 (0 to enable, 1 to		
		function is triggered			FALSE	disable)		
		when a sudden vehicle			(startle mitigation)	,		
		deceleration occurs			(3,			
		due to a clutch						
		pressure control			clutch steady state			
		solenoid that has failed			adaptive active	= FALSE		
		in the opposite sense,			· .			
		clutch pressure control			(transmission output shaft	≥ 36.0 RPM		
	Ī	solenoid failed			speed			
	Ī	hydraulically on, while			ÓR			
	Ī	the solenoid is			(accelerator pedal	≥ 0.50 %		
ĺ		electrically functional,			position			
ĺ		which must take priority			OR			
ĺ		over any clutch			engine speed)	≥ 1,000.0 RPM	≥ 1.000 seconds	
ĺ		pressure control			' ' '			
	I	solenoid stuck off			C2 clutch slip speed valid	= TRUE (all speed		
	Ī	diagnostic monitor. All				sensors are functional for		
		clutch pressure control				lever node clutch slip		

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits			C2 clutch pressured map	speed calculation) = mapped to line pressure, C2 clutch pressure has reached fully applied state		
		must be functional, no clutch pressure control solenoid electrical or performance faults can			(enable forward gear cal AND driver direction request AND	= 1 (1 to enable, 0 to disable) = FORWARD		
		be present, and no speed sensor electrical or performance faults can be present, or the clutch pressure control			Attained Gear) OR (enable reverse gear cal AND driver direction request	= a FORWARD gear = 0 (1 to enable, 0 to disable) = REVERSE		
		solenoid stuck off test is disabled. This diagnostic monitor is relative to C2 (GR10 CB128910R) clutch			AND Attained Gear) range shift state	= REVERSE = range shift complete		
		pressure control solenoid.			**************************************	P17CE P1783 P178F P17C6 P17C4 P17C7 P17D3 P17C5 P0721 P172A P172B P0716 P0717 P07C0 P07BF P0723 P0722 P077D P077C P176C P176D P176B P17D6		
					DTCs not fault active	P2534 P0707 P0708 P0716 P0717 P07C0 P07BF P077D P077C P126C P176D P17CC P17CD P0962 P0966 P0970 P2720 P2729 P2738 P0963 P0967 P0971 P2721 P2730 P2739 P0960 P0964 P0968 P2718 P2727 P2736 P17CE P1783		

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on failure modes, the clutch pressure control solenoid	P17D3 P17C5 P0721 AcceleratorPedalFailure CrankSensor_FA  P0707 P0708 P0723 P0722 P176B P17D6 P0747 P0777 P0797 P2715 P2724 P2733 P0746 P0776 P0796 P2714 P2723 P2732 P2821 P2820 P178F P17C6 P17C4 P17C7 P172A P172B		
					stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure	P0777	Each pressure control	shift type is power down				Base fail time:	Type A
Control (PC)		solenoid stuck on	shift:	50.00 DDM			1.100	1 Trips
Solenoid B Stuck On		diagnostic monitor detects a clutch	C2 clutch slip speed OR	< 50.00 RPM			shift type is power down	
Stuck Off		pressure control	shift type is garage shift:				shift:	
	solenoid failed	C2 clutch slip speed	< 100.00 RPM			fail time ≥ 0.60		
		hydraulically on, while	ELSE	100.00 141 111			seconds	
the solenoid is	shift is another type:							
		electrically functional.	C2 clutch slip speed	< 50.00 RPM			shift type is	
		The clutch pressure					garage shift:	
		control solenoid is	update fail time				fail time ≥ 0.25	
		tested during an	6.25 milliscond update					
		automatic transmission					shift type is	
		shift by monitoring the					another type:	
		off going clutch slip speed. With the clutch					fail time ≥ 0.15	
		pressure control					seconds	
		solenoid failed on, still					Add fail time	
		allowing hydraulic					offset according	
		pressure to the clutch					to shift type:	
		being commanded off,					1.0 0 1,70	
		the intended off going					open throttle	
		clutch continues to					upshift:	
		maintain torque					Clutch Stuck	
		capacity during the					On Fail Offset	
		transmission automatic					Time PU Shifts	
		shift. In the failure						
		mode, the off going clutch slip speed will					open throttle downshift:	
		remain near zero RPM					Clutch Stuck	
		when the clutch					On Fail Offset	
		pressure control					Time PD Shifts	
		solenoid is commanded					linio i D onnito	
		to an off pressure in the					garage shift:	
		normal operation to					Clutch Stuck	
		release the holding					On Fail Offset	
		clutch. The clutch slip					Time GS Shifts	
		speed is calculated						
		based on the					closed throttle	
		transmission lever					downshift:	
		node design, requiring					1	1

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft					Clutch Stuck	
		speed, transmission					On Fail Offset	
		output shaft speed,					Time CD Shifts	
		and, one transmission						
		intermediate shaft					negative torque	
		speed. As part of the					upshift:	
		pressure control					Clutch Clip	
		solenoid stuck on					Press NU Shifts	
		diagnostic monitor, the						
		safety startle mitigation					clutch staging	
		function executes when					shift:	
		in steady state gear, no	ĺ				Clutch Stuck	
		automatic transmission	ĺ				On Fail Offset	
	I	shift in progress. The	ĺ				Time STGR	
		safety startle mitigation					Shifts	
		function is triggered						
		when a sudden vehicle					update fail count,	
		deceleration occurs					fail count ≥ 3	
		due to a clutch					counts	
		pressure control					6.25 milliscond	
		solenoid that has failed					update	
		hydraulically on, while			*******	******	ap aate	
		the solenoid is			system-level enables:			
		electrically functional.			dystern level shables.			
		All clutch pressure			use battery voltage			
		control solenoid stuck			calibration is FALSE	= 1 Boolean		
		on diagnostic monitors			OR	- 1 Boolean		
		are emission MIL			(use battery voltage			
		DTCs. System voltage			calibration is TRUE	= 1 Boolean		
		must be normal, all			AND	- 1 Boolean		
		clutch pressure control			battery voltage)	≥ 9.00 volts	battery voltage	
		solenoid driver circuits			battery remage)		time ≥ 0.100	
		must be functional, no					seconds	
	I	clutch pressure control	ĺ		use run crank voltage	= 0 Boolean	22201140	
		solenoid electrical or	ĺ		calibration is FALSE			
	I	performance faults can	ĺ		OR OR			1
	I	be present, and no	ĺ		(use run crank voltage	= 0 Boolean		
		speed sensor electrical	ĺ		calibration is TRUE	= 0 D0010411		
	I	or performance faults	ĺ		AND			1
		can be present, or the	ĺ		run crank voltage)	≥ 9.00 volts	run crank voltage	
		clutch pressure control	ĺ		isir oranii voitago)		time ≥ 0.100	
		solenoid stuck on test		1			seconds	1

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		is disabled. This diagnostic monitor is relative to the GR10 C2 CB128910R clutch pressure control			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		solenoid.			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
					service fast learn active	= FALSE Boolean		
					service solenoid cleaning procedure active	= FALSE Boolean		
					hydraulic pressure available	= TRUE		
					hydraulic pressure	≥ -999 kPa ************************************		
					range shift state	≠ range shift complete		
					diagnostic clutch test	= OFF GOING CLUTCH TEST		
					transmission output shaft speed	≥ 36.0 RPM		
					((C2 off going clutch pressure control ramp time out complete AND off going clutch pressure ramp control ramp time	= TRUE		
					out enable) OR	= 1 (1 to enable, 0 to disable)		
					C2 off going clutch command pressure )	≤ 350 kPa	exhaust delay by shift type:	

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

TEST GROUP: KGMXV04.2088	EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
							closed throttle upshift: C2 exhaust delay open throttle power on up shift	
							open throttle upshift: C2 exhaust delay open throttle power on up shift	
							garage shifts: C2 exhaust delay garage shift	
							closed throttle downshift: C2 exhaust delay closed throttle down shift	
							negative torque upshift: C2 exhaust delay negative torque up shift	
					(engine torque	≥ 8,192 Nm	open throttle downshift: C2 exhaust delay open throttle power down shift	
					AND Primary oncoming stuck on torque enable cal)	= 0 (0 is enable, 1 is enable)	aomi omit	

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					OR			
					( primary oncoming clutch active	= TRUE		
					primary on coming control state	≠ clutch fill phase		
					primary on coming commanded pressure)	≥ pressure clip threshold according to shift type:		
						closed and open throttle upshifts:	Post-torque phase delay for	
						pressure clip threshold is dependent on the oncoming clutch:	powered upshifts is dependent on the oncoming clutch:	
						C1 Torque-Based Pressure Clip	C1_Oncoming Post-Torque	
						OR	<b>Phase Delay</b> OR	
						C3 Torque-Based Pressure Clip	C3_Oncoming Post-Torque	
						OR	<b>Phase Delay</b> OR	
						C4 Torque-Based	C4_Oncoming	
						Pressure Clip	Post-Torque	
						OR	<b>Phase Delay</b> OR	
						C5 Torque-Based	C5_Oncoming	
						Pressure Clip	Post-Torque	
						OR	<b>Phase Delay</b> OR	
						C6 Torque-Based	C6_Oncoming	
						Pressure Clip	Post-Torque	
							Phase Delay	
						clip thresholds for all other shift types:		
						garage shifts:		

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						Clutch Clip Press GS Shifts		
						closed throttle downshift: Clutch Clip Press CD Shifts		
						negative torque upshift: Clutch Clip Press NU Shifts		
						open throttle downshift: Clutch Clip Press PD Shifts		
					C2 clutch slip speed valid, all speed sensors are functional for lever node clucth slip speed calculation	= TRUE		
					conditions needed to trigger test:	*******		
					(current shift type AND shift type enable cal for current shift type)	≠ Garage shift  Clutch Stuck On Shift  = Type Enable (0 table value will disable,		
					OR (Intrusive shift active AND	1 will enable) = FALSE		
					shift type enable cal for garage shift AND Attained Gear	= 1 (0 will enable, 1 will enable) = NEUTRAL OR		
					Attained Gear AND (stuck on enable cal for forward garge shifts AND	= NEOTRAL OR commanded gear = 1 (0 to disable, 1 to enable)		

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					driver requested direction AND commanded gear) OR (stuck on enable cal for reverse garage shifts AND driver requested direction AND commanded gear))	= FORWARD  = a FORWARD gear  = 1 (0 to disable, 1 to enable) = REVERSE  = REVERSE		
					shift active startle mitigation active (see note on startle mitigation below)	= FALSE = FALSE		
					(new clutch controller has been initalized OR transitioning to a different clutch controller)	= TRUE = TRUE		
					current clutch solenoid test state	transitions to TestState or TUT_HOLD (see note below about state transitions)		
					DTCs not fault pending	P17CE P1783 P178F P17C6 P17C4 P17C7 P17D3 P17C5 P0721 P172A P172B P0716 P0717 P07C0 P07BF P0723 P0722 P077D P077C P176C P176D P176B P17D6		
					DTCs not fault active	P2534 P0707 P0708 P0716 P0717 P07C0		

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						P07BF P077D P077C P126C P176D P17CC P17CD P0962 P0966 P0970 P2720 P2729 P2738 P0963 P0967 P0971 P2721 P2730 P2739 P0960 P0964 P0968 P2718 P2727 P2736 P17CE P1783 P17D3 P17C5 P0721 Accelerator Pedal Failure		
					DTCs not test fail this key on	CrankSensor_FA  P0707 P0708 P0723 P0722 P176B P17D6 P0747 P0777 P0797 P2715 P2724 P2733 P0746 P0776 P0796 P2714 P2723 P2732 P2821 P2820 P178F P17C6 P17C4 P17C7 P172A P172B ************************************		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions: Current value of clutch control solenoid test state is TIE UP TEST TEST			

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
	Fault Code		Malfunction Criteria	Threshold Value	STATE, when one off going clutch pressure control solenoid stuck on diagnostic monitor is currently executing.  AND  That off going clutch pressure control solenoid stuck on diagnostic monitor currently executing passes, the corresponding clutch slip speed ≥ clutch slip speed fail threshold.  Once clutch control solenoid test state is set to TIE UP TEST HOLD, it remains TIE UP TEST HOLD during the automatic transmission shift, until:  An additional off going clutch occurs, as indicated by solenoid stuck on test trigger = TRUE, subsequently clutch control solenoid test state is reset to TIE UP TEST STATE, to allow the additional corresponding off going clutch pressure control solenoid stuck on		Time Required	
					diagnostic monitor to execute. OR The automatic transmission shift completes, range shift state = range shift complete.			

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control solenoid stuck on failure mode that occurs during steady state gear, not during an automatic transmission shift. The startle mitigation active then forces the transmission clutch pressure control system to a safe gear or neutral state, based on the active and inactive clutches, when the unintended vehicle deceleration			Illum.
					occurred. Once a safe vehicle gear state is attained, the gear and clutch pressure control system allows transitions of the clutches on and off, to sequence automatic transmission shifts, single step shifts. As each single step automatic transmission shift occurs the normal pressure control solenoid stuck on diagnostic monitors execute to verify which clutch pressure control solenoid is in the stuck on failure mode, allowing one of the clutch pressure control solenoid stuck on DTCs to set P0747, P0777, P0797, P2715,			

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

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TEST GROUP: KGMXV04.2088		EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P2724, P2733, P2821.			

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Circuit Low	P077C	Controller specific analog circuit diagnoses the transmission output speed sensor and wiring for a short to ground fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission output speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≤ 0.2500 volts (≤ 0.5 Ω impedance between signal and controller ground)	service mode \$04 active diagnostic monitor enable P077D fault active  service fast learn run crank voltage battery voltage	= FALSE = 1 Boolean = FALSE = FALSE ≥ 10.00 volts ≥ 10.00 volts	fail time ≥ 0.050 seconds, update fail count, fail count ≥ 16 counts 6.25 millisecond update rate  service fast learn, run crank and battery voltage time ≥ 5.00 seconds	Type A, 1 Trips
					P077C fault active P077C test fail this key on	= FALSE = FALSE		

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Circuit High	P077D	Controller specific analog circuit diagnoses the transmission output speed sensor and wiring for a short to voltage fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission output speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≥ 4.7500 volts (≤ 0.5 Ω impedance between signal and controller power)	service mode \$04 active diagnostic monitor enable P077C fault active  service fast learn run crank voltage battery voltage  P077D fault active P077D test fail this key on	= FALSE = 1 Boolean = FALSE = FALSE ≥ 10.00 volts ≥ 10.00 volts = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count, fail count ≥ 16 counts 6.25 millisecond update rate  service fast learn, run crank and battery voltage time ≥ 5.000 seconds	Type A, 1 Trips

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

OBDGROUP: KGMXOBDG07 TEST GROUP: K

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Stuck Off (GR10)	P0796	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C3 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 1.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
i		the solenoid is			*********	*******	upuale	
		electrically functional. In the failure mode the			system-level enables:			
		clutch slip speed, and gear box gear slip, will be excessive, not near			use battery voltage calibration is FALSE OR	= 1 Boolean		
		or at zero RPM. The clutch slip speed is calculated based on			(use battery voltage calibration is TRUE AND	= 1 Boolean		
	the transmission lever node design, requiring transmission input shaft speed, transmission output shaft speed, and, one transmission			battery voltage)	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds		
				use run crank voltage calibration is FALSE OR	= 0 Boolean	00001140		
		intermediate shaft speed. The clutch pressure control			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		solenoid is tested after an automatic transmission shift			run crank voltage)	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		occurs and has been considered shift complete, or, steady			TCM output driver high side driver 1, clutch pressure control solenoid		0000.100	
		state gear is deemed active, range shift			driver circuit enabled	= TRUE Boolean		
	complete. When the automatic transmission shift is complete, steady state gear is considered, the clutch pressure control solenoid is mapped to transmission line			TCM output driver high side driver 2, clutch pressure control solenoid				
				driver circuit enabled	= TRUE Boolean			
				service fast learn active	= FALSE Boolean			

**OBDGROUP: KGMXOBDG07** 

**DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088** EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			procedure active	= FALSE Boolean		
		normally allows the						
		clutch to maintain full			hydraulic pressure			
		torque holding capacity			available	= TRUE		
		at the given engine			l			
		crankshaft torque, to			hydraulic line pressure	≥ -999.00 kPa		
		maintain true gear			*******	*******		
		ratio. When the clutch pressure control						
		solenoid is failed			enable C3 clutch slip speed fail compare when:			
		hydraulically off, the			speed fall compare when.			
		clutch does not			((startle mitigation active	= FALSE		
		maintain holding			OR	= PALSE		
		capacity at any engine			(startle mitigation active	= TRUE		
		crankshaft torque, and			AND	- 1106		
		the clutch slip speed is			startle mitigation gear))	≠ initial startle mitigation		
		uncontrollable. The			(see startle mitigation	gear		
		clutch pressure control			active NOTE below)			
		solenoid test is						
		suspended if the higher			unintended deceleration			
		level safety startle			fault pending	= FALSE		
		mitigation function is			OR			
		active. The safety			unintended deceleration			
		startle mitigation			fault pending enable cal is	= 0 (0 to enable, 1 to		
		function is triggered			FALSE	disable)		
		when a sudden vehicle			(startle mitigation)			
		deceleration occurs						
		due to a clutch						
		pressure control			clutch steady state			
		solenoid that has failed			adaptive active	= FALSE		
		in the opposite sense,			la			
		clutch pressure control			(transmission output shaft	≥ 36.0 RPM		
		solenoid failed			speed			
		hydraulically on, while			OR			
		the solenoid is			(accelerator pedal	≥ 0.50 %		
		electrically functional,			position OR			
		which must take priority			T	> 1 000 0 PPM	≥ 1.000 seconds	
		over any clutch pressure control			engine speed)	≥ 1,000.0 RPM	= 1.000 Seconds	
		solenoid stuck off			C3 clutch slip speed valid	= TRUE (all speed		
		diagnostic monitor. All			C3 Gutter slip speed valid	sensors are functional for		
		clutch pressure control				lever node clutch slip		

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control			C3 clutch pressured map	speed calculation) = mapped to line pressure, C3 clutch pressure has reached fully applied state		
		solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no			(enable forward gear cal AND driver direction request AND Attained Gear)	= 1 (1 to enable, 0 to disable) = FORWARD = a FORWARD gear		
		speed sensor electrical or performance faults can be present, or the clutch pressure control solenoid stuck off test			OR (enable reverse gear cal AND driver direction request AND	= 0 (1 to enable, 0 to disable) = REVERSE		
		is disabled. This diagnostic monitor is relative to C3 (GR10			Attained Gear) range shift state	= REVERSE = range shift complete		
		C23457910) clutch			********	*******		
		pressure control solenoid.			DTCs not fault pending	P17CE P1783 P178F P17C6 P17C4 P17C7 P17D3 P17C5 P0721 P172A P172B P0716 P0717 P07C0 P07BF P0723 P0722 P077D P077C P176C P176D P176B P17D6		
					DTCs not fault active	P2534 P0707 P0708 P0716 P0717 P07C0 P07BF P077D P077C P126C P176D P17CC P17CD P0962 P0966 P0970 P2720 P2729 P2738 P0963 P0967 P0971 P2721 P2730 P2739 P0960 P0964 P0968 P2718 P2727 P2736 P17CE P1783		

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						P17D3 P17C5 P0721 AcceleratorPedalFailure CrankSensor_FA		
					DTCs not test fail this key on	P0707 P0708 P0723 P0722 P176B P17D6 P0747 P0777 P0797 P2715 P2724 P2733 P0746 P0776 P0796 P2714 P2723 P2732 P2821 P2820 P178F P17C6 P17C4 P17C7 P172A P172B		
					NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Stuck On	P0797	Each pressure control solenoid stuck on	shift type is power down shift:				Base fail time:	Type A, 1 Trips
		diagnostic monitor detects a clutch	C3 clutch slip speed OR	< 50.00 RPM			shift type is power down	
		pressure control solenoid failed hydraulically on, while	shift type is garage shift: C3 clutch slip speed ELSE	< 100.00 RPM			shift: fail time ≥ 0.60 seconds	
		the solenoid is electrically functional. The clutch pressure	shift is another type: C3 clutch slip speed	< 50.00 RPM			shift type is garage shift:	
		control solenoid is tested during an automatic transmission	update fail time 6.25 milliscond update				fail time ≥ 0.35 shift type is	
		shift by monitoring the off going clutch slip speed. With the clutch					another type: fail time ≥ 0.15 seconds	
		pressure control solenoid failed on, still allowing hydraulic pressure to the clutch					Add fail time offset according to shift type:	
		being commanded off, the intended off going clutch continues to maintain torque capacity during the transmission automatic					open throttle upshift: Clutch Stuck On Fail Offset Time PU Shifts	
		shift. In the failure mode, the off going clutch slip speed will remain near zero RPM when the clutch pressure control					open throttle downshift: Clutch Stuck On Fail Offset Time PD Shifts	
		solenoid is commanded to an off pressure in the normal operation to release the holding clutch. The clutch slip					garage shift: Clutch Stuck On Fail Offset Time GS Shifts	
		speed is calculated based on the transmission lever node design, requiring					closed throttle downshift:	

**OBDGROUP: KGMXOBDG07** 

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft					Clutch Stuck	
		speed, transmission					On Fail Offset	
		output shaft speed,					Time CD Shifts	
		and, one transmission						
		intermediate shaft					negative torque	
		speed. As part of the					upshift:	
		pressure control					Clutch Clip	
		solenoid stuck on					Press NU Shifts	
		diagnostic monitor, the						
		safety startle mitigation					clutch staging	
		function executes when					shift:	
		in steady state gear, no	ĺ				Clutch Stuck	
		automatic transmission	ĺ				On Fail Offset	
	I	shift in progress. The	ĺ				Time STGR	
		safety startle mitigation					Shifts	
		function is triggered						
		when a sudden vehicle					update fail count,	
		deceleration occurs					fail count ≥ 3	
		due to a clutch					counts	
		pressure control					6.25 milliscond	
		solenoid that has failed					update	
		hydraulically on, while			*******	******	ap aate	
		the solenoid is			system-level enables:			
		electrically functional.			dystern lever snables.			
		All clutch pressure			use battery voltage			
		control solenoid stuck			calibration is FALSE	= 1 Boolean		
		on diagnostic monitors			OR	- 1 Boolean		
		are emission MIL			(use battery voltage			
		DTCs. System voltage			calibration is TRUE	= 1 Boolean		
		must be normal, all			AND	- 1 Boolean		
		clutch pressure control			battery voltage)	≥ 9.00 volts	battery voltage	
		solenoid driver circuits			battery remage)		time ≥ 0.100	
		must be functional, no					seconds	
	I	clutch pressure control	ĺ		use run crank voltage	= 0 Boolean	22201140	
		solenoid electrical or	ĺ		calibration is FALSE			
	I	performance faults can	ĺ		OR OR			1
	I	be present, and no	ĺ		(use run crank voltage	= 0 Boolean		
		speed sensor electrical	ĺ		calibration is TRUE	_ 0 D0010411		
	I	or performance faults	ĺ		AND			1
		can be present, or the	ĺ		run crank voltage)	≥ 9.00 volts	run crank voltage	
		clutch pressure control	ĺ		isir oranii voitago)		time ≥ 0.100	
		solenoid stuck on test		1			seconds	1

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		is disabled. This diagnostic monitor is relative to the GR10 C3 C23457910 clutch pressure control			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		solenoid.			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
					service fast learn active	= FALSE Boolean		
					service solenoid cleaning procedure active	= FALSE Boolean		
					hydraulic pressure available	= TRUE		
					hydraulic pressure	≥ -999 kPa ************************************		
					range shift state	≠ range shift complete		
					diagnostic clutch test	= OFF GOING CLUTCH TEST		
					transmission output shaft speed	≥ 36.0 RPM		
					((C3 off going clutch pressure control ramp time out complete AND off going clutch pressure	= TRUE		
					ramp control ramp time out enable) OR	= 1 (1 to enable, 0 to disable)		
					C3 off going clutch command pressure )	≤ 350 kPa	exhaust delay by shift type:	

**OBDGROUP: KGMXOBDG07** 

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
							closed throttle upshift: C3 exhaust delay closed throttle lift foot up shift	
							open throttle upshift: C3 exhaust delay open throttle power on up shift	
							garage shifts: C3 exhaust delay garage shift	
							closed throttle downshift: C3 exhaust delay closed throttle down shift	
							negative torque upshift: C3 exhaust delay negative torque up shift	
							open throttle downshift: C3 exhaust delay open throttle power down shift	
					(engine torque AND Primary oncoming stuck	≥ 8,192 Nm = 0 (0 is enable, 1 is		

**OBDGROUP: KGMXOBDG07** 

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					on torque enable cal)	enable)		
					OR			
					( primary oncoming clutch active	= TRUE		
					primary on coming control state	≠ clutch fill phase		
					primary on coming commanded pressure)	≥ pressure clip threshold according to shift type:		
						closed and open throttle upshifts:	Post-torque phase delay for	
						pressure clip threshold is dependent on the oncoming clutch:	powered upshifts is dependent on the oncoming clutch:	
						C1 Torque-Based Pressure Clip	C1_Oncoming Post-Torque Phase Delay	
						OR C2 Torque-Based Pressure Clip	OR C2_Oncoming Post-Torque	
						OR	Phase Delay OR	
						C4 Torque-Based	C4_Oncoming	
						Pressure Clip	Post-Torque Phase Delay	
						OR	OR	
						C5 Torque-Based Pressure Clip	C5_Oncoming Post-Torque	
						OR	<b>Phase Delay</b> OR	
						C6 Torque-Based	C6_Oncoming	
						Pressure Clip	Post-Torque Phase Delay	
						clip thresholds for all other shift types:	i iluse Delay	

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						garage shifts: Clutch Clip Press GS Shifts		
						closed throttle downshift: Clutch Clip Press CD Shifts		
						negative torque upshift: Clutch Clip Press NU Shifts		
						open throttle downshift: Clutch Clip Press PD Shifts		
					C3 clutch slip speed valid, all speed sensors are functional for lever node clucth slip speed calculation	= TRUE		
					conditions needed to trigger test:	*******		
					(current shift type AND shift type enable cal for current shift type)	≠ Garage shift  Clutch Stuck On Shift = Type Enable (0 table value will disable, 1 will enable)		
					(Intrusive shift active AND shift type enable cal for garage shift AND	= FALSE = 1 (0 will enable, 1 will enable)		
					AND Attained Gear AND (stuck on enable cal for forward garge shifts	= NEUTRAL OR commanded gear = 1 (0 to disable, 1 to		

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					AND driver requested direction AND commanded gear) OR (stuck on enable cal for reverse garage shifts AND driver requested direction AND commanded gear)) clutch stuck off intrusive	enable) = FORWARD = a FORWARD gear = 1 (0 to disable, 1 to enable) = REVERSE = REVERSE		
					shift active  startle mitigation active (see note on startle mitigation below)	= FALSE = FALSE		
					(new clutch controller has been initalized OR transitioning to a different clutch controller)	= TRUE = TRUE		
					current clutch solenoid test state	transitions to TestState or TUT_HOLD (see note below about state transitions)		
					**************************************	P17CE P1783 P178F P17C6 P17C4 P17C7 P17D3 P17C5 P0721 P172A P172B P0716 P0717 P07C0 P07BF P0723 P0722 P077D P077C P176C P176D P176B P17D6		
					DTCs not fault active	P2534 P0707 P0708		

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						P0716 P0717 P07C0 P07BF P077D P077C P126C P176D P17CC P17CD P0962 P0966 P0970 P2720 P2729 P2738 P0963 P0967 P0971 P2721 P2730 P2739 P0960 P0964 P0968 P2718 P2727 P2736 P17CE P1783 P17D3 P17C5 P0721 Accelerator Pedal Failure		
					DTCs not test fail this key on	CrankSensor_FA  P0707 P0708 P0723 P0722 P176B P17D6 P0747 P0777 P0797 P2715 P2724 P2733 P0746 P0776 P0796 P2714 P2723 P2732 P2821 P2820 P178F P17C6 P17C4 P17C7 P172A P172B		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions: Current value of clutch control solenoid test state			

**OBDGROUP: KGMXOBDG07** 

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					is TIE UP TEST TEST			†
					STATE, when one off			
					going clutch pressure			
					control solenoid stuck on			
					diagnostic monitor is			
					currently executing.			
					AND			
					That off going clutch			
					pressure control solenoid			
					stuck on diagnostic			
					monitor currently			
					executing passes, the			
					corresponding clutch slip			
					speed ≥ clutch slip speed			
					fail threshold.			
					Once clutch control			
					solenoid test state is set			
					to TIE UP TEST HOLD, it			
					remains TIE UP TEST			
					HOLD during the			
					automatic transmission			
					shift, until:			
					An additional off going			
					clutch occurs, as			
					indicated by solenoid			
					stuck on test trigger =			
					TRUE, subsequently			
					clutch control solenoid			
					test state is reset to TIE			
					UP TEST TEST STATE, to			
					allow the additional			
					corresponding off going			
					clutch pressure control			
					solenoid stuck on			
					diagnostic monitor to			
					execute.			
					OR OR			
					The automatic			
					transmission shift			
					completes, range shift			
					state = range shift			
		1			complete.	I	1	1

**OBDGROUP: KGMXOBDG07** 

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control solenoid stuck on failure mode that occurs during steady state gear, not during an automatic transmission shift. The startle mitigation active then forces the transmission clutch pressure control system to a safe gear or neutral state, based on the active and inactive clutches, when the unintended vehicle deceleration occurred. Once a safe vehicle gear state is attained, the gear and clutch pressure control system allows transitions of the clutches on and off, to sequence automatic transmission shifts, single step shifts. As each single step automatic transmission shift occurs the normal pressure control solenoid stuck on diagnostic monitors execute to verify which clutch pressure control solenoid is in the stuck on failure mode, allowing one of the clutch pressure			

DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07	TEST GROUP: KGMXV04.2088	EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0777, P0797, P2715, P2724, P2733, P2821.			

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Input/Turbine Speed Sensor A Circuit Low	P07BF	Controller specific analog circuit diagnoses the transmission input/ turbine speed sensor and wiring for a short to ground fault by comparing a voltage measurement to controller specific voltage thresholds.	12.5 millisecond update rate		service mode \$04 active diagnostic monitor enable P07C0 fault active  service fast learn run crank voltage battery voltage  P07BF fault active P07BF test fail this key on	= FALSE = 1 Boolean = FALSE = FALSE ≥ 10.00 volts ≥ 10.00 volts = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count, fail count ≥ 16 counts 6.25 millisecond update rate  service fast learn, run crank and battery voltage time ≥ 5.000 seconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Input/Turbine Speed Sensor A Circuit High	P07C0	Controller specific analog circuit diagnoses the transmission input/ turbine speed sensor and wiring for a short to voltage fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission input/turbine speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≥ 4.7500 volts (≤ 0.5 Ω impedance between signal and controller power)	service mode \$04 active diagnostic monitor enable P07BF fault active  service fast learn run crank voltage battery voltage  P07C0 fault active P07C0 test fail this key on	= FALSE = 1 Boolean = FALSE = FALSE ≥ 10.00 volts ≥ 10.00 volts = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count, fail count ≥ 16 counts 6.25 millisecond update rate  run crank and battery voltage time ≥ 5.000 seconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Upshift Switch Circuit	P0815	Diagnoses the state of the upshift switch circuit, stuck in the state "tap up" (upshift) active.  Emissions neutral default, disables tap-up tap-down or manual-up manual-down.	switch state update fail time 1 100 millisecond update rate	= tap up (upshift) state active	service mode \$04 active diagnostic monitor enable run crank voltage run crank voltage run crank voltage P1761 fault active P0826 fault active P0826 fault pending (P0815 fault active OR P0815 fault active test fail this key on) PRNDL range change time PRNDL in range: D1 OR D2 OR D3 OR D4 OR D5 OR D6 OR D7 OR D8 OR D9 OR D10 OR NEUTRAL OR PARK OR REVERSE DTCs not fault pending	= FALSE = 1 Boolean  ≥ 5.00 volts ≥ 25 milliseconds  ≥ 9.00 volts = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean	fail time 1 ≥ 1.00 seconds	Emissio ns Neutral Diagnost ics – Type C
	switch state update fail time 2 100 millisecond update rate	= tap up (upshift) state active	service mode \$04 active diagnostic monitor enable run crank voltage run crank voltage time run crank voltage P1761 fault active	= FALSE = 1 Boolean ≥ 5.00 volts ≥ 25 milliseconds ≥ 9.00 volts = FALSE	fail time 2 ≥ 120.00 seconds			

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0826 fault active P0826 test fail this key on P0826 fault pending (P0815 fault active OR P0815 fault active test fail this key on) PRNDL range change time PRNDL in range: D1 OR D2 OR D3 OR D4 OR D5 OR D6 OR D7 OR D8 OR D9 OR D10 OR NEUTRAL OR PARK OR REVERSE DTCs not fault pending	= FALSE = FALSE = FALSE = FALSE = FALSE = FALSE ≥ 1.00 seconds  = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 1 Transmission Shift Lever Position Validity		

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Downshift Switch Circuit	P0816	Diagnoses the state of the downshift switch circuit, stuck in the state "tap down" (downshift) active.  Emissions neutral default, disables tap-up tap-down or manual-up manual-down.	switch state update fail time 1 100 millisecond update rate	= tap down (downshift) state active	service mode \$04 active diagnostic monitor enable run crank voltage run crank voltage per voltage run crank voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltage per voltag	= FALSE = 1 Boolean  ≥ 5.00 volts ≥ 25 milliseconds  ≥ 9.00 volts = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = TALSE il time 1 ≥ 1.00 seconds	Emissio ns Neutral Diagnost ics – Type C	
		switch state update fail time 2 100 millisecond update rate	= tap down (downshift) state active	service mode \$04 active diagnostic monitor enable run crank voltage run crank voltage time run crank voltage P1761 fault active	= FALSE = 1 Boolean ≥ 5.00 volts ≥ 25 milliseconds ≥ 9.00 volts = FALSE	fail time 2 ≥ 120.00 seconds		

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0826 fault active P0826 test fail this key on P0826 fault pending (P0816 fault active OR P0816 fault active test fail this key on) PRNDL range change time PRNDL in range: D1 OR D2 OR D3 OR D4 OR D5 OR D6 OR D7 OR D8 OR D9 OR D10 OR NEUTRAL OR PARK OR REVERSE DTCs not fault pending	= FALSE = FALSE = FALSE = FALSE = FALSE = FALSE  ≥ 1.00 seconds  = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean		

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Up and Down Shift Switch	P0826	Diagnoses the state of the upshift/downshift switch circuit at an	switch state update fail time 100 millisecond update	= illegal (voltage out of range)	service mode \$04 active diagnostic monitor enable	= FALSE = 1 Boolean	fail time ≥ 60.00 seconds	Emissio ns Neutral
Circuit		illegal voltage, voltage out of range.	rate		run crank voltage	≥ 5.00 volts	run crank voltage time ≥ 25	ics –
		Emissions neutral default, disables tap-up tap-down or manual-up manual-down.			run crank voltage P1761 fault active (P0826 fault active OR P0826 fault active test fail this key on)	≥ 9.00 volts = FALSE = FALSE = FALSE	milliseconds	Type C

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Control Circuit Open	P0960		outside of controller specific acceptable range indicates an open circuit voltage thresholds are set to meet the following controller specific acceptable range indicates an open circuit voltage thresholds are set to meet the following controller specification for an open circuit failure by comparing a voltage measurement to controller specific	≥ 200 K Ω impedance between signal and controller ground	battery voltage  (run crank voltage OR accessory voltage active)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5	Type A, 1 Trips
				diagnostic monitor enable calibration (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)	= 1 (1 is enable, 0 is disable)  = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON	milliseconds		
					OR (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2) OR	= CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON		
				(solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	= CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON			

### DIAGNOSTIC SUMMARY TABLES -- TCM

TEST GROUP: KGMXV04.2088

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Control Circuit Low	P0962	Controller specific circuit diagnoses 9 speed CB123456R, or 8 speed CB1278R clutch or CVT secondary pulley, solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short	≤ 0.5 Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active)  diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 2)  OR  (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.10 seconds out of sample time ≥ 0.17 seconds  6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Control Circuit High	P0963	Controller specific circuit diagnoses 9 speed, 10 speed CB123456R, 8 speed CB1278R clutch or CVT secondary pulley, solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage	≤ 0.5 Ω impedance between signal and controller voltage source  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active) diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1) OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2) OR  (solenoid is mapped to high side driver 2) OR  (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds  ≥ 1.00 seconds  ≥ 25 milliseconds  ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Control Circuit Open	P0964	Controller specific circuit diagnoses 9 speed CB29, 10 speed CB128910R, 8 speed CB12345R clutch or CVT primary pulley, solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit	≥ 200 K Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active) diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 2)  OR  (solenoid is mapped to high side driver 3)  (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts  ≥ 5.00 volts  = TRUE  = 1 (1 is enable, 0 is disable)  = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable)  = ON  = CeTSCR_e_NoHSD will disable)  = ON  = CeTSCR_e_NoHSD will disable)  = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds  6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Control Circuit Low	P0966	Controller specific circuit diagnoses 9 speed CB29, 10 speed CB128910R, 8 speed CB12345R clutch or CVT primary pulley, solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short	≤ 0.5 Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active)  diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 2)  OR  (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.10 seconds out of sample time ≥ 0.17 seconds 6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Control Circuit High	P0967	Controller specific circuit diagnoses 9 speed CB29, 10 speed CB128910R, 8 speed CB12345R clutch or CVT primary pulley, solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage	≤ 0.5 Ω impedance between signal and controller voltage source  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active) diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 2)  OR  (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds  ≥ 1.00 seconds  ≥ 25 milliseconds  ≥ 12.5 milliseconds	Type A 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Control Circuit Open	P0968	Controller specific circuit diagnoses 9 speed CB38, 10 speed C23457910, or 8 speed C13567, clutch or CVT line pressure, solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit	≥ 200 K Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  run crank voltage OR accessory voltage active  diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1) OR (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2 (CeTSCR_e_HSD3) AND high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds  6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Control Circuit Low	P0970	Controller specific circuit diagnoses 9 speed CB38,10 speed C23457910, or 8 speed C13567 clutch,or CVT line pressure, solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short	≤ 0.5 Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active) diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 2)  OR  (solenoid is mapped to high side driver 3)  (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts  ≥ 5.00 volts  = TRUE  = 1 (1 is enable, 0 is disable)  = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable)  = ON  = CeTSCR_e_NoHSD will disable)  = ON  = CeTSCR_e_NoHSD will disable)  = ON	fail time ≥ 0.10 seconds out of sample time ≥ 0.17 seconds 6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Control Circuit High	P0971	Controller specific circuit diagnoses 9 speed CB38, 10 speed C23457910, or 8 speed C13567, clutch or CVT line pressure, solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage	≤ 0.5 Ω impedance between signal and controller voltage source  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active) diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1) OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2) OR  (solenoid is mapped to high side driver 2) OR  (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds  ≥ 1.00 seconds  ≥ 25 milliseconds  ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

TEST GROUP: KGMXV04.2088

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal Control Module Redundant Memory Performance	trol is a rationalization of command values: undant nory pressures and	command values: command clutch pressures and command gear. The monitor is broken up	command pressure (tie up) fault detection minimum # of clutches ON by attained gear and by comanded gear, take lower of the 2 values, where attained gear is the	≤ NumClchTieUp See Attached Supporting Tables	Reduandant Memory Command Pressure Enable Calibraiton Not Reduandant Memory Command Pressure Enable Calibraiton	= 0 Boolean = 1 Boolean	single event 6.25 millisecond update rate	Type A, 1 Trips
		routines, command pressure (tie up) fault detection and command gear/shift fault detection.	current operating gear and command gear is the targetted value to transtion toward		No traction event in progress: ABS((driven wheel speed - non-drive wheel speed) / driven wheel speed)	≥ 0.00 %		
		The command pressure (tie up) fault detection is designed to verify the number of clutches applied in a given gear state is limited, in order to	see 9 speed transmission clutch definition and gear state to clutch map and 10 speed transmission		25 millisecond derivative TOSS RPM, (TOSS delta 25 millisecond loop to 25 milsecond loop) / 25 millisecond for time	< 0.750 * P2D2 Cltch Slip Sum see attached supporting Table ≥ 0.0500 seconds		
	prevent a tra internal mech up condition. condition who lead to a veh deceleration design safety commanded pressures and threshold who allow multiple to carry torqu	prevent a transmission internal mechanical tieup condition. A condition which could lead to a vehicle deceleration above the design safety metric. If	clutch definition and gear state to clutch map attached supporting tables for clutch 1 through clutch 7 definition and gear state to clutch map		Clutch 1 hydraulic volume fill factor Clutch 2 hydraulic volume fill factor Clutch 3 hydraulic volume fill factor Clutch 4 hydraulic volume	≥ 1.000 unitless ≥ 1.000 unitless ≥ 1.000 unitless ≥ 1.000 unitless		
		commanded clutch pressures are above a threshold which would allow multiple clutches to carry torque, the clutch is considered			fill factor Clutch 5 hydraulic volume fill factor Clutch 6 hydraulic volume fill factor Clutch 7 hydraulic volume	≥ 1.000 unitless ≥ 1.000 unitless ≥ 1.000 unitless ≥ 1.000 unitless		
		applied, otherwise the clutch is considered released. If there are more clutches applied, via the commanded clutch pressures, in a given gear state than is rational, one or more of			fill factor  when clutch is off going (releasing) clutch the commanded clutch pressure equation = ((pressure control solenoid command			

**OBDGROUP: KGMXOBDG07** 

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		the clutch pressure			pressure - pressure offset)			
		command values are in			* regulator valve gain) -			
		error. Given rate of			regulator valve return			
		change of transmission			spring pressure adaptive			
		output shaft speed,						
		command gear state			when clutch 1 is off going			
		clutches and clutch			clutch:			
		hydraulic fill volumes,			clutch 1 command			
		those clutches in			pressure	= ((clutch 1 pressure		
		transition from the			ļ	control solenoid command		
		hydraulic released				pressure - 0.00) * 1.00) -		
		state to the hydraulic				regulator valve return		
		applied state and from			clutch 1 state is OFF	spring pressure adaptive,		
ĺ		the hydraulic applied			when:	kPa		
		state to the hydraulic			clutch 1 command	I ~		
		released state, the			pressure,	P2D2 Decel Pressure -		
		rationality detects any			else clutch is ON and	≤ C1		
		number of command			count clutch 1 toward	see attached supporting		
		clutch pressures above			minimum # of clutches	tables		
		a threshold, that are			ON			
		simultaneously active						
		to cause a vehicle			when clutch 2 is off going			
		deceleration above the			clutch:			
		design safety metric.			clutch 2 command			
		design salety metric.			pressure	= ((clutch 2 pressure		
		The command gear/			pressure	control solenoid command		
		shift fault detection is				pressure - 0.00) * 1.00) -		
		designed to verify the				regulator valve return		
		commanded gear will				spring pressure adaptive,		
		not induce a downshift			clutch 2 state is OFF	kPa		
		resulting in a gear state			when:	l KF a		
		that is erroneous given			clutch 2 command			
		vehicle operating				P2D2 Decel Pressure -		
		conditions. The			pressure, else clutch is ON and	F2D2 Decel Flessule -		
ĺ		detection rationalizes			count clutch 2 toward			
ĺ						see attached supporting tables		
		the command gear			minimum # of clutches ON	lables		
		against a minimum			ON	l		
ĺ		gear, highest gear ratio,			ushan alutah O :#	l		
		for given vehicle speed			when clutch 3 is off going	l		
		and driver accelerator			clutch:	l		
		position.			clutch 3 command	//slostsls 0 = 0 = 0		
		1			pressure	= ((clutch 3 pressure		

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					clutch 3 state is OFF when: clutch 3 command pressure, else clutch is ON and count clutch 3 toward minimum # of clutches	control solenoid command pressure - 0.00) * 1.00) - regulator valve return spring pressure adaptive, kPa  P2D2 Decel Pressure - ≤ C3 see attached supporting tables		
					ON when clutch 4 is off going clutch: clutch 4 command pressure  clutch 4 state is OFF when:	= ((clutch 4 pressure control solenoid command pressure - 0.00) * 1.00) - regulator valve return spring pressure adaptive, kPa		
					clutch 4 command pressure, else clutch is ON and count clutch 4 toward minimum # of clutches ON when clutch 5 is off going	P2D2 Decel Pressure - ≤ C4 see attached supporting tables		
					clutch 5 state is OFF when: clutch 5 command pressure	= ((clutch 5 pressure control solenoid command pressure - 0.00) * 1.00) - regulator valve return spring pressure adaptive, kPa		

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					else clutch is ON and count clutch 5 toward minimum # of clutches ON	P2D2 Decel Pressure - ≤ C5 see attached supporting tables		
					when clutch 6 is off going clutch: clutch 6 command pressure			
						= ((clutch 6 pressure control solenoid command pressure - 0.00) * 1.00) - regulator valve return		
					clutch 6 state is OFF when: clutch 6 command pressure,	spring pressure adaptive, kPa		
					else clutch is ON and count clutch 6 toward minimum # of clutches ON	P2D2 Decel Pressure - ≤ C6 see attached supporting tables		
					when clutch 7 is off going clutch: clutch 7 command pressure			
					process	= ((clutch 7 pressure control solenoid command pressure - 0.00) * 1.00) - regulator valve return		
					clutch 7 state is OFF when: clutch 7 command pressure,	spring pressure adaptive, kPa		
					else clutch is ON and count clutch 7 toward minimum # of clutches ON	P2D2 Decel Pressure - ≤ C7 see attached supporting tables		
					service fast learn not active			

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					no speed sensor DTCs fault active: P0716, P0717, P0721, P0722, P0723, P077C, P077D, P07BF, P07C0, P172A, P172B, P176B, P176C, P176D, P1783, P178F, P17C4, P17C5, P17C6, P17CC, P17CD, P17CE, P17D3, P17D6  no high side driver DTCs fault active: P0658, P2670			
			command gear/shift fault detection		Reduandant Memory Command Gear Enable Calibraiton Not	= 0 Boolean	command gear fail event count ≥ 3 counts	
			1st gear commanded and vehicle seed OR 2nd gear commanded and	> 63.22 KPH	Reduandant Memory Command Gear Enable Calibraiton	= 1 Boolean	6.25 millisecond update rate	
			vehicle seed OR 3rd gear commanded and vehicle seed	> 99.44 KPH > 138.33 KPH	service fast learn not active			
			OR 4th gear commanded and vehicle seed OR	> 167.81 KPH	no speed sensor DTCs fault active:			
			5th gear commanded and vehicle seed OR	> 195.29 KPH	P0716, P0717, P0721, P0722, P0723, P077C, P077D, P07BF, P07C0, P172A, P172B, P176B,			
			6th gear commanded and vehicle seed OR 7th gear commanded and	> 232.82 KPH	P176C, P176D, P1783, P178F, P17C4, P17C5, P17C6, P17CC, P17CD, P17CE, P17D3, P17D6			
			vehicle seed OR 8th gear commanded and	> 296.85 KPH	no high side driver DTCs fault active:			

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			vehicle seed OR 9th dear commanded and	> 347.75 KPH	P0658, P2670			
			9th gear commanded and vehicle seed OR 10th gear commanded	> 430.73 KPH				
			and vehicle seed THEN increment command gear fail event count and	> 466.95 KPH				
			abort commanded gear and delay for time before next fail evaluation	> 5.00 seconds				

### DIAGNOSTIC SUMMARY TABLES -- TCM

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Circuit Forward Direction Error	P172A	The TOS sensor is a directional sensor, and raw TOS direction is rationalized based on attained gear and multiple speed sensors. Attained gear is a true indication of gear based on measured gear ratio, TISS/TOSS. If the raw TOS direction is not a forward gear but attained gear is a forward gear, and, TISS and intermediate speed sensors confirm consistent direction, the raw TOS direction is in error.	(raw TOS direction OR raw TIS direction OR  intermediate speed sensor 1 direction raw OR  intermediate speed sensor 2 direction raw) AND attained gear AND attained gear	≠ forward  ≠ forward  intermediate speed sensor 1 or 2  ≠ predicted direction intermediate speed sensor 1 or 2  ≠ predicted direction  ≥ 1st gear ≤ 10th gear	when the following conditions are met update the enable time: diagnsotic monitor enable  TOSS sensor type must be directional engine speed engine speed time  battery voltage for time service fast learn active run/crank voltage for time (attained gear AND attained gear) P0721 Fault Active range shift state (auto trans shift complete) enable time	speed sensor directional rationality =enable calibration  = CeTOSR_e_Directional  ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available  ≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds ≥ 1st gear  ≤ 10th gear = FALSE = range shift complete  ≥ 1.00 seconds	2.50 seconds	Type A, 1 Trips
			(raw TOS direction OR  intermediate speed sensor 1 direction raw OR  intermediate speed sensor 2 direction raw) AND attained gear AND attained gear	≠ forward intermediate speed sensor 1 or 2 ≠ predicted direction intermediate speed sensor 1 or 2 ≠ predicted direction  ≥ 1st gear ≤ 10th gear	when the following conditions are met update the enable time: diagnsotic monitor enable TOSS sensor type must be directional engine speed engine speed time	speed sensor directional rationality = enable calibration = CeTOSR_e_Directional ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available	2.50 seconds	

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					battery voltage for time service fast learn active run/crank voltage for time (attained gear AND attained gear) P0721 Fault Active range shift state (auto trans shift complete) enable time	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds ≥ 1st gear ≤ 10th gear = FALSE = range shift complete ≥ 1.00 seconds		
			(raw TOS direction OR raw TIS direction OR intermediate speed sensor 2 direction raw) AND attained gear AND attained gear	<ul> <li>≠ forward</li> <li>≠ forward</li> <li>intermediate speed</li> <li>sensor 1 or 2</li> <li>≠ predicted direction</li> <li>≥ 1st gear</li> <li>≤ 10th gear</li> </ul>	when the following conditions are met update the enable time: diagnsotic monitor enable TOSS sensor type must be directional engine speed engine speed time	speed sensor directional rationality = enable calibration  = CeTOSR_e_Directional  ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available	2.50 seconds	
					battery voltage for time service fast learn active run/crank voltage for time (attained gear AND attained gear) P0721 Fault Active range shift state (auto trans shift complete)	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds ≥ 1st gear ≤ 10th gear = FALSE = range shift complete		

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					enable time	≥ 1.00 seconds		
			(raw TOS direction OR raw TIS direction OR intermediate speed sensor 1 direction raw) AND attained gear AND attained gear	<ul> <li>≠ forward</li> <li>≠ forward</li> <li>intermediate speed</li> <li>sensor 1 or 2</li> <li>≠ predicted direction</li> <li>≥ 1st gear</li> <li>≤ 10th gear</li> </ul>	when the following conditions are met update the enable time: diagnsotic monitor enable  TOSS sensor type must be directional engine speed engine speed time  battery voltage for time service fast learn active run/crank voltage for time (attained gear AND attained gear) P0721 Fault Active range shift state (auto trans shift complete) enable time	speed sensor directional rationality = enable calibration  = CeTOSR_e_Directional  ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available  ≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds ≥ 1st gear ≤ 10th gear = FALSE = range shift complete  ≥ 1.00 seconds	2.50 seconds	
			(raw TOS direction OR  intermediate speed sensor 2 direction raw) AND attained gear AND attained gear	<ul> <li>≠ forward         intermediate speed         sensor 1 or 2         ≠ predicted direction</li> <li>≥ 1st gear         ≤ 10th gear</li> </ul>	when the following conditions are met update the enable time: diagnsotic monitor enable TOSS sensor type must be directional engine speed engine speed time	speed sensor directional rationality = enable calibration = CeTOSR_e_Directional ≥ 500.0 RPM ≥	2.50 seconds	

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					battery voltage for time service fast learn active run/crank voltage for time (attained gear AND attained gear) P0721 Fault Active range shift state (auto trans shift complete) enable time	engine speed time for transmission hydraulic pressure available  ≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds ≥ 1st gear ≤ 10th gear = FALSE = range shift complete  ≥ 1.00 seconds		
			(raw TOS direction OR  intermediate speed sensor 1 direction raw) AND attained gear AND attained gear	≠ forward intermediate speed sensor 1 or 2 ≠ predicted direction  ≥ 1st gear ≤ 10th gear	when the following conditions are met update the enable time: diagnsotic monitor enable TOSS sensor type must be directional engine speed engine speed time	speed sensor directional rationality = enable calibration = CeTOSR_e_Directional ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available	2.50 seconds	
					battery voltage for time service fast learn active run/crank voltage for time (attained gear AND attained gear) P0721 Fault Active	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds ≥ 1st gear ≤ 10th gear = FALSE		

# **DIAGNOSTIC SUMMARY TABLES -- TCM**

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					range shift state (auto trans shift complete)	= range shift complete		
					enable time	≥ 1.00 seconds		
			(raw TOS direction OR raw TIS direction) AND attained gear AND attained gear	≠ forward ≠ forward ≥ 1st gear ≤ 10th gear	when the following conditions are met update the enable time: diagnsotic monitor enable	speed sensor directional rationality = enable calibration	2.50 seconds	
					TOSS sensor type must be directional	= CeTOSR_e_Directional		
					engine speed engine speed time	≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available		
					battery voltage for time service fast learn active run/crank voltage for time (attained gear AND attained gear) P0721 Fault Active range shift state (auto trans shift complete)	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds ≥ 1st gear ≤ 10th gear = FALSE = range shift complete		
					enable time	≥ 1.00 seconds		
			raw TOS direction attained gear	≠ forward ≥ 1st gear ≤ 10th gear	when the following conditions are met update the enable time: diagnsotic monitor enable	speed sensor directional rationality = enable calibration	2.50 seconds	
					TOSS sensor type must be directional	= CeTOSR_e_Directional		

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					engine speed engine speed time	≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available		
					battery voltage for time service fast learn active run/crank voltage for time (attained gear AND attained gear) P0721 Fault Active range shift state (auto trans shift complete)	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds ≥ 1st gear ≤ 10th gear = FALSE = range shift complete		
					enable time	≥ 1.00 seconds		

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Control System - Shift Limiting Active	ntrol diagnostic monitors detects when the Limiting vehicle has been driven	P0747 OR P0777 OR P0797 OR P2715 OR P2724 OR P2731 OR P2733 fault active due to unintended deceleration detection, increment unintended deceleration latent fault fail count		transmission default gear active (emission MIL active) calibration CeTRDR_e_DSG_DfltGr Opt5_Action any non-zero (0) option	> CeTRDR_e_DSG_DfltGr OptNone, zero (0) element in default gear array	unintended deceleration latent fault fail count ≥ 100 counts  25 millisecond update rate	Type A, 1 Trips	
		P0747 OR P0777 OR P0797 OR P2715 OR P2724 OR P2731 OR P2733 clutch pressure control solenoid fault active due to clutch stuck on during shift, increment clutch pressure control solenoid latent fault fail count		transmission default gear active (emission MIL active) calibration CeTRDR_e_DSG_DfltGr Opt5_Action any non-zero (0) option	> CeTRDR_e_DSG_DfltGr OptNone, zero (0) element in default gear array	clutch pressure control solenoid latent fault fail count ≥ 100 counts  25 millisecond update rate		
		intermediate speed sensors, transmission range sensors, clutch pressure control solenoids including unintended deceleration detected due to clutch pressure	P2802 OR P2803 fault active, increment transmission range sensor latent fault fail count		transmission default gear active (emission MIL active) calibration CeTRDR_e_DSG_DfltGr Opt5_Action any non-zero (0) option	> CeTRDR_e_DSG_DfltGr OptNone, zero (0) element in default gear array	transmission range sensor latent fault fail count ≥ 100 counts  25 millisecond update rate	
	crankshaft position and engine torque. The DTCs for these safety critical systems or safety critical components include both electrical fault DTCs and performance fault DTCs. The latent fault diagnostic monitor	P0721 OR P0722 OR P0723 OR P077C OR P077D or P172A fault active, increment transmission output speed sensor latent fault fail count		transmission default gear active (emission MIL active) calibration CeTRDR_e_DSG_DfltGr Opt5_Action any non-zero (0) option	> CeTRDR_e_DSG_DfltGr OptNone, zero (0) element in default gear array	transmission output speed sensor latent fault fail count ≥ 100 counts  25 millisecond update rate		
		P0716 OR P0717 OR P0721 OR P07BF OR P07C0 fault active OR		transmission default gear active (emission MIL active) calibration	>	transmission input output speed sensor latent fault fail		

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		counts the run/crank ignition cycles before the latent fault DTC is set fault active.	P077D OR P077D OR P1783 OR P17CE fault active OR P0722 OR P0723 OR P172A test fail this key on OR P0716 OR P0717 OR P0721 OR P0722 OR P0723 OR P077C OR P077D OR P077B OR P07C0 Or P172A OR P172B OR P1783 OR P17CE fault pending (fail time ≠ 0) increment transmission input output speed sensor latent fault fail count		CeTRDR_e_DSG_DfltGr Opt5_Action any non-zero (0) option	CeTRDR_e_DSG_DfltGr OptNone, zero (0) element in default gear array	count ≥ 200 counts  25 millisecond update rate	
			te OR P2534 fault active OR CrankSensor_FA OR P0707 OR P0708 fault active OR test fail this key	= TRUE = TRUE = TRUE	transmission default gear active (emission MIL active) calibration CeTRDR_e_DSG_DfltGr Opt5_Action any non-zero (0) option ignition run crank voltage for time	> CeTRDR_e_DSG_DfltGr OptNone, zero (0) element in default gear array > 5.00 volts ≥ 12.5 milliseconds	system latent fault fail count ≥ 100 counts 6.25 millisecond update rate	
			on OR P2805 fault active OR P0716 OR P0717 OR P07BF OR P07C0 fault active OR P0722 OR P0723 test fail this key on OR P077C OR P077D fault active OR P176C OR P176D OR					

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			P17CC OR P17CD OR					
			P176B OR P17D6 fault					
			active OR test fail this key					
			on					
			OR					
			P0747 OR P0777 OR					
			P0797 OR P2715 OR					
			P2724 OR P2733 OR					
			P0746 OR P0776 OR					
			P0796 OR P2714 OR					
			P2723 OR P2732 OR P178F OR P17C4 OR					
			P178F OR P17C4 OR P17C6 OR P172A OR					
			P172B test fail this key on					
			OR					
			P0960 OR P0962 OR					
			P0963 OR P0964 OR					
			P0966 OR P0967 OR					
			P0968 OR P0970 OR					
			P0971 OR P2718 OR					
			P2720 OR P2721 OR					
			P2727 OR P2729 OR					
			P2730 OR P2736 OR					
			P2738 OR P2739 OR					
			P17C5 OR P17D3OR					
			P0721 fault active					
			OR					
			P0716 OR P0717 OR					
			P0721 OR P0722 OR					
			P0723 OR P077C OR					
			P077D OR P07BF OR					
			P07C0 fault pending (fail					
			time ≠ 0)					
			OR					
			P176B OR P176C OR					
			P176D OR P17CC OR					
			P17CD OR P17D6 OR					
			P1783 OR P178F OR					
			P17C4 OR P17C5 OR					
			P17C6 OR P17CE OR					
			P17D3 OR P172A or					
			P172B fault pending (fail					<u> </u>

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			time ≠ 0) OR P1783 fault active OR P1783 fault pending (fail time ≠ 0)					
			update system fault time when system fault time increment system latent fault fail count	≥ 10.0 seconds				

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Acceleration Sensor Signal Message Counter Incorrect	P175F	The diagnostic monitor detects an alive rolling count error or checksum error in the CAN frame containing the lateral acceleration signal value and longitudinal acceleration sensor signal value.  Emission neutral default state sets lateral and longitudinal acceleration signal = 0.0 g.	rolling count value received from EBCM and expected TCM calculated value not equal OR checksum lateral and longitudinal acceleration CAN frame message value error 50 millisecond update rate	= TRUE	enable alive rolling count error detection: diagnostic monitor enable lateral and longitudinal acceleration CAN frame message received battery voltage run crank voltage enable checksum error detection: diagnostic monitor enable lateral and longitudinal acceleration CAN frame message received normal CAN battery voltage run crank voltage communication enabled  DTCs not fault active	= 1 Boolean = TRUE ≥ 11.0 volts ≥ 11.0 volts = 1 Boolean = TRUE ≥ 11.0 volts ≥ 11.0 volts = TRUE U0073	alive rolling count errors ≥ 54 out of 9 sample counts 50 millisecond update rate  checksum error time ≥ 54.00 seconds	Emissio ns Neutral Diagnost ic – Type C

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Up and Down Shift Switch Signal Circuit	P1761	The alive rolling count normally cycles 0, 1, 2, and 3 as a serial data periodic frame is processed normally. The diagnostic monitor counts the number of times an alive rolling count error occurs over a period of time. The TCM receives a serial data frame at a periodic rate, during which, the receive data is processed the comparing the current value of the alive rolling count in the frame date to the incremented value of the diagnostic alive rolling count. When the two values of the alive rolling count do not agree, an alive rolling count error has occurred. The error indicator is saved in an array buffer, and when the number of error indicators in the buffer exceed the fail threshold the fail time is allowed to time up.  Emissions neutral default, disables tap-up tap-down or manual-up manual-down.	alive rolling count error counter update fail time 100 millisecond update rate	≥ 3 counts	service mode \$04 active diagnostic monitor enable run crank voltage run crank voltage run crank voltage time  up and down shift serial data frame receive occurred  when up and down shift serial data frame receive occurred: increment the diagnsotic alive rolling count data value, if the diagnsotic alive rolling count data value, set alive rolling count error to TRUE,  when alive rolling count error AND previous alive rolling count error arrary buffer, increment alive rolling count error counter	= FALSE = 1 Boolean ≥ 9.00 volts ≥ 0.100 seconds = TRUE ≠ frame alive rolling count data value = TRUE = FALSE	fail time ≥ 10.00 seconds	Emissio ns Neutral Diagnost ics – Type C

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Planetary Gearset Ring Gear Speed Sensor Circuit Range/ Performance	P176B	The diagnostic monitor rationalizes the transmission intermediate shaft speed sensor by using the transmission output shaft output speed sensor and the known ratio between the transmission intermediate shaft speed and the transmission output shaft output speed based on the commanded gear and the transmission lever node design. The estimated transmission intermediate shaft speed is equal to the gear ratio times the transmission output shaft output speed. The absolute value of the delta between the measured transmission intermediate shaft speed and the estimated transmission intermediate shaft speed is used to determine if the measured transmission intermediate shaft speed is used to determine if the measured transmission intermediate shaft	delta1 = ABS (transmission input speed - (transmission output speed * gear ratio commanded))  update faiil time 25 millisecond update rate	> 10.0 RPM	speed sensor configuration calibration is single OR dual ratio calibration is function of command gear and intermediate speed sesnor when not REVERSE ratio calibration is function of command gear and intermediate speed sesnor when REVERSE	= CeTNSR_e_NSPD_Dual SpdSnsr = P176B ratio calibration when not REVERSE see supporting tables = P176B ratio calibration when REVERSE see supporting tables	fail time ≥ P176B intermediate speed sensor fail time threshold see supporting tables  fail time threshold met increments fail count, fail count ≥ P176B intermediate speed sensor fail count threshold see supporting tables	Type A, 1 Trips
		speed is rational.			delay time updates when: estimated transmission	> P176B minimum	*************************delay time ≥	
					intermediate speed (transmission input speed / ratio calibration)	estimated transmission intermediate speed to enable fail evaluation		

## DIAGNOSTIC SUMMARY TABLES -- TCM

TEST GROUP: KGMXV04.2088

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					with  transmission input speed  input speed sensor ready based on commaned gear and transmission intermediate speed sensor (state output must be FALSE to enable fail evaluation) with with attained gear  ***********************************	see supporting tables  ≥ P176B minimum transmission input speed to enable fail evaluation see supporting tables  = P176B holding clutch states see supporting tables  = REVERSE OR   = 1st thru 10th  > 240.0 RPM   ≥ 36.0 RPM	P176B delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation see supporting tables	
					range shift state P0716 fault active P0717 fault active P07BF fault active P07C0 fault active P0722 fault active P0723 fault active P077C fault active P077D fault active P176C fault active P176D fault active battery voltage	= range shift complete = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE ≥ 9.00 volts		

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

TEST GROUP: KGMXV04.2088	EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					service fast learn active run crank voltage	= FALSE ≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
					hydraulic pressure avail	= TRUE	run crank voltage time ≥ 0.100 seconds	

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Planetary Gearset Ring Gear Speed Sensor Circuit Low	P176C	Controller specific analog circuit diagnoses the transmission intermediate speed sensor and wiring for a short to ground fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission intermediate speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≤ volts (≤ 0.5 Ω impedance between signal and controller ground)	service mode \$04 active diagnostic monitor enable  P176D fault active service fast learn  run crank voltage battery voltage  P176C fault active P176C test fail this key on	= FALSE = P176C Enable Boolean Boolean = FALSE = FALSE ≥ 10.00 volts ≥ 10.00 volts = FALSE = FALSE = FALSE	fail time ≥ P176C Fail Timer seconds, update fail count, fail count ≥ P176C Fail Count Threshold counts 6.25 millisecond update rate run crank and battery voltage time ≥ 5.000 seconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Planetary Gearset Ring Gear Speed Sensor Circuit High	P176D	Controller specific analog circuit diagnoses the transmission intermediate speed sensor and wiring for a short to voltage fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission intermediate speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	P176D Voltage Fail ≥Threshold volts (≤ 0.5 Ω impedance between signal and controller power)	service mode \$04 active diagnostic monitor enable P176C fault active service fast learn	= FALSE = P176D Boolean Enable Boolean = FALSE = FALSE	fail time ≥ P176D Fail Time Threshold seconds, update fail count, fail count ≥ P176D Fail Count Threshold counts 6.25 millisecond update rate	Type A, 1 Trips
					run crank voltage battery voltage P176D fault active P176D test fail this key on	≥ 10.00 volts ≥ 10.00 volts = FALSE = FALSE	run crank and battery voltage time ≥ 5.000 seconds	

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
ETRS GMLAN Command Signal Message Incorrect	P1775	The diagnostic monitor detects an alive rolling count error or protection value (checksum) error in the CAN bus frame containing the Electronic Transmission Range Selector (ETRS) signal data. The alive rolling count sequences 0, 1, 2, 3 repeatedly. As each serial data frame is broadcast by the transmitting controller, the transmitting controller increments the alive rolling count in this sequence manner. The receiving controller compares the most recent received alive rolling count value to the previous value plus one. If the values are not equal, an alive rolling count error has occurred. The protection value is based on the checksum of the ETRS data parameters in the transmit message frame, and is incorporated in the transmit message frame. If the TCM receives the ECM/ CHCM ETRS data message frame, the	rolling count value received from ECM/CHCM and expected TCM calculated value not equal	= TRUE	Loop rate calibration either 10 milliseconds or 12.5 milliseconds service mode \$04 active battery voltage battery voltage time ETRS ECM/CH frame recieved	CeCFMD_e_DEC_Time Base_12p5  = FALSE ≥ 11.00 volts ≥ 300.000 seconds = TRUE	alive rolling count errors ≥ 8 out of 10 sample counts	Type E 2 Trips

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

TEST GROUP: KGMXV04.2088	EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		TCM calculates the protection value, again based on the ETRS data parameters, in the receive message frame. If the TCM calculated protection value does not equal the protection value incorporated in the ECM/CHCM ETRS data message frame, a or protection value error has occurred. If continuous alive rolling count errors or protection value errors occur, the DTC is set.						

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Input Speed Sensor Direction Not Plausible - Forward	P1783	The TIS sensor is a directional sensor, and raw TIS direction is rationalized based on attained gear and multiple speed sensors. Attained gear is a true indication of gear based on measured gear ratio, TISS/TOSS. If the raw TIS direction is not reverse but attained gear is reverse, or, if the raw TIS direction is not forward but attained gear is a forward gear, the raw TIS direction is in error.	raw TIS direction AND attained gear	≠ FORWARD = REVERSE	when the following conditions are met update the enable time: diagnsotic monitor enable  TOSS sensor type must be directional engine speed engine speed time  battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active  range shift state (auto trans shift complete) enable time	speed sensor directional rationality = enable calibration  = CeTOSR_e_Directional  ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds  ≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE = range shift complete  ≥ 1.00 seconds	2.50 seconds	Type A, 1 Trips
			raw TIS direction AND attained gear AND attained gear	≠ FORWARD ≥ 1st gear ≤ 10th gear	when the following conditions are met update the enable time: diagnsotic monitor enable  TOSS sensor type must be directional engine speed engine speed time	speed sensor directional rationality = enable calibration = CeTOSR_e_Directional ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds ≥ 9.00 volts	2.50 seconds	

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active	≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE		
					range shift state (auto trans shift complete)	= range shift complete		
					enable time	≥ 1.00 seconds		
			intermediate speed sensor 1 direction raw AND	intermediate speed sensor 1 or 2 ≠ predicted direction	when the following conditions are met update the enable time: diagnsotic monitor enable	speed sensor directional rationality = enable calibration	2.50 seconds	
			TIS direction AND attained gear	≠ FORWARD = REVERSE	TOSS sensor type must be directional engine speed engine speed time	= CeTOSR_e_Directional  ≥ 500.0 RPM  ≥ engine speed time for transmission hydraulic pressure available seconds		
					battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE		
					range shift state (auto trans shift complete)	= range shift complete		
					enable time	≥ 1.00 seconds		]
			intermediate speed	intermediate speed sensor 1 or 2 ≠ predicted direction	when the following conditions are met update the enable time:	speed sensor directional rationality = enable ealibration	2.50 seconds	

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			AND raw TIS direction AND attained gear AND attained gear	≠ FORWARD ≥ 1st gear ≤ 10th gear	TOSS sensor type must be directional engine speed engine speed time	= CeTOSR_e_Directional ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds		
					battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE		
					range shift state (auto trans shift complete) enable time	= range shift complete ≥ 1.00 seconds		
			intermediate speed sensor 2 direction raw AND	intermediate speed sensor 1 or 2 ≠ predicted direction	when the following conditions are met update the enable time: diagnsotic monitor enable	speed sensor directional rationality = enable calibration	2.50 seconds	
			TIS direction AND attained gear	≠ FORWARD = REVERSE	TOSS sensor type must be directional engine speed engine speed time	= CeTOSR_e_Directional  ≥ 500.0 RPM  ≥ engine speed time for transmission hydraulic pressure available seconds		
					battery voltage for time service fast learn active run/crank voltage for time	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds		

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					attained gear P0721 Fault Active	= REVERSE = FALSE		
					range shift state (auto trans shift complete)	= range shift complete		
					enable time	≥ 1.00 seconds		
			intermediate speed sensor 2 direction raw AND raw TIS direction AND attained gear AND attained gear	intermediate speed sensor 1 or 2 ≠ predicted direction ≠ FORWARD ≥ 1st gear ≤ 10th gear	when the following conditions are met update the enable time: diagnsotic monitor enable  TOSS sensor type must be directional engine speed engine speed time	speed sensor directional rationality = enable calibration  = CeTOSR_e_Directional ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds	2.50 seconds	
					battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active range shift state (auto trans shift complete)	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE = range shift complete		
					enable time	≥ 1.00 seconds		
			(intermediate speed sensor 1 direction raw OR	intermediate speed sensor 1 or 2 ≠ predicted direction intermediate speed	when the following conditions are met update the enable time: diagnsotic monitor enable	speed sensor directional rationality = enable calibration	2.50 seconds	
			intermediate speed sensor 2 direction raw)	sensor 1 or 2 ≠ predicted direction	TOSS sensor type must be directional engine speed	= CeTOSR_e_Directional ≥ 500.0 RPM		

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			AND TIS direction AND attained gear	≠ FORWARD = REVERSE	engine speed time	engine speed time for transmission hydraulic pressure available seconds		
					battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active range shift state (auto trans shift complete)	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE = range shift complete		
					enable time	≥ 1.00 seconds		
			(intermediate speed sensor 1 direction raw OR intermediate speed sensor 2 direction raw) AND raw TIS direction AND attained gear AND attained gear	intermediate speed sensor 1 or 2 ≠ predicted direction intermediate speed sensor 1 or 2 ≠ predicted direction ≠ FORWARD ≥ 1st gear ≤ 10th gear	when the following conditions are met update the enable time: diagnsotic monitor enable  TOSS sensor type must be directional engine speed engine speed time	speed sensor directional rationality = enable calibration  = CeTOSR_e_Directional  ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds  ≥ 9.00 volts	2.50 seconds	
					for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active range shift state (auto	≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE = range shift complete		

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

		. •		
,	TEST GROUP: KGMXV04.2088		EMISSIONS STDS: CALULEV125; FEDBIN125	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					trans shift complete)			
					enable time	≥ 1.00 seconds		

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intermediate Speed Sensor 1 Direction Not Plausible - Forward	P178F	The intermediate speed sensor 1 is a directional sensor, and raw intermediate speed sensor 1 direction is rationalized based on attained gear. Attained gear is a true indication of gear based on measured gear ratio, TISS/TOSS. Intermediate speed sensor 1 direction can be predicted, based on a function of the attained gear. When the raw intermediate speed sensor 1 direction does not correlate to the predicted direction and does not correlate to the attained gear, the intermediate speed sensor 1 directional is in error.	intermediate speed sensor 1 direction raw AND attained gear	intermediate speed sensor 1 or 2 ≠ predicted direction = REVERSE	when the following conditions are met update the enable time: diagnsotic monitor enable  TOSS sensor type must be directional engine speed engine speed time  battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active  range shift state (auto trans shift complete) enable time	speed sensor directional rationality = enable calibration  = CeTOSR_e_Directional  ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds  ≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE = range shift complete  ≥ 1.00 seconds	2.50 seconds	Type A, 1 Trips
			intermediate speed sensor 1 direction raw AND attained gear AND attained gear	intermediate speed sensor 1 or 2 ≠ predicted direction ≥ 1st gear ≤ 10th gear	when the following conditions are met update the enable time: diagnsotic monitor enable TOSS sensor type must be directional engine speed engine speed time	speed sensor directional rationality = enable calibration = CeTOSR_e_Directional ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds ≥ 9.00 volts	2.50 seconds	

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active	≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE		
					range shift state (auto trans shift complete)	= range shift complete		
					enable time	≥ 1.00 seconds		
			intermediate speed sensor 1 direction raw AND	intermediate speed sensor 1 or 2 ≠ predicted direction	when the following conditions are met update the enable time: diagnsotic monitor enable	speed sensor directional rationality = enable calibration	2.50 seconds	
			TIS direction AND attained gear	≠ FORWARD = REVERSE	TOSS sensor type must be directional engine speed engine speed time	= CeTOSR_e_Directional  ≥ 500.0 RPM  ≥ engine speed time for transmission hydraulic pressure available seconds		
					battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE		
					range shift state (auto trans shift complete)	= range shift complete		
					enable time	≥ 1.00 seconds		]
			intermediate speed	intermediate speed sensor 1 or 2 ≠ predicted direction	when the following conditions are met update the enable time:	speed sensor directional rationality = enable ealibration	2.50 seconds	

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			AND raw TIS direction AND attained gear AND attained gear	≠ FORWARD ≥ 1st gear ≤ 10th gear	TOSS sensor type must be directional engine speed engine speed time	= CeTOSR_e_Directional ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds		
					battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active range shift state (auto trans shift complete)	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE = range shift complete		
					enable time	≥ 1.00 seconds		
			(intermediate speed sensor 1 direction raw OR intermediate speed sensor 2 direction raw) AND attained gear	intermediate speed sensor 1 or 2 ≠ predicted direction intermediate speed sensor 1 or 2 ≠ predicted direction = REVERSE	when the following conditions are met update the enable time: diagnsotic monitor enable TOSS sensor type must be directional engine speed engine speed time	speed sensor directional rationality = enable calibration  = CeTOSR_e_Directional ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds	2.50 seconds	
					battery voltage for time service fast learn active run/crank voltage for time	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds		

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					attained gear P0721 Fault Active	= REVERSE = FALSE		
					range shift state (auto trans shift complete)	= range shift complete		
					enable time	≥ 1.00 seconds		
			(intermediate speed sensor 1 direction raw OR intermediate speed sensor 2 direction raw) AND attained gear AND attained gear	intermediate speed sensor 1 or 2 ≠ predicted direction intermediate speed sensor 1 or 2 ≠ predicted direction ≥ 1st gear ≤ 10th gear	when the following conditions are met update the enable time: diagnsotic monitor enable  TOSS sensor type must be directional engine speed engine speed time	speed sensor directional rationality = enable calibration  = CeTOSR_e_Directional  ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds	2.50 seconds	
					battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active range shift state (auto trans shift complete)	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE = range shift complete		
				intermediate speed	enable time when the following	≥ 1.00 seconds	2.50 seconds	
			(intermediate speed sensor 1 direction raw OR	sensor 1 or 2 ≠ predicted direction	conditions are met update the enable time: diagnsotic monitor enable	speed sensor directional rationality = enable calibration		
			intermediate speed	intermediate speed sensor 1 or 2 ≠ predicted direction	TOSS sensor type must be directional engine speed	= CeTOSR_e_Directional		

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			TIS direction) AND attained gear	≠ FORWARD = REVERSE	engine speed time	engine speed time for transmission hydraulic pressure available seconds		
					battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active range shift state (auto trans shift complete)	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE = range shift complete		
					enable time	≥ 1.00 seconds		
			(intermediate speed sensor 1 direction raw OR intermediate speed sensor 2 direction raw OR TIS direction) AND attained gear AND attained gear	intermediate speed sensor 1 or 2 ≠ predicted direction intermediate speed sensor 1 or 2 ≠ predicted direction ≠ FORWARD ≥ 1st gear ≤ 10th gear	when the following conditions are met update the enable time: diagnsotic monitor enable TOSS sensor type must be directional engine speed engine speed time	speed sensor directional rationality = enable calibration  = CeTOSR_e_Directional  ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds	2.50 seconds	
					battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active range shift state (auto	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE = range shift complete		

DIAGNOSTIC SUMMARY TABLES -- TCM
TEST GROUP: KGMYV04 2088

OBDGROUP: KGMXOBDG07	TEST GROUP: KGMXV04.2088	EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					trans shift complete)			
					enable time	≥ 1.00 seconds		

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intermediate Speed Sensor 2 Performance	P17C5	The diagnostic monitor determines if the direction transmission intermediate speed sensor value is coherent based on the on period time of the directional sensor and raw speed sensor value. When the on period time indicates a transitional state, the direction must also be transitional as measured by very slow raw signal RPM. When the on period time indicates a non-transitional state, forward or reverse, the direction must also be transition, not forward and not reverse.	when: (intermediate speed sensor raw direction when transitional period = FALSE AND intermediate speed sensor raw direction when transitional period = FALSE) OR intermediate speed sesnor raw when transitional period = TRUE  update fail and sample time	≠ FORWARD  ≠ REVERSE  P17C5 P17D3 intermediate speed ≥ sensor RPM	service mode \$04 active diagnostic monitor enable intermediate speed sesnor count sample period P17C5 fault active OR P17C5 test fail this key on senor type cailbration (senor type is directional)  transitional period detected = FALSE when: on period OR on period when direction unknown OR on period when direction is reverse OR on period when direction is forward transitional period detected = TRUE when: on period on period when direction unknown	= FALSE = 1 Boolean ≠ 0 counts = FALSE = FALSE = CeTNSR_e_NSPD_Dual SpdSnsr ≥ 0.4434 seconds ≤ 0.2773 seconds < 0.2363 seconds > 0.1240 seconds < 0.0811 seconds > 0.0088 seconds > 0.4434 seconds > 0.2773 seconds	fail time ≥ 3.500 seconds out of sample time < 5.000 seconds 6.25 millisecond update	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intermediate Speed Sensor 2 Direction Not Plausible - Forward	P17C6	The intermediate speed sensor 2 is a directional sensor, and raw intermediate speed sensor 2 direction is rationalized based on attained gear. Attained gear is a true indication of gear based on measured gear ratio, TISS/TOSS. Intermediate speed sensor 2 direction can be predicted, based on a function of the attained gear. When the raw intermediate speed sensor 2 direction does not correlate to the predicted direction and does not correlate to the attained gear, the intermediate speed sensor 2 directional is in error.	intermediate speed sensor 2 direction raw AND attained gear	intermediate speed sensor 1 or 2 ≠ predicted direction = REVERSE	when the following conditions are met update the enable time: diagnsotic monitor enable  TOSS sensor type must be directional engine speed engine speed time  battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active  range shift state (auto trans shift complete) enable time	speed sensor directional rationality = enable calibration  = CeTOSR_e_Directional  ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds  ≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE  = range shift complete  ≥ 1.00 seconds	2.50 seconds	Type A, 1 Trips
			intermediate speed sensor 2 direction raw AND attained gear AND attained gear	intermediate speed sensor 1 or 2 ≠ predicted direction ≥ 1st gear ≤ 10th gear	when the following conditions are met update the enable time: diagnsotic monitor enable  TOSS sensor type must be directional engine speed engine speed time	speed sensor directional rationality = enable calibration  = CeTOSR_e_Directional  ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds	2.50 seconds	
					battery voltage	≥ 9.00 volts		

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active	≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE		
					range shift state (auto trans shift complete)	= range shift complete		
					enable time	≥ 1.00 seconds		
			intermediate speed sensor 2 direction raw AND	intermediate speed sensor 1 or 2 ≠ predicted direction	when the following conditions are met update the enable time: diagnsotic monitor enable	speed sensor directional rationality = enable calibration	2.50 seconds	
			TIS direction AND attained gear	≠ FORWARD = REVERSE	TOSS sensor type must be directional engine speed engine speed time	= CeTOSR_e_Directional  ≥ 500.0 RPM  ≥ engine speed time for transmission hydraulic pressure available seconds		
					battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE		
					range shift state (auto trans shift complete)	= range shift complete		
					enable time	≥ 1.00 seconds		
			intermediate speed	intermediate speed sensor 1 or 2 ≠ predicted direction	when the following conditions are met update the enable time:	speed sensor directional rationality = enable calibration	2.50 seconds	

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			AND raw TIS direction AND attained gear AND attained gear	≠ FORWARD ≥ 1st gear ≤ 10th gear	TOSS sensor type must be directional engine speed engine speed time	= CeTOSR_e_Directional ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds		
					battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE		
					range shift state (auto trans shift complete) enable time	= range shift complete ≥ 1.00 seconds		
			(intermediate speed sensor 1 direction raw OR intermediate speed sensor 2 direction raw) AND attained gear	intermediate speed sensor 1 or 2 ≠ predicted direction intermediate speed sensor 1 or 2 ≠ predicted direction = REVERSE	when the following conditions are met update the enable time: diagnsotic monitor enable  TOSS sensor type must be directional engine speed engine speed time	speed sensor directional rationality = enable calibration = CeTOSR_e_Directional ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds	2.50 seconds	
					battery voltage for time service fast learn active run/crank voltage for time	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds		

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					attained gear P0721 Fault Active	= REVERSE = FALSE		
					range shift state (auto trans shift complete)	= range shift complete		
					enable time	≥ 1.00 seconds		
			(intermediate speed sensor 1 direction raw OR intermediate speed sensor 2 direction raw) AND attained gear AND attained gear	intermediate speed sensor 1 or 2 ≠ predicted direction intermediate speed sensor 1 or 2 ≠ predicted direction ≥ 1st gear ≤ 10th gear	when the following conditions are met update the enable time: diagnsotic monitor enable  TOSS sensor type must be directional engine speed engine speed time	speed sensor directional rationality = enable calibration  = CeTOSR_e_Directional ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds	2.50 seconds	
					battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active range shift state (auto trans shift complete)	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE = range shift complete		
					enable time	≥ 1.00 seconds		
			(intermediate speed sensor 1 direction raw OR	intermediate speed sensor 1 or 2 ≠ predicted direction intermediate speed	when the following conditions are met update the enable time: diagnsotic monitor enable	speed sensor directional rationality = enable calibration	2.50 seconds	
			intermediate speed sensor 2 direction raw OR-	sensor 1 or 2 ≠ predicted direction	TOSS sensor type must be directional engine speed	= CeTOSR_e_Directional ≥ 500.0 RPM		

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			TIS direction) AND attained gear	≠ FORWARD = REVERSE	engine speed time	engine speed time for transmission hydraulic pressure available seconds		
					battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active range shift state (auto trans shift complete)	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE = range shift complete		
					enable time	≥ 1.00 seconds		
			(intermediate speed sensor 1 direction raw OR intermediate speed sensor 2 direction raw OR TIS direction) AND attained gear AND attained gear	intermediate speed sensor 1 or 2  ≠ predicted direction intermediate speed sensor 1 or 2  ≠ predicted direction  ≠ FORWARD ≥ 1st gear ≤ 10th gear	when the following conditions are met update the enable time: diagnsotic monitor enable TOSS sensor type must be directional engine speed engine speed time	speed sensor directional rationality = enable calibration  = CeTOSR_e_Directional ≥ 500.0 RPM ≥ engine speed time for transmission hydraulic pressure available seconds	2.50 seconds	
					battery voltage for time service fast learn active run/crank voltage for time attained gear P0721 Fault Active range shift state (auto	≥ 9.00 volts ≥ 0.100 seconds = FALSE ≥ 9.00 volt ≥ 0.100 seconds = REVERSE = FALSE = range shift complete		

DIAGNOSTIC SUMMARY TABLES -- TCM
TEST GROUP: KGMYV04 2088

**OBDGROUP: KGMXOBDG07** 

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TEST GROUP: KGMXV04.2088		EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					trans shift complete)			
					enable time	≥ 1.00 seconds		

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Intermediate Speed Sensor B Circuit Low	diate analog circuit diagnoses the transmission intermediate speed sensor and wiring for a	analog circuit diagnoses the transmission intermediate speed sensor and wiring for a short to ground fault by comparing a voltage measurement to controller specific	transmission intermediate speed sensor raw voltage, update fail time, 12.5 millisecond update rate	≤ 0.250 volts (≤ 0.5 Ω impedance between signal and controller ground)	service mode \$04 active diagnostic monitor enable P17CD fault active	= FALSE = 1 Boolean = FALSE	fail time ≥ 0.050 seconds, update fail count 12.5 millisecond update rate  fail count ≥ 40 counts 12.5 millisecond update rate	Type A, 1 Trips
					service fast learn run crank voltage battery voltage	= FALSE ≥ 10.00 volts ≥ 10.00 volts	service fast learn, run crank and battery voltage time ≥ 5.000 seconds	
					sensor configuration is single OR dual	= CeTNSR_e_NSPD_Dual SpdSnsr		
					P17CC fault active OR P17CC test fail this key on	= FALSE = FALSE		

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Intermediate Speed Sensor B Circuit High	atermediate di peed trensor B in cuit High si	Controller specific analog circuit diagnoses the transmission intermediate speed sensor and wiring for a short to voltage fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission intermediate speed sesnor raw voltage, update fail time, 12.5 millisecond update rate		service mode \$04 active diagnostic monitor enable P17CC fault active	= FALSE = 1 Boolean = FALSE	fail time ≥ 0.050 seconds, update fail count 12.5 millisecond update rate  fail count ≥ 40 counts 12.5 millisecond update rate	Type A, 1 Trips
					service fast learn run crank voltage battery voltage	= FALSE ≥ 10.00 volts ≥ 10.00 volts	run crank and battery voltage time ≥ 5.000 seconds	
					sensor configuration is single OR dual	= CeTNSR_e_NSPD_Dual SpdSnsr		
					P17CD fault active OR P17CD test fail this key on	= FALSE = FALSE		

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Input Speed Sensor Direction Error	P17CE	The diagnostic monitor determines if the direction transmission input shaft speed sensor value is coherent based on the on period time of the directional sensor and raw speed sensor value. When the on period time indicates a transitional state, the direction must also be transitional as measured by very slow raw signal RPM. When the on period time indicates a non-transitional state, forward or reverse, the direction must also be transition, not forward and not reverse.	input shaft speed sesnor raw direction AND input shaft speed sesnor raw direction when transitional period = FALSE OR input shaft speed sesnor raw when transitional period = TRUE update fail and sample time, update rate defined in Secondary Parameters	≠ FORWARD  ≠ REVERSE  ≥ 225.0 RPM	determine update rate: 6.25 millisecond update rate calibration, TRUE, update rate = 6.25 millisecond FALSE, update rate = 25 millisecond service mode \$04 active diagnostic monitor enable input shaft speed sesnor count sample period senor type cailbration (senor type is directional)  P17CE fault active OR P17CE test fail this key on transitional period detected = FALSE when: on period OR on period when direction unknown OR on period when direction is reverse OR on period when direction is forward transitional period detected = TRUE when: on period on period when direction unknown	= 1 Boolean  = FALSE = 1 Boolean ≠ 0 counts  = CeTISR_e_Directional = FALSE = FALSE  ≥ 0.4434 seconds ≤ 0.2773 seconds < 0.2363 seconds > 0.1240 seconds < 0.0811 seconds > 0.0088 seconds > 0.0088 seconds > 0.2773 seconds	fail time ≥ 3.500 seconds out of sample time < 5.000 seconds update rate defined in Secondary Parameters	Type A, 1 Trips

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intermediate Speed Sensor 1 Direction Error	P17D3	The diagnostic monitor determines if the direction transmission intermediate speed sensor value is coherent based on the on period time of the directional sensor and raw speed sensor value. When the on period time indicates a transitional state, the direction must also be transitional as measured by very slow raw signal RPM. When the on period time indicates a non-transitional state, forward or reverse, the direction must also be transition, not forward and not reverse.	intermediate speed sesnor raw direction when transitional period = FALSE AND intermediate speed sesnor raw direction when transitional period = FALSE OR intermediate speed sesnor raw when transitional period = TRUE  update fail and sample time 6.26 millisecond update rate	≠ FORWARD  ≠ REVERSE  P17C5 P17D3 intermediate speed ≥ sensor RPM	service mode \$04 active diagnostic monitor enable intermediate speed sesnor count sample period P17D3 fault active OR P17D3 test fail this key on senor type cailbration (senor type is directional)  transitional period detected = FALSE when: on period OR on period when direction unknown OR on period when direction is reverse OR on period on period when direction is forward transitional period detected = TRUE when: on period	= FALSE = 1 Boolean ≠ 0 counts = FALSE = FALSE = CeTNSR_e_NSPD_Dual SpdSnsr ≥ 0.4434 seconds ≤ 0.2773 seconds < 0.2363 seconds > 0.1240 seconds < 0.0811 seconds > 0.0088 seconds	fail time ≥ 3.500 seconds out of sample time < 5.000 seconds	Type A, 1 Trips
					on period when direction unknown	> 0.2773 seconds		

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		Description  The diagnostic monitor rationalizes the transmission intermediate shaft speed sensor by using the transmission output shaft output speed sensor and the known ratio between the transmission intermediate shaft speed and the transmission output shaft output speed based on the commanded gear and the transmission lever node design. The estimated transmission intermediate shaft speed is equal to the gear ratio times the transmission output shaft output speed. The absolute value of the delta between the measured transmission intermediate shaft speed and the estimated transmission intermediate shaft speed and the estimated transmission intermediate shaft speed is used to determine if the measured transmission intermediate shaft speed is rational.	delta1 = ABS (transmission input speed - (transmission output speed * gear ratio commanded)) AND delta2 = ABS (transmission input speed - (transmission intermediate speed * ratio calibration)) update faiil time 25 millisecond update rate	> 10.0 RPM  > P17D6 intermediate speed sensor fail RPM threshold see supporting tables	speed sesnor configuration calibration is dual ratio calibration is function of command gear and intermediate speed sesnor when not REVERSE ratio calibration is function of command gear and intermediate speed sesnor when REVERSE	= 1 Boolean  = 1 Boolean  = CeTNSR_e_NSPD_Dual SpdSnsr = P17D6 ratio calibration when not REVERSE = P17D6 ratio calibration when REVERSE	fail time ≥ P17D6 intermediate speed sensor fail time threshold  fail time threshold met increments fail count, fail count ≥ P17D6 intermediate speed sensor fail count threshold	
		5,550.0.000.000			estimated transmission intermediate speed (transmission input speed / ratio calibration) with	≥ P17D6 minimum estimated transmission intermediate speed to enable fail evaluation		

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					transmission input speed	≥ P17D6 minimum transmission input speed to enable fail evaluation	P17D6 delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation	
					input speed sensor ready based on commaned gear and transmission intermediate speed sensor (state output must be FALSE to enable fail evaluation) with with attained gear	= P17D6 holding clutch states  = REVERSE OR		
					transmission input speed transmission output speed neutral idle mode range shift state P0716 fault active P0717 fault active P07BF fault active P07C0 fault active P0722 fault active P07C3 fault active P07C1 fault active P07C1 fault active P07C1 fault active P17CC fault active P17CD fault active P17CD fault active p17CD fault active battery voltage	= 1st thru 10th  ***********************************		
					service fast learn active	= FALSE		

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					run crank voltage transmission hydraulic pressure	≥ 9.00 volts = TRUE	battery voltage time ≥ 0.100 seconds run crank voltage time ≥ 0.100 seconds	

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Position Sensor/ Switch A Circuit/Open	P17F5	The diagnostic monitor detects an illegal voltage on the park valve position sensor circuit.	raw sensor voltage raw sensor voltage	> 1.263 volts < 1.504 volts	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Position Sensor/ Switch A Circuit Low	P17F6	The diagnostic monitor detects a ground short or open circuit fault in the park valve position sensor circuit.	raw sensor voltage	< 0.414 volts	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Position Sensor/ Switch A Circuit High	P17F7	The diagnostic monitor detects a short to voltage circuit fault in the park valve position sensor circuit.	raw sensor voltage	> 2.538 volts	battery voltage	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Position Sensor/ Switch B Circuit/Open	P17FA	I	raw sensor voltage raw sensor voltage	> 1.263 volts < 1.504 volts	battery voltage	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Position Sensor/ Switch B Circuit Low		The diagnostic monitor detects a ground short or open circuit fault in the park valve position sensor circuit.		< 0.414 volts		= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Position Sensor/ Switch B Circuit High	P17FC	The diagnostic monitor detects a short to voltage circuit fault in the park valve position sensor circuit.	raw sensor voltage	> 2.538 volts	battery voltage	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Stuck On (GR10 Only)	P187D	This diagnostic monitor rationalizes the driver ETRS command direction of "out of	when: out of park commanded only one valid park valve	≠ Park	ETRS system type is internal ETRS	= CeTRGR_e_InternalETR S	steady state fail time ≥ 0.25 seconds OR	Type A, 1 Trips
( 7)		PARK" against the actual park valve position, as the park	sensor (either Park Sensor A OR Park Sensor B) with sensor not		time since controller init battery voltage general park servo	≥ 0.01 seconds ≥ 9.00 volts	transition fail time ≥ 0.25 seconds	
	measured by the park valve position sensor A two valid park sensor B.	two valid park sensors	= Park	diagnostic enable park valve stuck on diagnostic enable	= 1 Boolean = 1 Boolean	fail count ≥ 2 counts		
		or B.	(Park Sensor A AND Park Sensor B) not indicating out of park	= Park	high side driver 1 or high side driver 2 is on	= TRUE	update rate 6.25 milliseconds	
			transition delay for commanded park valve transition (not required for steady	≥ P187D P18E7 Park to Out Of Park Transition Delay	P187D, P187E (Park Servo DTC) Test Fail This Key On	= FALSE		
	state commanded out of park conditions)  increment fail time	Transition Delay	(P17F5, P17F6, P17F7 (Park Sensor A) Fault Active) OR	= FALSE				
			when fail time threshold met, increment fail count		(P17FA, P17FB, P17FC (Park Sensor B) Fault Active)	= FALSE		
					(mode valve A commanded high and mode valve A confirmed high) OR	= TRUE		
				mode valve related fault disabled confirmation (P18AA OR P18AB OR P27EC Test Fail This Key)	= TRUE			
			OR (P27EB OR P27ED OR P27EE Fault Active)	= TRUE				
					pump out available (engine speed	= TRUE ≥ 250 RPM		

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

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TEST GROUP: KGMXV04.2088		EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					for engine speed time)	Pump Out Available ≥ Transition Time		
					line pressure available (commanded)	≥ 100.00 kPa		
					line pressure sufficient for pull out of park	≥ 500.00 kPa		

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			when: park commanded  only one valid park valve sensor (either Park Sensor A OR Park Sensor B) with sensor not indicating park OR two valid park sensors sensors (Park Sensor A AND Park Sensor B) not indicating park  transition delay for commanded park valve transition OR transition delay for commanded park valve transition with min line (not required for steady state commanded park conditions)  increment fail time  when fail time threshold met, increment fail count	Threshold Value  = Park  ≠ Park  ≠ Park  ≥ P187E P18E8 Out Of Park to Park Transition Delay  ≥ P187E P18E8 Out Of Park to Park Min Line Transition Delay	ETRS system type is internal ETRS  time since controller init battery voltage general park servo diagnostic enable park valve stuck off diagnostic enable high side driver 1 or high side driver 2 is on  P187D, P187E (Park Servo DTC) Test Fail This Key On  (P17F5, P17F6, P17F7 (Park Sensor A) Fault Active) OR (P17FA, P17FB, P17FC (Park Sensor B) Fault Active)  ( ( ((mode valve A commanded low and mode valve A confirmed	= CeTRGR_e_InternalETR S ≥ 0.01 seconds ≥ 9.00 volts = 1 Boolean = 1 Boolean = TRUE = FALSE = FALSE = FALSE	steady state fail time ≥ 0.25 seconds OR transition fail time ≥ 1.80 seconds OR transition fail time (at min line) ≥ 1.80 seconds fail count ≥ 2.00 counts  update rate 6.25 milliseconds	
					low) OR mode valve related fault disabled confirmation (P18AA OR P18AB OR P27EC Test Fail This Key On) OR	= TRUE = TRUE		
					mode valve sensor fault (P27EB OR P27ED OR			

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P27EE Fault Active)) AND ((park inhibit solenoid electrically stuck on) OR (park inhibit solenoid electrically stuck on AND line pressure command)) ) OR min line commanded (line pressure command)	= TRUE  = FALSE  = TRUE  ≥ Park Inhibit Solenoid Override Line Pressure  < 100.00 kPa		

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Command Message Performance	P189C	The diagnostic monitor detects a failure of the LIN serial communication failure between the TCM and the ECM/CHCM for Electronic Transmission Range Select (ETRS) vehicles.	LIN range command is undetected by TCM based on Rx LIN service fucntion Range Command Secondary Updated	= FALSE set to FALSE as part of normal background time updates, set to TRUE as part of normal LIN service fucntion when Rx messages are processed	diagnostic monitor calibration enable service mode \$04 active run/crank voltage run/crank voltage time	= 1 Boolean = FALSE ≥ 5.00 volts ≥ 3,000.000 seconds	initial fail time ≥ 3.000 seconds  final fail time ≥ 425.000 seconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Electronic Transmissio n Range Select Valve Performance - Stuck On (GR10 Only)	P18A1	This diagnostic monitor detects the condition where the transmission is latching the drive state on a commanded drive to park shift due to the range select valve being stuck on. P18A1 is only active during pressure / solenoid controlled shifts, not min line pressure default shifts which will break drive latch regardless of the range select valve position.	when: commanded mode valve high to low transition (drive to park shift)  mode valve position  park valve postion remains out of park  transition delay for solenoid commanded mode valve transition  increment fail time when fail time threshold met, increment fail count	= LOW  = HIGH  ≠ Park  ≥ P18A1 P18AA P27EC Mode Valve High To Low Transition Delay	ETRS system type is internal ETRS  time since controller init battery voltage general mode valve diagnostic enable range select valve stuck on diagnostic enable  high side driver 1 or high side driver 2 is on  mode valve related fault (P18AA, P18AB, P27EC Test Fail This Key) AND (P27EB, P27ED, P27EE Fault Active)  drive latch possible (mode valve previously confirmed position AND calculated line pressure)	= CeTRGR_e_InternalETR S ≥ 0.01 seconds ≥ 9.00 volts = 1 Boolean = 1 Boolean = TRUE  = FALSE = FALSE = HIGH ≥ 0.00	fail time ≥ 0.20 seconds  fail count ≥ 3 counts  update rate 6.25 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Inhibit Actuator Control Circuit Low (T93 GR10 Only)	P18A2	Controller specific circuit diagnoses internal ETRS park solenoid for an ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Controller specific circuit voltage thresholds are set to meet the following controller specification for an short to ground circuit Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	run crank voltage OR accessory voltage active diagnostic monitor enable calibration (1=enabled, 0=disabled)  ( (solenoid is mapped to high side driver 1 (= CeTSCR_e_HSD1) AND high side driver 1 on)  OR (solenoid is mapped to high side driver 2 (= CeTSCR_e_HSD2) AND high side driver 2 on) )	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 = CeTSCR_e_HSD1 = On = CeTSCR_e_HSD1 = On	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Inhibit Actuator Control Circuit (T93 GR10 Only)	P18A3	Controller specific circuit diagnoses internal ETRS park solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Increment fail time	≥ 200 K Ω impedance between signal and controller ground	run crank voltage OR accessory voltage active diagnostic monitor enable calibration (1=enabled, 0=disabled) ( (solenoid is mapped to high side driver 1 (= CeTSCR_e_HSD1) AND high side driver 1 on) OR (solenoid is mapped to high side driver 2 (= CeTSCR_e_HSD2) AND high side driver 2 on) )	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 = CeTSCR_e_HSD1 = On	≥ 1.000 seconds  25 milliseconds  12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Inhibit Actuator Control Circuit High	P18A4	Controller specific circuit diagnoses internal ETRS park solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	run crank voltage OR accessory voltage active diagnostic monitor enable calibration (1=enabled, 0=disabled) ( (solenoid is mapped to high side driver 1 (= CeTSCR_e_HSD1) AND high side driver 1 on) OR (solenoid is mapped to high side driver 2 (= CeTSCR_e_HSD2) AND high side driver 2 on) )	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 = CeTSCR_e_HSD1 = On	≥ 1.000 seconds  25 milliseconds  12.5 milliseconds  fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	2 Trips

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Park Inhibit Solenoid Stuck Off (GR10 Only)	P18A8	This diagnostic monitor detects when the park inhibit solenoid is unable to maintain out of park/neutral as expected when out of park oil is not available	when: neutral commanded out of park oil park inhibit solenoid commanded (only required to start fail time) only one valid park valve sensor (either Park Sensor A OR Park Sensor B) with sensor not indicating out of park OR two valid park sensors (Park Sensor A AND Park Sensor B) not indicating out of park increment fail time when fail time threshold met, increment fail count	= Neutral = Not Available  = HIGH  ≠ Out Of Park  ≠ Out Of Park	ETRS system type is internal ETRS  time since controller init battery voltage general park servo diagnostic enable park inhibit solenoid stuck off diagnostic enable high side driver 1 or high side driver 2 is on  P187D, P187E (Park Servo DTC) Test Fail This Key On  (P17F5, P17F6, P17F7 (Park Sensor A) Fault Active) OR (P17FA, P17FB, P17FC (Park Sensor B) Fault Active)  ((((mode valve A commanded low and mode valve A confirmed low) OR mode valve related fault (P18AA OR P18AB OR P27EC Test Fail This Key On) OR mode valve sensor fault (P27EB OR P27ED OR	= CeTRGR_e_InternalETR S ≥ 0.01 seconds ≥ 9.00 volts = 1 Boolean = 1 Boolean = TRUE  = FALSE  = FALSE  = TRUE  = TRUE	fail time ≥ 0.13 seconds  fail count ≥ 2.00 counts  update rate 6.25 milliseconds	Type B, 2 Trips
					P27EE Fault Active))	= TRUE		

DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	MIL Illum.
					park inhibit solenoid not electrically stuck off (P18A3 OR P18A4 Fault Active)  ( pump out available (engine speed for engine speed low time OR min line commanded (line pressure command) ) aux pump commanded on	= FALSE  = FALSE < 250.00 ≥ 0.25 < 100.00 kPa  = FALSE	

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Control A Position Sensor/ Switch Circuit Stuck On (GR10 Only)	P18AA	This diagnostic monitor detects a Mode Valve A Position Sensor State in the "on" or "high" state while being commanded low or when pressure is insufficient to hold the mode valve high. After a failure of a pressure controlled mode valve high to low transition, a min line mode valve high to low transition is used for fault isolation between P18A1 and P18AA.	when: mode valve solenoid commaned state  mode valve A position sensor state  transition delay for solenoid controlled mode valve transition  OR transition delay for solenoid min line mode valve transition (no transistion delay required for steady state commanded mode valve low conditions) increment fail time  when fail time threshold met, increment fail count	= LOW  = HIGH  ≥ P18A1 P18AA P27EC Mode Valve High To Low Transition Delay  ≥ P18AA Mode Valve High To Low Min Line Transition Delay	time since controller init battery voltage general mode valve diagnostic enable mode valve stuck on diagnostic enable high side driver 1 or high side driver 2 is on mode valve related fault (P18AA, P18AB, P27EC Test Fail This Key) AND mode valve sensor fault (P27EB, P27ED, P27EE Fault Active)  AND  ( ( pump out available (engine speed for engine speed high time) AND line pressure available (pressure commanded) AND out of park status )  OR ( pump out available OR line pressure available	= CeTRGR_e_InternalETR S  ≥ 0.01 seconds ≥ 9.00 volts = 1 Boolean = 1 Boolean = TRUE  = FALSE  = TRUE  ≥ 250.00     Pump Out Available ≥ Transition Time  = TRUE ≥ 100.00 kPa  ≠ Park  = FALSE  = FALSE  = FALSE	steady state fail time ≥ 0.25 seconds OR high to low transition fail time ≥ 0.20 seconds OR high to low min line transition fail time ≥ 1.00 seconds fail count ≥ 2.00 counts update rate 6.25 milliseconds	Type A, 1 Trips

DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07	TEST GROUP: KGMXV04.2088	EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					)			

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Control A Position Sensor/ Switch Circuit Stuck Off (GR10 Only)	P18AB	This diagnostic monitor detects a Mode Valve A Position Sensor State in the "off" or "low" state, which is in error, when hydraulic pressure in the circuit used to move the mode valve is sufficient to overcome the mode valve return spring force, leaving the mode valve mechanically in the "on" or "high" state. The diagnostic monitor also executes during transitions of the mode valve to verify Mode Valve A Position Sensor State changes correctly with mode valve state command.	when: mode valve solenoid commaned state  mode valve A position sensor state  transition delay for solenoid controlled mode valve transition (no transistion delay required for steady state commanded mode valve high conditions) increment fail time when fail time threshold met, increment fail count	= HIGH  = LOW  ≥ P18AB P27EC Mode Valve Low to High Transition Delay	time since controller init battery voltage general mode valve diagnostic enable mode valve stuck off diagnostic enable high side driver 1 or high side driver 2 is on mode valve related fault (P18AA, P18AB, P27EC Test Fail This Key) AND mode valve sensor fault (P27EB, P27ED, P27EE Fault Active)  pump out available (engine speed for engine speed high time) AND line pressure available (pressure commanded) AND out of park status	= CeTRGR_e_InternalETR S  ≥ 0.01 seconds ≥ 9.00 volts  = 1 Boolean  = 1.00 Boolean  = TRUE  = FALSE  = FALSE  = TRUE ≥ 250.00     Pump Out Available ≥ Transition Time  = TRUE ≥ 100.00 kPa = Park	steady state fail time ≥ 0.25 seconds OR low to high transition fail time 0.25 ≥ seconds fail count ≥ 2.00 counts update rate 6.25 milliseconds	Type A, 1 Trips

## **DIAGNOSTIC SUMMARY TABLES -- TCM**

**OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088** 

	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Control Enable Valve Stuck On (GR10 Only)	P18AE	This diagnostic monitor detects when the Enable Valve is not able to cut pressure from the pump to the rest of the hydraulic system within the transmission. The test checks for C2 incorrectly gaining capacity when commanded on with line pressure cut.	park commanded commanded gear only one valid park valve sensor (either Park Sensor A OR Park Sensor B) with sensor indicating park OR two valid park sensors (Park Sensor A AND Park Sensor B) with both sensors indicating park enable valve delay time  C2 pressure command C2 slip increment enable valve stuck on fail time	= PARK = PARK w/ No clutches  = Park  = Park  > P18AE Enable Valve Test Delay = 2,200.00 < 60.00	ETRS system type is internal ETRS  high side driver 1 or high side driver 2 is on  trans oil temp  engine crank (only required to initiate test)  engine off  commanded line pressure  pump out available (engine speed for engine speed high time)  transmission input speed  enable valve diagnostic not completed (P18AE Test Pass / Test Fail This Key)  no C2 solenoid electrical (P0964 OR P0966 OR P0967 Fault Active)  no line pressure solenoid short to ground (P2814 Fault Active)  total test time	= CeTRGR_e_InternalETR S = TRUE  > 0.00  = TRUE = FALSE = 0 = TRUE ≥ 250.00 Pump Out Available ≥ Transition Time  > 300.00  = FALSE  = FALSE  = FALSE  ≤ KePSDD_t_AntiBkFlwTm out	fail time > 3.00 update rate 6.25 milleseconds	Type B, 2 Trips

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Position Sensor/	P18E7	This diagnostic monitor detects park valve position sensor A performance faults, the	when: out of park commanded Park Sensor A indicating	≠ Park	ETRS system type is internal ETRS	= CeTRGR_e_InternalETR S	steady state fail time ≥ 0.25 seconds	Type A, 1 Trips
Switch "A" Performance (GR10 Only)		sensor is indicating not park when command is park, or sensor does	park Park Sensor B not	= Park	time since controller init battery voltage general park servo	≥ 0.01 seconds ≥ 9.00 volts	transition fail time ≥ 0.25 seconds	
, , , ,		not transition when park is not	indicating park	≠ Park	diagnostic enable park position sensor A	= 1 Boolean	fail count ≥ 1.00	
		commanded.	transition delay for commanded park valve	P187D P18E7 Park to Out Of Park	performance diagnostic enable	= 1 Boolean	counts update rate 6.25	
			transition (not required for steady state commanded out of	Transition Delay	high side driver 1 or high side driver 2 is on	= TRUE	milliseconds	
			park conditions) increment fail time		P187D, P187E (Park Servo DTC) Test Fail This Key On	= FALSE		
			when fail time threshold met, increment fail count		(P17F5, P17F6, P17F7 (Park Sensor A) Fault Active) OR	= FALSE		
					(P17FA, P17FB, P17FC (Park Sensor B) Fault Active)	= FALSE		
					mode valve A commanded high and mode valve A confirmed high	= TRUE		
					mode valve related fault (P18AA, P18AB, P27EC Test Fail This Key) AND mode valve sensor fault	= FALSE		
			(P27EB, P27ED, P27EE Fault Active)	= FALSE				
					pump out available	= TRUE		

DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Description	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		(engine speed for engine speed time)	≥ 250 RPM Pump Out Available ≥ Transition Time		
		line pressure available (commanded)	≥ 100.00 kPa		
		line pressure sufficient for pull out of park	≥ 500.00 kPa		
			line pressure available (commanded)  line pressure sufficient for	line pressure available (commanded) ≥ 100.00 kPa	line pressure available (commanded) ≥ 100.00 kPa

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Park Valve Position Sensor/ Switch "B" Performance (GR10 Only)	P18E8	This diagnostic monitor detects park valve position sensor B performance faults, the sensor is indicating not park when command is park, or sensor does not transition when park is not commanded.	when: steady state out of park commanded  Park Sensor A not indicating park  Park Sensor B indicating park  increment fail time when fail time threshold met, increment fail count	≠ Park  ≠ Park  = Park	time since controller init battery voltage general park servo diagnostic enable park position sensor B performance diagnostic enable high side driver 1 or high side driver 2 is on  P187D, P187E (Park Servo DTC) Test Fail This Key On  (P17F5, P17F6, P17F7 (Park Sensor A) Fault Active) OR (P17FA, P17FB, P17FC (Park Sensor B) Fault Active) mode valve A confirmed high mode valve A confirmed high mode valve related fault (P18AA, P18AB, P27EC Test Fail This Key) AND mode valve sensor fault (P27EB, P27ED, P27EE Fault Active)  pump out available (engine speed	= CeTRGR_e_InternalETR S  ≥ 0.01 seconds ≥ 9.00 volts  = 1 Boolean  = 1 Boolean  = TRUE  = FALSE  = FALSE  = TRUE  = FALSE  = TRUE  = TRUE  = TRUE  = TRUE  = TRUE  = TRUE	fail time ≥ 0.25 seconds  fail count ≥ 2.00 counts  update rate 6.25 milliseconds	Type A, 1 Trips

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

when:		for engine speed time) line pressure available (commanded) line pressure sufficient for pull out of park	Pump Out Available ≥ Transition Time  ≥ 100.00 kPa  ≥ 500.00 kPa		
when:		(commanded) line pressure sufficient for			
when:			> 500 00 kPa		1
when:			= 500.00 Ki a		
park commanded	= Park	ETRS system type is internal ETRS	= CeTRGR_e_InternalETR S	steady state fail time ≥ 0.25 seconds	
Park Sensor A indicating park  Park Sensor B not	= Park	time since controller init battery voltage	≥ 0.01 seconds ≥ 9.00 volts	OR transition fail time ≥ 1.80	
indicating park	≠ Park	general park servo diagnostic enable park position sensor B	= 1 Boolean	seconds OR transition fail	
transition delay for commanded park valve	P187E P18E8 Out Of Park to Park	enable	= 1 Boolean	≥ 1.80 seconds	
OR transition delay for	≥	side driver 2 is on	= TRUE	counts	
transition with min line (not required for steady	Park to Park Min Line Transition Delay	Servo DTC) Test Fail This Key On	= FALSE	milliseconds	
conditions) increment fail time when fail time threshold		(P17F5, P17F6, P17F7 (Park Sensor A) Fault Active) OR (P17FA, P17FB, P17FC	= FALSE		
met, increment fail count		(Park Sensor B) Fault Active)	= FALSE		
		mode valve A commanded low and mode valve A confirmed	TOUE		
	commanded park valve transition OR transition delay for commanded park valve transition with min line (not required for steady state commanded park conditions) increment fail time when fail time threshold	commanded park valve transition OR transition delay for commanded park valve transition with min line (not required for steady state commanded park conditions)  increment fail time  when fail time threshold  Park to Park Transition Delay  ≥ P187E P18E8 Out Of Park to Park Min Line Transition Delay	commanded park valve transition OR transition delay for commanded park valve transition with min line (not required for steady state commanded park conditions) increment fail time when fail time threshold met, increment fail count    Commanded park valve transition delay for commanded park valve transition with min line (not required for steady state commanded park conditions)   Park to Park Transition Delay	transition delay for commanded park valve transition OR transition delay for commanded park valve transition delay for commanded park valve transition with min line (not required for steady state commanded park conditions)  increment fail time when fail time threshold met, increment fail count  when fail to delay for commanded park to Park to Park Min Line Transition Delay  P187E P18E8 Out Of Park to Park Min Line Transition Delay  P187E P18E8 Out Of Park to Park Min Line Transition Delay  P187E P18E8 Out Of Park to Park Min Line Transition Delay  P187E P18E8 Out Of Park to Park Min Line Transition Delay  P187E P18E8 Out Of Park to Park Min Line Transition Delay  P187E P18E8 Out Of Park to Park Min Line Transition Delay  P187E P18E8 Out Of Park Min Line Transition Delay  P187E P18E8 Out Of Park Min Line Transition Delay  P187E P18E8 Out Of Park Min Line Transition Delay  P187E P18E8 Out Of Park Min Line Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Min Line Transition Delay  P187E P18E8 Out Of Park Min Line Transition Delay  P187E P18E8 Out Of Park Min Line Transition Delay  P187E P18E8 Out Of Park Min Line Transition Delay  P187E P18E8 Out Of Park Min Line Transition Delay  P187E P18E8 Out Of Park Min Line Transition Delay  P187E P18E8 Out Of Park Min Line Transition Delay  P187E P18E8 Out Of Park Min Line Transition Delay  P187E P18E8 Out Of Park Min Line Transition Delay  P187E P18E8 Out Of Park Min Line Transition Delay  P187D, P187E (Park Servo DTC) Test Fail This Key On  (P17F5, P17F6, P17F7 (Park Sensor A) Fault Active)  OR  (P17FA, P17FB, P17FC (Park Sensor B) Fault Active)  mode valve A commanded low and mode valve A confirmed	transition delay for commanded park valve transition Delay  P187E P18E8 Out Of Park to Park Transition Delay  P187E P18E8 Out Of Park to Park Transition Delay  P187E P18E8 Out Of Park to Park Transition Delay  P187E P18E8 Out Of Park to Park Transition Delay  P187E P18E8 Out Of Park to Park Min Line (not required for steady state commanded park conditions)  increment fail time when fail time threshold met, increment fail count  when fail time threshold met, increment fail count  Transition Delay  P187E P18E8 Out Of Park to Park Min Line Transition Delay  P187E P18E8 Out Of Park to Park Transition Delay  P187E P18E8 Out Of Park to Park Transition Delay  P187E P18E8 Out Of Park to Park Transition Delay  P187E P18E8 Out Of Park to Park Transition Delay  P187E P18E8 Out Of Park to Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park to Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P18E8 Out Of Park Transition Delay  P187E P187E P18E8 Out Of Park Transition Delay  P187E P187E P187E (Park Transition Delay  P1

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					mode valve related fault (P18AA, P18AB, P27EC Test Fail This Key) AND mode valve sensor fault	= FALSE		
					(P27EB, P27ED, P27EE Fault Active)	= FALSE		

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Ignition Switch Run/ Start Position Circuit Low	P2534	Detects a low ignition switch run/start position curcuit. This diagnostic reports the DTC when this circut is low. Monitoring occurs when the TCM run/crank is active.	•	TCM Run / Crank = FALSE	Ignition switch Run/Start position circuit low diag enable and Run / Crank active ECM	= 1.00 = TRUE	280 failures out of 280 samples 25 ms / sample	Type A, 1 Trips

DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Ignition Switch Run/ Start Position Circuit High	P2535	Detects a high ignition switch run/start position curcuit. This diagnostic reports the DTC when this circut is high. Monitoring occurs when the TCM run/ crank is NOT active.	ı.	TCM Run / Crank = TRUE	Ignition switch Run/Start position circuit low diag enable and Run / Crank active ECM	= 1.00 = FALSE	280 failures out of 280 samples 25 ms / sample	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Actuator Supply Voltage B Circuit Low	P2670	short to ground failure, or where controller H/W cannot differentiate, diagnoses the high	Voltage measurement outside of controller specific acceptable range during driver on state indicates short to ground failure.  Controller specific output driver circuit voltage thresholds are set to meet the following controller specification for a short to ground or an open circuit.	$\leq$ 0.5 Ω impedance between signal and controller ground OR $\geq$ 200 K Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail count and increment sample count, otherwise increment only sample count	(ground short diagnostic monitor enable calibration OR open circuit diagnostic monitor enable calibration) high side drive 2 ON service mode \$04 active	= 1 Boolean = 1 Boolean = TRUE = FALSE	ground short fail count ≥ 6 counts within sample count of 2,400 counts OR open circuit fail count ≥ 6 counts within sample count of 2,400 counts 6.25 millisecond update rate	Type A, 1 Trips

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Stuck Off (GR10)	P2714	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C4 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM	******	******	fail time ≥ 1.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A 1 Trips
		the solenoid is electrically functional.			system-level enables:			
		In the failure mode the clutch slip speed, and gear box gear slip, will be excessive, not near			use battery voltage calibration is FALSE OR	= 1 Boolean		
		or at zero RPM. The clutch slip speed is calculated based on			(use battery voltage calibration is TRUE	= 1 Boolean		
		the transmission lever node design, requiring transmission input shaft			battery voltage)	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		speed, transmission output shaft speed, and, one transmission			use run crank voltage calibration is FALSE OR	= 0 Boolean		
		intermediate shaft speed. The clutch pressure control			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		solenoid is tested after an automatic transmission shift			run crank voltage)	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		occurs and has been considered shift complete, or, steady			TCM output driver high side driver 1, clutch pressure control solenoid			
		state gear is deemed active, range shift			driver circuit enabled	= TRUE Boolean		
		complete. When the automatic transmission shift is complete,			TCM output driver high side driver 2, clutch pressure control solenoid			
		steady state gear is considered, the clutch			driver circuit enabled	= TRUE Boolean		
		pressure control solenoid is mapped to			service fast learn active	= FALSE Boolean		
		transmission line			service solenoid cleaning			

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			procedure active	= FALSE Boolean		
		normally allows the						
		clutch to maintain full			hydraulic pressure			
		torque holding capacity			available	= TRUE		
		at the given engine						
		crankshaft torque, to			hydraulic line pressure	≥ -999.00 kPa		
		maintain true gear						
		ratio. When the clutch			********	********		
		pressure control			enable C4 clutch slip			
		solenoid is failed			speed fail compare when:			
		hydraulically off, the						
		clutch does not maintain holding			((startle mitigation active OR	= FALSE		
		capacity at any engine			(startle mitigation active	= TRUE		
		crankshaft torque, and			AND	=		
		the clutch slip speed is			startle mitigation gear))	≠ initial startle mitigation		
		uncontrollable. The			(see startle mitigation	gear		
		clutch pressure control			active NOTE below)	godi		
		solenoid test is			dolly of the file bolow)			
		suspended if the higher			unintended deceleration			
		level safety startle			fault pending	= FALSE		
		mitigation function is			OR	-171292		
		active. The safety			unintended deceleration			
		startle mitigation			fault pending enable cal is	= 0 (0 to enable, 1 to		
		function is triggered			FALSE	disable)		
		when a sudden vehicle			(startle mitigation)			
		deceleration occurs			(startio magation)			
		due to a clutch						
		pressure control			clutch steady state			
		solenoid that has failed			adaptive active	= FALSE		
		in the opposite sense,				===		
		clutch pressure control			(transmission output shaft	> 36.0 RPM		
		solenoid failed			speed	- 00.0 14		
		hydraulically on, while			OR	l		
		the solenoid is			(accelerator pedal	≥ 0.50 %		
		electrically functional,			position	- 3.33 /3		
		which must take priority			OR	l		
		over any clutch			engine speed)	≥ 1,000.0 RPM	≥ 1.000 seconds	
		pressure control			originio opocod)	- 1,000.0 10 101	1 - 1.000 30001103	
		solenoid stuck off			C4 clutch slip speed valid	= TRUE (all speed		
		diagnostic monitor. All			O + Glatori Siip Speed valid	sensors are functional for		
		clutch pressure control				lever node clutch slip		

### DIAGNOSTIC SUMMARY TABLES -- TCM

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	solenoid stuck on/off diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no speed sensor electrical or performance faults can be present, or the clutch pressure control solenoid stuck off test is disabled. This diagnostic monitor is relative to C4 (GR10 C23467810R) clutch pressure control solenoid.			C4 clutch pressured map  (enable forward gear cal AND driver direction request AND Attained Gear) OR (enable reverse gear cal AND driver direction request AND Attained Gear) range shift state	speed calculation)  = mapped to line pressure, C4 clutch pressure has reached fully applied state  = 1 (1 to enable, 0 to disable) = FORWARD  = a FORWARD gear  = 0 (1 to enable, 0 to disable) = REVERSE  = REVERSE  = range shift complete  **********************************		
					DTCs not fault active	P172A P172B P0716 P0717 P07C0 P07BF P0723 P0722 P077D P077C P176C P176D P176B P17D6  P2534 P0707 P0708 P0716 P0717 P07C0 P07BF P077D P077C P126C P176D P17CC P17CD P0962 P0966 P0970 P2720 P2729 P2738 P0963 P0967 P0971 P2721 P2730 P2739 P0960 P0964 P0968 P2718 P2727 P2736 P17CE P1783		

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on  NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733	P17D3 P17C5 P0721 AcceleratorPedalFailure CrankSensor_FA  P0707 P0708 P0723 P0722 P176B P17D6 P0747 P0777 P0797 P2715 P2724 P2733 P0746 P0776 P0796 P2714 P2723 P2732 P2821 P2820 P178F P17C6 P17C4 P17C7 P172A P172B		
					P2821			

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC)	P2715	Each pressure control solenoid stuck on	shift type is power down shift:				Base fail time:	Type A, 1 Trips
Solenoid D Stuck On		diagnostic monitor detects a clutch	C4 clutch slip speed OR	< 50.00 RPM			shift type is power down	
		pressure control solenoid failed hydraulically on, while	shift type is garage shift: C4 clutch slip speed ELSE	< 100.00 RPM			shift: fail time ≥ 0.60 seconds	
		the solenoid is electrically functional. The clutch pressure control solenoid is	shift is another type: C4 clutch slip speed	< 50.00 RPM			shift type is garage shift: fail time ≥ 0.25	
		tested during an automatic transmission	update fail time 6.25 milliscond update				shift type is	
		shift by monitoring the off going clutch slip speed. With the clutch					another type: fail time ≥ 0.15 seconds	
		pressure control solenoid failed on, still allowing hydraulic pressure to the clutch					Add fail time offset according to shift type:	
		being commanded off, the intended off going clutch continues to maintain torque capacity during the transmission automatic					open throttle upshift: Clutch Stuck On Fail Offset Time PU Shifts	
		shift. In the failure mode, the off going clutch slip speed will remain near zero RPM when the clutch pressure control					open throttle downshift: Clutch Stuck On Fail Offset Time PD Shifts	
		solenoid is commanded to an off pressure in the normal operation to release the holding clutch. The clutch slip					garage shift: Clutch Stuck On Fail Offset Time GS Shifts	
		speed is calculated based on the transmission lever node design, requiring					closed throttle downshift:	

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft					Clutch Stuck	
		speed, transmission					On Fail Offset	
		output shaft speed,					Time CD Shifts	
		and, one transmission						
		intermediate shaft					negative torque	
		speed. As part of the					upshift:	
		pressure control					Clutch Clip	
		solenoid stuck on					Press NU Shifts	
		diagnostic monitor, the						
		safety startle mitigation					clutch staging	
		function executes when					shift:	
		in steady state gear, no					Clutch Stuck	
		automatic transmission					On Fail Offset	
		shift in progress. The					Time STGR	
		safety startle mitigation					Shifts	
		function is triggered					· · · · · · ·	
		when a sudden vehicle					update fail count,	
		deceleration occurs					fail count ≥ 3	
		due to a clutch					counts	
		pressure control					6.25 milliscond	
		solenoid that has failed					update	
		hydraulically on, while			********	*******	apaate	
		the solenoid is			system-level enables:			
		electrically functional.			system-level chables.			
		All clutch pressure			use battery voltage			
		control solenoid stuck			calibration is FALSE	= 1 Boolean		
		on diagnostic monitors			OR	= 1 Boolean		
		are emission MIL			(use battery voltage			
		DTCs. System voltage			calibration is TRUE	= 1 Boolean		
		must be normal, all			AND	- i boolean		
		clutch pressure control			battery voltage)	≥ 9.00 volts	battery voltage	
		solenoid driver circuits			battery voltage)	= 3.00 VOIIS	time ≥ 0.100	
		must be functional, no						
					use run crank voltage	= 0 Boolean	seconds	
		clutch pressure control				= U DUUIEAN		
		solenoid electrical or			calibration is FALSE			
		performance faults can			OR	O Dooloon		
		be present, and no			(use run crank voltage	= 0 Boolean		
		speed sensor electrical			calibration is TRUE			
		or performance faults			AND			
		can be present, or the			run crank voltage)	≥ 9.00 volts	run crank voltage	
		clutch pressure control					time ≥ 0.100	
	I	solenoid stuck on test					seconds	I

## DIAGNOSTIC SUMMARY TABLES -- TCM

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		is disabled. This diagnostic monitor is relative to GR10 C4 C23467810R clutch			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		pressure control solenoid.			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
					service fast learn active	= FALSE Boolean		
					service solenoid cleaning procedure active	= FALSE Boolean		
					hydraulic pressure available	= TRUE		
					hydraulic pressure	≥ -999 kPa ************************************		
					range shift state	≠ range shift complete		
					diagnostic clutch test	= OFF GOING CLUTCH TEST		
					transmission output shaft speed	≥ 36.0 RPM		
					((C4 off going clutch pressure control ramp time out complete AND off going clutch pressure	= TRUE		
					ramp control ramp time out enable) OR	= 1 (1 to enable, 0 to disable)		
					C4 off going clutch command pressure )	≤ 350 kPa	exhaust delay by shift type:	

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
							closed throttle upshift: C4 exhaust delay closed throttle lift foot up shift	
							open throttle upshift: C4 exhaust delay open throttle power on up shift	
							garage shifts: C4 exhaust delay garage shift	
							closed throttle downshift: C4 exhaust delay closed throttle down shift	
							negative torque upshift: C4 exhaust delay negative torque up shift	
							open throttle downshift: C4 exhaust delay open throttle power down shift	
					(engine torque AND	≥ 8,192 Nm		

**OBDGROUP: KGMXOBDG07** 

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Primary oncoming stuck on torque enable cal)	= 0 (0 is enable, 1 is enable)		
					OR			
					( primary oncoming clutch active	= TRUE		
					primary on coming control state	≠ clutch fill phase		
					primary on coming commanded pressure)	≥ pressure clip threshold according to shift type:		
						closed and open throttle upshifts:	Post-torque phase delay for	
						pressure clip threshold is dependent on the oncoming clutch:	powered upshifts is dependent on the oncoming clutch:	
						C1 Torque-Based Pressure Clip	C1_Oncoming Post-Torque Phase Delay OR	
						OR C2 Torque-Based Pressure Clip	C2_Oncoming Post-Torque Phase Delay OR	
						OR C3 Torque-Based Pressure Clip	C3_Oncoming Post-Torque Phase Delay	
						OR C5 Torque-Based Pressure Clip	OR C5_Oncoming Post-Torque Phase Delay	
						OR C6 Torque-Based Pressure Clip	OR C6_Oncoming Post-Torque Phase Delay	
						clip thresholds for all other		

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						shift types:		
						garage shifts: Clutch Clip Press GS Shifts		
						closed throttle downshift: Clutch Clip Press CD Shifts		
						negative torque upshift: Clutch Clip Press NU Shifts		
						open throttle downshift: Clutch Clip Press PD Shifts		
					C4 clutch slip speed valid, all speed sensors are functional for lever node clucth slip speed calculation	= TRUE		
					conditions needed to trigger test:	*******		
					(current shift type AND	≠ Garage shift		
					shift type enable cal for current shift type) OR	Clutch Stuck On Shift = Type Enable (0 table value will disable, 1 will enable)		
					(Intrusive shift active	= FALSE		
					shift type enable cal for garage shift AND	= 1 (0 will enable, 1 will enable)		
					Attained Gear AND	= NEUTRAL OR commanded gear		

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					(stuck on enable cal for forward garge shifts AND driver requested direction AND commanded gear) OR (stuck on enable cal for reverse garage shifts AND driver requested direction AND commanded gear))	= 1 (0 to disable, 1 to enable) = FORWARD = a FORWARD gear = 1 (0 to disable, 1 to enable) = REVERSE = REVERSE		
					clutch stuck off intrusive shift active  startle mitigation active (see note on startle mitigation below)	= FALSE = FALSE		
					(new clutch controller has been initalized OR transitioning to a different clutch controller)	= TRUE = TRUE		
					current clutch solenoid test state	transitions to TestState or TUT_HOLD (see note below about state transitions)		
					DTCs not fault pending	P17CE P1783 P178F P17C6 P17C4 P17C7 P17D3 P17C5 P0721 P172A P172B P0716 P0717 P07C0 P07BF P0723 P0722 P077D P077C P176C P176D P176B P17D6		

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04 2088

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not fault active	P2534 P0707 P0708 P0716 P0717 P07C0 P07BF P077D P077C P126C P176D P17CC P17CD P0962 P0966 P0970 P2720 P2729 P2738 P0963 P0967 P0971 P2721 P2730 P2739 P0960 P0964 P0968 P2718 P2727 P2736 P17CE P1783 P17D3 P17C5 P0721 AcceleratorPedalFailure CrankSensor_FA		
					DTCs not test fail this key on	P0707 P0708 P0723 P0722 P176B P17D6 P0747 P0777 P0797 P2715 P2724 P2733 P0746 P0776 P0796 P2714 P2723 P2732 P2821 P2820 P178F P17C6 P17C4 P17C7 P172A P172B		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions:			

**OBDGROUP: KGMXOBDG07** 

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Current value of clutch			
					control solenoid test state			
					is TIE UP TEST TEST			
					STATE, when one off			
					going clutch pressure			
					control solenoid stuck on			
					diagnostic monitor is			
l					currently executing.			
					AND			
					That off going clutch			
1					pressure control solenoid			
i					stuck on diagnostic			
					monitor currently			
					executing passes, the			
					corresponding clutch slip			
					speed ≥ clutch slip speed			
					fail threshold.			
					Once clutch control			
					solenoid test state is set			
					to TIE UP TEST HOLD, it			
					remains TIE UP TEST			
					HOLD during the			
					automatic transmission			
					shift, until:			
					An additional off going			
					clutch occurs, as			
					indicated by solenoid			
1					stuck on test trigger =			
					TRUE, subsequently			
					clutch control solenoid			
					test state is reset to TIE			
					UP TEST TEST STATE, to			
					allow the additional			
					corresponding off going			
					clutch pressure control			
					solenoid stuck on			
					diagnostic monitor to			
					execute.			
					OR			
					The automatic			
					transmission shift			
					completes, range shift	l		

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					state = range shift			
					complete.			
					NOTE: Startle mitigation			
					is used to detect			
					unintended vehicle			
					deceleration due to a			
					clutch pressure control			
1					solenoid stuck on failure			
					mode that occurs during			
			l		steady state gear, not			
			l		during an automatic			
					transmission shift. The			
					startle mitigation active			
					then forces the			
					transmission clutch			
					pressure control system			
					to a safe gear or neutral			
					state, based on the active			
					and inactive clutches,			
					when the unintended			
					vehicle deceleration			
					occurred. Once a safe			
					vehicle gear state is			
					attained, the gear and			
					clutch pressure control			
					system allows transitions			
					of the clutches on and off,			
					to sequence automatic			
					transmission shifts, single			
					step shifts. As each			
			l		single step automatic transmission shift occurs			
			l		the normal pressure			
			l		control solenoid stuck on			
			l		diagnostic monitors			
			l		execute to verify which clutch pressure control			
			l		solenoid is in the stuck on			
			l		failure mode, allowing one			
			l		of the clutch pressure			

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

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TEST GROUP: KGMXV04.2088		EMISSIONS STDS: CALI	ULEV125:	FEDBIN125

Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
				control solenoid stuck on DTCs to set P0747, P0777, P0797, P2715, P2724, P2733, P2821.			
	Fault Code	Fault Code Description	Fault Code Description Malfunction Criteria  Monitor Strategy Description  Malfunction Criteria	Fault Code Monitor Strategy Description Malfunction Criteria Threshold Value	Code Description control solenoid stuck on DTCs to set P0747,	Code Description control solenoid stuck on DTCs to set P0747,	Code Description

### **DIAGNOSTIC SUMMARY TABLES -- TCM**

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Control Circuit Open	P2718	Controller specific circuit diagnoses 9 speed C4, 10 speed C23467810R, 8 speed C23468 clutch, or CVT input clutch, solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit	≥ 200 K Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  run crank voltage OR accessory voltage active diagnostic monitor enable calibration (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR (solenoid is mapped to high side driver 2)  OR (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds 6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

TEST GROUP: KGMXV04.2088

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Control Circuit Low	P2720	Controller specific circuit diagnoses 9 speed C4, 10 speed C23467810R, 8 speed C23468 clutch, or CVT input clutch, solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short	≤ 0.5 Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active)  diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 2)  OR  (solenoid is mapped to high side driver 3)  AND high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.10 seconds out of sample time ≥ 0.17 seconds 6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Control Circuit High	P2721	Controller specific circuit diagnoses 9 speed C4, 10 speed C23467810R, 8 speed C23468 clutch, or CVT input clutch, solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage	≤ 0.5 Ω impedance between signal and controller voltage source  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active)  diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 2)  OR  (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds  ≥ 1.00 seconds  ≥ 25 milliseconds  ≥ 12.5 milliseconds	Type A, 1 Trips

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

OBDGROUP: KGMXOBDG07 TEST GR

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Stuck Off (GR10)	P2723	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C5 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 1.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
		the solenoid is			**************	*********	•	
		electrically functional.  In the failure mode the			system-level enables:			
		clutch slip speed, and gear box gear slip, will be excessive, not near			use battery voltage calibration is FALSE OR	= 1 Boolean		
		or at zero RPM. The clutch slip speed is calculated based on			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		the transmission lever node design, requiring transmission input shaft			battery voltage)	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		speed, transmission output shaft speed, and, one transmission			use run crank voltage calibration is FALSE OR	= 0 Boolean		
		intermediate shaft speed. The clutch pressure control			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		solenoid is tested after an automatic transmission shift			run crank voltage)	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		occurs and has been considered shift complete, or, steady			TCM output driver high side driver 1, clutch pressure control solenoid			
		state gear is deemed active, range shift			driver circuit enabled	= TRUE Boolean		
		complete. When the automatic transmission shift is complete,			TCM output driver high side driver 2, clutch pressure control solenoid			
	steady state gear is considered, the clutch			driver circuit enabled	= TRUE Boolean			
		pressure control solenoid is mapped to			service fast learn active	= FALSE Boolean		
		transmission line	I		service solenoid cleaning			

## DIAGNOSTIC SUMMARY TABLES -- TCM

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			procedure active	= FALSE Boolean		
		normally allows the			ľ			
		clutch to maintain full			hydraulic pressure			
		torque holding capacity			available	= TRUE		
		at the given engine						
		crankshaft torque, to			hydraulic line pressure	≥ -999.00 kPa		
		maintain true gear			·			
		ratio. When the clutch						
		pressure control			*******	******		
		solenoid is failed			enable C5 clutch slip			
		hydraulically off, the			speed fail compare when:			
		clutch does not			·			
		maintain holding			((startle mitigation active	= FALSE		
		capacity at any engine			ÖR			
1		crankshaft torque, and			(startle mitigation active	= TRUE		
		the clutch slip speed is			ÀND			
		uncontrollable. The			startle mitigation gear))	≠ initial startle mitigation		
		clutch pressure control			(see startle mitigation	gear		
		solenoid test is			active NOTE below)	I 9		
		suspended if the higher						
		level safety startle			unintended deceleration			
		mitigation function is			fault pending	= FALSE		
		active. The safety			OR	===		
		startle mitigation			unintended deceleration			
		function is triggered			fault pending enable cal is	= 0 (0 to enable, 1 to		
		when a sudden vehicle			FALSE	disable)		
		deceleration occurs			(startle mitigation)			
		due to a clutch			(com a com game of			
		pressure control						
		solenoid that has failed			clutch steady state			
		in the opposite sense,			adaptive active	= FALSE		
		clutch pressure control			adaptive delive			
		solenoid failed			(transmission output shaft	≥ 36.0 RPM		
		hydraulically on, while	l		speed	- 00.0 1		
		the solenoid is	l		OR OR			
		electrically functional,	l		(accelerator pedal	≥ 0.50 %		
		which must take priority	l		position	- 5.55 /5		
		over any clutch	l		OR		≥ 1.000 seconds	
		pressure control			engine speed)	≥ 1,000.0 RPM	1.000 Seconds	
		solenoid stuck off	ĺ		origine speed)	- 1,000.0 101 101		
		diagnostic monitor. All			C5 clutch slip speed valid	= TRUE (all speed		
		clutch pressure control	ĺ		OS Glutori siip speed valid	sensors are functional for		

## DIAGNOSTIC SUMMARY TABLES -- TCM

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off diagnostic monitors are emission MIL DTCs.				lever node clutch slip speed calculation)		
		System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no			C5 clutch pressured map	= mapped to line pressure, C5 clutch pressure has reached fully applied state		
		clutch pressure control solenoid electrical or performance faults can be present, and no			(enable forward gear cal AND driver direction request AND	= 1 (1 to enable, 0 to disable) = FORWARD		
		speed sensor electrical or performance faults can be present, or the			Attained Gear) OR (enable reverse gear cal	= a FORWARD gear = 0 (1 to enable, 0 to		
		clutch pressure control solenoid stuck off test is disabled. This			AND driver direction request AND	disable) = REVERSE		
		diagnostic monitor is relative to C5 (GR10			Attained Gear)	= REVERSE		
		C1356789) clutch pressure control solenoid.			range shift state	= range shift complete		
		Soleriold.			DTCs not fault pending	P17CE P1783 P178F P17C6 P17C4 P17C7 P17D3 P17C5 P0721 P172A P172B P0716 P0717 P07C0 P07BF P0723 P0722 P077D P077C P176C P176D P176B P17D6		
					DTCs not fault active	P2534 P0707 P0708 P0716 P0717 P07C0 P07BF P077D P077C P126C P176D P17CC P17CD P0962 P0966 P0970 P2720 P2729		
						P2738 P0963 P0967 P0971 P2721 P2730 P2739 P0960 P0964 P0968 P2718 P2727		

**DIAGNOSTIC SUMMARY TABLES -- TCM** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						P2736 P17CE P1783 P17D3 P17C5 P0721 AcceleratorPedalFailure CrankSensor_FA		
					DTCs not test fail this key on	P0707 P0708 P0723 P0722 P176B P17D6 P0747 P0777 P0797 P2715 P2724 P2733 P0746 P0776 P0796 P2714 P2723 P2732 P2821 P2820 P178F P17C6 P17C4 P17C7 P172A P172B		
					NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

OBDGROUP: KGMXOBDG07 TEST GROUP

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC)	P2724	Each pressure control solenoid stuck on	shift type is power down shift:				Base fail time:	Type A, 1 Trips
Solenoid E Stuck On		diagnostic monitor detects a clutch	C5 clutch slip speed OR	< 50.00 RPM			shift type is power down	
		pressure control solenoid failed hydraulically on, while	shift type is garage shift: C5 clutch slip speed ELSE	< 100.00 RPM			shift: fail time ≥ 0.60 seconds	
		the solenoid is electrically functional. The clutch pressure control solenoid is	shift is another type: C5 clutch slip speed	< 50.00 RPM			shift type is garage shift: fail time ≥ 0.25	
		tested during an automatic transmission	update fail time 6.25 milliscond update				shift type is	
		shift by monitoring the off going clutch slip speed. With the clutch					another type: fail time ≥ 0.15 seconds	
		pressure control solenoid failed on, still allowing hydraulic pressure to the clutch					Add fail time offset according to shift type:	
		being commanded off, the intended off going clutch continues to maintain torque capacity during the transmission automatic					open throttle upshift: Clutch Stuck On Fail Offset Time PU Shifts	
		shift. In the failure mode, the off going clutch slip speed will remain near zero RPM when the clutch pressure control					open throttle downshift: Clutch Stuck On Fail Offset Time PD Shifts	
		solenoid is commanded to an off pressure in the normal operation to release the holding clutch. The clutch slip					garage shift: Clutch Stuck On Fail Offset Time GS Shifts	
		speed is calculated based on the transmission lever node design, requiring					closed throttle downshift:	

# DIAGNOSTIC SUMMARY TABLES -- TCM

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft					Clutch Stuck	1
		speed, transmission					On Fail Offset	
		output shaft speed,					Time CD Shifts	
		and, one transmission						
		intermediate shaft					negative torque	
		speed. As part of the					upshift:	
		pressure control					Clutch Clip	
		solenoid stuck on					Press NU Shifts	
		diagnostic monitor, the						
		safety startle mitigation					clutch staging	
		function executes when					shift:	
		in steady state gear, no					Clutch Stuck	
		automatic transmission					On Fail Offset	
		shift in progress. The					Time STGR	
		safety startle mitigation					Shifts	
		function is triggered						
		when a sudden vehicle					update fail count,	
		deceleration occurs					fail count ≥ 3	
		due to a clutch					counts	
		pressure control					6.25 milliscond	
		solenoid that has failed					update	
		hydraulically on, while			********	********		
		the solenoid is			system-level enables:			
		electrically functional.						
		All clutch pressure			use battery voltage			
		control solenoid stuck			calibration is FALSE	= 1 Boolean		
		on diagnostic monitors			OR			
		are emission MIL			(use battery voltage			
		DTCs. System voltage			calibration is TRUE	= 1 Boolean		
		must be normal, all			AND			
		clutch pressure control			battery voltage)	≥ 9.00 volts	battery voltage	
		solenoid driver circuits					time ≥ 0.100	
		must be functional, no					seconds	
		clutch pressure control			use run crank voltage	= 0 Boolean		
		solenoid electrical or			calibration is FALSE			
		performance faults can			OR			
		be present, and no			(use run crank voltage	= 0 Boolean		
		speed sensor electrical			calibration is TRUE			
		or performance faults			AND			
		can be present, or the			run crank voltage)	≥ 9.00 volts	run crank voltage	
		clutch pressure control			I		time ≥ 0.100	
	I	solenoid stuck on test					seconds	

## DIAGNOSTIC SUMMARY TABLES -- TCM

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		is disabled. This diagnostic monitor is relative to the GR10 C5 C1356789 clutch			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		pressure control solenoid.			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
					service fast learn active	= FALSE Boolean		
					service solenoid cleaning procedure active	= FALSE Boolean		
					hydraulic pressure available	= TRUE		
					hydraulic pressure	≥ -999 kPa		
					range shift state	≠ range shift complete		
					diagnostic clutch test	= OFF GOING CLUTCH TEST		
					transmission output shaft speed	≥ 36.0 RPM		
					((C5 off going clutch pressure control ramp time out complete AND off going clutch pressure	= TRUE		
					ramp control ramp time out enable) OR	= 1 (1 to enable, 0 to disable)		
					C5 off going clutch command pressure )	≤ 350 kPa	exhaust delay by shift type:	

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
							closed throttle upshift: C5 exhaust delay closed throttle lift foot up shift	
							open throttle upshift: C5 exhaust delay open throttle power on up shift	
							garage shifts: C5 exhaust delay garage shift	
							closed throttle downshift: C5 exhaust delay closed throttle down shift	
							negative torque upshift: C5 exhaust delay negative torque up shift	
							open throttle downshift: C5 exhaust delay open throttle power down shift	
					(engine torque AND Primary oncoming stuck	≥ 8,192 Nm = 0 (0 is enable, 1 is		

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					on torque enable cal)	enable)		
					OR			
					( primary oncoming clutch active	= TRUE		
					primary on coming control state	≠ clutch fill phase		
					primary on coming commanded pressure)	≥ pressure clip threshold according to shift type:		
						closed and open throttle upshifts:	Post-torque phase delay for	
						pressure clip threshold is dependent on the oncoming clutch:	powered upshifts is dependent on the oncoming clutch:	
						C1 Torque-Based Pressure Clip	C1_Oncoming Post-Torque Phase Delay	
						OR	OR	
						C2 Torque-Based Pressure Clip	C2_Oncoming Post-Torque	
						OR	<b>Phase Delay</b> OR	
						C3 Torque-Based	C3_Oncoming	
						Pressure Clip	Post-Torque Phase Delay	
						OR	OR	
						C4 Torque-Based Pressure Clip	C4_Oncoming Post-Torque	
						OR	<b>Phase Delay</b> OR	
						C6 Torque-Based Pressure Clip	C6_Oncoming Post-Torque	
						clip thresholds for all other shift types:	Phase Delay	

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						garage shifts: Clutch Clip Press GS Shifts		
						closed throttle downshift: Clutch Clip Press CD Shifts		
						negative torque upshift: Clutch Clip Press NU Shifts		
						open throttle downshift: Clutch Clip Press PD Shifts		
					C5 clutch slip speed valid, all speed sensors are functional for lever node clucth slip speed calculation	= TRUE		
					conditions needed to trigger test:	*******		
					(current shift type AND shift type enable cal for current shift type) OR	≠ Garage shift  Clutch Stuck On Shift = Type Enable (0 table value will disable, 1 will enable)		
					(Intrusive shift active AND shift type enable cal for garage shift	= FALSE = 1 (0 will enable, 1 will enable)		
					AND Attained Gear AND (stuck on enable cal for forward garge shifts	= NEUTRAL OR commanded gear = 1 (0 to disable, 1 to		

## DIAGNOSTIC SUMMARY TABLES -- TCM

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					AND driver requested direction AND commanded gear) OR (stuck on enable cal for reverse garage shifts AND driver requested direction AND commanded gear)) clutch stuck off intrusive shift active startle mitigation active (see note on startle mitigation below)	enable) = FORWARD = a FORWARD gear  = 1 (0 to disable, 1 to enable) = REVERSE = REVERSE = FALSE = FALSE		
					(new clutch controller has been initalized OR transitioning to a different clutch controller)	= TRUE = TRUE		
					current clutch solenoid test state	transitions to TestState or TUT_HOLD (see note below about state transitions)		
					**************************************	P17CE P1783 P178F P17C6 P17C4 P17C7 P17D3 P17C5 P0721 P172A P172B P0716 P0717 P07C0 P07BF P0723 P0722 P077D P077C P176C P176D P176B P17D6		
					DTCs not fault active	P2534 P0707 P0708		

# DIAGNOSTIC SUMMARY TABLES -- TCM

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on	P0716 P0717 P07C0 P07BF P077D P077C P126C P176D P17CC P17CD P0962 P0966 P0970 P2720 P2729 P2738 P0963 P0967 P0971 P2721 P2730 P2739 P0960 P0964 P0968 P2718 P2727 P2736 P17CE P1783 P17D3 P17C5 P0721 AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0723 P0722 P176B P17D6 P0747 P0777 P0797		
					*********	P0747 P0777 P0797 P2715 P2724 P2733 P0746 P0776 P0796 P2714 P2723 P2732 P2821 P2820 P178F P17C6 P17C4 P17C7 P172A P172B		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions: Current value of clutch control solenoid test state			

**OBDGROUP: KGMXOBDG07** 

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					is TIE UP TEST TEST			†
					STATE, when one off			
					going clutch pressure			
					control solenoid stuck on			
					diagnostic monitor is			
					currently executing.			
					AND			
					That off going clutch			
					pressure control solenoid			
					stuck on diagnostic			
					monitor currently			
					executing passes, the			
					corresponding clutch slip			
					speed ≥ clutch slip speed			
					fail threshold.			
					Once clutch control			
					solenoid test state is set			
					to TIE UP TEST HOLD, it			
					remains TIE UP TEST			
					HOLD during the			
					automatic transmission			
					shift, until:			
					An additional off going			
					clutch occurs, as			
					indicated by solenoid			
					stuck on test trigger =			
					TRUE, subsequently			
					clutch control solenoid			
					test state is reset to TIE			
					UP TEST TEST STATE, to			
					allow the additional			
					corresponding off going			
					clutch pressure control			
					solenoid stuck on			
					diagnostic monitor to			
					execute.			
					OR OR			
					The automatic			
					transmission shift			
					completes, range shift			
					state = range shift			
		1			complete.	I	1	1

**OBDGROUP: KGMXOBDG07** 

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control solenoid stuck on failure mode that occurs during steady state gear, not during an automatic transmission shift. The startle mitigation active then forces the transmission clutch pressure control system to a safe gear or neutral state, based on the active and inactive clutches, when the unintended vehicle deceleration occurred. Once a safe vehicle gear state is attained, the gear and clutch pressure control system allows transitions			Illum.
					of the clutches on and off, to sequence automatic transmission shifts, single step shifts. As each single step automatic transmission shift occurs the normal pressure control solenoid stuck on diagnostic monitors execute to verify which clutch pressure control solenoid is in the stuck on failure mode, allowing one of the clutch pressure control solenoid stuck on DTCs to set P0747,			

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0777, P0797, P2715, P2724, P2733, P2821.			

# **DIAGNOSTIC SUMMARY TABLES -- TCM**

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

<b>EMISSIONS</b>	STDS: CAL-	-ULEV125:	FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Control Circuit Open	P2727	Controller specific circuit diagnoses 9 speed C57R, 10 speed C1356789, or 8 speed C45678R clutch solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit	≥ 200 K Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	run crank voltage OR accessory voltage active diagnostic monitor enable calibration (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1) OR (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2 (OR (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds 6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Control Circuit Low	P2729	Controller specific circuit diagnoses 9 speed C57R, 10 speed C1356789, or 8 speed C45678R clutch solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short	≤ 0.5 Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active)  diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 2)  OR  (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.10 seconds out of sample time ≥ 0.17 seconds 6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Control Circuit High	P2730	Description  Controller specific circuit diagnoses 9 speed C57R, 10 speed C1356789, or 8 speed C45678R clutch solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage	≤ 0.5 Ω impedance between signal and controller voltage source  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active)  diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds  ≥ 1.00 seconds  ≥ 25 milliseconds  ≥ 12.5 milliseconds	Type A 1 Trips
					OR (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	= CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON		

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Stuck Off (GR10)	P2732	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C6 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 1.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
		the solenoid is			********	*********	upuate	
		electrically functional. In the failure mode the			system-level enables:			
		clutch slip speed, and gear box gear slip, will be excessive, not near			use battery voltage calibration is FALSE OR	= 1 Boolean		
		or at zero RPM. The clutch slip speed is calculated based on			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		the transmission lever node design, requiring transmission input shaft			battery voltage)	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		speed, transmission output shaft speed, and, one transmission			use run crank voltage calibration is FALSE OR	= 0 Boolean	33331145	
		intermediate shaft speed. The clutch pressure control			(use run crank voltage calibration is TRUE	= 0 Boolean		
		solenoid is tested after an automatic transmission shift			run crank voltage)	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		occurs and has been considered shift			TCM output driver high side driver 1, clutch			
		complete, or, steady state gear is deemed active, range shift			pressure control solenoid driver circuit enabled	= TRUE Boolean		
		complete. When the automatic transmission			TCM output driver high side driver 2, clutch			
		shift is complete, steady state gear is considered, the clutch			pressure control solenoid driver circuit enabled	= TRUE Boolean		
		pressure control solenoid is mapped to			service fast learn active	= FALSE Boolean		
		transmission line			service solenoid cleaning			

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Enable Conditions Time Required MIL Illum.

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			procedure active	= FALSE Boolean		
		normally allows the			T.			
		clutch to maintain full			hydraulic pressure			
		torque holding capacity			available	= TRUE		
		at the given engine						
		crankshaft torque, to			hydraulic line pressure	≥ -999.00 kPa		
		maintain true gear			<u>'</u>			
		ratio. When the clutch			*******	*******		
		pressure control			enable C6 clutch slip			
		solenoid is failed			speed fail compare when:			
		hydraulically off, the			1.			
		clutch does not			((startle mitigation active	= FALSE		
		maintain holding			ÖR			
		capacity at any engine			(startle mitigation active	= TRUE		
		crankshaft torque, and			ÀND			
		the clutch slip speed is			startle mitigation gear))	≠ initial startle mitigation		
		uncontrollable. The			(see startle mitigation	gear		
		clutch pressure control			active NOTE below)			
		solenoid test is			,			
		suspended if the higher			unintended deceleration			
		level safety startle			fault pending	= FALSE		
		mitigation function is			OR			
		active. The safety			unintended deceleration			
		startle mitigation			fault pending enable cal is	= 0 (0 to enable, 1 to		
		function is triggered			FALSE	disable)		
		when a sudden vehicle			(startle mitigation)	,		
		deceleration occurs			1` ' '			
		due to a clutch						
		pressure control			clutch steady state			
		solenoid that has failed			adaptive active	= FALSE		
		in the opposite sense,			1 '			
		clutch pressure control			(transmission output shaft	≥ 36.0 RPM		
		solenoid failed			speed			
		hydraulically on, while			OR			
		the solenoid is			(accelerator pedal	≥ 0.50 %		
		electrically functional,			position			
		which must take priority			OR			
		over any clutch			engine speed)	≥ 1,000.0 RPM	≥ 1.000 seconds	
		pressure control			3			
		solenoid stuck off			C6 clutch slip speed valid	= TRUE (all speed		
		diagnostic monitor. All				sensors are functional for		
		clutch pressure control			1	lever node clutch slip		

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off				speed calculation)		
		diagnostic monitors are				<b>l</b> .		
		emission MIL DTCs.			C6 clutch pressured map	= mapped to line		
		System voltage must				pressure, C6 clutch		
		be normal, all clutch				pressure has reached		
		pressure control				fully applied state		
		solenoid driver circuits						
		must be functional, no			(enable forward gear cal	= 1 (1 to enable, 0 to		
		clutch pressure control			AND	disable)		
		solenoid electrical or			driver direction request	= FORWARD		
		performance faults can			AND			
		be present, and no			Attained Gear)	= a FORWARD gear		
		speed sensor electrical	1		OR ´	ľ		
		or performance faults	1		(enable reverse gear cal	= 0 (1 to enable, 0 to		
		can be present, or the			ÀND	disable)		
		clutch pressure control			driver direction request	= REVÉRSE		
		solenoid stuck off test			AND			
		is disabled. This			Attained Gear)	= REVERSE		
		diagnostic monitor is			<b>'</b>			
		relative to C6 GR10			range shift state	= range shift complete		
		C45678910R clutch			3			
		pressure control			********	********		
		solenoid.			DTCs not fault pending	P17CE P1783 P178F		
						P17C6 P17C4 P17C7		
						P17D3 P17C5 P0721		
						P172A P172B P0716		
						P0717 P07C0 P07BF		
						P0723 P0722 P077D		
						P077C P176C P176D		
						P176B P17D6		
					DTCs not fault active	P2534 P0707 P0708		
						P0716 P0717 P07C0		
						P07BF P077D P077C		
						P126C P176D P17CC		
						P17CD P0962 P0966		
			1			P0970 P2720 P2729		
						P2738 P0963 P0967		
			1			P0971 P2721 P2730		
						P2739 P0960 P0964		
						P0968 P2718 P2727		
		1	1			P2736 P17CE P1783	I	I

DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on  NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821	P17D3 P17C5 P0721 AcceleratorPedalFailure CrankSensor_FA  P0707 P0708 P0723 P0722 P176B P17D6 P0747 P0777 P0797 P2715 P2724 P2733 P0746 P0776 P0796 P2714 P2723 P2732 P2821 P2820 P178F P17C6 P17C4 P17C7 P172A P172B		

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC)	P2733	Each pressure control solenoid stuck on	shift type is power down shift:				Base fail time:	Type A, 1 Trips
Solenoid F Stuck On		diagnostic monitor detects a clutch	C6 clutch slip speed OR	< 50.00 RPM			shift type is power down	
(GR10)		pressure control solenoid failed hydraulically on, while	shift type is garage shift: C6 clutch slip speed ELSE	< 100.00 RPM			shift: fail time ≥ 0.60 seconds	
	the solenoid is electrically functional. The clutch pressure control solenoid is tested during an automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off, the intended off going clutch continues to maintain torque capacity during the transmission automatic	shift is another type: C6 clutch slip speed	< 50.00 RPM			shift type is garage shift:		
		update fail time 6.25 milliscond update				fail time ≥ 0.25 shift type is		
						another type: fail time ≥ 0.15 seconds		
		solenoid failed on, still allowing hydraulic					Add fail time offset according to shift type:	
		being commanded off, the intended off going clutch continues to maintain torque capacity during the transmission automatic					open throttle upshift: Clutch Stuck On Fail Offset Time PU Shifts	
sh m cl re w po so to no re cl sp ba tr:	shift. In the failure mode, the off going clutch slip speed will remain near zero RPM when the clutch pressure control					open throttle downshift: Clutch Stuck On Fail Offset Time PD Shifts		
	solenoid is commanded to an off pressure in the normal operation to release the holding clutch. The clutch slip					garage shift: Clutch Stuck On Fail Offset Time GS Shifts		
		speed is calculated based on the transmission lever node design, requiring					closed throttle downshift:	

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft					Clutch Stuck	
		speed, transmission					On Fail Offset	
		output shaft speed,					Time CD Shifts	
		and, one transmission						
		intermediate shaft					negative torque	
		speed. As part of the					upshift:	
		pressure control					Clutch Clip	
		solenoid stuck on					Press NU Shifts	
		diagnostic monitor, the						
		safety startle mitigation					clutch staging	
		function executes when					shift:	
		in steady state gear, no					Clutch Stuck	
		automatic transmission					On Fail Offset	
		shift in progress. The					Time STGR	
		safety startle mitigation					Shifts	
		function is triggered						
		when a sudden vehicle					update fail count,	
		deceleration occurs					fail count ≥ 3	
		due to a clutch					counts	
		pressure control					6.25 milliscond	
		solenoid that has failed					update	
		hydraulically on, while			*******	*******	·	
		the solenoid is			system-level enables:			
		electrically functional.			1			
		All clutch pressure			use battery voltage			
		control solenoid stuck			calibration is FALSE	= 1 Boolean		
		on diagnostic monitors			OR			
		are emission MIL			(use battery voltage			
		DTCs. System voltage			calibration is TRUE	= 1 Boolean		
		must be normal, all			AND		battery voltage	
		clutch pressure control			battery voltage)	≥ 9.00 volts	time ≥ 0.100	
		solenoid driver circuits					seconds	
		must be functional, no						
		clutch pressure control			use run crank voltage	= 0 Boolean		
		solenoid electrical or			calibration is FALSE			
		performance faults can			OR			
		be present, and no			(use run crank voltage	= 0 Boolean		
		speed sensor electrical			calibration is TRUE			
		or performance faults			AND		run crank voltage	
		can be present, or the			run crank voltage)	≥ 9.00 volts	time ≥ 0.100	
		clutch pressure control			<b>I</b>		seconds	
		solenoid stuck on test						I

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		is disabled. This diagnostic monitor is relative to the GR10 C6 C45678910R clutch			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		pressure control solenoid.			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
					service fast learn active	= FALSE Boolean		
					service solenoid cleaning procedure active	= FALSE Boolean		
					hydraulic pressure available	= TRUE		
					hydraulic pressure	≥ -999 kPa ************************************		
					range shift state	≠ range shift complete		
					diagnostic clutch test	= OFF GOING CLUTCH TEST		
					transmission output shaft speed	≥ 36.0 RPM		
					((C6 off going clutch pressure control ramp time out complete AND off going clutch pressure	= TRUE		
					ramp control ramp time out enable)  OR	= 1 (1 to enable, 0 to disable)		
					C6 off going clutch command pressure )	≤ 350 kPa	exhaust delay by shift type:	

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
							closed throttle upshift: C6 exhaust delay closed throttle lift foot up shift	
							open throttle upshift: C6 exhaust delay open throttle power on up shift	
							garage shifts: C6 exhaust delay garage shift	
							closed throttle downshift: C6 exhaust delay garage shift	
							negative torque upshift: C6 exhaust delay negative torque up shift	
							open throttle downshift: C6 exhaust delay open throttle power down shift	
					(engine torque AND Primary oncoming stuck	≥ 8,192 Nm = 0 (0 is enable, 1 is		

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					on torque enable cal)	enable)		
					OR			
					( primary oncoming clutch active	= TRUE		
					primary on coming control state	≠ clutch fill phase		
					primary on coming commanded pressure)	≥ pressure clip threshold according to shift type:		
						closed and open throttle upshifts:	Post-torque phase delay for	
						pressure clip threshold is dependent on the oncoming clutch:	powered upshifts is dependent on the oncoming clutch:	
						C1 Torque-Based Pressure Clip	C1_Oncoming Post-Torque Phase Delay	
						OR	OR	
						C2 Torque-Based Pressure Clip	C2_Oncoming Post-Torque	
						OR	<b>Phase Delay</b> OR	
						C3 Torque-Based	C3_Oncoming	
						Pressure Clip	Post-Torque Phase Delay	
						OR	OR	
						C4 Torque-Based Pressure Clip	C4_Oncoming Post-Torque	
						OD	Phase Delay	
						OR C5 Torque-Based	OR C5_Oncoming	
						Pressure Clip	Post-Torque Phase Delay	
						clip thresholds for all other shift types:	aoo Bolay	

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						garage shifts: Clutch Clip Press GS Shifts		
						closed throttle downshift: Clutch Clip Press CD Shifts		
						negative torque upshift: Clutch Clip Press NU Shifts		
						open throttle downshift: Clutch Clip Press PD Shifts		
					C6 clutch slip speed valid, all speed sensors are functional for lever node clucth slip speed calculation	= TRUE		
					conditions needed to trigger test:	*******		
					(current shift type AND shift type enable cal for current shift type)	≠ Garage shift Clutch Stuck On Shift = Type Enable		
					OR	(0 table value will disable, 1 will enable)		
					(Intrusive shift active AND	= FALSE		
					shift type enable cal for garage shift AND	= 1 (0 will enable, 1 will enable)		
					Attained Gear AND (stuck on enable cal for	= NEUTRAL OR commanded gear		
					forward garge shifts AND	= 1 (0 to disable, 1 to enable)		

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		·			driver requested direction AND commanded gear) OR (stuck on enable cal for reverse garage shifts AND driver requested direction AND commanded gear)) clutch stuck off intrusive shift active startle mitigation active (see note on startle	= FORWARD = a FORWARD gear  = 1 (0 to disable, 1 to enable) = REVERSE = REVERSE = FALSE = FALSE		
					mitigation below)  (new clutch controller has been initalized OR transitioning to a different clutch controller)  current clutch solenoid test state	= TRUE  = TRUE  transitions to TestState or TUT_HOLD (see note below about state transitions)		
					**************************************	P17CE P1783 P178F P17C6 P17C4 P17C7 P17D3 P17C5 P0721 P172A P172B P0716 P0717 P07C0 P07BF P0723 P0722 P077D P077C P176C P176D P176B P17D6		
					DTCs not fault active	P2534 P0707 P0708 P0716 P0717 P07C0		

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						P07BF P077D P077C P126C P176D P17CC P17CD P0962 P0966 P0970 P2720 P2729 P2738 P0963 P0967 P0971 P2721 P2730 P2739 P0960 P0964 P0968 P2718 P2727 P2736 P17CE P1783 P17D3 P17C5 P0721 AcceleratorPedalFailure		
					DTCs not test fail this key on	CrankSensor_FA  P0707 P0708 P0723 P0722 P176B P17D6 P0747 P0777 P0797 P2715 P2724 P2733 P0746 P0776 P0796 P2714 P2723 P2732 P2821 P2820 P178F P17C6 P17C4 P17C7 P172A P172B		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions: Current value of clutch control solenoid test state is TIE UP TEST TEST			

**OBDGROUP: KGMXOBDG07** 

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

ault Mo	onitor Strategy escription	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
	escription	Manufaction Criteria	Tilleshold value	STATE, when one off going clutch pressure control solenoid stuck on diagnostic monitor is currently executing.  AND  That off going clutch pressure control solenoid stuck on diagnostic monitor currently executing passes, the corresponding clutch slip speed ≥ clutch slip speed fail threshold.  Once clutch control solenoid test state is set to TIE UP TEST HOLD, it remains TIE UP TEST HOLD during the automatic transmission shift, until:  An additional off going clutch occurs, as indicated by solenoid stuck on test trigger = TRUE, subsequently clutch control solenoid test state is reset to TIE UP TEST STATE, to allow the additional corresponding off going clutch pressure control solenoid stuck on diagnostic monitor to execute.  OR  The automatic		Time Required	
				execute. OR			

**OBDGROUP: KGMXOBDG07** 

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

ode	Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Joue	Description			NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control solenoid stuck on failure mode that occurs during steady state gear, not during an automatic transmission shift. The startle mitigation active then forces the transmission clutch pressure control system to a safe gear or neutral state, based on the active and inactive clutches.			
				when the unintended vehicle deceleration occurred. Once a safe vehicle gear state is attained, the gear and clutch pressure control system allows transitions of the clutches on and off, to sequence automatic			
				step shifts. As each single step automatic transmission shift occurs the normal pressure control solenoid stuck on diagnostic monitors execute to verify which clutch pressure control solenoid is in the stuck on failure mode, allowing one of the clutch pressure control solenoid stuck on			
					NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control solenoid stuck on failure mode that occurs during steady state gear, not during an automatic transmission shift. The startle mitigation active then forces the transmission clutch pressure control system to a safe gear or neutral state, based on the active and inactive clutches, when the unintended vehicle deceleration occurred. Once a safe vehicle gear state is attained, the gear and clutch pressure control system allows transitions of the clutches on and off, to sequence automatic transmission shifts, single step shifts. As each single step automatic transmission shift occurs the normal pressure control solenoid stuck on diagnostic monitors exceute to verify which clutch pressure control solenoid stuck on failure mode, allowing one	NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control solenoid stuck on failure mode that occurs during steady state gear, not during an automatic transmission shift. The startle mitigation active then forces the transmission clutch pressure control system to a safe gear or neutral state, based on the active and inactive clutches, when the unintended vehicle deceleration occurred. Once a safe vehicle gear state is attained, the gear and clutch pressure control system allows transitions of the clutches on and off, to sequence automatic transmission shifts, single step shifts. As each single step automatic transmission shifts, single step shifts. As each single step automatic transmission shift occurs the normal pressure control solenoid stuck on diagnostic monitors execute to verify which clutch pressure control solenoid stuck on failure mode, allowing one	NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control solenoid stuck on failure mode that occurs during steady state gear, not during an automatic transmission shirt. The startle mitigation active then forces the transmission clutch pressure control system to a safe gear or neutral state, based on the active and inactive clutches, when the unintended vehicle deceleration occurred. Once a safe vehicle deceleration occurred. Once a safe vehicle deceleration of the clutches is attained, the gear and clutch pressure control system allows transitions of the clutches of the clutches of the clutches of the clutches of the clutches of the clutches of the clutches of the clutches on and off, to sequence automatic transmission shifts, single step shifts. As each single step shifts As each single step shifts to cours the normal pressure control solenoid stuck on diagnostic monitors execute to verify which clutch pressure control solenoid is in the stuck on failure mode, allowing one

DIAGNOSTIC SUMMARY TABLES -- TCM
TEST GROUP: KGMYV04 2088

**OBDGROUP: KGMXOBDG07** 

	. •	
TEST GROUP: KGMXV04.2088		EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P2724, P2733, P2821.			

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Control Circuit Open	P2736	Controller specific circuit diagnoses 9 speed (C6789/SOWC CBR1) clutch, 10 speed C45678910R clutch, 8 speed Line Pressure Control Circuit, or CVT binary pump, solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit	≥ 200 K Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	run crank voltage OR accessory voltage active diagnostic monitor enable calibration (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1) OR (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2 (CeTSCR_e_HSD3) AND high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds  6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Control Circuit Low	P2738	Controller specific circuit diagnoses 9 speed (C6789/SOWC CBR1, 10 speed C45678910R clutch, 8 speed line pressure control, or CVT binary pump, solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short	≤ 0.5 Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active)  diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.10 seconds out of sample time ≥ 0.17 seconds  6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Control Circuit High	P2739	Controller specific circuit diagnoses 9 speed (C6789/SOWC CBR1), 10 speed C45678910R clutch, 8 speed line pressure control, or CVT binary pump, solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short	≤ 0.5 Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active)  diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 2)  OR  (solenoid is mapped to high side driver 3)  (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds  6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Auxiliary Transmissio n Fluid Pump Control Circuit Open	P2796	Controller specific auxiliary transmission fluid pump motor control circuit diagnoses the pump motor and wiring for an open circuit fault by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit  update fail and sample count	≥ 200 K Ω impedance between signal and controller ground	diagnostic report enable diagnostic monitor enable run crank voltage run crank voltage time	= 1 Boolean = 1 Boolean > 5.00 volts ≥ 25 milliseconds	≥ 20 fail counts out of ≥ 25 sample counts update rate 100 milliseconds	Type B, 2 Trips

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Auxiliary Transmissio n Fluid Pump	P2797	Detects when the transmission auxiliary pump system, used to provide transmission	Transmission turbine speed is greater than predicted turbine speed during autostart event,	P2797 predicted ≥ turbine speed error Refer to "Transmission Supporting Tables" for	PRNDL state defaulted  Transmission shift lever position	= False = Forward range A	≥ 8 counts (initial fail count) Frequency =12.5ms	Type B, 2 Trips
Performance		hydraulic pressure, is not capable of supplying adequate	update initial fail count	details	Propulsion system active	= True	Once the above counts are	
		hydraulic pressure during an engine auto- start. The transmission			Ignition voltage Ignition voltage	> 9.00 volts < 31.99 volts	achieved then increment the final fail counter	
		holding clutch pressures are commanded to meet			Transmission fluid temp Transmission fluid temp	> 0.00 °C < 110.00 °C	once. The final fail counter can only increment	
		the engine crank shaft torque output, to prevent clutch slip to			Hybrid state AutoStop duration min	= Engine off ≥ 1.200 seconds	once per autostart event	
		those holding clutches, during the engine auto- start. The diagnostic			During autostop Engine speed was	< 5.0 RPM	≥ 3 counts (final fail counter)	
		monitors transmission input shaft speed during the auto-start event as the primary malfunction criteria.			If above conditions are met then the following must occur:		If above counter is greater than threshold then report DTC failed.	
		Measured input shaft speed that is excessive			Turbine speed	≥ 80.0 RPM	Frequency =	
		is an indication the holding clutches are			Engine speed	≥ 450.0 RPM	12.5ms	
		slipping due to inadequate hydraulic pressure, as a result of a failed surge accumulator transmission auxiliary pump system.			Hydraulic pressure delay time	P2797 hydraulic ≥ pressure delay Refer to "Transmission Supporting Tables" for details		
		Pump system.			If above conditions are met then increment time-out timer. Time-out timer	≤ 0.38 seconds		
					Note: The initial fail			

DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					counter must achieve it's fail threshold in less than the time-out time.			
					********			
					If vehicle is launched then:			
					Transmission gear ratio	= 4.696 1st gear ratio = 2.985 2nd gear ratio = 2.146 3rd gear ratio = 1.769 4th gear ratio = 1.520 5th gear ratio = 1.275 6th gear ratio		
					Trans 1st gear ratio	≤ 1.120 % of 1st gear		
					Trans 1st gear ratio	ratio ≥ 0.880 % of 1st gear ratio		
					Trans gear ratio not 1st gear Trans gear ratio not 1st gear	≤ 1.070 % of gear ratio ≥ 0.930 % of gear ratio		
					Valid transmission gear ratio achieved time	≥ 0.500 seconds		
					OR			
					If vehicle is not launched but autostart occurs then:			
					Turbine speed	≤ 5.00 RPM		
					Turbine speed less then above threshold for	≥ 0.500 seconds		
					Note: During an autostart event the lack of hydraulic pressure will result in momentary clutch slip in			

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					the C1234 clutch. After the clutch slip event, the main transmission pump and clutch will gain capacity, clutch slip will go to zero. If the vehicle is launching (moving) then a valid transmission ratio can be achieved. Or if the brake is continually applied and an autostart occurs naturally, then no ratio can be measured. In this case turbine speed will return to near zero rpm.  ***********************************	CrankSensor_FA Transmission Output Shaft Angular Velocity Validity Transmission Turbine Angular Velocity Validity Transmission Oil Temperature Validity P171A P171B P171C U0101 P182E P1915		

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Auxiliary Transmissio n Fluid Pump Control Circuit Low	P2798	Controller specific auxiliary transmission fluid pump motor control circuit diagnoses the pump motor and wiring for a ground short circuit fault by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short  update fail and sample count	≤ 0.5 Ω impedance between signal and controller ground	diagnostic report enable diagnostic monitor enable run crank voltage run crank voltage time	= 1 Boolean = 1 Boolean ≥ 5.00 volts ≥ 25 milliseconds	≥ 20 fail counts out of ≥ 25 sample counts update rate 100 milliseconds	Type B, 2 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Auxiliary Transmissio n Fluid Pump Control Circuit High	P2799	Controller specific auxiliary transmission fluid pump motor control circuit diagnoses the pump motor and wiring for a short to power circuit fault by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a voltage short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a voltage short  Increment fail and sample count	≤ 0.5 Ω impedance between signal and controller voltage source	diagnostic report enable diagnostic monitor enable run crank voltage run crank voltage time	= 1 Boolean = 1 Boolean ≥ 5.00 volts ≥ 25 milliseconds	≥ 20 fail counts out of ≥ 25 sample counts update rate 100 milliseconds	Type B, 2 Trips

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

OBDGROUP: KGMXOBDG07 TEST GROU

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Calibration Incorrect	P27A7	The diagnostic monitor verifies that the pressure control solenoid A (GF9 line or GR10 C1 C123456R clutch or CVT secondary pulley) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid A electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

DIMONIO COMMINANT IMBLEC	. 0	
TEST GROUP: KGMXV04.2088		EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

OBDGROUP: KGMXOBDG07 TEST GI

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Calibration Incorrect	P27A8	The diagnostic monitor verifies that the pressure control solenoid B (GF9 TCC or GR10 C2 C128910R clutch or CVT primary pulley) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid B electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed.  OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data  OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming.  OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power event during the controller initialization before normal time loop execution	Type A, 1 Trips

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

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TEST GROUP: KGMXV04.2088		EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

OBDGROUP: KGMXOBDG07

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Calibration Incorrect	P27A9	The diagnostic monitor verifies that the pressure control solenoid C (GF9 C1 CB123456 clutch or GR10 C3 C23457910 clutch or CVT line) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid C electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed.  OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data  OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming.  OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

DIMONIO COMMINANT IMBLEC	. 0	
TEST GROUP: KGMXV04.2088		EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

OBDGROUP: KGMXOBDG07 TEST GI

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Calibration Incorrect	P27AA	The diagnostic monitor verifies that the pressure control solenoid D (GF9 C2 CB29 clutch or GR10 C5 C1356789 clutch pressure or CVT C1 clutch) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid D electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

DIMONIO COMMINANT IMBLEC	. 0	
TEST GROUP: KGMXV04.2088		EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Calibration Incorrect	P27AB	The diagnostic monitor verifies that the pressure control solenoid E (GF9 C3 CB38 clutch or GR10 C4 C23467810R clutch or CVT TCC) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid E electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed.  OR  Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data  OR  Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming.  OR  Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

**DIAGNOSTIC SUMMARY TABLES -- TCM** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Calibration Incorrect	P27AC	The diagnostic monitor verifies that the pressure control solenoid F (GF9 C4 C4 clutch or GR10 C6 C45678910R clutch or CVT binary pump) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid F electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed.  OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data  OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming.  OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

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TEST GROUP: KGMXV04.2088		EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

# DIAGNOSTIC SUMMARY TABLES -- TCM TEST GROUP: KGMXV04.2088

OBDGROUP: KGMXOBDG07

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid G Calibration Incorrect	P27AD	The diagnostic monitor verifies that the pressure control solenoid G (GF9 C5 C57R clutch or GR10 line or CVT mode valve A ETRS only) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid G electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

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TEST GROUP: KGMXV04.2088		EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid H Calibration Incorrect	P27AE	The diagnostic monitor verifies that the pressure control solenoid H (GF9 C6 C6789 clutch or GR10 TCC or CVT mode valve B ETRS only) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid H electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete  Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry.  pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present:  Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed.  OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data  OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming.  OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle.  When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

DIMONIO COMMINANT IMBLEC	. 0	
TEST GROUP: KGMXV04.2088		EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Control A Position Sensor/ Switch Circuit/Open	P27EB	The diagnostic monitor detects an illegal voltage on the mode valve A position sensor circuit.	raw sensor voltage raw sensor voltage	> 1.263 volts < 1.504 volts	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Control A Position Sensor/ Switch Circuit Stuck On (GR10 Only)	P27EC	Sensor signal fails to transition when solenoid mode valve control commands to PARK, DRIVE or REVERSE occur.	when: mode valve solenoid commaned state  mode valve A position sensor state  confirmed park servo position  transition delay for solenoid controlled mode valve transition (not required for steady state mode valve low conditions)  increment fail time  when fail time threshold met, increment fail count	= LOW  = HIGH  = PARK  ≥ P18A1 P18AA P27EC Mode Valve High To Low Transition Delay	time since controller init battery voltage general mode valve diagnostic enable mode valve sensor performance enable high side driver 1 or high side driver 2 is on mode valve related fault (P18AA, P18AB, P27EC Test Fail This Key) AND move valve sensor fault (P27EB, P27ED, P27EE Fault Active) AND park servo fault (P187D, P187E Test Fail This Key On) one good park sensor (P17F5, P17F6, P17F7 (Park Sensor A) Fault Active OR P17FA, P17FB, P17FC (Park Sensor B) Fault Active ) pump out available (engine speed for engine speed high time) AND	= CeTRGR_e_InternalETR S  ≥ 0.01 seconds ≥ 9.00 volts  = 1 Boolean  = 1 Boolean  = TRUE  = FALSE  = FALSE  = FALSE  = TRUE  ≥ 250.00     Pump Out Available ≥ Transition Time	steady state fail time ≥ 0.02 seconds OR transition fail time ≥ 0.02 seconds fail count ≥ 4.00 counts update rate 6.25 milliseconds	Type A, 1 Trips

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					line pressure available (pressure commanded)	= TRUE ≥ 100.00 kPa		
			when: mode valve solenoid commaned state	= HIGH	ETRS system type is internal ETRS	= CeTRGR_e_InternalETR S	steady state fail time ≥ 0.25 seconds	
			mode valve A position sensor state confirmed park servo	= LOW	time since controller init battery voltage general mode valve diagnostic enable	≥ 0.01 seconds ≥ 9.00 volts = 1 Boolean	transition fail time ≥ 0.25 seconds	
			position	= OUT OF PARK	mode valve sensor performance enable	= 1 Boolean	fail count ≥ 4.00 counts	
			transition delay for solenoid controlled mode valve transition (not required for steady state mode valve high	≥ P18AB P27EC Mode Valve Low to High Transition Delay	high side driver 1 or high side driver 2 is on mode valve related fault (P18AA, P18AB, P27EC	= TRUE	update rate 6.25 milliseconds	
			conditions) increment fail time		Test Fail This Key) AND move valve sensor fault (P27EB, P27ED, P27EE	= FALSE		
			when fail time threshold met, increment fail count		Fault Active) AND park servo fault (P187D, P187E Test Fail This Key On )	= FALSE = FALSE		
					one good park sensor ( P17F5, P17F6, P17F7	-  ALOL		
					(Park Sensor A) Fault Active OR P17FA, P17FB, P17FC	= FALSE		
					(Park Sensor B) Fault Active )	= FALSE		

DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07	TEST GROUP: KGMXV04.2088	EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					pump out available (engine speed for engine speed high time) AND line pressure available (pressure commanded)	= TRUE ≥ 250.00 Pump Out Available ≥ Transition Time = TRUE ≥ 100.00 kPa		

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Control A Position Sensor/ Switch Circuit Low		The diagnostic monitor detects a ground short or open circuit fault on the mode valve A position sensor circuit.	raw sensor voltage	< 0.414 volts	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range Control A Position Sensor/ Switch Circuit High	P27EE	The diagnostic monitor detects a short to voltage on the mode valve A position sensor circuit.	raw sensor voltage	> 2.538 volts	diagnostic monitor enable battery voltage battery voltage time ETRS system configuration is internal ERTS	= 1 Boolean ≥ 9.00 volts ≥ 1.00 seconds = CeTRGR_e_InternalETR S	0.100 seconds in 0.163 second sample 6.25 millisecond update rate	Type A, 1 Trips

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid G Control Circuit Open	P2812	Controller specific circuit diagnoses 9 speed Line Pressure Control Circuit, 10 speed Line Pressure Control Circuit, or 8 speed TCC Control Circuit for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit	≥ 200 K Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  run crank voltage OR accessory voltage active diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 2)  OR  (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD1 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds  6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid G Control Circuit Low	P2814	Controller specific circuit diagnoses 9 speed Line Pressure Circuit, 10 speed Line Pressure Circuit, or 8 speed TCC Control Circuit for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short	≤ 0.5 Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active)  diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 2)  OR  (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD1 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds 6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A 1 Trips

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage	≤ 0.5 Ω impedance between signal and controller voltage source  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active) diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1) OR	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD1 (CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds  ≥ 1.00 seconds  ≥ 25 milliseconds  ≥ 12.5 milliseconds	
					(solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3)	= CeTSCR_e_HSD1 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_HSD1 (CeTSCR_e_NoHSD will disable)		

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid H Performance /Stuck Off	P2817	The diagnostic monitor detects the transmission torque converter control valve solenoid failed hydraulically off. The monitor executes when the transmission torque converter is	if use TCC slip speed error OR TCC control mode TCC slip speed error = TCC slip speed - TCC comand slip speed	= 0 Boolean  = ON mode (controlled slip mode) ≥ P2817 TCC stuck off fail TCC slip speed see supporting table	diagnostic monitor enable	= 1 Boolean	fail time ≥ 4.000 seconds increment fail count fail count ≥ 3 counts 25 millisecond update rate	Type A, 1 Trips
		commanded to a "lock" mode during which the torque converter will be controlled to near zero	else if TCC control mode torque convert slip = engine speed -	= LOCK ≥ 130.0 RPM	TCC command capacity	≥ 0.00 %	TCC command capacity time ≥ 0.00 seconds	
	(0.0) RPM slip speed, or, an "on" mode during which the torque converter will be controlled to target slip speed using slip speed	transmission input shaft speed		TCC command pressure	≥ 400.0 kPa	TCC command pressure time ≥ 2.00 seconds		
		converter will be controlled to target slip speed using slip speed error. The transmission torque converter control valve solenoid	then update fail time 25 millisecond update rate		(TCC control mode previous TCC control mode previous TCC control mode previous) AND	≠ TCC control mode current ≠ ON mode (controlled slip mode) ≠ LOCK		
		the "lock" mode slip speed is excessive, or, when the 'on" mode			(TCC control mode current OR TCC control mode current)	= ON mode (controlled slip mode) = LOCK		
					(TCC stuck off enable OR TCC stuck on enable) hydraulic pressure available:	= 1 Boolean = 1 Boolean		
					engine speed	≥ 500.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available	

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
							see supporting table	
					service fast learn active	= FALSE	lable	
					battery voltage	≥ 9.00 volts	battery voltage	
					battery voltage	2 9.00 VOIIS	time ≥ 0.100 seconds	
					run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
					P281B falut active	= FALSE		
					P281D falut active	= FALSE		
					P281E falut active	= FALSE		
					P0722 fault pending	= FALSE		
					P0723 fault pending	= FALSE		
					P0716 fault pending	= FALSE		
					P0717 fault pending	= FALSE		
					P07BF fault pending	= FALSE		
					P07C0 fault pending	= FALSE		
					(PTO active OR	= FALSE		
					PTO disable calibration)	= 1 Boolean		
					accelerator pedal position	≥ 8.0 %		
					accelerator pedal position	≤ 99.0 %		
					range shift state	= range shift complete		
					transmission fluid	≥ -6.66 °C		
					temperature			
					transmission fluid	≤ 130.0 °C		
					temperature			
					engine torque	≥ 50.0 Nm		
					engine torque	≤ 8,191.8 Nm		
					P2817 test fail this key on	= FALSE		
					(TCC control mode OR	= ON mode (controlled		
ĺ			1		I	slip mode)		
			1		TCC control mode)	= LOCK		
ĺ			1		break latch state (clutch	= disabled (clutch select		
					select valve solenoid)	valve not transitioning)		
					attained gear	≥ CeCGSR_e_CR_Second		
					DTCs not fault active	AcceleratorPedalFailure		
1			1			EngineTorqueEstInaccura		
						te		
						P0716, P0717, P07BF,	l	

DIAGNOSTIC SUMMARY TABLES -- TCM
TEST GROUP: KGMYV04 2088

OBDGROUP: KGMXOBDG07	TEST GROUP: KGMXV04.2088	EMISSIONS STDS: CALULEV125; FEDBIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						P07C0 P0722, P0723, P077C, P077D		

### **DIAGNOSTIC SUMMARY TABLES -- TCM**

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure	P2818	UPDATE UPDATE	when:				when:	Type A
Control		UPDATE The	[active clutch control	= garage shift			TCC stuck on fail	1 Trips
Solenoid H		diagnostic monitor	ABS(TCC slip speed)	≤ 30.0 RPM			time garage shift	
Stuck On -		detects the	(set point engine speed -	≥ 50.0 RPM			P2818 TCC	
GR10		transmission torque	engine speed)				stuck on fail	
specific		converter control valve	(maximum engine speed	≥ 50.0 RPM			time garage	
•		solenoid failed	during garage shift -				≥ shift - GR10	
		hydraulically on. The	engine speed)				update fail count	
		torque converter	engine torque	≥ 50.0 Nm			'	
		hydraulic control circuit	"				when: fail count	
		is multiplexed with the	update TCC stuck on fail				≥ 3 counts set	
		transmission clutch	time garage shift]				DTC fault active	
		select valve hydraulic						
		control circuit, allowing	OR				25 millisecond	
		for the torque converter					update rate	
		control valve solenoid	when:				'	
		stuck on test to execute	[active clutch control	≠ garage shift			when:	
		when the clutch select	ABS(TCC slip speed)	≤ 30.0 RPM			TCC stuck on	
		valve solenoid is	engine torque	≥ 70.0 Nm			stall pending	
		commanded ON.	(set point engine speed -	≥ 200.0 RPM			time ≥	
		When the clutch select	engine speed)				P2818 TCC	
		valve solenoid is	rate of change of engine	≤ -2,000.0 RPM/			stuck on fail	
		commanded ON as the	speed	second			time stall	
		vehicle speed	i .				pending - GR10	
		decreases toward zero	update TCC stuck on stall					
		KPH, and, if the torque	pending time]				when: fail count	
		converter control valve					≥ 4 counts set	
		solenoid is stuck on,					DTC fault active	
		the torque converter						
		slip speed rate of					25 millisecond	
		change will have a			(TCC stuck off enable	= 1 Boolean	update rate	
		large slope while			ÒR		'	
		decreasing toward zero			TCC stuck on enable)	= 1 Boolean		
		RPM, and the torque			hydraulic pressure			
		l acontrartar alia anacad		I	available.	I	1	1

available:

engine speed

≥ 500.0 RPM

converter slip speed

will remain low near

zero RPM.

engine speed

time ≥

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
- Cyolom	-				service fast learn active battery voltage	= FALSE ≥ 9.00 volts	engine speed time for transmission hydraulic pressure available	
					run crank voltage	≥ 9.00 volts	battery voltage	
					P281B falut active P281D falut active P281E falut active P0722 fault pending P0723 fault pending P0716 fault pending P0717 fault pending P07BF fault pending P07C0 fault pending P07C0 fault pending P0746 fault pending P0747 fault pending P0776 fault pending P0777 fault pending P0796 fault pending P0797 fault pending P0797 fault pending P2714 fault pending P2714 fault pending P2715 fault pending P2723 fault pending P2732 fault pending P2732 fault pending	= FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE	time ≥ 0.100 seconds run crank voltage time ≥ 0.100 seconds	
					P2820 fault pending P2821 fault pending PRNDL PRNDL diagnostic monitor enable TCC command mode (PTO active OR PTO disable calibration) transmission fluid	= FALSE = FALSE ≠ NEUTRAL ≠ REVERSE 1 Boolean = OFF = FALSE = 1 Boolean ≥ -6.66 °C		

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					temperature transmission fluid temperature engine torque engine torque P2818 test fail this key on vehicle speed (garage shift) vehicle speed (not garage shift) engine speed engine speed accelerator pedal position 4WD low state (driver shift mode active OR driver shift mode calibration) (misfire requests TCC off OR misfire TCC off calibration) clucth control solenoid stuck ON AND stuck OFF intrusive shift active TCC solenoid pulse request minumum trubine speed	≤ 4.0 KPH ≤ 15.0 KPH ≥ 200.0 RPM ≤ 600.0 RPM		

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid H Control Circuit Open	P281B	Controller specific circuit diagnoses 9 speed TCC Control Circuit, 10 speed TCC Control Circuit, or 8 speed T93 Default Valve Control Circuit for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit	≥ 200 K Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  run crank voltage OR accessory voltage active diagnostic monitor enable calibration (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1) OR (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2) OR (solenoid is mapped to high side driver 2) OR (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD1 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds  6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid H Control Circuit Low	P281D	Controller specific circuit diagnoses 9 speed TCC Pressure Control Circuit, 10 speed TCC Control Circuit, or 8 speed Default Valve Control Circuit for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds. For 8 speed T87a controllers, an open circuit on the Default Valve Control Circuit will also set P281D.	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short	≤ 0.5 Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active)  diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 2)  OR  (solenoid is mapped to high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD1 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds  6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

## **DIAGNOSTIC SUMMARY TABLES -- TCM**

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Control Solenoid H Control Circuit, 10 speed TCC Control Circuit, 10 speed TCC Control Circuit, or 8 speed Default Valve Control Circuit for a short to voltage comparing a voltage measurement to circuit diagnoses 9 speed TCC Control controller specific acceptable range indicates a short to voltage source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source source sou		Fault Monitor Strategy Code Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
(solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 2)  OR  (solenoid is mapped to empty disable)  = CeTSCR_e_HSD1 (CeTSCR_e_NoHSD will disable)  = ON  = CeTSCR_e_HSD1	Pressure Control Solenoid H Control	P281E Controller specific circuit diagnoses 9 speed TCC Pressure Control Circuit, 10 speed TCC Control Circuit, or 8 speed Default Valve Control Circuit for a short to voltage circuit failure I comparing a voltage measurement to controller specific	outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for	between signal and controller voltage source  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample	(run crank voltage OR accessory voltage active) diagnostic monitor enable calibration (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1) OR (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2) OR	≤ 32.00 volts  ≥ 5.00 volts  = TRUE  = 1 (1 is enable, 0 is disable)  = CeTSCR_e_HSD1 (CeTSCR_e_NoHSD will disable)  = ON  = CeTSCR_e_HSD1 (CeTSCR_e_HSD1 (CeTSCR_e_NoHSD will disable)  = ON	seconds  ≥ 1.00 seconds  ≥ 25 milliseconds  ≥ 12.5	Type A, 1 Trips

## DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC)	P2820	Each pressure control solenoid stuck off	(gear ratio AND	≥ 3.250			fail time ≥ 0.25 seconds	Type A, 1 Trips
Solenoid J Stuck Off		diagnostic monitor detects a control	gear ratio) OR	≤ 2.750			6.25 milliscond	
(GR10)		solenoid failed hydraulically off, while	(gear ratio AND	≥ 0.980	*********	*******	update	
		the solenoid is electrically functional.	gear ratio)	≤ 1.020	system-level enables:			
		This diagnostic monitor detects the default	(C1 clutch slip speed C2 clutch slip speed	≤ 50.00 ≤ 50.00	use battery voltage calibration is FALSE	= 1 Boolean		
		disable valve solenoid failed hydraulically off.	C3 clutch slip speed C4 clutch slip speed	≤ 50.00 ≤ 50.00	OR			
		The default disable valve is used to route	OR		(use battery voltage	= 1 Boolean		
		hydraulic fluid to transmission clutches	C3 clutch slip speed	≤ 50.00	calibration is TRUE			
	default gear in the event that a fault occurs which requires the solenoid electrical drivers to be turned off.	to achieve a hydraulic	C4 clutch slip speed C5 clutch slip speed	≤ 50.00 ≤ 50.00	AND		battery voltage	
		C6 clutch slip speed)	≤ 50.00	battery voltage)	≥ 9.00 volts	time ≥ 0.100 seconds		
		the solenoid electrical drivers to be turned off. If the default disable	update fail time 6.25 milliscond update		use run crank voltage calibration is FALSE OR	= 0 Boolean		
		solenoid is hydraulically stuck off, the			(use run crank voltage calibration is TRUE	= 0 Boolean		
		transmission will enter hydraulic default unintentionally while			AND run crank voltage)	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		the control system is actively commanding			TCM output driver high side driver 1, clutch		Seconds	
		another gear, which can result in a tie-up			pressure control solenoid driver circuit enabled	= TRUE Boolean		
	condition.  When the default disable valve solenoid is hydraulically off while	When the default			TCM output driver high side driver 2, clutch			
		is hydraulically off while			pressure control solenoid driver circuit enabled	= TRUE Boolean		
		in drive, hydraulic fluid will be routed to clutches to achieve			service fast learn active	= FALSE Boolean		
clı ei	either 7th or 2nd gear. If the vehicle is moving			service solenoid cleaning procedure active	= FALSE Boolean			

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		and the control system is commanding a different gear, the solenoid fault can be			hydraulic pressure available	= TRUE		
		detected as either a			hydraulic line pressure	≥ -999.00 kPa		
		clutch tie-up or startle mitigation event.			*******	*******		
		Shifting to neutral while monitoring gear ratio will isolate the fault as			conditions to trigger start of test:			
		either a stuck on clutch solenoid or a stuck off default disable valve solenoid.			(clutch control solenoid test state OR clutch control solenoid	= Tie Up Test Active		
		For GR10 non-ETRS			test state)	= Tie Up Test Hold		
		applications, the stuck off solenoid can be dected by monitoring			Offgoing clutch stuck on test result (for any clutch)	= Test Failing		
		transmission input speed deceleration magnitude and timing			Default disable stuck off enable cal for tie-up events	= 1 (1 to enable, 0 to disable)		
		during a stationary shift into drive from park, neutral, or reverse while commanding neutral.			current predicted hydraulic default gear if solenoid drivers are turned off	= a drive gear (i.e. 2nd or 7th gear)		
					(current attained gear OR	= CeCGSR_e_Seventh (low gear hydraulic default)		
					current attained gear)	= CeCGSR_e_Seventh (high gear hydraulic default) ************************************		
					conditions needed through duration of test:	= NEUTRAL		

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					commanded gear	≥ 36.00 RPM		
					transmission output speed	= FORWARD		
					driver direction request	**********		
					********	P17CE P1783 P178F P17C6 P17C4 P17C7		
					DTCs not fault pending	P17C6 P17C4 P17C7 P17D3 P17C5 P0721		
					2 Too not laak ponding	P172A P172B P0716 P0717 P07C0 P07BF P0723 P0722 P077D P077C P176C P176D P176B P17D6		
					DTCs not test fail this key on	P2534 P0707 P0708 P0716 P0717 P07C0 P07BF P077D P077C P126C P176D P17CC P17CD P0962 P0966 P0970 P2720 P2729 P2738 P0963 P0967 P0971 P2721 P2730 P2739 P0960 P0964 P0968 P2718 P2727 P2736 P17CE P1783 P17D3 P17C5 P0721 AcceleratorPedalFailure		
					DTCs not fault active	CrankSensor_FA  P0707 P0708 P0723 P0722 P176B P17D6 P0747 P0777 P0797 P2715 P2724 P2733 P0746 P0776 P0796 P2714 P2723 P2732 P2821 P2820 P178F P17C6 P17C4 P17C7 P172A P172B		
			(gear ratio AND	≥ 3.250			fail time ≥ 0.50 seconds	
			gear ratio)	≤ 2.750				

### DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			OR (gear ratio AND gear ratio)	≥ 0.980 ≤ 1.020	**************************************	*******	6.25 milliscond update	
			(C1 clutch slip speed C2 clutch slip speed C3 clutch slip speed	≤ 40.00 ≤ 40.00 ≤ 40.00	use battery voltage calibration is FALSE	= 1 Boolean		
			C4 clutch slip speed OR C3 clutch slip speed	≤ 40.00 ≤ 40.00	OR (use battery voltage calibration is TRUE	= 1 Boolean		
			C4 clutch slip speed C5 clutch slip speed C6 clutch slip speed)	≤ 40.00 ≤ 40.00 ≤ 40.00	battery voltage)	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
			update fail time 6.25 milliscond update		use run crank voltage calibration is FALSE OR (use run crank voltage calibration is TRUE	= 0 Boolean = 0 Boolean		
					AND run crank voltage)  TCM output driver high	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
					side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
					TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
					service fast learn active	= FALSE Boolean		
					service solenoid cleaning procedure active	= FALSE Boolean		
					hydraulic pressure available	= TRUE		

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					hydraulic line pressure	≥ -999.00 kPa		
					conditions to trigger start of test:	********		
					(clutch control solenoid test state OR	= Tie Up Test Active		
					clutch control solenoid test state)	= Tie Up Test Hold		
					Offgoing clutch stuck on test result (for any clutch)	= Test Failing		
					Default disable stuck off enable cal for tie-up events	= 1 (1 to enable, 0 to disable)		
					(current attained gear OR	= CeCGSR_e_Seventh (low gear hydraulic default)		
					current attained gear)	= CeCGSR_e_Seventh (high gear hydraulic default)		
					hydraulic default at launch test active	= FALSE ************************************		
					conditions needed through duration of test:			
					current predicted hydraulic default gear if solenoid drivers are turned off	= a drive gear (i.e. 2nd or 7th gear) = NEUTRAL		
					commanded gear	= FORWARD		

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					driver direction request  ***********************************	P17CE P1783 P178F P17C6 P17C4 P17C7 P17D3 P17C5 P0721 P172A P172B P0716 P0717 P07C0 P07BF P0723 P0722 P077D		
					DTCs not test fail this key on	P077C P176C P176D P176B P17D6 P2534 P0707 P0708 P0716 P0717 P07C0 P07BF P077D P077C P126C P176D P17CC P17CD P0962 P0966 P0970 P2720 P2729 P2738 P0963 P0967 P0971 P2721 P2730 P2739 P0960 P0964 P0968 P2718 P2727		
					DTCs not fault active	P2736 P17CE P1783 P17D3 P17C5 P0721 AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0723 P0722 P176B P17D6 P0747 P0777 P0797 P2715 P2724 P2733 P0746 P0776 P0796 P2714 P2723 P2732 P2821 P2820 P178F P17C6 P17C4 P17C7 P172A P172B		
			input speed deceleration	> P2820 GR10 hydraulic default input speed deceleration threshold			fail time ≥ 0.10 seconds observed within:	

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

transmission output shaft speed update fail time 6.25 millisecond update  system-level enables: use battery voltage calibration is FALSE OR (use battery voltage calibration is TRUE AND battery voltage) calibration is FALSE  AND battery voltage) calibration is FALSE  OR (use run crank voltage) calibration is FALSE  OR (use run crank voltage) calibration is FALSE AND battery voltage) calibration is TRUE AND  Drun crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase run crank voltage calibration is TRUE AND  Lase ru	Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
service fast learn active = FALSE Boolean				transmission output shaft speed update fail time 6.25		**************************************	*************************************	P2820 GR10 hydraulic default at launch test window 6.25 milliscond	
service solenoid cleaning = FALSE Boolean									

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					hydraulic pressure available	= TRUE		
					hydraulic line pressure	≥ -999.00 kPa		
					conditions needed to trigger test:	*******		
					Driver direction change request	= TRUE		
					default disable stuck off at launch enable cal	= 0 (1 to enable, 0 to disable)		
					ETRS system type	= CeTRGR_e_InternalETR		
					deceleration test on previous shift into drive failed	S (CeTRGR_e_NoETRS to enable)		
					**************************************	= TRUE		
					through duration of test:	*******		
					commanded gear  Driver direction request	= NEUTRAL		
					current predicted hydraulic default gear if	= FORWARD		
					solenoid drivers are turned off	= a drive gear (i.e. 2nd)		
					**************************************			
						P17CE P1783 P178F P17C6 P17C4 P17C7 P17D3 P17C5 P0721 P172A P172B P0716		

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on	P0717 P07C0 P07BF P0723 P0722 P077D P077C P176C P176D P176B P17D6 P2534 P0707 P0708		
					DTCs not fault active	P0716 P0717 P07C0 P07BF P077D P077C P126C P176D P17CC P17CD P0962 P0966 P0970 P2720 P2729 P2738 P0963 P0967 P0971 P2721 P2730 P2739 P0960 P0964 P0968 P2718 P2727 P2736 P17CE P1783 P17D3 P17C5 P0721 AcceleratorPedalFailure CrankSensor_FA		
						P0707 P0708 P0723 P0722 P176B P17D6 P0747 P0777 P0797 P2715 P2724 P2733 P0746 P0776 P0796 P2714 P2723 P2732 P2821 P2820 P178F P17C6 P17C4 P17C7 P172A P172B		

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid J Stuck On (Default Disable Solenoid Stuck On) (GR10 Only)	P2821	The diagnostic monitor tests for the default disable solenoid stuck on at engine start (pump out pressure transition)	when: mode valve solenoid commaned state  mode valve position  in park engine crank active (required to initiate test) increment fail time when fail time threshold met, increment fail count	= LOW = HIGH = TRUE	ETRS system type is internal ETRS  time since controller init battery voltage general mode valve diagnostic enable default disable solenoid stuck on diagnostic enable  high side driver 1 or high side driver 2 is on  mode valve related fault (P18AA, P18AB, P27EC Test Fail This Key) AND (P27EB, P27ED, P27EE Fault Active)  pump out available (engine speed for engine speed high time)	= CeTRGR_e_InternalETR S ≥ 0.01 seconds ≥ 9.00 volts = 1 Boolean = 1 Boolean = TRUE  = FALSE = FALSE = TRUE ≥ 250.00 Pump Out Available ≥ Transition Time	fail time ≥ 0.25 seconds  fail count ≥ 2.00 counts  update rate 6.25 milliseconds	

### DIAGNOSTIC SUMMARY TABLES -- TCM

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid J Control Circuit Open (T93 Controller only)	P2824	Controller specific circuit diagnoses 10 speed Default Disable Control Circuit for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit  Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit	≥ 200 K Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active)  diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2 (CeTSCR_e_HSD2) OR  (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds 6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

## **DIAGNOSTIC SUMMARY TABLES -- TCM**

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid J Control Circuit Low	P2826	Controller specific circuit diagnoses 9 speed Clutch Select Valve Control Circuit, 10 speed Default Disable Control Circuit for 8 speed Boost Valve Control Circuit for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds. For T87a controllers, an open circuit on solenoid I/J will also set P2826	Voltage measurement outside of controller specific acceptable range indicates a ground short  Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short	≤ 0.5 Ω impedance between signal and controller ground  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active)  diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 2)  OR  (solenoid is mapped to high side driver 3)  AND high side driver 3 (CeTSCR_e_HSD3) AND high side driver 3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds  6.25 millisecond update rate ≥ 1.00 seconds ≥ 25 milliseconds ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid J Control Circuit High	P2827	Controller specific circuit diagnoses 9 speed Clutch Valve Control Circuit, 10 speed Default Disable Control Circuit, or 8 speed Boost Valve Control Circuit for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage  Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage	≤ 0.5 Ω impedance between signal and controller voltage source  When malfunction criteria threshold is met, increment fail time and increment sample time, otherwise increment only sample time	battery voltage  (run crank voltage OR accessory voltage active) diagnostic monitor enable calibration  (solenoid is mapped to high side driver 1 (CeTSCR_e_HSD1) AND high side driver 1)  OR  (solenoid is mapped to high side driver 2 (CeTSCR_e_HSD2) AND high side driver 2)  OR  (solenoid is mapped to high side driver 2)  OR  (solenoid is mapped to high side driver 3 (CeTSCR_e_HSD3)	≥ 9.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 (1 is enable, 0 is disable) = CeTSCR_e_HSD2 (CeTSCR_e_NoHSD will disable) = ON = CeTSCR_e_NoHSD will disable) = ON	fail time ≥ 0.30 seconds out of sample time ≥ 0.50 seconds  ≥ 1.00 seconds  ≥ 25 milliseconds  ≥ 12.5 milliseconds	Type A, 1 Trips

### DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Engine Stall Prevention Active Signal Message Counter Incorrect	P30BD	The diagnostic monitor detects an alive rolling count error in the CAN frame containing the engine stall protection signal value. The alive rolling count sequences 0, 1, 2, 3 repeatedly. As each serial data frame is broadcast by the transmitting controller, the transmitting controller increments the alive rolling count in this sequence manner. The receiving controller compares the most recent received alive rolling count value to the previous value plus one. If the values are not equal, an alive rolling count error has occurred. If continuous alive rolling count errors occur the DTC is set.	rolling count value received from ECM and expected TCM calculated value not equal	= TRUE	Loop rate calibration either 10 milliseconds or 12.5 milliseconds service mode \$04 active battery voltage battery voltage time engine stall protection ECM frame recieved	= CeCFMD_e_DEC_Time Base_12p5  = FALSE ≥ 11.00 volts ≥ 300.000 seconds  = TRUE	alive rolling count errors ≥ 8 out of 10 sample counts	Type B, 2 Trips

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Serial Peripheral Interface Bus 1	P30D	This DTC detects intermitent and continuous invalid SPI messages. This is based on the detection of missing or invalid receive message □ithin the main processor before receiving a valid message.			RuniCran⊡voltage	□=8.00 □olts, else the failure □ill be reported for all conditions	In the primary processor, 8 🔟 counts intermittent  12.5 ms ©ount in the ECM main processor	Type A, 1 Trips

## DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Serial Peripheral Interface Bus 2	P30D7	This DTC detects intermitent and continuous invalid SPI messages. This is based on the detection of missing or invalid receive message within the main processor before receiving a valid message.	This function detects a serial communications fault based upon the detection of missing or invalid (receive) message within the main processor.		Run/Crank voltage	>=8.00 Volts, else the failure will be reported for all conditions	In the primary processor, 8 / 16 counts intermittent  12.5 ms /count in the ECM main processor	Type A, 1 Trips

# DIAGNOSTIC SUMMARY TABLES -- TCM

TEST GROUP: KGMXV04.2088

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on Bus A Off	U0073	This DTC monitors for a BUS A off condition	Bus off failures exceeds before the sample time of is reached	3 counts (equivalent to 0.04 seconds) 800.00 milliseconds	General Enable Criteria: U0073  Normal CAN transmission on Bus A  CAN hardware is bus OFF for The following criteria have been enabled for Transition from accessory mode to off is pending Battery Voltage Ignition Voltage Criteria: Power Mode Run/Crank Voltage Off Cycle Enable Criteria: KeCMGD_b_OffKeyCycle DiagEnbl KeDFIR_e_OBD_Controll erType is an OBD Controller Controller shutdown impending Power Mode	Not Active on Current Key Cycle Enabled  > 160.0000 milliseconds  >= 5,000.00 milliseconds  = False  > 11.00 Volts  = Run  >= 11.00 Volts  1.00 (1 indicates enabled)  OBD Controller  = False  = Not Run/Crank	Diagnostic runs in 12.5 ms loop	Type A, 1 Trips

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With ECM	U0100	This DTC monitors for a loss of communication with the engine control module	Message is not received from controller for Message \$0C9 Message \$287 Message \$3E9 Message \$4C1 Message \$4D1 Message \$4F1	≥ 500.00 milliseconds ≥ 12,000.00 milliseconds	on Bus A  The following criteria have been enabled for  Transition from accessory mode to off is pending  Battery Voltage  Ignition Voltage Criteria:  Power Mode  Run/Crank Voltage  Off Cycle Enable Criteria:  KeCMGD_b_OffKeyCycle DiagEnbl  KeDFIR_e_OBD_Controll erType is an OBD Controller  Controller shutdown impending  Power Mode  U0100	= False  > 11.00 Volts  = Run  >= 11.00 Volts  1.00 (1 indicates enabled)  OBD Controller  = False  = Not Run/Crank  Not Active on Current Key Cycle	Diagnostic runs in 12.5 ms loop	Type A, 1 Trips
					ECM	is present on the bus		

## DIAGNOSTIC SUMMARY TABLES -- TCM

**TEST GROUP: KGMXV04.2088** 

**OBDGROUP: KGMXOBDG07** 

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With Anti- Lock Brake System (ABS) Control Module	U0121	This DTC monitors for a loss of communication with the Anti-Lock Brake System (ABS) Control Module (Non-OBD Module ID 243).	Message is not received from controller for  Message \$0C1  Message \$0C5  Message \$1E9  Message \$2F9	≥ 12,000.00 milliseconds ≥ 12,000.00 milliseconds ≥ 12,000.00 milliseconds  ≥ 12,000.00 milliseconds	General Enable Criteria: U0073  Normal CAN transmission on Bus A  The following criteria have been enabled for  Transition from accessory mode to off is pending  Battery Voltage  Ignition Voltage Criteria:  Power Mode  Run/Crank Voltage  Off Cycle Enable Criteria:  KeCMGD_b_OffKeyCycle DiagEnbl  KeDFIR_e_OBD_Controll erType is an OBD Controller  Controller shutdown impending  Power Mode  U0121  Anti-Lock Brake System Control Module	Not Active on Current Key Cycle Enabled >= 5,000.00 milliseconds = False > 11.00 Volts  = Run >= 11.00 Volts  1.00 (1 indicates enabled) OBD Controller  = False = Not Run/Crank Not Active on Current Key Cycle is present on the bus	Diagnostic runs in 12.5 ms loop	"Emissio ns Neutral Diagnost ics – Type C"

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
,	U0131	This DTC monitors for a loss of communication with the Power Steering Control Module	Message is not received from controller for Message \$1E5	≥ 12,000.00 milliseconds	General Enable Criteria: U0073  Normal CAN transmission on Bus A  The following criteria have been enabled for  Transition from accessory mode to off is pending  Battery Voltage Ignition Voltage Criteria: Power Mode  Run/Crank Voltage  Off Cycle Enable Criteria: KeCMGD_b_OffKeyCycle DiagEnbl  KeDFIR_e_OBD_Controll erType is an OBD Controller  Controller shutdown impending  Power Mode  U0131  Power Steering Control	Not Active on Current Key Cycle Enabled >= 5,000.00 milliseconds = False > 11.00 Volts  = Run >= 11.00 Volts  1.00 (1 indicates enabled) OBD Controller  = False = Not Run/Crank Not Active on Current Key Cycle is present on the bus	Diagnostic runs in 12.5 ms loop	Safety Emissio ns Neutral Diagnost ic

# DIAGNOSTIC SUMMARY TABLES -- TCM

OBDGROUP: KGMXOBDG07 TEST GROUP: KGMXV04.2088

	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With Body Control Module	U0140	This DTC monitors for a loss of communication with the Body Control Module.	Message is not received from controller for  Message \$0F1  Message \$12A  Message \$1F1  Message \$1F3  Message \$4E1  Message \$4E9	≥ 500.00 milliseconds ≥ 500.00 milliseconds ≥ 12,000.00 milliseconds ≥ 12,000.00 milliseconds ≥ 12,000.00 milliseconds ≥ 12,000.00 milliseconds	General Enable Criteria: U0073  Normal CAN transmission on Bus A  The following criteria have been enabled for  Transition from accessory mode to off is pending  Battery Voltage  Ignition Voltage Criteria:  Power Mode  Run/Crank Voltage  Off Cycle Enable Criteria:  KeCMGD_b_OffKeyCycle DiagEnbl  KeDFIR_e_OBD_Controll erType is an OBD Controller  Controller shutdown impending  Power Mode  U0140	Not Active on Current Key Cycle Enabled >= 5,000.00 milliseconds = False > 11.00 Volts  = Run >= 11.00 Volts  1.00 (1 indicates enabled) OBD Controller  = False = Not Run/Crank Not Active on Current Key Cycle	Diagnostic runs in 12.5 ms loop	"Emissio ns Neutral Diagnost ics – Type C"

# DIAGNOSTIC SUMMARY TABLES -- TCM

**OBDGROUP: KGMXOBDG07** 

TEST GROUP: KGMXV04.2088 EMISSIONS STDS: CAL--ULEV125; FED--BIN125

Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
U0146	This DTC monitors for a loss of communication with Gateway A	Message is not received from controller for  Message \$3CF	≥ 12,000.00 milliseconds	General Enable Criteria: U0073  Normal CAN transmission on Bus A  The following criteria have been enabled for Transition from accessory mode to off is pending Battery Voltage	Not Active on Current Key Cycle Enabled >= 5,000.00 milliseconds = False > 11.00 Volts	Diagnostic runs in 12.5 ms loop	Type A 1 Trips
				Ignition Voltage Criteria: Power Mode Run/Crank Voltage Off Cycle Enable Criteria: KeCMGD_b_OffKeyCycle DiagEnbl	= Run >= 11.00 Volts  1.00 (1 indicates enabled)		
				KeDFIR_e_OBD_Controll erType is an OBD Controller  Controller shutdown impending  Power Mode  U0146	OBD Controller  = False  = Not Run/Crank  Not Active on Current Key Cycle		
	Code	Code Description  U0146 This DTC monitors for a loss of communication with	Code Description  U0146 This DTC monitors for a loss of communication with  Message is not received from controller for	Code     Description       U0146     This DTC monitors for a loss of communication with Gateway A     Message is not received from controller for       Message is not received from controller for     Image: Communication with Gateway A	U0146 U0146 This DTC monitors for a loss of communication with Gateway A  Wessage \$3CF  Message \$3CF  Downward CAN transmission on Bus A  The following criteria have been enabled for Transition from accessory mode to off is pending  Battery Voltage  Ignition Voltage Criteria:  Power Mode  Run/Crank Voltage  Off Cycle Enable Criteria:  KeCMGD_b_OffKeyCycle DiagEnbl  KeDFIR_e_OBD_Controll erType is an OBD Controller or Controller shutdown impending  Power Mode	Code       Description       Message is not received from controller for a loss of communication with Gateway A       Message \$3CF       ≥ 12,000.00 milliseconds       General Enable Criteria: U0073       Not Active on Current Key Cycle         Message \$3CF       ≥ 12,000.00 milliseconds       Normal CAN transmission on Bus A       The following criteria have been enabled for       >= 5,000.00 milliseconds         Transition from accessory mode to off is pending       Battery Voltage       > 11.00 Volts         Battery Voltage       > 11.00 Volts         Off Cycle Enable Criteria:       Power Mode       = Run         Run/Crank Voltage       > 10.00 (1 indicates enabled)         Message \$3CF       KeCMGD_b_OffkeyCycle DiagEnbl       1.00 (1 indicates enabled)         Most Controller       Controller       Controller         Controller       Controller       Power Mode       = False         Power Mode       = Not Run/Crank       Not Active on Current Key	U0146 a loss of communication with Gateway A  Wessage \$3CF  Beauty A  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  Wessage \$3CF  W

### Initial Supporting table - 10 speed transmission clutch definition and gear state to clutch map

Description: indicates clutch definition and gear state verses applied and released clutches for 10 speed transmission

Value Units: applied or released

X Unit: clutch

Y Units: gear index Y axis, actual gear column 1

y/x	1	2	3	4	5	6	7	8
1		C1 = C123456R	C2 = C1289-10R	C3 = C234579-10	C4 = C234678-10R	C5 = C1356789	C6 = C456789-10R	C7 = OWC12
2	1st gear braking	applied	applied	released	released	applied	released	applied
3	1st gear free wheel	applied	applied	released	released	applied	released	released
1	2nd gear braking	applied	applied	applied	applied	released	released	applied
5	2nd gear free wheel	applied	applied	applied	applied	released	released	released
3	3rd gear	applied	released	applied	applied	applied	released	released
7	4th gear	applied	released	applied	applied	released	applied	released
3	5th gear	applied	released	applied	released	applied	applied	released
)	6th gear	applied	released	released	released	applied	applied	released
10	7th gear	released	released	applied	applied	applied	applied	released
l1	8th gear	released	applied	released	applied	applied	applied	released
12	9th gear	released	applied	applied	released	applied	applied	released
13	10th gear	released	applied	applied	applied		applied	released
14	reverse gear	applied	applied	released	applied	released	released	released

### Initial Supporting table - 9 speed transmission clutch definition and gear state to clutch map

Description: indicates clutch definition and gear state verses applied and released clutches for 9 speed transmission

Value Units: applied or released

X Unit: clutch

Y Units: gear index Y axis, actual gear column 1

y/x	1	2	3	4	5	6	7	8
1		C1 = CB123456	C2 = C6789	C3 = CB1R	C4 = CB29	C5 = CB38	C6 = C4	C7 = C57R
<u>)</u>	1st gear braking	applied	released	applied	released	released	released	released
3	1st gear free wheel	applied	released	released	released	released	released	released
	2nd gear	applied	released	released	applied	released	released	released
5	3rd gear	applied	released	released	released	applied	released	released
;	4th gear	applied	released	released	released	released	applied	released
	5th gear	applied	released	released	released	released	released	applied
	6th gear	applied	applied	released	released	released	released	released
)	7th gear	released	applied	released	released	released	released	applied
0	8th gear	released	applied	released	released	applied	released	released
1	9th gear	released	applied	released	applied	released	released	released
2	reverse gear	released	released	applied	released	released	released	applied

# Initial Supporting table - NumClchTieUp

Description: No	umClchTieUp						
X Unit: commar	nimum # of clutches nd gear or attained gear olicable, no units, single row ta	ble f(gear)					
NumClchTieUp	- Part 1						
y/x	CeCGSR_e_NullForS ched	CeCGSR_e_NeutralN oClutch	CeCGSR_e_NeutralC 1	CeCGSR_e_NeutralC 2	CeCGSR_e_NeutralC 3	CeCGSR_e_NeutralC 4	CeCGSR_e_NeutralC 5
1	5	5	4	4	4	4	4
NumClchTieUp	- Part 2						
y/x	CeCGSR_e_NeutralC 6	CeCGSR_e_NeutralC 7	CeCGSR_e_NeutralC 1C2	CeCGSR_e_NeutralC 1C3	CeCGSR_e_NeutralC 1C4	CeCGSR_e_NeutralC 1C5	CeCGSR_e_NeutralC 2C3
1	4	4	3	3	3	3	3
NumClchTieUp	- Part 3						
y/x	CeCGSR_e_NeutralC 2C4	CeCGSR_e_NeutralC 2C5	CeCGSR_e_NeutralC 2C6	CeCGSR_e_NeutralC 3C4	CeCGSR_e_NeutralC 3C5	CeCGSR_e_NeutralC 3C6	CeCGSR_e_NeutralC 4C5
1	3	3	3	3	3	3	3
NumClchTieUp	- Part 4						
y/x	CeCGSR_e_NeutralC 4C6	CeCGSR_e_NeutralC 1C2C3C6	CeCGSR_e_Park_wN C	CeCGSR_e_Park_wN C1	CeCGSR_e_Park_wN C2	CeCGSR_e_Park_wN C3	CeCGSR_e_Park_wN C4
1	3	1	5	4	4	4	4
NumClchTieUp	- Part 5						
y/x	CeCGSR_e_Park_wN C5	CeCGSR_e_Park_wN C6	CeCGSR_e_Park_wN C7	CeCGSR_e_Park_wN C1C2	CeCGSR_e_Park_wN C2C3	CeCGSR_e_Park_wN C2C4	CeCGSR_e_Park_wN C2C5
1	4	4	4	3	3	3	3
NumClchTieUp	- Part 6						
y/x	CeCGSR_e_Park_wN C2C6	CeCGSR_e_Park_wN C3C4	CeCGSR_e_Park_wN C3C5	CeCGSR_e_Park_wN C3C6	CeCGSR_e_Park_wN C4C5	CeCGSR_e_Park_wN C4C6	CeCGSR_e_Park_wN C1C2C3C6
1	3	3	3	3	3	3	1
NumClchTieUp	- Part 7						
y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondL ckd	CeCGSR_e_SecondF W	CeCGSR_e_Third	CeCGSR_e_Fourth
1	1	1	2	1	2	1	1
NumClchTieUp	- Part 8						
y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	

		Initial	Supporting table	e - NumClchTieUր	)		
1	1	1	1	1	1	1	

### Initial Supporting table - P0606\_Last Seed Timeout f(Loop Time)

**Description:** The max time for the Last Seed Timeout as a function of operating loop time sequence.

Value Units: Max Time for Last Seed Timeout (ms)

X Unit: Operating Loop Sequence (enum)

P0606_Last Seed 1	P0606_Last Seed Timeout f(Loop Time) - Part 1										
	CePISR_e_2p5msS	CePISR_e_3p125m sSea	CePISR_e_5msSeq	CePISR_e_6p25ms Sea		CePISR_e_12p5ms Seq	CePISR_e_20msSe	CePISR_e_25msSe a			
	'	200.000	200.000		•	•	200.000	200.000			
POSOS Last Sood T	P0606 Last Sood Timpout f/Loop Timpol - Part 2										

#### P0606\_Last Seed Timeout f(Loop Time) - Part 2

У	ι/x	CePISR_e_40msSe	CePISR_e_50msSe	CePISR_e_80msSe	CePISR_e_100msS	CePISR_e_250msS	CePISR_e_EventA	CePISR_e_EventB	CePISR_e_EventC
		q	q	q	eq	eq	_Seq	_Seq	_Seq
1		200.000	200.000	200.000	500.000	1,000.000	8,191.875	8,191.875	8,191.875

### Initial Supporting table - P0606\_PSW Sequence Fail f(Loop Time)

**Description:** Fail threshold for PSW per operating loop.

Value Units: Fail threshold for PSW (count) X Unit: Operating Loop (enum)

P0606_PSW Sequence Fail f(Loop Time) - P	art 1
------------------------------------------	-------

y/x	CePISR_e_2p5msS	CePISR_e_3p125m	CePISR_e_5msSeq	CePISR_e_6p25ms	CePISR_e_10msSe	CePISR_e_12p5ms	CePISR_e_20msSe	CePISR_e_25msSe
	eq	sSeq		Seq	q	Seq	q	q
1	2	2	2	2	2	2	2	2

#### P0606\_PSW Sequence Fail f(Loop Time) - Part 2

y,	/x	CePISR_e_40msSe	CePISR_e_50msSe	CePISR_e_80msSe	CePISR_e_100msS	CePISR_e_250msS	CePISR_e_EventA	CePISR_e_EventB	CePISR_e_EventC
		q	q	q	eq	eq	_Seq	_Seq	_Seq
1		2	1	1	1	1	2	2	2

### Initial Supporting table - P0606\_PSW Sequence Sample f(Loop Time)

**Description:** Sample threshold for PSW per operating loop.

Value Units: Sample threshold for PSW (count) X Unit: Operating Loop (enum)

P0606_PSW Sequence	Sample f(Loo	p Time) - Part 1
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y/x	CePISR_e_2p5msS	CePISR_e_3p125m	CePISR_e_5msSeq	CePISR_e_6p25ms	CePISR_e_10msSe	CePISR_e_12p5ms	CePISR_e_20msSe	CePISR_e_25msSe
	eq	sSeq		Seq	q	Seq	q	q
1	4	4	4	4	4	4	4	4

### P0606\_PSW Sequence Sample f(Loop Time) - Part 2

S	//x	CePISR_e_40msSe	CePISR_e_50msSe	CePISR_e_80msSe	CePISR_e_100msS	CePISR_e_250msS	CePISR_e_EventA	CePISR_e_EventB	CePISR_e_EventC
		q	q	q	eq	eq	_Seq	_Seq	_Seq
1	1	4	2	2	2	2	3	3	3

### Initial Supporting table - P2797 hydraulic pressure delay

**Description:** Time to delay the initial x of y counter due to hydraulic transients. Thresholds are a function of transmission fluid temperature. Horizontal axis is transmission fluid temperature (DegC) and table output is delay time (seconds).

Value Units: delay time seconds X Unit: transmission fluid temperature DegC

y/x	-40	0	20	30	40	50	60
1	0.090	0.090	0.080	0.050	0.050	0.050	0.050

### Initial Supporting table - P2797 predicted turbine speed error

**Description:** Predicted turbine speed vs actual turbine speed error. Thresholds are a function of engine speed and transmission fliud temperature. Diagnostic is considered failing above these values. Table vertical axis is engine speed (RPM), horizontal axis is transmission fluid temperature (DegC) and table output is predicted turbine speed error (RPM).

**Value Units:** turbine speed RPM error **X Unit:** transmission fluid temperature DegC

Y Units: engine speed RPM

y/x	-40	0	10	20	40
0	300	300	300	300	300
500	300	300	300	300	300
1,100	300	300	300	300	300
1,500	300	300	300	300	300
2,500	300	300	300	300	300

### Initial Supporting table - P2D2 Cltch Slip Sum

Description:

Value Units: rate of change of output rpm (dn) per 25 milliseconds X Unit: % brake pedal position Y Units: not applicable, no units, single row table f(brake pedal position)

1										
	y/x	0	15		30	35	50	75	88	100
	1	-4	-4	-4	-4	-4	-4	-4	-4	-4

### Initial Supporting table - P2D2 Decel Pressure - C1

**Description:** clutch 1 command pressure threshold below which clutch 1 is considered released, such that, clutch 1 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressui	re - C1 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	446.5	446.5	99,999.0	294.6	446.5
P2D2 Decel Pressur	re - C1 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	446.5	446.5	446.5	99,999.0	99,999.0
P2D2 Decel Pressui	re - C1 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	99,999.0	99,999.0	99,999.0	294.6	294.6
P2D2 Decel Pressui	re - C1 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	287.1	294.6	446.5	446.5	446.5
P2D2 Decel Pressur	re - C1 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	446.5	446.5	446.5	446.5	99,999.0
P2D2 Decel Pressui	re - C1 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	294.6	446.5	446.5	446.5	446.5
P2D2 Decel Pressur	re - C1 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999.0	99,999.0	294.6	294.6	287.1
P2D2 Decel Pressui	re - C1 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	294.6	446.5	446.5	446.5	446.5
P2D2 Decel Pressur	re - C1 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW
		_			

	Initial Supporting table - P2D2 Decel Pressure - C1									
1	446.5	446.5	99,999.0	99,999.0	99,999.0					
P2D2 Decel Pressure - C1 - Part 10										
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth					
1	99,999.0	99,999.0	99,999.0	99,999.0	99,999.0					
P2D2 Decel Pressi	ure - C1 - Part 11									
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth					
1	99,999.0	446.5	287.1	273.6	294.6					
P2D2 Decel Pressi	ure - C1 - Part 12									
y/x										
1										

### Initial Supporting table - P2D2 Decel Pressure - C2

**Description:** clutch 2 command pressure threshold below which clutch 2 is considered released, such that, clutch 2 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pres	ssure - C2 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	662	662	352	99,999	662
P2D2 Decel Pres	ssure - C2 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	662	662	662	99,999	99,999
P2D2 Decel Pres	sure - C2 - Part 3				
//x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
	352	352	352	99,999	99,999
P2D2 Decel Pres	sure - C2 - Part 4				
//x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	99,999	99,999	662	662	662
P2D2 Decel Pres	ssure - C2 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	662	662	99,999	662	352
P2D2 Decel Pres	ssure - C2 - Part 6				
//x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	99,999	662	662	662	662
P2D2 Decel Pres	sure - C2 - Part 7				
//x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pres	sure - C2 - Part 8				
//x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C
1	99,999	662	662	662	662
P2D2 Decel Pres	ssure - C2 - Part 9				
//x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

1	662	al Supporting table -	99,999	99,999	99,999		
P2D2 Decel Pressure - C2 - Part 10							
/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth		
	99,999	99,999	352	228	252		
P2D2 Decel Pres	ssure - C2 - Part 11						
′x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth		
	231	662	99,999	99,999	99,999		
P2D2 Decel Pressure - C2 - Part 12							
′x							

### **Initial Supporting table - P2D2 Decel Pressure - C3**

**Description:** clutch 3 command pressure threshold below which clutch 3 is considered released, such that, clutch 3 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pres	ssure - C3 - Part 1				
//x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pres	ssure - C3 - Part 2				
/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
	99,999	99,999	1,652	99,999	99,999
P2D2 Decel Pres	ssure - C3 - Part 3				
/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pres	ssure - C3 - Part 4				
/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
	99,999	1,652	99,999	99,999	99,999
P2D2 Decel Pres	ssure - C3 - Part 5				
//x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
	99,999	1,652	99,999	99,999	99,999
P2D2 Decel Pres	ssure - C3 - Part 6				
/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
	99,999	99,999	99,999	99,999	1,652
P2D2 Decel Pres	ssure - C3 - Part 7				
/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
	99,999	1,652	99,999	99,999	99,999
P2D2 Decel Pres	ssure - C3 - Part 8				
/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C
	1,652	99,999	99,999	99,999	1,652
P2D2 Decel Pres	ssure - C3 - Part 9				
/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW
	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		i e		

Initial Supporting table - P2D2 Decel Pressure - C3							
1	1,652	99,999	193	99,999	99,999		
P2D2 Decel Pressure - C3 - Part 10							
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth		
1	99,999	99,999	99,999	99,999	99,999		
P2D2 Decel Press	sure - C3 - Part 11						
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth		
	896	99,999	1,652	99,999	99,999		
P2D2 Decel Pressure - C3 - Part 12							
y/x							
1							

### Initial Supporting table - P2D2 Decel Pressure - C4

**Description:** clutch 4 command pressure threshold below which clutch 4 is considered released, such that, clutch 4 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pres	ssure - C4 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
	2,706	2,706	2,706	1,994	2,706
P2D2 Decel Pres	ssure - C4 - Part 2				
//x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	99,999	2,706	2,706	99,999	368
P2D2 Decel Pres	sure - C4 - Part 3				
//x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
	2,706	99,999	99,999	1,994	99,999
P2D2 Decel Pres	sure - C4 - Part 4				
//x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	1,994	1,994	99,999	2,706	2,706
P2D2 Decel Pres	ssure - C4 - Part 5				
//x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	99,999	99,999	99,999	2,706	2,706
P2D2 Decel Pres	ssure - C4 - Part 6				
//x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	1,994	2,706	99,999	2,706	2,706
P2D2 Decel Pres	sure - C4 - Part 7				
//x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C
1	99,999	368	1,994	99,999	1,994
P2D2 Decel Pres	sure - C4 - Part 8				
//x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C
	1,994	99,999	2,706	2,706	99,999
P2D2 Decel Pres	sure - C4 - Part 9				
//x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C4								
1	99,999	99,999	99,999	368	368			
P2D2 Decel Pres	P2D2 Decel Pressure - C4 - Part 10							
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth			
1	99,999	99,999	99,999	99,999	2,706			
P2D2 Decel Pres	ssure - C4 - Part 11							
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth			
1	99,999	99,999	99,999	1,994	99,999			
P2D2 Decel Pressure - C4 - Part 12								
y/x								
1								

### Initial Supporting table - P2D2 Decel Pressure - C5

**Description:** clutch 5 command pressure threshold below which clutch 5 is considered released, such that, clutch 5 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressure - C5 - I	Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	2,302	2,302	1,183	2,302	2,302
P2D2 Decel Pressure - C5 - I	Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	1,183	99,999	1,183	99,999	750
P2D2 Decel Pressure - C5 - I	Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	1,183	1,183	99,999	2,302	2,302
P2D2 Decel Pressure - C5 - I	Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	99,999	2,302	2,302	99,999	2,302
P2D2 Decel Pressure - C5 - I	Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	99,999	2,302	99,999	2,302	1,183
P2D2 Decel Pressure - C5 - I	Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
	2,302	2,302	1,183	99,999	1,183
P2D2 Decel Pressure - C5 - I	Part 7				
//x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	750	2,302	2,302	99,999
P2D2 Decel Pressure - C5 - I	Part 8				
//X	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	2,302	2,302	99,999	2,302	99,999
P2D2 Decel Pressure - C5 - I	Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

1	2,302	99,999	196	99,999	99,999	
P2D2 Decel Pre	ssure - C5 - Part 10					
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth	
1	750	750	99,999	1,183	99,999	
P2D2 Decel Pre	ssure - C5 - Part 11					
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	
1	99,999	99,999	99,999	99,999	2,302	
P2D2 Decel Pressure - C5 - Part 12						
y/x						
1						

### Initial Supporting table - P2D2 Decel Pressure - C6

**Description:** clutch 6 command pressure threshold below which clutch 6 is considered released, such that, clutch 6 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressu	re - C6 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	666	666	666	248	666
P2D2 Decel Pressu	ire - C6 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	666	666	99,999	99,999	248
P2D2 Decel Pressu	re - C6 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	666	666	666	248	248
P2D2 Decel Pressu	re - C6 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	142	99,999	666	666	99,999
P2D2 Decel Pressu	ire - C6 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	666	99,999	666	666	666
P2D2 Decel Pressu	re - C6 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	248	666	666	666	99,999
P2D2 Decel Pressu	ire - C6 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	248	248	248	142
P2D2 Decel Pressu	ire - C6 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	99,999	666	666	99,999	666
P2D2 Decel Pressu	ire - C6 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C6							
1	99,999	666	99,999	142	142		
P2D2 Decel Pressure - C6 - Part 10							
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth		
1	248	248	666	99,999	99,999		
P2D2 Decel Pressu	re - C6 - Part 11						
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth		
1	99,999	99,999	99,999	99,999	99,999		
P2D2 Decel Pressure - C6 - Part 12							
y/x							
1							

### Initial Supporting table - P2D2 Decel Pressure - C7

**Description:** clutch 7 command pressure threshold below which clutch 7 is considered released, such that, clutch 7 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pres	sure - C7 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pres	sure - C7 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pres	sure - C7 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pres	sure - C7 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pres	sure - C7 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pres	sure - C7 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pres	sure - C7 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pres	sure - C7 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pres	sure - C7 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C7								
1	99,999	99,999	99,999	99,999	99,999			
P2D2 Decel Press	P2D2 Decel Pressure - C7 - Part 10							
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth			
1	99,999	99,999	99,999	99,999	99,999			
P2D2 Decel Press	sure - C7 - Part 11							
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth			
1	99,999	99,999	99,999	99,999	99,999			
P2D2 Decel Pressure - C7 - Part 12								
y/x								
1								

#### Description:

**Value Units:** transmission fluid temperature normal warn up time, seconds **X Unit:** transmission fluid temperature at controller power up, °C

y/x	-40.00	-30.00	-20.00	0.00	20.00
1	1,800.0	1,400.0	1,000.0	500.0	10.0

### Initial Supporting table - 10 speed transmission clutch definition and gear state to clutch map

Description: indicates clutch definition and gear state verses applied and released clutches for 10 speed transmission

Value Units: applied or released

X Unit: clutch

Y Units: gear index Y axis, actual gear column 1

y/x	1	2	3	4	5	6	7	8
1		C1 = C123456R	C2 = C1289-10R	C3 = C234579-10	C4 = C234678-10R	C5 = C1356789	C6 = C456789-10R	C7 = OWC12
2	1st gear braking	applied	applied	released	released	applied	released	applied
3	1st gear free wheel	applied	applied	released	released	applied	released	released
4	2nd gear braking	applied	applied	applied	applied	released	released	applied
5	2nd gear free wheel	applied	applied	applied	applied	released	released	released
6	3rd gear	applied	released	applied	applied	applied	released	released
7	4th gear	applied	released	applied	applied	released	applied	released
3	5th gear	applied	released	applied	released	applied	applied	released
)	6th gear	applied	released	released	released	applied	applied	released
10	7th gear	released	released	applied	applied	applied	applied	released
l1	8th gear	released	applied	released	applied	applied	applied	released
12	9th gear	released	applied	applied	released	applied	applied	released
13	10th gear	released	applied	applied	applied	released	applied	released
14	reverse gear	applied	applied	released	applied	released	released	released

### Initial Supporting table - 9 speed transmission clutch definition and gear state to clutch map

Description: indicates clutch definition and gear state verses applied and released clutches for 9 speed transmission

Value Units: applied or released

X Unit: clutch

Y Units: gear index Y axis, actual gear column 1

y/x	1	2	3	4	5	6	7	8
1		C1 = CB123456	C2 = C6789	C3 = CB1R	C4 = CB29	C5 = CB38	C6 = C4	C7 = C57R
<u>)</u>	1st gear braking	applied	released	applied	released	released	released	released
3	1st gear free wheel	applied	released	released	released	released	released	released
	2nd gear	applied	released	released	applied	released	released	released
5	3rd gear	applied	released	released	released	applied	released	released
;	4th gear	applied	released	released	released	released	applied	released
	5th gear	applied	released	released	released	released	released	applied
	6th gear	applied	applied	released	released	released	released	released
)	7th gear	released	applied	released	released	released	released	applied
0	8th gear	released	applied	released	released	applied	released	released
1	9th gear	released	applied	released	applied	released	released	released
12	reverse gear	released	released	applied	released	released	released	applied

### Initial Supporting table - C1 exhaust delay closed throttle down shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

**X Unit:** transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

### Initial Supporting table - C1 exhaust delay closed throttle lift foot up shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

X Unit: transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100		0.850	0.850

### Initial Supporting table - C1 exhaust delay garage shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

**X Unit:** transmission fluid temperature °C

y/x	-40.00	-20.00	0.00	30.00	110.00
1	0.250	0.250	0.250	0.250	0.250

## Initial Supporting table - C1 exhaust delay negative torque up shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	0.500	0.500	0.500	0.500	0.500

## Initial Supporting table - C1 exhaust delay open throttle power down shift

**Description:** P0747 C1 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600		0.950	0.850	0.850

## Initial Supporting table - C1 exhaust delay open throttle power on up shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

ľ	y/x	-40.00	-20.00	0.00	30.00	110.00
ľ	1	0.750	0.750	0.750	0.750	0.750

## Initial Supporting table - C1 Torque-Based Pressure Clip

**Description:** Pressure clip values for C1 based on clutch torque. Clutch torque calculated from engine torque using torque lever ratios, which are hardware and shift specific.

Value Units: Clutch Pressure (kPa)
X Unit: C1 Oncoming Clutch Torque (Nm)

y/x	0	100	200	300	600
1	690	690	690	690	690

Description: Post torque phase delay before calculating oncoming clutch clip pressure for powered upshifts when C1 is the oncoming clutch

Value Units: time (seconds) X Unit: transmission fluid temperature °C

y/x	-40	-20	0	30	110
1	0	0	0	0	0

## Initial Supporting table - C2 exhaust delay closed throttle down shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

ľ	y/x	-40.00	-20.00	0.00	30.00	110.00
I	1	1.600	1.100	0.950	0.850	0.850

## Initial Supporting table - C2 exhaust delay garage shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	0.250	0.250	0.250	0.250	0.250

## Initial Supporting table - C2 exhaust delay negative torque up shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	0.500	0.500	0.500	0.500	0.500

## Initial Supporting table - C2 exhaust delay open throttle power down shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600		0.950	0.850	0.850

## Initial Supporting table - C2 exhaust delay open throttle power on up shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	0.750	0.750	0.750	0.750	0.750

Initial Supporting table - C2 Torque-Based Pressure Clip								
Description:	Description:							
Value Units: Clutch X Unit: C2 Oncomin	n Pressure (kPa) ng Clutch Torque (Nm)							
y/x	0	100	200	300	600			
1	300	400	500	500	500			

## Initial Supporting table - C2\_Oncoming Post-Torque Phase Delay

Description: Post torque phase delay before calculating oncoming clutch clip pressure for powered upshifts when C2 is the oncoming clutch

Value Units: time (seconds)

y/x	-40	-20	0	30	110	
1	0	0	0	0	0	

## Initial Supporting table - C3 exhaust delay closed throttle down shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100		0.850	0.850

## Initial Supporting table - C3 exhaust delay closed throttle lift foot up shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100		0.850	0.850

# Initial Supporting table - C3 exhaust delay garage shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

1	y/x	-40.00	-20.00	0.00	30.00	110.00
١	1	0.250	0.250	0.250	0.250	0.250

## Initial Supporting table - C3 exhaust delay negative torque up shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	0.500	0.500	0.500	0.500	0.500

## Initial Supporting table - C3 exhaust delay open throttle power down shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100		0.850	0.850

## Initial Supporting table - C3 exhaust delay open throttle power on up shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	3.000	0.750	0.750	0.750	0.750

	Initial Supporting table - C3 Torque-Based Pressure Clip									
Description:	scription:									
Value Units: Clutch X Unit: C3 Oncomir	alue Units: Clutch Pressure (kPa) Unit: C3 Oncoming Clutch Torque (Nm)									
y/x	0 100 200 300 600									
1	300 400 500 575 800									

Description: Post torque phase delay before calculating oncoming clutch clip pressure for powered upshifts when C3 is the oncoming clutch

Value Units: time (seconds)
X Unit: transmission fluid temperature °C

y/x	-40	-20	0	30	110
1	0	0	0	0	0

## Initial Supporting table - C4 exhaust delay closed throttle down shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100		0.850	0.850

## Initial Supporting table - C4 exhaust delay closed throttle lift foot up shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

## Initial Supporting table - C4 exhaust delay garage shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00	
1	0.250	0.250	0.250	0.250	0.250	

## Initial Supporting table - C4 exhaust delay negative torque up shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	0.500	0.500	0.500	0.500	0.500

## Initial Supporting table - C4 exhaust delay open throttle power down shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

١	y/x	-40.00	-20.00	0.00	30.00	110.00
١	1	1.600	1.100	0.950	0.850	0.850

## Initial Supporting table - C4 exhaust delay open throttle power on up shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

ľ	y/x	-40.00	-20.00	0.00	30.00	110.00
ľ	1	0.750	0.750	0.750	0.750	0.750

	Initial Supporting table - C4 Torque-Based Pressure Clip									
Description:	scription:									
	alue Units: Clutch Pressure (kPa) Unit: C4 Oncoming Clutch Torque (Nm)									
y/x	0 100 200 300 600									
1	400 650 750 800 900									

Description: Post torque phase delay before calculating oncoming clutch clip pressure for powered upshifts when C4 is the oncoming clutch

Value Units: time (seconds)
X Unit: transmission fluid temperature °C

y/x	-40	-20	0	30	110
1	0	0	0	0	0

## Initial Supporting table - C5 exhaust delay closed throttle down shift

Description: P2724 C5 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

## Initial Supporting table - C5 exhaust delay closed throttle lift foot up shift

Description: P2724 C5 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600		0.950	0.850	0.850

## Initial Supporting table - C5 exhaust delay garage shift

Description: P2724 C5 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

	y/x	-40	-20	0	30	110
	1	0	0	0	0	0

## Initial Supporting table - C5 exhaust delay negative torque up shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

Ī	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	0.500	0.500	0.500	0.500	0.500

## Initial Supporting table - C5 exhaust delay open throttle power down shift

Description: P2724 C5 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600		0.950	0.850	0.850

## Initial Supporting table - C5 exhaust delay open throttle power on up shift

**Description:** P2724 C5 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	0.750	0.750	0.750	0.750	0.750

Initial Supporting table - C5 Torque-Based Pressure Clip							
Description:	Description:						
Value Units: Clutch Pressure (kPa) X Unit: C5 Oncoming Clutch Torque (Nm)							
y/x	0	100	200	300	600		
1	300	600	700	750	900		

Description: Post torque phase delay before calculating oncoming clutch clip pressure for powered upshifts when C5 is the oncoming clutch

Value Units: time (seconds)
X Unit: transmission fluid temperature °C

y/x	-40	-20	0	30	110
1	0	0	0	0	0

# Initial Supporting table - C6 exhaust delay closed throttle lift foot up shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100		0.850	0.850

# Initial Supporting table - C6 exhaust delay garage shift

**Description:** P2733 C6 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

ı	1	40.00	00.00	0.00	00.00	440.00
	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	0.250	0.250	10.250	0.250	0.250

# Initial Supporting table - C6 exhaust delay negative torque up shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

- 1						
١	y/x	-40.00	-20.00	0.00	30.00	110.00
١	1	0.500	0.500	0.500	0.500	0.500

# Initial Supporting table - C6 exhaust delay open throttle power down shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600		0.950	0.850	0.850

# Initial Supporting table - C6 exhaust delay open throttle power on up shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	0.750		0.750	0.750	0.750

	Initial Supporting table - C6 Torque-Based Pressure Clip					
Description:	escription:					
Value Units: Clutch Pressur X Unit: C6 Oncoming Clutch	alue Units: Clutch Pressure (kPa) Unit: C6 Oncoming Clutch Torque (Nm)					
y/x	x 0 100 200 300 600					
1	350	650	750	800	950	

# Initial Supporting table - C6\_Oncoming Post-Torque Phase Delay

Description: Post torque phase delay before calculating oncoming clutch clip pressure for powered upshifts when C6 is the oncoming clutch

Value Units: time (seconds)

y/x	-40	-20	0	30	110
1	0	0	0	0	0

# Initial Supporting table - Clutch Clip Press CD Shifts

**Description:** Oncoming clutch clip pressure for closed throttle down shifts

Value Units: kPa

١	y/x	CeTSER_e_C1_Clutch	CeTSER_e_C2_Clutch	CeTSER_e_C3_Clutch	CeTSER_e_C4_Clutch	CeTSER_e_C5_Clutch	CeTSER_e_C6_Clutch
١	1	250	400	400	400	400	400

# **Initial Supporting table - Clutch Clip Press GS Shifts**

**Description:** Oncoming clutch clip pressure for garage shifts

Value Units: kPa

y/x	CeTSER_e_C1_Clutch	CeTSER_e_C2_Clutch	CeTSER_e_C3_Clutch	CeTSER_e_C4_Clutch	CeTSER_e_C5_Clutch	CeTSER_e_C6_Clutch
1	450	750	850	400	400	400

# **Initial Supporting table - Clutch Clip Press NU Shifts**

**Description:** Oncoming clutch clip pressure for negative torque up shifts

Value Units: kPa

y/x	CeTSER_e_C1_Clutch	CeTSER_e_C2_Clutch	CeTSER_e_C3_Clutch	CeTSER_e_C4_Clutch	CeTSER_e_C5_Clutch	CeTSER_e_C6_Clutch
1	450	450	450	600	450	450

# **Initial Supporting table - Clutch Clip Press PD Shifts**

**Description:** Oncoming clutch clip pressure for open throttle power down shifts

Value Units: kPa

y/x	CeTSER_e_C1_Clutch	CeTSER_e_C2_Clutch	CeTSER_e_C3_Clutch	CeTSER_e_C4_Clutch	CeTSER_e_C5_Clutch	CeTSER_e_C6_Clutch
1	450	500	600	750	750	500

Initial Supporting table - Clutch Stuck On Fail Offset Time CD Shifts
Description: Used for closed throttle down shifts to add additional fail time based on oil temperature

Value Units: time (seconds)
X Unit: transmission fluid temperature °C

y/x	-40	-20	0	30	110
1	0	0	0	0	0

Initial Supporting table - Clutch Stuck On Fail Offset Time GS Shifts						
Description: Used for garage shifts to add additional fail time based on oil temperature						
Value Units: time (seconds) X Unit: transmission fluid temperature °C						

y/	′x	-40	-20	0	30	110
1		0	0	0	0	0

Initial Supporting table - Clutch Stuck On Fail Offset Time PD Shifts						
Description: Used for open throttle power down shifts to add additional fail time based on oil temperature						
Value Units: time (seconds) X Unit: transmission fluid temperature °C						

y/x	-40	-20	0	30	110
1	0	0	0	0	0

Initial Supporting table - Clutch Stuck On Fail Offset Time PU Shifts							
Description: Used for powered up shifts to add additional fail time based on oil temperature							
Value Units: time (seconds) X Unit: transmission fluid temperature °C							
y/x	-40	-20	0	30	110		
1	1	0	0	0	0		

# Initial Supporting table - Clutch Stuck On Fail Offset Time STGR Shifts

**Description:** Used for clutch staging shifts to add additional fail time based on oil temperature

Value Units: time (seconds) X Unit: transmission fluid temperature °C

y/x	-40	-20	0	30	110
1	0	0	0	0	0

# Initial Supporting table - Clutch Stuck On Shift Type Enable

**Description:** Calibration to enable the clutch stuck on test for each shift type

X Unit: Shift Type Y Units: Boolean

١	y/x	CeTSER_e_STGR	CeTSER_e_GSCR	CeTSER_e_NUCR	CeTSER_e_PUCR	CeTSER_e_CDCR	CeTSER_e_PDCR	CeTSER_e_CLAR
١	1	0	1	1	1	1	1	0

# Initial Supporting table - engine speed time for transmission hydraulic pressure available

**Description:** time needed for engine speed to trigger "transmission hydraulic pressure available"

Value Units: seconds

1	y/x	-40.00	-30.00	-20.00	0.00	40.00
	1	1.525	1.500	0.981	0.938	0.800

# Initial Supporting table - engine speed time for transmission hydraulic pressure available

**Description:** time needed for engine speed to trigger "transmission hydraulic pressure available"

Value Units: seconds

X Unit: °C

y/x	-40.00	-30.00	-20.00	0.00	40.00
1	1.525	1.500		0.938	0.800

# Initial Supporting table - intermediate speed sensor 1 or 2 predicted direction

**Description:** intermediate speed sensor 1 or 2 predicted direction

Value Units: predicted direction: forward, reverse, unknown

X Unit: attained gear
Y Units: intermediate speed sensor 1 or 2

intermediate speed sensor 1 or 2 pre	edicted direction - Part 1		
y/x	CeCGSR_e_CR_NullForSched	CeCGSR_e_CR_Neutral	CeCGSR_e_CR_Park
CeTSRR_e_C2C_ClchSpdSnsr1	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown
CeTSRR_e_C2C_ClchSpdSnsr2	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown
intermediate speed sensor 1 or 2 pre	edicted direction - Part 2		
y/x	CeCGSR_e_CR_Reverse	CeCGSR_e_CR_First	CeCGSR_e_CR_Second
CeTSRR_e_C2C_ClchSpdSnsr1	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown
CeTSRR_e_C2C_ClchSpdSnsr2	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown
intermediate speed sensor 1 or 2 pre	edicted direction - Part 3		
y/x	CeCGSR_e_CR_Third	CeCGSR_e_CR_Fourth	CeCGSR_e_CR_Fifth
CeTSRR_e_C2C_ClchSpdSnsr1	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown
CeTSRR_e_C2C_ClchSpdSnsr2	CeTNSR_e_DirectionForward	CeTNSR_e_DirectionForward	CeTNSR_e_DirectionForward
intermediate speed sensor 1 or 2 pre	edicted direction - Part 4		
y/x	CeCGSR_e_CR_Sixth	CeCGSR_e_CR_Seventh	CeCGSR_e_CR_Eighth
CeTSRR_e_C2C_ClchSpdSnsr1	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionForward	CeTNSR_e_DirectionForward
CeTSRR_e_C2C_ClchSpdSnsr2	CeTNSR_e_DirectionForward	CeTNSR_e_DirectionForward	CeTNSR_e_DirectionForward
intermediate speed sensor 1 or 2 pre	edicted direction - Part 5		
y/x	CeCGSR_e_CR_Ninth	CeCGSR_e_CR_Tenth	
CeTSRR_e_C2C_ClchSpdSnsr1	CeTNSR_e_DirectionForward	CeTNSR_e_DirectionForward	
CeTSRR_e_C2C_ClchSpdSnsr2	CeTNSR_e_DirectionForward	CeTNSR_e_DirectionForward	

# Initial Supporting table - NumClchTieUp

Description: N	Description: NumClchTieUp								
X Unit: comma	inimum # of clutches nd gear or attained gear plicable, no units, single row ta	ble f(gear)							
NumClchTieUp	o - Part 1								
y/x	CeCGSR_e_NullForS ched	CeCGSR_e_NeutralN oClutch	CeCGSR_e_NeutralC 1	CeCGSR_e_NeutralC 2	CeCGSR_e_NeutralC 3	CeCGSR_e_NeutralC 4	CeCGSR_e_NeutralC 5		
1	5	5	4	4	4	4	4		
NumClchTieUp	o - Part 2								
y/x	CeCGSR_e_NeutralC 6	CeCGSR_e_NeutralC 7	CeCGSR_e_NeutralC 1C2	CeCGSR_e_NeutralC 1C3	CeCGSR_e_NeutralC 1C4	CeCGSR_e_NeutralC 1C5	CeCGSR_e_NeutralC 2C3		
1	4	4	3	3	3	3	3		
NumClchTieUp	o - Part 3								
y/x	CeCGSR_e_NeutralC 2C4	CeCGSR_e_NeutralC 2C5	CeCGSR_e_NeutralC 2C6	CeCGSR_e_NeutralC 3C4	CeCGSR_e_NeutralC 3C5	CeCGSR_e_NeutralC 3C6	CeCGSR_e_NeutralC 4C5		
1	3	3	3	3	3	3	3		
NumClchTieU	o - Part 4								
y/x	CeCGSR_e_NeutralC 4C6	CeCGSR_e_NeutralC 1C2C3C6	CeCGSR_e_Park_wN C	CeCGSR_e_Park_wN C1	CeCGSR_e_Park_wN C2	CeCGSR_e_Park_wN C3	CeCGSR_e_Park_wN C4		
1	3	1	5	4	4	4	4		
NumClchTieUp	o - Part 5								
y/x	CeCGSR_e_Park_wN C5	CeCGSR_e_Park_wN C6	CeCGSR_e_Park_wN C7	CeCGSR_e_Park_wN C1C2	CeCGSR_e_Park_wN C2C3	CeCGSR_e_Park_wN C2C4	CeCGSR_e_Park_wN C2C5		
1	4	4	4	3	3	3	3		
NumClchTieU	o - Part 6								
y/x	CeCGSR_e_Park_wN C2C6	CeCGSR_e_Park_wN C3C4	CeCGSR_e_Park_wN C3C5	CeCGSR_e_Park_wN C3C6	CeCGSR_e_Park_wN C4C5	CeCGSR_e_Park_wN C4C6	CeCGSR_e_Park_wN C1C2C3C6		
1	3	3	3	3	3	3	1		
NumClchTieUp	o - Part 7								
y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondL ckd	CeCGSR_e_SecondF W	CeCGSR_e_Third	CeCGSR_e_Fourth		
1	1	1	2	1	2	1	1		
NumClchTieUp	o - Part 8								
y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth			

Initial Supporting table - NumClchTieUp								
1	1	1	1	1	1	1		

# Initial Supporting table - P0606 Program Sequence Watch Enable f(CPU#, loop time or event)

**Description:** P0606 program sequence watch enable calibration

Value Units: Boolean

**X Unit:** column 1 calibration definition, column 2 calibration value **Y Units:** rows of: calibration / calibration value

TOTILS. TOWS OF CAMPIALION / CAIR	ation value
y/x	1
1	ProgSeqWatchEnbl[CeTSKR_e_CPU][CePISR_e_100msSeq] 0
2	ProgSeqWatchEnbl[CeTSKR_e_CPU][CePISR_e_10msSeq] 0
3	ProgSeqWatchEnbl[CeTSKR_e_CPU] 1 [CePISR_e_12p5msSeq]
4	ProgSeqWatchEnbl[CeTSKR_e_CPU][CePISR_e_20msSeq] 0
5	ProgSeqWatchEnbl[CeTSKR_e_CPU][CePISR_e_250msSeq] 0
6	ProgSeqWatchEnbl[CeTSKR_e_CPU][CePISR_e_25msSeq] 1
7	ProgSeqWatchEnbl[CeTSKR_e_CPU][CePISR_e_2p5msSeq] 0
8	ProgSeqWatchEnbl[CeTSKR_e_CPU] 0 [CePISR_e_3p125msSeq]
9	ProgSeqWatchEnbl[CeTSKR_e_CPU][CePISR_e_40msSeq] 0
10	ProgSeqWatchEnbl[CeTSKR_e_CPU][CePISR_e_50msSeq] 1
11	ProgSeqWatchEnbl[CeTSKR_e_CPU][CePISR_e_5msSeq] 0
12	ProgSeqWatchEnbl[CeTSKR_e_CPU] 1 [CePISR_e_6p25msSeq]
13	ProgSeqWatchEnbl[CeTSKR_e_CPU][CePISR_e_80msSeq] 0
14	ProgSeqWatchEnbl[CeTSKR_e_CPU] 0 [CePISR_e_EventA_Seq]
15	ProgSeqWatchEnbl[CeTSKR_e_CPU] 0 [CePISR_e_EventB_Seq]
16	ProgSeqWatchEnbl[CeTSKR_e_CPU] 0 [CePISR_e_EventC_Seq]
17	ProgSeqWatchEnbl[CeTSKR_e_CPU2] 0 [CePISR_e_100msSeq]
18	ProgSeqWatchEnbl[CeTSKR_e_CPU2][CePISR_e_10msSeq] 0
19	ProgSeqWatchEnbl[CeTSKR_e_CPU2] 1 [CePISR_e_12p5msSeq]
20	ProgSeqWatchEnbl[CeTSKR_e_CPU2][CePISR_e_20msSeq] 0
21	ProgSeqWatchEnbl[CeTSKR_e_CPU2] 0 [CePISR_e_250msSeq]
22	ProgSeqWatchEnbl[CeTSKR_e_CPU2][CePISR_e_25msSeq] 1
23	ProgSeqWatchEnbl[CeTSKR_e_CPU2] 0 [CePISR_e_2p5msSeq]
24	ProgSeqWatchEnbl[CeTSKR_e_CPU2] 0

Initial \$	Supporting table - P0606 Program Sequence Watch Enable f(CPU#, loop time or event)	
	[CePISR_e_3p125msSeq]	
25	ProgSeqWatchEnbl[CeTSKR_e_CPU2][CePISR_e_40msSeq] 0	
26	ProgSeqWatchEnbl[CeTSKR_e_CPU2][CePISR_e_50msSeq] 1	
27	ProgSeqWatchEnbl[CeTSKR_e_CPU2][CePISR_e_5msSeq] 0	
28	ProgSeqWatchEnbl[CeTSKR_e_CPU2] 1 [CePISR_e_6p25msSeq]	
29	ProgSeqWatchEnbl[CeTSKR_e_CPU2][CePISR_e_80msSeq] 0	
30	ProgSeqWatchEnbl[CeTSKR_e_CPU2] 0 [CePISR_e_EventA_Seq]	
31	ProgSeqWatchEnbl[CeTSKR_e_CPU2] 0 [CePISR_e_EventB_Seq]	
32	ProgSeqWatchEnbl[CeTSKR_e_CPU2] 0 [CePISR_e_EventC_Seq]	
33	ProgSeqWatchEnbl[CeTSKR_e_CPU3] 0 [CePISR_e_100msSeq]	
34	ProgSeqWatchEnbl[CeTSKR_e_CPU3][CePISR_e_10msSeq] 0	
35	ProgSeqWatchEnbl[CeTSKR_e_CPU3] 0 [CePISR_e_12p5msSeq]	
36	ProgSeqWatchEnbl[CeTSKR_e_CPU3][CePISR_e_20msSeq] 0	
37	ProgSeqWatchEnbl[CeTSKR_e_CPU3] 0 [CePISR_e_250msSeq]	
38	ProgSeqWatchEnbl[CeTSKR_e_CPU3][CePISR_e_25msSeq] 0	
39	ProgSeqWatchEnbl[CeTSKR_e_CPU3] 0 [CePISR_e_2p5msSeq]	
40	ProgSeqWatchEnbl[CeTSKR_e_CPU3] 0 [CePISR_e_3p125msSeq]	
41	ProgSeqWatchEnbl[CeTSKR_e_CPU3][CePISR_e_40msSeq] 0	
42	ProgSeqWatchEnbl[CeTSKR_e_CPU3][CePISR_e_50msSeq] 0	
43	ProgSeqWatchEnbl[CeTSKR_e_CPU3][CePISR_e_5msSeq] 0	
44	ProgSeqWatchEnbl[CeTSKR_e_CPU3] 0 [CePISR_e_6p25msSeq]	
45	ProgSeqWatchEnbl[CeTSKR_e_CPU3][CePISR_e_80msSeq] 0	
46	ProgSeqWatchEnbl[CeTSKR_e_CPU3] 0 [CePISR_e_EventA_Seq]	
47	ProgSeqWatchEnbl[CeTSKR_e_CPU3] 0 [CePISR_e_EventB_Seq]	
48	ProgSeqWatchEnbl[CeTSKR_e_CPU3] 0 [CePISR_e_EventC_Seq]	
49	ProgSeqWatchEnbl[CeTSKR_e_CPU4] 0 [CePISR_e_100msSeq]	
50	ProgSeqWatchEnbl[CeTSKR_e_CPU4][CePISR_e_10msSeq] 0	

Initial Supporting table - P0606 Program Sequence Watch Enable f(CPU#, loop time or event)							
51	ProgSeqWatchEnbl[CeTSKR_e_CPU4] 0 [CePISR_e_12p5msSeq]						
52	ProgSeqWatchEnbl[CeTSKR_e_CPU4][CePISR_e_20msSeq] 0						
53	ProgSeqWatchEnbl[CeTSKR_e_CPU4] 0 [CePISR_e_250msSeq]						
54	ProgSeqWatchEnbl[CeTSKR_e_CPU4][CePISR_e_25msSeq] 0						
55	ProgSeqWatchEnbl[CeTSKR_e_CPU4] 0 [CePISR_e_2p5msSeq]						
56	ProgSeqWatchEnbl[CeTSKR_e_CPU4] 0 [CePISR_e_3p125msSeq]						
57	ProgSeqWatchEnbl[CeTSKR_e_CPU4][CePISR_e_40msSeq] 0						
58	ProgSeqWatchEnbl[CeTSKR_e_CPU4][CePISR_e_50msSeq] 0						
59	ProgSeqWatchEnbl[CeTSKR_e_CPU4][CePISR_e_5msSeq] 0						
60	ProgSeqWatchEnbl[CeTSKR_e_CPU4] 0 [CePISR_e_6p25msSeq]						
61	ProgSeqWatchEnbl[CeTSKR_e_CPU4][CePISR_e_80msSeq] 0						
62	ProgSeqWatchEnbl[CeTSKR_e_CPU4] 0 [CePISR_e_EventA_Seq]						
63	ProgSeqWatchEnbl[CeTSKR_e_CPU4] 0 [CePISR_e_EventB_Seq]						
64	ProgSeqWatchEnbl[CeTSKR_e_CPU4] 0 [CePISR_e_EventC_Seq]						

# Initial Supporting table - P0606\_Last Seed Timeout f(Loop Time)

**Description:** The max time for the Last Seed Timeout as a function of operating loop time sequence.

Value Units: Max Time for Last Seed Timeout (ms) X Unit: Operating Loop Sequence (enum)

P0606_Last Seed Timeout f(Loop Time) - Part 1									
	CePISR_e_2p5msS	CePISR_e_3p125m sSea	CePISR_e_5msSeq	CePISR_e_6p25ms Seq		CePISR_e_12p5ms Seq	CePISR_e_20msSe	CePISR_e_25msSe	
		200.000	200.000		•	_	<u>4</u> 200.000	200.000	
DOSOS Last Sand Timesut fill can Time). Part 2									

y/x	CePISR_e_40msSe	CePISR_e_50msSe	CePISR_e_80msSe	CePISR_e_100msS	CePISR_e_250msS	CePISR_e_EventA	CePISR_e_EventB	CePISR_e_EventC
	q	q	q	eq	eq	_Seq	_Seq	_Seq
1	200.000	200.000	200.000	500.000	1,000.000	8,191.875	8,191.875	8,191.875

# Initial Supporting table - P0606\_PSW Sequence Fail f(Loop Time)

**Description:** Fail threshold for PSW per operating loop.

Value Units: Fail threshold for PSW (count) X Unit: Operating Loop (enum)

P0606	<b>PSW Sequence</b>	Fail f(Loop	Time) - Part 1
	FOW SEGUETICE	I all ILLUUD	IIIIIC) - Fait i

y/x	CePISR_e_2p5msS	CePISR_e_3p125m	CePISR_e_5msSeq	CePISR_e_6p25ms	CePISR_e_10msSe	CePISR_e_12p5ms	CePISR_e_20msSe	CePISR_e_25msSe
	eq	sSeq		Seq	q	Seq	q	q
1	2	2	2	2	2	2	2	2

#### P0606\_PSW Sequence Fail f(Loop Time) - Part 2

y/x	CePISR_e_40msSe	CePISR_e_50msSe	CePISR_e_80msSe	CePISR_e_100msS	CePISR_e_250msS	CePISR_e_EventA	CePISR_e_EventB	CePISR_e_EventC
	q	q	q	eq	eq	_Seq	_Seq	_Seq
1	2	1	1	1	1	2	2	2

# Initial Supporting table - P0606\_PSW Sequence Sample f(Loop Time)

**Description:** Sample threshold for PSW per operating loop.

Value Units: Sample threshold for PSW (count) X Unit: Operating Loop (enum)

P0606_PSW Sequence	Sample f(Loo	p Time) - Part 1
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y/x	CePISR_e_2p5msS	CePISR_e_3p125m	CePISR_e_5msSeq	CePISR_e_6p25ms	CePISR_e_10msSe	CePISR_e_12p5ms	CePISR_e_20msSe	CePISR_e_25msSe
	eq	sSeq		Seq	q	Seq	q	q
1	4	4	4	4	4	4	4	4

#### P0606\_PSW Sequence Sample f(Loop Time) - Part 2

S	//x	CePISR_e_40msSe	CePISR_e_50msSe	CePISR_e_80msSe	CePISR_e_100msS	CePISR_e_250msS	CePISR_e_EventA	CePISR_e_EventB	CePISR_e_EventC
		q	q	q	eq	eq	_Seq	_Seq	_Seq
1	1	4	2	2	2	2	3	3	3

Initial Supporting table - P0722 OSS Direction Change Delay				
escription:				
Value Units: seconds X Unit: DegC				
y/x	-40	-20	20	
1	5	3	1	

# Initial Supporting table - P0723 transmission engaged state time threshold

Description: time necessary after transmission engaged state indicates transmission engaged to allow P0723 enable

Value Units: seconds

y/x	-40.000	-20.000	20.000
1	5.000	3.000	1.000

# Initial Supporting table - P0741 GR10 torque converter K factor fail limit

Description:

Value Units: transmission torque converter K factor
X Unit: transmission torque converter speed ratio = transmission turbine shaft speed / engine speed

y/x	0.000	0.100	0.200	0.300	0.500	0.700	0.800	0.945	0.950
1	400.0	350.0	250.0	250.0	250.0	250.0	500.0	700.0	16,383.8

Initial Supporting table - P176B delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation

Description: delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation

Value Units: seconds

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	0.500	0.500

# Initial Supporting table - P176B holding clutch states

**Description:** inditaces when the clutch states allow transmission intermediate speed sensor evaluation, when rotating components can trigger speed sesnor, holding clutches will not allow evaluation while clutches not holding will allow evaluation

Value Units: TRUE or FALSE

**X Unit:** intermediate speed sensor select

Y Units: commanded gear

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
CeCGSR_e_CR_NullForSched	1	1
CeCGSR_e_CR_Neutral	1	1
CeCGSR_e_CR_Park	1	1
CeCGSR_e_CR_Reverse	1	1
CeCGSR_e_CR_First	1	1
CeCGSR_e_CR_Second	1	1
CeCGSR_e_CR_Third	1	0
CeCGSR_e_CR_Fourth	1	0
CeCGSR_e_CR_Fifth	1	0
CeCGSR_e_CR_Sixth	1	0
CeCGSR_e_CR_Seventh	0	0
CeCGSR_e_CR_Eighth	0	0
CeCGSR_e_CR_Ninth	0	0
CeCGSR_e_CR_Tenth	0	0

# Initial Supporting table - P176B intermediate speed sensor fail count threshold

Description: P176B intermediate speed sensor fail count threshold

Value Units: fail counts

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2	
1	3	3	

# Initial Supporting table - P176B intermediate speed sensor fail time threshold

**Description:** P176B intermediate speed sensor fail time threshold

Value Units: seconds

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2	
1	1.500	1.500	

#### Initial Supporting table - P176B minimum estimated transmission intermediate speed to enable fail evaluation

**Description:** minimum estimated transmission intermediate speed to enable fail evaluation, where estimate is based on transmission input speed / ratio calibration, where ratio calibration is either P176B ratio calibration when REVERSE or P176B ratio calibration when not REVERSE

Value Units: estimated transmission intermediate speed RPM

ľ	y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
ſ	1	192.0	192.0

## Initial Supporting table - P176B minimum transmission input speed to enable fail evaluation

**Description:** minimum transmission input speed to enable fail evaluation

**Value Units:** transmission input speed RPM **X Unit:** intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	192.0	192.0

## Initial Supporting table - P176B ratio calibration when not REVERSE

Description: used to estimate transmission input speed based on transmission intermediate speed when range is not REVERSE

Value Units: ratio

X Unit: commanded gear Y Units: intermediate speed sensor select

•	_	_	4	CeTGRR_e_Ge ar5		7	_		CeTGRR_e_Ge ar10
CeTSRR_e_C2 C_ClchSpdSnsr 1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5596	0.4342	0.4342
CeTSRR_e_C2 C_ClchSpdSnsr 2	1.0000	3.1250	1.7699	1.7699	1.3774	1.0000	0.8224	0.6382	0.6382

## Initial Supporting table - P176B ratio calibration when REVERSE

Description: used to estimate transmission input speed based on transmission intermediate speed when range is REVERSE

Value Units: ratio

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	1.0000	1.0000

Initial Supporting table - P176C Enable Boolean				
Description:				
Value Units: Boolean				
/x 0				
1	1	1		

Initial Supporting table - P176C Fail Count Threshold				
Description:				
Value Units: Count				
y/x 0 1				
1	40	40		

Initial Supporting table - P176C Fail Timer		
Description:		
Value Units: seconds K Unit: intermediate speed sensor index		
y/x	0	1
1	0	0

Initial Supporting table - P176D Boolean Enable			
Description:			
Value Units: Boolean X Unit: Speed Sensor Index			
y/x	0	1	
1	1	1	

Initial Supporting table - P176D Fail Count Threshold				
Description:				
Value Units: Count X Unit: Speed Sensor Index				
/x 0				
1	40	40		

Initial Supporting table - P176D Fail Time Threshold			
Description:			
Value Units: seconds X Unit: Speed Sensor Index			
/x 0			
1	0	0	

Initial Supporting table - P176D Voltage Fail Threshold			
Description:			
Value Units: Volts X Unit: Speed Sensor Index			
/x			
1	5	5	

Initial Supporting table - P17C5 P17D3 intermediate speed sensor RPM			
Description: P17C5 P17D3 intermediate speed sensor RPM at signal period transtion to enable fail time update			
Value Units: intermediate speed sensor RPM X Unit: intermediate speed sensor 1 or 2			
/x 1			
1	350	225	

Initial Supporting table - P17D6 delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation

Description: delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation

Value Units: seconds

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	0.500	0.500

### **Initial Supporting table - P17D6 holding clutch states**

**Description:** inditaces when the clutch states allow transmission intermediate speed sensor evaluation, when rotating components can trigger speed sesnor, holding clutches will not allow evaluation while clutches not holding will allow evaluation

Value Units: TRUE or FALSE X Unit: commanded gear

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
CeCGSR_e_CR_NullForSched	1	1
CeCGSR_e_CR_Neutral	1	1
CeCGSR_e_CR_Park	1	1
CeCGSR_e_CR_Reverse	1	1
CeCGSR_e_CR_First	1	1
CeCGSR_e_CR_Second	1	1
CeCGSR_e_CR_Third	1	0
CeCGSR_e_CR_Fourth	1	0
CeCGSR_e_CR_Fifth	1	0
CeCGSR_e_CR_Sixth	1	0
CeCGSR_e_CR_Seventh	0	0
CeCGSR_e_CR_Eighth	0	0
CeCGSR_e_CR_Ninth	0	0
CeCGSR_e_CR_Tenth	0	0

## Initial Supporting table - P17D6 intermediate speed sensor fail count threshold

Description: P176B intermediate speed sensor fail count threshold

Value Units: fail counts

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	3	3

## Initial Supporting table - P17D6 intermediate speed sensor fail RPM threshold

Description: P17D6 intermediate speed sensor fail RPM speed threshold

Value Units: RPM

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2	
1	100	100	

## Initial Supporting table - P17D6 intermediate speed sensor fail time threshold

Description: P17D6 intermediate speed sensor fail time threshold

Value Units: seconds

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	1.500	1.500

#### Initial Supporting table - P17D6 minimum estimated transmission intermediate speed to enable fail evaluation

**Description:** minimum estimated transmission intermediate speed to enable fail evaluation, where estimate is based on transmission input speed / ratio calibration, where ratio calibration is either P17D6 ratio calibration when REVERSE or P17D6 ratio calibration when not REVERSE

Value Units: estimated transmission intermediate speed RPM

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2	
1	192	192	

## Initial Supporting table - P17D6 minimum transmission input speed to enable fail evaluation

**Description:** minimum transmission input speed to enable fail evaluation

**Value Units:** transmission input speed RPM **X Unit:** intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2	
1	192	192	

## Initial Supporting table - P17D6 ratio calibration when not REVERSE

Description: used to estimate transmission input speed based on transmission intermediate speed when range is not REVERSE

Value Units: ratio

X Unit: commanded gear Y Units: intermediate speed sensor select

•	_	_	4	CeTGRR_e_Ge ar5		7	_		CeTGRR_e_Ge ar10
CeTSRR_e_C2 C_ClchSpdSnsr 1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5596	0.4342	0.4342
CeTSRR_e_C2 C_ClchSpdSnsr 2	1.0000	3.1250	1.7699	1.7699	1.3774	1.0000	0.8224	0.6382	0.6382

Initial Supporting table - P17D6 ratio calibration when REVERSE								
Description: used to estimate transmission inp	ut speed based on transmission intermediate speed when rang	e is REVERSE						
Value Units: ratio								
y/x	/x CeTSRR_e_C2C_ClchSpdSnsr1 CeTSRR_e_C2C_ClchSpdSnsr2							
1	1.0000	1.0000						

Initial Supporting table - P187D P18E7 Park to Out Of Park Transition Delay							
Description:	Description:						
Value Units: Seconds X Unit: Deg C							
y/x	-40.00	-20.00	0.00	20.00	130.00		
1	4.00	2.00	1.00	0.80	0.80		

	Initial Supporting table - P187E P18E8 Out Of Park to Park Min Line Transition Delay						
Description:							
Value Units: Seconds X Unit: Deg C							
y/x	-40.00	-20.00	0.00	20.00	130.00		
1.00	4 80	2 40	1.20	1 20	1 20		

Initial Supporting table - P187E P18E8 Out Of Park to Park Transition Delay							
Description:	escription:						
Value Units: Seconds X Unit: Deg C							
y/x	-40.00	-20.00	0.00	20.00	130.00		
1.00	2.40	1.20	0.60	0.60	0.60		

	Initial Supporting table - P18A1 P18AA P27EC Mode Valve High To Low Transition Delay						
Description:							
Value Units: Seconds X Unit: Deg C							
y/x	-40.00	-20.00	0.00	20.00	130.00		
1.00	1 60	0.80	0.25	0.13	0.08		

	Initial Supporting table - P18AA Mode Valve High To Low Min Line Transition Delay							
Description:								
Value Units: Seconds X Unit: Deg C								
y/x	-40.00	-20.00	0.00	20.00	130.00			
1.00	4.70	2.00	0.80	0.43	0.26			

to all the same approximations and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same approximation and the same appr							
Initial Supporting table - P18AB P27EC Mode Valve Low to High Transition Delay							
Description:							
Value Units: Seconds X Unit: Deg C	S						
y/x	-40.00	-20.00	0.00	20.00	130.00		
1.00	1.20	0.60	0.20	0.10	0.08		

Initial Supporting table - P18AE Enable Valve Test Delay								
Description:								
Value Units: Seconds X Unit: Deg C								
y/x	-40.00	-20.00	0.00	20.00	130.00			
1.00	0.50	0.30	0.16	0.08	0.08			

## Initial Supporting table - P2797 hydraulic pressure delay

**Description:** Time to delay the initial x of y counter due to hydraulic transients. Thresholds are a function of transmission fluid temperature. Horizontal axis is transmission fluid temperature (DegC) and table output is delay time (seconds).

Value Units: delay time seconds X Unit: transmission fluid temperature DegC

y/x	-40	0	1 2()	30		50	60
1	0.090	0.090	0.080	0.050	0.050	0.050	0.050

#### Initial Supporting table - P2797 predicted turbine speed error

**Description:** Predicted turbine speed vs actual turbine speed error. Thresholds are a function of engine speed and transmission fliud temperature. Diagnostic is considered failing above these values. Table vertical axis is engine speed (RPM), horizontal axis is transmission fluid temperature (DegC) and table output is predicted turbine speed error (RPM).

**Value Units:** turbine speed RPM error **X Unit:** transmission fluid temperature DegC

Y Units: engine speed RPM

	Y				
y/x	-40	0	10	20	40
0	300	300	300	300	300
500	300	300	300	300	300
1,100	300	300	300	300	300
1,500	300	300	300	300	300
2,500	300	300	300	300	300

## Initial Supporting table - P2817 TCC stuck off fail TCC slip speed

Description: TCC stuck off slip speed fail threshold when TCC is in ON mode (controlled slip mode)

Value Units: RPM

**X Unit:** engine torque Nm

У	//x	0.00	64.00	128.00	192.00	256.00	320.00	384.00	448.00	512.00
1		50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0

## Initial Supporting table - P2818 TCC stuck on fail time garage shift - GR10

Description: GR10 P2818 TCC stuck on fail time garage shift

Value Units: seconds

X Unit: rate of change of engine speed, RPM/second Y Units: unitless

y/x	50	100	150	250	300
1	0.250	0.200	0.125	0.100	0.100

## Initial Supporting table - P2818 TCC stuck on fail time stall pending - GR10

Description: GR10 P2818 TCC stuck on fail time stall pending

Value Units: seconds

X Unit: rate of change of engine speed, RPM/second Y Units: unitless

y/x	50	100	150	250	300
1	0.750	0.300	0.300	0.200	0.100

Initial Supporting table - P2820 GR10 hydraulic default at launch test window							
Description:							
Value Units: RPM/sec X Unit: °C							
y/x	-10	5	15	30	110		
1	0	0	1	1	1		

## Initial Supporting table - P2820 GR10 hydraulic default input speed deceleration threshold

**Description:** Negative acceleration needed to increment fail timer for GR10 default disable solenoid stuck off at launch diagnostic

Value Units: RPM/sec

X Unit: °C

y/x	-10	5	15	30	110
1	-32,768	-32,768	-3,500	-2,000	-2,000

## Initial Supporting table - P2D2 Cltch Slip Sum

Description:

Value Units: rate of change of output rpm (dn) per 25 milliseconds X Unit: % brake pedal position Y Units: not applicable, no units, single row table f(brake pedal position)

y/x	0	15	20	30	35	50	75	88	100
1	-4	-4	-4	-4	-4	-4	-4	-4	-4

## Initial Supporting table - P2D2 Decel Pressure - C1

**Description:** clutch 1 command pressure threshold below which clutch 1 is considered released, such that, clutch 1 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressu	ure - C1 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	446.5	446.5	99,999.0	294.6	446.5
P2D2 Decel Pressu	ure - C1 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	446.5	446.5	446.5	99,999.0	99,999.0
P2D2 Decel Pressu	ure - C1 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	99,999.0	99,999.0	99,999.0	294.6	294.6
P2D2 Decel Pressu	ure - C1 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	287.1	294.6	446.5	446.5	446.5
P2D2 Decel Pressu	ure - C1 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	446.5	446.5	446.5	446.5	99,999.0
P2D2 Decel Pressu	ure - C1 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	294.6	446.5	446.5	446.5	446.5
P2D2 Decel Pressu	ure - C1 - Part 7				
//x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999.0	99,999.0	294.6	294.6	287.1
P2D2 Decel Pressu	ure - C1 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	294.6	446.5	446.5	446.5	446.5
P2D2 Decel Pressu	ıre - C1 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C1								
1	446.5	446.5	99,999.0	99,999.0	99,999.0			
P2D2 Decel Pres	ssure - C1 - Part 10							
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth			
1	99,999.0	99,999.0	99,999.0	99,999.0	99,999.0			
P2D2 Decel Pres	ssure - C1 - Part 11							
//x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth			
	99,999.0	446.5	287.1	273.6	294.6			
P2D2 Decel Pressure - C1 - Part 12								
//x								

#### Initial Supporting table - P2D2 Decel Pressure - C2

**Description:** clutch 2 command pressure threshold below which clutch 2 is considered released, such that, clutch 2 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pres	ssure - C2 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	662	662	352	99,999	662
P2D2 Decel Pres	ssure - C2 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	662	662	662	99,999	99,999
P2D2 Decel Pres	sure - C2 - Part 3				
//x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
	352	352	352	99,999	99,999
P2D2 Decel Pres	sure - C2 - Part 4				
//x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	99,999	99,999	662	662	662
P2D2 Decel Pres	ssure - C2 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	662	662	99,999	662	352
P2D2 Decel Pres	ssure - C2 - Part 6				
//x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	99,999	662	662	662	662
P2D2 Decel Pres	sure - C2 - Part 7				
//x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pres	ssure - C2 - Part 8				
//x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C
1	99,999	662	662	662	662
P2D2 Decel Pres	ssure - C2 - Part 9				
//x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

1	662	al Supporting table -	99,999	99,999	99,999		
P2D2 Decel Pres	ssure - C2 - Part 10	<del> 99,999</del>	[99,999	33,333	99,999		
/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth		
	99,999	99,999	352	228	252		
P2D2 Decel Pres	ssure - C2 - Part 11						
′x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth		
	231	662	99,999	99,999	99,999		
P2D2 Decel Pressure - C2 - Part 12							
′x							

# Initial Supporting table - P2D2 Decel Pressure - C3

**Description:** clutch 3 command pressure threshold below which clutch 3 is considered released, such that, clutch 3 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressu	re - C3 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressu	ire - C3 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	99,999	99,999	1,652	99,999	99,999
P2D2 Decel Pressu	re - C3 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressu	ire - C3 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	99,999	1,652	99,999	99,999	99,999
P2D2 Decel Pressu	ire - C3 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	99,999	1,652	99,999	99,999	99,999
P2D2 Decel Pressu	re - C3 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	99,999	99,999	99,999	99,999	1,652
P2D2 Decel Pressu	re - C3 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	1,652	99,999	99,999	99,999
P2D2 Decel Pressu	ire - C3 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	1,652	99,999	99,999	99,999	1,652
P2D2 Decel Pressu	ire - C3 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C3									
1	1,652	99,999	193	99,999	99,999				
P2D2 Decel Pres	P2D2 Decel Pressure - C3 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	99,999	99,999	99,999	99,999	99,999				
P2D2 Decel Pres	ssure - C3 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	896	99,999	1,652	99,999	99,999				
P2D2 Decel Pres	P2D2 Decel Pressure - C3 - Part 12								
y/x									
1									

## Initial Supporting table - P2D2 Decel Pressure - C4

**Description:** clutch 4 command pressure threshold below which clutch 4 is considered released, such that, clutch 4 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Press	sure - C4 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	2,706	2,706	2,706	1,994	2,706
P2D2 Decel Press	ure - C4 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	99,999	2,706	2,706	99,999	368
P2D2 Decel Press	ure - C4 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	2,706	99,999	99,999	1,994	99,999
P2D2 Decel Press	ure - C4 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	1,994	1,994	99,999	2,706	2,706
P2D2 Decel Press	ure - C4 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	99,999	99,999	99,999	2,706	2,706
P2D2 Decel Press	ure - C4 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	1,994	2,706	99,999	2,706	2,706
P2D2 Decel Press	ure - C4 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	368	1,994	99,999	1,994
P2D2 Decel Press	ure - C4 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	1,994	99,999	2,706	2,706	99,999
P2D2 Decel Press	ure - C4 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C4								
1	99,999	99,999	99,999	368	368			
P2D2 Decel Pres	ssure - C4 - Part 10							
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth			
1	99,999	99,999	99,999	99,999	2,706			
P2D2 Decel Pres	ssure - C4 - Part 11							
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth			
1	99,999	99,999	99,999	1,994	99,999			
P2D2 Decel Pres	P2D2 Decel Pressure - C4 - Part 12							
y/x								
1								

## Initial Supporting table - P2D2 Decel Pressure - C5

**Description:** clutch 5 command pressure threshold below which clutch 5 is considered released, such that, clutch 5 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressu	ure - C5 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	2,302	2,302	1,183	2,302	2,302
P2D2 Decel Pressu	ure - C5 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	1,183	99,999	1,183	99,999	750
P2D2 Decel Pressu	ure - C5 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	1,183	1,183	99,999	2,302	2,302
P2D2 Decel Pressu	ure - C5 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	99,999	2,302	2,302	99,999	2,302
P2D2 Decel Pressu	ure - C5 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	99,999	2,302	99,999	2,302	1,183
P2D2 Decel Pressu	ure - C5 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	2,302	2,302	1,183	99,999	1,183
P2D2 Decel Pressu	ure - C5 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	750	2,302	2,302	99,999
P2D2 Decel Pressu	ure - C5 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	2,302	2,302	99,999	2,302	99,999
P2D2 Decel Pressu	ure - C5 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

1	2,302	99,999	196	99,999	99,999
P2D2 Decel Pre	ssure - C5 - Part 10				
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth
1	750	750	99,999	1,183	99,999
P2D2 Decel Pre	ssure - C5 - Part 11				
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth
1	99,999	99,999	99,999	99,999	2,302
P2D2 Decel Pre	ssure - C5 - Part 12				
y/x					
1					

#### Initial Supporting table - P2D2 Decel Pressure - C6

**Description:** clutch 6 command pressure threshold below which clutch 6 is considered released, such that, clutch 6 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pres	ssure - C6 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	666	666	666	248	666
P2D2 Decel Pres	ssure - C6 - Part 2				
//x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	666	666	99,999	99,999	248
P2D2 Decel Pres	sure - C6 - Part 3				
//x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
	666	666	666	248	248
P2D2 Decel Pres	sure - C6 - Part 4				
//x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	142	99,999	666	666	99,999
P2D2 Decel Pres	sure - C6 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	666	99,999	666	666	666
P2D2 Decel Pres	ssure - C6 - Part 6				
//x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	248	666	666	666	99,999
P2D2 Decel Pres	sure - C6 - Part 7				
//x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C
1	99,999	248	248	248	142
P2D2 Decel Pres	sure - C6 - Part 8				
//x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C
	99,999	666	666	99,999	666
P2D2 Decel Pres	ssure - C6 - Part 9				
//x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C6									
1	99,999	666	99,999	142	142				
P2D2 Decel Pres	P2D2 Decel Pressure - C6 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	248	248	666	99,999	99,999				
P2D2 Decel Pres	sure - C6 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	99,999	99,999	99,999	99,999	99,999				
P2D2 Decel Pres	P2D2 Decel Pressure - C6 - Part 12								
y/x									
1									

# Initial Supporting table - P2D2 Decel Pressure - C7

**Description:** clutch 7 command pressure threshold below which clutch 7 is considered released, such that, clutch 7 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressure - C7 -	Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressure - C7 -	Part 2				
ı/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressure - C7 -	Part 3				
/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressure - C7 -	Part 4				
/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressure - C7 -	Part 5				
//x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressure - C7 -	Part 6	•			
/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressure - C7 -	Part 7				
/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressure - C7 -	Part 8				
/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C
	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressure - C7 -	Part 9				
//x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

	Initial Supporting table - P2D2 Decel Pressure - C7									
1	99,999	99,999	99,999	99,999	99,999					
P2D2 Decel Pressure - C7 - Part 10										
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth					
1	99,999	99,999	99,999	99,999	99,999					
P2D2 Decel Pres	sure - C7 - Part 11									
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth					
1	99,999	99,999	99,999	99,999	99,999					
P2D2 Decel Pres	P2D2 Decel Pressure - C7 - Part 12									
y/x										
1										

	Initial Supporting table - Park Inhibit Solenoid Override Line Pressure								
Description:	Description:								
Value Units: kPa X Unit: Deg C									
y/x	-40.00	-20.00	0.00	20.00	130.00				
1.00	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00				

Initial Supporting table - Pump Out Available Transition Time								
Description:								
Value Units: Seconds X Unit: Deg C								
y/x	//x							
1.00	0.05	0.02	0.02	0.02	0.02			

## Initial Supporting table - speed sensor directional rationalit ☐ enable calibration

**Description:** speed sensor directional rationality enable calibration

Value Units: Boolean

X Unit: direction commanded

☐ **Units:** unitless

y/x	CeCGSR_FwdCmded	CeCGSR_NeutCmded	CeCGSR_RvrsCmded	CeCGSR_ParkCmded
1	1	1	1	1

## Initial Supporting table - transmission fluid temperature warm up time

#### Description:

 $\begin{tabular}{ll} \textbf{Value Units:} & transmission fluid temperature normal warn up time, seconds \\ \textbf{X Unit:} & transmission fluid temperature at controller power up, °C \\ \end{tabular}$ 

y/x	-40.00	-30.00	-20.00	0.00	20.00
1	1,800.0	1,400.0	1,000.0	500.0	10.0

	Initial Supporting table - P0606_Last Seed Timeout f(Loop Time)								
Description:	Description: The max time for the Last Seed Timeout as a function of operating loop time sequence.								
P0606_Last S	P0606_Last Seed Timeout f(Loop Time) - Part 1								
y/x	-	CePISR_e_3p125m sSeq	CePISR_e_5msSeq	CePISR_e_6p25ms Seq		CePISR_e_12p5ms Seq	CePISR_e_20msSe q	CePISR_e_25msSe q	
1	200.000	200.000	200.000	200.000	200.000	200.000	200.000	200.000	
P0606_Last S	Seed Timeout f(Loop Time	e) - Part 2							
y/x	CePISR_e_40msSe	CePISR_e_50msSe q	CePISR_e_80msSe q	CePISR_e_100msS eq	CePISR_e_250msS eq	CePISR_e_EventA _Seq	CePISR_e_EventB _Seq	CePISR_e_EventC _Seq	
1	200.000	200.000	200.000	500.000	1,000.000	8,191.875	8,191.875	8,191.875	

	Initial Supporting table - P0606_PSW Sequence Fail f(Loop Time)								
Description	Description: Fail threshold for PSW per operating loop.								
P0606_PSW	P0606_PSW Sequence Fail f(Loop Time) - Part 1								
y/x	CePISR_e_2p5ms eq	S CePISR_e_3p125m sSeq	CePISR_e_5msSeq	CePISR_e_6p25ms Seq		CePISR_e_12p5ms Seq	CePISR_e_20msSe q	CePISR_e_25msSe q	
1	2	2	2	2	2	2	2	2	
P0606_PSW	/ Sequence Fail f(Loop Ti	me) - Part 2							
y/x	CePISR_e_40msS	Se CePISR_e_50msSe	CePISR_e_80msSe q	CePISR_e_100msS eq	CePISR_e_250msS eq	CePISR_e_EventA _Seq	CePISR_e_EventB _Seq	CePISR_e_EventC _Seq	
1	2	1	1	1	1	2	2	2	

	Initial Supporting table - P0606_PSW Sequence Sample f(Loop Time)								
Description: Sa	Description: Sample threshold for PSW per operating loop.								
P0606_PSW Se	P0606_PSW Sequence Sample f(Loop Time) - Part 1								
y/x	CePISR_e_2p5msS eq	CePISR_e_3p125m sSeq	CePISR_e_5msSeq	CePISR_e_6p25ms Seq		CePISR_e_12p5ms Seq	CePISR_e_20msSe q	CePISR_e_25msSe q	
1	4	4	4	4	4	4	4	4	
P0606_PSW Se	quence Sample f(Loop	Time) - Part 2							
y/x	CePISR_e_40msSe	CePISR_e_50msSe q	CePISR_e_80msSe q	CePISR_e_100msS eq	CePISR_e_250msS eq	CePISR_e_EventA _Seq	CePISR_e_EventB _Seq	CePISR_e_EventC _Seq	
1	4	2	2	2	2	3	3	3	

#### Initial Supporting table - 10 speed transmission clutch definition and gear state to clutch map

Description: indicates clutch definition and gear state verses applied and released clutches for 10 speed transmission

Value Units: applied or released

X Unit: clutch

Y Units: gear index Y axis, actual gear column 1

y/x	1	2	3	4	5	6	7	8
1		C1 = C123456R	C2 = C1289-10R	C3 = C234579-10	C4 = C234678-10R	C5 = C1356789	C6 = C456789-10R	C7 = OWC12
2	1st gear braking	applied	applied	released	released	applied	released	applied
3	1st gear free wheel	applied	applied	released	released	applied	released	released
1	2nd gear braking	applied	applied	applied	applied	released	released	applied
5	2nd gear free wheel	applied	applied	applied	applied	released	released	released
3	3rd gear	applied	released	applied	applied	applied	released	released
7	4th gear	applied	released	applied	applied	released	applied	released
3	5th gear	applied	released	applied	released	applied	applied	released
)	6th gear	applied	released	released	released	applied	applied	released
0	7th gear	released	released	applied	applied	applied	applied	released
1	8th gear	released	applied	released	applied	applied	applied	released
12	9th gear	released	applied	applied	released	applied	applied	released
13	10th gear	released	applied	applied	applied	released	applied	released
14	reverse gear	applied	applied	released	applied	released	released	released

## Initial Supporting table - 9 speed transmission clutch definition and gear state to clutch map

Description: indicates clutch definition and gear state verses applied and released clutches for 9 speed transmission

Value Units: applied or released

X Unit: clutch

Y Units: gear index Y axis, actual gear column 1

y/x	1	2	3	4	5	6	7	8
1		C1 = CB123456	C2 = C6789	C3 = CB1R	C4 = CB29	C5 = CB38	C6 = C4	C7 = C57R
2	1st gear braking	applied	released	applied	released	released	released	released
3	1st gear free wheel	applied	released	released	released	released	released	released
4	2nd gear	applied	released	released	applied	released	released	released
5	3rd gear	applied	released	released	released	applied	released	released
6	4th gear	applied	released	released	released	released	applied	released
7	5th gear	applied	released	released	released	released	released	applied
8	6th gear	applied	applied	released	released	released	released	released
9	7th gear	released	applied	released	released	released	released	applied
10	8th gear	released	applied	released	released	applied	released	released
11	9th gear	released	applied	released	applied	released	released	released
12	reverse gear	released	released	applied	released	released	released	applied

# Initial Supporting table - engine speed time for transmission hydraulic pressure available

**Description:** time needed for engine speed to trigger "transmission hydraulic pressure available"

Value Units: seconds

**X Unit:** transmission fluid temperature °C

1	y/x	-40.00	-30.00	-20.00	0.00	40.00
	1	1.525	1.500	0.981	0.938	0.800

# Initial Supporting table - engine speed time for transmission hydraulic pressure available

**Description:** time needed for engine speed to trigger "transmission hydraulic pressure available"

Value Units: seconds

X Unit: °C

١	y/x	-40.00	-30.00	-20.00	0.00	40.00
١	1	1.525	1.500	0.981	0.938	0.800

## Initial Supporting table - intermediate speed sensor 1 or 2 predicted direction

**Description:** intermediate speed sensor 1 or 2 predicted direction

Value Units: predicted direction: forward, reverse, unknown

X Unit: attained gear Y Units: intermediate speed sensor 1 or 2

intermediate speed sensor 1 or 2 pre	edicted direction - Part 1		
y/x	CeCGSR_e_CR_NullForSched	CeCGSR_e_CR_Neutral	CeCGSR_e_CR_Park
CeTSRR_e_C2C_ClchSpdSnsr1	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown
CeTSRR_e_C2C_ClchSpdSnsr2	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown
intermediate speed sensor 1 or 2 pre	dicted direction - Part 2		
y/x	CeCGSR_e_CR_Reverse	CeCGSR_e_CR_First	CeCGSR_e_CR_Second
CeTSRR_e_C2C_ClchSpdSnsr1	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown
CeTSRR_e_C2C_ClchSpdSnsr2	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown
intermediate speed sensor 1 or 2 pre	edicted direction - Part 3		
y/x	CeCGSR_e_CR_Third	CeCGSR_e_CR_Fourth	CeCGSR_e_CR_Fifth
CeTSRR_e_C2C_ClchSpdSnsr1	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionUnknown
CeTSRR_e_C2C_ClchSpdSnsr2	CeTNSR_e_DirectionForward	CeTNSR_e_DirectionForward	CeTNSR_e_DirectionForward
intermediate speed sensor 1 or 2 pre	dicted direction - Part 4		
y/x	CeCGSR_e_CR_Sixth	CeCGSR_e_CR_Seventh	CeCGSR_e_CR_Eighth
CeTSRR_e_C2C_ClchSpdSnsr1	CeTNSR_e_DirectionUnknown	CeTNSR_e_DirectionForward	CeTNSR_e_DirectionForward
CeTSRR_e_C2C_ClchSpdSnsr2	CeTNSR_e_DirectionForward	CeTNSR_e_DirectionForward	CeTNSR_e_DirectionForward
intermediate speed sensor 1 or 2 pre	edicted direction - Part 5		
y/x	CeCGSR_e_CR_Ninth	CeCGSR_e_CR_Tenth	
CeTSRR_e_C2C_ClchSpdSnsr1	CeTNSR_e_DirectionForward	CeTNSR_e_DirectionForward	
CeTSRR_e_C2C_ClchSpdSnsr2	CeTNSR_e_DirectionForward	CeTNSR_e_DirectionForward	

# Initial Supporting table - NumClchTieUp

Description: N	umClchTieUp						
X Unit: comma	inimum # of clutches nd gear or attained gear plicable, no units, single row ta	ble f(gear)					
NumClchTieU	o - Part 1						
y/x	CeCGSR_e_NullForS ched	CeCGSR_e_NeutralN oClutch	CeCGSR_e_NeutralC 1	CeCGSR_e_NeutralC 2	CeCGSR_e_NeutralC 3	CeCGSR_e_NeutralC 4	CeCGSR_e_NeutralC 5
1	5	5	4	4	4	4	4
NumClchTieU	o - Part 2						
y/x	CeCGSR_e_NeutralC 6	CeCGSR_e_NeutralC 7	CeCGSR_e_NeutralC 1C2	CeCGSR_e_NeutralC 1C3	CeCGSR_e_NeutralC 1C4	CeCGSR_e_NeutralC 1C5	CeCGSR_e_NeutralC 2C3
1	4	4	3	3	3	3	3
NumClchTieU	o - Part 3						
y/x	CeCGSR_e_NeutralC 2C4	CeCGSR_e_NeutralC 2C5	CeCGSR_e_NeutralC 2C6	CeCGSR_e_NeutralC 3C4	CeCGSR_e_NeutralC 3C5	CeCGSR_e_NeutralC 3C6	CeCGSR_e_NeutralC 4C5
1	3	3	3	3	3	3	3
NumClchTieU	o - Part 4						
y/x	CeCGSR_e_NeutralC 4C6	CeCGSR_e_NeutralC 1C2C3C6	CeCGSR_e_Park_wN C	CeCGSR_e_Park_wN C1	CeCGSR_e_Park_wN C2	CeCGSR_e_Park_wN C3	CeCGSR_e_Park_wN C4
1	3	1	5	4	4	4	4
NumClchTieU	o - Part 5						
y/x	CeCGSR_e_Park_wN C5	CeCGSR_e_Park_wN C6	CeCGSR_e_Park_wN C7	CeCGSR_e_Park_wN C1C2	CeCGSR_e_Park_wN C2C3	CeCGSR_e_Park_wN C2C4	CeCGSR_e_Park_wN C2C5
1	4	4	4	3	3	3	3
NumClchTieU	o - Part 6						
y/x	CeCGSR_e_Park_wN C2C6	CeCGSR_e_Park_wN C3C4	CeCGSR_e_Park_wN C3C5	CeCGSR_e_Park_wN C3C6	CeCGSR_e_Park_wN C4C5	CeCGSR_e_Park_wN C4C6	CeCGSR_e_Park_wN C1C2C3C6
1	3	3	3	3	3	3	1
NumClchTieU	o - Part 7						
y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd		CeCGSR_e_SecondL ckd	CeCGSR_e_SecondF W	CeCGSR_e_Third	CeCGSR_e_Fourth
1	1	1	2	1	2	1	1
NumClchTieU	o - Part 8						
y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	

		Initial	Supporting table	e - NumClchTieUր	)		
1	1	1	1	1	1	1	

Initial Supporting table - P0722 OSS Direction Change Delay						
Description:						
Value Units: seconds X Unit: DegC						
y/x	-40	-20	20			
1	5	3	1			

# Initial Supporting table - P0723 transmission engaged state time threshold

Description: time necessary after transmission engaged state indicates transmission engaged to allow P0723 enable

Value Units: seconds

X Unit: transmission fluid temperature °C

y/x	-40.000	-20.000	20.000
1	5.000	3.000	1.000

Initial Supporting table - P176B delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation

Description: delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation

Value Units: seconds

y/x		CeTSRR_e_C2C_ClchSpdSnsr2
1	0.500	0.500

#### **Initial Supporting table - P176B holding clutch states**

**Description:** inditaces when the clutch states allow transmission intermediate speed sensor evaluation, when rotating components can trigger speed sesnor, holding clutches will not allow evaluation while clutches not holding will allow evaluation

Value Units: TRUE or FALSE

**X Unit:** intermediate speed sensor select

Y Units: commanded gear

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
CeCGSR_e_CR_NullForSched	1	1
CeCGSR_e_CR_Neutral	1	1
CeCGSR_e_CR_Park	1	1
CeCGSR_e_CR_Reverse	1	1
CeCGSR_e_CR_First	1	1
CeCGSR_e_CR_Second	1	1
CeCGSR_e_CR_Third	1	0
CeCGSR_e_CR_Fourth	1	0
CeCGSR_e_CR_Fifth	1	0
CeCGSR_e_CR_Sixth	1	0
CeCGSR_e_CR_Seventh	0	0
CeCGSR_e_CR_Eighth	0	0
CeCGSR_e_CR_Ninth	0	0
CeCGSR_e_CR_Tenth	0	0

## Initial Supporting table - P176B intermediate speed sensor fail count threshold

**Description:** P176B intermediate speed sensor fail count threshold

Value Units: fail counts

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	3	3

## Initial Supporting table - P176B intermediate speed sensor fail time threshold

**Description:** P176B intermediate speed sensor fail time threshold

Value Units: seconds

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	1.500	1.500

#### Initial Supporting table - P176B minimum estimated transmission intermediate speed to enable fail evaluation

**Description:** minimum estimated transmission intermediate speed to enable fail evaluation, where estimate is based on transmission input speed / ratio calibration, where ratio calibration is either P176B ratio calibration when REVERSE or P176B ratio calibration when not REVERSE

Value Units: estimated transmission intermediate speed RPM

ľ	y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
ſ	1	192.0	192.0

## Initial Supporting table - P176B minimum transmission input speed to enable fail evaluation

**Description:** minimum transmission input speed to enable fail evaluation

**Value Units:** transmission input speed RPM **X Unit:** intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	192.0	192.0

#### Initial Supporting table - P176B ratio calibration when not REVERSE

Description: used to estimate transmission input speed based on transmission intermediate speed when range is not REVERSE

Value Units: ratio

X Unit: commanded gear Y Units: intermediate speed sensor select

•	_	_	4	CeTGRR_e_Ge ar5	•	7	_		CeTGRR_e_Ge ar10
CeTSRR_e_C2 C_ClchSpdSnsr 1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5596	0.4342	0.4342
CeTSRR_e_C2 C_ClchSpdSnsr 2	1.0000	3.1250	1.7699	1.7699	1.3774	1.0000	0.8224	0.6382	0.6382

## Initial Supporting table - P176B ratio calibration when REVERSE

Description: used to estimate transmission input speed based on transmission intermediate speed when range is REVERSE

Value Units: ratio

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	1.0000	1.0000

Initial Supporting table - P176C Enable Boolean		
Description:		
Value Units: Boolean		
/x 0		
1	1	1

Initial Supporting table - P176C Fail Count Threshold			
Description:			
Value Units: Count			
y/x 0 1			
1	40	40	

Initial Supporting table - P176C Fail Timer		
Description:		
Value Units: seconds X Unit: intermediate speed sensor index		
y/x	0	1
1	0	0

Initial Supporting table - P176D Boolean Enable		
Description:		
Value Units: Boolean X Unit: Speed Sensor Index		
y/x	0	1
1	1	1

Initial Supporting table - P176D Fail Count Threshold		
Description:		
Value Units: Count X Unit: Speed Sensor Index		
y/x	0	1
1	40	40

Initial Supporting table - P176D Fail Time Threshold		
Description:		
Value Units: seconds X Unit: Speed Sensor Index		
y/x	0	1
1	0	0

Initial Supporting table - P176D Voltage Fail Threshold		
Description:		
Value Units: Volts X Unit: Speed Sensor Index		
y/x	0	1
1	5	5

Initial Supporting table - P17C5 P17D3 intermediate speed sensor RPM		
Description: P17C5 P17D3 intermediate speed sensor RPM at signal period transtion to enable fail time update		
Value Units: intermediate speed sensor RPM X Unit: intermediate speed sensor 1 or 2		
y/x	0	1
1	350	225

Initial Supporting table - P17D6 delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation

Description: delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation

Value Units: seconds

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	0.500	0.500

## **Initial Supporting table - P17D6 holding clutch states**

**Description:** inditaces when the clutch states allow transmission intermediate speed sensor evaluation, when rotating components can trigger speed sesnor, holding clutches will not allow evaluation while clutches not holding will allow evaluation

Value Units: TRUE or FALSE X Unit: commanded gear

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
CeCGSR_e_CR_NullForSched	1	1
CeCGSR_e_CR_Neutral	1	1
CeCGSR_e_CR_Park	1	1
CeCGSR_e_CR_Reverse	1	1
CeCGSR_e_CR_First	1	1
CeCGSR_e_CR_Second	1	1
CeCGSR_e_CR_Third	1	0
CeCGSR_e_CR_Fourth	1	0
CeCGSR_e_CR_Fifth	1	0
CeCGSR_e_CR_Sixth	1	0
CeCGSR_e_CR_Seventh	0	0
CeCGSR_e_CR_Eighth	0	0
CeCGSR_e_CR_Ninth	0	0
CeCGSR_e_CR_Tenth	0	0

## Initial Supporting table - P17D6 intermediate speed sensor fail count threshold

**Description:** P176B intermediate speed sensor fail count threshold

Value Units: fail counts

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	3	3

## Initial Supporting table - P17D6 intermediate speed sensor fail RPM threshold

Description: P17D6 intermediate speed sensor fail RPM speed threshold

Value Units: RPM

y/x		CeTSRR_e_C2C_ClchSpdSnsr2
1	100	100

## Initial Supporting table - P17D6 intermediate speed sensor fail time threshold

Description: P17D6 intermediate speed sensor fail time threshold

Value Units: seconds

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	1.500	1.500

#### Initial Supporting table - P17D6 minimum estimated transmission intermediate speed to enable fail evaluation

**Description:** minimum estimated transmission intermediate speed to enable fail evaluation, where estimate is based on transmission input speed / ratio calibration, where ratio calibration is either P17D6 ratio calibration when REVERSE or P17D6 ratio calibration when not REVERSE

Value Units: estimated transmission intermediate speed RPM

ľ	y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
ſ	1	192	192

## Initial Supporting table - P17D6 minimum transmission input speed to enable fail evaluation

**Description:** minimum transmission input speed to enable fail evaluation

**Value Units:** transmission input speed RPM **X Unit:** intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	192	192

## Initial Supporting table - P17D6 ratio calibration when not REVERSE

Description: used to estimate transmission input speed based on transmission intermediate speed when range is not REVERSE

Value Units: ratio

X Unit: commanded gear Y Units: intermediate speed sensor select

	_	_		CeTGRR_e_Ge ar5	_	-	_		CeTGRR_e_Ge ar10
CeTSRR_e_C2 C_ClchSpdSnsr 1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.5596	0.4342	0.4342
CeTSRR_e_C2 C_ClchSpdSnsr 2	1.0000	3.1250	1.7699	1.7699	1.3774	1.0000	0.8224	0.6382	0.6382

Initial Supporting table - P17D6 ratio calibration when REVERSE								
Description: used to estimate transmission inp	ut speed based on transmission intermediate speed when rang	e is REVERSE						
Value Units: ratio								
CeTSRR_e_C2C_ClchSpdSnsr1 CeTSRR_e_C2C_ClchSpdSnsr2								
1	1.0000	1.0000						

# Initial Supporting table - P2797 hydraulic pressure delay

**Description:** Time to delay the initial x of y counter due to hydraulic transients. Thresholds are a function of transmission fluid temperature. Horizontal axis is transmission fluid temperature (DegC) and table output is delay time (seconds).

Value Units: delay time seconds X Unit: transmission fluid temperature DegC

y/x	-40	0	20	30	40	50	60
1	0.090	0.090	0.080	0.050	0.050	0.050	0.050

#### Initial Supporting table - P2797 predicted turbine speed error

**Description:** Predicted turbine speed vs actual turbine speed error. Thresholds are a function of engine speed and transmission fliud temperature. Diagnostic is considered failing above these values. Table vertical axis is engine speed (RPM), horizontal axis is transmission fluid temperature (DegC) and table output is predicted turbine speed error (RPM).

**Value Units:** turbine speed RPM error **X Unit:** transmission fluid temperature DegC

Y Units: engine speed RPM

y/x	-40	0	10	20	40
0	300	300	300	300	300
500	300	300	300	300	300
1,100	300	300	300	300	300
1,500	300	300	300	300	300
2,500	300	300	300	300	300

## Initial Supporting table - P2817 TCC stuck off fail TCC slip speed

Description: TCC stuck off slip speed fail threshold when TCC is in ON mode (controlled slip mode)

Value Units: RPM

**X Unit:** engine torque Nm

y/x	0.00	64.00	128.00	192.00	256.00	320.00	384.00	448.00	512.00
1	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0

## Initial Supporting table - P2D2 Cltch Slip Sum

Description:

Value Units: rate of change of output rpm (dn) per 25 milliseconds X Unit: % brake pedal position Y Units: not applicable, no units, single row table f(brake pedal position)

y/x	0	15	20	30	35	50	75	88	100
1	-4	-4	-4	-4	-4	-4	-4	-4	-4

## Initial Supporting table - P2D2 Decel Pressure - C1

**Description:** clutch 1 command pressure threshold below which clutch 1 is considered released, such that, clutch 1 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressure - C1 -	Part 1				
//x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
	446.5	446.5	99,999.0	294.6	446.5
P2D2 Decel Pressure - C1 -	Part 2				
/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
	446.5	446.5	446.5	99,999.0	99,999.0
P2D2 Decel Pressure - C1 -	Part 3				
/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
	99,999.0	99,999.0	99,999.0	294.6	294.6
P2D2 Decel Pressure - C1 -	Part 4				
/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
	287.1	294.6	446.5	446.5	446.5
P2D2 Decel Pressure - C1 -	Part 5				
/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
	446.5	446.5	446.5	446.5	99,999.0
P2D2 Decel Pressure - C1 -	Part 6	•			
/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
	294.6	446.5	446.5	446.5	446.5
P2D2 Decel Pressure - C1 -	Part 7				
/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C
	99,999.0	99,999.0	294.6	294.6	287.1
P2D2 Decel Pressure - C1 -	Part 8				
/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C
	294.6	446.5	446.5	446.5	446.5
P2D2 Decel Pressure - C1 -	Part 9				
/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

	Initial Supporting table - P2D2 Decel Pressure - C1									
1	446.5	446.5	99,999.0	99,999.0	99,999.0					
P2D2 Decel Pressure - C1 - Part 10										
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth					
1	99,999.0	99,999.0	99,999.0	99,999.0	99,999.0					
P2D2 Decel Pres	ssure - C1 - Part 11									
//x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth					
	99,999.0	446.5	287.1	273.6	294.6					
P2D2 Decel Pressure - C1 - Part 12										
//x										

## Initial Supporting table - P2D2 Decel Pressure - C2

**Description:** clutch 2 command pressure threshold below which clutch 2 is considered released, such that, clutch 2 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pres	sure - C2 - Part 1				
//x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
	662	662	352	99,999	662
P2D2 Decel Pres	sure - C2 - Part 2				
/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
	662	662	662	99,999	99,999
P2D2 Decel Pres	sure - C2 - Part 3				
/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
	352	352	352	99,999	99,999
P2D2 Decel Pres	sure - C2 - Part 4				
/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
	99,999	99,999	662	662	662
P2D2 Decel Pres	sure - C2 - Part 5				
/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
	662	662	99,999	662	352
P2D2 Decel Pres	sure - C2 - Part 6				
/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
	99,999	662	662	662	662
P2D2 Decel Pres	sure - C2 - Part 7				
/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pres	sure - C2 - Part 8				
/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C
	99,999	662	662	662	662
P2D2 Decel Pres	sure - C2 - Part 9				
/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW
	R .		N. Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Con		

Initial Supporting table - P2D2 Decel Pressure - C2									
1	662	99,999	99,999	99,999	99,999				
P2D2 Decel Pres	P2D2 Decel Pressure - C2 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	99,999	99,999	352	228	252				
P2D2 Decel Pres	ssure - C2 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	231	662	99,999	99,999	99,999				
P2D2 Decel Pressure - C2 - Part 12									
y/x									
1									

## Initial Supporting table - P2D2 Decel Pressure - C3

**Description:** clutch 3 command pressure threshold below which clutch 3 is considered released, such that, clutch 3 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressui	re - C3 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressui	re - C3 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	99,999	99,999	1,652	99,999	99,999
P2D2 Decel Pressui	re - C3 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressur	re - C3 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	99,999	1,652	99,999	99,999	99,999
P2D2 Decel Pressur	re - C3 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	99,999	1,652	99,999	99,999	99,999
P2D2 Decel Pressui	re - C3 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	99,999	99,999	99,999	99,999	1,652
P2D2 Decel Pressui	re - C3 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	1,652	99,999	99,999	99,999
P2D2 Decel Pressur	re - C3 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	1,652	99,999	99,999	99,999	1,652
P2D2 Decel Pressur	re - C3 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW
	_				

Initial Supporting table - P2D2 Decel Pressure - C3								
1	1,652	99,999	193	99,999	99,999			
P2D2 Decel Pressure - C3 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth			
1	99,999	99,999	99,999	99,999	99,999			
P2D2 Decel Pres	ssure - C3 - Part 11							
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth			
1	896	99,999	1,652	99,999	99,999			
P2D2 Decel Pressure - C3 - Part 12								
y/x								
1								

## Initial Supporting table - P2D2 Decel Pressure - C4

**Description:** clutch 4 command pressure threshold below which clutch 4 is considered released, such that, clutch 4 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Press	sure - C4 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	2,706	2,706	2,706	1,994	2,706
P2D2 Decel Press	ure - C4 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	99,999	2,706	2,706	99,999	368
P2D2 Decel Press	ure - C4 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	2,706	99,999	99,999	1,994	99,999
P2D2 Decel Press	ure - C4 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	1,994	1,994	99,999	2,706	2,706
P2D2 Decel Press	ure - C4 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	99,999	99,999	99,999	2,706	2,706
P2D2 Decel Press	ure - C4 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	1,994	2,706	99,999	2,706	2,706
P2D2 Decel Press	ure - C4 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	368	1,994	99,999	1,994
P2D2 Decel Press	ure - C4 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	1,994	99,999	2,706	2,706	99,999
P2D2 Decel Press	ure - C4 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C4									
1	99,999	99,999	99,999	368	368				
P2D2 Decel Pressu	P2D2 Decel Pressure - C4 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	99,999	99,999	99,999	99,999	2,706				
P2D2 Decel Pressu	ure - C4 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	99,999	99,999	99,999	1,994	99,999				
P2D2 Decel Pressure - C4 - Part 12									
y/x									
1									

## Initial Supporting table - P2D2 Decel Pressure - C5

**Description:** clutch 5 command pressure threshold below which clutch 5 is considered released, such that, clutch 5 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressure - C5 - I	Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	2,302	2,302	1,183	2,302	2,302
P2D2 Decel Pressure - C5 - I	Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	1,183	99,999	1,183	99,999	750
P2D2 Decel Pressure - C5 - I	Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	1,183	1,183	99,999	2,302	2,302
P2D2 Decel Pressure - C5 - I	Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	99,999	2,302	2,302	99,999	2,302
P2D2 Decel Pressure - C5 - I	Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	99,999	2,302	99,999	2,302	1,183
P2D2 Decel Pressure - C5 - I	Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
	2,302	2,302	1,183	99,999	1,183
P2D2 Decel Pressure - C5 - I	Part 7				
//x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	750	2,302	2,302	99,999
P2D2 Decel Pressure - C5 - I	Part 8				
//X	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	2,302	2,302	99,999	2,302	99,999
P2D2 Decel Pressure - C5 - I	Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

1	2,302	99,999	196	99,999	99,999				
P2D2 Decel Pre	P2D2 Decel Pressure - C5 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	750	750	99,999	1,183	99,999				
P2D2 Decel Pre	ssure - C5 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	99,999	99,999	99,999	99,999	2,302				
P2D2 Decel Pre	P2D2 Decel Pressure - C5 - Part 12								
y/x									
1									

## Initial Supporting table - P2D2 Decel Pressure - C6

**Description:** clutch 6 command pressure threshold below which clutch 6 is considered released, such that, clutch 6 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressu	re - C6 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	666	666	666	248	666
P2D2 Decel Pressu	ire - C6 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	666	666	99,999	99,999	248
P2D2 Decel Pressu	re - C6 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	666	666	666	248	248
P2D2 Decel Pressu	re - C6 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	142	99,999	666	666	99,999
P2D2 Decel Pressu	ire - C6 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	666	99,999	666	666	666
P2D2 Decel Pressu	re - C6 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	248	666	666	666	99,999
P2D2 Decel Pressu	ire - C6 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	248	248	248	142
P2D2 Decel Pressu	ire - C6 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	99,999	666	666	99,999	666
P2D2 Decel Pressu	ire - C6 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C6									
1	99,999	666	99,999	142	142				
P2D2 Decel Pres	P2D2 Decel Pressure - C6 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	248	248	666	99,999	99,999				
P2D2 Decel Pres	sure - C6 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	99,999	99,999	99,999	99,999	99,999				
P2D2 Decel Pressure - C6 - Part 12									
y/x									
1									

## Initial Supporting table - P2D2 Decel Pressure - C7

**Description:** clutch 7 command pressure threshold below which clutch 7 is considered released, such that, clutch 7 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressi	ure - C7 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 3				
//x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 4				
//x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 7				
//x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C7									
1	99,999	99,999	99,999	99,999	99,999				
P2D2 Decel Press	P2D2 Decel Pressure - C7 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	99,999	99,999	99,999	99,999	99,999				
P2D2 Decel Press	ure - C7 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	99,999	99,999	99,999	99,999	99,999				
P2D2 Decel Pressure - C7 - Part 12									
y/x									
1									

# Initial Supporting table - speed sensor directional rationality enable calibration

**Description:** speed sensor directional rationality enable calibration

Value Units: Boolean

X Unit: direction commanded

Y Units: unitless

y/x	CeCGSR_FwdCmded	CeCGSR_NeutCmded	CeCGSR_RvrsCmded	CeCGSR_ParkCmded
1	1	1	1	1

#### Description:

**Value Units:** transmission fluid temperature normal warn up time, seconds **X Unit:** transmission fluid temperature at controller power up, °C

ì	y/x	-40.00	-30.00	-20.00	0.00	20.00
	1	1,800.0	1,400.0	1,000.0	500.0	10.0

## Initial Supporting table - 10 speed transmission clutch definition and gear state to clutch map

Description: indicates clutch definition and gear state verses applied and released clutches for 10 speed transmission

Value Units: applied or released

X Unit: clutch

Y Units: gear index Y axis, actual gear column 1

v/x	1	2	2	1	5	6	7	Q
y/X	ı	24 04004500	3	4	04 0004070400	05 04050700	00 0450700 400	0
1		C1 = C123456R	C2 = C1289-10R	C3 = C234579-10	C4 = C234678-10R	C5 = C1356789	C6 = C456789-10R	C7 = OWC12
2	1st gear braking	applied	applied	released	released	applied	released	applied
3	1st gear free wheel	applied	applied	released	released	applied	released	released
4	2nd gear braking	applied	applied	applied	applied	released	released	applied
5	2nd gear free wheel	applied	applied	applied	applied	released	released	released
6	3rd gear	applied	released	applied	applied	applied	released	released
7	4th gear	applied	released	applied	applied	released	applied	released
8	5th gear	applied	released	applied	released	applied	applied	released
9	6th gear	applied	released	released	released	applied	applied	released
10	7th gear	released	released	applied	applied	applied	applied	released
11	8th gear	released	applied	released	applied	applied	applied	released
12	9th gear	released	applied	applied	released	applied	applied	released
13	10th gear	released	applied	applied	applied	released	applied	released
14	reverse gear	applied	applied	released	applied	released	released	released

## Initial Supporting table - 9 speed transmission clutch definition and gear state to clutch map

Description: indicates clutch definition and gear state verses applied and released clutches for 9 speed transmission

Value Units: applied or released

X Unit: clutch

Y Units: gear index Y axis, actual gear column 1

y/x	1	2	3	4	5	6	7	8
1		C1 = CB123456	C2 = C6789	C3 = CB1R	C4 = CB29	C5 = CB38	C6 = C4	C7 = C57R
<u> </u>	1st gear braking	applied	released	applied	released	released	released	released
3	1st gear free wheel	applied	released	released	released	released	released	released
l	2nd gear	applied	released	released	applied	released	released	released
5	3rd gear	applied	released	released	released	applied	released	released
	4th gear	applied	released	released	released	released	applied	released
	5th gear	applied	released	released	released	released	released	applied
	6th gear	applied	applied	released	released	released	released	released
)	7th gear	released	applied	released	released	released	released	applied
0	8th gear	released	applied	released	released	applied	released	released
1	9th gear	released	applied	released	applied	released	released	released
2	reverse gear	released	released	applied	released	released	released	applied

# Initial Supporting table - engine speed time for transmission hydraulic pressure available

**Description:** time needed for engine speed to trigger "transmission hydraulic pressure available"

Value Units: seconds

X Unit: °C

١	y/x	-40.00	-30.00	-20.00	0.00	40.00
١	1	1.525	1.500	0.981	0.938	0.800

# Initial Supporting table - NumClchTieUp

Description: N	umClchTieUp							
X Unit: comma	inimum # of clutches nd gear or attained gear plicable, no units, single row ta	ble f(gear)						
NumClchTieU	o - Part 1							
y/x	CeCGSR_e_NullForS ched	CeCGSR_e_NeutralN oClutch	CeCGSR_e_NeutralC 1	CeCGSR_e_NeutralC 2	CeCGSR_e_NeutralC 3	CeCGSR_e_NeutralC 4	CeCGSR_e_NeutralC 5	
1	5	5	4	4	4	4	4	
NumClchTieU	o - Part 2							
y/x	CeCGSR_e_NeutralC 6	CeCGSR_e_NeutralC 7	CeCGSR_e_NeutralC 1C2	CeCGSR_e_NeutralC 1C3	CeCGSR_e_NeutralC 1C4	CeCGSR_e_NeutralC 1C5	CeCGSR_e_NeutralC 2C3	
1	4	4	3	3	3	3	3	
NumClchTieUp - Part 3								
y/x	CeCGSR_e_NeutralC 2C4	CeCGSR_e_NeutralC 2C5	CeCGSR_e_NeutralC 2C6	CeCGSR_e_NeutralC 3C4	CeCGSR_e_NeutralC 3C5	CeCGSR_e_NeutralC 3C6	CeCGSR_e_NeutralC 4C5	
1	3	3	3	3	3	3	3	
NumClchTieU	o - Part 4							
y/x	CeCGSR_e_NeutralC 4C6	CeCGSR_e_NeutralC 1C2C3C6	CeCGSR_e_Park_wN C	CeCGSR_e_Park_wN C1	CeCGSR_e_Park_wN C2	CeCGSR_e_Park_wN C3	CeCGSR_e_Park_wN C4	
1	3	1	5	4	4	4	4	
NumClchTieU	o - Part 5							
y/x	CeCGSR_e_Park_wN C5	CeCGSR_e_Park_wN C6	CeCGSR_e_Park_wN C7	CeCGSR_e_Park_wN C1C2	CeCGSR_e_Park_wN C2C3	CeCGSR_e_Park_wN C2C4	CeCGSR_e_Park_wN C2C5	
1	4	4	4	3	3	3	3	
NumClchTieU	o - Part 6							
y/x	CeCGSR_e_Park_wN C2C6	CeCGSR_e_Park_wN C3C4	CeCGSR_e_Park_wN C3C5	CeCGSR_e_Park_wN C3C6	CeCGSR_e_Park_wN C4C5	CeCGSR_e_Park_wN C4C6	CeCGSR_e_Park_wN C1C2C3C6	
1	3	3	3	3	3	3	1	
NumClchTieU	o - Part 7							
y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd		CeCGSR_e_SecondL ckd	CeCGSR_e_SecondF W	CeCGSR_e_Third	CeCGSR_e_Fourth	
1	1	1	2	1	2	1	1	
NumClchTieU	o - Part 8							
y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth		

		Initial	Supporting table	e - NumClchTieUր	)		
1	1	1	1	1	1	1	

# Initial Supporting table - P2817 TCC stuck off fail TCC slip speed

Description: TCC stuck off slip speed fail threshold when TCC is in ON mode (controlled slip mode)

Value Units: RPM

**X Unit:** engine torque Nm

У	//x	0.00	64.00	128.00	192.00	256.00	320.00	384.00	448.00	512.00
1		50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0

# Initial Supporting table - P2D2 Cltch Slip Sum

Description:

Value Units: rate of change of output rpm (dn) per 25 milliseconds X Unit: % brake pedal position Y Units: not applicable, no units, single row table f(brake pedal position)

y/x	0	15	20	30	35	50	75	88	100
1	-4	-4	-4	-4	-4	-4	-4	-4	-4

# Initial Supporting table - P2D2 Decel Pressure - C1

**Description:** clutch 1 command pressure threshold below which clutch 1 is considered released, such that, clutch 1 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressure - C1 -	Part 1				
//x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
	446.5	446.5	99,999.0	294.6	446.5
P2D2 Decel Pressure - C1 -	Part 2				
/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
	446.5	446.5	446.5	99,999.0	99,999.0
P2D2 Decel Pressure - C1 -	Part 3				
/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
	99,999.0	99,999.0	99,999.0	294.6	294.6
P2D2 Decel Pressure - C1 -	Part 4				
/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
	287.1	294.6	446.5	446.5	446.5
P2D2 Decel Pressure - C1 -	Part 5				
/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
	446.5	446.5	446.5	446.5	99,999.0
P2D2 Decel Pressure - C1 -	Part 6	•			
/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
	294.6	446.5	446.5	446.5	446.5
P2D2 Decel Pressure - C1 -	Part 7	•			
/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C
	99,999.0	99,999.0	294.6	294.6	287.1
P2D2 Decel Pressure - C1 -	Part 8				
/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C
	294.6	446.5	446.5	446.5	446.5
P2D2 Decel Pressure - C1 -	Part 9				
/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C1									
1	446.5	446.5	99,999.0	99,999.0	99,999.0				
P2D2 Decel Pressure - C1 - Part 10									
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	99,999.0	99,999.0	99,999.0	99,999.0	99,999.0				
P2D2 Decel Pres	ssure - C1 - Part 11								
//x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
	99,999.0	446.5	287.1	273.6	294.6				
P2D2 Decel Pressure - C1 - Part 12									
//x									

# Initial Supporting table - P2D2 Decel Pressure - C2

**Description:** clutch 2 command pressure threshold below which clutch 2 is considered released, such that, clutch 2 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressu	ure - C2 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	662	662	352	99,999	662
P2D2 Decel Pressu	ıre - C2 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	662	662	662	99,999	99,999
P2D2 Decel Pressu	ıre - C2 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	352	352	352	99,999	99,999
P2D2 Decel Pressu	ıre - C2 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	99,999	99,999	662	662	662
P2D2 Decel Pressu	ıre - C2 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	662	662	99,999	662	352
P2D2 Decel Pressu	ure - C2 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	99,999	662	662	662	662
P2D2 Decel Pressu	ıre - C2 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressu	ıre - C2 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	99,999	662	662	662	662
P2D2 Decel Pressu	ure - C2 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C2									
1	662	99,999	99,999	99,999	99,999				
P2D2 Decel Pres	P2D2 Decel Pressure - C2 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	99,999	99,999	352	228	252				
P2D2 Decel Pres	ssure - C2 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	231	662	99,999	99,999	99,999				
P2D2 Decel Pressure - C2 - Part 12									
y/x									
1									

## **Initial Supporting table - P2D2 Decel Pressure - C3**

**Description:** clutch 3 command pressure threshold below which clutch 3 is considered released, such that, clutch 3 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

D0D0 Daral Daras 00	Don't 4				
P2D2 Decel Pressure - C3 -	Part 1				
<u>//x</u>	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressure - C3 -	Part 2				
/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
	99,999	99,999	1,652	99,999	99,999
P2D2 Decel Pressure - C3 -	Part 3				
/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressure - C3 -	Part 4				
/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
	99,999	1,652	99,999	99,999	99,999
P2D2 Decel Pressure - C3 -	Part 5				
//x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
	99,999	1,652	99,999	99,999	99,999
P2D2 Decel Pressure - C3 -	Part 6				
/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
	99,999	99,999	99,999	99,999	1,652
P2D2 Decel Pressure - C3 -	Part 7				
/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
	99,999	1,652	99,999	99,999	99,999
P2D2 Decel Pressure - C3 -	Part 8				
/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C
	1,652	99,999	99,999	99,999	1,652
P2D2 Decel Pressure - C3 -	Part 9				

Initial Supporting table - P2D2 Decel Pressure - C3									
1	1,652	99,999	193	99,999	99,999				
P2D2 Decel Pres	P2D2 Decel Pressure - C3 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	99,999	99,999	99,999	99,999	99,999				
P2D2 Decel Pres	ssure - C3 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	896	99,999	1,652	99,999	99,999				
P2D2 Decel Pressure - C3 - Part 12									
y/x									
1									

# Initial Supporting table - P2D2 Decel Pressure - C4

**Description:** clutch 4 command pressure threshold below which clutch 4 is considered released, such that, clutch 4 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Press	sure - C4 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	2,706	2,706	2,706	1,994	2,706
P2D2 Decel Press	ure - C4 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	99,999	2,706	2,706	99,999	368
P2D2 Decel Press	ure - C4 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	2,706	99,999	99,999	1,994	99,999
P2D2 Decel Press	ure - C4 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	1,994	1,994	99,999	2,706	2,706
P2D2 Decel Press	ure - C4 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	99,999	99,999	99,999	2,706	2,706
P2D2 Decel Press	ure - C4 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	1,994	2,706	99,999	2,706	2,706
P2D2 Decel Press	ure - C4 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	368	1,994	99,999	1,994
P2D2 Decel Press	ure - C4 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	1,994	99,999	2,706	2,706	99,999
P2D2 Decel Press	ure - C4 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C4									
1	99,999	99,999	99,999	368	368				
P2D2 Decel Pres	P2D2 Decel Pressure - C4 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	99,999	99,999	99,999	99,999	2,706				
P2D2 Decel Pres	ssure - C4 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	99,999	99,999	99,999	1,994	99,999				
P2D2 Decel Pressure - C4 - Part 12									
y/x									
1									

# Initial Supporting table - P2D2 Decel Pressure - C5

**Description:** clutch 5 command pressure threshold below which clutch 5 is considered released, such that, clutch 5 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressu	ure - C5 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	2,302	2,302	1,183	2,302	2,302
P2D2 Decel Pressu	ure - C5 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	1,183	99,999	1,183	99,999	750
P2D2 Decel Pressu	ure - C5 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	1,183	1,183	99,999	2,302	2,302
P2D2 Decel Pressu	ure - C5 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	99,999	2,302	2,302	99,999	2,302
P2D2 Decel Pressu	ure - C5 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	99,999	2,302	99,999	2,302	1,183
P2D2 Decel Pressu	ure - C5 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	2,302	2,302	1,183	99,999	1,183
P2D2 Decel Pressu	ure - C5 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	750	2,302	2,302	99,999
P2D2 Decel Pressu	ure - C5 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	2,302	2,302	99,999	2,302	99,999
P2D2 Decel Pressu	ure - C5 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

1	2,302	99,999	196	99,999	99,999				
P2D2 Decel Pre	P2D2 Decel Pressure - C5 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	750	750	99,999	1,183	99,999				
P2D2 Decel Pre	ssure - C5 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	99,999	99,999	99,999	99,999	2,302				
P2D2 Decel Pre	ssure - C5 - Part 12								
y/x									
1									

# Initial Supporting table - P2D2 Decel Pressure - C6

**Description:** clutch 6 command pressure threshold below which clutch 6 is considered released, such that, clutch 6 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressu	re - C6 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	666	666	666	248	666
P2D2 Decel Pressu	ire - C6 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	666	666	99,999	99,999	248
P2D2 Decel Pressu	re - C6 - Part 3				
y/x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
1	666	666	666	248	248
P2D2 Decel Pressu	re - C6 - Part 4				
y/x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	142	99,999	666	666	99,999
P2D2 Decel Pressu	ire - C6 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	666	99,999	666	666	666
P2D2 Decel Pressu	re - C6 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	248	666	666	666	99,999
P2D2 Decel Pressu	ire - C6 - Part 7				
y/x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	248	248	248	142
P2D2 Decel Pressu	ire - C6 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	99,999	666	666	99,999	666
P2D2 Decel Pressu	ire - C6 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C6									
1	99,999	666	99,999	142	142				
P2D2 Decel Pressu	P2D2 Decel Pressure - C6 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	248	248	666	99,999	99,999				
P2D2 Decel Pressu	re - C6 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	99,999	99,999	99,999	99,999	99,999				
P2D2 Decel Pressu	P2D2 Decel Pressure - C6 - Part 12								
y/x									
1									

# Initial Supporting table - P2D2 Decel Pressure - C7

**Description:** clutch 7 command pressure threshold below which clutch 7 is considered released, such that, clutch 7 cannot carry enough clutch torque that would induce a vehicle deceleration above the design safety metric

Value Units: kPa X Unit: command gear

Y Units: not applicable, no units, single row table f(command gear)

P2D2 Decel Pressi	ure - C7 - Part 1				
y/x	CeCGSR_e_NullForSched	CeCGSR_e_NeutralNoClutch	CeCGSR_e_NeutralC1	CeCGSR_e_NeutralC2	CeCGSR_e_NeutralC3
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 2				
y/x	CeCGSR_e_NeutralC4	CeCGSR_e_NeutralC5	CeCGSR_e_NeutralC6	CeCGSR_e_NeutralC7	CeCGSR_e_NeutralC1C2
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 3				
//x	CeCGSR_e_NeutralC1C3	CeCGSR_e_NeutralC1C4	CeCGSR_e_NeutralC1C5	CeCGSR_e_NeutralC2C3	CeCGSR_e_NeutralC2C4
	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 4				
//x	CeCGSR_e_NeutralC2C5	CeCGSR_e_NeutralC2C6	CeCGSR_e_NeutralC3C4	CeCGSR_e_NeutralC3C5	CeCGSR_e_NeutralC3C6
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 5				
y/x	CeCGSR_e_NeutralC4C5	CeCGSR_e_NeutralC4C6	CeCGSR_e_NeutralC1C2C3C	CeCGSR_e_Park_wNC	CeCGSR_e_Park_wNC1
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 6				
y/x	CeCGSR_e_Park_wNC2	CeCGSR_e_Park_wNC3	CeCGSR_e_Park_wNC4	CeCGSR_e_Park_wNC5	CeCGSR_e_Park_wNC6
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 7				
//x	CeCGSR_e_Park_wNC7	CeCGSR_e_Park_wNC1C2	CeCGSR_e_Park_wNC2C3	CeCGSR_e_Park_wNC2C4	CeCGSR_e_Park_wNC2C5
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 8				
y/x	CeCGSR_e_Park_wNC2C6	CeCGSR_e_Park_wNC3C4	CeCGSR_e_Park_wNC3C5	CeCGSR_e_Park_wNC3C6	CeCGSR_e_Park_wNC4C5
1	99,999	99,999	99,999	99,999	99,999
P2D2 Decel Pressi	ure - C7 - Part 9				
y/x	CeCGSR_e_Park_wNC4C6	CeCGSR_e_Park_wNC1C2C 3C6	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW

Initial Supporting table - P2D2 Decel Pressure - C7									
1	99,999	99,999	99,999	99,999	99,999				
P2D2 Decel Pres	P2D2 Decel Pressure - C7 - Part 10								
y/x	CeCGSR_e_SecondLckd	CeCGSR_e_SecondFW	CeCGSR_e_Third	CeCGSR_e_Fourth	CeCGSR_e_Fifth				
1	99,999	99,999	99,999	99,999	99,999				
P2D2 Decel Pres	sure - C7 - Part 11								
y/x	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth				
1	99,999	99,999	99,999	99,999	99,999				
P2D2 Decel Pres	P2D2 Decel Pressure - C7 - Part 12								
y/x									
1									

# Initial Supporting table - transmission fluid temperature warm up time

#### Description:

**Value Units:** transmission fluid temperature normal warn up time, seconds **X Unit:** transmission fluid temperature at controller power up, °C

١	y/x	-40.00	-30.00	-20.00	0.00	20.00
١	1	1,800.0	1,400.0	1,000.0	500.0	10.0

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
Transmission Range Selector X- Axis Position Sensor 1	P082C	Monitoring of Gear Lever X position sensor 1 for Out of Range Check- High	Raw PWM signal value from the shifter 1 of Gear Lever X Position Sensor	>= 95.0147 %	( System Power Mode OR System Power Mode ) for time No pending or confirmed DTCs Basic enabling conditions are met	= Run crank active calibration = Accessory On calibration >= 0.4 sec = see sheet inhibit tables = see sheet enable tables	0.5 sec	2 Trips
	P082B	Monitoring of Gear Lever X position sensor 1 for Out of Range Check- Low	Raw PWM signal value from the shifter 1 of Gear Lever X Position Sensor	<= 4.9853 %	( System Power Mode OR System Power Mode ) for time No pending or confirmed DTCs Basic enabling conditions are met	= Run crank active calibration = Accessory On calibration >= 0.4 sec = see sheet inhibit tables = see sheet enable tables	0.5 sec	2 Trips
	P082A	,	CAN Communication signaL for Shift Lever Diagnosis of Primary Gear Lever X Position Sensor 1 OR CAN Communication signaL for Shift Lever Diagnosis of Secondary Gear Lever X Position Sensor 1	= TRUE -	( System Power Mode OR System Power Mode ) for time ETRS Linear Shifter Alpha 1 Sample Circuit Error is not set No pending or confirmed DTCs Basic enabling conditions are met	= Run crank active calibration  = Accessory On calibration  >= 0.4 sec  = TRUE -  = see sheet inhibit tables  = see sheet enable tables	0.5 sec	2 Trips

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions		Time Re	equired	MIL IIIum
		Path 2: ETRS Linear Shifter Both Combinations Using Alpha	ETRS Linear Shifter Both Combinations Using	= TRUE -	(				0.5	sec	2 Trips
		1 Outside of Field Of Plav Flag	Alpha 1 Outside of Field Of Play Flag		System Power Mode	=	Run crank active calibration	-			
					OR System Power Mode	=	Accessory On calibration	-			
					) for time	>=	0.4	sec			
					ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination OR	>	0.1131	-			
					ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination OR	<	-0.099	-			
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination OR	>	0.5091	-			
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	<	-0.5374	-			
					( ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	>	0.1131	-			
					OR ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	<	-0.099	-			
					OR ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	>	0.5091	-			
					OR ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	<	-0.5374	-			
					) ( ETRS Linear Shifter X Signal From Alpha 1 Beta	>	0.1131	-			
					1 Combination OR ETRS Linear Shifter X Signal From Alpha 1 Beta	<	-0.099	-			
					1 Combination OR ETRS Linear Shifter Y Signal From Alpha 1 Beta	>	0.5091	-			
					1 Combination OR ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	<	-0.5374	-			
					)) (( ETRS Linear Shifter X Signal From Alpha 1 Beta	>	0.1131	_			
					2 Combination OR ETRS Linear Shifter X Signal From Alpha 1 Beta	<	-0.099	_			
					2 Combination OR ETRS Linear Shifter Y Signal From Alpha 1 Beta	>	0.5091	-			
					2 Combination OR ETRS Linear Shifter Y Signal From Alpha 1 Beta	<	-0.5374	-			
					2 Combination	<	-0.5374	-			

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	S	Time Required	MIL IIIum
					ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination	> 0.1131	-		
					OR ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination OR	< -0.099	-		
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination OR	> 0.5091	-		
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination )	< -0.5374	-		
					( ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination	> 0.1131	-		
					OR ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination OR	< -0.099	-		
					ETRS Linear Shifter Y Signal From Alpha 1 Betan 2 Combination OR	> 0.5091	-		
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination	< -0.5374	-		
					for time No pending or confirmed DTCs	>= 0.4 = see sheet inhibit tables	sec -		
					Basic enabling conditions are met	= see sheet enable tables	-		
		Path 3: Monitoring signal variation between Shifter 1 and Shifter 2 and checking the validity of the combinations of Linear Shifters.	Absolute value of difference between Raw PWM signal from Shifter Alpha 1 and Adjusted signal from Shifter Alpha 2	>= 12.0235 %	(			0.5 sec	2 Trips
		and only	ETRS Linear Shifter Both Combinations Using Alpha 2 Outside of Field Of Play Flag	= FALSE -	System Power Mode OR	= Run crank active calibration	-		
					System Power Mode	<ul> <li>Accessory On calibration</li> </ul>	-		
					)	ound attended to	-		
1					) for time ((	>= 0.4	sec		
					) for time ((( ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination		sec -		
					(( ETRS Linear Shifter X Signal From Alpha 2 Beta	>= 0.4			
					(( ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	>= 0.4 <= 0.1131			
					(( ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	>= 0.4 <= 0.1131 >= -0.099	-		
					(( ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination 0 ( 0 (	>= 0.4 <= 0.1131 >= -0.099 <= 0.5091 >= -0.5374	-		
					(( ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination (OR ( ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ) OR	>= 0.4 <= 0.1131 >= -0.099 <= 0.5091 >= -0.5374 <= 0.1131	-		
					(() ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination OR (() ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination	>= 0.4 <= 0.1131 >= -0.099 <= 0.5091 >= -0.5374 <= 0.1131 >= -0.099			
					(( ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination OR ( ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination OR ( ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination	>= 0.4 <= 0.1131 >= -0.099 <= 0.5091 >= -0.5374 <= 0.1131			

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions		Time Required	MIL IIIum.
					( ETRS Linear Shifter X Signal From Alpha 2 Beta	<=	0.1131			
					1 Combination	>=	-0.099			
					ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination			-		
					ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	<=	0.5091	-		
					ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination ))	>=	-0.5374	-		
					ETRS Linear Shifter X Signal From Alpha 2 Beta	<=	0.1131	-		
					2 Combination ETRS Linear Shifter X Signal From Alpha 2 Beta	>=	-0.099	-		
					2 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	<=	0.5091	-		
					2 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	>=	-0.5374	-		
					2 Combination )					
					OR (					
					ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination	<=	0.1131	-		
					ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination	>=	-0.099	-		
					ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination	<=	0.5091	-		
					ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination	>=	-0.5374	-		
					) OR					
					ETRS Linear Shifter X Signal From Alpha 2 Beta	<=	0.1131	-		
					2 Combination ETRS Linear Shifter X Signal From Alpha 2 Beta	>=	-0.099	-		
					2 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	<=	0.5091	-		
					2 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	>=	-0.5374	-		
					2 Combination					
					No pending or confirmed DTCs	=	see sheet inhibit tables	-		
					Basic enabling conditions are met	=	see sheet enable tables	-		
		Path 4: Monitoring signal variation between Shifter 1 and Shifter 2	Absolute value of difference between Raw PWM signal from Shifter Alpha 1 and Adjusted signal	>= 12.0235 %	(				0.5 sec	2 Trips
			from Shifter Alpha 2		System Power Mode	=	Run crank active calibration	-		
					OR System Power Mode	=	Accessory On calibration	-		
					) for time	>=	0.4	sec		
					No pending or confirmed DTCs	=	see sheet inhibit tables	-		
					Basic enabling conditions are met	=	see sheet enable tables	-		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	TI	Thresho	old Value	Secondary Parameters		Enable Conditions		Time R	equired	MIL IIIum.
		Path 5: Advanced performance diagnosis and monitoring signal variation between Shifter 1 and Shifter 2	Absolute value of difference between Raw PWM signal from Shifter Alpha 1 and Adjusted signal from Shifter Alpha 2	>=	12.	0235 %	(				0.5	sec	2 Trips
			Hom Gimes Alpha 2				System Power Mode	=	Run crank active calibration	-			
							OR System Power Mode	=	Accessory On calibration	-			
							for time	>=	0.4	sec			
							ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination	<=	0.1131	-			
							ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination	>=	-0.099	-			
							ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	<=	0.5091	-			
							ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	>=	-0.5374	-			
							OR						
							ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination	<=	0.1131	-			
							ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination	>=	-0.099	-			
							ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	<=	0.5091	-			
							ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	>=	-0.5374	-			
							OR						
							ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination	<=	0.1131	-			
							ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination	>=	-0.099	-			
							ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	<=	0.5091	-			
							ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	>=	-0.5374	-			
							)) (( ETRS Linear Shifter X Signal From Alpha 2 Beta	<=	0.1131	_			
							2 Combination ETRS Linear Shifter X Signal From Alpha 2 Beta	>=	-0.099				
							2 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	<=	0.5091	-			
							2 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination	>=	-0.5374	-			
							2 Combination ) OR						

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Condi	tions	Time Required	MIL IIIum
					ETRS Linear Shifter X Signal From Alpha 2 Be	(ta <= 0.1131			
					2 Combination ETRS Linear Shifter X Signal From Alpha 2 Be	on	_		
					2 Combination ETRS Linear Shifter Y Signal From Alpha 2 Be	on	_		
					2 Combination ETRS Linear Shifter Y Signal From Alpha 2 Be	on	-		
					2 Combination				
					0	R (			
					ETRS Linear Shifter X Signal From Alpha 2 Be 2 Combination		-		
					ETRS Linear Shifter X Signal From Alpha 2 Be 2 Combination	ta >= -0.099	-		
					ETRS Linear Shifter Y Signal From Alpha 2 Be 2 Combination	ta <= 0.5091	-		
					ETRS Linear Shifter Y Signal From Alpha 2 Be 2 Combination	ta >= -0.5374	-		
					ETRS Diagnotics - Advanced performand diagnostics enable		-		
					No pending or confirmed DTC		íbit -		
					Basic enabling conditions are m		ıble -		
	P1789	ETRS TRCR Diagnostics - Current Transmission Range Unknown	Filtered gear lever current range is undefined	= TRUE	_ ETRS TRCR Diagnostics - Current Rang Diagnostics Enable Flag is s		-	0 sec	2 Trips
			for time	>= 0.5	System is not in PARK mode and system pow is used by accessories or system waket		=		
					Ignition O	N = TRUE			
					Current range of gear lever is in PARK position	on = FALSE	_		
					Initialization of gear selection in progress activ		-		
					0	R			
					Current range command is in parking rang	( ge = FALSE			
						(	-		
					Current range command is in parking rang Current range command is in power mode OF	(	-		
					Current range command is in parking rang Current range command is in power mode OF rang Engine Transmission Range Selection bral command is in deny driver override comman Engine Transmission Range Selection bral	(   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FALSE   FA			
					Current range command is in parking rang Current range command is in power mode OF rang Engine Transmission Range Selection bral command is in deny driver override comman	(	-		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
Transmission Range Selector X- Axis Position Sensor 2	P089D	Monitoring of Gear Lever X position sensor 2 for Out of Range Check- High	Raw PWM signal value from the shifter 2 of Gear Lever X Position Sensor	>= 95.0147 %	System Power Mode OR System Power Mode  ) for time No pending or confirmed DTCs	= Run crank active calibration  = Accessory On calibration  >= 0.4 sec = see sheet inhibit stables	0.5 sec	2 Trips
	P089C	Monitoring of Gear Lever X position sensor 2 for Out of Range Check-Low	Raw PWM signal value from the shifter 2 of Gear Lever X Position Sensor	<= 4.9853 %	Basic enabling conditions are met  ( System Power Mode OR System Power Mode ) for time No pending or confirmed DTCs Basic enabling conditions are met	= see sheet enable tables  = Run crank active calibration  = Accessory On calibration  >= 0.4 sec = see sheet inhibit tables = see sheet enable tables	0.5 sec	2 Trips
	P089B	Path 1: CAN Communication signaL for Shift Lever Diagnosis of Primary Gear Lever X Position Sensor 2	CAN Communication signaL for Shift Lever Diagnosis of Primary Gear Lever X Position Sensor 2 OR CAN Communication signaL for Shift Lever Diagnosis of Secondary Gear Lever X Position Sensor 2	= TRUE -	( System Power Mode OR System Power Mode ) for time ETRS Linear Shifter Alpha 2 Sample Circus Error is not set No pending or confirmed DTCs Basic enabling conditions are met	= Run crank active calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration - calibration	0.5 sec	2 Trips

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions		Time Req	uired	MIL IIIur
		Path 2: ETRS Linear Shifter Both Combinations Using Alpha 2 Outside of Field Of Plav Flad	ETRS Linear Shifter Both Combinations Using Alpha 2 Outside of Field Of Play Flag	= TRUE -	( System Power Mode	=	Run crank active calibration		0.5	sec	2 Trips
					OR System Power Mode	=	Accessory On calibration	-			
					) for time	>=	0.4	sec			
					(() ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination	>	0.1131	-			
					OR ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination OR	<	-0.099	-			
					ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination OR	>	0.5091	-			
					ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	<	-0.5374	-			
					( ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination	>	0.1131	-			
					OR ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination	<	-0.099	-			
					OR ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	>	0.5091	-			
					OR ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	<	-0.5374	-			
					) ( ETRS Linear Shifter X Signal From Alpha 2 Beta	>	0.1131	-			
					1 Combination OR ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination	<	-0.099	-			
					OR ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	>	0.5091	-			
					OR ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	<	-0.5374	-			
					)) ( ETRS Linear Shifter X Signal From Alpha 2 Beta	>	0.1131	_			
					2 Combination OR ETRS Linear Shifter X Signal From Alpha 2 Beta	<	-0.099	_			
					2 Combination OR ETRS Linear Shifter Y Signal From Alpha 2 Beta	>	0.5091	-			
					2 Combination OR ETRS Linear Shifter Y Signal From Alpha 2 Beta	<	-0.5374	_			
					2 Combination						

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre	eshold Valu	е	Secondary Parameters		Enable Conditions		Time Required	MIL IIIum.
							( ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination	>	0.1131	-		
							OR ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination	<	-0.099	-		
							OR ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination	>	0.5091	-		
							OR ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination	<	-0.5374	-		
							( ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination OR	>	0.1131	-		
							ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination OR	<	-0.099	-		
							ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination OR	>	0.5091	-		
							ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination	<	-0.5374	-		
							No pending or confirmed DTCs	=	see sheet inhibit tables	-		
							Basic enabling conditions are met	=	see sheet enable tables	-		
		Path 3: Monitoring signal variation between Shifter 1 and Shifter 2 and checking the validity of the combinations of Linear Shifters.	Absolute value of difference between Raw PWM signal from Shifter Alpha 1 and Adjusted signal from Shifter Alpha 2	>=	12.0235	%	(				0.5 sec	2 Trips
			ETRS Linear Shifter Both Combinations Using Alpha 2 Outside of Field Of Play Flag	=	FALSE	-	System Power Mode OR	=	Run crank active calibration	-		
							System Power Mode	=	Accessory On calibration	-		
							for time	>=	0.4	sec		
							ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	<=	0.1131	-		
							ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	>=	-0.099	-		
							ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	<=	0.5091	-		
							ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	>=	-0.5374	-		
							OR (					
							ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	<=	0.1131	-		
							ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	>=	-0.099	-		
							ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	<=	0.5091	-		
							ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	>=	-0.5374	-		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions		Time Required	MIL IIIum.
					( ETRS Linear Shifter X Signal From Alpha 1 Beta	<=	0.1131			
					Combination     ETRS Linear Shifter X Signal From Alpha 1 Beta	>=	-0.099			
					Combination     ETRS Linear Shifter Y Signal From Alpha 1 Beta  ETRS Linear Shifter Y Signal From Alpha 1 Beta					
					1 Combination	<=	0.5091			
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination ))	>=	-0.5374	-		
					(() ETRS Linear Shifter X Signal From Alpha 1 Beta	<=	0.1131	-		
					2 Combination ETRS Linear Shifter X Signal From Alpha 1 Beta	>=	-0.099	-		
					2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta	<=	0.5091	-		
					2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination	>=	-0.5374	-		
					) OR					
					ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination	<=	0.1131	-		
					ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination	>=	-0.099	-		
					ETRS Linear Shifter Y Signal From Alpha 1 Beta	<=	0.5091	-		
					2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination	>=	-0.5374	-		
					OR					
					ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination	<=	0.1131	-		
					ETRS Linear Shifter X Signal From Alpha 1 Beta	>=	-0.099	-		
					2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta	<=	0.5091	-		
					2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta	>=	-0.5374	-		
					2 Combination					
					No pending or confirmed DTCs	=	see sheet inhibit tables	-		
					Basic enabling conditions are met	=	see sheet enable tables	-		
		Path 4: Monitoring signal variation between Shifter 1 and Shifter 2	Absolute value of difference between Raw PWM signal from Shifter Alpha 1 and Adjusted signal	>= 12.0235 %					0.5 sec	2 Trips
			from Shifter Alpha 2		System Power Mode	=	Run crank active calibration	-		
					OR					
					System Power Mode	=	Accessory On calibration	-		
					for time No pending or confirmed DTCs	>=	0.4 see sheet inhibit	sec -		
					Basic enabling conditions are met	=	tables see sheet enable tables	-		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions		Time Req	quired	MIL IIIui
		Path 5: Advanced performance diagnosis and monitoring signal variation between Shifter 1 and Shifter 2	Absolute value of difference between Raw PWM signal from Shifter Alpha 1 and Adjusted signal from Shifter Alpha 2	>= 12.0235 %	(				0.5	sec	2 Trips
			irom Shirter Alpha 2		System Power Mode	=	Run crank active calibration	-			
					OR System Power Mode	=	Accessory On calibration	-			
					) for time	>=	0.4	- sec			
					(( ETRS Linear Shifter X Signal From Alpha 1 Beta	<=	0.1131				
					1 Combination ETRS Linear Shifter X Signal From Alpha 1 Beta	>=	-0.099				
					1 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta	<=	0.5091	-			
					1 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta	>=	-0.5374				
					1 Combination						
					OR (						
					ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	<=	0.1131	-			
					ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	>=	-0.099	-			
					ETRS Linear Shifter Y Signal From Alpha 1 Beta	<=	0.5091	-			
					1 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta	>=	-0.5374	-			
					1 Combination )						
					OR (						
					ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	<=	0.1131	-			
					ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	>=	-0.099	-			
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	<=	0.5091	-			
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	>=	-0.5374	-			
					))						
					ETRS Linear Shifter X Signal From Alpha 1 Beta	<=	0.1131	-			
					2 Combination ETRS Linear Shifter X Signal From Alpha 1 Beta	>=	-0.099	-			
					2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta	<=	0.5091	-			
					2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta	>=	-0.5374	-			
					2 Combination )						
					OR (						
					ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination	<=	0.1131	-			
					ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination	>=	-0.099	-			
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination	<=	0.5091	-			
					ETRS Linear Shifter Y Signal From Alpha 1 Beta	>=	-0.5374			ŀ	

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre	eshold Valu	9	Secondary Parameters		Enable Conditions		Time Re	quired	MIL IIIum.
							OR (ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination (	<= >= <= >= = =	0.1131 -0.099 0.5091 -0.5374 TRUE see sheet inhibit tables see sheet enable tables				
Transmission Range Selector Y- Axis Position Sensor 1	P082F	Monitoring of Gear Lever Y position sensor 1 for Out of Range Check- High	Raw PWM signal value from the shifter 1 of Gear Lever Y Position Sensor	>=	95.0147	%	( System Power Mode OR System Power Mode ) for time No pending or confirmed DTCs Basic enabling conditions are met	= = >= = =	Run crank active calibration  Accessory On calibration  0.4 see sheet inhibit tables see sheet enable tables	- - Sec -	0.5	sec	2 Trips
	P082E	Monitoring of Gear Lever Y position sensor 1 for Out of Range Check-Low	Raw PWM signal value from the shifter 1 of Gear Lever Y Position Sensor	<=	4.9853	%	( System Power Mode OR System Power Mode ) for time No pending or confirmed DTCs Basic enabling conditions are met	= = >= =	Run crank active calibration  Accessory On calibration  0.4 see sheet inhibit tables see sheet enable tables	- - Sec -	0.5	sec	2 Trips
	P082D	Path 1: CAN Communication signaL for Shift Lever Diagnosis of Primary Gear Lever Y Position Sensor 1	CAN Communication signaL for Shift Lever Diagnosis of Primary Gear Lever Y Position Sensor 1 OR CAN Communication signaL for Shift Lever Diagnosis of Secondary Gear Lever Y Position Sensor 1	=	TRUE	-	( System Power Mode OR System Power Mode  ) for time ETRS Linear Shifter Beta 1 Sample Circuit Error is not set No pending or confirmed DTCs Basic enabling conditions are met	= >= = =	Run crank active calibration  Accessory On calibration  0.4  TRUE  see sheet inhibit tables  see sheet enable tables	- - - S9C - -	0.5	sec	2 Trips

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions		Time Req	uired	MIL IIIun
		Path 2: ETRS Linear Shifter Both Combinations Using Beta 1 Outside of Field Of Plav Flaa	ETRS Linear Shifter Both Combinations Using Beta 1 Outside of Field Of Play Flaq	= TRUE -	( System Power Mode	=	Run crank active calibration		0.5	sec	2 Trips
					OR System Power Mode	=	Accessory On calibration	-			
					) for time	>=	0.4	- sec			
					(() ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	>	0.1131	-			
					OR ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination OR	<	-0.099	-			
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination OR	>	0.5091	-			
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	<	-0.5374	-			
					( ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	>	0.1131	-			
					OR ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	<	-0.099	-			
					OR ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	>	0.5091	-			
					OR ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	<	-0.5374	-			
					ETRS Linear Shifter X Signal From Alpha 1 Beta	>	0.1131	-			
					1 Combination OR ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	<	-0.099	-			
					OR ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	>	0.5091	-			
					OR ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	<	-0.5374	-			
					)) (( ETRS Linear Shifter X Signal From Alpha 2 Beta	>	0.1131		-		
					1 Combination OR ETRS Linear Shifter X Signal From Alpha 2 Beta	<	-0.099				
					1 Combination OR ETRS Linear Shifter Y Signal From Alpha 2 Beta	>	0.5091	-			
					1 Combination OR ETRS Linear Shifter Y Signal From Alpha 2 Beta	<	-0.5374	_			

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre	shold Value		Secondary Parameters		Enable Conditions		Time Required	MIL IIIum.
							( ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination OR	>	0.1131	-		
							ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination	<	-0.099	-		
							OR ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	>	0.5091	-		
							OR ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination )	<	-0.5374	-		
							ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination OR	>	0.1131	-		
							ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination OR	<	-0.099	-		
							ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination OR	>	0.5091	-		
							ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	<	-0.5374	-		
							No pending or confirmed DTCs	=	see sheet inhibit tables	-		
							Basic enabling conditions are met	=	see sheet enable tables	-		
		Path 3: Monitoring signal variation between Shifter 1 and Shifter 2 and checking the validity of the combinations of Linear Shifters.	Absolute value of difference between Raw PWM signal from Shifter Beta 1 and Adjusted signal from Shifter Beta 2	>=	12.0235	%	(				0.5 sec	2 Trips
		Linear Stiffers.	ETRS Linear Shifter Both Combinations Using Beta 2 Outside of Field Of Play Flag	=	FALSE	-	System Power Mode OR	=	Run crank active calibration	-		
							System Power Mode	=	Accessory On calibration	-		
							for time ETRS Linear Shifter X Signal From Alpha 1 Beta	>= <=	0.4 0.1131	sec -		
							2 Combination ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination	>=	-0.099	-		
							ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination	<=	0.5091	-		
							ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination )	>=	-0.5374	-		
							OR ( ETRS Linear Shifter X Signal From Alpha 1 Beta	<=	0.1131	_		
							2 Combination ETRS Linear Shifter X Signal From Alpha 1 Beta	>=	-0.099			
							2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta	<=	0.5091	-		
							2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination	>=	-0.5374	-		
							) OR					

omponent / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enabl	e Conditions	Time Required	MIL IIIun
					( ETRS Linear Shifter X Signal From Alpha 1 Beta	<=	0.1131 -		
					2 Combination				
					ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination		-0.099 -		
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination	<=	0.5091 -		
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination	>=	-0.5374 -		
					ETRS Linear Shifter X Signal From Alpha 2 Beta	<=	0.1131 -		
					2 Combination ETRS Linear Shifter X Signal From Alpha 2 Beta	>=	-0.099 -		
					2 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	<=	0.5091 -		
					2 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	>=	-0.5374 -		
					2 Combination )				
					OR (				
					ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination		0.1131 -		
					ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination	>=	-0.099 -		
					ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination	<=	0.5091 -		
					ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination	>=	-0.5374 -		
					) OR				
					ETRS Linear Shifter X Signal From Alpha 2 Beta	<=	0.1131 -		
					2 Combination ETRS Linear Shifter X Signal From Alpha 2 Beta	>=	-0.099 -		
					2 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	<=	0.5091 -		
					2 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	>=	-0.5374 -		
					2 Combination				
					No pending or confirmed DTCs		sheet inhibit - tables		
					Basic enabling conditions are met	= see s	sheet enable - tables -		
		Path 4: Monitoring signal variation between Shifter 1 and	Absolute value of difference between Raw PWM	>= 12.0235 %	(			0.5 sec	2 Trips
			signal from Shifter Beta 1 and Adjusted signal from Shifter Beta 2						
					System Power Mode		crank active - alibration		
					OR System Power Mode		cessory On -		
					)	С	alibration -		
					for time No pending or confirmed DTCs	>= = see	0.4 sec sheet inhibit -		
					Basic enabling conditions are met		tables sheet enable -		
					basis strabiling serialistic die met		tables		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions		Time Req	uired	MIL IIIum.
		Path 5: Advanced performance diagnosis and monitoring signal variation between Shifter 1 and Shifter 2	Absolute value of difference between Raw PWM signal from Shifter Beta 1 and Adjusted signal from Shifter Beta 2	>= 12.0235 %	(				0.5	sec	2 Trips
			from Shifter Beta 2		System Power Mode	=	Run crank active calibration	-			
					OR System Power Mode	=	Accessory On calibration	-			
					) for time	>=	0.4	- sec			
					(( ETRS Linear Shifter X Signal From Alpha 1 Beta	<=	0.1131	-			
					2 Combination ETRS Linear Shifter X Signal From Alpha 1 Beta	>=	-0.099	-			
					2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta	<=	0.5091	-			
					2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination	>=	-0.5374	-			
					) OR						
					ETRS Linear Shifter X Signal From Alpha 1 Beta	<=	0.1131	-			
					2 Combination ETRS Linear Shifter X Signal From Alpha 1 Beta	>=	-0.099	-			
					2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta	<=	0.5091	-			
					2 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination	>=	-0.5374	-			
					OR						
					ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination	<=	0.1131	-			
					ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination	>=	-0.099	-			
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination	<=	0.5091	-			
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination	>=	-0.5374	-			
					)) ((						
					ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination	<=	0.1131	-			
					ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination	>=	-0.099	-			
					ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination	<=	0.5091	-			
					ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination	>=	-0.5374	-			
					OR (						
					ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination	<=	0.1131	-			
					ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination	>=	-0.099	-			
					ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination	<=	0.5091	-			
					ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination	>=	-0.5374	-			
					) OR						

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres	hold Value	Secondary Parameters		Enable Conditions		Time Red	quired	MIL IIIum.
						ETRS Linear Shifter X Signal From Alpha: 2 Combi ETRS Linear Shifter X Signal From Alpha:	nation		-			
						2 Combi ETRS Linear Shifter Y Signal From Alpha 2	nation ! Beta <		-			
						2 Combi ETRS Linear Shifter Y Signal From Alpha 2 2 Combi	Beta >	-0.5374	-			
						ETRS Diagnotics - Advanced perform	)) nance =	= TRUE	-			
						diagnostics er No pending or confirmed		see sheet inhibit tables	-			
						Basic enabling conditions a	e met =	see sheet enable tables	-			
Transmission Range Selector Y- Axis Position Sensor 2	P08A2	Monitoring of Gear Lever Y position sensor 2 for Out of Range Check- High	Raw PWM signal value from the shifter 2 of Gear Lever Y Position Sensor	>= 9	95.0147	6	(			0.5	sec	2 Trips
						System Power	Mode =	<ul> <li>Run crank active calibration</li> </ul>	-			
						System Power		<ul> <li>Accessory On calibration</li> </ul>	-			
						fc No pending or confirmed	) r time > DTCs =		sec			
						Basic enabling conditions at		tables see sheet enable	-			
								tables				
	P08A1	Monitoring of Gear Lever Y position sensor 2 for Out of Range Check- Low	Raw PWM signal value from the shifter 2 of Gear Lever Y Position Sensor	<=	4.9853	% System Power	( Mode =	= Run crank active	-	0.5	sec	2 Trips
						·	OR	calibration				
						System Power	)	calibration	-			
						fo No pending or confirmed	r time > DTCs =	= 0.4 = see sheet inhibit tables	sec -			
						Basic enabling conditions at	e met =		-			
	P08A0	Path 1: CAN Communication signaL for Shift Lever Diagnosis of Primary Gear Lever Y Position Sensor 2	CAN Communication signaL for Shift Lever Diagnosis of Primary Gear Lever Y Position	=	TRUE		(			0.5	sec	2 Trips
		or Filmary Geal Ecotor Fredhion Genson 2	Sensor 2 OR			System Power	Mode =		-			
			CAN Communication signaL for Shift Lever Diagnosis of Secondary Gear Lever Y Position	=	TRUE		OR	calibration				
			Sensor 2			System Power	Mode =	= Accessory On calibration	-			
						ETRS Linear Shifter Beta 1 Sample Circui		= 0.4 = TRUE	sec -			
						is r No pending or confirmed	ot set DTCs =	see sheet inhibit tables	-			1
						Basic enabling conditions a	e met =		-			

Pail 2 ETRS Linear Shifer Bon Combinations Using Beaz 2 ETRS Linear Shifer Bon Combinations Using Beaz 2 ETRS Linear Shifer Bon Combinations Using Beaz 2 ETRS Linear Shifer Bon Combinations Using Beaz 2 ETRS Linear Shifer Bon Combinations Using Beaz 2 ETRS Linear Shifer Bon Combinations Using Beaz 2 ETRS Linear Shifer Bon Explain Bon Linear Shifer Bon Explain Bon Linear Shifer Bon Bon Bon Bon Bon Bon Bon Bon Bon Bon	Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions		Time Req	uired	MIL IIIun
Comparison				ETRS LInear Shifter Both Combinations Using Beta 2 Outside of Field Of Play Flaq	= TRUE -	( System Power Mode	=			0.5	sec	2 Trips
ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 1 Study  ETRS Linear Shifter X Signal From Apin 2 Study  ETRS Linear Shifter X Signal From Apin 2 Study  ETRS Linear Shifter X Signal From Apin 2 Study  ETRS Linear Shifter X Signal From Apin 2 Study  ETRS Linear Shifter X Signal From Apin 2 Study  ETRS Linear Shifter X Signal From Apin 2 Study  ETRS Linear Shifter X Signal From Apin 2 Study  ETRS Linear Shifter X Signal From Apin 2 Study  ETRS Linear Shifter X Signal From Apin 2 Study  ETRS Linear Shifter X Signal From Apin 3 Study  ETRS Linear Shifter X Signal From Apin 3 Study  ETRS Linear Shifter X Signal From Apin 3 Study  ETRS Linear Shifter X Signal F							=	Accessory On	-			
ETRS Linear Shifter X Signal From Alpha 1 Bota						) for time	>=	0.4				
### ETRS Linear Shifter X Signal From Alpha 1 Beta						2 Combination	>	0.1131	-			
ETRS Linear Shifter Y Signal From Alpha 1 Betals 2 Combination (CR)  ETRS Linear Shifter Y Signal From Alpha 1 Betals 2 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 1 Betals 2 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 1 Betals 2 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 1 Betals 3 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 1 Betals 4 Combination (CR)  ETRS Linear Shifter Y Signal From Alpha 1 Betals 3 Combination (CR)  ETRS Linear Shifter Y Signal From Alpha 1 Betals 4 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 1 Betals 4 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 1 Betals 4 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 1 Betals 4 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 1 Betals 5 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 1 Betals 5 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 1 Betals 5 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 1 Betals 5 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 1 Betals 5 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 1 Betals 5 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 1 Betals 5 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 2 Betals 5 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 2 Betals 5 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 2 Betals 5 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 2 Betals 5 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 2 Betals 5 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 2 Betals 5 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 2 Betals 5 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 2 Betals 5 Combination (CR)  ETRS Linear Shifter X Signal From Alpha 2 Betals 5 Combination (CR)						ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination	<	-0.099	-			
ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination 2 Combination 3 Combination 3 Combination 4 Combination 4 Combination 4 Combination 4 Combination 4 Combination 4 Combination 4 Combination 4 Combination 4 Combination 4 Combination 4 Combination 4 Combination 4 Combination 4 Combination 4 Combination 4 Combination 5 Combination 5 Combination 6 Combination 6 Combination 6 Combination 7 Combination 7 Combination 7 Combination 7 Combination 7 Combination 7 Combination 8 Combination 8 Combination 8 Combination 8 Combination 8 Combination 8 Combination 8 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combination 9 Combinati						ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination	>	0.5091	-			
2 Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   Combination   OR   OR   OR   OR   OR   OR   OR   O						ETRS Linear Shifter Y Signal From Alpha 1 Beta	<	-0.5374	-			
ETRS Linear Shifter X Signal From Alpha 1 Beta 2 0.099 - 2 0.5991 - 2 0.099 - 2 0.099 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 - 2 0.0991 -						( ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination	>	0.1131	-			
ETRS Linear Shifter Y Signal From Alpha 1 Bets 2 Combination OR ETRS Linear Shifter Y Signal From Alpha 1 Bets 2 Combination 1 Combination 2 Combination 2 Combination 2 Combination 2 Combination 2 Combination 2 Combination 2 Combination 2 Combination 2 Combination 2 Combination 2 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 3 Combination 4 Combination 4 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 Combination 5 C						OR ETRS Linear Shifter X Signal From Alpha 1 Beta	<	-0.099	-			
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2 Combination OR ETRS Linear Shifter X Signal From Alpha 1 Beta 2 Combination OR ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination OR ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination OR ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination OR ETRS Linear Shifter Y Signal From Alpha 1 Beta 2 Combination ((())) ((()) (()) (()) (()) (() ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination OR ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination OR ETRS Linear Shifter X Signal From Alpha 2 Beta 3 Combination OR ETRS Linear Shifter X Signal From Alpha 2 Beta 4 Combination OR ETRS Linear Shifter Y Signal From Alpha 2 Beta 5 Combination OR ETRS Linear Shifter Y Signal From Alpha 2 Beta 7 Combination OR ETRS Linear Shifter Y Signal From Alpha 2 Beta 7 Combination OR ETRS Linear Shifter Y Signal From Alpha 2 Beta 7 Combination						ETRS Linear Shifter Y Signal From Alpha 1 Beta	<	-0.5374	-			
STRS Linear Shifter X Signal From Alpha 1 Beta   2 Combination   2 Combination   2 Combination   2 Combination   2 Combination   2 Combination   2 Combination   2 Combination   2 Combination   2 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combination   3 Combinati							>	0.1131	-			
STRS Linear Shifter Y Signal From Alpha 1 Beta   2 Combination						OR ETRS Linear Shifter X Signal From Alpha 1 Beta	<	-0.099	-			
OR   ETRS Linear Shifter Y Signal From Alpha 1 Beta   < -0.5374   - 2 Combination						OR ETRS Linear Shifter Y Signal From Alpha 1 Beta	>	0.5091	-			
2 Combination OR ETRS Linear Shifter X Signal From Alpha 2 Beta < -0.099 2 Combination OR ETRS Linear Shifter Y Signal From Alpha 2 Beta > 0.5091 2 Combination						OR ETRS Linear Shifter Y Signal From Alpha 1 Beta	<	-0.5374	-			
OR ETRS Linear Shifter X Signal From Alpha 2 Beta < -0.099 - 2 Combination OR ETRS Linear Shifter Y Signal From Alpha 2 Beta > 0.5091 - 2 Combination 2 Combination							>	0.1131	-			
2 Combination OR ETRS Linear Shifter Y Signal From Alpha 2 Beta > 0.5091 2 Combination						2 Combination OR ETRS Linear Shifter X Signal From Alpha 2 Beta	<		-			
						2 Combination OR ETRS Linear Shifter Y Signal From Alpha 2 Beta			-			
Or ETRS Linear Shifter Y Signal From Alpha 2 Beta < -0.5374 -						2 Combination OR	<	-0.5374	-			

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre	shold Value		Secondary Parameters		Enable Conditions		Time Required	MIL IIIum.
							( ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination	>	0.1131	-		
							OR ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination	<	-0.099	-		
							OR ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination OR	>	0.5091	-		
							ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination )	<	-0.5374	-		
							( ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination OR	>	0.1131	-		
							ETRS Linear Shifter X Signal From Alpha 2 Beta 2 Combination OR	<	-0.099	-		
							ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination OR	>	0.5091	-		
							ETRS Linear Shifter Y Signal From Alpha 2 Beta 2 Combination ))	<	-0.5374	-		
							No pending or confirmed DTCs	=	see sheet inhibit tables	-		
							Basic enabling conditions are met	=	see sheet enable tables	-		
		Path 3: Monitoring signal variation between Shifter 1 and Shifter 2 and checking the validity of the combinations of	Absolute value of difference between Raw PWM signal from Shifter Beta 2 and Adjusted signal	>=	12.0235	%	(				0.5 se	c 2 Trips
		Linear Shifters.	from Shifter Beta 2 ETRS Linear Shifter Both Combinations Using Beta 2 Outside of Field Of Play Flag	=	FALSE	-	System Power Mode OR	=	Run crank active calibration	-		
							System Power Mode	=	Accessory On calibration	-		
							for time	>=	0.4	sec		
							ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	<=	0.1131	-		
							ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	>=	-0.099	-		
							ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	<=	0.5091	•		
							ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination )	>=	-0.5374	-		
							OR (					
							ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	<=	0.1131	-		
							ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	>=	-0.099	-		
							ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination ETRS Linear Shifter Y Signal From Alpha 1 Beta	<=	0.5091	-		
l I								>=	-0.5374	-		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions		Time Required	MIL Illum.
					( ETRS Linear Shifter X Signal From Alpha 1 Beta	<=	0.1131			
					1 Combination ETRS Linear Shifter X Signal From Alpha 1 Beta	>=	-0.099			
					1 Combination			-		
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination	<=	0.5091	-		
					ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination ))	>=	-0.5374	-		
					(( ETRS Linear Shifter X Signal From Alpha 1 Beta	<=	0.1131	-		
					1 Combination ETRS Linear Shifter X Signal From Alpha 1 Beta	>=	-0.099	-		
					1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	<=	0.5091	-		
					1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	>=	-0.5374	_		
					1 Combination					
					OR					
					ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	<=	0.1131	-		
					ETRS Linear Shifter X Signal From Alpha 1 Beta	>=	-0.099	-		
					1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	<=	0.5091	-		
					1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	>=	-0.5374	-		
					1 Combination )					
					OR (					
					ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	<=	0.1131	-		
					ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	>=	-0.099	-		
					ETRS Linear Shifter Y Signal From Alpha 2 Beta	<=	0.5091	-		
					1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	>=	-0.5374	-		
					1 Combination ))					
					No pending or confirmed DTCs	=	see sheet inhibit tables	-		
					Basic enabling conditions are met	=	see sheet enable tables	-		
		Path 4: Monitoring signal variation between Shifter 1 and Shifter 2	Absolute value of difference between Raw PWM signal from Shifter Beta 1 and Adjusted signal	>= 12.0235 %	(				0.5 sec	2 Trips
			from Shifter Beta 2		System Power Mode	=	Run crank active calibration	-		
					OR System Power Mode	=	Accessory On calibration	-		
					for time	>=	0.4	sec		
					No pending or confirmed DTCs	=	see sheet inhibit tables	-		
					Basic enabling conditions are met	=	see sheet enable tables	-		

Path 5: Advanced performance, diagnosis and monitoring signal variation between Shifter 1 and Shifter 2  Associute value of difference between Rain PWM signal from Shifter Beta 1 and Adjusted signal from Shifter Beta 1 and Adjusted signal from Shifter Beta 2  System Power Mode  System Power Mode  System Power Mode  System Power Mode  Collibration  Rain PWM System Power Mode  System Power Mode  Collibration  Collibration  The Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  Continuation  ETRS Linear Shifter X Signal From Alpha 1 Beta  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Continuation  Co	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions		Time Required	MIL IIIun
aignal variation between Shifter 1 and Shifter Bets 1 and Adjusted signal from Shifter Bets 2  System Power Mode  System Power Mode  System Power Mode  System Power Mode  System Power Mode  System Power Mode  Accessory On calibration  for time  1 Combination  ETRS Linear Shifter X Signal From Alpha 1 Betal 1 Combination  ETRS Linear Shifter Y Signal From Alpha 1 Betal 1 Combination  System Power Mode  ETRS Linear Shifter X Signal From Alpha 1 Betal 1 Combination  ETRS Linear Shifter Y Signal From Alpha 1 Betal 1 Combination  ETRS Linear Shifter X Signal From Alpha 1 Betal 1 Combination  ETRS Linear Shifter Y Signal From Alpha 1 Betal 1 Combination  ETRS Linear Shifter Y Signal From Alpha 1 Betal 1 Combination  ETRS Linear Shifter Y Signal From Alpha 1 Betal 1 Combination  ETRS Linear Shifter Y Signal From Alpha 1 Betal 2 Combination  ETRS Linear Shifter Y Signal From Alpha 1 Betal 3 Combination  ETRS Linear Shifter Y Signal From Alpha 1 Betal 4 Combination  ETRS Linear Shifter Y Signal From Alpha 1 Betal 5 Combination  ETRS Linear Shifter Y Signal From Alpha 1 Betal 5 Combination  ETRS Linear Shifter Y Signal From Alpha 1 Betal 5 Combination 6 Combination 6 Combination 6 Combination 7 Combination 7 Combination 8 Combination 9 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Co										
System Power Mode   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibrat		nal variation between Shifter 1 and Shifter 2	signal from Shifter Beta 1 and Adjusted signal	>= 12.0235 %	(				0.5 sec	2 Trips
System Power Mode   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibration   Calibrat			iron Sinter Beta 2			=		-		
Total						=		-		
1 Combination					) for time	>=				
ETRS Linear Shifter X Signal From Alpha 1 Beta						<=	0.1131	-		
ETRS Linear Shifter Y Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter Y Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter Y Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter Y Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter Y Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter Y Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination    ETRS Linear Shifter X Signal From Alpha 1 Beta   Combination					ETRS Linear Shifter X Signal From Alpha 1 Beta	>=	-0.099	-		
ETRS Linear Shifter Y Signal From Alpha 1 Beta 1 Combination 1 Combination 1 Combination 2 Combination 2 Combination 2 Combination 2 Combination 2 Combination 2 Combination 3 Combination 3 Combination 4 Combination 4 Combination 5 Combination 5 Combination 6 Combination 6 Combination 6 Combination 6 Combination 6 Combination 6 Combination 6 Combination 6 Combination 6 Combination 6 Combination 7 Combination 7 Combination 8 Combination 9 Combination 9 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combination 1 Combinati					ETRS Linear Shifter Y Signal From Alpha 1 Beta	<=	0.5091	-		
ETRS Linear Shifter X Signal From Alpha 1 Beta					ETRS Linear Shifter Y Signal From Alpha 1 Beta	>=	-0.5374	-		
Combination   ETRS Linear Shifter X Signal From Alpha 1 Beta   Seta					OR					
ETRS Linear Shifter X Signal From Alpha 1 Beta						<=	0.1131	-		
1 Combination					ETRS Linear Shifter X Signal From Alpha 1 Beta 1 Combination	>=		-		
1 Combination ) OR ( ETRS Linear Shifter X Signal From Alpha 1 Beta <= 0.1131 - 1 Combination ETRS Linear Shifter X Signal From Alpha 1 Beta >= -0.099 - 1 Combination					1 Combination			-		
ETRS Linear Shifter X Signal From Alpha 1 Beta <= 0.1131 - 1 Combination ETRS Linear Shifter X Signal From Alpha 1 Beta >= -0.099 - 1 Combination						>=	-0.5374	-		
1 Combination  ETRS Linear Shifter X Signal From Alpha 1 Beta >= -0.099 - 1 Combination					OR (					
1 Combination					1 Combination	<=		-		
					1 Combination					
ETRS Linear Shifter Y Signal From Alpha 1 Beta <= 0.5091 -  1 Combination  ETRS Linear Shifter Y Signal From Alpha 1 Beta >= -0.5374 -						<= >=	0.5091	-		
1 Combination ())						-	0.001			
ETRS Linear Shifter X Signal From Alpha 2 Beta <= 0.1131 -						<=	0.1131	-		
1 Combination ETRS Linear Shifter X Signal From Apr 2 Beta >= -0.099 - 1 Combination					ETRS Linear Shifter X Signal From Alpha 2 Beta	>=	-0.099	-		
ETRS Linear Shifter Y Signal From Alpha 2 Beta <= 0.5091 - 1 Combination					ETRS Linear Shifter Y Signal From Alpha 2 Beta	<=	0.5091	-		
ETRS Linear Shifter Y Signal From Alpha 2 Beta >= -0.5374 - 1 Combination					ETRS Linear Shifter Y Signal From Alpha 2 Beta	>=	-0.5374	-		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions		Time Required	MIL IIIum.
					( ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination	<= 0.1131	-		
					ETRS Linear Shifter X Signal From Alpha 2 Beta 1 Combination	>= -0.099	-		
					ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	<= 0.5091	-		
					ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	>= -0.5374	-		
					OR ( ETRS Linear Shifter X Signal From Alpha 2 Beta	<= 0.1131	-		
					1 Combination ETRS Linear Shifter X Signal From Alpha 2 Beta	>= -0.099	-		
					1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta	<= 0.5091	-		
					1 Combination ETRS Linear Shifter Y Signal From Alpha 2 Beta 1 Combination	>= -0.5374	-		
					)) ETRS Diagnotics - Advanced performance diagnostics enabled	= TRUE	-		
					No pending or confirmed DTCs	see sheet inhibit tables	-		
					Basic enabling conditions are met	= see sheet enable tables	-		
Transmission Range Selector Shift Interlock Switch 1	P17A4	Monitoring of transmission range selector enable switch A	PRNDL display status indicates Transmission Range Selector Enable Switch A Circuit High	= TRUE -	Transmission Range Selector Enable Switch A Circuit High message received successfully	= TRUE	-		2 Trips
					through CAN Basic enable conditions met	= see sheet enable tables	-		
	P17A3	Monitoring of transmission range selector enable switch A	PRNDL display status indicates Transmission Range Selector Enable Switch A Circuit Low	= TRUE -	Transmission Range Selector Enable Switch A Circuit Low message received successfully	= TRUE	-		2 Trips
					through CAN Basic enable conditions met	= see sheet enable tables	-		
	P17A5	Monitoring of transmission range selector enable switch A	PRNDL display status indicates Transmission Range Selector Enable Switch A Circuit	= TRUE -	Transmission Range Selector Enable Switch A Circuit Performance message received	= TRUE	-		2 Trips
			Performance		successfully through CAN Basic enable conditions met	= see sheet enable tables	-		
	P17A6	Transmission Range Selector Enable Switch A or B Correlation	ESDR (ETRS Shifter Decoder Ring) Interlock 1 Position is not equal to ESDR Interlock 2 Position	= TRUE -	Shifter diagnostics is enabled, which is the following conditions for time	>= 0.4	sec	0.5 sec	no MIL
					(( System Power Mode	= Run crank active calibration	-		
					OR System Power Mode	= Accessory On calibration	-		
					ETRS linear shifter interlock 1 fault is active ETRS linear shifter interlock 2 fault is active	= FALSE = FALSE	- - -		
					No pending or confirmed DTCs	see sheet inhibit tables	-		
					Basic enabling conditions are met	= see sheet enable tables	-		

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	P17F4	Transmission Range Selector Enable Switch 1 or 2 Circuit Stuck On	ETRS linear shifter interlock 1 fault is active OR ETRS linear shifter interlock 2 fault is active OR ETRS linear shifter interlock 1 position is stuck	= TRUE - = TRUE -	( System Power Mode OR System Power Mode )	= Run crank active - calibration = Accessory On - calibration -	600 sec	no MIL
			OR ETRS linear shifter interlock 2 position is stuck	= TRUE -	for time No pending or confirmed DTCs Basic enabling conditions are met	>= 0.4 sec = see sheet inhibit - tables = see sheet enable - tables		
Transmission Range Selector Shift Interlock Switch 2	P17A8	Monitoring of transmission range selector enable switch B	PRNDL display status indicates Transmission Range Selector Enable Switch B Circuit High	= TRUE -	Transmission Range Selector Enable Switch B Circuit High message received successfully through CAN Basic enable conditions met	= TRUE - = see sheet enable - tables		2 Trips
	P17A7	Monitoring of transmission range selector enable switch B	PRNDL display status indicates Transmission Range Selector Enable Switch B Circuit Low	= TRUE -	Transmission Range Selector Enable Switch B Circuit Low message received successfully through CAN Basic enable conditions met	= TRUE - = see sheet enable - tables		2 Trips
	P17A9	Monitoring of transmission range selector enable switch B	PRNDL display status indicates Transmission Range Selector Enable Switch B Circuit Performance	= TRUE -	Transmission Range Selector Enable Switch B Circuit Performance message received successfully through CAN Basic enable conditions met	= TRUE - = see sheet enable - tables		2 Trips
Transmission Range Selector Park Position Switch 1	P07B4	Monitoring of transmission Park Position Sensor/Switch A	PRNDL display status indicates Transmission Park Position Sensor/Switch A Circuit High	= TRUE -	Transmission Park Position Sensor/Switch A Circuit High message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable - tables		1 Trip
	P07B3	Monitoring of transmission Park Position Sensor/Switch A	PRNDL display status indicates Transmission Park Position Sensor/Switch A Circuit Low	= TRUE -	Transmission Park Position Sensor/Switch A Circuit Low message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable - tables		1 Trip
	P07B5	Monitoring of transmission Park Position Sensor/Switch A	PRNDL display status indicates Transmission Park Position Sensor/Switch A Circuit Performance	= TRUE -	Transmission Park Position Sensor/Switch A Circuit Performance message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable tables		2 Trips

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold V	alue	Secondary Parameters		Enable Conditions		Time Re	quired	MIL IIIum
	P17F3	Transmission Park Position Switch 1 or 2 Circuit Stuck On	ETRS(Engine Transmission System) linear shifter park input 1 primary fault active OR	= TRUE		( System Power Mode	=	Run crank active		60	sec	no MIL
			ETRS linear shifter park input 2 primary fault is active OR	= TRUE	-	OR System Power Mode	=	calibration  Accessory On calibration	-			
			ETRS linear shifter park input 1 secondary fault is active OR ETRS linear shifter park input 2 secondary fault	= TRUE		) for time No pending or confirmed DTCs	>= =	0.4 see sheet inhibit	sec			
						Basic enabling conditions are met	=	see sheet enable tables	-			
	P189D	Transmission Park Position Switch 1 or 2 Circuit Stuck Open	(The ratio between counts how many times the Switch 1 was open and counts how many times the park button has been pressed since the last evaluation of whether one switch is stuck open or not	>= 0.84375	-	Ignition is ON	=	TRUE	-	0.5	sec	2 Trips
			The ratio between counts how many times the Switch 1 was closed and counts how many times the park button has been pressed since the last evaluation of whether one switch is stuck open or	<= 0.078129	; -	Counts how many times the park button has been pressed since the last evaluation of whether one switch is stuck open or not	>=	8	-			
			The ratio between counts how many times the Switch 2 was closed and counts how many times the park button has been pressed since the last evaluation of whether one switch is stuck open or	>= 0.84375	-	Park switch stuck open enable	=	TRUE	-			
			not (The ratio between counts how many times the Switch 2 was open and counts how many times the park button has been pressed since the last evaluation of whether one switch is stuck open or not	<= 0.078129	; -	Basic enable conditions met	=	see sheet enable tables	-			
			OR The ratio between counts how many times the Switch 2 was open and counts how many times the park button has been pressed since the last evaluation of whether one switch is stuck open or not))	>= 0.84375	-							
			OR (The ratio between counts how many times the Switch 2 was open and counts how many times the park button has been pressed since the last evaluation of whether one switch is stuck open or	>= 0.84375	-							
			not The ratio between counts how many times the Switch 2 was closed and counts how many times the park button has been pressed since the last evaluation of whether one switch is stuck open or	<= 0.078125	5 -							
			The ratio between counts how many times the Switch 1 was closed and counts how many times the park button has been pressed since the last evaluation of whether one switch is stuck open or	>= 0.84375	-							
			(The ratio between counts how many times the Switch 1 was open and counts how many times the park button has been pressed since the last evaluation of whether one switch is stuck open or not	<= 0.078129	· -							
			OR The ratio between counts how many times the Switch 1 was open and counts how many times the park button has been pressed since the last evaluation of whether one switch is stuck open or not))	>= 0.84375	-							

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
	P07BE	Transmission Park Position Sensor Switch A B Correlation	ESDR Park 1 Position is not equal to ESDR Park 2 Position	= TRUE -	Ignition is ON ESDR Park 1 Position Fault Active Flag ESDR Park 2 Position Fault Active Flag ESDR General Diac Brable Flad Basic enable conditions met	= TRUE -  = FALSE -  = FALSE -  TRUE -  = see sheet enable tables	37.5 sec	1 Trip
Transmission Range Selector Park Position Switch 2	P07BA	Monitoring of transmission Park Position Sensor/Switch B	PRNDL display status indicates Transmission Park Position Sensor/Switch B Circuit High	= TRUE -	Transmission Park Position Sensor/Switch B Circuit High message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable - tables		1 Trip
	P07B9	Monitoring of transmission Park Position Sensor/Switch B	PRNDL display status indicates Transmission Park Position Sensor/Switch B Circuit Low	= TRUE -	Transmission Park Position Sensor/Switch B Circuit Low message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable tables		1 Trip
	P07BB	Monitoring of transmission Park Position Sensor/Switch B	PRNDL display status indicates Transmission Park Position Sensor/Switch B Circuit Performance	= TRUE -	Transmission Park Position Sensor/Switch B Circuit Performance message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable tables		2 Trips
Transmission Range Selector Control Module Internal	P17D8	Monitoring of transmission range selector control module memory checksum error	PRNDL display status indicates transmission range selector control module memory checksum error	= TRUE -	Transmission range selector control module memory checksum error message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable - tables		1 Trip
	P17D9	Monitoring of transmission range selector control module read only memory error	PRNDL display status indicates transmission range selector control module read only memory error	= TRUE -	Transmission range selector control module read only memory error message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable tables		1 Trip
	P17DA	Monitoring of transmission range selector control module internal random access memory error	PRNDL display status indicates transmission range selector control module internal random access memory error	= TRUE -	Transmission range selector control module internal random access memory error message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable tables		1 Trip

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre	eshold Value		Secondary Parameters		Enable Conditions		Time Red	quired	MIL IIIun
	P17DB	Path 1: Monitoring of transmission range selector control module processor	PRNDL display status indicates transmission range selector control module processor error	=	TRUE	,	Transmission range selector control module processor message received successfully through CAN	=	TRUE	-			1 Trip
		processor					Basic enable conditions met	=	see sheet enable tables	-			
		Path 2:	Primary SKP error in function monitoring is set	=	TRUE		Ignition is ON	=	TRUE		0.1	sec	1 Tri
			with the following conditions:	-	INUE		ignition is ON	=	TRUE	-	0.1	Sec	1 1114
			Received key match the expected key based on the received seed.	=	FALSE	-	Status of seed key pair primary communication is not equal to the value of primary SKP in previous calculation cycle in function monitoring	=	TRUE	-			
			for counts	>=	50	-	Status of seed key pair secondary communication is not equal to the value of secondary SKP in previous calculation cycle in	=	TRUE	-			
			OR				function monitoring Primary SKP signal communication error is set	=	FALSE	-			
			Secondary SKP error in function monitoring is set	=	TRUE	-	Secondary SKP communication error is set	=	FALSE	-			
			with the following conditions: Received key match the expected key based on	=	FALSE	-	ECU is in state "drive"	=	TRUE	-			
			the received seed. for counts	>=	50	-	Basic enable conditions are met	=	see sheet enable tables	-			
					T0.115		1 10 1 21		T0115				
		Monitoring the primary and secondary seed key pair (SKP) signal from the electronic transmission range select (ETRS)	Primary SKP signal communication error is set	=	TRUE	,	Ignition is ON	=	TRUE	-	0.1	sec	1 Tri
		shifter for communication errors	for counts	>=	50	-	ECU is in state "drive" Basic enable conditions are met	=	TRUE see sheet enable	-			
			Secondary SKP signal communication error is	=	TRUE	-			tables				
			for counts	>=	50	-							

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre	eshold Value	Secondary Parameters		Enable Conditions		Time Re	quired	MIL IIIum.
		Path 4: Evaluation of the primary and secondary seed key pair (SKP) signal from the electronic transmission range select (ETRS)	Primary SKP error in function monitoring is set, with the following conditions:	=	TRUE -	Ignition is ON	=	TRUE	-	0.1	sec	1 Trip
		shifter for irreversible errors.	Received key match the expected key based on the received seed.	=	FALSE -	Status of seed key pair primary communication is not equal to the value of primary SKP in previous calculation cycle in function monitoring	=	TRUE	-			
			for counts	>=	A + B	Status of seed key pair secondary communication is not equal to the value of secondary SKP in previous calculation cycle in	=	TRUE	-			
			(			function monitoring Primary SKP signal communication error is set	=	FALSE	-			
			A: Threshold limit for primary SKP error counter based on current vehicle speed	=	100 -	Secondary SKP communication error is set	=	FALSE	-			
			B: Parameter for linear shifter seed key pair primary default value	=	50 -	ECU is in state "drive"	=	TRUE	-			
			) OR			Basic enable conditions are met	=	see sheet enable tables	-			
			Secondary SKP error in function monitoring is set, with the following conditions:	=	TRUE -							
			Received key match the expected key based on the received seed.	=	FALSE -							
			for counts	>= =	A + B							
			A: Threshold limit for secondary SKP error counter based on current vehicle speed	=	100 -							
			B: Parameter for linear shifter seed key pair secondary default value	=	50 -							
	P17DC	Monitoring of transmission range selector control module keep alive memory performance	PRNDL display status indicates transmission range selector control module keep alive memory performance error	=	TRUE -	Transmission range selector control module keep alive memory performance message received successfully through CAN	=	TRUE	-			1 Trip
						Basic enable conditions met	=	see sheet enable tables	-			
TCM Processor Integrity	P06AF	Detection of TCM processor reset due to TCM processor integrity failure	(			Ignition is on	=	TRUE		0.1	sec	1 Trip
		integrity randre	Detection of "Unhealthy" State of Health Pattern			Basic enable conditions met	=	see sheet enable tables	-			
			Received value of TCM CAN frame 0x3F5 Byte 5	=	11 -							
			Received value of TCM CAN frame 0x3F5 Byte 5	=	15 -							
			Received value of TCM CAN frame 0x3F5 Byte 5 OR	=	3 -							
			Received value of TCM CAN frame 0x3F5 Byte 5	=	12 -							
			Received value of TCM CAN frame 0x3F5 Byte 5 OR	=	14 -							
			Received value of TCM CAN frame 0x3F5 Byte 5	=	7 -							
			Received value of TCM CAN frame 0x3F5 Byte 5	=	13 -							
			OR			1						

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres	shold Val	ie	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
			Detection of Missing "Healthy" State of Health Pattern - Unrecognizable Pattern							
			( Received value of TCM CAN frame 0x3F5 Byte 5	<>	8	-				
			OR Received value of TCM CAN frame 0x3F5 Byte	<>	5	-				
			OR Received value of TCM CAN frame 0x3F5 Byte	<>	1	-				
			OR Received value of TCM CAN frame 0x3F5 Byte	<>	9	-				
			OR Received value of TCM CAN frame 0x3F5 Byte	<>	10	-				
			5 OR Received value of TCM CAN frame 0x3F5 Byte	<>	6	_				
			5 OR Received value of TCM CAN frame 0x3F5 Byte	<>	4	_				
			5 OR Received value of TCM CAN frame 0x3F5 Byte	<>	0	_				
			5 OR Received value of TCM CAN frame 0x3F5 Byte	<>	2					
			5 )		-					
			Detection of Frozen State of Health Pattern							
			Difference (a) - (b)	=	0	-				
			with (a) Received value of TCM CAN frame 0x3F5 Byte 5 and with (b) Previous received value of TCM CAN frame 0x3F5 Byte 5							
			AND Above difference occuring on a total number of occassions (evaluated every 250 ms)	>	50	counts				
			AND Presence of Communication DTCs ECM has U0101 DTC stored for loss of communication with TCM	=	TRUE	-				
			AND Commanded ETRS Range Not in a Forward Driven Range							
			Commanded ETRS Range OR	<> !	MANUAL	-				
			Commanded ETRS Range OR	<>	LOW	-				
			Commanded ETRS Range	<>	DRIVE	-				

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
Transmission Range Selector Control Module Supply Voltage	P17DE	Monitoring of transmission range selector control module system voltage high	PRNDL display status indicates transmission range selector control module system voltage high	= TRUE -	Transmission range selector control module system voltage high message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable tables		no MIL
	P17DD	Monitoring of transmission range selector control module system voltage low	PRNDL display status indicates transmission range selector control module system voltage low	= TRUE -	Transmission range selector control module system voltage low message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable - tables		1 Trip
	P17DF	Monitoring of transmission range selector control module system voltage performance	PRNDL display status indicates transmission range selector control module system voltage performance error	= TRUE -	Transmission range selector control module system voltage performance message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable tables		no MIL
Transmission Range Selector Control Module Ignition On/Start Switch	P17E1	Monitoring of transmission range selector control module ignition ON/start switch circuit high	PRNDL display status indicates transmission range selector control module ignition ON/start switch circuit high	= TRUE -	Transmission range selector control module ignition ON/start switch circuit high message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable tables		2 Trips
	P17E0	Monitoring of transmission range selector control module ignition ON/start switch circuit low	PRNDL display status indicates transmission range selector control module ignition ON/start switch circuit low	= TRUE -	Transmission range selector control module ignition ON/start switch circuit low message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable tables		2 Trips
Transmission Range Selector Control Module Ignition Accessory Input	P17E2	Monitoring of transmission range selector control module ignition accessory circuit low	PRNDL display status indicates transmission range selector control module ignition accessory circuit low	= TRUE -	Transmission range selector control module ignition accessory circuit low message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable tables		no MIL
Powertrain Expansion CAN Bus	U137D	Monitoring of transmission range selection signal message counter	PRNDL display status indicates transmission range selection signal message counter is incorrect	= TRUE -	Transmission range selection signal message counter incorrect message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable tables		2 Trips
	U18C7	Monitoring of transmission range selector control module lost communication with ECM on powertrain expansion CAN bus	PRNDL display status indicates transmission range selector control module lost communication with ECM on powertrain expansion CAN bus	= TRUE -	Transmission range selector control module lost communication with ECM on powertrain expansion CAN bus message received successfully through CAN Basic enable conditions met	= TRUE -  = see sheet enable tables		2 Trips
	U240D	Monitoring of transmission range selector control module powertrain expansion CAN bus OFF	PRNDL display status indicates transmission range selector control module powertrain expansion CAN bus OFF	= TRUE -	Transmission range selector control module powertrain expansion CAN bus OFF message received successfully through CAN Basic enable conditions met	= TRUE - = see sheet enable tables		2 Trips

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thr	eshold Valu	e 	Secondary Parameters		Enable Conditions		Time Required	MIL IIIum
owertrain Sensor CAN Bus	U18C6	Monitoring of transmission range selector control module lost communication with ECM on powertrain sensor CAN bus	PRNDL display status indicates transmission range selector control module lost communication with ECM on powertrain sensor CAN bus		TRUE		Transmission range selector control module lost communication with ECM on powertrain sensor CAN bus message received successfully through CAN	=	TRUE	-		2 Trips
							Basic enable conditions met	=	see sheet enable tables	-		
	U240E	Monitoring of transmission range selector control module sensor CAN bus OFF	PRNDL display status indicates transmission range selector control module sensor CAN bus OFF	=	TRUE		Transmission range selector control module sensor CAN bus OFF message received successfully through CAN	=	TRUE	-		2 Trips
							Basic enable conditions met	=	see sheet enable tables	-		
ransmission Range Selection	P16F4	Park Exit Monitor  Monitor for Driver Range Request Ring (DRRR) commands to exit Park which do not follow a direct driver command for R, N. D or M via the shift level.	Currently Commanding PARK or Commanding UNDEFINED w/ Single Park Indication, which is the following conditions:	=	TRUE	1	Ignition is ON	=	TRUE	-	0.5 sec	1 Trip
		IN. D OF WEVE A THE SHIFT TEVEL	(				No pending or confirmed DTCs	=	see sheet inhibit tables	-		
			Range Command OR	=	PARK Range	-	Basic enabling conditions are met	=	see sheet enable tables	-		
			Range Command		UNDEFINED Range	-						
			Single park indication )) AND Not commanded to leave PARK range, which is	= >=	TRUE	- sec						
			the following conditions and for time	/-	0.2	360						
			Linear Shifter Current Position OR	=	PARK Range	-						
			Linear Shifter Current Position	= 1	UNDEFINED Range	-						
			OR Linear Shifter Current Position	=	NULL range	-						
			AND I									
			Driver Range Request Ring (DRRR) commands a value OTHER than Park, Undefined or Null when it was previously commanding Park, Undefined or Null OR	=	TRUE							
			Toriver Range Request Ring (DRRR) commands a value OTHER than PARK, UNDEFINED or NULL AND	=	TRUE	-						
			Currently Commanding PARK or Commanding UNDEFINED w/ Single Park Indication	=	TRUE	-						
			for time	>=	2.05	sec						

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Th	reshold Valu	е	Secondary Parameters		Enable Conditions		Time Rec	uired	MIL IIIu
		Park Acknowledgement Monitor Monitor Transmission Range Command Ring (TRCR) to ensure the acknowledgement of a command for Park within a calibratable time period	Range Command	not equal	PARK Range								
			Vehicle request for a range shift for time	=	PARK Range 0.2	sec							
		Neutral Acknowledgement Monitor Monitor for the timely acknowledgement of a command for Neutral, provided the transmission is presently out of Park	( Transmission Range Command Ring (TRCR) commands REVERSE, LOW, MANUAL or DRIVE range Linear Shifter Current Position is in NEUTRAL range ) for time Range Command Range Command	= = not equal not equal	TRUE  NEUTRAL range  0.2  NEUTRAL range PARK Range	- sec -							
		Transition to Drive Monitor  Monitor for commands to Drive which do not follow a direct request from the driver via the shift lever	Linear Shifter Current Position is NOT in DRIVE, LOW or MANUAL range for time Vehicle request for a range shift is in DRIVE, LOW or MANUAL range	>=	0.2 TRUE	sec							
		Transition to Reverse Monitor  Monitor for commands to Reverse which do not follow a direct request from the Reverser via the shift lever	Linear Shifter Current Position is NOT in REVERSE range for time  Vehicle request for a range shift	>=	0.2 REVERSE range	sec -							
	P07E5	ETRS TRCR Diagnostics - Unable to Engage in Drive	Target Range fail in Gear Lever detected for Drive range	=	TRUE	-	Range Achieve failure reported	=	TRUE	-	0.5	sec	2
							Critical forward range fault OR Range availability error from Gear Lever	=	FASLE TRUE	-			
							Diagnostics ) Basic enabling conditions are met	=	see sheet enable tables	-			
	P073D	ETRS TRCR Diagnostics - Unable to Engage Neutral	Target Range fail in Gear Lever detected for Neutral range	=	TRUE		Range Achieve failure reported	=	TRUE	-	0.5	sec	2
							Critical neutral fault OR Range availability error from Gear Lever	=	FALSE TRUE	-			
							Diagnostics () No pending or confirmed DTCs Basic enabling conditions are met	=	see sheet inhibit tables see sheet enable tables	-			

										,	
Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters		Enable Conditions		Time Red	quired	MIL IIIum.
	P07E4	ETRS TRCR Diagnostics - Unable to Engage Parking	Target Range fail in Gear Lever detected for Parking range	= TRUE -	Range Achieve failure reported	=	TRUE	-	0.5	sec	2 Trips
					CAN signal Park Range Diagnostic Critical Fault from TRCM	=	FALSE	-			
					OR Range availability error from Gear Lever Diagnostics	=	TRUE	-			
					) No pending or confirmed DTCs	=	see sheet inhibit tables	-			
					Basic enabling conditions are met	=	see sheet enable tables	-			
	P073E	ETRS TRCR Diagnostics - Unable to Engage Reverse	Target Range fail in Gear Lever detected for Reverse range	= TRUE -	Range Achieve failure reported	=	TRUE	-	0.5	sec	2 Trips
					Critical reverse fault OR	=	FALSE	-			
					Range availability error from Gear Lever Diagnostics	=	TRUE	-			
					Basic enabling conditions are met	=	see sheet enable tables	-			

Component / System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	Required	MIL IIIum.
	P1787		Unexpected Range Change failure in Gear Lever	= TRUE -	Unexpected Range Change Fail Flag	= TRUE -	0.1	sec	2 Trips
		Detected	reported		Supress Range Achievement is active OR (	= FALSE -			
					( Translated Range Command is equal to Parking range OR	= FALSE -			
					Last failed range is equal to Parking range OR	= FALSE -			
					CAN signal indicating Park Range diagnostic critical fault from TRCM	= FALSE -			
					Translated Range Command is equal to Neutral Range OR	= FALSE -			
					Last failed range is equal to Neutral range OR	= FALSE -			
					Critical neutral fault )	= FALSE -			
					Translated Range Command is equal to Reverse Range OR	= FALSE -			
					Last failed range is equal to Reverse Range OR	= FALSE -			
					Critical reverse fault	= FALSE -			
					Translated Range Command is equal to Drive Range OR	= FALSE -			
					Last failed range is equal to Drive Range OR	= FALSE -			
					Critical forward range fault )	= FALSE -			
					Basic enabling conditions are met	= see sheet enable - tables			

End of Table

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
			At EOL, software shall read the voltage on the IGN_MON pin 45 [PO_2/ANS]. This value is used to calculate voltage calibration value. If the IGN_MON voltage is outside of the allowed voltage limits, software shall set the VCC CompensationEOL fault.	Acceptable upper and lower voltage thresholds are defined as IGN_MON at EOL +/- 7%.	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			Software performs BIST test provided by RENESAS. This fault qualifies when BIST test will fail.	Fault Detected	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			On runtime, software perform CAN registers test. During this test software write test byte to the register and check if it was properly set. If test will fail, software should set Should set CAN_RegFreezeFail error.	Fault Detected	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 – 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			This fault qualifies when EEPROM read is not ok (EEPROM failed to accept the job) and also when checksum read is wrong. This fault is set for both cases of EEPROM read from original address and Image address of the stored data.	Fault Detected	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	N/A	Safety Non-MIL Emissions Neutra Diagnostic
			This fault qualifies when runtime of specific functions will exceed allowed time	Fault Detected	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
		Internal Electronic Failure	When the external clock stops oscillating, the system should detect the failure and switch to high speed on-chip oscillator.  1. Disable CAN communication.  2. Log the fault condition to EEPROM.  3. Continue to service watch dog.  4. When the external clock re-oscillates after oscillation stop, switch the external clock to the clock source of the CPU clock by performing a system reset.  5. Upon reset, the system shall do oscillation stop detection fault.	Fault Detected	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 − 16V ≠ disabled	On Crystal Failure	Safety Non-MIL Emissions Neutra Diagnostic
			This fault qualifies when RAM check fails	Fault Detected	Vehicle Power Mode: Supply Voltage C056D ENABLE	= RUN = 9 - 16V ≠ disabled	< 0.5 s (During Initialization)	Safety Non-MIL Emissions Neutra Diagnostic
			Software should set SPI_timeout error when SPI transmission will exceed allowed time.	Fault Detected	Vehicle Power Mode: Supply Voltage C056D ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			This fault qualifies when configuration read from EEPROM is not ok.: - EEPROM failed to accept the job, - checksum read is wrong.	EEPROM read or checksum error	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 – 16V ≠ disabled	< 0.5 s (During Initialization)	Safety Non-MIL Emissions Neutra Diagnostic
			Software performs stack and istack usage analysis. This fault qualifies when stack or istack will overflow.	Fault Detected	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			At EOL, software shall read the voltage on the IGN_MON pin 45 [PO_2/ANS]. This value is used to calculate voltage calibration value. If the IGN_MON voltage is outside of the allowed voltage limits, software shall set the VCC_CompensationEOL fault.	Acceptable upper and lower voltage thresholds are defined as IGN_MON at EOL +/- 7%.	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			On Runtime, software shall read the voltage on the VDD_MON pin 36 [PO_7/ANO]. If the VDD_MON voltage is within the allowable VDD_MON voltage limits stored in EEPROM. If the VDD_MON voltage is outside of the allowed voltage limits, software shall set the VDD_MON_Error fault.	Fault Detected	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			This fault qualifies when Watchdog reset will be detected.	Fault Detected	Vehicle Power Mode: Supply Voltage C056D ENABLE	= RUN = 9 - 16V ≠ disabled	On Watchdog Reset	Safety Non-MIL Emissions Neutra Diagnostic
			This fault qualifies when Watchdog test fails	Fault Detected	Vehicle Power Mode: Supply Voltage C056D ENABLE	= RUN = 9 - 16V ≠ disabled	< 0.5 s (During Initialization)	Safety Non-MIL Emissions Neutra Diagnostic
			At EOL, software should collect Lateral data from the Murata sensor. If software won't be able to collect 30 data samples during EOL test or avarage measured value is outside range stored in EEPROM, error flag shall be set.	30 data samples	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 − 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			At EOL, software should collect Longitudinal data from the Murata sensor. If software won't be able to collect 30 data samples during EOL test or avarage measured value is outside range stored in EEPROM, error flag shall be set.	31 data samples	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic

Component/System	Fault Code	Monitor Strategy Description	Mairunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
			Software should continuously monitor the PITCH_DIAG input pin of the microprocessor. If the gyro is performing correctly, the PITCH_DIAG will have a logic HIGH status. If a fault is detected within the gyro, the PITCH_DIAG will have a logic LOW status. During normal operation, when PITCH_DIAG has a logic LOW status for ten consecutive CAN cycles (0.1 s), the invalid Flag should be set. If the PITCH_DIAG pin transitions from LOW to HIGH, the error fault is to be dematured after 10.05 s.	Fault Detected	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 − 16V ≠ disabled	0.003 s	Safety Non-MIL Emissions Neutra Diagnostic
			At EOL, software should continuously monitor the PITCH_TEMP pin 38 [P0_5/AN2] input pin of the microprocessor. Software shall set error flag If average measured temperature value is outside range	1.788V to 4.029V.	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 − 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			At EOL, Software should collect Pitch rate data on PITCH_RATE pin 24 [P1_3/-K13/AN11] input pin of the microprocessor. Software shall set error flag If average measured rate value is outside range	2.4V to 2.6V.	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			Software is to monitor PITCH_RATE pin and PITCH_TEMP pin. If the value of PITCH_TEMP increases at least 171mV in less than 10ms and PITCH_RATE is below 1.5V for at least 0.05 s, it can be concluded that the rate sensor has an open ground pin and the validity bit for the rate sensor data should be set to invalid. The error flag should be dematured if PITCH_RATE increases above 1.5V for 0.1 s.	1.5V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.009 s	Safety Non-MIL Emissions Neutra Diagnostic
			At EOL, software should collect PITCH_RATE data when PITCH_SELF_TEST pin have logic HIGH status. If avarage measured value is outside range, error flag shall be set.	3.011V to 3.887V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 – 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			Software should set PitchST_Error when Pitch Sensor failed three times during self test procedure. Pitch sensor will fail self test when: - during startup, if the PITCH_DIAG transitions from logic LOW to logic HIGH, - measured PITCH_RATE during self test procedure will be higher than 4V, - difference between measured PITCH_RATE during self test and PITCH_RATE value before self test is not in range. Thresholds are stored in the EEPROM.	>4V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 − 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			Software shall report a PitchTempRange invalid error whenever the voltage on PITCH_TEMP is outside the range of 1.225V to 3.835V for more than 0.1 s. The error flag shall be released when the PITCH_TEMP voltage is within the specified range for 0.05 s. PITCH_RATE data shall continue to be transmitted when the PITCH_TEMP out of range error flag is present.	1.225V to 3.835V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 − 16V ≠ disabled	0.003 s	Safety Non-MIL Emissions Neutra Diagnostic
			Software shall report a Pitch_High_Error when the voltage on PITCH_RATE is above 4.845V (threshold is configurable in EEPROM) for a period of 0.05 sec, the error shall be released when the voltage is below 4.845V for a period of 0.05 sec. The sensitivity for the yaw sensor should be 16mV/9/sec.	>4.85V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.003 s	Safety Non-MIL Emissions Neutra Diagnostic
			Software shall report a Pitch_Low_Error when the voltage on PITCH_RATE is below 0.155V (threshold is configurable in EEPROM) for a period of 0.05 sec, the error shall be released when the voltage is above 0.155V for a period of 0.05 sec. The sensitivity for the yaw sensor should be 16mV/9/sec.	<0.155V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.003 s	Safety Non-MIL Emissions Neutra Diagnostic
Electronic Control Unit Hardware	C056D		Software should continuously monitor the ROLL_DIAG input pin of the microprocessor. If the gyro is performing correctly, the ROLL_DIAG will have a logic HIGH status. If a fault is detected within the gyro, the ROLL_DIAG will have a logic LOW status. During normal operation, when ROLL_DIAG has a logic LOW status for then consecutive CAN cycles (0.1 s), the invalid Flag should be set. If the ROLL_DIAG pin transitions from LOW to HIGH, the error fault is to be dematured after 10.05 s.		Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.003 s	Safety Non-MIL Emissions Neutra Diagnostic
Electronic Control Unit Hardware	CUSED		At EOL, software should continuously monitor the ROLL_TEMP pin 39 [P0_4/AN3] input pin of the microprocessor. Software shall set error flag If average measured temperature value is outside range	1.788V to 4.029V.	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			At EOL, Software should collect Roll rate data on ROLL_RATE pin 28 [P1_2/-K12/AN10] input pin of the microprocessor. Software shall set error flag If average measured rate value is outside range.	2.4V to 2.6V.	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
			Software is to monitor ROLL_RATE pin and ROLL_TEMP pin. If the value of ROLL_TEMP increases at least 171mV in less than 10ms and ROLL_RATE is below 1.5V for at least 0.05 s, it can be concluded that the rate sensor has an open ground pin and the validity bit for the rate sensor data should be set to invalid. The error flag should be dematured if ROLL_RATE increases above 1.5V for 0.1 s.	1.5V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.009 s	Safety Non-MIL Emissions Neutr Diagnostic
			At EOL, software should collect ROLL_RATE data when ROLL_SELF_TEST pin have logic HIGH status. If avarage measured value is outside range, error flag shall be set.	3.011V to 3.887V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutr Diagnostic
			Software should set RollST_Error when Roll Sensor failed three times during self test procedure. Roll sensor will fail self test when: - during startup, if the ROLL_DIAG transitions from logic LOW to logic HIGH, - measured ROLL_RATE during self test procedure will be higher than 4V, - difference between measured ROLL_RATE during self test and ROLL_RATE value before self test is not in range. Thresholds are stored in the EEPROM.	>4V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutr Diagnostic
		Internal Self Test Failed	Software shall report a RollTempRange invalid error whenever the voltage on ROLL_TEMP is outside the range of 1.225V to 3.835V for more than 0.1 s. The error flag shall be released when the ROLL_TEMP voltage is within the specified range for 0.05 s. ROLL_RATE data shall continue to be transmitted when the ROLL_TEMP out of range error flag is present.	1.225V to 3.835V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V # disabled	0.003 s	Safety Non-MIL Emissions Neut Diagnostic
			Software shall report a Roll_High_Error when the voltage on ROLL_RATE is above 4.845V (threshold is configurable in EEPROM) for a period of 0.05 sec, the error shall be released when the voltage is below 4.845V for a period of 0.05 sec. The sensitivity for the yaw sensor should be 16mV/°/sec.	>4.85V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.003 s	Safety Non-MIL Emissions Neut Diagnostic
			Software shall report a Roll_Low_Error when the voltage on ROLL_RATE is below 0.155V (threshold is configurable in EEPROM) for a period of 0.05 sec, the error shall be released when the voltage is above 0.155V for a period of 0.05 sec. The sensitivity for the yaw sensor should be 16mV/°/sec.	<0.155V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 − 16V ≠ disabled	0.003 s	Safety Non-MIL Emissions Neut Diagnostic
			Software should set VTI_CommErr when SPI will be busy during communication with Murata sensor for 100 consecutive transmissions.		Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neut Diagnostic
			Software should set SENS_VTI_INIT when Murata sensor failed three times during self test procedure. Murata sensor will fail self test when: - software won't be able to send SPI commands on startup to Murata sensor - received response will be faulted.		Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 − 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neut Diagnostic
			Software shall report a Yaw_High_Error when the voltage on YAW_RATE is above 4.845V (threshold is configurable in EEPROM) for a period of 0.05 sec, the error shall be released when the voltage is below 4.845V for a period of 0.05 sec. The sensitivity for the yaw sensor should be 16mV/P/sec.	>4.85V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 − 16V ≠ disabled	0.003 s	Safety Non-MIL Emissions Neut Diagnostic
			Software should set VTI_ST_error when Murata sensor will return ST bit set in response message.	Fault Detected	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.003 s	Safety Non-MIL Emissions Neut Diagnostic
			Software should set VTI_SAT_Fault when Murata sensor will return SAT bit set in response message.	Fault Detected	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 − 16V ≠ disabled	0.003 s	Safety Non-MIL Emissions Neut Diagnostic
			Software should set VTI_FrameErr when Murata sensor will return FRME bit set in 10 consecutive messages.	Fault Detected	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.009 s	Safety Non-MIL Emissions Neut Diagnostic
			Software should set VTI_PORST_Fault when Murata sensor will return PORST bit set in response message.	Fault Detected	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.003 s	Safety Non-MIL Emissions Neut Diagnostic

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
			Software shall report a Yaw_Low_Error when the voltage on YAW_RATE is below 0.155V (threshold is configurable in EEPROM) for a period of 0.05 sec, the error shall be released when the voltage is above 0.155V for a period of 0.05 sec. The sensitivity for the yaw sensor should be 16mV/°/sec.	<0.155V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 – 16V ≠ disabled	0.003 s	Safety Non-MIL Emissions Neutra Diagnostic
			Software should continuously monitor the YAW_DIAG input pin of the microprocessor. If the gyro is performing correctly, the YAW_DIAG will have a logic HIGH status. If a fault is detected within the gyro, the YAW_DIAG will have a logic LOW status. During normal operation, when YAW_DIAG has a logic LOW status for ten consecutive CAN cycles (0.1 s), the invalid Flag should be set. If the YAW_DIAG pin transitions from LOW to HIGH, the error fault is to be dematured after 10.05 s.	Fault Detected	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.003 s	Safety Non-MIL Emissions Neutra Diagnostic
			At EOL, software should continuously monitor the YAW_TEMP pin 37 [P0_6/AN1] input pin of the microprocessor. Software shall set error flag If average measured temperature value is outside range.	1.788V to 4.029V.	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			At EOL,Software should collect Yaw rate data on YAW_RATE pin 30 [P1_0/-K10/AN8] input pin of the microprocessor. Software shall set error flag If average measured rate value is outside range.	2.4V to 2.6V.	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			Software is to monitor YAW_RATE pin and YAW_TEMP pin. If the value of YAW_TEMP increases at least 171mV in less than 10ms and YAW_RATE is below 1.5V for at least 0.05 s, it can be concluded that the rate sensor has an open ground pin and the validity bit for the rate sensor data should be set to invalid. The error flag should be dematured if YAW_RATE increases above 1.5V for 0.1 s.	1.5V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.009 s	Safety Non-MIL Emissions Neutra Diagnostic
			At EOL, software should collect YAW_RATE data when YAW_SELF_TEST pin have logic HIGH status. If avarage measured value is outside range, error flag shall be set.	3.011V to 3.887V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			Software should set YAWST_Error when YAW Sensor failed three times during self test procedure. Yaw sensor will fail self test when: - during startup, if the YAW_DIAG transitions from logic LOW to logic HIGH, - measured YAW_RATE during self test procedure will be higher than 4V, - difference between measured YAW_RATE during self test and YAW_RATE value before self test is not in range. Thresholds are stored in the EEPROM.	>4V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V # disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
			Software shall report a YawTempRange invalid error whenever the voltage on YAW_TEMP is outside the range of 1.225V to 3.835V for more than 0.1 s. The error flag shall be released when the YAW_TEMP voltage is within the specified range for 0.05 s. YAW_RATE data shall continue to be transmitted when the YAW_TEMP out of range error flag is present.	1.225V to 3.835V	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.003 s	Safety Non-MIL Emissions Neutra Diagnostic
			At EOL, software should collect Vertical data from the Murata sensor. If software won't be able to collect 30 data samples during EOL test or avarage measured value is outside range stored in EEPROM, error flag shall be set.	Fault Detected	Vehicle Power Mode: Supply Voltage C056D_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic
		Vehicle Configuration Not Programmed	Calibration for vehicle not provided	Fault Detected	Vehicle Power Mode: Supply Voltage C056E_ENABLE	= RUN = 9 - 16V ≠ disabled	< 0.5 s (During Initialization)	Safety Non-MIL Emissions Neutra Diagnostic
Electronic Control Unit Software	C056E		This fault qualifies when EEPROM read of Peripheral Data section is not accepted or failed.	Fault Detected	EEPROM read or checksum error	when EEPROM read of Peripheral Data section is not accepted or failed	< 0.5 s (During Initialization)	Safety Non-MIL Emissions Neutra Diagnostic
		Checksum Error	This fault qualifies when EEPROM read of System Parameters section is not accepted or failed.	Fault Detected	EEPROM read or checksum error	when EEPROM read of System Parameters section is not accepted or failed.		Safety Non-MIL Emissions Neutra Diagnostic
			This fault qualifies when ROM check fails	Fault Detected	ROM	When ROM check fails	< 0.5 s (During Initialization)	Safety Non-MIL Emissions Neutra Diagnostic
IMU Communications	U0077	Chassis Expansion CAN Bus Off -	This fault qualifies when CAN Bus Off will be detected	Fault Detected	Vehicle Power Mode: Supply Voltage U0077_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutra Diagnostic

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
			Software should set CAN_OverSync when IMU will get sync message faster than 4msec rate (i.e 0.001 s-0.003 s). Normally IMU will get sync message for every 10ms.  Note: The above mentioned criteria is valid only after 0.5 s from startup		Vehicle Power Mode: Supply Voltage U023A_ENABLE	= RUN = 9 - 16V ≠ disabled	0.05 s	Safety Non-MIL Emissions Neutral Diagnostic
IMU Communications	U023A	Lost Communication with	Software should set CAN_SyncDLCFail when sync message have bad DLC.	Fault Detected	Vehicle Power Mode: Supply Voltage U023A_ENABLE	= RUN = 9 - 16V ≠ disabled	0.001 s	Safety Non-MIL Emissions Neutral Diagnostic
iwo communications	0023A		Software should set CAN_Sync_err when IMU will not receive sync message for known time. This time is set in EEPROM.  Note: The above mentioned criteria is valid only after 0.5 s from startup		Vehicle Power Mode: Supply Voltage U023A_ENABLE	= RUN = 9 – 16V ≠ disabled	0.05 s	Safety Non-MIL Emissions Neutral Diagnostic
			Software should set CAN_UnderSync when IMU will not receive sync message for known time. This time is set in EEPROM.  Note: The above mentioned criteria is valid only after 0.5 s from startup		Vehicle Power Mode: Supply Voltage U023A_ENABLE	= RUN = 9 – 16V ≠ disabled	0.05 s	Safety Non-MIL Emissions Neutral Diagnostic

#### 19 OBDG07 ADAS Map Module (AMM) Supporting Tables

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
		RAM Failure - This test is run in its entirety or until a fault is detected. The RAM Test Algorithm will cycle through the RAM memory map and verify each bit within each byte of RAM is valid. This is accomplished by writing \$AA, then reading the value back, if the value is not \$AA the DTC will set. If the value is \$AA the algorithm will write \$55, then read the value back, if the value is not \$55 the DTC will set.	For each memory map test if: Write \$AA AND Write \$55	#\$AA upon read #\$55 upon read	Vehicle Power Mode: Supply Voltage Virtual Network condition B101D_34_ENABLE	= Any = 9 – 16V = Any Virtual Network that the ECU participates in is active. ≠ disabled	The RAM Test algorithm will RUN once on Power Up until it completes. Takes 0.02 s	Safety Non-MIL Emissions Neutral Diagnostic
		ROM Failure - The Flash Test Algorithm will cycle through the Flash memory map, byte by byte. The algorithm will sum each byte, this includes the checksum written by the GM CANflash 4.0 utility.	Checksum	≠0	Vehicle Power Mode: Supply Voltage Virtual Network condition B101D_35_ENABLE	= Any = 9 − 16V = Any Virtual Network that the ECU participates in is active. ≠ disabled	The Flash Test algorithm will run once at Power up until it completes. Takes 0.350 s	Safety Non-MIL Emissions Neutral Diagnostic
		EEPROM Failure - Each EEPROM block contains a checksum value, if the contents of the EEPROM Block do not evaluate to their corresponding checksum, three attempts to write to EEPROM and to read correct value written will occur before setting the DTC.	Evaluated Checksum for EEPROM Block	≠ Predefined Checksum Value	Vehicle Power Mode: Supply Voltage Virtual Network condition B101D_36_ENABLE	= Any = 9 - 16V = Any Virtual Network that the ECU participates in is active. ≠ disabled	The EEPROM Test algorithm will run once at Power up until it completes. Takes 0.02 s	Safety Non-MIL Emissions Neutral Diagnostic
Electronic Control Unit Hardware	B101D		Internal Electronic Failure - FLASH & RAM ECC check verifies correct operation of ECC functionality in memory, if check at power cycle fails or at some point in time during runtime an error is detected in FLASH & RAM ECC registers then the DTC is set.  ALU check tests its integrity by performing several operations and verifying the result is correct, if at some point a result proves to be incorrect then the DTC is set.  REGISTER check tests the registers integrity, verifying the success of the reading/writing process. If at any register the verification proves incorrect, then the DTC is set.  iMx ALU check constantly verifies that iMx ALU performs operations correctly, if at some point the iMx ALU check result proves to be incorrect compared with a known expected result, then the DTC is set.	Fault Detected	Vehicle Power Mode: Supply Voltage Virtual Network condition B101D_39_ENABLE	= RUN = 9 – 16V = Any Virtual Network that the ECU participates in is active. ≠ disabled	FLASH ECC check is tested at each power cycle and at runtime each 0.01 s  RAM ECC check is tested at each power cycle and at runtime each 0.01 s  ALU check is tested at each power cycle REGISTER check is tested at each power cycle iMx ALU check is tested at each power cycle iMx ALU check is tested at runtime each 0.1 s	Safety Non-MIL Emissions Neutral Diagnostic
		Internal Communications Failure between micro processors	At startup VuC allows 50 seconds for iMx to begin communication, if no communication starts within 50 seconds then the DTC is set.  This DTC can only be set during startup.	Fault Detected	Vehicle Power Mode: Supply Voltage Virtual Network condition B101D_3C_ENABLE	= RUN = 9 – 16V = Any Virtual Network that the ECU participates in is active. ≠ disabled	50 s	Safety Non-MIL Emissions Neutral Diagnostic

#### 19 OBDG07 ADAS Map Module (AMM) Supporting Tables

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		Calibration Data Set Not Programmed	Default Calibrations Stored. This is checked by verifying a specific signature is written at	Memory location is Set to 0xFF or Calibration signature is not present	Vehicle Power Mode: Supply Voltage	= RUN = 9 – 16V	Once at power-up	
			calibration section	Cambration signature is not present	Virtual Network condition	= Any Virtual Network that the ECU		Safety Non-MIL
Electronic Control Unit Software	B101E					participates in is active.		Emissions Neutral Diagnostic
					B101E_42_ENABLE	≠ disabled		Diagnostic
		The map data is not up to date	(current date) - (last successful map update)	>= calibration attribute MaxMapAge	Vehicle Power Mode:	= RUN	The map age	
			(, (,,	(6 months)	VN Activation Conditions:	COMM_ENABLE=HIGH	verification algorithm	
					Supply Voltage	= 9 - 16V	will RUN once on	Safety Non-MIL
Map Data Programming	B126B				Virtual Network condition	= Any Virtual Network that the ECU participates in is active.	Power Up until it completes.	Emissions Neutral Diagnostic
					B126B ENABLE	≠ disabled	completes.	Diagnostic
		Voltage Below Threshold	V Supply (V Batt)	= 9.0V (+/- 0.5 V)	Vehicle Power Mode:	= RUN	After 10 ms of	
					Virtual Network condition	= Any Virtual Network that the ECU participates in is active.	voltage transition to undervoltage	Safety Non-MIL Emissions Neutral
					B1325 03 ENABLE	≠ disabled	undervoltage	Diagnostic
Control Module Power Circuit	B1325							
Control Module 1 Gwel Giledit	D1020	Voltage Above Threshold	V Supply (V Batt)	= 16.0V (+/- 0.5 V)	Vehicle Power Mode:	= RUN	After 10 ms of	0 ( ) 1 1 1 1 1 1
					Virtual Network condition	= Any Virtual Network that the ECU participates in is active.	voltage transition to overvoltage	Safety Non-MIL Emissions Neutral
					B1325_07_ENABLE	≠ disabled	ovorvollago	Diagnostic
								, and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second
		The following messages are not received on CAN			Vehicle Power Mode: Virtual Network condition	= OFF, RUN, ACCESSORY = Any Virtual Network that the ECU	CAN bus off condition is	
		Bus: \$260 - PPS_ElevHdSpd_FO			Viitaai Network condition	participates in is active.	monitored each 1 s	
		\$261 - PPS_PosLat_FO			ECU_COMM_Active			
		\$262 - PPS_PosLong_FO			U0075_00_ENABLE			
		\$263 - PPS_SigAcqTime_FO \$264 - PPS Time FO			DTC U023B	= not active		
		\$265 - PPS QualMetrics FO						
		\$308 - F_Vehicle_Path_Estimate						
		\$A1 - F_Master_Time_Sync						Safety Non-MIL
Control Module Communication Object Detection CAN Bus Off	U0075	The following message are not sent on CAN Bus:	Can bus off is detected on Can Bus	Fault Detected				Emissions Neutral
Object Detection CAN Bus Off		\$604 - ADAS Position FO						Diagnostic
		\$605 - ADAS_Segment_FO						
		\$606 - ADAS_Stub_FO						
		\$607 - ADAS_Profile_Long_FO \$608 - ADAS Profile Short FO						
		\$609 - ADAS_Profile_Short_FO \$609 - ADAS Metadata FO						
		\$60A - ADAS_Protection_FO						
		\$60B - ADAS_Profile_Long2_FO						
		\$60C - ADAS_Profile_Short2_FO						
					Non OBD Control Modules: Vehicle	=RUN	After 0.250 s of AMM	
					Power Mode condition:		receiving last PPS_	
					OBD Control Modules: Accessory Wake		CAN message	
					Up Virtual Network condition:	=Any Module Active		
		The following messages are not recieved from			virtual Notwork Condition.			
		EOCM2B			Exceptions:		1	
			Messages not received for 3 out of a 16 fault		<ul> <li>U023B_00_ENABLE = disabled;</li> <li>however, failsoft actions shall still be</li> </ul>		1	
		\$260 - PPS_ElevHdSpd_FO	window. Window is 1000 ms.		taken if failure conditions are met.			
Lost Communication with Active		\$261 - PPS_PosLat_FO \$262 - PPS_PosLong_FO			When the Bus Off events counter,			Safety Non-MIL
Safety Control Module 2	U023B	\$263 - PPS_SigAcqTime_FO	There is a window of 250ms in which no PPS_ CAN message has been received by AMM or no	Fault Detected	used in the X of Y debounce strategy is		1	Emissions Neutral Diagnostic
		\$264 - PPS_Time_FO	PPS_ CAN message was received by AMM  PS_ CAN message was received by AMM		> 0, • When a bus off condition (U0075) is			Diagnostic
		\$265 - PPS_QualMetrics_FO \$308 - F Vehicle Path Estimate	during 1st 5 seconds after boot up		when a bus off condition (00075) is current, these Lost Communications			
		\$A1 - F Master Time Sync			DTCs shall not set but the failsoft action			
					shall occur if conditions to set the DTC			
					are met.  The conditions listed in Inhibiting			
					Storage of "Lost Communication with"			
					DTCs section are not active		1	
		L	<u> </u>					1

## 19 OBDG07 Electronic Power Steering (EPS) Supporting Tables

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
		Internal Electronic Failure	An internal electronics failure within the EPS as been detected	Fault Detected	Exception: Algorithm shall not run if C017654_ENABLE = disabled	Vehicle Power Mode Condition: RUN ECU Operational Condition: None Vehicle Operating Conditions: 6.0V < Vbat < 16V, Engine is running.		Safety Non-MIL Emissions Neutral Diagnostic
System Thermal Error	C0176	Temperature High	When the system gets hot enough that there is a noticeable drop in performance (e.g., a drop to 80% of nominal or below) The capability of the ECU is reduced due to temperature.	> 180°C	Exception: Algorithm shall not run if C017654_ENABLE = disabled	Vehicle Power Mode Condition: RUN ECU Operational Condition: None Vehicle Operating Conditions: 6.0V < Vbat < 16V, Engine is running.	0.02 s	Safety Non-MIL Emissions Neutral Diagnostic
		Angle Measurement Errors	Handwheel angle value outside mechanical limitation OR Motor position and angle sensor position mismatched by	> ±540° >±15°	Exception: Algorithm shall not run if C046000_ENABLE = disabled	Vehicle Power Mode Condition: RUN (do not run during CRANK) ECU Operational Condition: None Vehicle Operating Conditions: 6.0V < Vbat < 16V, Engine is running.	0.06 s	Safety Non-MIL Emissions Neutral Diagnostic
Steering Wheel Angle Sensor	C0460	Calibration Not Learned	Check of flag in NVM to confirm that sensor calibration has taken place	Fault Detected	Exception: Algorithm shall not run if C046058_ENABLE = disabled	Vehicle Power Mode Condition: RUN (do not run during CRANK) ECU Operational Condition: None Vehicle Operating Conditions: 6.0V < Vbat < 16V, Engine is running.	0.004 s	Safety Non-MIL Emissions Neutral Diagnostic
Steeling Wileer Angle Sensor	C0460	Incorrect Reaction After Event	PWM Duty Cycle OR PWM Period < 776 us or > 1304 us OR Difference between the fine and coarse signals > 51 deg	< 5% or > 95% < 776 us or > 1304 us > 51 deg	Exception: Algorithm shall not run if C046058_ENABLE = disabled	Vehicle Power Mode Condition: RUN (do not run during CRANK) ECU Operational Condition: None Vehicle Operating Conditions: 6.0V < Vbat < 16V, Engine is running.	0.02 s	Safety Non-MIL Emissions Neutral Diagnostic
		Plausibility Failure	difference between the calibrated straight ahead angle and the calculated road-wheel straight ahead value	> 30 deg	Exception: Algorithm shall not run if C04605A_ENABLE = disabled	Vehicle Power Mode Condition: RUN (do not run during CRANK) ECU Operational Condition: None Vehicle Operating Conditions: Engine is running.	0.06 s	Safety Non-MIL Emissions Neutral Diagnostic
Electric Steering Motor Circuit	C0475	ECU Microfault	ECU C micro has tripped with a B level diagnostic.	Fault Detected	Exception: Algorithm shall not run if C047500_ENABLE = disabled	Vehicle Power Mode Condition: RUN ECU Operational Condition: None Vehicle Operating Conditions: 6.0V < Vbat < 16V, Engine is running.	Continuously Monitored; Fault Detected	Safety Non-MIL Emissions Neutral Diagnostic
Steering Wheel Torque Input Sensor	C0545	Torque Sensor diagnostics	The faults are raised if Torque Sensor diagnostics detect that the PWM period for channel 1 or 2 is continuously below and above the threshold of 384uSec and 640uSec respectively for 20ms OR The faults are raised if Torque Sensor diagnostics detect that the PWM duty for channel 1 or 2 is continuously above and below a threshold of 95% and 5% respectively for 20ms OR This fault is raised if the difference between the torque calculated in both channels is greater than a fixed error threshold of 2.5Nm continuously for 20ms OR This fault is raised if there is at least one confirmed fault detected on each channel with respect to PWM duty and frequency continuously for 20ms the following torque sensor fault codes are raised at power up		Exception: Algorithm shall not run if C054500_ENABLE = disabled	Vehicle Power Mode Condition: RUN ECU Operational Condition: None Vehicle Operating Conditions: 6.0V < Vbat < 16V, Engine is running.	0.02 s	Safety Non-MIL Emissions Neutral Diagnostic
		Internal Self Test Failed	Torque crosscheck fault - Difference in torque measurement between both sensors.	Fault Detected	Exception: Algorithm shall not run if C05453B_ENABLE = disabled	Vehicle Power Mode Condition: RUN ECU Operational Condition: None Vehicle Operating Conditions: 6.0V < Vbat < 16V, Engine is running.	0.02 s	Safety Non-MIL Emissions Neutral Diagnostic
Steering Gear Performance	C055C	High Steering Rack Friction	Software determines the level of steering rack friction and determines if there has been an increased levels of friction of the steering gear over the life of the product.	High Friction Fault Detected	None	ECU Operational Condition: Power up, Normal Operation Vehicle Operating Conditions: Ignition ON	0.02 s	Safety Non-MIL Emissions Neutral Diagnostic

	1	General Checksum Failure	19 OBDG07 Electronic Power Steel This fault is raised if the Gearing tune block has a CRC fault	Fault Detected	None	ECU Operational Condition: Power	1	
		General Checksum Failure	I his fault is raised if the Gearing tune block has a CRC fault	Fault Detected	None	UP Vehicle Operating Conditions: Ignition ON.	Once at Power-up	Safety Non-MIL Emissions Neutral Diagnostic
		Internal Self Test Failed	This fault will be set during powerup on observing the presence of unlock software.	Manufacturing Engineering Counter ≠ 0	None	ECU Operational Condition: Power UP Vehicle Operating Conditions: Ignition ON.	Once at Power-up	Safety Non-MIL Emissions Neutral Diagnostic
System Configuration C0569	Calibration Data Set Not Programmed	OR This fault is raised if Gear Polarity is set to 0. OR Tune Selection indicates an invalid Gear Tune selection. OR This fault is raised when MEC =0 and the Vehicle tune selected is not Default Vehicle Tune.		Exception: Algorithm shall not run if C0566942_ENABLE = disabled	Vehicle Power Mode Condition: RUN ECU Operational Condition: None Vehicle Operating Conditions: 6.0V < Vbat < 16V, Engine is running	Once at Power-up	Safety Non-MIL Emissions Neutral Diagnostic	
		Vehicle Configuration Not Programmed	part as EPS being out of specification. OR This fault indicates that the EPP has not passed TRW's end of line tests.  This fault is raised if the ISense current measurement is not reading a zero(+/-5A) at power.	Fault Detected	Exception: Algorithm shall not run if C0566942_ENABLE = disabled	ECU Operational Condition: Power UP Vehicle Operating Conditions: Ignition ON.	Once at Power-up	Safety Non-MIL Emissions Neutral Diagnostic
		Micro Processor, ROM/RAM or SPI Fault	This fault is raised if the ISense current measurement is not reading a zero(+/-5A) at power up continuously for 20ms. OR This fault is raised if the ISense measurement does not respond to a positive offset correctly during power up (between 63A and 71A). OR This fault is raised if the ISense measurement does not respond to a negative offset correctly during power up (between - 63A and - 71A). OR This fault is raised if the ISense measurement does not correctly respond to both positive and negative offsets being asserted at power up (+/- 10A). OR This fault is raised if the ISense measurement indicates an un-usually high fault current (200A). OR This fault is raised when the ECU internal watch dog is not serviced continuously for 20ms by monitored tasks. OR This fault is raised when the ECU internal watch dog is not serviced continuously for 20ms by monitored tasks. OR This fault is raised during power up if the request for SafeTCore to trip has not resulted in the SafeTCore getting tripped. OR This fault is raised if the EPS raises level B fault that has a fault reaction set to "INCREMENT C69 COUNTER" continuously for three consecutive cycles. OR This fault is raised during power up the CPU does not process the software correctly. OR This fault is raised during power up there has not been any response from SafeTMon (in the other micro) for 20ms. OR This fault is raised during power up or in normal operation if SafeTMon cannot move to or is in READY state for 20ms when expected. This diagnostic is scheduled every 1ms. OR This fault is raised if SafeTMon cannot detect a software injected failure for a period of 20ms. This diagnostic is executed every 1ms.	Fault Detected	Exception: Algorithm shall not run if C056D00_ENABLE = disabled	Vehicle Power Mode Condition: RUN ECU Operational Condition: None Vehicle Operating Conditions: 6.0V < Vbat < 16V, Engine is running.		

19 OBDG07 Electronic Power Steering (EPS) Supporting Tables This fault is raised if SafeTMon is not in ACTIVE state for 20ms when expected. This diagnostic is scheduled every 20ms. This fault is raised if SafeTMon is not in run time mode when expected for a period of 20ms This fault is raised if SafeTMon does not trip during power down when a fault is intentionally iniected. This fault is raised when a SafeTMon incorrect state transition is requested. This diagnostic is scheduled every 1ms. This fault is raised if the EcuC micro's SafeTMon has detected a failure with EpsC micro Safety Non-MIL ECU Hardware Performance C056D continuously for a period of 20ms. 0.02 s Emissions Neutral Diagnostic This fault is raised if the EpsC micro's SafeTMon has detected a fault with EcuC Micro continuously for 20ms. The above fault is raised if the Motor Torque demand calculation and the SFS blend gains A and B do not match the parallel monitor calculations continuously for 20ms This fault is raised if an unexpected and an unhandled interrupt vector has been fired. This fault is raised under the following conditions: - If an OS task has been scheduled while the previous scheduling of the same task has not - If a power up fast task(100uSec task) has over run twice in a row If a Stack under or over flow has been detected by the software OS has triggered an unhandled or undefined task This fault is raised if the interrupts are not executing at the correct expected rate. This fault is raised if the tasks do not execute in the correct order in the software. This fault is raised when a fault is detected in safety communication between the two micros continuously for 20ms. This is scheduled every 1ms scheduler. This fault is raised if during power up the two micros cannot communicate continuously for 20ms. This fault is raised when an Inter Controller Communication Failure is detected continuously for 20ms. This fault is raised if the RAM cell does not return the RAM pattern the diagnostic is expecting. The diagnostic is run every 200uSec This fault is raised if the Interrupt has been triggered at the correct rate but not for the expected reason This fault will be raised If Core voltage is outside the range of 3.713V to 5.305V for 60ms, This fault will be raised if 2v5 port is in between 3.713V to 4.708V for 20ms. This fault will be raised if SMC NVM block CRC fails. AA5 and A86 are raised during EPS Power Down. When AA5 and A86 are present, the TOI feature(LKA and LCC) will NOT be available in the next key cycle. EPS sets the TOI Feedback status to Temp Limited Error detected when reading from NVM. ECU Operational Condition: Power Error detected when writing to NVM. Up/Power Down/Normal Operation Safety Non-MIL General Memory Failure Error detected when erasing NVM data. Fault Detected Vehicle Operating Conditions: 0.008 s Emissions Neutral None Ignition ON. Diagnostic This fault is raised if NVM Data format migration fails. This fault is raised if there is any failure with EEPROM. Vehicle Power Mode Condition: This fault is raised if an invalid command has been received by the SafeTMon from the Operational Software Safety Non-MIL Exception: Algorithm shall not run if ECU Operational Condition: None Calibration Set Not Fault Detected 0.008 s Emissions Neutral B101E41\_ENABLE = disabled Vehicle Operating Conditions: 6.0V This fault is raised if the micros communicate correctly at power up but not in the same Programmed Diagnostic < Vbat < 16V, Engine is running. mode (ie., one micro is in bootloader mode and the other is in Application mode).

			19 OBDG07 Electronic Power Steel	ring (EPS) Sup	porting Tables			
		Calibration Data Set Not Programmed	This fault is raised at startup if the product destination is set to SERVICE (\$55) and not to PRODUCTION (\$AA).	Fault Detected	Exception: Algorithm shall not run if B101E42_ENABLE = disabled	Vehicle Power Mode Condition: RUN ECU Operational Condition: None Vehicle Operating Conditions: 6.0V < Vbat < 16V, Engine is running.	0.008 s	Safety Non-MIL Emissions Neutral Diagnostic
		EEPROM Error	Fault raised if Infeneon FEE EEPROM Driver indicates a fault condition; fault set on every power cycle if the configuration of the EEPROM manager is incorrect	Fault Detected	Exception: Algorithm shall not run if B101E43_ENABLE = disabled	Vehicle Power Mode Condition: RUN ECU Operational Condition: None Vehicle Operating Conditions: 6.0V < Vbat < 16V, Engine is running.	0.008 s	Safety Non-MIL Emissions Neutral Diagnostic
ECU Software Performance C056B	C056E	Theft / Security Data Not Programmed	This fault is raised if stored CRC of Root Info Table doesn't match with calculated CRC.	Fault Detected	None	ECU Operational Condition: Power up Vehicle Operating Conditions: Ignition ON.	Once at Power-up	Safety Non-MIL Emissions Neutral Diagnostic
		Checksum Error	This fault is raised if the tune or calibration data is corrupted during run time. This is scheduled every 20ms OR This fault is raised if default tune is corrupted and no reference tune can be selected. This is a power up fault.	Fault Detected	Exception: Algorithm shall not run if B101E4A_ENABLE = disabled	Vehicle Power Mode Condition: RUN ECU Operational Condition: None Vehicle Operating Conditions: 9.0V < Vbat < 16V, Engine is running.	0.02 s	Safety Non-MIL Emissions Neutral Diagnostic
		Incorrect Reaction After Event	This fault will be raised if the CAN transmitted ID is different than the configured ID for 5000msec. This is scheduled at 8ms.  OR  This fault will be raised if the message transmitted periodicity mismatches with configured periodicity for 5000msec. This is scheduled at 1ms.  OR  This fault will be raised if there is any mismatch between the received EOCM A CE data and extracted data. This diagnostic runs on receipt of the message.	Fault Detected	In addition, setting of the DTC shall be delayed under the following conditions:  1) Within the first 5 seconds after Power Mode is set to RUN	Vehicle Power Mode Condition: RUN ECU Operational Condition: None Vehicle Operating Conditions: 9.0V < Vbat < 16V, Engine is running.	5 s	Safety Non-MIL Emissions Neutral Diagnostic
		Plausibility Failure	These plausibility faults are raised at startup when the appropriate map (or calibration tables) validity conditions are not met.	Fault Detected	Exception: Algorithm shall not run if B101E4B_ENABLE = disabled	Vehicle Power Mode Condition: RUN ECU Operational Condition: None Vehicle Operating Conditions: 9.0V < Vbat < 16V, Engine is running	Once at Power-up	Safety Non-MIL Emissions Neutral Diagnostic
		Signal Above Allowable Range	This fault is raised if an invalid Steering Tune is selected.	Fault Detected	None	ECU Operational Condition: Power up Vehicle Operating Conditions: Ignition ON.	Once at Power-up	Safety Non-MIL Emissions Neutral Diagnostic
Device Power	C0800	Voltage Below Threshold	ECU supply voltage	<9V	Exception: Algorithm shall not run if C080003_ENABLE = disabled DTC is not inhibited when MEC>0	Vehicle Power Mode Condition: RUN ECU Operational Condition: None Vehicle Operating Conditions: Engine is running.	1 s	Safety Non-MIL Emissions Neutral Diagnostic
Device Fower	C0800	Voltage Above Threshold	ECU supply voltage	>16V	Exception: Algorithm shall not run if C080007_ENABLE = disabled DTC is not inhibited when MEC>0	Vehicle Power Mode Condition: RUN ECU Operational Condition: None Vehicle Operating Conditions: Engine is running.	1 s	Safety Non-MIL Emissions Neutral Diagnostic
Lost Communication with Active Safety Control Module 1	U023A	Loss of communications with Active Safety Control Module 1 (EOCM2A) on GM HS and GM CE	This fault is raised if the message StrTrqCrnd_A_CE has not been received from the EOCM2A at least twice in the last 10 messages.  This fault is raised if the message StrTrqCrnd_A_HS has not been received for EOCM2A at least twice in the last 10 messages.	Fault Detected	Exceptions: Algorithm shall not run if; U0023A00_ENABLE = disabled, U007300 status bit 1 = True, MEC > 00, or Bus Off events counter, used in the X of Y debounce strategy is > 0.  In addition, setting of the DTC shall be delayed under the following conditions: 1) Within the first 5 seconds after Power Mode is set to RUN 2) Within the first 5 seconds of a reset of the device or device power-up 3) Within the first 5 seconds following recovery from an under-voltage condition	EngRunAtv signal is TRUE ECU Operational Condition: ECU_COMM_Active state = True. Vehicle Operating Conditions: 9.0V < Vbat < 16V, engine is running (Engine Run	0.1 s	Safety Non-MIL Emissions Neutral Diagnostic

19 OBDG07 Electronic Power Steering (EPS) Supporting Tables

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Lost Communication with Active Safety Control Module 2	U023B	Loss of communications with Active Safety Control Module 2 (EOCM2B)	This fault is raised if the message StrTrqCmd_A_CE has not been received from the EOCM2B at least twice in the last 10 messages.  This fault is raised if the message StrTrqCmd_A_HS has not been received for EOCM2B at least twice in the last 10 messages.	Fault Detected	Exceptions: Algorithm shall not run if; U0023B00_ENABLE = disabled, U007300 status bit 1 = True, MEC > 00, or Bus Off events counter, used in the X of Y debounce strategy is > 0.  In addition, setting of the DTC shall be delayed under the following conditions: 1) Within the first 5 seconds after Power Mode is set to RUN 2) Within the first 5 seconds of a reset of the device or device power-up 3) Within the first 5 seconds following recovery from an under-voltage condition	EngRunAtv signal is TRUE ECU Operational Condition: ECU_COMM_Active state = True. Vehicle Operating Conditions: 9.0V < Vbat < 16V, engine is running (Engine Run flag = True.	0.1 s	Safety Non-MIL Emissions Neutral Diagnostic
Data Received From Active Safety Control Module 1	U053B	Invalid Serial Data Received	1) Validity - upon receipt of a monitored signal with its corresponding validity bit set to Invalid. 2) Rolling Count - upon receipt of a monitored signal without the corresponding rolling count value being properly updated. 3) Protection Value - upon receipt of a monitored signal with its corresponding protection value (checksum) not correct. The failure must be present continuously for 2000 mS before the test is considered failed The signals being monitored are: + StrTrqCmd_A_CE, at least twice in the last 10 messages. + StrTrqCmd_A_HS, at least twice in the last 10 messages.	Fault Detected	Exceptions: Algorithm shall not run if; U023A00_ENABLE = disabled, U007300 status bit 1 = True, MEC > 00, or Bus Off events counter, used in the X of Y debounce strategy is > 0. In addition, setting of the DTC shall be delayed under the following conditions: 1) Within the first 5 seconds after Power Mode is set to RUN 2) Within the first 5 seconds of a reset of the device or device power-up 3) Within the first 5 seconds following recovery from an under-voltage condition	Vehicle Power Mode Condition: Power Mode signal RUN, and EngRunAtv signal is TRUE ECU Operational Condition: ECU_COMM_Active state = True. Vehicle Operating Conditions: 9.0V < Vbat < 16V, engine is running (Engine Run flag = True.		Safety Non-MIL Emissions Neutral Diagnostic
Data Received From Active Safety Control Module 2	U053C	Invalid Serial Data Received	1) Validity - upon receipt of a monitored signal with its corresponding validity bit set to Invalid. 2) Rolling Count - upon receipt of a monitored signal without the corresponding rolling count value being properly updated. 3) Protection Value - upon receipt of a monitored signal with its corresponding protection value (checksum) not correct. The failure must be present continuously for 2000 mS before the test is considered failed The signals being monitored are: + StrTrqCmd_B_CE, at least twice in the last 10 messages. + StrTrqCmd_B_HS, at least twice in the last 10 messages.	Fault Detected	Exceptions: Algorithm shall not run if; U053C71_ENABLE = disabled, U007300 status bit 1 = True, MEC > 00, or Bus Off events counter, used in the X of Y debounce strategy is > 0. In addition, setting of the DTC shall be delayed under the following conditions: 1) Within the first 5 seconds after Power Mode is set to RUN 2) Within the first 5 seconds of a reset of the device or device power-up 3) Within the first 5 seconds following recovery from an under-voltage condition	ECU Operational Condition: ECU COMM_Active state = True. Vehicle Operating Conditions: 9.0V < Vbat < 16V, engine is running (Engine Run flag = True.		Safety Non-MIL Emissions Neutral Diagnostic

## 19 OBDG07 Long Range Radar (LRR) Supporting Tables

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
		The LRR detects any internal supply voltage error or Minimum Exitation Level magnet lost	MON_ADC_1V25_SMPS_V MON_ADC_3V3_LIN_AN_V MON_ADC_3V3_LIN_PA_V MON_ADC_3V8_SMPS_V MON_ADC_4V5_LIN_VCO_V MON_ADC_5V_SMPS_V MON_ADC_5V_SMPS_V MON_ADC_5V_LIN_UCO_V	1.197< V < 1.296 Tolerance for test -1.40% + 2.10% 3.172 < V < 3.417 Tolerance for test -1.5% + 2.00% 3.172 < V < 3.417 Tolerance for test -1.5% + 2.00% 3.531 < V < 4.065 Tolerance for test -1.48% + 1.89% 4.206 < V < 4.788 Tolerance for test -3.20% + 3.70% 4.616 < V < 5.373 Tolerance for test -3.10% + 3.60% 3.172 < V < 3.417 Tolerance for test -1.498% + 1.937%	Voltage: Front LRR Sensor Mode Command Status PID \$8002 – System Power Mode K_B101D_0_ENABLE LRR shall not report this DTC in the first 5 seconds after Enable criteria are met, including the case where the LRR is recovering from a low voltage condition.	= Run Mode Only	ECU checks every 0.01 s	Safety Non-MIL Emissions Neutral Diagnostic
		General Memory Failure. The LRR detects any memory write failure which causes the LRR to be replaced.	This failure is triggered by HW if there is something wrong with MicroController Abstraction Layer configurations (Microcontroller). This DTC should be tested directly with microcontroller register values.	Fault Detected	Voltage: Front LRR Sensor Mode Command Status PID \$8002 – System Power Mode K_B101D_32_ENABLE LRR shall not report this DTC in the first 5 seconds after Enable criteria are met, including the case where the LRR is recovering from a low voltage condition.	= Not Sensing or Sensing = Run Mode Only =TRUE	0.01 s	Safety Non-MIL Emissions Neutral Diagnostic
		Sepcial Memory Failure. The LRR detects any memory read failure or an internal voltage supply error from the slave microprocessor	This Failure is trigger when SPI module has detected a hardware error during data transfer. On every SPI transfer about 100Hz. Could be tested with oscilloscope connection on SPI_CS & SPI_CLK for correct transmission, and also running a wire from Tx/Rx lines from SPI to ground in order to create a SPI off.	Fault Detected		= Run Mode Only =TRUE	0.01 s	Safety Non-MIL Emissions Neutral Diagnostic
Electronic Control Unit Hardware	B101D	The LRR detects any internal hardware failure (eg. Multiple RAM errors, watchdog errors etc.)	The High Frequency chip is checked over a long time, this failure is triggered if there are invalid values .  + HW Error Singal Processing Toolkit Test calculations : Singal Processing Toolkit Test calculations : Singal Processing Toolkit Test calculations failed for a longer time.  + Hw Error Chip Monitoring: Indicates an error in the:  - Voltage Controlled Oscilator-Monitor-Path - RF-Module or V-Tune circuit.  The SW is not designed to run on that HW version: - HW subcompat Ids min and max are defined in the application SW infoblock This failures could be tested creating failures on RF-chip module from ECU or flashing incorrect Production Parameters or SW Application Hardware to HW sample.	Fault Detected	Voltage: Front LRR Sensor Mode Command	= Not Sensing or Sensing = Run Mode Only =TRUE	0.01 s	Safety Non-MIL Emissions Neutral Diagnostic

19 OBDG07 Long Range Radar (LRR) Supporting Tables

_					) Supporting Tables			
		The LRR detects a CAN hardware failure	Microcontroller module has detected a clock source failure.  Microcontroller module has detected a failure of external oscillator.  Test this failures creating an error on external oscillator or bus off on clock source generator.	rain Delecieu	Front LRR Sensor Mode Command	= Run Mode Only =TRUE	0.01 s	Safety Non-MIL Emissions Neutral Diagnostic
		Internal temperature measurement below K_LOWTEMP_THRESH_LOW for a period of K_DiagMonitorWindowTemp	Sytem Temperature for a period of K_DiagMonitorWindowTemp(0.1 s)	<-40°C	Voltage: Front LRR Sensor Mode Command Status PID \$8002 – System Power Mode K_B101D_53_ENABLE  LRR shall not report this DTC in the first 5 seconds after Enable criteria are met, including the case where the LRR is recovering from a low voltage	= Run Mode Only =TRUE	0.1 s	Safety Non-MIL Emissions Neutral Diagnostic
		Internal temperature measurement above K_HIGHTEMP_THRESH_HIGH for a period of K_DiagMonitorWindowTemp	System Temperature for a period of K_DiagMonitorWindowTemp (0.1 s)	> 105°C	Voltage: Front LRR Sensor Mode Command	= Run Mode Only =TRUE	0.1 s	Safety Non-MIL Emissions Neutral Diagnostic
		ECU Software Performance - Calibration Data Set Not Programmed	The calibration field: k_default_calibration	= 0 (False)	Voltage: Front LRR Sensor Mode Command	= Run Mode Only =TRUE	0.01 s	Safety Non-MIL Emissions Neutral Diagnostic
Electronic Control Unit Software	B101E	ECU Software Performance - Calibration Not Learned	k_default_calibration  AND  PID \$4175 – Front Long Range Radar Aiming Status	= 0 (False)  ≠ Successfully Aimed	Voltage: Front LRR Sensor Mode Command	= Run Mode Önly =TRUE	Every Factory or Service alignment diagnostic not successful	Safety Non-MIL Emissions Neutral Diagnostic
		Control Module Power Circuit - Voltage Threshold	Bus Voltage  For a period of  K_DiagMonitorWindowBAT (0.5 s)	< 9V	Front LRR Sensor Mode Command Status	=9 <v<16v =allowed="" ecu="" mode="" only="TRUE&lt;/td" operation="Run"><td>0.5 s</td><td>Safety Non-MIL Emissions Neutral Diagnostic</td></v<16v>	0.5 s	Safety Non-MIL Emissions Neutral Diagnostic
LRR - Control Module Circuit	B1325		Bus Voltage  For a period of  K_DiagMonitorWindowBAT (0.5 s)	> 16V	Front LRR Sensor Mode Command Status	=9 <v<16v =Allowed ECU operation = Run Mode Only =TRUE</v<16v 	0.5 s	Safety Non-MIL Emissions Neutral Diagnostic

19 OBDG07 Long Range Radar (LRR) Supporting Tables

				Range Radar (LRR) Suppor				
Phsyical Mounting - Front Long Range Radar Sensor - Wrong Mounting Position	B390C	the algorithm and the algorithm has not converged.  OR  For Service alignment, if alignment calibration has not occurred successfully within 30 minutes of driving .	Algo process only verify the correct angles reported from ECU (angles are saved on Factory or Service alignment diagnostic) and if one of them is not correct on NVM it will report a failure.	Fault Detected	Front LRR Sensor Mode Command	= Run Mode Only	30 Minutes	Safety Non-MIL Emissions Neutral Diagnostic
CAN Network Communications - Object Detection CAN Bus Off - no additional information	U0075	Using CAN handler for verify messages on BUS and sliding window mechanism in order to confirm it.	CAN OFF from bus handler For 8 out of 10 counts	Fault Detected		=Allowed ECU operation = Run Mode Only	0.08 s out of a 0.1 s window	Safety Non-MIL Emissions Neutral Diagnostic
Flexray Bus	U007E	Lost communication on Flexray Channel A or B Bus for	Using FlexRay task the SW is monitoring BUS OFF fault, when is not called (FR signal absence), and this mechanism is monitoring all FlexRay PDU's.	No Flexrays messages received (all messages monitored)	Front LRR Sensor Mode Command	= Active or Syncronize = Run Mode Only	ECU reports as failed after 0.38 s.	Safety Non-MIL Emissions Neutral Diagnostic
		The LRR detects an EOCM2A PDU and the equivalent redundant PDU with a validity bit as invalid,	Messages: + F_Vehicle_Path_Estimate + F_Vehicle_Path_Data_2  OR EOCM2A PDU Data	PDU Invalid Bit on these two Flexray Frames  Out of Range - Set fault immediately		= Active = Run Mode Only	0.08 s out of a 0.1 s window	Safety Non-MIL Emissions Neutral Diagnostic
Network Communications with External Object Computation Module A	U053B	Invalid Data Received From Image Processing Module 'A' (EOCM2A) - Alive Counter Incorrect / Not Updated - The LRR detects a mismatch between a received rolling counter and an internally calculated rolling counter, after being filtered through a sliding window mechanism.	Mistmatch between internal rolling counter	Does not match recieved rolling counter	Front LRR Sensor Mode Command	= Active = Run Mode Only	0.08 s out of a 0.1 s window	Safety Non-MIL Emissions Neutral Diagnostic

	-			Range Radar (LRR) Suppo				
		Invalid Data Received From Image Processing Module "A" (EOCM2A) - The LRR detects an incorrect signal protection calculation on received message	+ F_Vehicle_Path_Estimate + F_Smgr_Vehicle_Motion, + Body_Info_FOB + F_Vehicle_Path_Data_2	Signal protection calcultaion failure (checksum value)	Front LRR Sensor Mode Command	= Active = Run Mode Only	ECU checks every 0.01 s	Safety Non-MIL Emissions Neutral Diagnostic
		Invalid Data Received From Image Processing Module "A" (EOCM2B)  The LRR detects an EOCM2B PDU and the equivalent redundant PDU with a validity bit as invalid,  Or  The LRR detects an EOCM2A PDU with a data out of range. Set immediately upon data determined to be out of range.	F_Vehicle_Path_Estimate F_Vehicle_Path_Data_2  OR  EOCM2A PDU Data	PDU Invalid Bit on these two Flexray Frames  Out of Range - Set fault immediately	Front LRR Sensor Mode Command Status Flexray Network Manager PID \$8002 – System Power Mode K_U053C_00_ENABLE LRR shall not report this DTC in the first 5 seconds after Enable criteria are met, including the case where the LRR is recovering from a low voltage condition.	= Active = Run Mode Only	ECU checks every 0.01 s	Safety Non-MIL Emissions Neutral Diagnostic
Network Communications with External Object Computation Module B	U053C	Invalid Data Received From Image Processing Module "A" (EOCM2B) - Alive Counter Incorrect / Not Updated - The LRR detects a mismatch between a received rolling counter and an internally calculated rolling counter, after being filtered through a sliding window mechanism.	Mistmatch between internal rolling counter	Does not match recieved rolling counter	Front LRR Sensor Mode Command Status Flexray Network Manager PID \$8002 – System Power Mode K_U053C_73_ENABLE LRR shall not report this DTC in the first 5 seconds after Enable criteria are met, including the case where the LRR is recovering from a low voltage condition.	= Active = Run Mode Only	0.08 s out of a 0.1 s window	Safety Non-MIL Emissions Neutral Diagnostic
		Invalid Data Received From Image Processing Module "A" (EOCM2A) - The LRR detects an incorrect signal protection calculation on received message		Signal protection calcultaion failure (checksum value)		= Active = Run Mode Only	ECU checks every 0.01 s	Safety Non-MIL Emissions Neutral Diagnostic
Flexray Bus A - Lost Communication with Active Safety Control Module 1 on Flexray Bus	U18CA	CAN driver indicates bus off. Lose communication on Flexray Channel A Bus	+ Body_Info_FOB + FLRR_Sensor_Mode_Command + F_SmgVehicle_Motion + F_Vehicle_Path_Data_2 + F_Vehicle_Path_Estimate	PDU Missing from listed messages (Missing messages)	Voltage: Front LRR Sensor Mode Command	= Active = Run Mode Only	0.5 s	Safety Non-MIL Emissions Neutral Diagnostic
Flexray B - Lost Communication with Active Safety Control Module 2 on Flexray Bus -	U18CB	CAN driver indicates bus off. Lose communication on Flexray Channel B Bus	+ Body_Info_FOB + FLRR_Sensor_Mode_Command + F_SmgVehicle_Motion + F_Vehicle_Path_Data_2 + F_Vehicle_Path_Estimate	PDU Missing from listed messages (Missing messages)	Voltage: Front LRR Sensor Mode Command	= Active = Run Mode Only	0.5 s	Safety Non-MIL Emissions Neutral Diagnostic

19 OBDG07 Long Range Radar (LRR) Supporting Tables

		13 Obboot Long	mange madai (Emm) Suppoi	ung rabics			
		LRR unable to successfully integrate Flexray CommStack reporting Full Communication	Fault Detected	Voltage:	9 < V < 16V		
		with FlexRay network. Successful		Front LRR Sensor Mode Command	= Not Sensing or Sensing		
		Integration is determined by Flexray		Status	= Active		
		CommStack reporting Full		Flexray Network Manager	= Run Mode Only		
		Communication		PID \$8002 –System Power Mode	=TRUE		Safety Non-MIL
Flexray - Control Module Improper	U3012			K_U3012_00_ENABLE			Emissions Neutral
Wake-up Performance	03012					0.01 s	Diagnostic
				LRR shall not report this DTC in the first			Diagnostic
				5 seconds after Enable criteria are met,			
				including the case where the LRR is			
				recovering from a low voltage			
				condition.			

# 19 OBDG07 Onstar Telematics Communication Platform Supporting Tables

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
		General Checksum Failure	The purpose of this DTC is to detect checksum failure of NAND Flash File System. DTC is set only when partition mount failed at boot up time. And during run-time, file monitor daemon (It's name is "ofmdaemon") will request system reboot when detect error then system has a chance to repair the problem file system (It's up or try format) at boot up time. If system couldn't recover file system and fail to mount it then DTC will be set.	= Fault Detected	B101D 31_ENABLE = disabled	Vehicle Power Mode condition: ACCESSORY, RUN 'DTC is set when file system not mounted.	Power On Diagnostics	Safety Non-MIL Emissions Neutral Diagnostic
ECU Hardware Performance	B101D	General Memory Failure	The purpose of DTC is to detect general memory failure. In order to find out this failure, the algorithm perform RAM march test.	DTC is set when RAM check result is not same to defined success value.		Vehicle Power Mode condition: ACCESSORY, RUN	Power On Diagnostics	Safety Non-MIL Emissions Neutral Diagnostic
		Watchdog / Safety μC Failure	The purpose of DTC is to detect watchdog happened in previous cycle.  It just only show watch dog was happened.	DTC is set when register value is same to written value in the previous cycle.	Exceptions: Algorithm shall not run if; B101D 37_ENABLE = disabled	Vehicle Power Mode condition: RUN	Running Diagnostics	Safety Non-MIL Emissions Neutral Diagnostic
		Loss of Communications with GPS - Internal Communications	TBD.  1) The VCP main micro is unable to communicate to the GPS OR  2) The GPS receiver detects an internal fault preventing normal GPS operation.	Cannot communicate with receiver module for 10 seconds.  OR  Failure set by GPS Reciever	Exceptions: Algorithm shall not run if; B101D 3C_ENABLE = disabled	Vehicle Power Mode condition: ACCESSORY, RUN	Running Diagnostics	Safety Non-MIL Emissions Neutral Diagnostic
		Short to Battery	The purpose of this DTC is to detect short to positive of GPS(secondary) antenna circuit. DTC is set when the latest 6 consecutive GPS(secondary) antenna ADC values are under the open/short threshold defined in DID and ANT_PT_SENSE values is high.		B2462 01_ENABLE = disabled or, B1325	Algorithm will be started just after	After the end of boot sequence, modern sends GPS(secondary) antenna ADC value and ANT_PT_SENSE value to MDM via LocAPI every second. MDM checks GPS(secondary) antenna state with these values.	Safety Non-MIL Emissions Neutral Diagnostic
Global Positioning System Signal	B2462	Short to Ground	The purpose of this DTC is to detect short to ground of GPS(secondary) antenna circuit. Short to Ground DTC is set when the GPS(secondary) Antenna ADC value is under the open/short threshold defined in DID and	ANT_PT_SENSE(GPIO) is low state - GPS Antenna Short to Ground DTC Voltage Lower Value Threshold = 0.05V	B2462 02_ENABLE = disabled	Vehicle Power Mode condition: ACCESSORY, RUN Algorithm will be started just after TCP is getting to OnStar on mode.	After the end of boot sequence, modem sends GPS(secondary) antenna ADC value and ANT_PT_SENSE value to MDM via LocAPI every second. MDM checks GPS(secondary) antenna state with these values.	Safety Non-MIL Emissions Neutral Diagnostic
		Open Circuit	The purpose of this DTC is to detect open of GPS(secondary) antenna circuit. DTC is set when the latest 6 consecutive GPS(secondary) antenna ADC values are between open/short threshold and connect/open threshold defined in DID		B2462 04_ENABLE = disabled	Vehicle Power Mode condition: ACCESSORY, RUN Algorithm will be started just after TCP is getting to OnStar on mode.	After the end of boot sequence, modern sends GPS(secondary) antenna ADC value and ANT_PT_SENSE value to MDM via LocAPI every second. MDM checks GPS(secondary) antenna state with these values.	Safety Non-MIL Emissions Neutral Diagnostic

# 19 OBDG07 Onstar Telematics Communication Platform Supporting Tables

		The purpose of this DTC is to	DTC is set when CAN Bus does not send normal electric		Vehicle Power Mode condition: OFF,		
		detect Bus off status on HS CAN	current to TCP	Algorithm shall not run if; U0073	ACCESSORY, or RUN	times the nominal periodic rate	
				00_ENABLE = disabled (reference DID		of the signal) occurs when the	
				\$03)	Virtual Network condition: Any Virtual	periodic message from the	
					Network that the module participates	supervised source is lost.	
				In addition, the storing of DTCs shall not	in is active.		
				be enabled in case that the following			
				conditions are true:	ECU Operational condition: While in		Cofes Nee MII
Control Module Communication High	110070			<ul> <li>The SystemPowerMode ≠ RUN</li> </ul>	the ECU_COMM_Active state		Safety Non-MIL
Speed CAN Bus Off	00073			- Within the first 5 seconds after the High			Emissions Neutral
·				Voltage Wake Up Frame			Diagnostic
				- Within the first 5 s after the transition			
				into the SystemPowerMode RUN			
				- Within the first 5 s of a reset of the			
				module			
				- Within the first 5 s of a recovery from an			
				under or over voltage condition			

# 19 OBDG07 Steering Angle Sensor (SAS) Supporting Tables

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
ECU Hardware Performance	C056D		Failure of system tests (RAM, ROM, Stack, Watchdog, CPU, ADC) EEPROM does not match SW version	- 3	Vehicle Power Mode condition: Supply Voltage	= ANY =ANY	Singe occurrence	Safety Non-MIL Emissions Neutral Diagnostic
Steering Position Signal		Fault in digital hall sensor for steering angle - Includes Angle Out of Range	An internal fault was detected inside the Melexis hall sensor	- 3	Vehicle Power Mode condition: Supply Voltage	= ANY = ANY	Singe occurrence	Safety Non-MIL Emissions Neutral Diagnostic
		Part not calibrated	Steering angle calibration not performed	Singe occurrence	Vehicle Power Mode condition: Supply Voltage	= ANY = ANY	Singe occurrence	Safety Non-MIL Emissions Neutral Diagnostic
Control Module Communication Bus 'A' Off		Short circuit on CAN bus or bus off state	CAN Bus		Vehicle Power Mode condition: Supply Voltage	= ANY = 9-16V	3 Times	Safety Non-MIL Emissions Neutral Diagnostic

# 19 OBDG07 Sensing and Diagnostic Module (SDM40) Supporting Tables

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
Primary (Sensor 1) IMU Sensor - Lateral Acceleration Circuit	C0186	This monitor cover various aspects of the lateral acceleration 1 sensor circuit, including: software, hardware, and out of range	IMU SW driver configuration mismatch.     Sensor Active Check error.     Sensor Continuous Selftest error.     Sensor Message Counter error.     Sensor Checksum error.     Sensor Lateral Acc. signal error.	①, ② = Fault at start-up ③,④,⑤ = Fault Detetected ⑥ ± 160 deg/s	Comm_Enable Operating Voltage DTC Enabled	= Available = 6.0 - 16.0v = True	①, ② = startup ③ 0.04 s ④, ⑤ = 0.008 s ⑥ = 2 s out of range or 0.022 s out of range because of slope.	Safety Non-MIL Emissions Neutral Diagnostic
Secondary (Sensor 2) IMU Sensor - Lateral Accelerometer Circuit	C018A	This monitor cover various aspects of the lateral acceleration 2 sensor circuit, including: software, hardware, and out of range	IMU SW driver configuration mismatch.     Sensor Active Check error.     Sensor Continuous Selftest error.     Sensor Continuous Selftest error.     Sensor Checksum error.     Sensor Checksum error.     Sensor Lateral Acc. signal error.	①, ② = Fault at start-up ③, ④, ⑤ = Fault Detetected ⑥ ± 160 deg/s	Comm_Enable Operating Voltage DTC Enabled	= Available = 6.0 - 16.0v = True	(1), (2) = startup (3) 0.04 s (4), (5) = 0.008 s (6) = 2 s out of range or 0.022 s out of range because of slope.	Safety Non-MIL Emissions Neutral Diagnostic
Lateral Accelerometers 1 & 2 Correlation	C018B	Agreement between primary and secondary lateral acceleration signals. Also monitors the offset bias value within the RAM.	Lateral Acc. signals Correlation error.     IMU Data Integrity Check.     Mu Data Transmission Check.     Offset Bias value in RAM (CRC).	① +/- 0.188489209*Acceleration +1.468057554 ② Fault Detected ③ Fault Detected ④ Fault Detected	Comm_Enable Operating Voltage DTC Enabled	= Available = 6.0 - 16.0v = True	① = 0.04 s (max) ②, ③ = Single Occurrence ④ = 0.001 s	Safety Non-MIL Emissions Neutral Diagnostic
Primary (Sensor 1) IMU Sensor - Yaw Rate Circuit	C0196	Validation of the yaw rate 1 signal is within acceptable ranges	Sensor Yaw Rate signal error.	± 28.5 m/s <sup>2</sup>	Comm_Enable Operating Voltage DTC Enabled	= Available = 6.0 - 16.0v = True	0.2 s	Safety Non-MIL Emissions Neutral Diagnostic
Secondary (Sensor 2) IMU Sensor - Yaw Rate Signal	C019A	Validation of the yaw rate 2 signal is within acceptable ranges	Sensor Yaw Rate signal error.	± 28.5 m/s²	Comm_Enable Operating Voltage DTC Enabled	= Available = 6.0 - 16.0v = True	0.2 s	Safety Non-MIL Emissions Neutral Diagnostic
Yaw Rate Signal Primary and Secondary Sensor Correlation	C019B	Yaw Rate Primary and Secondary plausiblty check via correlation between both signals	Yaw Rate signals correlation error	+/- 0.081956155*Yaw Rate + 7.113153457	Comm_Enable Operating Voltage DTC Enabled	= Available = 6.0 - 16.0v = True	0.03 s	Safety Non-MIL Emissions Neutral Diagnostic
Secondary (Sensor 2) IMU Sensor - Longitdinal Accl. Rate Signal	C027E	Validation of the Longitduinal accleration secondary sensor signal is within acceptable ranges	Sensor Longitduinal Acceleration signal error.	± 28.5 m/s²	Comm_Enable Operating Voltage DTC Enabled	= Available = 6.0 - 16.0v = True	0.2 s	Safety Non-MIL Emissions Neutral Diagnostic
Longitudinal Accelerometers Signal Primary and Secondary Sensor Correlation	C027F	Validation of the Longitduinal accleration secondary sensor signal is within acceptable ranges	Longitudinal acceleration signals correlation error	+/- 0.188489209*Acceleration +1.468057554	Comm_Enable Operating Voltage DTC Enabled	= Available = 6.0 - 16.0v = True	0.04 s	Safety Non-MIL Emissions Neutral Diagnostic
Primary (Sensor 1) IMU Sensor - Longitdinal Accl. Rate Signal	C0287	Validation of the Longitduinal accleration primary sensor signal is within acceptable ranges	Sensor Longitduinal Acceleration signal error.	± 28.5 m/s²	Comm_Enable Operating Voltage DTC Enabled	= Available = 6.0 - 16.0v = True	0.2 s	Safety Non-MIL Emissions Neutral Diagnostic
SDM Primary Key	B1001	Wrong Primary Key detected. Primary Key not programmed in the SDM.	Priamry Key not Programmed	Fault Detected	Primary Key Power mode Operating voltage DTC DID\$40	= Configured and learned in configuration. = RUN, CRANK or PROLONGATION TIME = 6.0 - 16.0v = Enabled = Enabled	0.01 s Single Event	Safety Non-MIL Emissions Neutral Diagnostic
Programmed/Learned Mismatch within SDM Software	B1019	System Configuration Error - Incorrect software (software mismatch and mis-learn)	Comparison between DPID\$11 (Programmed) and DPID\$12 (Learned) fails.	DPID\$11 ≠ DPID \$12	Power mode. SDM Lock Status Operating voltage: DTC	= RUN = Unlocked. = 6.0 - 16.0v =Enabled	0.01 s Single Event	Safety Non-MIL Emissions Neutral Diagnostic
		General Failure	SDM internal sensor fault detected OR SDM internal ASIC fault detected OR SDM internal voltage out of range detected OR SDM internal microcontroller fault detected OR SDM internal memory error detected	For RAM, ROM and EEPROM errors, CRC is used.	Power Mode  DTC	= RUN, CRANK or PROLONGATION TIME power mode. = Enabled	Within 0.1 s	Safety Non-MIL Emissions Neutral Diagnostic
		General Checksum Failure	Checksum mismatch	Fault Detected	Power Mode DTC	= RUN, CRANK or PROLONGATION TIME power mode. = Enabled	Within 0.1 s	Safety Non-MIL Emissions Neutral Diagnostic

# 19 OBDG07 Sensing and Diagnostic Module (SDM40) Supporting Tables

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
		General Memory Failure	Failure of the general memory	Fault Detected	Power Mode DTC	= RUN, CRANK or PROLONGATION TIME power mode. = Enabled	Within 0.1 s	Safety Non-MIL Emissions Neutr Diagnostic
		Special Memory Failure	Failure of Special Memory	Fault Detected	Power Mode DTC	= RUN, CRANK or PROLONGATION TIME power mode. = Enabled	Within 0.1 s	Safety Non-MIL Emissions Neutr Diagnostic
ECU Hardware Performance	B101D	RAM Failure	Failure of RAM	Fault Detected	Power Mode DTC	= RUN, CRANK or PROLONGATION TIME power mode. = Enabled	Within 0.1 s	Safety Non-MIL Emissions Neutr Diagnostic
200 Hardware 1 chomianee	51015	ROM Failure	Failure of ROM	Fault Detected	Power Mode DTC	= RUN, CRANK or PROLONGATION TIME power mode. = Enabled	Within 0.1 s	Safety Non-MIL Emissions Neut Diagnostic
		EEPROM Failure	Failure of EEPROM	Fault Detected	Power Mode	= Enabled = RUN, CRANK or PROLONGATION TIME power mode. = Enabled	Within 0.1 s	Safety Non-MIL Emissions Neutr Diagnostic
		Internal Electronic Failure	Sensor, Microprocessor or Powersupply Failure	Fault Detected	DTC Power Mode DTC	= RUN, CRANK or PROLONGATION TIME power mode.	Within 0.1 s	Safety Non-MIL Emissions Neutr Diagnostic
		Internal Self Test Failed	Failure during self-test	Fault Detected	Power Mode DTC	= Enabled = RUN, CRANK or PROLONGATION TIME power mode. = Enabled	Within 0.1 s	Safety Non-MIL Emissions Neutr Diagnostic
		Internal Communications Failure	Internal Mircoprocessor to Other SDM Communications Failure	Fault Detected	Power Mode DTC	= RUN, CRANK or PROLONGATION TIME power mode. = Enabled	Within 0.1 s	Safety Non-MIL Emissions Neut Diagnostic
		Internal Fault	General Fault within ECU	Fault Detected	VIN or Immobilizer function Power mode  Operating voltage DTC	= Enabled in SDM configuration. = RUN, CRANK, PROLONGATION TIME or ACC (for Immobilizer) power mode. = 6.0 - 16.0v = Enabled	0.01 s Single Event	Safety Non-MIL Emissions Neut Diagnostic
		Operational Software / Calibration Set Not Programmed	Operational Software / Calibration Set Not Programmed	Fault Detected	VIN or Immobilizer function Power mode  Operating voltage DTC	= Enabled in SDM configuration. = RUN, CRANK, PROLONGATION TIME or ACC (for Immobilizer) power mode. = 6.0 - 16.0v = Enabled	0.01 s Single Event	Safety Non-MIL Emissions Neut Diagnostic
		Calibration Data Set Not Programmed	Calibration Data Set Not Programmed	Fault Detected	VIN or Immobilizer function  Power mode  Operating voltage  DTC	= Enabled in SDM configuration. = RUN, CRANK, PROLONGATION TIME or ACC (for Immobilizer) power mode. = 6.0 - 16.0v	0.01 s Single Event	Safety Non-MIL Emissions Neut Diagnostic
		EEPROM Error	EEPROM Error	Fault Detected	VIN or Immobilizer function Power mode  Operating voltage DTC	= Enabled in SDM configuration. = RUN, CRANK, PROLONGATION TIME or ACC (for Immobilizer) power mode. = 6.0 - 16.0v = Enabled	0.01 s Single Event	Safety Non-MIL Emissions Neu Diagnostic

# 19 OBDG07 Sensing and Diagnostic Module (SDM40) Supporting Tables

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum
		Security Access Not Activated	Security Access Not Activated	Device Locked	VIN or Immobilizer function Power mode  Operating voltage	= Enabled in SDM configuration. = RUN, CRANK, PROLONGATION TIME or ACC (for Immobilizer) power mode. = 6.0 - 16.0v	0.01 s Single Event	Safety Non-MIL Emissions Neutra Diagnostic
5000 (	Buous	Variant Not Programmed	Variant Not Programmed	Fault Detected	VIN or Immobilizer function  Power mode  Operating voltage  DTC	= Enabled in SDM configuration. = RUN, CRANK, PROLONGATION TIME or ACC (for Immobilizer) power mode. = 6.0 - 16.0v = Enabled	0.01 s Single Event	Safety Non-MIL Emissions Neutra Diagnostic
ECU Software Performance	B101E	Vehicle Configuration Not Programmed	Calibration for vehicle not provided	Fault Detected	VIN or Immobilizer function Power mode  Operating voltage DTC	= Enabled in SDM configuration. = RUN, CRANK, PROLONGATION TIME or ACC (for Immobilizer) power mode. = 6.0 - 16.0v	0.01 s Single Event	Safety Non-MIL Emissions Neutro Diagnostic
		VIN Not Programmed	VIN Programmed = False	VIN has not been written	VIN or Immobilizer function Power mode  Operating voltage DTC	= Enabled in SDM configuration. RUN, CRANK, PROLONGATION TIME or ACC (for Immobilizer) power mode. = 6.0 - 16.0v = Enabled	0.01 s Single Event	Safety Non-MIL Emissions Neutra Diagnostic
		Theft / Security Data Not Programmed	Security Code is not programmed	Security Code Not programmed and SDM is not in vehicle assembly mode.	VIN or Immobilizer function  Power mode  Operating voltage  DTC	= Enabled in SDM configuration. = RUN, CRANK, PROLONGATION TIME or ACC (for Immobilizer) power mode. = 6.0 - 16.0v = Enabled	0.01 s Single Event	Safety Non-MIL Emissions Neutr Diagnostic
		Checksum Error	VTD security data checksum error	CRC data manipulation error. Only when data manipulation is detected in security code, immobilizer id and environment id.	VIN or Immobilizer function Power mode  Operating voltage DTC	= Enabled in SDM configuration. RUN, CRANK, PROLONGATION TIME or ACC (for Immobilizer) power mode. = 6.0 - 16.0v = Enabled	0.01 s Single Event	Safety Non-MIL Emissions Neutr Diagnostic
		Calibration Not Learned	Calibration not learned	Fault Detected	VIN or Immobilizer function Power mode  Operating voltage DTC	= Enabled in SDM configuration. RUN, CRANK, PROLONGATION TIME or ACC (for Immobilizer) power mode. = 6.0 - 16.0v = Enabled	0.01 s Single Event	Safety Non-MIL Emissions Neutr Diagnostic
		DTC Memory Full	Memory full for DTCs	SDM has 24 records available in memory for Continental fault codes.	VIN or Immobilizer function  Power mode  Operating voltage  DTC	= Enabled in SDM configuration. RUN, CRANK, PROLONGATION TIME or ACC (for Immobilizer) power mode. = 6.0 - 16.0 = Enabled	On Demand	Safety Non-MIL Emissions Neutr Diagnostic
Control Module Communication Chassis Expansion CAN Bus	U0077	Monitoring to check if the Chassis Expansion CAN Bus is ON	CE HS Leakage to Battery. CE HS-CAN Leakage to Ground. CE HS-CAN Shorted.	32 consecutive error frames detected on the bus	Power Mode DTC Operating Voltage	= RUN, CRANK or PROLONGATION TIME power mode. = Enabled = 6.0 to 16.0v	2.5 s	Safety Non-MIL Emissions Neutr Diagnostic

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
ECU Hardware Performance - Internal Malfunction	B101D	This diagnoistic monitors the internal power supply from the IMX6 processor to ensure they ar within acceptable range of operation. The voltage level is read by ADC and available through a HWIO interface	IMX6 processor is fed multiple voltages by an onboard power supply. DTC is set if these power supplies are out of range for a predefined sliding window.  Fault set if:  0.75 V Suply  1.3 V Supply  1.425 V Supply	Min. Threshold = 0.70879V, Max. Threshold = 0.79079V  Min. Threshold = 1.25V, Max. Threshold = 1.35V  Min. Threshold = 3.07V, Max. Threshold = 3.43V  Min. Threshold = 1.32V, Max. Threshold = 1.48V	If (Configuration for Low Voltage Enablement is FALSE), diagnoistic will not consider low voltage condition and run regardless of battery monitor voltage.  If (Configuration for Low Voltage Enablement is TRUE), then the diagnoistic will NOT run when the battery monitor votlage is < 5.5 voltage  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process-End of Trip Processing-Diagnoistic Re-enable in Process	= TRUE	0.1 seconds out of a 0.2 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Front Camera System Status Message Counter Incorrect	B2B19	Monitor Indicates invalid or out of date data was received from the Front Camera System on the FlexRay Bus	Monitors the Front Camera Stauts Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "Lane_Det_Header" message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Front Camera Lane Marker Data Message Counter Incorrect	B2B1A	Monitor indicates invalid or out of date lane marking data was received from the Front Camera System on the FlexRay Bus	Monitors the Front Camera Lane Marking Data Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "System_Header" message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Front Camera Object Data Message Counter Incorrect	B2B1B	Monitor indicates invalid or out of date Object data was received from the Front Camera System on the FlexRay Bus	Monitors the Front Camera Object Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "Obj_Det_Header" message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Long Range Radar Object Data Message Counter Incorrect	B2B1C	Monitor indicates invalid or out of date Object data was received from the Long Range Radar on the FlexRay Bus	Monitors the Long Range Radar Object Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "F_LRR_Object_Header" message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Left Front Short Range Radar Object Data Message Counter Incorrect	B2B1D	Monitor indicates invalid or out of date Object data was received from the Long Left Front Short Range Radar on the FlexRay Bus	Monitors the Left Front Short Range Radar Object Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "LF_LRR_Object_Header " message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Right Front Short Radar Object Data Message Counter Incorrect	B2B1E	Monitor indicates invalid or out of date Object data was received from the Right Front Short Range Radar on the FlexRay Bus	Monitors the Left Front Short Range Radar Object Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "RF_LRR_Object_Header " message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Left Rear Short Radar Object Data Message Counter Incorrect	B2B1F	Monitor indicates invalid or out of date Object data was received from the Left Rear Short Range Radar on the FlexRay Bus	Monitors the Left Front Short Range Radar Object Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "LR_LRR_Object_Header " message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Right Rear Short Radar Object Data Message Counter Incorrect	B2B20	Monitor indicates invalid or out of date Object data was received from the Right Rear Short Range Radar on the FlexRay Bus	Monitors the Left Front Short Range Radar Object Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter. Monitored for "RR_LRR_Object_Header "message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Center Rear Short Radar Object Data Message Counter Incorrect	B2B21	Monitor indicates invalid or out of date Object data was received from the Center Rear Short Range Radar on the FlexRay Bus	Monitors the Left Front Short Range Radar Object Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "R_LRR_Object_Header" message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Read Only Memory Performance	P0601	Monitors the performance of the Read Only Memory. This includes the nonvolatile boot, code, or calibration memory. A	When the cyclical redundancy check is invalid, the fault flag is set to TRUE and the fail counter increments	Fail Counter > 5		The CRC diagnostic will run anytime there is sufficient processor throughput to allow execution of background task		Type C, No SVS "Safety Emissio ns Neutral
		Cyclic redundancy check, and Sinlg Bit ROM check is used. This diagnostic detects if the Compressor HV Voltage sensor has an out of range high circuit fault. If the enable conditions are met and compressor has detected an instantaneous out of range high fault on the sensor, the fail counter will increment. If the calibrated fail count threshold is met before the calibrated sample count, the diagnostic will report a FAIL and if not it will report a PASS. The diagnostic will continue to report as long as the enablement conditions are met.	For Single Bit ROM Errors, the fault fault is to TRUE and the fail counter is increased	Fail Counter > 5	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.		Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Not Programmed	P0602	Indicates the EOCM needs to be programmed	This DTC is set via calibration, when KeIDND_b_NoStartCal	=TRUE	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.	1 second	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Long Term Memory Reset	P0603	Data was lost from Non-Volatile Memory. Could be due to failure of flash, NVM memory failure, first time power up if the shut down was interrupted	Non-volatile memory (static or dynamic) checksum failure at Powerup	= TRUE	Controller Initialize	= Complete	Once during start-up	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Random Access Memory Performance	P0604	If there is a failure in these types in RAM: Secondary, System, Cache, eTUP	Indicates that control module is unable to correctly write and read data to and from: - RAM - Cached RAM - TPU RAM Indicates that the primary processor detects a mismatch between the data and dual data is found during RAM updates. Detects a mismatch in data and dual data updates >	Detects data read does not match data written >=  = 3 counts = 3 counts = 3 counts = 0.175 seconds	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.	= 2,000.00 mseconds	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"
			Indicates that the primary processor detects an illegal write attempt to protected RAM. Number of illegal writes are >	= 65,534 counts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Processor Performance	P0606	Indicates that the EOCM has detected an internal processor integrity fault. These include diagnostics done on the SPI Communication as well as a host of diagnostics for both the primary and secondary processsors.	- ROM completion fault (reported to PISR from MPMR) - ALU fault		Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process And the Run/Crank Voltages are not low.	Diagnoistic System is not in State of Reset.  > 10.0 V	The diagnoistic operates every 12.5 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Long Term Memory Performance	Module Long t Term r Memory c Performance A	This diagnostic runs test for non-volatile memory performance diagnostic. Checks if Assembly Cals are defaulted or non-	When BINVDM region needs to be copied but cannot be VeMEMR_b_BINVDM_Ca nnotCopy	= TRUE		To be run during NVM Handler control task	Runs every 100 ms	Type C, No SVS "Safety Emissio ns Neutral
		volatile memory Handler is unable to commit to flash in the future due to memory errors. Typically this means that the controller has run out of flash blocks for storing the data (the total erase/write cycles for each block has been exceeded.	When there is an assembly calibration failure reported by HWIO at initialization.  Ve MEMD_b_AsyCalFail	= TRUE		To be run during NVM Handler control task	Runs every 100 ms	Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Monitor Control Module Serial Peripheral Interface Bus 2	P16E9	This diagnoistic monitors for Interprocessor communications (Between K1, K2, IMX Processor)	When it detects SPI communication fault as indicated between any two micros (K1,K2,IMX) in EOCM2	A fault is detected for 8 out of 16 samples	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process AND No error parsing Serial Perpheral Interface Data		0.04 seconds out of a 0.08 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Monitor Control Module Serial Peripheral Interface Bus 1	P16F0	This diagnoistic monitors for Interprocessor communications (Between K1, K2, IMX Processor)	When it detects SPI communication fault as indicated between any two micros (K1,K2,IMX) in EOCM2	A fault is detected for 8 out of 16 samples	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process AND No error parsing Serial Perpheral Interface Data		0.04 seconds out of a 0.08 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Engine Control Module "A"	U0100	This DTC is set by the EOCM when signal supervision by the EOCM on the Engine Control Module has failed.	Message is not received from controller for: Message \$0C9 Message \$1CF Message \$3E9 Message \$3F9	> 0.5 seconds > 5.0 seconds > 5.0 seconds > 12.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Transmissio n Control Module	U0101	This DTC is set by the EOCM when signal supervision by the EOCM on the Tramission Control Module has failed.	Message is not received from controller for:  Message \$1F5	> 1.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Body Control Module	U0140	This DTC is set by the EOCM when signal supervision by the EOCM on the Body Control Module has failed.	Message is not received from controller for:  Message \$135 Message \$120 Message \$12A Message \$139 Message \$140 Message \$141 Message \$4E1 Message \$514	> 5.0 seconds > 200.0 seconds > 5.0 seconds > 5.0 seconds > 40.0 seconds > 40.0 seconds > 40.0 seconds > 40.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Telematic Control Module	U0198	supervision by the EOCM on the Telematic	Message is not received from controller for: Message \$260 Message \$261 Message \$262 Message \$263 Message \$264 Message \$265	> 10.0 seconds > 10.0 seconds > 10.0 seconds > 10.0 seconds > 10.0 seconds > 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Frontview Camera Module	U026A	This DTC is set by the EOCM when signal supervision by the EOCM on Frontview Camera Module failed.	Message is not received from controller for:  Message \$350 Message \$351 Message \$352 Message \$353 Message \$354 Message \$355 Message \$356	> 3.0 seconds > 3.0 seconds > 3.0 seconds > 3.0 seconds > 3.0 seconds > 3.0 seconds > 3.0 seconds > 3.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_FOCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Telematics Communicati on Interface Control Module	U0499	Indicates invalid or out dated data was received from the Telematics Communication Interface Control module	ARC or Checksum error on HE CAN Bus any of the following messages: \$260, \$261, \$262, \$263, \$264, or \$265.	6 out of 10 failures of ARC or Checksum on any frame	HE Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.6 seconds out of a 1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Frontview Camera Module	U056B	Indicates invalid or out dated data was received from the Frontview Camera Module	ARC or Checksum error on Front Object CAN Bus any of the following messages: \$350, \$351, \$352, \$353, \$354, \$355 or \$356.	6 out of 10 failures of ARC or Checksum on any frame	FO Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.36 seconds out of a 0.6 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Digital Map Module	U1067	This DTC is set by the EOCM when signal supervision by the EOCM on Digital Map Module failed.	Message is not received from controller for:  Message \$604 Message \$605 Message \$606 Message \$607 Message \$608 Message \$609 Message \$60A Message \$60B Message \$60C	> 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_FOCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Video Processing Control Module on High Speed CAN Bus	U18C3	This DTC is set by the EOCM when signal supervision by the EOCM on Video Processing Module has failied.	Message is not received from controller for: Message \$345 Message \$346 Message \$347	> 5.0 seconds > 5.0 seconds > 5.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Digital Map Control Module	U2511	Indicates invalid or out dated data was received from the Digital Map Control Module	Alive Rolling Counter or Checksum error on Front Object CAN Bus on messages: \$604, \$605, \$606, \$607, \$608, \$609, \$60A, \$60B, or \$60C	6 out of 10 failures of ARC or Checksum on any frame	FO Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.12 seconds out of a 0.2 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	<b>Enable Conditions</b>	Time Required	MIL Illum.
Invalid Data Received From Video Processing Control Module	U2512	Indicates invalid or out dated data was received from the Video Processing Control Module	Alive Rolling Counter or Checksum error on High Speed Object CAN Bus on messages: \$345, \$346, or \$347.	6 out of 10 failures of ARC or Checksum on any frame	FO Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.6 seconds out of a 1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Moduel - Data Memory Failure	U3000	RAM Image Corruption Test: this diagnostic performs a CRC check of the application software and calibration images located in ECU RAM. The images are copied	When the running RAM image Cyclic Redundancy Check checksum does not match the Cyclic Redundancy Check checksum stored in RAM	RAM Checksum ≠ Calculated Checksum	Diagnostic will run anytime there is sufficient processor throughput to allow execution of background tasks.  Diagnoistic Enabled	= 1.0 (1 = TRUE)	Immediately Upon Fault Detection	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics -
		from ECU ROM into RAM during initialization.	When the running RAM image Cyclic Redundancy Check checksum does not match the Cyclic Redundancy Check checksum stored in ROM	ROM Checksum ≠ Calculated Checksum	Diagnostic will run anytime there is sufficient processor throughput to allow execution of background tasks.  Diagnoistic Enabled	= 1.0 (1 = TRUE)	Immediately Upon Fault Detection	Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
ECU Hardware Performance - Interal Malfunction	B101D	This diagnoistic monitors the internal power supply from the IMX6 processor to ensure they ar within acceptable range of operation. The voltage level is read by ADC and available through a HWIO interface	IMX6 processor is fed multiple voltages by an onboard power supply. DTC is set if these power supplies are out of range for a predefined sliding window.  Fault set if:  0.75 V Suply  1.3 V Supply  1.425 V Supply	Min. Threshold = 0.70879V, Max. Threshold = 0.79079V  Min. Threshold = 1.25V, Max. Threshold = 1.35V  Min. Threshold = 3.07V, Max. Threshold = 3.43V  Min. Threshold = 1.32V, Max. Threshold = 1.48V	If (Configuration for Low Voltage Enablement is FALSE), diagnoistic will not consider low voltage condition and run regardless of battery monitor voltage.  If (Configuration for Low Voltage Enablement is TRUE), then the diagnoistic will NOT run when the battery monitor votlage is < 5.5 voltage  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process-End of Trip Processing-Diagnoistic Re-enable in Process	= TRUE	0.1 seconds out of a 0.2 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Front Camera System Status Message Counter Incorrect	B2B19	Monitor Indicates invalid or out of date data was received from the Front Camera System on the FlexRay Bus	Monitors the Front Camera Stauts Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "Lane_Det_Header" message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Front Camera Lane Marker Data Message Counter Incorrect	B2B1A	Monitor indicates invalid or out of date lane marking data was received from the Front Camera System on the FlexRay Bus	Monitors the Front Camera Lane Marking Data Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "System_Header" message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Front Camera Object Data Message Counter Incorrect	B2B1B	Monitor indicates invalid or out of date Object data was received from the Front Camera System on the FlexRay Bus	Monitors the Front Camera Object Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "Obj_Det_Header" message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Long Range Radar Object Data Message Counter Incorrect	B2B1C	Monitor indicates invalid or out of date Object data was received from the Long Range Radar on the FlexRay Bus	Monitors the Long Range Radar Object Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "F_LRR_Object_Header" message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Left Front Short Range Radar Object Data Message Counter Incorrect	B2B1D	Monitor indicates invalid or out of date Object data was received from the Long Left Front Short Range Radar on the FlexRay Bus	Monitors the Left Front Short Range Radar Object Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "LF_SRR_Object_Header" message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Right Front Short Radar Object Data Message Counter Incorrect	B2B1E	Monitor indicates invalid or out of date Object data was received from the Right Front Short Range Radar on the FlexRay Bus	Monitors the Left Front Short Range Radar Object Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "RF_SRR_Object_Header" " message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Left Rear Short Radar Object Data Message Counter Incorrect	B2B1F	Monitor indicates invalid or out of date Object data was received from the Left Rear Short Range Radar on the FlexRay Bus	Monitors the Left Front Short Range Radar Object Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "LR_SRR_Object_Header" message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Right Rear Short Radar Object Data Message Counter Incorrect	B2B20	Monitor indicates invalid or out of date Object data was received from the Right Rear Short Range Radar on the FlexRay Bus	Monitors the Left Front Short Range Radar Object Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "RR_SRR_Object_Heade r" message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Center Rear Short Radar Object Data Message Counter Incorrect	B2B21	Monitor indicates invalid or out of date Object data was received from the Center Rear Short Range Radar on the FlexRay Bus	Monitors the Left Front Short Range Radar Object Message for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.  Monitored for "R_SRR_Object_Header" message	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  Burst ARC Check Diagnostic Enabled  Signal Relivent protocol data unit (PDU) mask is Complete  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = TRUE = TRUE	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Read Only Memory Performance	Module Read Only Memory	Monitors the performance of the Read Only Memory. This includes the nonvolatile boot, code, or calibration memory. A	When the cyclical redundancy check is invalid, the fault flag is set to TRUE and the fail counter increments	Fail Counter > 5		The CRC diagnostic will run anytime there is sufficient processor throughput to allow execution of background task		Type C, No SVS "Safety Emissio ns Neutral
		Cyclic redundancy check, and Sinlg Bit ROM check is used. This diagnostic detects if the Compressor HV Voltage sensor has an out of range high circuit fault. If the enable conditions are met and compressor has detected an instantaneous out of range high fault on the sensor, the fail counter will increment. If the calibrated fail count threshold is met before the calibrated sample count, the diagnostic will report a FAIL and if not it will report a PASS. The diagnostic will continue to report as long as the enablement conditions are met.	For Single Bit ROM Errors, the fault fault is to TRUE and the fail counter is increased	Fail Counter > 5	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.		Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Not Programmed	P0602	Indicates the EOCM needs to be programmed	This DTC is set via calibration, when KeIDND_b_NoStartCal	=TRUE	Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.	1 second	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Long Term Memory Reset	P0603	Data was lost from Non-Volatile Memory. Could be due to failure of flash, NVM memory failure, first time power up if the shut down was interrupted	Non-volatile memory (static or dynamic) checksum failure at Powerup	= TRUE	Controller Initialize	= Complete	Once during start-up	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Random Access Memory Performance	P0604	If there is a failure in these types in RAM: Secondary, System, Cache, eTUP	Indicates that control module is unable to correctly write and read data to and from: - RAM - Cached RAM - TPU RAM  Indicates that the primary processor detects a mismatch between the data and dual data is found during RAM updates. Detects a mismatch in data and dual data updates >	Detects data read does not match data written >=  = 3 counts = 3 counts = 3 counts = 0.175 seconds	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.	= 2,000.00 mseconds	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"
		Indicates that the primary processor detects an illegal write attempt to protected RAM. Number of illegal writes are >	= 65,534 counts					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Processor Performance	P0606	Indicates that the EOCM has detected an internal processor integrity fault. These include diagnostics done on the SPI Communication as well as a host of diagnostics for both the primary and secondary processsors.	If any of the following fault occurs:  - ROM completion fault (reported to PISR from MPMR) - ALU fault - Configuration Registers fault - Stack fault - Analog to Digital Converter fault - Secondary processor detected Main processor CPU State of Health fault - DMA transfer fault - Missing T0 task's motor control related duty cycle event fault - Lockstep fault - Secondary processor not running Seed/Key test - Secondary processor fails to take remedial action - Secondary processor received incorrect keys - Main processor detected Seed/Key timeout - Main processor detected seeds received in wrong order		Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process And the Run/Crank Voltages	Diagnoistic System is not in State of Reset.  > 10.0 V	The diagnoistic operates every 12.5 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnosics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Long Term Memory Performance	Module Long Ferm Memory Performance  diagnostic. Checks if Assembly Cals are defaulted or non-	test for non-volatile memory performance diagnostic. Checks if Assembly Cals are defaulted or non-	When BINVDM region needs to be copied but cannot be VeMEMR_b_BINVDM_Ca nnotCopy	= TRUE		To be run during NVM Handler control task	Runs every 100 ms	Type C, No SVS "Safety Emissio ns Neutral
		volatile memory Handler is unable to commit to flash in the future due to memory errors. Typically this means that the controller has run out of flash blocks for storing the data (the total erase/write cycles for each block has been exceeded.	When there is an assembly calibration failure reported by HWIO at initialization.  Ve MEMD_b_AsyCalFail	= TRUE		To be run during NVM Handler control task	Runs every 100 ms	Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Monitor Control Module Serial Peripheral Interface Bus 2	P16E9	This diagnoistic monitors for Interprocessor communications (Between K1, K2, IMX Processor)	When it detects SPI communication fault as indicated between any two micros (K1,K2,IMX) in EOCM2	A fault is detected for 8 out of 16 samples	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process AND  No error parsing Serial Perpheral Interface Data		0.8 seconds out of a 1.6 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Monitor Control Module Serial Peripheral Interface Bus 1	P16F0	This diagnoistic monitors for Interprocessor communications (Between K1, K2, IMX Processor)	When it detects SPI communication fault as indicated between any two micros (K1,K2,IMX) in EOCM2	A fault is detected for 8 out of 16 samples	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process AND No error parsing Serial Perpheral Interface Data		0.8 seconds out of a 1.6 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Engine Control Module "A"	U0100	This DTC is set by the EOCM when signal supervision by the EOCM on the Engine Control Module has failed.	Message is not received from controller for: Message \$0C9 Message \$1CF Message \$3E9 Message \$3F9	> 0.5 seconds > 5.0 seconds > 5.0 seconds > 12.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Transmissio n Control Module	U0101	This DTC is set by the EOCM when signal supervision by the EOCM on the Tramission Control Module has failed.	Message is not received from controller for:  Message \$1F5	> 1.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Body Control Module	U0140	This DTC is set by the EOCM when signal supervision by the EOCM on the Body Control Module has failed.	Message is not received from controller for:  Message \$135 Message \$120 Message \$12A Message \$139 Message \$140 Message \$141 Message \$4E1 Message \$514	> 5.0 seconds > 200.0 seconds > 5.0 seconds > 5.0 seconds > 40.0 seconds > 40.0 seconds > 40.0 seconds > 40.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Telematic Control Module	U0198	This DTC is set by the EOCM when signal supervision by the EOCM on the Telematic Control Module has failed.	Message is not received from controller for:  Message \$260 Message \$261 Message \$262 Message \$263 Message \$264 Message \$265	> 10.0 seconds > 10.0 seconds > 10.0 seconds > 10.0 seconds > 10.0 seconds > 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Frontview Camera Module	U026A	This DTC is set by the EOCM when signal supervision by the EOCM on Frontview Camera Module failed.	Message is not received from controller for:  Message \$350 Message \$351 Message \$352 Message \$352 Message \$353 Message \$354 Message \$355 Message \$356	> 3.0 seconds > 3.0 seconds > 3.0 seconds > 3.0 seconds > 3.0 seconds > 3.0 seconds > 3.0 seconds > 3.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_FOCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Telematics Communicati on Interface Control Module (ONSTAR)	U0499	Indicates invalid or out dated data was received from the Telematics Communication Interface Control module	ARC or Checksum error on HE CAN Bus any of the following messages: \$260, \$261, \$262, \$263, \$264, or \$265.	6 out of 10 failures of ARC or Checksum on any frame	HE Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.6 seconds out of a 1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Frontview Camera Module	U056B	Indicates invalid or out dated data was received from the Frontview Camera Module	ARC or Checksum error on Front Object CAN Bus any of the following messages: \$350, \$351, \$352, \$353, \$354, \$355 or \$356. \$260, \$261, \$262, \$263, \$264, or \$265.	6 out of 10 failures of ARC or Checksum on any frame	FO Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.36 seconds out of a 0.6 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Digital Map Module	U1067	This DTC is set by the EOCM when signal supervision by the EOCM on Digital Map Module failed.	Message is not received from controller for:  Message \$604 Message \$605 Message \$606 Message \$607 Message \$608 Message \$609 Message \$60A Message \$60B Message \$60C	> 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_FOCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Video Processing Control Module		This DTC is set by the EOCM when signal supervision by the EOCM on Video Processing Module has failied.	Message is not received from controller for: Message \$345 Message \$346 Message \$347	> 5.0 seconds > 5.0 seconds > 5.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Digital Map Control Module	U2511	Indicates invalid or out dated data was received from the Digital Map Control Module	Alive Rolling Counter or Checksum error on Front Object CAN Bus on messages: \$604, \$605, \$606, \$607, \$608, \$609, \$60A, \$60B, or \$60C	6 out of 10 failures of ARC or Checksum on any frame	FO Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.12 seconds out of a 0.2 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Video Processing Control Module	U2512	Indicates invalid or out dated data was received from the Video Processing Control Module	Alive Rolling Counter or Checksum error on High Speed Object CAN Bus on messages: \$345, \$346, or \$347.	6 out of 10 failures of ARC or Checksum on any frame	FO Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.6 seconds out of a 1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Moduel - Data Memory Failure	U3000	RAM Image Corruption Test: this diagnostic performs a CRC check of the application software and calibration images located in ECU RAM. The images are copied	When the running RAM image Cyclic Redundancy Check checksum does not match the Cyclic Redundancy Check checksum stored in RAM	RAM Checksum ≠ Calculated Checksum	Diagnostic will run anytime there is sufficient processor throughput to allow execution of background tasks.  Diagnoistic Enabled	= 1.0 (1 = TRUE)	Immediately Upon Fault Detection	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics -
		from ECU ROM into RAM during initialization.	When the running RAM image Cyclic Redundancy Check checksum does not match the Cyclic Redundancy Check checksum stored in ROM	ROM Checksum ≠ Calculated Checksum	Diagnostic will run anytime there is sufficient processor throughput to allow execution of background tasks.  Diagnoistic Enabled	= 1.0 (1 = TRUE)	Immediately Upon Fault Detection	Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
ECU Hardware Performance - Interal Malfunction	B101D	This diagnoistic monitors the internal power supply from the IMX6 processor to ensure they ar within acceptable range of operation. The voltage level is read by ADC and available through a HWIO interface	Processor is fed multiple voltages by an onboard power supply. DTC is set if these power supplies are out of range for a predefined sliding window.  Fault set if:  0.75 V Suply  1.3 V Supply  1.425 V Supply	Min. Threshold = 0.70879V, Max. Threshold = 0.79079V  Min. Threshold = 1.25V, Max. Threshold = 1.35V  Min. Threshold = 3.07V, Max. Threshold = 3.43V  Min. Threshold = 1.32V, Max. Threshold = 1.48V	If (Configuration for Low Voltage Enablement is FALSE), diagnoistic will not consider low voltage condition and run regardless of battery monitor voltage.  If (Configuration for Low Voltage Enablement is TRUE), then the diagnoistic will NOT run when the battery monitor votlage is < 6.0 V  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process-End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE	0.15 seconds out of a 0.2 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Brake Pressure Signal Protection Value Rolling Count or Validity Bit Error	C0561	Monitor indicates invalid or out of date brake pressure information was received from the brake controller on High Speed Expansion Bus.	Monitors the brake pressure from the brake system on High Speed Expansion Bus (GM HE \$214) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	10 Fail Counters within 16 Samples	Diagnoistic is Enabled  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.5 seconds out of a 0.8 seconds window  Diagnostic runs every 50 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Brake Pedal Inital Travel Achieved Message Counter Incorrect	C1206	Monitor indicates invalid or out of date Brake Pedal Inital Travel Achieved Message was received on High Speed Expansion Bus.	Monitors brake pedal travel on High Speed Expansion Bus (GM HE \$0F1) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window  Diagnoistic runs every 10 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Steering Wheel Angle Sensor Signal Message Counter Incorrect	C1211	Monitor indicates invalid or out of date Steering Angle Sensor Message was received on High Speed and Chassis Expansion Bus. This include both the electronic power steering system, and the secondary column mounted steering angle	Monitors steering angle signal from the electronic power steering sensor on High Speed Expansion Bus (GM HE \$1E5) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window  Diagnoistic runs every 10 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"
		sensor	Monitors steering angle signal from the secondary steering angle sensor on Chassis Expansion High Speed Bus (GM CE \$1E5) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled CE CAN Communication Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window  Diagnoistic runs every 10 msec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Steering Torque Delivered Status Message Counter Incorrect on High Speed CAN Bus	C2A05	Monitor indicates invalid or out of date Steering Torque Message was received on High Speed Bus.	Monitors steering torque on High Speed Bus (GM HS \$164) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  HS CAN Communication  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window  Diagnoistic runs every 10 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Steering Torque Delivered Status Message Counter Incorrect on Chassis High Speed CAN Bus	C2A06	Monitor indicates invalid or out of date Steering Torque Message was received on Chassis High Speed CAN Bus.	Monitors steering torque on Chassis High Speed Bus (GM CE \$164) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled CE CAN Communication Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window  Diagnoistic runs every 10 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System Voltage Low	P0562	Detects a low 12V system. This diagnostic reports the DTC when battery voltage is low.	System voltage low	Battery Voltage <= 10.0 Volts	Run/Crank Starter motor status Diagnostic Engine RPM	= Active = Not Engaged = Enabled >= 1,200.0 RPM	0.075 seconds out of a 0.075 seconds window Diagnoistic runs every 100 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Read Only Memory Performance	odule ead Only emory erformance	Monitors the performance of the Read Only Memory. This includes the non-volatile boot, code, or calibration memory. A	When the cyclical redundancy check is invalid, the fault flag is set to TRUE and the fail counter increments	Fail Counter > 5		The CRC diagnostic will run anytime there is sufficient processor throughput to allow execution of background task	See enable conditions	Type C, No SVS "Safety Emissio ns Neutral
		Cyclic redundancy check, and Sinlg Bit ROM check is used. This diagnostic detects if the Compressor HV Voltage sensor has an out of range high circuit fault. If the enable conditions are met and compressor has detected an instantaneous out of range high fault on the sensor, the fail counter will increment. If the calibrated fail count threshold is met before the calibrated sample count, the diagnostic will report a FAIL and if not it will report a PASS. The diagnostic will continue to report as long as the enablement conditions are met.	For Single Bit ROM Errors, the fault fault is to TRUE and the fail counter is increased	Fail Counter > 5	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.	See enable conditions	Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Not Programmed	P0602	Indicates the EOCM needs to be programmed	This DTC is set via calibration, when KeIDND_b_NoStartCal	=TRUE	Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process  -End of Trip Processing  -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.	1 second	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Long Term Memory Reset	P0603	Data was lost from Non-Volatile Memory. Could be due to failure of flash, NVM memory failure, first time power up if the shut down was interrupted	Non-volatile memory (static or dynamic) checksum failure at Powerup	= TRUE	Controller Initialize	= Complete	Once during start-up	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Random Access Memory Performance	P0604	If there is a failure in these types in RAM: Secondary, System, Cache, eTUP	Indicates that control module is unable to correctly write and read data to and from: - RAM - Cached RAM - TPU RAM  Indicates that the primary processor detects a mismatch between the data and dual data is found during RAM updates. Detects a mismatch in data and dual data updates >	Detects data read does not match data written >=  = 3 counts = 3 counts = 3 counts = 0.175 seconds	Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.	= 2,000.00 mseconds	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"
			Indicates that the primary processor detects an illegal write attempt to protected RAM. Number of illegal writes are >	= 65,534 counts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Processor Performance	P0606	Indicates that the EOCM has detected an internal processor integrity fault. These include diagnostics done on the SPI Communication as well as a host of diagnostics for both the primary and secondary processsors.	If any of the following fault occurs:  - ROM completion fault (reported to PISR from MPMR) - ALU fault - Configuration Registers fault - Stack fault - Analog to Digital Converter fault - Secondary processor detected Main processor CPU State of Health fault - DMA transfer fault - Missing TO task's motor control related duty cycle event fault - Lockstep fault - Secondary processor not running Seed/Key test - Secondary processor fails to take remedial action - Secondary processor received incorrect keys - Main processor detected Seed/Key timeout - Main processor detected seeds received in wrong order		Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  And the Run/Crank Voltages are not low.	Diagnoistic System is not in State of Reset.  > 10.0 V	The diagnoistic operates every 12.5 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Long Term Memory Performance	test for non-volatile memory performance diagnostic. Checks if	When BINVDM region needs to be copied but cannot be VeMEMR_b_BINVDM_Ca nnotCopy	= TRUE		To be run during NVM Handler control task	Runs every 100 ms	Type C, No SVS "Safety Emissio ns Neutral	
		volatile memory Handler is unable to commit to flash in the future due to memory errors. Typically this means that the controller has run out of flash blocks for storing the data (the total erase/write cycles for each block has been exceeded.	When there is an assembly calibration failure reported by HWIO at initialization.  Ve MEMD_b_AsyCalFail	= TRUE		To be run during NVM Handler control task	Runs every 100 ms	Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Accelerator Pedal Position Signal Message Counter Incorrect	P100E	Monitor indicates invalid or out of date data acceleator pedal position was received from the engine controller on High Speed Expansion Bus.	Monitors the accelerator pedal position signal from the engine on High Speed Expansion Bus (GM HE \$1C4) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = Active	0.15 seconds out of a 0.25 seconds window Diagnoistic Runs every 25 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Distance Sensing Cruise Control Driver Requested Torque Signal Message Counter Incorrect	P157B	Monitor indicates invalid or out of date EOCM torque feedback was received from the engine controller on High Speed Expansion Bus.	Monitors the EOCM torque feedback from the engine on High Speed Expansion Bus (GM HE \$1C4) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = Active	0.15 seconds out of a 0.25 seconds window Diagnoistic Runs every 25 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Monitor Control Module Serial Peripheral Interface Bus 2	P16E9	This diagnoistic monitors for Interprocessor communications (Between K1, K2, IMX Processor)	When it detects SPI communication fault as indicated between any two micros (K1,K2,IMX) in EOCM2		Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  AND  No error parsing Serial Perpheral Interface Data		0.04 seconds out of a 0.08 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Monitor Control Module Serial Peripheral Interface Bus 1	P16F0	This diagnoistic monitors for Interprocessor communications (Between K1, K2, IMX Processor)	When it detects SPI communication fault as indicated between any two micros (K1,K2,IMX) in EOCM2		Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  AND  No error parsing Serial Perpheral Interface Data		0.04 seconds out of a 0.08 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on on High Speed CAN Bus Off	U0073	A bus off condition has been detected for the High Speed CAN Bus.	This DTC monitors for a BUS off condition on GM HS CAN Bus	A failure is detected for 3 counts for 1000 ms	Vehicle Power Mode  EOCM Operational Condition  Diagnoistic Enabled  Supply Voltage	= RUN = EOCM Comm Active State = True 9 > V > 16V	3 seconds out of a 5 seconds window Diagnoistic runs every 1000 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on on Object High Speed CAN Bus Off		A bus off condition has been detected for the Front Object High Speed CAN Bus.	This DTC monitors for a BUS off condition on Front Object High Speed CAN BUS	A failure is detected for 3 counts for 1000 ms	Vehicle Power Mode  EOCM Operational Condition  Diagnoistic Enabled  Supply Voltage	= RUN = EOCM Comm Active State = True 9 > V > 16V	3 seconds out of a 5 seconds window Diagnoistic runs every 1000 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on on FlexRay 1A Bus Off	U007E	A bus off condition has been detected for the FlexRay 1A Network	This DTC monitors for a FlexRay 1A Bus Off Contition:  1. Active Star internal faults (ex. Short, undervoltage, overtemperature, bus clamp) 2. Active Star branch faults (short circuits and bus clamping) 3. FlexRay driver detected faults (time/clock, startup, wakeup, out sync, and other syntax errors caused by external host) 4. PDU length mismatch, length zero and compare failures		Vehicle Power Mode  EOCM Operational Condition  Diagnoistic Enabled  Supply Voltage	= RUN = EOCM Comm Active State = True 9 > V > 16V	0.2 seconds out of a 20 seconds window  Diagnoistic runs every 20 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Engine Control Module "A"	U0100	This DTC is set by the EOCM when signal supervision by the EOCM on the Engine Control Module has failed.	Message is not received from controller for:  Message \$0C9 Message \$0D3 Message \$1C3 Message \$1C4 Message \$1C5 Message \$1C5 Message \$1CA Message \$3E9 Message \$3FC Message \$4F1	> 0.5 seconds > 0.5 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 5.0 seconds > 10.0 seconds > 40.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnos ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Transmissio n Control Module	U0101	This DTC is set by the EOCM when signal supervision by the EOCM on the Tramission Control Module has failed.	Message is not received from controller for:  Message \$1F5	> 1.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Steering Angle Sensor Module	U0126	This DTC is set by the EOCM when signal supervision by the EOCM on the steering angle sensor has failed.	Message is not received from controller for:  Message \$1E5	> 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CHASCOM_DIAG_EN ABLE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Body Control Module	1	This DTC is set by the EOCM when signal supervision by the EOCM on the Body Control Module has failed.	Message is not received from controller for: Message \$0F1 Message \$1F1 Message \$1E1	> 0.5 seconds > 1.5 seconds > 5.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Restrains Control Module	U0151	This DTC is set by the EOCM when signal supervision by the EOCM on the Restrains Control Module has failed.	Message is not received from controller for: Message \$130 Message \$140	> 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_LSCOM_DIAG_ENABL E	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Telematic Control Module	U0198	supervision by the EOCM on the Telematic Control Module has	Message is not received from controller for:  Message \$260 Message \$261 Message \$262 Message \$263 Message \$264 Message \$265	> 10.0 seconds > 10.0 seconds > 10.0 seconds > 10.0 seconds > 10.0 seconds > 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Anti- Lock Brake System Control Module	U0415	Indicates invalid or out dated data was received from the Brake Control Module	ARC or Checksum error on Chassis Expanson CAN Bus any of the following messages: \$17D, \$0C1, or \$0C5.	6 out of 10 failures of ARC or Checksum on any frame	CE Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Restraints Control Module	U0452	Indicates invalid or out dated data was received from the Restrain Control Module	ARC or Checksum error on Chassis Expanson CAN Bus any of the following messages: \$130 OR \$140	6 out of 10 failures of ARC or Checksum on any frame	CE Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Telematics Communicati on Interface Control Module (ONSTAR)	U0499	Indicates invalid or out dated data was received from the Telematics Communication Interface Control module	ARC or Checksum error on HE CAN Bus any of the following messages: \$260, \$261, \$262, \$263, \$264, or \$265.	6 out of 10 failures of ARC or Checksum on any frame	Front Object Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Active Safety Control Module 2	U053C	Indicates invalid or out dated data was received from From Active Safety Control Module 2 (EOCM2B)	ARC or Checksum error on the following signals:  - High Speed Expansion CAN Bus \$320  - Chassis Expansion Can Bus \$154  - "EOCM2B_Operational_S tatus" frame on FlexRay channel A and B.	6 out of 10 failures of ARC or Checksum on any frame	Front Object CAN, Chassis Expansion CAN and FlexRay Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Vehicle Dynamics Sensor 1	U1032	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 1 has failed.	Message is not received from controller for: Message \$130 Message \$132 Message \$134	> 0.5 seconds > 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_FOCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Vehicle Dynamics Sensor 2	U1033	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 2 has failed.	Message is not received from controller for: Message \$136 Message \$138 Message \$140	> 0.5 seconds > 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_FOCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Electronic Brake Control Module on Chassis Expansion CAN Bus	U1833	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Brake Control Module on Chassis Expansion CAN Bus has failed.	Message is not received from controller for:  Message \$0C0 Message \$0C1 Message \$0C5 Message \$170 Message \$17D Message \$348 Message \$34A	> 0.5 seconds > 0.5 seconds > 0.5 seconds > 0.5 seconds > 5.0 seconds > 2.0 seconds > 2.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CECOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	<b>Enable Conditions</b>	Time Required	MIL Illum.
Lost Communicati on with Telematics Communicati on Interface Control Module on Low Speed CAN Bus	U183E	This DTC is set by the EOCM when signal supervision by the EOCM on the Telematics Communication Interface Control Module has failed on Low Speed CAN Bus	Vectra Specific Network Management Data from the TCP is missing	Signal not recieved for 6 out of 10 counts	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_LSCOM_DIAG_ENABL E	= RUN > 9V = 0 = 1 (True)	0.6 seconds out of a 1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Body Control Module on Low Speed CAN Bus		This DTC is set by the EOCM when signal supervision by the EOCM on the Body Control Module has failed on Low Speed CAN Bus	Vectra Specific Network Management Data from the BCM is missing	Signal not recieved for 6 out of 10 counts	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_LSCOM_DIAG_ENABL E	= RUN > 9V = 0 = 1 (True)	0.6 seconds out of a 1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Power Steering Control Module on High Speed CAN Bus	U18BA	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Power Steering System on High Speed CAN Bus has failed.	Message is not received from controller for:  Message \$164 Message \$1E5	> 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CECOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Power Steering Control Module on Chassis Expansion High Speed CAN Bus	U18BB	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Power Steering System on Chassis Expansion Speed CAN Bus has failed.	Message is not received from controller for:  Message \$164	> 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CECOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Frontview Camera Module on Flexray Bus	U18C2	This DTC is set by the EOCM when signal supervision by the EOCM for the Front Camera on the Flexray bus has failed.	Message is not received from controller for Flexray Message:  F_Vision_GFHB_Data Freespace_Conf Lane_Boundary_1 Lane_Boundary_2 Lane_Boundary_3 Lane_Boundary_5 Lane_Boundary_5 Lane_Boundary_7 Lane_Boundary_7 Lane_Boundary_9_LeftBa rrier Lane_Boundary_9_LeftBa rrier Lane_Boundary_10_Right Barrier Lane_Boundary_HPP Lane_Det_Header Lane_Transition_Points Lane_Transition_Points_A It LGT_ControlHighBeamGl are LGT_ObjectDetect_Info_1 LGT_ObjectDetect_Info_2 LGT_ObjectDetect_Info_3 LGT_ObjectDetect_Info_4 LGT_ObjectDetect_Info_5 LGT_ObjectDetect_Info_6 LGT_ObjectDetect_Info_6 LGT_ObjectDetect_Info_7 LGT_ObjectDetect_Info_8 Obj_Track_1 Obj_Track_2 Obj_Track_3 Obj_Track_5 Obj_Track_6 Obj_Track_7		System Power Mode Battery Voltage Manufacturing Enable Counter FlexRay Diagnostics	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Obj_Track_8 Obj_Track_9 Obj_Track_10 Obj_Track_11 Obj_Track_12 Obj_Track_13 Obj_Track_14 Obj_Track_15 Scene_Info_1 Scene_Info_2 LHT_CameraObjConfirma tion Obj_Det_Header Ped_Alrt_Brk Road_Bank_SuperElevati on Road_Elevation Road_Shoulder System_Header					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Electronic Brake Control Module on High Speed CAN Bus	U18C5	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Brake Control Module on High Speed CAN Bus has failed.	Message is not received from controller for: Message \$1C7 Message \$1E9 Message \$214 Message \$2F9	> 1.0 seconds > 1.0 seconds > 2.0 seconds > 2.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Active Safety Control Module 1 on Flexray Bus		This DTC is set by the EOCM when signal supervision by the EOCM2A for the EOCM2B on the Flexray bus has failed.	Message is not received from controller for Flexray Message:  Secondary_System_Op_ Stat	> 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  FlexRay Diagnostics	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati	U18D0	EOCM when signal	Message is not received from controller for Flexray		System Power Mode	= RUN	See threshold value.	Type C, No SVS
on with Active Safety		supervision by the EOCM2A for the	Message:		Battery Voltage	> 9V		"Safety Emissio
Control Module 1 on High Speed		EOCM2B on the High Speed CAN bus has failed.	Secondary_System_Op_   Stat	> 5.0 seconds	Manufacturing Enable Counter	= 0		ns Neutral Diagnost
CAN Bus					HSCOM Diagnostics	= 1 (True)		ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received from Vehicle Dynamic Sensor 1	U250E	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 1 has failed on Front Object CAN Bus	ARC or Checksum error on Front Object Expanson CAN Bus any of the following messages: \$130, \$132, or \$134	6 out of 10 failures of ARC or Checksum on any frame	FO Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received from Vehicle Dynamic Sensor 1	U250F	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 2 has failed on Front Object CAN Bus	ARC or Checksum error on Front Object Expanson CAN Bus any of the following messages: \$136, \$138, or \$140	6 out of 10 failures of ARC or Checksum on any frame	FO Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module - Internal Electronic Failure	U3000	This diagnoistic monitors the calculated results from each Komodos processor to ensure they all match. The specific calculations monitored are within LXCR (Lane Change and Centering Control) variables, LMFR (Lane Mapping Fusion) variables, or TSTR (Target Object Selection and Threat Assessment) variables.	A mismatch is key varables within software rings LXCR, LMFR & TSTR, operating in parallel on other Komodos processors (K1P, K2P, K1R, K2P).	20 mismatches out of 20 counts	Diagnostic will run anytime there is sufficient processor throughput to allow execution of background tasks.  Diagnoistic Enabled for each software componet (LXCR, LMFR, TSTR)	= Enabled for all software componet	0.2 seconds out of a 0.2 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
ECU Hardware Performance - Interal Malfunction	B101D	This diagnoistic monitors the internal power supply from the processor to ensure they ar within acceptable range of operation. The voltage level is read by ADC and available through a HWIO interface	Processor is fed multiple voltages by an onboard power supply. DTC is set if these power supplies are out of range for a predefined sliding window.  Fault set if:  0.75 V Suply  1.3 V Supply  3.3 V Supply	Min. Threshold = 0.70879V, Max. Threshold = 0.79079V  Min. Threshold = 1.25V, Max. Threshold = 1.35V  Min. Threshold = 3.07V, Max. Threshold = 3.43V  Min. Threshold = 1.32V, Max. Threshold = 1.32V, Max. Threshold = 1.48V	If (Configuration for Low Voltage Enablement is FALSE), diagnoistic will not consider low voltage condition and run regardless of battery monitor voltage.  If (Configuration for Low Voltage Enablement is TRUE), then the diagnoistic will NOT run when the battery monitor votlage is < 6.0 V  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process-End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE	0.15 seconds out of a 0.2 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Brake Pressure Signal Protection Value Rolling Count or Validity Bit Error	C0561	Monitor indicates invalid or out of date brake pressure information was received from the brake controller on High Speed Expansion Bus.	Monitors the brake pressure from the brake system on High Speed Expansion Bus (GM HE \$214) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	10 Fail Counters within 16 Samples	Diagnoistic is Enabled  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.5 seconds out of a 0.8 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Brake Pedal Inital Travel Achieved Message Counter Incorrect	C1206	Monitor indicates invalid or out of date Brake Pedal Inital Travel Achieved Message was received on High Speed Expansion Bus.	Monitors brake pedal travel on High Speed Expansion Bus (GM HE \$0F1) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Steering Wheel Angle Sensor Signal Message Counter Incorrect	C1211	Monitor indicates invalid or out of date Steering Angle Sensor Message was received on High Speed and Chassis Expansion Bus. This include both the electronic power steering system, and the secondary column mounted steering angle	Monitors steering angle signal from the electronic power steering sensor on High Speed Expansion Bus (GM HE \$1F5) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"
		sensor	Monitors steering angle signal from the secondary steering angle sensor on Chassis Expansion High Speed Bus (GM CE \$1E5) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled CE CAN Communication Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Steering Torque Delivered Status Message Counter Incorrect on High Speed CAN Bus	C2A05	Monitor indicates invalid or out of date Steering Torque Message was received on High Speed Bus.	Monitors steering torque on High Speed Bus (GM HS \$164) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  HS CAN Communication  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window  Diagnoistic runs every 10 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Steering Torque Delivered Status Message Counter Incorrect on Chassis High Speed CAN Bus	C2A06	Monitor indicates invalid or out of date Steering Torque Message was received on Chassis High Speed CAN Bus.	Monitors steering torque on Chassis High Speed Bus (GM CE \$164) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled CE CAN Communication Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window  Diagnoistic runs every 10 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System Voltage Low	P0562	Detects a low 12V system. This diagnostic reports the DTC when battery voltage is low. Monitoring occurs when the engine speed is above a calibrated value.	System voltage high	Battery Voltage <= 10.0 Volts	Run/Crank Diagnostic Engine RPM	= Active = Enabled >= 1,200.0 RPM	0.075 seconds out of a 0.075 seconds window Diagnoistic runs every 12.5 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Read Only Memory Performance	Module Read Only Memory	Monitors the performance of the Read Only Memory. This includes the non-volatile boot, code, or calibration memory. A	When the cyclical redundancy check is invalid, the fault flag is set to TRUE and the fail counter increments	Fail Counter > 5		The CRC diagnostic will run anytime there is sufficient processor throughput to allow execution of background task		Type C, No SVS "Safety Emissio ns Neutral
		Cyclic redundancy check, and Sinlg Bit ROM check is used. This diagnostic detects if the Compressor HV Voltage sensor has an out of range high circuit fault. If the enable conditions are met and compressor has detected an instantaneous out of range high fault on the sensor, the fail counter will increment. If the calibrated fail count threshold is met before the calibrated sample count, the diagnostic will report a FAIL and if not it will report a PASS. The diagnostic will continue to report as long as the enablement conditions are met.	For Single Bit ROM Errors, the fault fault is to TRUE and the fail counter is increased	Fail Counter > 5	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.		Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Not Programmed	P0602	Indicates the EOCM needs to be programmed	This DTC is set via calibration, when KeIDND_b_NoStartCal	=TRUE	Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.	1 second	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Long Term Memory Reset	P0603	Data was lost from Non-Volatile Memory. Could be due to failure of flash, NVM memory failure, first time power up if the shut down was interrupted	Non-volatile memory (static or dynamic) checksum failure at Powerup	= TRUE	Controller Initialize	= Complete	Once during start-up	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Random Access Memory Performance	P0604	If there is a failure in these types in RAM: Secondary, System, Cache, eTUP	Indicates that control module is unable to correctly write and read data to and from: - RAM - Cached RAM - TPU RAM  Indicates that the primary processor detects a mismatch between the data and dual data is found during RAM updates. Detects a mismatch in data and dual data updates >	Detects data read does not match data written >=  = 3 counts = 3 counts = 3 counts = 0.175 seconds	Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.	= 2,000.00 mseconds  Refer to Threshold Value	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"
			Indicates that the primary processor detects an illegal write attempt to protected RAM. Number of illegal writes are >	= 65,534 counts			Refer to Thresdhold Value	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Processor Performance	P0606	Indicates that the EOCM has detected an internal processor integrity fault. These include diagnostics done on the SPI Communication as well as a host of diagnostics for both the primary and secondary processsors.	If any of the following fault occurs:  - ROM completion fault (reported to PISR from MPMR) - ALU fault - Configuration Registers fault - Stack fault - Analog to Digital Converter fault - Secondary processor detected Main processor CPU State of Health fault - DMA transfer fault - Missing T0 task's motor control related duty cycle event fault - Lockstep fault - Secondary processor not running Seed/Key test - Secondary processor fails to take remedial action - Secondary processor received incorrect keys - Main processor detected Seed/Key timeout - Main processor detected seeds received in wrong order		Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  And the Run/Crank Voltages are not low.	Diagnoistic System is not in State of Reset.  > 10.0 V	The diagnoistic operates every 12.5 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Long Term Memory Performance	P062F	This diagnostic runs test for non-volatile memory performance diagnostic. Checks if Assembly Cals are defaulted or non-	When BINVDM region needs to be copied but cannot be  VeMEMR_b_BINVDM_CannotCopy	= TRUE		To be run during NVM Handler control task	Runs every 100 ms	Type C, No SVS "Safety Emissio ns Neutral
		volatile memory Handler is unable to commit to flash in the future due to memory errors. Typically this means that the controller has run out of flash blocks for storing the data (the total erase/write cycles for each block has been exceeded.	When there is an assembly calibration failure reported by HWIO at initialization.  Ve MEMD_b_AsyCalFail	= TRUE		To be run during NVM Handler control task	Runs every 100 ms	Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Accelerator Pedal Position Signal Message Counter Incorrect	P100E	Monitor indicates invalid or out of date data acceleator pedal position was received from the engine controller on High Speed Expansion Bus.	Monitors the accelerator pedal position signal from the engine on High Speed Expansion Bus (GM HE \$1C4) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = Active	0.15 seconds out of a 0.25 seconds window Diagnoistic Runs every 25 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Distance Sensing Cruise Control Driver Requested Torque Signal Message Counter Incorrect	P157B	EOCM torque feedback was received from the	Monitors the EOCM torque feedback from the engine on High Speed Expansion Bus (GM HE \$1C4) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = Active	0.15 seconds out of a 0.25 seconds window Diagnoistic Runs every 25 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Monitor Control Module Serial Peripheral Interface Bus 2	P16E9	This diagnoistic monitors for Interprocessor communications (Between K1, K2, IMX Processor)	When it detects SPI communication fault as indicated between any two micros (K1,K2,IMX) in EOCM2		Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  AND  No error parsing Serial Perpheral Interface Data	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  AND No error in parsing SPI data	0.04 seconds out of a 0.08 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Monitor Control Module Serial Peripheral Interface Bus 1	P16F0	This diagnoistic monitors for Interprocessor communications (Between K1, K2, IMX Processor)	When it detects SPI communication fault as indicated between any two micros (K1,K2,IMX) in EOCM2		Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  AND  No error parsing Serial Perpheral Interface Data	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  AND No error in parsing SPI data	0.04 seconds out of a 0.08 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on on High Speed CAN Bus Off	U0073	A bus off condition has been detected for the Chassis Expansion CAN Bus.	A bus off condition has been detected for the High Speed CAN Bus.	A failure is detected for 3 counts for 1000 ms	Vehicle Power Mode  EOCM Operational Condition  Diagnoistic Enabled  Supply Voltage	= RUN = EOCM Comm Active State = True 9 > V > 16V	3 seconds out of a 5 seconds window Diagnoistic runs every 1000 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on on FlexRay 1B Bus Off	U007E	A bus off condition has been detected for the FlexRay 1B Network	This DTC monitors for a FlexRay 1B Bus Off Contition	A failure is detected for 6 counts for 1000 ms	Vehicle Power Mode  EOCM Operational Condition  Diagnoistic Enabled  Supply Voltage	= RUN = EOCM Comm Active State = True 9 > V > 16V	0.2 seconds out of a 20 seconds window Diagnoistic runs every 20 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Engine Control Module "A"	U0100	This DTC is set by the EOCM when signal supervision by the EOCM on the Engine Control Module has failed.	Message is not received from controller for:  Message \$0C9 Message \$0D3 Message \$1C3 Message \$1C4 Message \$1C5 Message \$1C5 Message \$1CA Message \$3E9 Message \$4F1	> 0.5 seconds > 0.5 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 5.0 seconds > 40.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Transmissio n Control Module	U0101	This DTC is set by the EOCM when signal supervision by the EOCM on the Tramission Control Module has failed.	Message is not received from controller for:  Message \$1F5	> 1.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Steering Angle Sensor Module	U0126	This DTC is set by the EOCM when signal supervision by the EOCM on the steering angle sensor has failed.	Message is not received from controller for:  Message \$1E5	> 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CHASCOM_DIAG_EN ABLE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Body Control Module		This DTC is set by the EOCM when signal supervision by the EOCM on the Body Control Module has failed.	Message is not received from controller for: Message \$0F1 Message \$1F1 Message \$1E1	> 0.5 seconds > 1.5 seconds > 5.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Restrains Control Module	U0151	This DTC is set by the EOCM when signal supervision by the EOCM on the Restrains Control Module has failed.	Message is not received from controller for: Message \$130 Message \$140	> 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_LSCOM_DIAG_ENABL E	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Telematic Control Module	U0198	supervision by the EOCM on the Telematic Control Module has	Message is not received from controller for:  Message \$260 Message \$261 Message \$262 Message \$263 Message \$264 Message \$265	> 10.0 seconds > 10.0 seconds > 10.0 seconds > 10.0 seconds > 10.0 seconds > 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	<b>Enable Conditions</b>	Time Required	MIL Illum.
Invalid Data Received From Anti- Lock Brake System Control Module	U0415	Indicates invalid or out dated data was received from the Brake Control Module	ARC or Checksum error on Chassis Expanson CAN Bus any of the following messages: \$17D, \$0C1, or \$0C5.	6 out of 10 failures of ARC or Checksum on any frame	CE Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Restraints Control Module	U0452	Indicates invalid or out dated data was received from the Restrain Control Module	ARC or Checksum error on Chassis Expanson CAN Bus any of the following messages: \$130 OR \$140	6 out of 10 failures of ARC or Checksum on any frame	CE Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	<b>Enable Conditions</b>	Time Required	MIL Illum.
Invalid Data Received From Telematics Communicati on Interface Control Module (ONSTAR)	U0499	Indicates invalid or out dated data was received from the Telematics Communication Interface Control module	ARC or Checksum error on HE CAN Bus any of the following messages: \$260, \$261, \$262, \$263, \$264, or \$265.	6 out of 10 failures of ARC or Checksum on any frame	Front Object Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Active Safety Control Module 1	U053B	Indicates invalid or out dated data was received from From Active Safety Control Module 1 (EOCM2A)	ARC or Checksum error on the following signals:  - High Speed Expansion CAN Bus \$320  - Chassis Expansion Can Bus \$154  - EOCM2A_Operational_St atus frame on FlexRay channel A and B	6 out of 10 failures of ARC or Checksum on any frame	Front Object CAN, Chassis Expansion CAN and FlexRay Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnos ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Vehicle Dynamics Sensor 1	U1032	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 1 has failed.	Message is not received from controller for: Message \$130 Message \$132 Message \$134	> 0.5 seconds > 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_FOCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	<b>Enable Conditions</b>	Time Required	MIL Illum.
Lost Communicati on with Vehicle Dynamics Sensor 2	U1033	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 2 has failed.	Message is not received from controller for: Message \$136 Message \$138 Message \$140	> 0.5 seconds > 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_FOCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Electronic Brake Control Module on Chassis Expansion CAN Bus	U1833	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Brake Control Module on Chassis Expansion CAN Bus has failed.	Message is not received from controller for:  Message \$0C0 Message \$0C1 Message \$0C5 Message \$170 Message \$17D Message \$348 Message \$34A	> 0.5 seconds > 0.5 seconds > 0.5 seconds > 0.5 seconds > 5.0 seconds > 2.0 seconds > 2.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CECOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Telematics Communicati on Interface Control Module on Low Speed CAN Bus		This DTC is set by the EOCM when signal supervision by the EOCM on the Telematics Communication Interface Control Module has failed on Low Speed CAN Bus	Vectra Specific Network Management Data from the TCP is missing	Signal not recieved for 6 out of 10 counts	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_LSCOM_DIAG_ENABL E	= RUN > 9V = 0 = 1 (True)	0.6 seconds out of a 1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	<b>Enable Conditions</b>	Time Required	MIL Illum.
Lost Communicati on with Body Control Module on Low Speed CAN Bus	1	This DTC is set by the EOCM when signal supervision by the EOCM on the Body Control Module has failed on Low Speed CAN Bus	Vectra Specific Network Management Data from the BCM is missing	Signal not recieved for 6 out of 10 counts	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_LSCOM_DIAG_ENABL E	= RUN > 9V = 0 = 1 (True)	0.6 seconds out of a 1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Power Steering Control Module on High Speed CAN Bus	U18BA	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Power Steering System on High Speed CAN Bus has failed.	Message is not received from controller for:  Message \$164 Message \$1E5	> 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CECOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Power Steering Control Module on Chassis Expansion High Speed CAN Bus	U18BB	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Power Steering System on Chassis Expansion Speed CAN Bus has failed.	Message is not received from controller for:  Message \$164	> 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CECOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Frontview Camera Module on Flexray Bus	U18C2	This DTC is set by the EOCM when signal supervision by the EOCM for the Front Camera on the Flexray bus has failed.	Message is not received from controller for Flexray Message:  F_Vision_GFHB_Data Freespace_Conf Lane_Boundary_1 Lane_Boundary_2 Lane_Boundary_3 Lane_Boundary_5 Lane_Boundary_6 Lane_Boundary_7 Lane_Boundary_9_LeftBa rrier Lane_Boundary_10_Right Barrier Lane_Boundary_10_Right Barrier Lane_Boundary_HPP Lane_Det_Header Lane_Transition_Points Lane_Transition_Points_Lane_Transition_Points_Lane_Transition_Points_Lane_Transition_Points_Lane_Transition_2 LGT_ObjectDetect_Info_1 LGT_ObjectDetect_Info_3 LGT_ObjectDetect_Info_5 LGT_ObjectDetect_Info_5 LGT_ObjectDetect_Info_6 LGT_ObjectDetect_Info_6 LGT_ObjectDetect_Info_7 LGT_ObjectDetect_Info_8 Obj_Track_1 Obj_Track_2 Obj_Track_3 Obj_Track_5 Obj_Track_5 Obj_Track_7		System Power Mode Battery Voltage Manufacturing Enable Counter FlexRay Diagnostics	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Obj_Track_8 Obj_Track_9 Obj_Track_10 Obj_Track_11 Obj_Track_12 Obj_Track_13 Obj_Track_14 Obj_Track_15 Scene_Info_1 Scene_Info_2 LHT_CameraObjConfirmation Obj_Det_Header Ped_Alrt_Brk Road_Bank_SuperElevation Road_Elevation Road_Shoulder System_Header					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Electronic Brake Control Module on High Speed CAN Bus	U18C5	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Brake Control Module on High Speed CAN Bus has failed.	Message is not received from controller for: Message \$1C7 Message \$1E9 Message \$214 Message \$2F9	> 1.0 seconds > 1.0 seconds > 2.0 seconds > 2.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Active Safety Control Module 1 on Flexray Bus		This DTC is set by the EOCM when signal supervision by the EOCM2A for the EOCM2B on the Flexray bus has failed.	Message is not received from controller for Flexray Message:  Secondary_System_Op_Stat	> 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  FlexRay Diagnostics	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received from Vehicle Dynamic Sensor 1	U250E	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 1 has failed on Front Object CAN Bus	ARC or Checksum error on Front Object Expanson CAN Bus any of the following messages: \$130, \$132, or \$134	6 out of 10 failures of ARC or Checksum on any frame	FO Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received from Vehicle Dynamic Sensor 1	U250F	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 2 has failed on Front Object CAN Bus	ARC or Checksum error on Front Object Expanson CAN Bus any of the following messages: \$136, \$138, or \$140	6 out of 10 failures of ARC or Checksum on any frame	FO Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module - Internal Electronic Failure	U3000	This diagnoistic monitors the calculated results from each Komodos processor to ensure they all match. The specific calculations monitored are within LXCR (Lane Change and Centering Control) variables, LMFR (Lane Mapping Fusion) variables, or TSTR (Target Object Selection and Threat Assessment) variables.	A mismatch is key varables within software rings LXCR, LMFR & TSTR, operating in parallel on other Komodos processors (K1P, K2P, K1R, K2P).	20 mismatches out of 20 counts	Diagnostic will run anytime there is sufficient processor throughput to allow execution of background tasks.  Diagnoistic Enabled for each software componet (LXCR, LMFR, TSTR)	= Enabled for all software componet	0.2 seconds out of a 0.2 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
ECU Hardware Performance - Interal Malfunction	B101D	This diagnoistic monitors the internal power supply from the processor to ensure they ar within acceptable range of operation. The voltage level is read by ADC and available through a HWIO interface	Processor is fed multiple voltages by an onboard power supply. DTC is set if these power supplies are out of range for a predefined sliding window.  Fault set if:  0.75 V Suply  1.3 V Supply  1.425 V Supply	Min. Threshold = 0.70879V, Max. Threshold = 0.79079V  Min. Threshold = 1.25V, Max. Threshold = 1.35V  Min. Threshold = 3.07V, Max. Threshold = 3.43V  Min. Threshold = 1.32V, Max. Threshold = 1.48V	If (Configuration for Low Voltage Enablement is FALSE), diagnoistic will not consider low voltage condition and run regardless of battery monitor voltage.  If (Configuration for Low Voltage Enablement is TRUE), then the diagnoistic will NOT run when the battery monitor votlage is < 5.5 voltage  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process-End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE	0.15 seconds out of a 0.2 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"
			Voltage difference between processors exceeds thresholds	Absolute Difference in Processor Voltage is Greater Than 3.0 V	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  Diganoistic is Enabled	= TRUE	3 seconds out of a 6 seconds window	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Brake Pressure Signal Protection Value Rolling Count or Validity Bit Error	C0561	controller on High Speed Expansion Bus.	Monitors the brake pressure from the brake system on High Speed Expansion Bus (GM HE \$214) for Alive Rolling Counter (ARC) OR Cyclic Redundant; Checksum (CRC) Failure.  A failure of either will increase the fail counter.	10 Fail Counters within 16 Samples	Diagnoistic is Enabled  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.5 seconds out of a 0.8 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Brake Pedal Inital Travel Achieved Message Counter Incorrect	C1206	Monitor indicates invalid or out of date Brake Pedal Inital Travel Achieved Message was received on High Speed Expansion Bus.	Monitors brake pedal travel on High Speed Expansion Bus (GM HE \$0F1) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Steering Wheel Angle Sensor Signal Message Counter Incorrect	Monitor indicates invalid or out of date Steering Angle Sensor Message was received on High Speed and Chassis Expansion Bus. This include both the electronic power steering system, and the secondary column mounted steering angle	Monitors steering angle signal from the electronic power steering sensor on High Speed Expansion Bus (GM HE \$1F5) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"	
		sensor	Monitors steering angle signal from the secondary steering angle sensor on Chassis Expansion High Speed Bus (GM CE \$1E5) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  CE CAN Communication  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Steering Torque Delivered Status Message Counter Incorrect on High Speed CAN Bus	C2A05	Monitor indicates invalid or out of date Steering Torque Message was received on High Speed Bus.	Monitors steering torque on High Speed Bus (GM HS \$164) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.		Diagnoistic is Enabled  HS CAN Communication  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window  Diagnoistic runs every 10 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Steering Torque Delivered Status Message Counter Incorrect on Chassis High Speed CAN Bus	C2A06	Monitor indicates invalid or out of date Steering Torque Message was received on Chassis High Speed CAN Bus.	Monitors steering torque on Chassis High Speed Bus (GM CE \$164) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  CE CAN Communication  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window  Diagnoistic runs every 10 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System Voltage Low	P0562	Detects a low 12V system. This diagnostic reports the DTC when battery voltage is low. Monitoring occurs when the engine speed is above a calibrated value.	System voltage low	Battery Voltage <= 9.0 Volts	Run/Crank Diagnostic Engine Speed	= Active = Enabled >= 1,200.0 RPM	0.075 seconds out of a 0.075 seconds window Diagnoistic runs every 100 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Read Only Memory Performance	P0601	Monitors the performance of the Read Only Memory. This includes the non-volatile boot, code, or calibration memory. A	When the cyclical redundancy check is invalid, the fault flag is set to TRUE and the fail counter increments	Fail Counter > 5		The CRC diagnostic will run anytime there is sufficient processor throughput to allow execution of background task		Type C, No SVS "Safety Emissio ns Neutral
		Cyclic redundancy check, and Sinlg Bit ROM check is used. This diagnostic detects if the Compressor HV Voltage sensor has an out of range high circuit fault. If the enable conditions are met and compressor has detected an instantaneous out of range high fault on the sensor, the fail counter will increment. If the calibrated fail count threshold is met before the calibrated sample count, the diagnostic will report a FAIL and if not it will report a PASS. The diagnostic will continue to report as long as the enablement conditions are met.	For Single Bit ROM Errors, the fault fault is to TRUE and the fail counter is increased	Fail Counter > 5	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.		Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Not Programmed	P0602	Indicates the EOCM needs to be programmed	This DTC is set via calibration, when KeIDND_b_NoStartCal	=TRUE	Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process  -End of Trip Processing  -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.	1 second	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Long Term Memory Reset	P0603	Data was lost from Non-Volatile Memory. Could be due to failure of flash, NVM memory failure, first time power up if the shut down was interrupted	Non-volatile memory (static or dynamic) checksum failure at Powerup	= TRUE	Controller Initialize	= Complete	Once during start-up	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Random Access Memory Performance	P0604	If there is a failure in these types in RAM: Secondary, System, Cache, eTUP	Indicates that control module is unable to correctly write and read data to and from: - RAM - Cached RAM - TPU RAM Indicates that the primary processor detects a mismatch between the data and dual data is found during RAM updates. Detects a mismatch in data and dual data updates >	Detects data read does not match data written >=  = 3 counts = 3 counts = 3 counts = 0.175 seconds	Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.	= 2,000.00 mseconds	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"
			Indicates that the primary processor detects an illegal write attempt to protected RAM. Number of illegal writes are >	= 65,534 counts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Processor Performance	P0606	Indicates that the EOCM has detected an internal processor integrity fault. These include diagnostics done on the SPI Communication as well as a host of diagnostics for both the primary and secondary processsors.	- ROM completion fault (reported to PISR from MPMR) - ALU fault		Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  And the Run/Crank Voltages are not low.	Diagnoistic System is not in State of Reset.  > 10.0 V	The diagnoistic operates every 12.5 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Long Term Memory Performance	This diagnostic runs test for non-volatile memory performance diagnostic. Checks if Assembly Cals are defaulted or non-	When BINVDM region needs to be copied but cannot be  VeMEMR_b_BINVDM_CannotCopy	= TRUE		To be run during NVM Handler control task	Runs every 100 ms	Type C, No SVS "Safety Emissio ns Neutral	
		volatile memory Handler is unable to commit to flash in the future due to memory errors. Typically this means that the controller has run out of flash blocks for storing the data (the total erase/write cycles for each block has been exceeded.	When there is an assembly calibration failure reported by HWIO at initialization.  Ve MEMD_b_AsyCalFail	= TRUE		To be run during NVM Handler control task	Runs every 100 ms	Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Accelerator Pedal Position Signal Message Counter Incorrect	P100E	Monitor indicates invalid or out of date data acceleator pedal position was received from the engine controller on High Speed Expansion Bus.	Monitors the accelerator pedal position signal from the engine on High Speed Expansion Bus (GM HE \$1C4) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = Active	0.15 seconds out of a 0.25 seconds window Diagnoistic Runs every 25 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Distance Sensing Cruise Control Driver Requested Torque Signal Message Counter Incorrect	P157B	Monitor indicates invalid or out of date EOCM torque feedback was received from the engine controller on High Speed Expansion Bus.	Monitors the EOCM torque feedback from the engine on High Speed Expansion Bus (GM HE \$1C4) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = Active	0.15 seconds out of a 0.25 seconds window Diagnoistic Runs every 25 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnos ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Monitor Control Module Serial Peripheral Interface Bus 2	P16E9	This diagnoistic monitors for Interprocessor communications (Between K1, K2, IMX Processor)	When it detects SPI communication fault as indicated between any two micros (K1,K2,IMX) in EOCM2		Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  AND  No error parsing Serial Perpheral Interface Data			Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Monitor Control Module Serial Peripheral Interface Bus 1	P16F0	This diagnoistic monitors for Interprocessor communications (Between K1, K2, IMX Processor)	When it detects SPI communication fault as indicated between any two micros (K1,K2,IMX) in EOCM2		Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  AND  No error parsing Serial Perpheral Interface Data			Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on on Object High Speed CAN Bus Off		A bus off condition has been detected for the Front Object High Speed CAN Bus.	This DTC monitors for a BUS off condition on Front Object High Speed CAN BUS	A failure is detected for 3 counts for 1000 ms	Vehicle Power Mode  EOCM Operational Condition  Diagnoistic Enabled  Supply Voltage	= RUN = EOCM Comm Active State = True 9 > V > 16V	3 seconds out of a 5 seconds window Diagnoistic runs every 1000 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on Bus E Off		A bus off condition has been detected for the GM High Speed CAN Bus.	This DTC monitors for a BUS off condition on GM High Speed CAN BUS	A failure is detected for 3 counts for 1000 ms	Vehicle Power Mode  EOCM Operational Condition  Diagnoistic Enabled  Supply Voltage	= RUN = EOCM Comm Active State = True 9 > V > 16V	3 seconds out of a 5 seconds window Diagnoistic runs every 1000 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on on Low Speed CAN Bus Off	U0078	A bus off condition has been detected for the Low Speed CAN Bus.	This DTC monitors for a low speed Bus off condition	A failure is detected for 6 counts for 1000 ms	Vehicle Power Mode  EOCM Operational Condition  Diagnoistic Enabled  Supply Voltage	= RUN = EOCM Comm Active State = True 9 > V > 16V	6 seconds out of a 10 seconds window Diagnoistic runs every 1000 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on FlexRay 1A Bus Off	U007F	A bus off condition has been detected for the FlexRay 1A Network	This DTC monitors for a FlexRay 1A Bus Off Contition	A failure is detected for 6 counts for 1000 ms	Vehicle Power Mode  EOCM Operational Condition  Diagnoistic Enabled  Supply Voltage	= RUN = EOCM Comm Active State = True 9 > V > 16V	0.2 seconds out of a 20 seconds window Diagnoistic runs every 20 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Engine Control Module "A"	U0100	This DTC is set by the EOCM when signal supervision by the EOCM on the Engine Control Module has failed.	Message is not received from controller for:  Message \$0C9 Message \$0D3 Message \$1C3 Message \$1C4 Message \$1C5 Message \$1CA Message \$1CA Message \$3E9 Message \$4F1	> 0.5 seconds > 0.5 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 40.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Transmissio n Control Module	U0101	This DTC is set by the EOCM when signal supervision by the EOCM on the Tramission Control Module has failed.	Message is not received from controller for:  Message \$1F5	> 1.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Steering Angle Sensor Module	U0126	This DTC is set by the EOCM when signal supervision by the EOCM on the steering angle sensor has failed.	Message is not received from controller for:  Message \$1E5	> 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CHASCOM_DIAG_EN ABLE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Body Control Module		This DTC is set by the EOCM when signal supervision by the EOCM on the Body Control Module has failed.	Message is not received from controller for: Message \$0F1 Message \$1F1 Message \$1E1	> 0.5 seconds > 1.5 seconds > 5.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Restrains Control Module	U0151	This DTC is set by the EOCM when signal supervision by the EOCM on the Restrains Control Module has failed.	Message is not received from controller for: Message \$130 Message \$140	> 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_LSCOM_DIAG_ENABL E	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Telematic Control Module	U0198	supervision by the EOCM on the Telematic	Message is not received from controller for: Message \$260 Message \$261 Message \$262 Message \$263 Message \$264 Message \$265	> 10.0 seconds > 10.0 seconds > 10.0 seconds > 10.0 seconds > 10.0 seconds > 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Left Front Short Range Radar Sensor Module	U0265	This DTC is set by the EOCM when signal supervision by the EOCM on Left Front Short Range Radar Sensor Module has failed.	Message is not received from controller for Flexray Message:  Barrier_1 Barrier_2 Barrier_3 Barrier_4 Object_Header Object_Track1 Object_Track2 Object_Track3 Object_Track5 Object_Track6 Stationary_Track1 Stationary_Track2 Stationary_Track5 Stationary_Track5 Stationary_Track6 Stationary_Track6 Stationary_Track8 Stationary_Track8 Stationary_Track8 Stationary_Track1 Stationary_Track10 Stationary_Track10 Stationary_Track11 Stationary_Track12 Stationary_Track13 Stationary_Track13 Stationary_Track13 Stationary_Track14 Stationary_Track14 Stationary_Track15 Stationary_Track15 Stationary_Track15	For all Signals: > 10.0 seconds	System Power Mode Battery Voltage Manufacturing Enable Counter Flexray Diagnoistics	= RUN > 9V = 0 = 1 (True)	See threshold value	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Right Front Short Range Radar Sensor Module	U0268	This DTC is set by the EOCM when signal supervision by the EOCM on Right Front Short Range Radar Sensor Module has failed.	Message is not received from controller for Flexray Message:  Barrier_1 Barrier_2 Barrier_3 Barrier_4 Object_Header Object_Track1 Object_Track2 Object_Track3 Object_Track4 Object_Track5 Object_Track6 Stationary_Track1 Stationary_Track2 Stationary_Track4 Stationary_Track5 Stationary_Track6 Stationary_Track6 Stationary_Track6 Stationary_Track7 Stationary_Track8 Stationary_Track8 Stationary_Track10 Stationary_Track10 Stationary_Track11 Stationary_Track12 Stationary_Track12 Stationary_Track13 Stationary_Track13 Stationary_Track14 Stationary_Track14 Stationary_Track15 Stationary_Track15 Stationary_Track15 Stationary_Track16	For all Signals: > 10.0 seconds	System Power Mode Battery Voltage Manufacturing Enable Counter Flexray Diagnoistics	= RUN > 9V = 0 = 1 (True)	See threshold value	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Front Long Range Radar Sensor Module	U0269	This DTC is set by the EOCM when signal supervision by the EOCM on Front Long Range Radar Sensor Module has failed.	Message is not received from controller for Flexray Message:  Barrier_1 Barrier_2 Barrier_3 Barrier_4 Object_Header Object_Track1 Object_Track2 Object_Track3 Object_Track5 Object_Track6 Stationary_Track1 Stationary_Track2 Stationary_Track4 Stationary_Track5 Stationary_Track6 Stationary_Track6 Stationary_Track7 Stationary_Track6 Stationary_Track7 Stationary_Track8 Stationary_Track10 Stationary_Track10 Stationary_Track11 Stationary_Track12 Stationary_Track13 Stationary_Track13 Stationary_Track14 Stationary_Track14 Stationary_Track15 Stationary_Track15 Stationary_Track15	For all Signals: > 10.0 seconds	System Power Mode Battery Voltage Manufacturing Enable Counter Flexray Diagnoistics	= RUN > 9V = 0 = 1 (True)	See threshold value	Type C, No SVS v

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Left Rear Short Range Radar Sensor Module	U026B	This DTC is set by the EOCM when signal supervision by the EOCM on Left Rear Short Range Radar Sensor Module has failed.	Message is not received from controller for Flexray Message:  Barrier_1 Barrier_2 Barrier_3 Barrier_4 Object_Header Object_Track1 Object_Track2 Object_Track3 Object_Track4 Object_Track5 Object_Track6 Stationary_Track1 Stationary_Track3 Stationary_Track4 Stationary_Track5 Stationary_Track6 Stationary_Track6 Stationary_Track6 Stationary_Track7 Stationary_Track8 Stationary_Track10 Stationary_Track10 Stationary_Track11 Stationary_Track12 Stationary_Track12 Stationary_Track13 Stationary_Track13 Stationary_Track14 Stationary_Track14 Stationary_Track15 Stationary_Track15 Stationary_Track15 Stationary_Track15	For all Signals: > 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  Flexray Diagnoistics	= RUN > 9V = 0 = 1 (True)	See threshold value	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Right Rear Short Range Radar Sensor Module	U026C	This DTC is set by the EOCM when signal supervision by the EOCM on Right Rear Short Range Radar Sensor Module has failed.	Message is not received from controller for Flexray Message:  Barrier_1 Barrier_2 Barrier_3 Barrier_4 Object_Header Object_Track1 Object_Track2 Object_Track3 Object_Track4 Object_Track5 Object_Track6 Stationary_Track1 Stationary_Track2 Stationary_Track4 Stationary_Track5 Stationary_Track6 Stationary_Track6 Stationary_Track6 Stationary_Track7 Stationary_Track8 Stationary_Track8 Stationary_Track10 Stationary_Track10 Stationary_Track11 Stationary_Track12 Stationary_Track12 Stationary_Track13 Stationary_Track13 Stationary_Track14 Stationary_Track15 Stationary_Track15 Stationary_Track15 Stationary_Track15 Stationary_Track16	For all Signals: > 10.0 seconds	System Power Mode Battery Voltage Manufacturing Enable Counter Flexray Diagnoistics	= RUN > 9V = 0 = 1 (True)	See threshold value	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Center Rear Short Range Radar Sensor Module	U026D	This DTC is set by the EOCM when signal supervision by the EOCM on Center Rear Short Range Radar Sensor Module has failed.	Message is not received from controller for Flexray Message:  Barrier_1 Barrier_2 Barrier_3 Barrier_4 Object_Header Object_Track1 Object_Track2 Object_Track3 Object_Track4 Object_Track5 Object_Track6 Stationary_Track1 Stationary_Track3 Stationary_Track5 Stationary_Track6 Stationary_Track6 Stationary_Track7 Stationary_Track8 Stationary_Track8 Stationary_Track9 Stationary_Track10 Stationary_Track11 Stationary_Track12 Stationary_Track12 Stationary_Track13 Stationary_Track14 Stationary_Track14 Stationary_Track14 Stationary_Track14 Stationary_Track15 Stationary_Track15 Stationary_Track16	For all Signals: > 10.0 seconds	System Power Mode Battery Voltage Manufacturing Enable Counter Flexray Diagnoistics	= RUN > 9V = 0 = 1 (True)	See threshold value	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Anti- Lock Brake System Control Module	U0415	Indicates invalid or out dated data was received from the Brake Control Module	ARC or Checksum error on Chassis Expanson CAN Bus any of the following messages: \$17D, \$0C1, or \$0C5.	6 out of 10 failures of ARC or Checksum on any frame	CE Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Restraints Control Module	U0452	Indicates invalid or out dated data was received from the Restrain Control Module	ARC or Checksum error on Chassis Expanson CAN Bus any of the following messages: \$130 OR \$140	6 out of 10 failures of ARC or Checksum on any frame	CE Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Active Safety Control Module 2	U053C	Indicates invalid or out dated data was received from From Active Safety Control Module 2 (EOCM2B)	ARC or Checksum error on the following signals:  - High Speed Expansion CAN Bus \$320  - Chassis Expansion Can Bus \$154  - "EOCM2B_Operational_S tatus" frame on FlexRay channel A and B	6 out of failures of 10 ARC or Checksum on any frame	Front Object CAN, Chassis Expansion CAN and FlexRay Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Vehicle Dynamics Sensor 1	U1032	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 1 has failed.	Message is not received from controller for: Message \$130 Message \$132 Message \$134	> 0.5 seconds > 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_FOCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Vehicle Dynamics Sensor 2	U1033	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 2 has failed.	Message is not received from controller for: Message \$136 Message \$138 Message \$140	> 0.5 seconds > 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_FOCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Electronic Brake Control Module on Chassis Expansion CAN Bus	U1833	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Brake Control Module on Chassis Expansion CAN Bus has failed.	Message is not received from controller for:  Message \$0C0 Message \$0C1 Message \$0C5 Message \$170 Message \$17D Message \$348 Message \$34A	> 0.5 seconds > 0.5 seconds > 0.5 seconds > 0.5 seconds > 5.0 seconds > 2.0 seconds > 2.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CECOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	<b>Enable Conditions</b>	Time Required	MIL Illum.
Lost Communicati on with Body Control Module on Low Speed CAN Bus		This DTC is set by the EOCM when signal supervision by the EOCM on the Body Control Module has failed on Low Speed CAN Bus	Vectra Specific Network Management Data from the BCM is missing	Signal not recieved for 6 out of 10 counts	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_LSCOM_DIAG_ENABL E	= RUN > 9V = 0 = 1 (True)	0.6 seconds out of a 1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Active Safety Control Module 2 on Chassis Expansion CAN Bus		This DTC is set by the EOCM when signal supervision by the EOCM for the Active Safety Control Module 2 on Chassis Expansion CAN Bus has failed.	Message is not received from controller for:  Message \$154	> 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CECOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Power Steering Control Module on High Speed CAN Bus	U18BA	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Power Steering System on High Speed CAN Bus has failed.	Message is not received from controller for:  Message \$164 Message \$1E5	> 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CECOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Power Steering Control Module on Chassis Expansion High Speed CAN Bus	U18BB	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Power Steering System on Chassis Expansion Speed CAN Bus has failed.	Message is not received from controller for:  Message \$164	> 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CECOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Electronic Brake Control Module on High Speed CAN Bus	U18C5	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Brake Control Module on High Speed CAN Bus has failed.	Message is not received from controller for: Message \$1C7 Message \$1E9 Message \$214 Message \$2F9	> 1.0 seconds > 1.0 seconds > 2.0 seconds > 2.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Active Safety Control Module 1 on Flexray Bus	U18CB	This DTC is set by the EOCM when signal supervision by the EOCM2A for the EOCM2B on the Flexray bus has failed.	Message is not received from controller for:  Secondary_System_Op_ Stat	> 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  FlexRay Diagnostics	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type X, No MIL "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received from Vehicle Dynamic Sensor 1	U250E	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 1 has failed on Front Object CAN Bus	ARC or Checksum error on Front Object Expanson CAN Bus any of the following messages: \$130, \$132, or \$134	6 out of 10 failures of ARC or Checksum on any frame	FO Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received from Vehicle Dynamic Sensor 1	U250F	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 2 has failed on Front Object CAN Bus	ARC or Checksum error on Front Object Expanson CAN Bus any of the following messages: \$136, \$138, or \$140	6 out of 10 failures of ARC or Checksum on any frame	FO Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module - Internal Electronic Failure	U3000	This diagnoistic monitors the calculated results from each Komodos processor to ensure they all match. The specific calculations monitored are within LXCR (Lane Change and Centering Control) variables, LMFR (Lane Mapping Fusion) variables, or TSTR (Target Object Selection and Threat Assessment) variables.	A mismatch is key varables within software rings LXCR, LMFR & TSTR, operating in parallel on other Komodos processors (K1P, K2P, K1R, K2P).	20 mismatches out of 20 counts	Diagnostic will run anytime there is sufficient processor throughput to allow execution of background tasks.  Diagnoistic Enabled for each software componet (LXCR, LMFR, TSTR)	= Enabled for all software componet	0.2 seconds out of a 0.2 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
ECU Hardware Performance - Interal Malfunction	B101D	This diagnoistic monitors the internal power supply from the processor to ensure they ar within acceptable range of operation. The voltage level is read by ADC and available through a HWIO interface	Komotdo 1 processor is fed multiple voltages by an onboard power supply. DTC is set if these power supplies are out of range for a predefined sliding window.  Fault set if:  0.75 V Suply  1.3 V Supply  1.425 V Supply	Min. Threshold = 0.70879V, Max. Threshold = 0.79079V  Min. Threshold = 1.25V, Max. Threshold = 1.35V  Min. Threshold = 3.07V, Max. Threshold = 3.43V  Min. Threshold = 1.32V, Max. Threshold = 1.32V, Max. Threshold = 1.48V	If (Configuration for Low Voltage Enablement is FALSE), diagnoistic will not consider low voltage condition and run regardless of battery monitor voltage.  If (Configuration for Low Voltage Enablement is TRUE), then the diagnoistic will NOT run when the battery monitor votlage is < 5.5 V  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process-End of Trip Processing-Diagnoistic Re-enable in Process	= TRUE	0.15 seconds out of a 0.2 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"
			Voltage difference between processors exceeds thresholds	Absolute Difference in Processor Voltage is Greater Than 3.0 V	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  Diganoistic is Enabled	= TRUE	3 seconds out of a 6 seconds window	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Brake Pressure Signal Protection Value Rolling Count or Validity Bit Error	C0561	Speed Expansion Bus.	Monitors the brake pressure from the brake system on High Speed Expansion Bus (GM HE \$214) for Alive Rolling Counter (ARC) OR Cyclic Redundant; Checksum (CRC) Failure.  A failure of either will increase the fail counter.	10 Fail Counters within 16 Samples	Diagnoistic is Enabled  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.5 seconds out of a 0.8 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Brake Pedal Inital Travel Achieved Message Counter Incorrect	C1206	Monitor indicates invalid or out of date Brake Pedal Inital Travel Achieved Message was received on High Speed Expansion Bus.	Monitors brake pedal travel on High Speed Expansion Bus (GM HE \$0F1) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Steering Wheel Angle Sensor Signal Message Counter Incorrect	C1211	Monitor indicates invalid or out of date Steering Angle Sensor Message was received on High Speed and Chassis Expansion Bus. This include both the electronic power steering system, and the secondary column mounted steering angle	Monitors steering angle signal from the electronic power steering sensor on High Speed Expansion Bus (GM HE \$1F5) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"
		sensor	Monitors steering angle signal from the secondary steering angle sensor on Chassis Expansion High Speed Bus (GM CE \$1E5) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  CE CAN Communication  Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Steering Torque Delivered Status Message Counter Incorrect on High Speed CAN Bus	C2A05	Monitor indicates invalid or out of date Steering Torque Message was received on High Speed Bus.	Monitors steering torque on High Speed Bus (GM HS \$164) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.		Diagnoistic is Enabled  HS CAN Communication  Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window  Diagnoistic runs every 10 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Steering Torque Delivered Status Message Counter Incorrect on Chassis High Speed CAN Bus	C2A06	Monitor indicates invalid or out of date Steering Torque Message was received on Chassis High Speed CAN Bus.	Monitors steering torque on Chassis High Speed Bus (GM CE \$164) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled CE CAN Communication Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE = Active	0.06 seconds out of a 0.1 seconds window  Diagnoistic runs every 10 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System Voltage Low	P0562	Detects a low 12V system. This diagnostic reports the DTC when battery voltage is low. Monitoring occurs when the engine speed is above a calibrated value.		Battery Voltage <= 9.0 Volts	Run/Crank Diagnostic Engine RPM	= Active = Enabled >= 1,200.0 RPM	0.075 seconds out of a 0.075 seconds window Diagnoistic runs every 100 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Read Only Memory Performance	Module Read Only Memory	Monitors the performance of the Read Only Memory. This includes the non-volatile boot, code, or calibration memory. A	When the cyclical redundancy check is invalid, the fault flag is set to TRUE and the fail counter increments	Fail Counter > 5		The CRC diagnostic will run anytime there is sufficient processor throughput to allow execution of background task		Type C, No SVS "Safety Emissio ns Neutral
		Cyclic redundancy check, and Sinlg Bit ROM check is used. This diagnostic detects if the Compressor HV Voltage sensor has an out of range high circuit fault. If the enable conditions are met and compressor has detected an instantaneous out of range high fault on the sensor, the fail counter will increment. If the calibrated fail count threshold is met before the calibrated sample count, the diagnostic will report a FAIL and if not it will report a PASS. The diagnostic will continue to report as long as the enablement conditions are met.	For Single Bit ROM Errors, the fault fault is to TRUE and the fail counter is increased	Fail Counter > 5	Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.		Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Not Programmed	P0602	Indicates the EOCM needs to be programmed	This DTC is set via calibration, when KeIDND_b_NoStartCal	=TRUE	Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.	1 second	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Long Term Memory Reset	P0603	Data was lost from Non-Volatile Memory. Could be due to failure of flash, NVM memory failure, first time power up if the shut down was interrupted	Non-volatile memory (static or dynamic) checksum failure at Powerup	= TRUE	Controller Initialize	= Complete	Once during start-up	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Random Access Memory Performance	P0604	If there is a failure in these types in RAM: Secondary, System, Cache, eTUP	Indicates that control module is unable to correctly write and read data to and from: - RAM - Cached RAM - TPU RAM Indicates that the primary processor detects a mismatch between the data and dual data is found during RAM updates. Detects a mismatch in data and dual data updates >	Detects data read does not match data written >=  = 3 counts = 3 counts = 3 counts = 0.175 seconds	Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	Diagnoistic System is not in State of Reset.	= 2,000.00 mseconds	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"
			Indicates that the primary processor detects an illegal write attempt to protected RAM. Number of illegal writes are >	= 65,534 counts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Processor Performance	P0606	Indicates that the EOCM has detected an internal processor integrity fault. These include diagnostics done on the SPI Communication as well as a host of diagnostics for both the primary and secondary processsors.	If any of the following fault occurs:  - ROM completion fault (reported to PISR from MPMR) - ALU fault - Configuration Registers fault - Stack fault - Analog to Digital Converter fault - Secondary processor detected Main processor CPU State of Health fault - DMA transfer fault - Missing T0 task's motor control related duty cycle event fault - Lockstep fault - Lockstep fault - Secondary processor not running Seed/Key test - Secondary processor fails to take remedial action - Secondary processor received incorrect keys - Main processor detected Seed/Key timeout - Main processor detected seeds received in wrong order		Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  And the Run/Crank Voltages are not low.	Diagnoistic System is not in State of Reset.  > 10.0 V	The diagnoistic operates every 12.5 msec	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Long Term Memory Performance	This diagnostic runs test for non-volatile memory performance diagnostic. Checks if Assembly Cals are defaulted or non-	When BINVDM region needs to be copied but cannot be VeMEMR_b_BINVDM_Ca nnotCopy	= TRUE		To be run during NVM Handler control task	Runs every 100 ms	Type C, No SVS "Safety Emissio ns Neutral	
		volatile memory Handler is unable to commit to flash in the future due to memory errors. Typically this means that the controller has run out of flash blocks for storing the data (the total erase/write cycles for each block has been exceeded.	When there is an assembly calibration failure reported by HWIO at initialization.  Ve MEMD_b_AsyCalFail	= TRUE		To be run during NVM Handler control task	Runs every 100 ms	Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Accelerator Pedal Position Signal Message Counter Incorrect	P100E	Monitor indicates invalid or out of date data acceleator pedal position was received from the engine controller on High Speed Expansion Bus.	Monitors the accelerator pedal position signal from the engine on High Speed Expansion Bus (GM HE \$1C4) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = Active	0.15 seconds out of a 0.25 seconds window  Diagnoistic Runs every 25 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Distance Sensing Cruise Control Driver Requested Torque Signal Message Counter Incorrect	P157B	Monitor indicates invalid or out of date EOCM torque feedback was received from the engine controller on High Speed Expansion Bus.	Monitors the EOCM torque feedback from the engine on High Speed Expansion Bus (GM HE \$1C4) for Alive Rolling Counter (ARC) OR Cyclic Redundant Checksum (CRC) Failure. A failure of either will increase the fail counter.	6 Fail Counters within 10 Samples	Diagnoistic is Enabled  EOCM2 Supply Voltage  HE CAN Communication  Diagnoistic System is not in State of Reset. This includes:  -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process	= TRUE > 9.0 V for > 3 seconds = Active	0.15 seconds out of a 0.25 seconds window Diagnoistic Runs every 25 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Monitor Control Module Serial Peripheral Interface Bus 2	P16E9	This diagnoistic monitors for Interprocessor communications (Between K1, K2, IMX Processor)	When it detects SPI communication fault as indicated between any two micros (K1,K2,IMX) in EOCM2		Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  AND  No error parsing Serial Perpheral Interface Data			Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Monitor Control Module Serial Peripheral Interface Bus 1	P16F0	This diagnoistic monitors for Interprocessor communications (Between K1, K2, IMX Processor)	When it detects SPI communication fault as indicated between any two micros (K1,K2,IMX) in EOCM2		Diagnoistic System is not in State of Reset. This includes: -Code Clear in Process -End of Trip Processing -Diagnoistic Re-enable in Process  AND  No error parsing Serial Perpheral Interface Data			Type C, No SVS "Safety Emissio ns Neutral Diagnos ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on on Chassis Expansion CAN Bus Off		A bus off condition has been detected for the Chassis Expansion CAN Bus.	This DTC monitors for a BUS off condition on Chassis Expansion High Speed CAN BUs	A failure is detected for 3 counts for 1000 ms	Vehicle Power Mode  EOCM Operational Condition  Diagnoistic Enabled  Supply Voltage	= RUN = EOCM Comm Active State = True 9 > V > 16V	3 seconds out of a 5 seconds window  Diagnoistic runs every 1000 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on on Low Speed CAN Bus Off	U0078	A bus off condition has been detected for the Low Speed CAN Bus.	This DTC monitors for a low speed Bus off condition	A failure is detected for 6 counts for 1000 ms	Vehicle Power Mode  EOCM Operational Condition  Diagnoistic Enabled  Supply Voltage	= RUN = EOCM Comm Active State = True 9 > V > 16V	6 seconds out of a 10 seconds window  Diagnoistic runs every 1000 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on FlexRay 1B Bus Off	U007F	A bus off condition has been detected for the FlexRay 1B Network	This DTC monitors for a FlexRay 1B Bus Off Contition	A failure is detected for 6 counts for 1000 ms	Vehicle Power Mode  EOCM Operational Condition  Diagnoistic Enabled  Supply Voltage	= RUN = EOCM Comm Active State = True 9 > V > 16V	0.2 seconds out of a 20 seconds window Diagnoistic runs every 20 ms	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Engine Control Module "A"	U0100	This DTC is set by the EOCM when signal supervision by the EOCM on the Engine Control Module has failed.	Message is not received from controller for:  Message \$0C9 Message \$0D3 Message \$1C3 Message \$1C4 Message \$1C5 Message \$1CA Message \$1CA Message \$3E9 Message \$4F1	> 0.5 seconds > 0.5 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 1.0 seconds > 5.0 seconds > 40.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Transmissio n Control Module	U0101	This DTC is set by the EOCM when signal supervision by the EOCM on the Tramission Control Module has failed.	Message is not received from controller for:  Message \$1F5	> 1.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Steering Angle Sensor Module	U0126	This DTC is set by the EOCM when signal supervision by the EOCM on the steering angle sensor has failed.	Message is not received from controller for:  Message \$1E5	> 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CHASCOM_DIAG_EN ABLE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Body Control Module		This DTC is set by the EOCM when signal supervision by the EOCM on the Body Control Module has failed.	Message is not received from controller for: Message \$0F1 Message \$1F1 Message \$1E1	> 0.5 seconds > 1.5 seconds > 5.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Restrains Control Module	U0151	This DTC is set by the EOCM when signal supervision by the EOCM on the Restrains Control Module has failed.	Message is not received from controller for: Message \$130 Message \$140	> 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_LSCOM_DIAG_ENABL E	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Left Front Short Range Radar Sensor Module	U0265	This DTC is set by the EOCM when signal supervision by the EOCM on Left Front Short Range Radar Sensor Module has failed.	Message is not received from controller for Flexray Message:  Barrier_1 Barrier_2 Barrier_3 Barrier_4 Object_Header Object_Track1 Object_Track2 Object_Track3 Object_Track4 Object_Track5 Object_Track5 Object_Track5 Stationary_Track1 Stationary_Track2 Stationary_Track4 Stationary_Track5 Stationary_Track6 Stationary_Track6 Stationary_Track7 Stationary_Track7 Stationary_Track8 Stationary_Track8 Stationary_Track10 Stationary_Track10 Stationary_Track11 Stationary_Track12 Stationary_Track13 Stationary_Track14 Stationary_Track14 Stationary_Track15 Stationary_Track15 Stationary_Track16	For all Signals: > 10.0 seconds	System Power Mode Battery Voltage Manufacturing Enable Counter Flexray Diagnoistics	= RUN > 9V = 0 = 1 (True)	See threshold value	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Right Front Short Range Radar Sensor Module	U0268	This DTC is set by the EOCM when signal supervision by the EOCM on Right Front Short Range Radar Sensor Module has failed.	Message is not received from controller for Flexray Message:  Barrier_1 Barrier_2 Barrier_3 Barrier_4 Object_Header Object_Track1 Object_Track2 Object_Track3 Object_Track4 Object_Track5 Object_Track4 Stationary_Track1 Stationary_Track2 Stationary_Track4 Stationary_Track5 Stationary_Track6 Stationary_Track6 Stationary_Track8 Stationary_Track8 Stationary_Track8 Stationary_Track9 Stationary_Track10 Stationary_Track11 Stationary_Track12 Stationary_Track12 Stationary_Track13 Stationary_Track14 Stationary_Track14 Stationary_Track14 Stationary_Track15 Stationary_Track15 Stationary_Track16	For all Signals: > 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  Flexray Diagnoistics	= RUN > 9V = 0 = 1 (True)	See threshold value	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Front Long Range Radar Sensor Module		This DTC is set by the EOCM when signal supervision by the EOCM on Front Long Range Radar Sensor Module has failed.	Message is not received from controller for Flexray Message:  Barrier_1 Barrier_2 Barrier_3 Barrier_4 Object_Header Object_Track1 Object_Track2 Object_Track3 Object_Track4 Object_Track5 Object_Track5 Object_Track5 Stationary_Track1 Stationary_Track1 Stationary_Track4 Stationary_Track5 Stationary_Track6 Stationary_Track6 Stationary_Track6 Stationary_Track7 Stationary_Track7 Stationary_Track8 Stationary_Track10 Stationary_Track10 Stationary_Track11 Stationary_Track12 Stationary_Track13 Stationary_Track14 Stationary_Track14 Stationary_Track15 Stationary_Track15 Stationary_Track16	For all Signals: > 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  Flexray Diagnoistics	= RUN > 9V = 0 = 1 (True)	See threshold value	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Left Rear Short Range Radar Sensor Module	U026B	This DTC is set by the EOCM when signal supervision by the EOCM on Left Rear Short Range Radar Sensor Module has failed.	Message is not received from controller for Flexray Message:  Barrier_1 Barrier_2 Barrier_3 Barrier_4 Object_Header Object_Track1 Object_Track2 Object_Track3 Object_Track4 Object_Track5 Object_Track6 Stationary_Track1 Stationary_Track2 Stationary_Track5 Stationary_Track5 Stationary_Track6 Stationary_Track6 Stationary_Track6 Stationary_Track7 Stationary_Track8 Stationary_Track8 Stationary_Track10 Stationary_Track10 Stationary_Track11 Stationary_Track12 Stationary_Track13 Stationary_Track14 Stationary_Track14 Stationary_Track14 Stationary_Track15 Stationary_Track15 Stationary_Track16	For all Signals: > 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  Flexray Diagnoistics	= RUN > 9V = 0 = 1 (True)	See threshold value	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Right Rear Short Range Radar Sensor Module		This DTC is set by the EOCM when signal supervision by the EOCM on Right Rear Short Range Radar Sensor Module has failed.	Message is not received from controller for Flexray Message:  Barrier_1 Barrier_2 Barrier_3 Barrier_4 Object_Header Object_Track1 Object_Track2 Object_Track3 Object_Track5 Object_Track5 Object_Track6 Stationary_Track1 Stationary_Track2 Stationary_Track4 Stationary_Track5 Stationary_Track6 Stationary_Track6 Stationary_Track7 Stationary_Track8 Stationary_Track8 Stationary_Track10 Stationary_Track10 Stationary_Track11 Stationary_Track12 Stationary_Track13 Stationary_Track14 Stationary_Track14 Stationary_Track15 Stationary_Track15 Stationary_Track16	For all Signals: > 10.0 seconds	System Power Mode Battery Voltage Manufacturing Enable Counter Flexray Diagnoistics	= RUN > 9V = 0 = 1 (True)	See threshold value	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Center Rear Short Range Radar Sensor Module	U026D	This DTC is set by the EOCM when signal supervision by the EOCM on Center Rear Short Range Radar Sensor Module has failed.	Message is not received from controller for Flexray Message:  Barrier_1 Barrier_2 Barrier_3 Barrier_4 Object_Header Object_Track1 Object_Track2 Object_Track3 Object_Track5 Object_Track6 Stationary_Track1 Stationary_Track2 Stationary_Track5 Stationary_Track5 Stationary_Track6 Stationary_Track6 Stationary_Track6 Stationary_Track7 Stationary_Track7 Stationary_Track8 Stationary_Track9 Stationary_Track10 Stationary_Track11 Stationary_Track12 Stationary_Track12 Stationary_Track13 Stationary_Track14 Stationary_Track14 Stationary_Track15 Stationary_Track15 Stationary_Track16	For all Signals: > 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  Flexray Diagnoistics	= RUN > 9V = 0 = 1 (True)	See threshold value	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Anti- Lock Brake System Control Module	U0415	Indicates invalid or out dated data was received from the Brake Control Module	ARC or Checksum error on Chassis Expanson CAN Bus any of the following messages: \$17D, \$0C1, or \$0C5.	6 out of 10 failures of ARC or Checksum on any frame	CE Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Restraints Control Module	U0452	Indicates invalid or out dated data was received from the Restrain Control Module	ARC or Checksum error on Chassis Expanson CAN Bus any of the following messages: \$130 OR \$140	6 out of 10 failures of ARC or Checksum on any frame	CE Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received From Active Safety Control Module 1	U053B	Indicates invalid or out dated data was received from From Active Safety Control Module 2 (EOCM2A)	ARC or Checksum error on the following signals:  - High Speed Expansion CAN Bus \$320  - Chassis Expansion Can Bus \$154  - EOCM2B_Operational_St atus" frame on FlexRay channel A and B	6 out of failures of 10 ARC or Checksum on any frame	Front Object CAN, Chassis Expansion CAN and FlexRay Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Vehicle Dynamics Sensor 1	U1032	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 1 has failed.	Message is not received from controller for: Message \$130 Message \$132 Message \$134	> 0.5 seconds > 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_FOCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Vehicle Dynamics Sensor 2	U1033	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 2 has failed.	Message is not received from controller for: Message \$136 Message \$138 Message \$140	> 0.5 seconds > 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_FOCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Electronic Brake Control Module on Chassis Expansion CAN Bus	U1833	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Brake Control Module on Chassis Expansion CAN Bus has failed.	Message is not received from controller for:  Message \$0C0 Message \$0C1 Message \$0C5 Message \$170 Message \$17D Message \$348 Message \$34A	> 0.5 seconds > 0.5 seconds > 0.5 seconds > 0.5 seconds > 5.0 seconds > 2.0 seconds > 2.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CECOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Body Control Module on Low Speed CAN Bus	I .	This DTC is set by the EOCM when signal supervision by the EOCM on the Body Control Module has failed on Low Speed CAN Bus	Vectra Specific Network Management Data from the BCM is missing	Signal not recieved for 6 out of 10 counts	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_LSCOM_DIAG_ENABL E	= RUN > 9V = 0 = 1 (True)	0.6 seconds out of a 1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Active Safety Control Module 1 on Chassis Expansion CAN Bus	U18B6	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Power Steering System on High Speed CAN Bus has failed.	Message is not received from controller for: Message \$152 Message \$315	> 10.0 seconds > 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CECOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Power Steering Control Module on High Speed CAN Bus	U18BA	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Power Steering System on High Speed CAN Bus has failed.	Message is not received from controller for: Message \$164 Message \$1E5	> 0.5 seconds > 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CECOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Power Steering Control Module on Chassis Expansion High Speed CAN Bus	U18BB	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Power Steering System on Chassis Expansion Speed CAN Bus has failed.	Message is not received from controller for:  Message \$164	> 0.5 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_CECOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Electronic Brake Control Module on High Speed CAN Bus	U18C5	This DTC is set by the EOCM when signal supervision by the EOCM on the Electronic Brake Control Module on High Speed CAN Bus has failed.	Message is not received from controller for: Message \$1C7 Message \$1E9 Message \$214 Message \$2F9	> 1.0 seconds > 1.0 seconds > 2.0 seconds > 2.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  K_HSCOM_DIAG_ENAB LE	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on with Active Safety Control Module 1 on Flexray Bus		This DTC is set by the EOCM when signal supervision by the EOCM2A for the EOCM2B on the Flexray bus has failed.	Message is not received from controller for Flexray Message:  Secondary_System_Op_Stat	> 10.0 seconds	System Power Mode  Battery Voltage  Manufacturing Enable Counter  FlexRay Diagnostics	= RUN > 9V = 0 = 1 (True)	See threshold value.	Type X, No MIL "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received from Vehicle Dynamic Sensor 1	U250E	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 1 has failed on Front Object CAN Bus	ARC or Checksum error on Front Object Expanson CAN Bus any of the following messages: \$130, \$132, or \$134	6 out of 10 failures of ARC or Checksum on any frame	FO Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Invalid Data Received from Vehicle Dynamic Sensor 1	U250F	This DTC is set by the EOCM when signal supervision by the EOCM on the Vehicle Dynamics Sensor 2 has failed on Front Object CAN Bus	ARC or Checksum error on Front Object Expanson CAN Bus any of the following messages: \$136, \$138, or \$140	6 out of 10 failures of ARC or Checksum on any frame	FO Can Communication  Bus Voltage  The Diagnostic system is not in a short term/state of reset (Code clear in progress, diagnostic reenable in progress, or end of trip processing in progress)	= Active = 9V < Voltage < 16V	0.06 seconds out of a 0.1 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module - Internal Electronic Failure	U3000	This diagnoistic monitors the calculated results from each Komodos processor to ensure they all match. The specific calculations monitored are within LXCR (Lane Change and Centering Control) variables, LMFR (Lane Mapping Fusion) variables, or TSTR (Target Object Selection and Threat Assessment) variables.	A mismatch is key varables within software rings LXCR, LMFR & TSTR, operating in parallel on other Komodos processors (K1P, K2P, K1R, K2P).	20 mismatches out of 20 counts	Diagnostic will run anytime there is sufficient processor throughput to allow execution of background tasks.  Diagnoistic Enabled for each software componet (LXCR, LMFR, TSTR)	= Enabled for all software componet	0.2 seconds out of a 0.2 seconds window	Type C, No SVS "Safety Emissio ns Neutral Diagnost ics - Special Type C"