			00 G			Engine							
Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold	Specifi	Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MIL
					ed								
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illumination
heater circuits - electrical													
bank 1 sensor 1 (primary)		circuit continuity - open	Voltage	IC Internal	-	engine speed	>	80	rpm	0.01 sec	0.01 sec	4 sec	two driving
		circuit continuity - ground				battery voltage	>	10.5	V		continuous	continuous	cycles each
		circuit continuity - voltage				battery voltage	<	18.1	V			or 50 sec	with: 4 sec
bank 2 sensor 1 (primary)		circuit continuity - open				engine starting	complete	-	-			cumulative	continuous
	P0051	circuit continuity - ground				output	activated for co	mplete checking	g				or 50 sec
		circuit continuity - voltage											cumulative
Mass Air Flow (MAF) Sensor	P0101	range check low	measured mass air flow * threshold			battery voltage	>	10.5	V		0.01 sec	4 sec	two driving
Ratoinality			< Maximum modeled mass air flow	1	factor	for time	>	0.1	Sec		continuous	continuous	cycles each
						Condition bordnet voltage HFM supplied	TRUE					or 50 sec	with: 4 sec
						time after start	>	0.3	sec			cumulative	continuous
		or				crankshaft revolution counter	>	150	rev				or 50 sec
		fuel trim limits exceded	> delta lambda correction	0.2	factor	ambient pressure valid	TRUE	-	-				cumulative
		range - multiplicative				desired cam angle valid	TRUE	-	-				
		and		-		long term fuel trim	TRUE	-	-				
		correction factor (modeled air	< correction factor air mass	0.8	factor	air flow mass	>	1.39	g/sec				
		mass at throttle / air mass			laotor	air flow change gradient	<	0.25	9,000				
		measured by air mass flow meter)				throttle angle change gradient	<	2	-				
		measured by an mass now meter)					TRUE		-				
		range sheek high	measured mass air flow * threshold	+		engine running		- 9.8	°C		+		
		range check high		4.4	forte	engine coolant temperature	>	9.8			+		
			< minimum modeled mass air flow	1.1	factor	engine running time			sec	+	+		
		OF		+		Air flow meter readiness	TRUE	-			+		
		fuel trim limits exceded	delte la schale se seconda e	+	6.	pressure ratio over throttle	<	0.8	-		+		
		range - multiplicative	< delta lambda correction	-0.2	factor	pressure ratio across throttle during fuel cut off	<				+		
		and				for time	>	0.5	sec				
		correction factor (modeled air				error: air flow meter (internal)	not set						
		mass at throttle / air mass	> correction factor air mass	1.2	factor	error: throttle position sensor	not set	-	-				
		measured by air mass flow meter)				error: intake air temp. sensor	not set	-	-				
						Condition HFM signal electric valid	TRUE						
	P0100	open circuit check	sensor signal in period time	0.0	uS	battery voltage	>	10.5	V	5 sec			
						Engine is running	TRUE						
						Key on	TRUE						
	P0102	range check low	sensor signal in period time	83.2	uS	time after start	>	0.3	sec	1 sec			
		Ŭ											
	P0103	range check high	sensor signal in period time	697.6	uS								
		·····g· ·····g·											
		J											
Intake Air Temperature Sensor				·									
Rationality				-									
reationality	P0111	response check	max intake air temperature - min intake air temperature	1.5	°C	drive period - count	>=	2	count	2 sec	0.1 sec	4 sec	two driving
	10111		max make an temperature min make an temperature	1.0	· ·	each with	~=	2	count	2 300	continuous	continuous	cycles each
				-		coolant temperature at start	<=	50	°C		contandodo	continuous	with: 4 sec
				-		Intake Air Temperature Sensor 2	~=	00	Ŭ			or 50 sec	continuous
						Electrical Failure	FALSE					cumulative	
								40.0	- /			cumulative	or 50 sec
						Mass Air Flow	>	42.2	g / sec				cumulative
						Mass Air Flow	<	20.0	g / sec				
						Vehicle speed	>	50	mph				
						idle period - count	>=	2	count				
				+	1	each with					+		
				<u> </u>		coolant temperature at start	<=	50.3	°C		1		
				<u> </u>		Intake Air Temperature Sensor 2					1		
	1	1			1	Electrical Failure	FALSE				1		
				-	_					1	1		
						Mass Air Flow	<	11.1	g / sec				
			-	<u> </u>		Mass Air Flow Vehicle speed	< <	12.5	mph				
						Mass Air Flow	<						
						Mass Air Flow Vehicle speed	< <	12.5	mph				
						Mass Air Flow Vehicle speed	< <	12.5	mph				
Circuit Continuity Check						Mass Air Flow Vehicle speed	< <	12.5	mph				
Circuit Continuity Check	P0112	circuit continuity - high	Intake Air Temperature Sensor 2 Voltage >	4.87	v	Mass Air Flow Vehicle speed	< <	12.5	mph	2 sec	0.01 sec	4 sec	two driving
Circuit Continuity Check		circuit continuity - high circuit continuity - low	Intake Air Temperature Sensor 2 Voltage > Intake Air Temperature Sensor 2 Voltage <	4.87		Mass Air Flow Vehicle speed engine coolant temperature	< < >	12.5 80	mph ° C	2 sec	0.01 sec	4 sec continuous	
Circuit Continuity Check						Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature	< < > > >	12.5 80 60	° C	2 sec	0.01 sec		cycles each
Circuit Continuity Check	P0113	circuit continuity - low	Intake Air Temperature Sensor 2 Voltage <			Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature Mass air flow	< < > > 	12.5 80 60 27.8	° C ° C g / sec	2 sec	0.01 sec	continuous	cycles each with: 4 sec
Circuit Continuity Check	P0113		Intake Air Temperature Sensor 2 Voltage < Intake Air Temperature Sensor 2 Raw Voltage -	0.21	V	Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature Mass air flow Vehicle speed	<	12.5 80 60 27.8	mph ° C ° C g / sec mph	2 sec	0.01 sec	continuous or 50 sec	cycles each with: 4 sec continuous
Circuit Continuity Check	P0113	circuit continuity - low	Intake Air Temperature Sensor 2 Voltage <		V	Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature Mass air flow	< < > > 	12.5 80 60 27.8 2.5	° C ° C g / sec	2 sec	0.01 sec	continuous or 50 sec	cycles each with: 4 sec
Circuit Continuity Check	P0113	circuit continuity - low	Intake Air Temperature Sensor 2 Voltage < Intake Air Temperature Sensor 2 Raw Voltage -	0.21	V	Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature Mass air flow Vehicle speed	<	12.5 80 60 27.8 2.5	mph ° C ° C g / sec mph	2 sec	0.01 sec	continuous or 50 sec	cycles each with: 4 sec continuous
	P0113	circuit continuity - low	Intake Air Temperature Sensor 2 Voltage < Intake Air Temperature Sensor 2 Raw Voltage -	0.21	V	Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature Mass air flow Vehicle speed	<	12.5 80 60 27.8 2.5	mph ° C ° C g / sec mph	2 sec	0.01 sec	continuous or 50 sec	cycles each with: 4 sec continuous
Oxygen Sensor	P0113	circuit continuity - low	Intake Air Temperature Sensor 2 Voltage < Intake Air Temperature Sensor 2 Raw Voltage -	0.21	V	Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature Mass air flow Vehicle speed	<	12.5 80 60 27.8 2.5	mph ° C ° C g / sec mph	2 sec	0.01 sec	continuous or 50 sec	cycles each with: 4 sec continuous
Oxygen Sensor sensor circuit (primary O2)	P0113 P0114	circuit continuity - low intermittent (discontinuity)	Intake Air Temperature Sensor 2 Voltage < Intake Air Temperature Sensor 2 Raw Voltage - Intake Air Temperature Sensor 2 Filtered Voltage	0.21	V	Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature Mass air flow Vehicle speed Intermittent (discontinuous) time	<	12.5 80 60 27.8 2.5 1	mph ° C ° C g / sec mph sec	2 sec		continuous or 50 sec cumulative	cycles each with: 4 sec continuous or 50 sec
Oxygen Sensor sensor circuit (primary O2) bank 1 sensor 1	P0113 P0114 P0130	circuit continuity - Iow intermittent (discontinuity) sensor line short circuit	Intake Air Temperature Sensor 2 Voltage < Intake Air Temperature Sensor 2 Raw Voltage - Intake Air Temperature Sensor 2 Filtered Voltage secondary O2 sensor	0.21	V	Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature Mass air flow Vehicle speed Intermittent (discontinuous) time engine running	< < > > - - - - - - - - - - - - -	12.5 80 60 27.8 2.5 1 TRUE	mph ° C ° C g / sec mph sec	2 sec	0.1 sec	continuous or 50 sec cumulative 4 sec	cycles each with: 4 sec continuous or 50 sec
Oxygen Sensor sensor circuit (primary O2)	P0113 P0114 P0130	circuit continuity - low intermittent (discontinuity)	Intake Air Temperature Sensor 2 Voltage < Intake Air Temperature Sensor 2 Raw Voltage - Intake Air Temperature Sensor 2 Filtered Voltage secondary Q2 sensor voltage gradient >	0.21	V V V	Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature Mass air flow Vehicle speed Intermittent (discontinuous) time engine running battery voltage	<     <	12.5 80 60 27.8 2.5 1 TRUE 10.4	mph °C g/sec mph sec ·	2 sec		continuous or 50 sec cumulative 4 sec continuous	cycles each with: 4 sec continuous or 50 sec two driving cycles each
Oxygen Sensor sensor circuit (primary O2) bank 1 sensor 1	P0113 P0114 P0130	circuit continuity - Iow intermittent (discontinuity) sensor line short circuit	Intake Air Temperature Sensor 2 Voltage < Intake Air Temperature Sensor 2 Raw Voltage - Intake Air Temperature Sensor 2 Filtered Voltage secondary O2 sensor voltage gradient > within time after heater turn off <	0.21 0.4 2 0.04	V V V V S	Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature Mass air flow Vehicle speed Intermittent (discontinuous) time engine running battery voltage primary 02 heater ever actived	< < < < < < < < < < < < < < < < < < <	12.5 80 27.8 2.5 1 TRUE 10.4 TRUE	mph ° C g / sec mph sec · ·	2 sec	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec	cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec
Oxygen Sensor sensor circuit (primary O2) bank 1 sensor 1	P0113 P0114 P0130	circuit continuity - Iow intermittent (discontinuity) sensor line short circuit	Intake Air Temperature Sensor 2 Voltage < Intake Air Temperature Sensor 2 Raw Voltage - Intake Air Temperature Sensor 2 Filtered Voltage secondary O2 sensor voltage gradient > within time after heater turn off < for occurrences >	0.21 0.4 2 0.04 4	V V V V s count	Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature Mass air flow Vehicle speed Intermittent (discontinuous) time engine running battery voltage primary 02 heater ever actived and pri. 02 heater duty cycle	<     <	12.5 80 27.8 2.5 1 TRUE 10.4 TRUE 0.9	mph ° C ° C g / sec mph sec · ·	2 sec	0.1 sec	continuous or 50 sec cumulative 4 sec continuous	cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous
Oxygen Sensor sensor circuit (primary O2) bank 1 sensor 1	P0113 P0114 P0130	circuit continuity - Iow intermittent (discontinuity) sensor line short circuit	Intake Air Temperature Sensor 2 Voltage < Intake Air Temperature Sensor 2 Raw Voltage - Intake Air Temperature Sensor 2 Filtered Voltage secondary O2 sensor voltage gradient > within time after heater turn off <	0.21 0.4 2 0.04	V V V V s count	Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature Mass air flow Vehicle speed Intermittent (discontinuous) time engine running battery voltage primary O2 heater ever actived and pri. O2 heater duty cycle for time	<     <          >          Control of the second se	12.5 80 60 27.8 2.5 1 TRUE 10.4 TRUE 0.9 5	mph °C g/sec mph sec · · ·	2 sec	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec	cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous or 50 Sec
Oxygen Sensor sensor circuit (primary O2) bank 1 sensor 1	P0113 P0114 P0114 P0130	circuit continuity - Iow intermittent (discontinuity) sensor line short circuit	Intake Air Temperature Sensor 2 Voltage < Intake Air Temperature Sensor 2 Raw Voltage - Intake Air Temperature Sensor 2 Filtered Voltage secondary O2 sensor voltage gradient > within time after heater turn off < for occurrences >	0.21 0.4 2 0.04 4	V V V V s count	Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature Mass air flow Vehicle speed Intermittent (discontinuous) time engine running battery voltage primary 02 heater ever actived and pri. 02 heater duty cycle for time dew-point end passed	<     <          >          >          TRUE         >         TRUE         >         TRUE	12.5 80 27.8 2.5 1 TRUE 10.4 TRUE 0.9 5 TRUE	mph °C g/sec mph sec · · V · · ·	2 sec	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec	cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous
Oxygen Sensor sensor circuit (primary O2) bank 1 sensor 1	P0113 P0114 P0114 P0130	circuit continuity - Iow intermittent (discontinuity) sensor line short circuit	Intake Air Temperature Sensor 2 Voltage < Intake Air Temperature Sensor 2 Raw Voltage - Intake Air Temperature Sensor 2 Filtered Voltage secondary O2 sensor voltage gradient > within time after heater turn off < for occurrences >	0.21 0.4 2 0.04 4	V V V V s count	Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature Mass air flow Vehicle speed Intermittent (discontinuous) time engine running battery voltage primary O2 heater ever actived and pri. O2 heater duty cycle for time	<     <          >          Control of the second se	12.5 80 60 27.8 2.5 1 TRUE 10.4 TRUE 0.9 5	mph °C g/sec mph sec · · ·	2 sec	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec	cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous or 50 Sec
Oxygen Sensor sensor circuit (primary O2) bank 1 sensor 1	P0113 P0114 P0114 P0130	circuit continuity - Iow intermittent (discontinuity) sensor line short circuit	Intake Air Temperature Sensor 2 Voltage < Intake Air Temperature Sensor 2 Raw Voltage - Intake Air Temperature Sensor 2 Filtered Voltage secondary O2 sensor voltage gradient > within time after heater turn off < for occurrences > out of heater turn offs	0.21 0.4 2 0.04 4	V V V V s count	Mass Air Flow Vehicle speed engine coolant temperature Mass air flow Vehicle speed Intermittent (discontinuous) time engine running battery voltage primary O2 heater ever actived and pri. O2 heater ever actived and pri. O2 heater duty cycle for time dew-point end passed error: injector circuit fault	< <p>&lt;</p> > TRUE TRUE > TRUE not set	12.5 80 60 27.8 2.5 1 1 10.4 TRUE 10.4 TRUE 0.9 5 TRUE not set	mph ° C g / sec mph sec · · · · · · · · · · · · ·	2 sec	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec	cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous or 50 Sec
Oxygen Sensor sensor circuit (primary O2) bank 1 sensor 1	P0113 P0114 P0114 P0130	circuit continuity - Iow intermittent (discontinuity) sensor line short circuit	Intake Air Temperature Sensor 2 Voltage < Intake Air Temperature Sensor 2 Raw Voltage - Intake Air Temperature Sensor 2 Filtered Voltage secondary O2 sensor voltage gradient > within time after heater turn off < for occurrences >	0.21 0.4 2 0.04 4	V V V s count count	Mass Air Flow Vehicle speed engine coolant temperature Engine Coolant Temperature Mass air flow Vehicle speed Intermittent (discontinuous) time engine running battery voltage primary 02 heater ever actived and pri. 02 heater duty cycle for time dew-point end passed	<     <          >          >          TRUE         >         TRUE         >         TRUE	12.5 80 27.8 2.5 1 TRUE 10.4 TRUE 0.9 5 TRUE	mph °C g/sec mph sec · · V · · ·	2 sec	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec	cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous or 50 Sec

				GRPUZ L									
Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold	ed		Enable	Enable	Units	Time	Frequency	Criteria	MIL
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illumination
			and primary O2 sensor voltage < and secondary O2 sensor voltage <	1.15 0.1	V V	primary O2 heater ever actived and pri. O2 heater duty cycle	TRUE >	TRUE 0.9	-				
				0.1		for time	>	5	sec				
			or			error: injector circuit fault	not set	not set	-				
			primary O2 sensor voltage >	0.06	V	time after	>	30	sec	60 sec			
			and primary O2 sensor voltage <	0.4	V	dew-point end passed	TRUE	TRUE	-				
			and secondary O2 sensor voltage <	0.5	V	and pri. O2 heater duty cycle	>	0.68	-				
						or Primary Exhaut gas temp. model	>	600	°C				
						Integrated air mass	>	2200	g				
						purge diagnosis	not set	not set					
						closed loop control	set	set	-				
bank 1 sensor 1	P0131	short circuit to ground	primary O2 sensor voltage <	0.06	V	engine running	TRUE	TRUE	1 -	60 sec	0.1 sec	4 sec	two driving
bank 2 sensor 1	P0151		and Secondary O2 sensor voltage >	0.5	V	battery voltage	>	10.4	V		continuous	continuous	cycles each
						primary O2 heater ever actived	TRUE	TRUE	-			or 50 sec	with: 4 sec
						and pri. O2 heater duty cycle	>	0.9	-			cumulative	continuous
						for time	>	5	sec				or 50 sec
						dew-point end passed	TRUE	TRUE	-				cumulative
						error: injector circuit fault	not set	not set 2200					
						Integrated air mass	> not set	not set	g -				
						purge diagnosis commanded lambda	<	1.005	lambda				
								1.000	lambaa				
			primary O2 sensor voltage <	0.06	V	engine running	TRUE	TRUE	-	0.1 sec			
			and cold start conditions present			battery voltage	>	10.4	V				
						primary O2 heater ever actived	TRUE	TRUE	-				
						and pri. O2 heater duty cycle	>	0.9	-				
						for time	>	5	sec				
						dew-point end passed	TRUE	TRUE					
	_					error: injector circuit fault	not set	not set		1	1		1
bank 1 sensor 1	D0132	short circuit to battery voltage	primary O2 sensor voltage >	1.15	V	engine running	TRUE	TRUE	1 -	5	0.1 sec	4 sec	two driving
bank 2 sensor 1	P0152	short circuit to battery voltage	primary O2 sensor voltage >	1.15	v	battery voltage	>	10.4	v	5	continuous	continuous	cycles each
Dalik 2 SeliSOF I	10132					primary O2 heater ever actived	TRUE	TRUE	-		continuous	or 50 sec	with: 4 sec
						and pri. O2 heater duty cycle	>	0.9	-			01 30 360	with. 4 360
						for time	>	5	sec				
						dew-point end passed	TRUE	TRUE	000				
						error: injector circuit fault	not set	not set					
						commanded lambda	>	0.995	lambda				
											1		1
Primary O2 sensor slow response						closed loop control	active						
Bank 1		slow response	Continuously filtered normalized	4.05		engine speed	>	2400	rpm		0.1 sec	4 sec	two driving
Bank 2	P0153		switching cycle duration	1.65	S	engine speed	>	1480	rpm %		continuous	continuous	cycles each
			20 valid closed loop switching cycles			engine load engine load	< >	45 18	%			or 50 sec cumulative	with: 4 sec continuous
			20 Valid closed loop switching cycles			exhaust gas temperature model	>	350	°Č			cumulative	or 50 sec
			(note: normalization of cycle duration			purge off or has been on for time	>	10	sec				cumulative
			revised with new enable window and failure			scheduled by System Manager	set	10	300				Cumulative
			threshold)			Primary O2 heater diagnosis	001						
						finished	set						
						high purge vapor concentration	not set						
						Evap. Leak diagnosis	not set						
						error: fuel adaptation	not set						
						error: purge valve	not set						
						error: misfire	not set				1		
						error: primary O2 heater	not set		-	1			
						error: secondary O2 heater	not set		-	-			
						error: secondary O2 slow sensor error: secondary O2 sensor	not set not set		-				
		l					nui sei		- I	L	·	·	·
xygen Sensor													
sensor circuit (primary O2)													
bank 1 sensor 1		sensor line disconnection	primary O2 sensor voltage >	0.4		engine running	TRUE	TRUE	-	10 sec	0.1 sec	4 sec	two driving
bank 2 sensor 1	P0154		and primary O2 sensor voltage <	0.6	V	battery voltage	>	10.4	V		continuous	continuous	cycles each
			Or primary O2 sensor voltage <	0.55		primary O2 heater ever actived	TRUE	TRUE	-		1	or 50 sec	with: 4 sec
			and mod. Exhaust gas temp. >	800	°C		>	0.9	-	L		cumulative	continuous
			or		~	for time	>	5	sec				or 50 sec
			primary O2 sensor internal resistance >	20000		error: injector circuit fault	not set	not set	-	0.1 sec	+		cumulative
			and when modeled exhaust gas temperature >	600	°C	time after dew-point and passed	> TDUE	30 TRUE	sec		+		
			or			dew-point end passed and pri. O2 heater duty cycle	TRUE	TRUE	-	-			
				0.2	V		>	0.68		0.1.000	1		+
			primary O2 sensor voltage > and secondary O2 sensor voltage >	0.2	V	or Primary Exhaut gas temp. model		600	°C	0.1 sec	1		
			after a getting into fuel cut-off for	3	sec	temp. model	>	000			1		
				5	360				1	1	1		
											1		
Dxygen Sensor Heating		1				1			1	1	1	1	1

						Engine							
Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold	Specifi	Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MIL
					ed								
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illumination
	_								-				
heater performance (primary O2)													
bank 1 sensor 1 (primary)		primary O2 sensor	measured primary O2 sensor internal			battery voltage	>	10.5	V	approx.	0.1 sec	4 sec	two driving
bank 2 sensor 1 (primary)	P0155	internal resistance	resistance >			battery voltage	<	18.1	V	100 sec	continuous	continuous	cycles each
		above threshold	nominal internal resistance	88 392	Ohms	engine running	TRUE	-	-			or 50 sec	with: 4 sec
				KFRINH / 2		engine starting	complete		-			cumulative	continuous
			multipy times degradation factor >	5 63	factor	fuel cut off	FALSE	-	-				or 50 sec
				FRINH1 / 2		pri. O2 internal resistance	valid	-	-				cumulative
			for time	6	sec	intake air temperature	>	-30	С				
						engine off soak time	>	120	sec				
						modeled exhaust temp.	<	525	С				
						suspicion of primary	FALSE						
						O2 sensor open circuit							
						primary O2 voltage supply	ON						
						scheduled by System Manager							
						for time	>	12	sec				
						primary O2 sensor dewpoint exceeded for	>	10	sec				
						no fault clear request during drive cycle	not set						
Oxygen Sensor (Secondary O2 sens	or)				1	deceleration fuel cut-off (DCFO)	active	-	-	4sec		4 sec	two driving
Delayed response voltage during D						Since DCFO, secondary O2 sensor voltage	>	0.59	V			continuous	cycles each
bank 1 sensor 2		secondary O2 sensor	time from start of DCFO till secondary O2 sensor	3	sec	has ever exceeded upper threshold	-					or 50 sec	with: 4 sec
bank 2 sensor 2	P013C	delayed response to DFCO	voltage below the lower threshold			battery voltage	>	10.4	V	1		cumulative	continuous
54m 2 501501 2					1	secondary O2 sensor readiness	TRUE	-	-			Samalative	or 50 sec
	+		or	1	1	modeled exhaust gas temperature at	>	450	°C	1			cumulative
			the oxygen mass integration from start of DCFO	4	g	secondary O2 sensor temperature	-	430	0				cumulative
			exceeded upper threshold before the voltage below	4	y	secondary O2 sensor internal resistance	-	500	Ohms				
						secondary O2 sensor internal resistance secondary O2 sensor has measured lean and rich	< TRUE		Unitis				
			the lower voltage threshold					-	-				
						exhaust gas mass flow rate	>	2.78	g/s				
			lower voltage threshold	0.14	V	primary O2 sensor	ready	-	-				
						primary O2 sensor voltage	<	0.14	V				
Slow response voltage during DCF						Since DCFO, secondary O2 sensor voltage	>	0.59	V				
bank 1 sensor 2		secondary O2 sensor	time from secondary O2 sensor voltage crosses	0.4	sec	has ever exceeded upper threshold							
bank 2 sensor 2	P013C	slow response to DFCO	upper threshold till it corsses lower voltage threshold			battery voltage	>	10.4	V				
						secondary O2 sensor readiness	TRUE	-	-				
			upper voltage threshold	0.4	V	modeled exhaust gas temperature at	>	450	°C				
						secondary O2 sensor temperature							
			lower voltage threshold	0.2	V	secondary O2 sensor internal resistance	<	500	Ohms				
			g			secondary O2 sensor has measured lean and rich	TRUE	-	-				
						exhaust gas mass flow rate	>	2.78	g/s				
						primary O2 sensor	ready	-	9/3				
						primary O2 sensor voltage	< ready	0.14	V				
						primary Oz sensor voltage	ζ.	0.14	v				
Catalyst Bank 1	D0420	oxygen storage of catalyst	EWMA filtered catalyst aging factor	0.2	factor	exhaust gas mass flow		5.00	g/sec	opprov	0.2 sec	4 sec	immediate
Catalyst Bank 1	P0420	oxygen storage of catalyst	less than catalyst aging factor	0.2	lacioi	exhaust gas mass flow	> <	16.67		approx. 1000 sec	continuous	additional	
Catalysi Ballik 2	F0430							760	g/sec ° C		continuous	after block	once code
			of a limit catalyst <			catalyst temp. model	<			during		alter block	has
						catalyst temp. model	>	480	°C	active			been set
						engine speed	>	1040	rpm	driving			
						engine speed	<	2480	rpm				
						engine load	>	12.8	%	3 checks per			approx.
						engine load	<	42	%	driving cycle			3 tests
						modeled catalyst temp. gradient	<	6	° C / sec	3 checks per			average
						relative exhaust gas mass flow gradient	<	2.00	%	driving cycle			run length
						fuel system closed loop	active	-	-	1 check per			(9 samples)
	1				1	time after secondary O2 sensor exceeded	>	300 370	sec	driving cycle			
	1				1	dewpoint			L	L			
						ambient temperature	>	-30	°C				
						catalyst damaging misfire rate exceeded	not set	-	-				
						error: fuel system	not set	-	-				
						closed loop control at limit	not set	-	-				
	1				1	strong transient compenstation intervention	not set	-	-	1			
	1				1	catalyst clear out active (after fuel cutoff)	not set	-	-	1			
	1					fast mixture adaptation completed	set	-	-				
				1		Trigger condition for step change			1				
						Measured OSC < % of EWMA							
						Measured OSC < % of EWMA normalized filtered OSC	<	0.71	-				
						Measured OSC < % of EWMA normalized filtered OSC	<	0.71	-				
Engine Metal							<	0.71	-				
Engine Metal	P1258	engine coolant temperature	enoine coolant temperature	132.8	° C.	normalized filtered OSC				1 sec	0.1 sec	4 sec cont	code set
Övertemperature	P1258	engine coolant temperature	engine coolant temperature >	132.8	°C	normalized filtered OSC engine run time	>	0.71	- Sec	1 sec	0.1 sec	4 sec cont.	code set
Övertemperature Protection		engine coolant temperature too high	engine coolant temperature >	132.8	°C	normalized filtered OSC		30	sec	1 sec	0.1 sec continuous	or 50 sec	code set then 5 sec
Övertemperature			engine coolant temperature >	132.8	° C	normalized filtered OSC engine run time	>	30	sec	1 sec			
Overtemperature Protection ( Limp Home Function Active )		too high		132.8		normalized filtered OSC engine run time error: engine coolant temp	>	30 -	sec		continuous	or 50 sec cumulative	then 5 sec
Overtemperature Protection (Limp Home Function Active) Rough Road Signal	P1380	too high signal missing	engine coolant temperature >	132.8	• C	normalized filtered OSC engine run time error: engine coolant temp no	> not set	30 -	sec	1 sec 5 sec	0.1 sec	or 50 sec cumulative 4 sec or	
Overtemperature Protection (Limp Home Function Active) Rough Road Signal		too high signal missing		132.8		normalized filtered OSC engine run time error: engine coolant temp	>	30 -	sec		0.1 sec	or 50 sec cumulative	then 5 sec
Overtemperature Protection (Limp Home Function Active) Rough Road Signal	P1380	too high signal missing		- 132.8		normalized filtered OSC engine run time error: engine coolant temp no	> not set	30 -	sec		0.1 sec	or 50 sec cumulative 4 sec or	then 5 sec
Overtemperature Protection (Limp Home Function Active) Rough Road Signal	P1380	too high signal missing		-		normalized filtered OSC engine run time error: engine coolant temp no	> not set	30 -	sec		0.1 sec	or 50 sec cumulative 4 sec or	then 5 sec
Övertemperature Protection (Limp Home Function Active) Rough Road Signal	P1380 MX295 of	too high signal missing Ily	signal missing	-	-	normalized filtered OSC engine run time error: engine coolant temp no error: misfire monitoring	> not set TRUE	<u>30</u> - -	- - -	5 sec	0.1 sec continuous	or 50 sec cumulative 4 sec or 50 sec cum	no code set
Övertemperature Protection (Limp Home Function Active) Rough Road Signal	P1380 MX295 of	too high signal missing hly limp-home throttle position	signal missing throttle position <	132.8	-	normalized filtered OSC engine run time error: engine coolant temp no error: misfire monitoring vehicle speed	> not set TRUE <=	30 - - - 0	sec - - - mph		0.1 sec continuous 0.01 sec	or 50 sec cumulative 4 sec or 50 sec cum 4 sec	no code set then 5 sec
Övertemperature Protection (Limp Home Function Active) Rough Road Signal	P1380 MX295 of	too high signal missing Ily	signal missing throttle position <	- 10.1	- %	normalized filtered OSC engine run time error: engine coolant temp no error: misfire monitoring vehicle speed engine speed	> not set TRUE	30 - - - 0 40	sec - - - mph rpm	5 sec	0.1 sec continuous	or 50 sec cumulative 4 sec or 50 sec cum 4 sec continuous	no code set then 5 sec with: 4 sec
Övertemperature Protection (Limp Home Function Active) Rough Road Signal	P1380 MX295 of	too high signal missing hly limp-home throttle position	signal missing throttle position <	-	- %	normalized filtered OSC engine run time error: engine coolant temp no error: misfire monitoring vehicle speed	> not set TRUE <=	30 - - - 0	sec - - - mph	5 sec	0.1 sec continuous 0.01 sec	or 50 sec cumulative 4 sec or 50 sec cum 4 sec	no code set then 5 sec

# Page 4 of 21

Component/	Fault Monitor Strategy	Primary Malfunction	Threshold	Specif	i Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MI
System	Code Description	Signal and Criteria	Value	ed Units	Parameters	Condition	Value		Required	of Checks	for Code	Illumi
Oystem	Beschpiton	oignaí and oincha	Value	Onits	T arameters	Condition			Required	of officers	lor oode	Interna
					intake air temperature	>=	5.25	°C				cum
					intake air temperature	<=	143.8	° C V				-
					battery voltage accelerator pedal position	>	10.0 14.9	 %				-
Level Sensor Circuit	P2066 rationality	fuel level change <	4.6	%	Primary fuel level	>=	41.1	%		0.1 sec	4 sec	
l level sensor 2		and			Secondary fuel level	>=	6.2	%		continuous	continuous	
		cumulative driving distance >	100.0	km	Or Drimon fuel level		44.4	0/			or 50 sec	
					Primary fuel level Secondary fuel level	<	41.1 6.2	% %			cumulative	
					and		0.2	70				
					battery voltage	>=	10.5	V				
					battery voltage	<=	18.1	V				
					engine starting	TRUE	-	-				
					electrical fuel level sensor(s)							
					without failure	TRUE	-	-				
		Or										
		cumulative driving distance >=	162.0	km	Primary fuel level	>=	41.1	%				
					Secondary fuel level	<	6.2	%				
					battery voltage	>=	10.5	V				
					battery voltage engine starting	<= TRUE	18.1 -	V -				
					electrical fuel level sensor(s)	TRUE	-	-				
					without failure	TRUE	-	-				
	P2067 range check low	voltage <	0.25	v	battery voltage	>=	10.5	v	60 sec	0.1 sec	4 sec cont.	
	1 2007 Tange check low	Voltage <	0.20	·	battery voltage	<=	18.1	v	00 300	continuous	or 50 sec	
					engine starting	TRUE	-	-			cumulative	
	D2000 serve sheet hish	under a second	3.2	v	hattan waltan a		10.5	v	60 sec	0.1 sec	4 sec cont.	
	P2068 range check high	voltage >	3.2	v	battery voltage battery voltage	>= <=	18.1	v	60 Sec	continuous	4 sec cont. or 50 sec	
					engine starting	TRUE	-	-		continuous	cumulative	
- I 00 T' ( 0)												
ndary O2 Trim of primary O2	2 Sensor				engine speed	<	3480	rpm	200 sec	0.1 sec	4 sec	
	H / secondary O2 sensor signal LEAN	secondary Q2 sensor trim			engine speed	>	1280	rpm	200 sec	0.1 sec continuous	continuous	two cycl
mary O2 sensor signal RICH Bank1	H / secondary O2 sensor signal LEAN P2096 secondary O2 sensor fuel	secondary O2 sensor trim	0.8	Sec	engine speed engine load	> <	1280 65.3 65.3	rpm %	200 sec		continuous or 50 sec	cycl with
nary O2 sensor signal RICH iank1	H / secondary O2 sensor signal LEAN           P2096         secondary O2 sensor fuel           P2098         trim - rich shift	secondary O2 sensor trim integral control >	0.8	Sec	engine speed engine load engine load	> < >	1280	rpm	200 sec		continuous	cycl with cor
nary O2 sensor signal RICH iank1	H / secondary O2 sensor signal LEAN P2096 secondary O2 sensor fuel		0.8	Sec	engine speed engine load	> < > TRUE	1280 65.3 65.3 16.5 20.3	rpm % %	200 sec		continuous or 50 sec	cyc wit cor or
mary O2 sensor signal RICH	H / secondary O2 sensor signal LEAN           P2096         secondary O2 sensor fuel           P2098         trim - rich shift		0.8	Sec	engine speed engine load engine load closed loop control active	> < >	1280 65.3 65.3 16.5 20.3 -	rpm %	200 sec		continuous or 50 sec	cyc wit cor or
nary O2 sensor signal RICH iank1	H / secondary O2 sensor signal LEAN           P2096         secondary O2 sensor fuel           P2098         trim - rich shift		0.8	Sec	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller	> < TRUE > >	1280 65.3 65.3 16.5 20.3 - 1	rpm % % - sec	200 sec		continuous or 50 sec	cyc wit cor or
nary O2 sensor signal RICH ank1 ank 2	I / secondary Ö2 sensor signal LEAN     P2096 secondary Ö2 sensor fuel     P2098 trim - rich shift     · correction above threshold		0.8	Sec	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit	> <pre></pre>	1280 65.3 65.3 16.5 20.3 - 1 250 -	rpm % % - sec ° C -	200 sec		continuous or 50 sec	cyc wit cor or
nary O2 sensor signal RICH ank1 ank 2 nary O2 sensor signal LEAN	I / secondary Ö2 sensor signal LEAN     P2096 secondary O2 sensor fuel     P2098 trim - rich shift     - correction above threshold     N / secondary O2 sensor signal RICH	integral control >			engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit	> C C C C C C C C C C C C C C C C C C C	1280 65.3 65.3 16.5 20.3 - 1 250	rpm % - sec ° C	200 sec		continuous or 50 sec	cyc wit cor or
ary O2 sensor signal RICH ank1 ank 2 nary O2 sensor signal LEAN ank 1	I / secondary O2 sensor signal LEAN     P2096 secondary O2 sensor fuel     P2098 trim - rich shift         - correction above threshold         N / secondary O2 sensor signal RICH         P2097 secondary O2 sensor fuel	integral control >	0.8		engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary O2 sensor readiness	> <ul> <li>&gt;</li> <li>TRUE</li> <li>&gt;</li> <li>&gt;</li> <li>not set</li> <li>not set</li> <li>not set</li> </ul>	1280 65.3 65.3 16.5 20.3 - 1 250 - - -	rpm % ~ <u>sec</u> ° C - -	200 sec		continuous or 50 sec	cyc wit cor or
ary O2 sensor signal RICH ank1 ank 2 nary O2 sensor signal LEAN ank 1	I / secondary Ö2 sensor signal ELAN     P2096 secondary O2 sensor fuel     P2098 trim - rich shift     · correction above threshold     // secondary O2 sensor signal RICH     P2097 secondary O2 sensor fuel     P2099 trim - lean shift	integral control >			engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at ower limit secondary Q2 sensor readiness catalyst clear out after DCFO	> TRUE > not set not set	1280 65.3 65.3 16.5 20.3 - 1 250 - - - - -	rpm % - sec ° C - - -	200 sec		continuous or 50 sec	cyc wit cor or
nary O2 sensor signal RICH ank 1 ank 2 nary O2 sensor signal LEAN ank 1	I / secondary O2 sensor signal LEAN     P2096 secondary O2 sensor fuel     P2098 trim - rich shift         - correction above threshold         N / secondary O2 sensor signal RICH         P2097 secondary O2 sensor fuel	integral control >			engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary 02 sensor readiness catalyst clear out after DCFO error: catalyst monitoring	> TRUE > not set not set not set not set not set not set	1280 65.3 65.3 16.5 20.3 - - - - - - - - - - - - -	rpm % % - * C * C - - - -	200 sec		continuous or 50 sec	cyc wit cor or
ary O2 sensor signal RICH ank1 ank 2 nary O2 sensor signal LEAN ank 1	I / secondary Ö2 sensor signal ELAN     P2096 secondary O2 sensor fuel     P2098 trim - rich shift     · correction above threshold     // secondary O2 sensor signal RICH     P2097 secondary O2 sensor fuel     P2099 trim - lean shift	integral control >			engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary 02 sensor readiness catalyst clear out after DCFO error: catalyst monitoring error: purge valve	> TRUE > not set not set	1280 65.3 65.3 16.5 20.3 - - - - - - - - - - - -	rpm % % - sec ° C - - - - - - - - - - - - - -	200 sec		continuous or 50 sec	cyc wit cor or
ary O2 sensor signal RICH ank1 ank 2 nary O2 sensor signal LEAN ank 1	I / secondary Ö2 sensor signal ELAN     P2096 secondary O2 sensor fuel     P2098 trim - rich shift     · correction above threshold     // secondary O2 sensor signal RICH     P2097 secondary O2 sensor fuel     P2099 trim - lean shift	integral control >			engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary O2 sensor readiness catalyst clear out after DCFO error: catalyst clear out after DCFO error: secondary O2 sensor	> TRUE > not set not set not set not set not set not set not set not set	1280 65.3 65.3 16.5 20.3 - 1 250 - - - - - - 0	rpm % - sec ° C - - - - - - - 0	200 sec		continuous or 50 sec	cyc wit cor or
nary O2 sensor signal RICH ank1 ank 2	I / secondary Ö2 sensor signal ELAN     P2096 secondary O2 sensor fuel     P2098 trim - rich shift     · correction above threshold     // secondary O2 sensor signal RICH     P2097 secondary O2 sensor fuel     P2099 trim - lean shift	integral control >			engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit secondary O2 sensor readiness catalyst clear out after DCFO error: catalyst monitoring error: secondary O2 sensor response	> TRUE > TRUE > not set not set	1280 65.3 65.3 16.5 20.3 - - - - - - - - - - - -	rpm % % - sec ° C - - - - - - - - - - - - - -	200 sec		continuous or 50 sec	cyc wit cor or
nary O2 sensor signal RICH ank 1 ank 2 nary O2 sensor signal LEAN ank 1	I / secondary Ö2 sensor signal ELAN     P2096 secondary O2 sensor fuel     P2098 trim - rich shift     · correction above threshold     // secondary O2 sensor signal RICH     P2097 secondary O2 sensor fuel     P2099 trim - lean shift	integral control >			engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary O2 sensor readiness catalyst clear out after DCFO error: catalyst clear out after DCFO error: secondary O2 sensor	> TRUE > not set not set not set not set not set not set not set not set	1280 65.3 65.3 16.5 20.3 - 1 250 - - - - - - - - - - - - - - - - - - -	rpm % % - * C - - - - - - - 0 -	200 sec		continuous or 50 sec	cyc wit cor or
nary O2 sensor signal RICH ank1 ank 2 nary O2 sensor signal LEAN ank 1	I / secondary Ö2 sensor signal ELAN     P2096 secondary O2 sensor fuel     P2098 trim - rich shift     · correction above threshold     // secondary O2 sensor signal RICH     P2097 secondary O2 sensor fuel     P2099 trim - lean shift	integral control >			engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit secondary O2 sensor readiness catalyst clear out after DCFO error: catalyst clear out after DCFO error: catalyst clear out after DCFO error: secondary O2 sensor response error: prigre valve	> TRUE TRUE > not set not	1280 65.3 65.3 16.5 20.3 - - - - - - - - - - - - - - - - - - -	rpm % 	200 sec		continuous or 50 sec	cyc wit cor or
ary O2 sensor signal RICH ank1 ank 2 nary O2 sensor signal LEAN ank 1	I / secondary Ö2 sensor signal ELAN     P2096 secondary O2 sensor fuel     P2098 trim - rich shift     · correction above threshold     // secondary O2 sensor signal RICH     P2097 secondary O2 sensor fuel     P2099 trim - lean shift	integral control >			engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at ower limit secondary Q2 sensor readiness catalyst clear out after DCFO error: catalyst clear out after DCFO error: catalyst clear out after DCFO error: secondary Q2 sensor response error: primary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: fuel system monitoring error: fuel system monitoring error: fuel system monitoring	> TRUE > not set not set n	1280 65.3 65.3 16.5 20.3 1 250 - - - - - - - - - - - - - - - - - - -	rpm % - sec ° C - - - - - - - - - - - - - - - - - -	200 sec		continuous or 50 sec	cyc wit cor or
ary O2 sensor signal RICH nk1 nk2 ary O2 sensor signal LEAN nk1	I / secondary Ö2 sensor signal ELAN     P2096 secondary O2 sensor fuel     P2098 trim - rich shift     · correction above threshold     // secondary O2 sensor signal RICH     P2097 secondary O2 sensor fuel     P2099 trim - lean shift	integral control >			engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit secondary O2 sensor readiness catalyst clear out after DCFO error: catalyst monitoring error: purge valve error: secondary O2 sensor response error: primary O2 heater error: secondary O2 heater error: ge system monitoring	> TRUE > TRUE > not set not set	1280 65.3 65.3 16.5 20.3 - 1 250 - - - - - - - - - - - - - - - - - - -	rpm % - - - - - - - - - - - - - - - - - -	200 sec		continuous or 50 sec	cyc wit co or
ary O2 sensor signal RICH ink 2 ary O2 sensor signal LEAN ink 1 ink 2	I / secondary Ö2 sensor signal ELAN     P2096 secondary O2 sensor fuel     P2098 trim - rich shift     · correction above threshold     // secondary O2 sensor signal RICH     P2097 secondary O2 sensor fuel     P2099 trim - lean shift     · correction below threshold     // secondary O2 sensor fuel     P2099 trim - lean shift     // secondary O2 sensor fuel     // secondary O	integral control >  secondary O2 sensor trim integral control <	-0.8	Sec	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary O2 sensor readiness catalyst clear out after DCFO error: catalyst clear out after DCFO error: response error: rescondary O2 sensor response error: rescondary O2 heater error: fuel system monitoring error: sair flow meter	> TRUE > not set not set n	1280 65.3 65.3 16.5 20.3 1 250 - - - - - - - - - - - - -	rpm % % - * C - - - - - - - - - - - - - - - - -			continuous or 50 sec cumulative	
ary O2 sensor signal RICH nk1 nk2 ary O2 sensor signal LEAN nk1 nk2 erator Pedal Position	I / secondary Ö2 sensor signal LEAN     P2096 secondary O2 sensor fuel     P2098 trim - rich shift     · correction above threshold     // secondary O2 sensor signal RICH     P2097 secondary O2 sensor fuel     P2099 trim - lean shift     · correction below threshold     · correction below threshold     // secondary O2 sensor fuel     P2099 trim - lean shift     · correction below threshold	integral control >	-0.8	Sec	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at ower limit secondary Q2 sensor readiness catalyst clear out after DCFO error: catalyst clear out after DCFO error: catalyst clear out after DCFO error: secondary Q2 sensor response error: primary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: fuel system monitoring error: fuel system monitoring error: fuel system monitoring	> TRUE > not set not set n	1280 65.3 65.3 16.5 20.3 1 250 - - - - - - - - - - - - - - - - - - -	rpm % - sec ° C - - - - - - - - - - - - - - - - - -	200 sec	0.01 sec	continuous or 50 sec cumulative	
ary O2 sensor signal RICH nk1 nk2 ary O2 sensor signal LEAN nk1 nk2 erator Pedal Position	I / secondary Ö2 sensor signal ELAN     P2096 secondary O2 sensor fuel     P2098 trim - rich shift     · correction above threshold     // secondary O2 sensor signal RICH     P2097 secondary O2 sensor fuel     P2099 trim - lean shift     · correction below threshold     // secondary O2 sensor fuel     P2099 trim - lean shift     // secondary O2 sensor fuel     // secondary O	integral control >  secondary O2 sensor trim integral control <	-0.8	Sec	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary O2 sensor readiness catalyst clear out after DCFO error: catalyst clear out after DCFO error: response error: rescondary O2 sensor response error: rescondary O2 heater error: fuel system monitoring error: sair flow meter	> TRUE > TRUE > not set not set	1280 65.3 65.3 16.5 20.3 1 250 - - - - - - - - - - - - -	rpm % % - * C - - - - - - - - - - - - - - - - -			continuous or 50 sec cumulative	
rary O2 sensor signal RICH ank1 ank 2 hary O2 sensor signal LEAN ank 1 ank 2 erator Pedal Position sor 1	H / secondary O2 sensor signal LEAN         P2096       secondary O2 sensor fuel         P2098       trim - rich shift         - correction above threshold         N / secondary O2 sensor signal RICH         P2099         trim - lean shift         - correction below threshold         P2091         trim - lean shift         - correction below threshold         P2099         trim - lean shift         - correction below threshold         P2099         trim - lean shift         - correction below threshold         P2091         trim - lean shift         - correction below threshold         P2092         trim - lean shift         - correction below threshold         P2092         trim - lean shift         - correction below threshold         P2092         trim - lean shift         - correction below threshold         P20122         trange check low         P2123         range check high	integral control > integral control > isecondary O2 sensor trim integral control < isecondary O2 sensor trim integral control < isecondary O2 sensor trim integral control < isecondary O2 sensor trim i	0.74 4.82	Sec V V	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary Q2 sensor readiness catalyst clear out after DCFO error: catalyst monitoring error: purge valve error: secondary Q2 sensor response error: primary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: Evap. Leak error: Evap. Leak error: art flow meter	>  	1280 65.3 65.3 16.5 20.3 - - - - - - - - - - - - -	rpm % % - * C - - - - - - - - - - - - - - - - - - -	0.2 sec	0.01 sec	continuous or 50 sec cumulative 4 sec cont. or 50 sec	
ary O2 sensor signal RICH ink1 ary O2 sensor signal LEAN ink 2 ary O2 sensor signal LEAN ink 2 erator Pedal Position sor 1 erator Pedal Position	H / secondary O2 sensor signal EAN         P2096       secondary O2 sensor fuel         P2098       trim - rich shift         - correction above threshold         N / secondary O2 sensor signal RICH         P2099         Vision VO2 sensor fuel         P2090         secondary O2 sensor signal RICH         P2097         secondary O2 sensor fuel         P2098         trim - rich a shift         - correction below threshold         - co	integral control >  secondary O2 sensor trim integral control <	0.74 4.82 0.63	V V	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary O2 sensor readiness catalyst clear out after DCFO error: catalyst clear out after DCFO error: response error: rescondary O2 sensor response error: rescondary O2 heater error: fuel system monitoring error: sair flow meter	> TRUE > TRUE > not set not set	1280 65.3 65.3 16.5 20.3 1 250 - - - - - - - - - - - - -	rpm % % - * C - - - - - - - - - - - - - - - - -		0.01 sec	continuous or 50 sec cumulative 4 sec cont. or 50 sec	
ary Q2 sensor signal RICH ank1 ank 2 ary Q2 sensor signal LEAN ank 1 ank 2 erator Pedal Position sor 1 erator Pedal Position	H / secondary O2 sensor signal LEAN         P2096       secondary O2 sensor fuel         P2098       trim - rich shift         - correction above threshold         N / secondary O2 sensor signal RICH         P2099         trim - lean shift         - correction below threshold         P2091         trim - lean shift         - correction below threshold         P2099         trim - lean shift         - correction below threshold         P2099         trim - lean shift         - correction below threshold         P2091         trim - lean shift         - correction below threshold         P2092         trim - lean shift         - correction below threshold         P2092         trim - lean shift         - correction below threshold         P2092         trim - lean shift         - correction below threshold         P20122         trange check low         P2123         range check high	integral control > integral control > isecondary O2 sensor trim integral control < isecondary O2 sensor trim integral control < isecondary O2 sensor trim integral control < isecondary O2 sensor trim i	0.74 4.82	Sec V V	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary Q2 sensor readiness catalyst clear out after DCFO error: catalyst monitoring error: purge valve error: secondary Q2 sensor response error: primary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: Evap. Leak error: Evap. Leak error: art flow meter	>  	1280 65.3 65.3 16.5 20.3 - - - - - - - - - - - - -	rpm % % - * C - - - - - - - - - - - - - - - - - - -	0.2 sec	0.01 sec	continuous or 50 sec cumulative 4 sec cont. or 50 sec	
ary O2 sensor signal RICH ink1 ary O2 sensor signal LEAN ary O2 sensor signal LEAN ink 2 ary O2 sensor signal LEAN ary O2 sensor signal LEAN ary O2 sensor signal LEAN ary O2 sensor signal LEAN ary O2 sensor signal RICH ary O2	H / secondary O2 sensor signal LEAN         P2096       secondary O2 sensor fuel         P2098       trim - rich shift         - correction above threshold         N / secondary O2 sensor signal RICH         P2099         trim - rich shift         - correction above threshold         P2097         secondary O2 sensor signal RICH         P2099         trim - lean shift         - correction below threshold	integral control >  integral control >  secondary Q2 sensor trim integral control <  voltage voltage voltage	-0.8 -0.8 -0.8 -0.8 	Sec           V           V           V           V	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary Q2 sensor readiness catalyst clear out after DCFO error: catalyst monitoring error: purge valve error: secondary Q2 sensor response error: primary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: Evap. Leak error: Evap. Leak error: art flow meter	>  	1280 65.3 65.3 16.5 20.3 - - - - - - - - - - - - -	rpm % % - sec ° C - · · · · · · · · · · · · · · · · · ·	0.2 sec	0.01 sec	continuous or 50 sec cumulative 4 sec cont. or 50 sec	
arary O2 sensor signal RICH ank1 ank 2 ank 2 ank 2 ank 2 ank 2 arator Pedal Position sor 1 arator Pedal Position sor 2 arator Pedal Position	H / secondary O2 sensor signal EAN         P2096       secondary O2 sensor fuel         P2098       trim - rich shift         - correction above threshold         N / secondary O2 sensor signal RICH         P2099         Vision VO2 sensor fuel         P2090         secondary O2 sensor signal RICH         P2097         secondary O2 sensor fuel         P2098         trim - rich a shift         - correction below threshold         - co	integral control > integral control > isecondary O2 sensor trim integral control < isecondary O2 sensor trim iseconda	-0.8 -0.8 -0.8 -0.8 -0.8 -0.74 -0.74 -0.74 -0.63 -0.63 -0.63 -0.82 -0.25	Sec	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary Q2 sensor readiness catalyst clear out after DCFO error: catalyst monitoring error: purge valve error: secondary Q2 sensor response error: primary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: Evap. Leak error: Evap. Leak error: art flow meter	>  	1280 65.3 65.3 16.5 20.3 - - - - - - - - - - - - -	rpm % % - * C - - - - - - - - - - - - - - - - - - -	0.2 sec	0.01 sec	continuous or 50 sec cumulative 4 sec cont. or 50 sec	
ary Q2 sensor signal RICH ank1 ank 2 ary Q2 sensor signal LEAN ank 1 ank 2 erator Pedal Position sor 1 erator Pedal Position sor 2	H / secondary O2 sensor signal LEAN         P2096       secondary O2 sensor fuel         P2098       trim - rich shift         - correction above threshold         N / secondary O2 sensor signal RICH         P2099         trim - rich shift         - correction above threshold         P2097         secondary O2 sensor signal RICH         P2099         trim - lean shift         - correction below threshold	integral control > integral control > isecondary Q2 sensor trim integral control < integral control < ivoltage voltage voltage voltage ide range	-0.8 -0.8 -0.8 -0.74 -0.63 -0.63 -0.63 -0.63 -0.63 -0.63 -0.8 -0.8 -0.8 -0.8 -0.8 -0.8 -0.8 -0.8	sec           v           v           v           v           v           v           v           v           v           v           v           v           v           v           v           v           v           v	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary Q2 sensor readiness catalyst clear out after DCFO error: catalyst monitoring error: purge valve error: secondary Q2 sensor response error: primary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: Evap. Leak error: Evap. Leak error: art flow meter	>  	1280 65.3 65.3 16.5 20.3 - - - - - - - - - - - - -	rpm % % - sec ° C - · · · · · · · · · · · · · · · · · ·	0.2 sec	0.01 sec	continuous or 50 sec cumulative 4 sec cont. or 50 sec	cyc wit cor
ary O2 sensor signal RICH ink1 ary O2 sensor signal LEAN ink 2 ary O2 sensor signal LEAN ink 1 ank 2 arator Pedal Position sor 1 arator Pedal Position sor 2 arator Pedal Position	H / secondary O2 sensor signal LEAN         P2096       secondary O2 sensor fuel         P2098       trim - rich shift         - correction above threshold         N / secondary O2 sensor signal RICH         P2099         trim - rich shift         - correction above threshold         P2097         secondary O2 sensor signal RICH         P2099         trim - lean shift         - correction below threshold	voltage difference > idle range voltage difference > idle range voltage difference	-0.8 -0.8 -0.8 -0.8 -0.8 -0.74 -0.74 -0.74 -0.63 -0.63 -0.63 -0.82 -0.25	Sec	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary Q2 sensor readiness catalyst clear out after DCFO error: catalyst monitoring error: purge valve error: secondary Q2 sensor response error: primary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: Evap. Leak error: Evap. Leak error: art flow meter	>  	1280 65.3 65.3 16.5 20.3 - - - - - - - - - - - - -	rpm % % - sec ° C - · · · · · · · · · · · · · · · · · ·	0.2 sec	0.01 sec	continuous or 50 sec cumulative 4 sec cont. or 50 sec	
arary O2 sensor signal RICH ank1 ank 2 ank 2 ank 2 ank 2 ank 2 arator Pedal Position sor 1 arator Pedal Position sor 2 arator Pedal Position	H / secondary O2 sensor signal LEAN         P2096       secondary O2 sensor fuel         P2098       trim - rich shift         - correction above threshold         N / secondary O2 sensor signal RICH         P2099         trim - rich shift         - correction above threshold         P2097         secondary O2 sensor signal RICH         P2099         trim - lean shift         - correction below threshold	voltage difference > idle range voltage difference > idle range voltage difference > idle range voltage difference > voltage difference	-0.8 -0.8 -0.8 -0.74 -0.63 -0.63 -0.63 -0.63 -0.63 -0.63 -0.8 -0.8 -0.8 -0.8 -0.8 -0.8 -0.8 -0.8	sec           v           v           v           v           v           v           v           v           v           v           v           v           v           v           v           v           v           v	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary Q2 sensor readiness catalyst clear out after DCFO error: catalyst monitoring error: purge valve error: secondary Q2 sensor response error: primary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: Evap. Leak error: Evap. Leak error: art flow meter	>  	1280 65.3 65.3 16.5 20.3 - - - - - - - - - - - - -	rpm % % - sec ° C - · · · · · · · · · · · · · · · · · ·	0.2 sec	0.01 sec	continuous or 50 sec cumulative 4 sec cont. or 50 sec	
arary O2 sensor signal RICH ank1 ank 2 ank 2 ank 2 ank 2 ank 2 arator Pedal Position sor 1 arator Pedal Position sor 2 arator Pedal Position	H / secondary O2 sensor signal LEAN         P2096       secondary O2 sensor fuel         P2098       trim - rich shift         - correction above threshold         N / secondary O2 sensor signal RICH         P2099         trim - rich shift         - correction above threshold         P2097         secondary O2 sensor signal RICH         P2099         trim - lean shift         - correction below threshold	voltage difference > idle range voltage difference peda differ	-0.8 -0.8 -0.8 -0.8 -0.8 -0.8 -0.8 -0.8	Sec           V           V           V           V           V           V           V           V           V           V           V           V           V	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary Q2 sensor readiness catalyst clear out after DCFO error: catalyst monitoring error: purge valve error: secondary Q2 sensor response error: primary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: Evap. Leak error: Evap. Leak error: art flow meter	>  	1280 65.3 65.3 16.5 20.3 - - - - - - - - - - - - -	rpm % % - sec ° C - · · · · · · · · · · · · · · · · · ·	0.2 sec	0.01 sec	continuous or 50 sec cumulative 4 sec cont. or 50 sec	
ary O2 sensor signal RICH ink1 ary O2 sensor signal LEAN ary O2 sensor signal LEAN ink 2 erator Pedal Position sor 1 erator Pedal Position sor 2 erator Pedal erator Pedal I sor 2 erator Pedal ition 1 versus Position 2	H / secondary O2 sensor signal LEAN         P2096       secondary O2 sensor fuel         P2098       trim - rich shift         - correction above threshold         N / secondary O2 sensor signal RICH         P2099         trim - rich shift         - correction above threshold         P2097         secondary O2 sensor signal RICH         P2099         trim - lean shift         - correction below threshold	voltage difference > idle range voltage difference > idle range voltage difference > idle range voltage difference > voltage difference	-0.8 -0.8 -0.8 -0.8 -0.8 -0.8 -0.8 -0.8	Sec           V           V           V           V           V           V           V           V           V           V           V           V           V	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary Q2 sensor readiness catalyst clear out after DCFO error: catalyst monitoring error: purge valve error: researe error: primary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: Evap. Leak error: Evap. Leak error: art flow meter	>  	1280 65.3 65.3 16.5 20.3 - - - - - - - - - - - - -	rpm % % - sec ° C - · · · · · · · · · · · · · · · · · ·	0.2 sec	0.01 sec	continuous or 50 sec cumulative 4 sec cont. or 50 sec	
ary Q2 sensor signal RICH ink1 ary Q2 sensor signal LEAN ink 2 ary Q2 sensor signal LEAN ink 1 ank 1 ark 1 ark 2 erator Pedal Position sor 1 erator Pedal Position sor 2 erator Pedal tion 1 versus Position 2 erator Pedal tion 1 versus Position 2	H / secondary O2 sensor signal LEAN         P2096       secondary O2 sensor fuel         P2098       trim - rich shift         - correction above threshold         N / secondary O2 sensor signal RICH         P2099         trim - rich shift         - correction above threshold         P2097         secondary O2 sensor signal RICH         P2099         trim - lean shift         - correction below threshold	voltage difference > idle range voltage difference > idle range voltage difference > idle range voltage difference > voltage difference	-0.8 -0.8 -0.8 -0.8 -0.8 -0.8 -0.8 -0.8	Sec           V           V           V           V           V           V           V           V           V           V           V           V           V	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary Q2 sensor readiness catalyst clear out after DCFO error: catalyst monitoring error: purge valve error: researe error: primary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: Evap. Leak error: Evap. Leak error: art flow meter	>  	1280 65.3 65.3 16.5 20.3 - - - - - - - - - - - - -	rpm % % - sec ° C - · · · · · · · · · · · · · · · · · ·	0.2 sec	0.01 sec	continuous or 50 sec cumulative 4 sec cont. or 50 sec	
ary O2 sensor signal RICH ink1 ary O2 sensor signal LEAN rk 2 ary O2 sensor signal LEAN rk 1 rk 2 erator Pedal Position sor 1 erator Pedal Position sor 2 erator Pedal I sor 2 erator Pedal tion 1 versus Position 2	H / secondary O2 sensor signal LEAN         P2096       secondary O2 sensor fuel         P2098       trim - rich shift         - correction above threshold       - correction above threshold         N / secondary O2 sensor signal RICH       - correction above threshold         P2099       secondary O2 sensor fuel         P2099       trim - rich shift         - correction above threshold       - correction below threshold         P2097       secondary O2 sensor fuel         P2099       trim - lean shift         - correction below threshold       - correction below threshold         P2122       range check low         P2123       range check low         P2124       range check low         P2125       range check low         P2126       range check low         P2127       range check low         P2128       plausibility         -       -         -       -         -       -         -       -         -       -         -       -         -       -         -       -         -       -         -       -         -       -	integral control > integral control > integral control > integral control < integral cont	0.8 0.74 0.74 0.63 4.82 0.63 4.82 0.25 0.31 0.31 0.31 1.69	Sec           V	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit secondary Q2 sensor readiness catalyst clear out after DCFO error: catalyst clear out after DCFO error: catalyst clear out after DCFO error: secondary Q2 sensor response error: rimary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: sidel system monitoring error: sin flow meter	>	1280 65.3 65.3 16.5 20.3 1 250 - - - - - - - - - - - - -	rpm % % ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	0.2 sec	continuous	continuous or 50 sec cumulative 4 sec cont. or 50 sec cumulative	cycycy with constraints of the c
ary O2 sensor signal RICH ink1 ary O2 sensor signal LEAN ink 2 ary O2 sensor signal LEAN ink 1 ink 2 erator Pedal Position sor 1 erator Pedal Position sor 2 erator Pedal Position sor 2 erator Pedal to sition 2 erator Pedal to 1 versus Position 2	H / secondary O2 sensor signal LEAN         P2096       secondary O2 sensor fuel         P2098       trim - rich shift         - correction above threshold         N / secondary O2 sensor signal RICH         P2099         trim - rich shift         - correction above threshold         P2097         secondary O2 sensor signal RICH         P2099         trim - lean shift         - correction below threshold	voltage difference > idle range voltage difference > idle range voltage difference > idle range voltage difference > voltage difference	-0.8 -0.8 -0.8 -0.8 -0.8 -0.8 -0.8 -0.8	Sec           V	engine speed engine load engine load closed loop control active for time exhaust gas temp. model primary closed loop controller at upper limit at lower limit secondary Q2 sensor readiness catalyst clear out after DCFO error: catalyst monitoring error: purge valve error: researe error: primary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: secondary Q2 heater error: Evap. Leak error: Evap. Leak error: art flow meter	>  	1280 65.3 65.3 16.5 20.3 - - - - - - - - - - - - -	rpm % % - sec ° C - · · · · · · · · · · · · · · · · · ·	0.2 sec	0.01 sec	continuous or 50 sec cumulative 4 sec cont. or 50 sec	

				GRPUZI									
Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold	Speci ed	fi Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MIL
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illuminatio
					1	electrical			1	1	1		or 50 sec
			or			for time	>	0.2	sec				cumulative
		sensor offset / jump test low	sensor output change within 20 sec period > OR	10	KPa	error : barometric pressure sensor electrical	not set	-	-	2 sec	continuous	4 sec	
			barometric pressure signal pressure	30	KPa	time since engine start	<	5	sec				
			jump from previous key off >			error : barometric pressure sensor electrical	not set	-	-				
			AND sensor output + THRESHOLD	5	KPa	air mass flow meter readiness	TRUE	-	-				
			< pressure model	5	Na	engine running time	>	1	sec				
						command air flow valid	TRUE	-	-				
						corrector factor calculation for mass-flow substitute							
						load signal	TRUE	-	-				
						air flow meter signal valid	TRUE	-	-				
						enabling air flow meter diag.	TRUE	-	-				
						Evap. Leak detection active for time	not set	- 1	- sec				
						error: throttle position sensor	not set	-	-				
						error: air flow mass meter	not set		-				
	_					error : Baro pressure sensor	not ant						
			or			electrical	not set	-	-				
		sensor offset / jump test high	sensor output change within 20 sec period >	10	KPa	error : barometric pressure sensor electrical	not set		-	2 sec	continuous	4 sec	
			OR			· · · · · · · · · · · · · · · · · · ·							
			barometric pressure signal pressure jump from previous key off >	30	KPa	time since engine start error : barometric pressure sensor electrical	< not set	5	sec				
			AND			enor : barometric pressure sensor electrical	not set		-				
			sensor output - THRESHOLD	5	KPa	air mass flow meter readiness	TRUE		-				
			> pressure model			engine running time	> TRUE	1	sec				
						command air flow valid corrector factor calculation	TRUE	-	-				
						for mass-flow substitute							
						load signal	TRUE	-	-				
						air flow meter signal valid enabling air flow meter diag.	TRUE	•	-				
						Evap. Leak detection active	not set		-				
						for time	>	1	sec				
	_					error: throttle position sensor	not set	-	-				
						error: air flow mass meter error : Baro pressure sensor	not set		-				
						electrical	not set	-	-				
							· ·		-	1			
	P2228	range check low	voltage <	0.2	V	enabled by scheduler for time	>	1	sec	2 sec			
	_	I			1		1 1		1	1			
	P2229	range check high	voltage >	4.87	V	enabled by scheduler for time	>	1	sec	1			
iary Engine Coolant Pump cuit Continuity													
		circuit continuity - open	Voltage	IC Internal		engine speed	>	80	rpm V	0.01 sec	0.01 sec	4 sec cont.	no / pen
		circuit continuity - ground circuit continuity - voltage	Voltage Voltage	IC Internal IC Internal		battery voltage battery voltage	> <	9.99 18.1	v			or 50 sec cumulative	
Rationality	P2601	monitoring of engine coolant	temperature change gradient during soak period >	-5.01.5	°C	auxiliary coolant pump enabled ( coolant temp.	TRUE			80 sec	0.1 sec during		
	12001	temperature profile during soak	temperature change gradient during soak period >	[ function of	Ŭ	at engine shutdown > 110 C )				00 300	0.1 See during		
		( engine off period )		ambient temperatu	ure]	coolant temp. sensor fault (electrical)	FALSE				er-run when pu		
						coolant temp. sensor fault (performance) coolant temp. sensor fault (intermittent)	FALSE FALSE				is enabled only	/	
						IAT sensor fault (electrical)	FALSE						
						IAT sensor fault (plaus)	FALSE						
						auxiliary coolant pump fault (electrical)	FALSE						
Level Sensor Circuit													
el transfer pump	P2636	transfer pump failure	fuel level 1 < and	10.6	%	sensor signal without failure fuel level state stable	TRUE TRUE	-	-	240 sec	0.1 sec continuous	4 sec cont. or 50 sec	no
			and fuel level 2 >	22.8	%	engine starting	complete				conunuous	or 50 sec cumulative	
				22.5	,5		oompioto						

# LOOK-UP TABLES (LLT)

#### P0135, P0155 KFRINV / 2 (internal manufacturer cross reference)

Sensor Element (Ceramic) Impedance, Nominal Value - Secondary O2 Sensor

Ohms	Modeled Exhau	ust Gas Tempe	rature at Secon	dary O2 Senso	r(°C)
O2 Heater Power (watts)	260.006	320.006	380.006	440.006	500.006
0.70	224	216	192	160	136
0.80	168	168	144	128	112
1.00	112	112	112	104	96

#### FRINV1 / 2 (internal manufacturer cross reference)

Multiplication Factor for Internal Resistance KFRINH Nominal Value - Secondary O2 Sensor

	Modeled Exhau	Iodeled Exhaust Gas Temperature at Secondary O2 Sensor ( ° C )										
	260.006	320.006	380.006	440.006	500.006							
factor	10.50	7.50	4.50	3.00	2.00							

#### P0141, P0161KFRINH / 2(internal manufacturer cross reference)

Sensor Element (Ceramic) Impedance, Nominal Value - Secondary O2 Sensor

Ohms	Modeled Exhau	odeled Exhaust Gas Temperature at Secondary O2 Sensor ( ° C )										
O2 Heater Power (watts)	299.991	359.991	419.991	479.991	539.991							
0.700	344	328	304	272	224							
0.800	248	240	232	200	168							
1.000	200	184	168	152	128							

FRINH1 / 2 (internal manufacturer cross reference) Multiplication Factor for Internal Resistance KFRINH Nominal Value - Secondary O2 Sensor

•	Modeled Exhau	ust Gas Temper	ature at Secon	dary O2 Senso	r(°C)
	299.991	359.991	419.991	479.991	539.991
factor	15.00	10.00	6.00	4.00	2.50

P2601

#### DDTMOTMIN

Maximum Second Derivative of tmot in Post Run

tumg (degC)	-20.3	0	15	50.3
2nd derivative (degC)	-5	-3	-2	-1.5

# LOOK-UP TABLES (LLT)

#### DDTMOTMIF Maximum Second Derivative of tmot in Post Run with Fans Active

tumg (degC)	-20.3	0	15	50.3
2nd derivative (degC)	-5	-3	-2	-1.5

	Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold	Specifie	Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MIL
Note Image:<		Code	Description	Signal and Criteria				Condition	Value		Required	of Checks	for Code	Illumination
Beth     Besh     Besh     Besh     Besh     Besh														
No.     No. </td <td></td> <td>P0010</td> <td>circuit continuity - open</td> <td>Voltage</td> <td>IC Internal</td> <td>-</td> <td>engine speed</td> <td>&gt;</td> <td>80</td> <td>rom</td> <td>0.01 sec</td> <td>0.01 sec</td> <td>4 sec</td> <td>two driving</td>		P0010	circuit continuity - open	Voltage	IC Internal	-	engine speed	>	80	rom	0.01 sec	0.01 sec	4 sec	two driving
Gen i water         Res         April 1000 (1000) (1														
No.     No. </td <td></td>														
Photo	Bank 1 Exhaust						output	activated and deac	ivated for complete	checking			cumulative	
Bat Dec     Set of the set of														
Math	Bank 2 Intake													
bh 26     Diama														
Substratement     Sub	Pank 2 Exhaust													
And in the set of the set	Dalik 2 Exhaust					· · · · ·								
Bat     Processes     Processes<														
But J Dowley         Mail         Journey         Mail         Journey         Journey <th< td=""><td>System - Control</td><td>i i</td><td></td><td></td><td>1</td><td>1</td><td></td><td></td><td></td><td>İ</td><td></td><td></td><td>ĺ</td><td></td></th<>	System - Control	i i			1	1				İ			ĺ	
Brief and the state of the			rationality low / high											
ber 2 fead     Point     Mark angle is provided in a single angle angle is provided in a single angle is provided in a s					KFDWNWDMXE	/2					20 sec	continuous		
No.         No. <td></td> <td></td> <td></td> <td></td> <td>KEDWINWDWIXA</td> <td>12</td> <td></td> <td></td> <td></td> <td></td> <td>(2 times</td> <td></td> <td></td> <td></td>					KEDWINWDWIXA	12					(2 times			
And the set of t	Built 2 Exilduot	1.0021			0	degrees							Gamalanto	
Image: state in the state into the state inteo the state into the state into the state into the state into t							coolant temperature	>	-48	°C				cumulative
And     And </td <td></td> <td></td> <td></td> <td>filtered actual angle</td> <td></td>				filtered actual angle										
Image: section of the section of					2.5				-48					
Particle state         Partic					2.5	Sec	cam-crank angriment adaptation	compiete				+ • • • • • • •		
And an analysis         Constrained methods and any analysis         Constrained methods and any analysis         Constrained methods and any analysis         Constrained methods and any analysis         Constrained methods and any analysis         Constrained methods and any analysis         Constrained methods and any analysis         Constrained methods and any analysis         Constrained methods and any analysis         Constrained methods and any analysis         Constrained methods and any analysis         Constrained methods and any analysis         Constrained methods and any and any and any any any any any any any any any any														
Image: state intermediate intermed														
Mathematic     Mathematic <td></td> <td>ļ</td> <td></td> <td></td> <td>( same as stated</td> <td>in "time re</td> <td>quired" column )</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		ļ			( same as stated	in "time re	quired" column )							
And Book         And Book														
share         share <th< td=""><td></td><td></td><td></td><td></td><td>4</td><td>count</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>					4	count								
And         And <td></td> <td></td> <td><u> </u></td> <td></td>			<u> </u>											
Image: section of the section of					1.5	degrees								
Image: state is a state state is a state is a state is a state is a state is a state is														
Image         Image         2.5         Res         Image         Image														
matrix         matrix<					2.5	sec								
Serie of the sectorSector														
Serie of the sectorSector														
Symposition         Symposition														
Back 1 made     Pool 1     Back stages of the stag				in both cam phase rotation directions)										
Back 1 made     Pool 1     Back stages of the stag	Sustan Com Crank Alignment	1			-	1			1			-		
Bath I back         PD017         Indext Case         PD017		P0016	cam-crank adapted angle	adapted angle >	9.9	dearees	engine run time	~	50	Sec	approx	0.2 sec	4 sec	two driving
Bark Jamba     Poils     Poils <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>														
Byse 1 (bds Sprodet         Proces         roces         Proces				or actual angle with parked cams >	15			<		°C			or 50 sec	with: 4 sec
Bank 2 Lees Sproot     PXX				and <	21	degrees	model: engine oil temp <	<	120	°C	fail after		cumulative	continuous
Nome     Nome     Nome     Nome     Nome     Nome     Nome     Nome     Nome       Note or Location Locatin Locatio Location Locatin Location Locatin Location Location Loc					6.0	degrees			-	-				
Air / Fuel Bioles Senor Hearing an Organs Senor Hearing Alloyscale         Note of the senor Jacobialy         Note	Bank 2 / Idler Sprocket	P0009		adapted angle for both cams <			error: camshaft control circuit	not set	-					cumulative
Integrational         Procession         Proc						-					required			
bars         P030         product activityperd         Voltage         P1         P1     P1 <th< td=""><td></td><td>ygen Sensor</td><td>Heating</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>		ygen Sensor	Heating											
PM07         pm12 control         PM07         pm12 control         PM07         pm12 control         PM07         pm12 control         PM07         pm12 control		P0036	circuit continuity - open	Voltage	IC Internal		engine speed	>	80	rpm	0.01 sec	0.01 sec	4 sec	two driving
And 2 source (second lay) - reduing - redui			circuit continuity - ground											
Photo     orical continuity-solution     inclusion     inclus     inclus     inclus			circuit continuity - voltage				battery voltage	<	18.1	V			or 50 sec	with: 4 sec
Photos     clusto divinuity-visage     image: clusto divinuity visage	bank 2 sensor 2 (secondary)												cumulative	
High Pressure Fuel Cortrol System         Image deviation from desired - over pressure over pressure pressure deviation from desired - mode manual statution all pressure over pressure pressure deviation from desired - pressure deviation from desi		P0057							ivoted for complete	chocking				
Rationality Decay Pressure Over pressure Over press		P0058	circuit continuity - voltage			-	output	activated and deac	ivated for complete	checking				cumulative
P006         pressure devision from desired -         difference (desired versus actual fuer large larg														
Image: Solution of pressure         image: Solution of pressolution of pressure         image: Solution of pressure	Rationality	P0088	pressure deviation from desired -	difference ( desired versus actual fuel rail pressur	-2000	Kna	error: electrical diagnosis of fuel volume o	not set			2 sec	continuous	4 sec	Immdediate once
POOS         pressure devision from desired -         difference (desired versus actual luter) and pressure         from c incricical diagonals of luter large sers         not set         -         -         2         Continuous         4 sec           POOS         CL controller output value ("p" part plus "" plus "" part plus "" plus "" part plus "" plus "" plus "" plus "" plus "" plus "" plus "" plus "" plus plus "" plus "" plus "" plus "" plus "" plus "" plus "" plus ""		1 0000			-2000	τφα					2 300	continuous	4 300	
Photom         Characterization adjust value - above         Controler output value (\$p^* part plus T* part )>         Z200         Kg         battery voltage         <         11.1         V         2 sec         continuou         4 sec           P0069         CL controller output value - below         Controller output value (\$p^* part plus T* part )         2500         Kg         relative injected full mass         >         5.016         %         2 sec         continuou         4 sec           P0069         CL controller output value - below         Controller output value (\$p^* part plus T* part )         2500         Kg         relative injected full mass         >         5.016         %         2 sec         continuou         4 sec           expected         expected         Expected         Expected         Expected         FALSE         -		P0087		difference ( desired versus actual fuel rail pressur	1500	Кра			-	-	2 sec	continuous	4 sec	
Image: spectedimage:							airbag deployed	FALSE	-	-		1		
P008 channelChannelController output value ("p" part plus "" part ) < per plus "" part ) < per plus "" part ) < per plus "" part ) per plus "" plus "" part ) per plus "" plus "" part )			10/1 controller output value - above				Ibattery voltage	-	18.1		2 sec	continuous	4 sec	
expectedexpectedexpectedinteraction into a start at samemby plantFALSEinteraction into a semity plantFALSEinteraction interaction		P0089		Controller output value ( "p" part plus "i" part ) >	2500	кра			E 046					
Image: product set of the s			expected				relative injected fuel mass	>			2 sec	continuous	4 sec	
Image: section of the sectin of the section of the			expected C/L controller output value - below				relative injected fuel mass relative injected fuel mass	> <		%	2 sec	continuous	4 sec	
Index <th< td=""><td></td><td></td><td>expected C/L controller output value - below</td><td></td><td></td><td></td><td>relative injected fuel mass relative injected fuel mass first engine start at assembly plant</td><td>&gt; &lt; FALSE</td><td></td><td>%</td><td>2 sec</td><td>continuous</td><td>4 sec</td><td></td></th<>			expected C/L controller output value - below				relative injected fuel mass relative injected fuel mass first engine start at assembly plant	> < FALSE		%	2 sec	continuous	4 sec	
High Pressure Fuel Volume Control VolumeImage of the control Volume			expected C/L controller output value - below				relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed	> FALSE FALSE >	500	-	2 sec	continuous	4 sec	
Circuit rationalityImage is pulse on command >4.500VDatery voltageNCNN <t< td=""><td></td><td></td><td>expected C/L controller output value - below</td><td></td><td></td><td></td><td>relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected</td><td>&gt; FALSE FALSE &gt; TRUE</td><td>500 - 25</td><td>% - rpm</td><td>2 sec</td><td>continuous</td><td>4 sec</td><td></td></t<>			expected C/L controller output value - below				relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected	> FALSE FALSE > TRUE	500 - 25	% - rpm	2 sec	continuous	4 sec	
P0091circuit rationality - feed-back voltagevoltage test pulse - off command <2.749Vbattery voltage<18.1V <t< td=""><td></td><td>P0089</td><td>expected C/L controller output value - below</td><td></td><td></td><td></td><td>relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected</td><td>&gt; FALSE FALSE &gt; TRUE</td><td>500 - 25</td><td>% - rpm</td><td>2 sec</td><td>continuous</td><td>4 sec</td><td></td></t<>		P0089	expected C/L controller output value - below				relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected	> FALSE FALSE > TRUE	500 - 25	% - rpm	2 sec	continuous	4 sec	
P0091circuit rationality - feed-back voltagevoltage test pulse - off command <2.749Vbattery voltage<18.1V <t< td=""><td>High Pressure Fuel Volume Control Val</td><td>P0089</td><td>expected C/L controller output value - below</td><td></td><td></td><td></td><td>relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected</td><td>&gt; FALSE FALSE &gt; TRUE</td><td>500 - 25</td><td>% - rpm</td><td>2 sec</td><td>continuous</td><td>4 sec</td><td></td></t<>	High Pressure Fuel Volume Control Val	P0089	expected C/L controller output value - below				relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected	> FALSE FALSE > TRUE	500 - 25	% - rpm	2 sec	continuous	4 sec	
P0090       circuit rationality - feed-back voltage       voltage test pulse - off command within window       49 < Voltage < 4.       V       battery voltage       <       ff command voltag       V       circuit       circuit       voltage < 4.       V       battery voltage       <       ff command voltag       V       circuit       voltage < 4.       V       battery voltage       voltage < 4.5       S       S	High Pressure Fuel Volume Control Val Circuit rationality	P0089	expected C/L controller output value - below expected	Controller output value ( "p" part plus "i" part ) <	-2500	Кра	relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected engine start temperature	> FALSE FALSE > TRUE >	500 - - - - - - - - - - - - - - - - - -	rpm C				Immdediate once
Index the problemIndex the problemI	High Pressure Fuel Volume Control Val Circuit rationality	P0089	expected C/L controller output value - below expected circuit rationality - feed-back voltage circuit rationality - feed-back voltage	Controller output value ( "p" part plus "i" part ) <	-2500 4.502 2.749	Kpa Kpa	relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected engine start temperature battery voltage	> FALSE FALSE > TRUE >	500 - - 25 -48 6	% - 				
temperature seasortemperature model after soaking(ECT at key on - ECT model at key on )14.3 $°C$ Saking time after shut down>1980secfor locitonditiononce constraintsImage: state st	High Pressure Fuel Volume Control Val	P0089	expected C/L controller output value - below expected circuit rationality - feed-back voltage circuit rationality - feed-back voltage	Controller output value ( "p" part plus "i" part ) <	-2500 4.502 2.749	Kpa Kpa	relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected engine start temperature battery voltage battery voltage battery voltage	> FALSE FALSE > TRUE > C	500 	% - - C 				
temperature seasortemperature model after soaking(ECT at key on - ECT model at key on )14.3 $°C$ Saking time after shut down>1980secfor locitonditiononce constraintsImage: state st	High Pressure Fuel Volume Control Val Circuit rationality	P0089	expected C/L controller output value - below expected circuit rationality - feed-back voltage circuit rationality - feed-back voltage	Controller output value ( "p" part plus "i" part ) <	-2500 4.502 2.749	Kpa Kpa	relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected engine start temperature battery voltage battery voltage battery voltage	> FALSE FALSE > TRUE > C	500 	% 				
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Circuit rationality	P0089 ve P0092 P0091 P0090	expected C/L controller output value - below expected circuit rationality - feed-back voltage circuit rationality - feed-back voltage circuit rationality - feed-back voltage	Controller output value ( "p" part plus "i" part ) <	-2500 4.502 2.749	Kpa Kpa	relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected engine start temperature battery voltage battery voltage battery voltage circuit switched off due to 5 volt supply fau	> FALSE FALSE > TRUE > C	500 	% - rpm C - - V V V -	0.5 sec	continuous	4 sec	code has been set
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Circuit rationality	P0089 ve P0092 P0091 P0090	expected C/L controller output value - below expected circuit rationality - feed-back voltage circuit rationality - feed-back voltage circuit rationality - feed-back voltage difference from Engine	Controller output value ( "p" part plus "i" part ) <	-2500 4.502 2.749 49 < Voltage < 4.	Kpa 	relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected engine start temperature battery voltage battery voltage circuit switched off due to 5 volt supply fau Engine coolant model (cooled down)	>   FALSE  FALSE  TRUE  Control of the set <p< td=""><td>500 - 25 -48 6 18.1 ff command voltag 50</td><td>% - rpm C C V V V - -</td><td>0.5 sec 100 sec</td><td>continuous 0.2 sec</td><td>4 sec</td><td>code has been set</td></p<>	500 - 25 -48 6 18.1 ff command voltag 50	% - rpm C C V V V - -	0.5 sec 100 sec	continuous 0.2 sec	4 sec	code has been set
or         or<	Circuit rationality	P0089 ve P0092 P0091 P0090	expected C/L controller output value - below expected circuit rationality - feed-back voltage circuit rationality - feed-back voltage circuit rationality - feed-back voltage difference from Engine	Controller output value ( "p" part plus "i" part ) <	-2500 4.502 2.749 49 < Voltage < 4.	Kpa 	relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected engine start temperature battery voltage battery voltage circuit switched off due to 5 volt supply fau Engine coolant model (cooled down)	>   FALSE  FALSE  TRUE  Control of the set <p< td=""><td>500 - 25 -48 6 18.1 ff command voltag 50</td><td>% - rpm C C V V V - -</td><td>0.5 sec 100 sec for block</td><td>continuous 0.2 sec</td><td>4 sec additional</td><td>code has been set immediate once code</td></p<>	500 - 25 -48 6 18.1 ff command voltag 50	% - rpm C C V V V - -	0.5 sec 100 sec for block	continuous 0.2 sec	4 sec additional	code has been set immediate once code
or     or     or     or     log     update per     orkitwen       Image: State of the state of	Circuit rationality	P0089 ve P0092 P0091 P0090	expected C/L controller output value - below expected circuit rationality - feed-back voltage circuit rationality - feed-back voltage circuit rationality - feed-back voltage difference from Engine	Controller output value ( "p" part plus "i" part ) <	-2500 4.502 2.749 49 < Voltage < 4.	Kpa 	relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine start at assembly plant engine start temperature engine start temperature battery voltage battery voltage dircuit switched off due to 5 volt supply fax Engine coolant model (cooled down) Soaking time after shut down	> FALSE FALSE FALSE S TRUE C C C C C C C C C C C C C C C C C C C	500 25 -48 6 18.1 ff command voltag 50 19800	% - - - - - - - - - - - - - - - - - - -	0.5 sec 100 sec for block heating	continuous 0.2 sec	4 sec additional	immediate once code has
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Circuit rationality	P0089 ve P0092 P0091 P0090	expected C/L controller output value - below expected circuit rationality - feed-back voltage circuit rationality - feed-back voltage circuit rationality - feed-back voltage difference from Engine	Controller output value ( "p" part plus "I" part ) < Voltage test pulse - on command > voltage test pulse - off command < voltage test pulse - off command < voltage test pulse - off command within window filtered difference ( ECT at key on - ECTmodel at key on )	-2500 4.502 2.749 49 < Voltage < 4.	Kpa 	relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCD active engine speed syncronisation reference mark detected engine start temperature battery voltage battery voltage battery voltage circuit switched off due to 5 volt supply fat Engine coolant model (cooled down) Soaking time after shut down previous accumulated air mass AND	>   FALSE  FALSE  TRUE </td <td>500 </td> <td>% </td> <td>0.5 sec 100 sec for block heating</td> <td>continuous 0.2 sec continuous</td> <td>4 sec 4 sec additional after block</td> <td>immediate once code has</td>	500 	% 	0.5 sec 100 sec for block heating	continuous 0.2 sec continuous	4 sec 4 sec additional after block	immediate once code has
Error - Engine Off Timer     not detected     -     -     exceeds     average       Powerfail during previous drive     not detected     -     -     threshold     run length       Block Heater     not detected     -     -     (15°C delta)	Circuit rationality	P0089 ve P0092 P0091 P0090	expected C/L controller output value - below expected circuit rationality - feed-back voltage circuit rationality - feed-back voltage circuit rationality - feed-back voltage difference from Engine	Controller output value ( "p" part plus "i" part ) < Controller output value ( "p" part plus "i" part ) < voltage test pulse - on command > voltage test pulse - off command < voltage test pulse - off command < voltage test pulse - off command within window filtered difference ( ECT at key on - ECTmodel at key on ) of	-2500 4.502 2.749 49 < Voltage < 4.	Kpa 	relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected engine start temperature battery voltage battery voltage circuit switched off due to 5 volt supply fau Engine coolant model (cooled down) Soaking time after shut down previous accumulated air mass AND previous engine run time of	>   FALSE  FALSE  TRUE </td <td>500 </td> <td>% - - - - - - - - - - - - - - - - - - -</td> <td>0.5 sec 100 sec for block heating</td> <td>0.2 sec continuous one filter update per</td> <td>4 sec 4 sec additional after block heater check when</td> <td>immediate once code has been set</td>	500 	% - - - - - - - - - - - - - - - - - - -	0.5 sec 100 sec for block heating	0.2 sec continuous one filter update per	4 sec 4 sec additional after block heater check when	immediate once code has been set
Image: second	Circuit rationality	P0089 ve P0092 P0091 P0090	expected C/L controller output value - below expected circuit rationality - feed-back voltage circuit rationality - feed-back voltage circuit rationality - feed-back voltage difference from Engine	Controller output value ( "p" part plus "i" part ) < voltage test pulse - on command > voltage test pulse - off command < voltage test pulse - off command < voltage test pulse - off command < ( ECT at key on - ECTmodel at key on ) or filtered difference ( ECT at key on - ECTmodel at key on )	-2500 4.502 2.749 49 < Voltage < 4.	Кра V V V ¢ V	relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected engine start temperature battery voltage battery voltage dircuit switched off due to 5 volt supply fau circuit switched off due to 5 volt supply fau Soaking time after shut down previous accumulated air mass AND previous engine run time or ECT at shut down	> FALSE FALSE FALSE TRUE TRUE C C C C C C C C C C C C C C C C C C C	500 - - - - - - - - - - - - -	% - - - - - - - - - - - - - - - - - - -	0.5 sec 100 sec for block heating	0.2 sec continuous one filter update per	4 sec 4 sec additional after block heater check when filtered	code has been set immediate once code has been set approx.
Block Heater         not detected         -         (15°C delta)	Circuit rationality	P0089 ve P0092 P0091 P0090	expected C/L controller output value - below expected circuit rationality - feed-back voltage circuit rationality - feed-back voltage circuit rationality - feed-back voltage difference from Engine	Controller output value ( "p" part plus "i" part ) < voltage test pulse - on command > voltage test pulse - off command < voltage test pulse - off command < voltage test pulse - off command < ( ECT at key on - ECTmodel at key on ) or filtered difference ( ECT at key on - ECTmodel at key on )	-2500 4.502 2.749 49 < Voltage < 4.	Кра V V V ¢ V	relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected engine start temperature battery voltage battery voltage circuit switched off due to 5 volt supply fau Engine coolant model (cooled down) Soaking time after shut down previous accumulated air mass <b>AND</b> previous engine run time <b>o</b> <b>f</b> ECT at shut down	>    FALSE   FALSE   FALSE   TRUE   >                        >   >   >   >   >   >   >   >   >   >   >   >   >   >   >   >   >   >	500 	% - C V V V - - sec sec - ° C -	0.5 sec 100 sec for block heating	0.2 sec continuous one filter update per	4 sec 4 sec additional after block heater check when filtered difference	code has been set immediate once code has been set approx. 6 test
	Circuit rationality	P0089 ve P0092 P0091 P0090	expected C/L controller output value - below expected circuit rationality - feed-back voltage circuit rationality - feed-back voltage circuit rationality - feed-back voltage difference from Engine	Controller output value ( "p" part plus "i" part ) < voltage test pulse - on command > voltage test pulse - off command < voltage test pulse - off command < voltage test pulse - off command < ( ECT at key on - ECTmodel at key on ) or filtered difference ( ECT at key on - ECTmodel at key on )	-2500 4.502 2.749 49 < Voltage < 4.	Кра V V V ¢ V	relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed synccronisation reference mark detected engine start temperature battery voltage battery voltage dircuit switched off due to 5 volt supply fau Engine coolant model (cooled down) Soaking time after shut down previous accumulated air mass AND previous engine run time or ECT at shut down at end of last cycle Error - Engine Off Timer	> FALSE FALSE FALSE TRUE TRUE C C C C C C C C C C C C C C C C C C C	500 	% - - - - - - - - - - - - -	0.5 sec 100 sec for block heating	0.2 sec continuous one filter update per	4 sec additional after block heater check when filtered difference exceeds	code has been set immediate once code has been set approx. 6 test average
Engine coolant temperature > 140.3 °C lif Startun IAT > 72 °C 0.1 sec 0.1 sec 4.sec two driving	Circuit rationality	P0089 ve P0092 P0091 P0090	expected C/L controller output value - below expected circuit rationality - feed-back voltage circuit rationality - feed-back voltage circuit rationality - feed-back voltage difference from Engine	Controller output value ( "p" part plus "i" part ) < voltage test pulse - on command > voltage test pulse - off command < voltage test pulse - off command < voltage test pulse - off command < it command < it command    filtered difference ( ECT at key on - ECTmodel at key on ) or filtered difference	-2500 4.502 2.749 49 < Voltage < 4.	Кра V V V ¢ V	relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected engine start temperature battery voltage battery voltage battery voltage circuit switched off due to 5 volt supply fax Engine coolant model (cooled down) Soaking time after shut down previous accumulated air mass AND previous accumulated air mass Controller Shut down Controller Shut Down at end of last cycle Error - Engine Off Timer Powerfail during previous drive	>  FALSE FALSE FALSE Not set	500 	%         -           rpm         -           C         -           V         V           -         -           sec         -           -         -           -         -	0.5 sec 100 sec for block heating	0.2 sec continuous one filter update per	4 sec additional after block heater check when filtered difference exceeds	code has been set immediate once code has been set approx. 6 test average run length
	Circuit rationality	P0089 ve P0092 P0091 P0090	expected C/L controller output value - below expected circuit rationality - feed-back voltage circuit rationality - feed-back voltage circuit rationality - feed-back voltage difference from Engine	Controller output value ( "p" part plus "i" part ) < voltage test pulse - on command > voltage test pulse - off command < voltage test pulse - off command < voltage test pulse - off command < it command < it command    filtered difference ( ECT at key on - ECTmodel at key on ) or filtered difference	-2500 4.502 2.749 49 < Voltage < 4.	Кра V V V ¢ V	relative injected fuel mass relative injected fuel mass first engine start at assembly plant DFCO active engine speed syncronisation reference mark detected engine start temperature battery voltage battery voltage battery voltage circuit switched off due to 5 volt supply fax Engine coolant model (cooled down) Soaking time after shut down previous accumulated air mass AND previous accumulated air mass Controller Shut down Controller Shut Down at end of last cycle Error - Engine Off Timer Powerfail during previous drive	>  FALSE FALSE FALSE Not set	500 	%         -           rpm         -           C         -           V         V           -         -           sec         -           -         -           -         -	0.5 sec 100 sec for block heating	0.2 sec continuous one filter update per	4 sec additional after block heater check when filtered difference exceeds	code has been set immediate once code has been set approx. 6 test average run length

				FUZL					1		-		
Component/ System	Fault Code	Monitor Strategy Description	Primary Malfunction Signal and Criteria	Threshold Value	Specifie Units	Secondary Parameters	Enable Condition	Enable Value	Units	Time Required	Frequency of Checks	Criteria for Code	MIL Illumination
emperature sensor						hot restart timer	>=	60	Sec		continuous	continuous	cycles each
	P0118	range check low	coolant temperature <	-42	°C	-		-			continuous	or 50 sec	with: 4 sec
	1 10110	Talige cireck low		-72								cumulative	cont. or 50
													sec cum.
	-								1				
	P0119	intermittent ( discontinuity )	delta coolant temp. during evaluation period < delta coolant temp. during evaluation period >	-4.5 4.5	° C ° C					0.1 sec	0.01 sec continuous		
			weighted counter >	60000	count		· · · · · · · · · · · · · · · · · · ·		+		continuous		
			( up 5,000 w/jump; down 1 with steady )										
Throttle Position Sensor 1 (primary)	P0121	range check poti voltage	sensor difference >	9	%	battery voltage	>	7	V	continuous	0.1 sec continuous	4 sec continuous	two driving cycles each
Genaor I (primary)					· · · ·				1		continuous	or 50 sec	with: 4 sec
												cumulative	cont. or 50
	P0122 P0123	plausibility to other poti	sensor circuit low voltage < sensor circuit high voltage >	0.176 4.629	V	battery voltage	>	7	V	continuous	0.1 sec continuous	4 sec continuous	Immdediate once code has been set
	10125			4.025							continuous	or 50 sec	Code has been set
												cumulative	
								-					
Sensor 2 (redundant)	P0221	range check poti voltage,	sensor difference >	9	%	battery voltage	>	7	V	continuous	0.1 sec	4 sec	two driving
											continuous	or 50 sec	cycles each with: 4 sec
	1			1					1			cumulative	cont. or 50
	P0222	plausibility to other poti	sensor circuit low voltage <	0.156	V	battery voltage	>	7	V	continuous	0.1 sec	4 sec	Immdediate once
	P0223		sensor circuit high voltage >	4.883	V						continuous	continuous or 50 sec	code has been set
							1	<u>L</u>		<u>+</u>		cumulative	
				1									
Engine Coolant	P0128	Coolant Temperature Below	(calculated reference model coolant temp	10.5	°C	error: engine coolant temp	not set	-	-	5 sec	0.1 sec	4 sec	two driving
Thermostat Monitoring		Thermostat Regulating	minus measured coolant temperature) >			error: vehicle speed sensor	not set	-	- °C		continuous	continuous	cycles each
		Temperature (plausibility check)	reference model calculation limit	89.3	· · · ·	est. ambient temperature est. ambient temperature	>	-10.5 70	0°C			or 50 sec cumulative	with: 4 sec continuous
				03.5		vehicle speed	>=	9.375	mph	typical fault		cumulative	or 50 sec
			( development vehicles indicated			engine speed	>	960	rpm	detection time for			cumulative
			steady thermostat regulating			coolant temperature at start	<	60.8	°C	stuck open t-stat =			
			temperatures of 89°C, as measured by the engine coolant temp. sensor.			integrated air mass flow	>	3000	g	~ 700 sec			
			The thermostat opening temp.										
			is 82°C. The thermostat is fully open										
			by 95°C. All critical OBD and										
			emission functions are enabled above 60°C.)		· · · · ·		······	·····	+				
							1						
			or				1		1				
Engine coolant		plausibility check	calculated coolant temperature model	9.8	°C	the model temperature increases				120 to 300			
temperature sensor			minus measured temperature >			depending on air flow		40.5		sec			
						coolant temp at start ECT Electrical Failure	< not set	40.5	°C -	approx. 500 sec			
						Blockheater Detection	not set	-	-				
				1									
Oxygen Sensor													
sensor circuit (secondary O2) bank 1 sensor 2	P0137	short circuit to ground		0.06	· · · · ·	secondary O2 heating stable	TRUE	-	+·· -	0.1 sec	0.1 sec	4 000	tuo debia a
bank 2 sensor 2	P0137 P0157	short circuit to ground	secondary O2 sensor voltage <	0.06		and secondary O2 dew point end	TRUE		+	0.1 Sec	continuous	4 sec continuous	two driving cycles each
				1		for time	>	90	sec			or 50 sec	with: 4 sec
						engine running	TRUE	-				cumulative	continuous
						battery voltage mod. exhaust-gas temp.	>	10.4 800	°C		· · · · · · ·		or 50 sec cumulative
						time after start	<	1	sec				cumulative
						engine temp at stop	>	60	°C				
						engine temp	<	40	°C				
						error: engine coolant temp	not set	-					
bank 1 sensor 2	P0138	short circuit to battery voltage	secondary O2 sensor voltage >	1.15	V	secondary O2 heating stable	TRUE	-	1 .	5.1 sec			
bank 2 sensor 2	P0158	onon on our to barrony voltage	locondary of some renages		· · · ·	and secondary O2 dew point end	TRUE		1	0.1.000			
						for time	>	90	sec				
						engine running	TRUE	-					
						battery voltage mod. exhaust-gas temp.	~ ~	10.4 800	°C				
bank 1 sensor 2	P0140	sensor line disconnection	secondary O2 sensor voltage >	0.401	V	secondary O2 heating stable	TRUE	-		60 sec			
bank 2 sensor 2	P0140		and secondary O2 sensor voltage <	0.519	v	and secondary O2 dew point end	TRUE	-	1	00 300			
			······································			for time	>	90	sec				
			Or cocondary O2 concer internal resistance	40000	0.	engine running	TRUE	-		+	·		
	+		secondary O2 sensor internal resistance > when modeled exhaust gas temperature >	40000	Ohm ° C	battery voltage mod. exhaust-gas temp.	>	10.4 800	°C	+			
Oxygen Sensor Heating	Ì			1	-				-				
heater performance (secondary O2)				1	·   · · · ·		+	+	+	+	+		
bank 1 sensor 2 (secondary)	P0141	secondary O2 sensor	measured secondary O2 sensor internal			battery voltage	>	10.5	V	approx.	0.1 sec	4 sec	two driving
bank 2 sensor 2 (secondary)	P0161	internal resistance	resistance >	404		battery voltage	<	18.1	V	100 sec	continuous	continuous	cycles each
		above threshold	nominal internal resistance	104 296	Ohms	engine running engine starting	TRUE complete	-			· · · · · · · · · · · · · · · · · · ·	or 50 sec cumulative	with: 4 sec continuous
			multipy times degradation factor	3.5 7.5	factor	fuel cut off	FALSE	-		+		cumulative	or 50 sec
		1				sec. O2 internal resistance	valid	-	-				cumulative
							>	-30	С				
			for time	6	sec	intake air temperature							
			for time	6	sec	engine off soak time	>	120	sec				
			for time	6	Sec	engine off soak time modeled exhaust temp.							
			for time	6	sec	engine off soak time	>	120	sec				

Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold S	necifie	Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MIL
System	Code	Description	Signal and Criteria		Units	Parameters	Condition	Value		Required	of Checks		Illumination
						secondary O2 voltage supply from the deactivation for time	ON	120					
				-		from the deactivation for time	>	120	sec				
Fuel Rail Pressure Sensor													
Rationality	P0191	rationality check low	Fuel pressure during power up init. <	250	KPa	engine speed	>	25	rpm	0.1 sec	During	4 sec	two driving
			AND			for time	>	0.5	sec		engine	continuous	cycles each
			Fuel system fault exists: P0087 or P2188 or P2187			engine run time		30	sec		start only		with: 4 sec continuous
			F0007 01 F2100 01 F2107						1				or 50 sec
													cumulative
		rationality check high	Fuel pressure during power up init. >	1500	KPa	engine speed	>	25	rpm				
			AND			for time	>	30	sec				
			Fuel system faults exist: P0088 or P2187 or P2177			block heater active engine coolant at shutdown		FALSE 84.5	- C				
						engine coolant at start	<	54.8	C C				
						difference : engine coolant at start -	<	35.3	C				
						intake air temperature differenec : intake air temperature -	<	9.75	С				
						engine coolant at start							
						engine off time during soak	>	16000	sec				
			or										
		rationality check high	Fuel pressure during power up init. >	1500	KPa	engine speed	>	25	rpm				
	+		AND Fuel pressure rise during fuel pump prime >	3500	KPa	for time block heater active	>	30 FALSE	sec -		+		
						engine coolant at shutdown	>	84.5	С		1		
		····				engine coolant at start difference : engine coolant at start -	<	54.8 35.3	C C		+		
						intake air temperature							
						differenec : intake air temperature -	<	9.75	С				
						engine coolant at start engine off time during soak	>	16000	sec				
	1						· · · · · ·		1				
Fuel Rail Pressure Sensor													
Electrical	P0193	circuit continuity - high	Fuel pressure sensor output voltage >	4.70	V		-	-	· .	0.5 sec	0.01 sec	4 sec	Immdediate once
	P0192	circuit continuity - low	Fuel pressure sensor output voltage <	0.30	V		-	-	-	0.5 sec	0.01 sec	4 sec	code has been se
High Pressure Fuel Injection Valve		(1.0)											
Circuit Continuity - High side (HS Cylinder #1		circuit continuity - open LS or HS	Voltage	IC Internal		engine speed	>	80	rpm	0.01 sec	0.01 sec	4 sec	two driving
	P0261	circuit continuity - ground LS				battery voltage	>	8	v				cycles each
	P0262 P2146	circuit continuity - battery LS circuit continuity - ground or battery HS				battery voltage		18.1	v				with: 4 sec continuous
													or 50 sec
Cylinder #2	P0202	circuit continuity - open LS or HS											cumulative
		circuit continuity - ground LS circuit continuity - battery LS					· · · · · · · · · · · · · · · · · · ·		+		+ • • • • • •		
		circuit continuity - ground or battery HS											
Cylinider #3	P0203	circuit continuity - open LS or HS											
Cymrador #C	P0267	circuit continuity - ground LS											
	P0268	circuit continuity - battery LS											
	P2152	circuit continuity - ground or battery HS											
Cylinder #4		circuit continuity - open LS or HS											
	P0270 P0271	circuit continuity - ground LS circuit continuity - battery LS											
	P2155	circuit continuity - ground or battery HS											
Culindas #E	1												
Cylinder #5	P0205	circuit continuity - open LS or HS circuit continuity - ground LS		+ + + + + + + + + + + + + + + + + + + +		<u> </u>	+		1		+	1	
	P0274	circuit continuity - battery LS									1		
	P216A	circuit continuity - ground or battery HS									+		
Cylinder #6	P0206	circuit continuity - open LS or HS					1						
	P0276	circuit continuity - ground LS									-		
		circuit continuity - battery LS circuit continuity - ground or battery HS		++			+	+	+	· · · · ·	+		
	1			1 1									Į
SPI Communication	P062B	Internal SPI Communication Fault		IC Internal		engine speed	>	80	rpm	1.10 sec	0.01 sec	4 sec	
		or Internal ADC Voltage Booster Failure		IC Internal		battery voltage battery voltage	>	8	v v	0.50 sec	0.01 sec	4 sec	
							1						l
Diagnosis of Stuck Open Fuel Injector													
Rationality	POSOD	fuel injector stuck open - cylinder #1	fuel pressure deviation from desired -	set		misfire monitor active (see P0300 detail	s)			200 ms	continuous	4 sec	Immdediate once
	. 5250		under pressure (P0087)			engine speed	>	1520	rpm	200 113			code has been se
			and	100		engine speed	<	4520	rpm				
	+		cylinder # 1 misfire counts >	100	counts	relative engine load misfire counters accumulate	<	114.8	%		+	+	
	P02A1	fuel injector stuck open - cylinder #2	fuel pressure deviation from desired -	set		within period <	<	80	rev		1	1	
	+		under pressure ( P0087 ) and	+					+		+		
	+		cylinder # 2 misfire counts >	100	counts	· · · · · · · · · · · · · · · · · · ·	+		+	·····	+		·
									1		1	1	
	P02A5	fuel injector stuck open - cylinder #3	fuel pressure deviation from desired -	set									
	P02A5	fuel injector stuck open - cylinder #3	fuel pressure deviation from desired - under pressure (P0087) and cylinder # 3 misfire counts >		counts								

Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold	Specifie		Enable	Enable	Units	Time	Frequency	Criteria	MIL
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illumination
	P02A9	fuel injector stuck open - cylinder #4	fuel pressure deviation from desired - under pressure ( P0087 )	set									
			and cylinder # 4 misfire counts >	100	counts								
	DooteD	for the location of the locati											
	PUZAD	fuel injector stuck open - cylinder #5	fuel pressure deviation from desired - under pressure ( P0087 )	set									
			and cylinder # 5 misfire counts >	100	counts								
					counts								
	P02B1	fuel injector stuck open - cylinder #6	fuel pressure deviation from desired - under pressure ( P0087 )	set							<u> </u>		
			and	400									
			cylinder # 6 misfire counts >	100	counts	l	·						
Misfire						[							
Emission Level Multiple Cylinder	P0300	crankshaft speed	emissions relevant misfire rate	1.82	%	engine speed	>	420	rpm	1000 revs	cylinder	4 sec	Fault during
Cylinder #1	P0301	fluctuation cylinder 1 to				engine speed	<	7000	rpm		firing	continuous	1st interval:
Cylinder #2 Cylinder #3	P0302 P0303	cylinder 6				indicated torque (idle, no drive) indicated torque (drive) (MISALUN)	>	5.86 7.05 29.3	%		frequency	After	2 faults in 2 different
Cylinder #4	P0304					engine speed gradient	<	2500 4600	rpm/sec		continuous	detection,	drive cycles.
Cylinder #5 Cylinder #6	P0305 P0306					volumetric efficiency gradient cylinder events after engine start	<	225 1350 6	%/rev ignitions			the diagnostic	Fault during
						air temperature	>	-30	°C			can only	remaining
						rough road (GMX295 only) clutch switch press / release	not detected transition	- FALSE				pass if similar	intervals: 8 faults in 2
						leak detection pull-down phase	off	-	-			conditions	different
						fuel cut off fuel level	not active	- 11.4	-			are encountered	drive cycles with at least
					<u> </u>	OR fuel level	~	11.4	%			Shoountered	4 faults in
						AND solid misfire MIL OR fuel level error	on set		-				each.
						error: throttle position	not set	-	-				
						error: crankshaft sensor error: ref.mark of crank sensor	not set not set	-	-				
						error. Ter.mark of crank sensor	not set	-	-				
Catalyst Damaging Level			OR Catalyst damaging misfire rate			Includes all the above with the				1000 revs			First
Multiple Cylinder	P0300					following exceptions:				First interval			occurance:
Cylinder #1 Cylinder #2	P0301 P0302					First interval extention		47	°C	200 revs			immediate flashing
Cylinder #2 Cylinder #3	P0302					engine coolant temperature fuel level	< >=	11.4	%	all remaining intervals			while error
Cylinder #4	P0304 P0305			18.1 5	%	OR fuel level	< blinking	11.4	%				present, then
Cylinder #5 Cylinder #6	P0305			see Misfire supplemental		AND blinking MIL AND NOT first blink event	blinking -	-					no MIL with no error.
				data									Second
				(h) (2.5.1)	·								occurance:
													immediate
									· · · · · · · · · · · · · · · · · · ·				flashing
													while error
													present, then
					· · · · · · · · · · · · · · · · · · ·								present, then solid MIL
Knock Control	P0324	test pulse	test pulse integral <	4						0.1 sec	0.1 sec	4 sec	present, then solid MIL with no error.
Knock Control Circuit	P0324	test pulse	test pulse integral < for consecutive events	4 4		engine coolant temp.	>	60	° C	0.1 sec	0.1 sec continuous	4 sec continuous	present, then solid MIL with no error. two driving cycles each
	P0324	test pulse				knock control	active	60	-	0.1 sec		continuous or 50 sec	present, then solid MIL with no error. two driving cycles each with: 4 sec
	P0324	test pulse						-		0.1 sec		continuous	present, then solid MIL with no error. two driving cycles each
	P0324				count	knock control zero test , parity fault assumptions measuring window engine coolant temp.	active not set >	-	- - ms ° C	0.1 sec		continuous or 50 sec	present, then solid MIL with no error. two driving cycles each with: 4 sec continuous
	P0324	or	for consecutive events	4	count	knock control zero test , parity fault assumptions measuring window	active not set >	- - 1	- - ms	0.1 sec		continuous or 50 sec	present, then solid MIL with no error. two driving cycles each with: 4 sec continuous
	P0324	or null test (zero test) or	for consecutive events absolute value (integrator gradient) > for consecutive events	4 200 4	Count V / sec count	knock control zero test , parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions	active not set > active not set	- - 1 60 - -	- ms ° C -	0.1 sec		continuous or 50 sec	present, then solid MIL with no error. two driving cycles each with: 4 sec continuous
	P0324	or null test (zero test)	for consecutive events absolute value (integrator gradient) >	4 200 4	Count V / sec count	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp.	active not set > active	- - 1 60 -	- - - - -	0.1 sec		continuous or 50 sec	present, then solid MIL with no error. two driving cycles each with: 4 sec continuous
	P0324	or null test (zero test) or parity check	for consecutive events absolute value (integrator gradient) > for consecutive events	4 200 4 5	Count V / sec count	knock control zero test , parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions	active not set > active not set >	- - 1 60 - -	- ms ° C -	0.1 sec		continuous or 50 sec	present, then solid MIL with no error. two driving cycles each with: 4 sec continuous
	P0324	or null test (zero test) or parity check or	for consecutive events absolute value (integrator gradient) > for consecutive events for consecutive events ficient RAM errors in knock IC, per 250 working cy	4 200 4 5	Count V / sec Count Count	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp.	active not set > active not set >	- - 1 60 - -	- ms ° C -	0.1 sec		continuous or 50 sec	present, then solid MIL with no error. two driving cycles each with: 4 sec continuous
		or null test (zero test) or parity check or SPI communication	for consecutive events absolute value (integrator gradient) > for consecutive events ficient RAM errors in knock IC, per 250 working cy check word errors in knock IC, per 250 working cy	4 200 4 5 25	count V / sec count count	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp. test pulse fault assumption engine coolant temperature	active not set > active not set >	- 1 60 - - - 60 	- ms ° C -	0.1 sec		continuous or 50 sec	present, then solid MIL with no error. two driving cycles each with: 4 sec continuous
Circuit Bank 1 Circuit check	P0326	or null test (zero test) or parity check or SPI communication short circuit to B+ or GND	for consecutive events absolute value (integrator gradient) > for consecutive events ficient RAM errors in knock IC, per 250 working cy check word errors in knock IC, per 250 working cy faults detected on knock sensor pins, per 250 wor	4 200 4 5 25 25	count V / sec count count count	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp. test pulse fault assumption engine coolant temperature engine speed	active not set > active not set > > >		- ms ° C - ° C - ° C -	approx.	0.1 sec	continuous or 50 sec cumulative 4 sec	present, then solid ML with no error. two driving cycles each with: 4 sec continuous or 50 sec
Circuit Bank 1	P0326	or null test (zero test) or parity check or SPI communication	for consecutive events absolute value (integrator gradient) > for consecutive events ficient RAM errors in knock IC, per 250 working cy check word errors in knock IC, per 250 working cy	4 200 4 5 25 25 0.055 0.221	count V / sec count count count	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp. test pulse fault assumption engine coolant temperature engine speed engine speed gradient (NGKRWN)	active not set > active not set > not set > >	- - 1 60 - - - 60 - - - - - - - - - - - - - -	- ms ° C - - - - - - - - - - - - - - - - - - -		continuous	continuous	present, then solid ML with no error. two driving cycles each with: 4 sec continuous or 50 sec two driving cycles each
Circuit Bank 1 Circuit check	P0326	or null test (zero test) or parity check or SPI communication short circuit to B+ or GND	for consecutive events absolute value (integrator gradient) > for consecutive events ficient RAM errors in knock IC, per 250 working cy check word errors in knock IC, per 250 working cy faults detected on knock sensor pins, per 250 wor	4 200 4 5 25 25	count V / sec count count count	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp. test pulse fault assumption engine coolant temperature engine speed	active not set > active not set > > >		- ms ° C - - - - - - - - - - - - - - - - - - -	approx.	0.1 sec	continuous or 50 sec cumulative 4 sec	present, then solid ML with no error. two driving cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous
Circuit Bank 1 Circuit check	P0326	or null test (zero test) or parity check or SPI communication short circuit to B+ or GND	for consecutive events absolute value (integrator gradient) > for consecutive events for consecutive events ficient RAM errors in knock IC, per 250 working cy check word errors in knock IC, per 250 working cy faults detected on knock sensor pins, per 250 wor feterence voltage <	4 200 4 5 25 25 0.055 0.221 UDKSNU	count V / sec count count count V	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp. test pulse fault assumption engine coolant temperature engine speed engine speed gradient (NGKRWN) engine load gradient	active not set > active not set > > > > < <	- - - - - - - - - - - - - - - - - - -	- ms ° C - - - - - - - - - - - - - - - - - - -	approx.	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec	present, then solid MIL with no error. Itwo driving cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous or 50 sec
Circuit Bank 1 Circuit check	P0326	or null test (zero test) or parity check or SPI communication short circuit to B+ or GND range check low	for consecutive events absolute value (integrator gradient) > for consecutive events ficient RAM errors in knock IC, per 250 working cy check word errors in knock IC, per 250 working cy faults detected on knock sensor pins, per 250 wor	4 200 4 5 25 25 0.055 0.221 UDKSNU 30	count V / sec count count count	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp. test pulse fault assumption engine coolant temperature engine speed engine speed gradient (NGKRWN) engine load gradient	active not set > active not set > > > > < <	- - - - - - - - - - - - - - - - - - -	- ms ° C - - - - - - - - - - - - - - - - - - -	approx.	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec	present, then solid ML with no error. two driving cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous
Circuit Bank 1 Circuit check	P0326	or null test (zero test) or parity check or SPI communication short circuit to B+ or GND	for consecutive events absolute value (integrator gradient) > for consecutive events for consecutive events ficient RAM errors in knock IC, per 250 working cy check word errors in knock IC, per 250 working cy faults detected on knock sensor pins, per 250 wor feterence voltage <	4 200 4 5 25 0.055 0.221 UDKSNU 30 3.1 39.1	count V / sec count count count V	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp. test pulse fault assumption engine coolant temperature engine speed engine speed gradient (NGKRWN) engine load gradient	active not set > active not set > > > > < <	- - - - - - - - - - - - - - - - - - -	- ms ° C - - - - - - - - - - - - - - - - - - -	approx.	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec	present, then solid MIL with no error. Itwo driving cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous or 50 sec
Circuit Bank 1 Circuit check	P0326	or null test (zero test) or parity check or SPI communication short circuit to B+ or GND range check low	for consecutive events absolute value (integrator gradient) > for consecutive events ficient RAM errors in knock IC, per 250 working cy check word errors in knock IC, per 250 working cy faults detected on knock sensor pins, per 250 wor faults detected on knock sensor pins, per 250 wor for consecutive events for consecutive events	4 200 4 5 25 25 0.055 0.221 UDKSNU 30	count V / sec count count count v	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp. test pulse fault assumption engine coolant temperature engine speed engine speed gradient (NGKRWN) engine load gradient	active not set > active not set > > > > < <	- - - - - - - - - - - - - - - - - - -	- ms ° C - - - - - - - - - - - - - - - - - - -	approx.	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec	present, then solid MIL with no error. Itwo driving cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous or 50 sec
Circuit Bank 1 Circuit check	P0326	or null test (zero test) or parity check or SPI communication short circuit to B+ or GND range check low	for consecutive events absolute value (integrator gradient) > for consecutive events ficient RAM errors in knock IC, per 250 working cy check word errors in knock IC, per 250 working cy faults detected on knock sensor pins, per 250 wor feference voltage < for consecutive events for consecutive events feference voltage >	4 200 4 5 25 25 0.055 0.221 UDKSNU 30 3.1 39.1 UDKSNJ	count V / sec count count count v count v	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp. test pulse fault assumption engine coolant temperature engine speed engine speed gradient (NGKRWN) engine load gradient	active not set > active not set > > > > < <	- - - - - - - - - - - - - - - - - - -	- ms ° C - - - - - - - - - - - - - - - - - - -	approx.	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec	present, then solid MIL with no error. Itwo driving cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous or 50 sec
Circuit Bank 1 Circuit check	P0326	or null test (zero test) or parity check or SPI communication short circuit to B+ or GND range check low	for consecutive events absolute value (integrator gradient) > for consecutive events ficient RAM errors in knock IC, per 250 working cy check word errors in knock IC, per 250 working cy faults detected on knock sensor pins, per 250 wor feference voltage < for consecutive events for consecutive events feference voltage >	4 200 4 5 25 0.055 0.221 UDKSNU 30 3.1 39.1 UDKSNO 30	count v / sec count count count v v count v	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp. test pulse fault assumption engine coolant temperature engine speed engine speed gradient (NGKRWN) engine load gradient	active not set > active not set > > > > < <	- - - - - - - - - - - - - - - - - - -	- ms ° C - - - - - - - - - - - - - - - - - - -	approx.	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec	present, then solid MIL with no error. Itwo driving cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous or 50 sec
Circuit Bank 1 Circuit check	P0326	or null test (zero test) or parity check or SPI communication short circuit to B+ or GND range check low range check high	for consecutive events absolute value (integrator gradient) > for consecutive events ficient RAM errors in knock IC, per 250 working cy check word errors in knock IC, per 250 working cy faults detected on knock sensor pins, per 250 wor faults detected on knock sensor pins, per 250 wor fereference voltage < for consecutive events for consecutive events for consecutive events for consecutive events for consecutive events	4 200 4 5 25 0.055 0.221 UDKSNU 30 3.1 39.1 UDKSNO 30	count v / sec count count count v v count v	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp. test pulse fault assumption engine coolant temperature engine speed engine speed gradient (NGKRWN) engine load gradient	active not set > active not set > > > > < <	- - - - - - - - - - - - - - - - - - -	- ms ° C - - - - - - - - - - - - - - - - - - -	approx.	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec	present, then solid MIL with no error. Itwo driving cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous or 50 sec
Circuit Bank 1 Circuit check Performance	P0326	or null test (zero test) or parity check or SPI communication short circuit to B+ or GND range check low range check high	for consecutive events absolute value (integrator gradient) > for consecutive events ficient RAM errors in knock IC, per 250 working cy check word errors in knock IC, per 250 working cy faults detected on knock sensor pins, per 250 wor faults detected on knock sensor pins, per 250 wor fereference voltage < for consecutive events for consecutive events for consecutive events for consecutive events for consecutive events	4 200 4 5 25 0.055 0.221 UDKSNU 30 3.1 39.1 UDKSNO 30	count v / sec count count count v v count v	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp. test pulse fault assumption engine coolant temperature engine speed engine speed gradient (NGKRWN) engine load gradient enror: knock control circuit (IC)	active not set > active not set > > > > < < c	- - - - - - - - - - - - - - - - - - -	· C · · · · · · · · · · · · · · · · · ·	approx.	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec	present, then solid MIL with no error. Itwo driving cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous or 50 sec
Circuit Bank 1 Circuit check	P0326 P0327 P0328 P0328	or null test (zero test) or parity check or SPI communication short circuit to B+ or GND range check low range check high	for consecutive events absolute value (integrator gradient) > for consecutive events ficient RAM errors in knock IC, per 250 working cy check word errors in knock IC, per 250 working cy faults detected on knock sensor pins, per 250 wor faults detected on knock sensor pins, per 250 wor fereference voltage < for consecutive events for consecutive events for consecutive events for consecutive events for consecutive events	4 200 4 5 25 0.055 0.221 UDKSNU 30 3.1 39.1 UDKSNO 30 31 UDKSNO 30 30 31 30 30 30 31 30 30 30 30 30 30 30 30 30 30	count V / sec count count count count count v v v v v count v v v v v v v v v v v v v v v v v v v	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp. test pulse fault assumption engine coolant temperature engine speed engine speed gradient (NGKRWN) engine load gradient	active not set > active not set > > > > < <	- - - - - - - - - - - - - - - - - - -	- ms ° C - - - - - - - - - - - - - - - - - - -	approx.	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec	present, then solid MIL with no error. Itwo driving cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous or 50 sec
Circuit Bank 1 Circuit check Performance Bank 2	P0326 P0326 P0327 P0328	or null test (zero test) or parity check or SPI communication short circuit to B+ or GND range check low range check high short circuit to B+ or GND	for consecutive events absolute value (integrator gradient) > for consecutive events ficient RAM errors in knock IC, per 250 working cy check word errors in knock IC, per 250 working cy check word errors in knock sensor pins, per 250 wor faults detected on knock sensor pins, per 250 wor for consecutive events for consecutive events for consecutive events faults detected on knock sensor pins, per 250 wor faults detected on knock sensor pins, per 250 wor faults detected on knock sensor pins, per 250 wor faults detected on knock sensor pins, per 250 wor faults detected on knock sensor pins, per 250 wor faults detected on knock sensor pins, per 250 wor faults detected on knock sensor pins, per 250 wor faults detected on knock sensor pins, per 250 wor	4 200 4 5 25 0.055 0.221 UDKSNU 30 3.1 39.1 UDKSNO 30 31 UDKSNO 30 30 31 30 30 30 31 30 30 30 30 30 30 30 30 30 30	count v/sec count count count v v v count v v count c	knock control zero test, parity fault assumptions measuring window engine coolant temp. knock control test pulse , parity fault assumptions engine coolant temp. test pulse fault assumption test pulse fault assumption engine coolant temperature engine speed engine speed gradient error: knock control circuit (IC) engine load gradient error: knock control circuit (IC) engine coolant temperature engine coolant temperature	active not set > active not set > > > < < < < < < < < > > > >	- - - - - - - - - - - - - - - - - - -		approx. 20 sec	0.1 sec	continuous or 50 sec cumulative 4 sec continuous or 50 sec cumulative	present, then solid ML with no error. Itwo driving cycles each with: 4 sec continuous or 50 sec two driving cycles each with: 4 sec continuous or 50 sec curulative

System	Fault Code	Monitor Strategy Description	Primary Malfunction Signal and Criteria	Threshold Specif Value Units		Enable Condition	Enable Value	Units	Time Required	Frequency of Checks	Criteria for Code	MIL Illumination
			for consecutive events	100 count								or 50 sec
	P0333 range of	sheck high								1		cumulative
			reference voltage >	3.1 39.1 V UDKSNO								
			for consecutive events	100 count								
Crankshaft Position Sensor	P0335 circuit o	continuity	no engine signal	0 rpm	camshaft revolutions detected	>	12	counts	approx.	0.01 sec	4 sec	immediate
	rational	lity check	but phase signals available reference gap missing >	6 gaps					5 sec	continuous	or 50 sec	once code has
			( sensor signal but no reference )							<u> </u>	cumulative	been set
	P0336 rational	lity check	unexpected re-synchronization > ( loss of reference mark )	2600 count								
	rational	lity check	intermittent loss of engine speed signal >	28 count		Ì	1	i i		1		
	P0338 rational	lity check	difference in counted teeth between reference gap position events >	250 cranksh teeth					approx. 2 sec	1 per rev continuous		
Camshaft Position Sensor Bank 1 Intake	P0341 plausib	pility check	signal erratic or out of position	4 count	engine in synchronized mode	TRUE	-	-	10	1 per rev	4 sec	two driving
	P0342 circuit l P0343 circuit c	low continuity or high	signal permanently low signal permanently high	5 count 5 count				· · · · · ·	revolutions	continuous	or 50 sec	cycles each with: 4 sec
											cumulative	continuous
Bank 2 Intake	P0346 plausib P0347 circuit l	bility check	signal erratic or out of position signal permanently low				· · · · · · · · · · · · · · · · · · ·					or 50 sec cumulative
	P0347 circuit o	continuity or high	signal permanently high									cumulative
Bank 1 Exhaust	P0366 plausib	sility check	signal erratic or out of position									
	P0367 circuit l	low	signal permanently low							1		
	P0368 circuit o	continuity or high	signal permanently high				+	<u> </u>		+		
Bank 2 Exhaust		bility check	signal erratic or out of position					[]				
	P0392 circuit l P0393 circuit c	continuity or high	signal permanently low signal permanently high									
apition Coll												
gnition Coil circuit continuity												
Cylinder #1		continuity - open	Voltage	IC Internal -	engine speed	<	6000	rpm V	approx.	engine	4 sec	two driving
		continuity - ground continuity - voltage			engine speed battery voltage	>	9.99	V	1 sec	cycle frequency	or 50 sec	cycles each with: 4 sec
Cylinder #2	P0352 circuit c	continuity - open			battery voltage						cumulative	continuous
	P2303 circuit o P2304 circuit o	continuity - ground continuity - voltage								continuous		or 50 sec cumulative
Cylinder #3	P0353 circuit c	continuity - open										
		continuity - ground continuity - voltage										
Cylinder #4	P0354 circuit o	continuity - open										
		continuity - ground continuity - voltage						· · · · · ·				
Cylinder #5	P0355 circuit o	continuity - open										
	P2312 circuit o P2313 circuit o	continuity - ground continuity - voltage										
Cylinder #6	P0356 circuit c	continuity - open										
	P2315 circuit o P2316 circuit o	continuity - ground continuity - voltage										
Instition Coll Driver Circuit	D167D Internel	I CDI communication foult			hotton uptone		10.1		0.01.000			
Ignition Coil Driver Circuit Serial Communication	P167D Internal	al SPI communication fault	IC Internal		battery voltage battery voltage		18.1	v v	0.01 sec			
					engine speed	<	6000	rpm		1		
Evaporative System and Leak Monit												
	tor							į.,				
Small Leak - 0.020 "	P0442 natural in tank	pressure/vacuum	filtered fault index >	0.6 -	Eng. Running Vac. pull down or vac. pulldown suspect leak	not set 0.020" leak	( see P0455 for d		approx. 600 sec	0.1 sec	filtered value	immediate once code
Small Leak - 0.020 "	P0442 natural		based on:		or vac. pulldown suspect leak est amb air temp	0.020" leak	( see P0455 for d 1.5	etails) °C	approx. 600 sec each test	once per engine off	value exceeds	once code has
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <	0.6 - 540 1430 Pa	or vac. pulldown suspect leak est amb air temp est amb air temp	0.020" leak	( see P0455 for d	etails)	600 sec each test	once per	value	once code
Small Leak - 0.020 *	P0442 natural		based on:		or vac. pulldown suspect leak est amb air temp est amb air temp Engine stop coolant temp engine run time	0.020" leak > < >	( see P0455 for d 1.5 32.25 74.25 600	etails) °C °C °C °C sec	600 sec each test approx. 6 test	once per engine off	value exceeds threshold then 4 sec	once code has been set
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp est amb air temp Engine stop coolant temp engine run time trip distance travelled @ vehicle speed above	0.020" leak	( see P0455 for d 1.5 32.25 74.25	etails) °C °C °C	600 sec each test approx. 6 test average	once per engine off	value exceeds threshold then	once code has
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp Engine stop coolant temp engine run time trip distance travelled @ vehicle speed above evap fuel volatility factor	0.020" leak	(see P0455 for d 1.5 32.25 74.25 600 5.1 1.6 8	etails) °C °C sec miles mph factor	600 sec each test approx. 6 test	once per engine off	value exceeds threshold then 4 sec	once code has been set approx. 6 test average
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp est amb air temp Engine stop coolant temp engine run time trip distance travelled @ vehicle speed above	0.020" leak	(see P0455 for d 1.5 32.25 74.25 600 5.1 1.6 8 11.0 88.1	etails) °C °C °C sec miles mph factor %	600 sec each test approx. 6 test average	once per engine off	value exceeds threshold then 4 sec	once code has been set approx. 6 test average run length
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp est amb air temp Engine stop coolant temp engine run time trip distance travelled @ vehicle speed above evap tuel volatility factor fuel level fuel level fuel level fuel level	0.020" leak	(see P0455 for di 1.5 32.25 74.25 600 5.1 1.6 8 11.0 88.1 10.2	etails) °C °C °C sec miles mph factor % %	600 sec each test approx. 6 test average	once per engine off	value exceeds threshold then 4 sec	once code has been set approx. 6 test average run length ( The MIL
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp est amb air temp Engine stop coolant temp engine run time trip distance travelled @ vehicle speed above evap fuel volatility factor fuel level fuel evel	0.020" leak	(see P0455 for d 1.5 32.25 74.25 600 5.1 1.6 8 11.0 88.1	etails) °C °C °C sec miles mph factor %	600 sec each test approx. 6 test average	once per engine off	value exceeds threshold then 4 sec	once code has been set approx. 6 test average run length
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp Engine stop coolant temp engine run time trip distance travelled @ vehicle speed above evap fuel volatility factor fuel level fuel level fuel level fuel level fuel ekent error: vehicle speed error: ruge valve	0.020" leak	(see P0455 for d 1.5 32.25 74.25 600 5.1 1.6 8 11.0 88.1 10.2 -	etails) ° C ° C ° C sec miles mph factor % % % - -	600 sec each test approx. 6 test average	once per engine off	value exceeds threshold then 4 sec	once code has been set approx. 6 test average run length (The MIL actually is requested during shut
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp Engine stop coolant temp engine run time trip distance travelled @ vehicle speed above evap fuel volatility factor fuel level fuel level fuel level fuel level change from kyoff error: vehicle speed error: engine coolant temp error: purge valve error: purge valve error: purge valve error: ten leak pressure	0.020" leak	(see P0455 for di 1.5 32.25 74.25 600 5.1 1.6 8 11.0 88.1 10.2	etails) ° C ° C ° C sec miles mph factor % % % - -	600 sec each test approx. 6 test average	once per engine off	value exceeds threshold then 4 sec	once code has been set approx. 6 test average run length ( The MIL actually is requested during shut down soak.
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp Engine stop coolant temp engine run time trip distance travelled @ vehicle speed above evap fuel volatility factor fuel level fuel level fuel level fuel level error: vehicle speed error: engine coolant temp error: purge valve error: gystem voltage error: system voltage	0.020" leak	(see P0455 for d 15 32.25 74.25 600 5.1 1.6 8 11.0 88.1 10.2 - -	etails) ° C ° C ° C sec miles mph factor % % % - - - -	600 sec each test approx. 6 test average	once per engine off	value exceeds threshold then 4 sec	once code has been set approx. 6 test average run length (The MIL actually is requested during shut down soak. It becomes visible on
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp Est amb air temp Engines top coolant temp engine run time trip distance travelled @ vehicle speed above evap fuel volatility factor fuel level fuel level fuel level fuel level fror: engine coolant temp error: rule coolant temp error: rule coolant temp error: rule tank pressure error: sust worksage error: air mass meter error: mine air temp	0.020" leak	(see P0455 for d 1.5 32.25 74.25 600 5.1 1.6 8 11.0 88.1 10.2 - - - -	etails) ° C ° C ° C Sec miles mph factor % % % - - -	600 sec each test approx. 6 test average	once per engine off	value exceeds threshold then 4 sec	once code has been set approx. 6 test average run length (The MIL actually is requested during shut down soak. It becomes visible on the
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp Est amb air temp Engines top coolant temp engine run time trip distance travelled @ vehicle speed above evap tuel volatility factor fuel level fuel level fuel level fuel level fror: engine coolant temp error: rupice coolant temp error: purge valve error: tuel tank pressure error: air mass meter error: air mass meter error: air tass meter error: canister vent valve altitude adaption	0.020" leak	(see P0455 or d) 1.5 32.25 600 5.1 1.6 8 11.0 88.1 10.2 - - - - -	atails) <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>sec</sup> <sup>milles</sup> <sup>milles</sup> <sup>milles</sup> <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup>o</sup> C <sup></sup>	600 sec each test approx. 6 test average	once per engine off	value exceeds threshold then 4 sec	once code has been set approx. 6 test average run length (The MIL actually is requested during shut down soak. It becomes visible on
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp Engine stop coolant temp engine run time trip distance travelled @ vehicle speed above evap fuel volatility factor fuel level fuel level change from keyoff error: vehicle speed error: engine coolant temp error: nuel tank pressure error: rule tank pressure error: intak air temp error: intak air temp error: intak air temp error: intak agation tank vacuum out of range	0.020" leak	(see PO455 or d) 1.5 32.25 74.25 600 5.1 1.6 8 11.0 88.1 10.2 - - - - - - - - - - - - -	tatils) ° C ° C ° C ° C ° C ° C ° C ° C	600 sec each test approx. 6 test average	once per engine off	value exceeds threshold then 4 sec	once code has been set approx. 6 test average run length ( The MIL actually is requested during shut down soak. It becomes visible on the following
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp Engine stop coolant temp engine run time orgine run time itrip distance travelled @ vehicle speed above evap fuel volatility factor fuel level fuel level fuel level fuel level error: preje valve error: ruge valve error: fuel tank pressure error: ruge valve error: ruge valve error: canister vent valve altitude adaption tank vacuum out of range start (coolant - intake air)	0.020" leak	(see PO455 or d) 1.5 32.25 74.25 600 5.1 1.6 8 11.0 88.1 10.2 - - - - - - - - - - - - -	tatils)      * C      * C      * C      * C      * C      * C      * C      * C      * C      * C      * C      * C      * M      *	600 sec each test approx. 6 test average	once per engine off	value exceeds threshold then 4 sec	once code has been set approx. 6 test average run length ( The MIL actually is requested during shut down soak. It becomes visible on the following
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp est amb air temp Engine stop coolant temp engine run time trip distance travelled @ vehicle speed above evap tuel volatility factor fuel level fuel level fuel level fuel level error: vehicle speed error: nyta coolant temp error: purge valve error: system voltage error: system voltage error: system voltage error: intake air temp error: intake air temp error: intake air temp fant vacuum out of range start (coolant - intake air) start engine coolant temp	0.020" leak	(see P0455 or d) 1.5 32.25 600 5.1 1.6 8 11.0 88.1 10.2 - - - - - - - - - - - - -	tails)         ° C           ° C         ° C           ° C         sec           sec         miles           mph         factor           %         °           -         -	600 sec each test approx. 6 test average	once per engine off	value exceeds threshold then 4 sec	once code has been set approx. 6 test average run length ( The MIL actually is requested during shut down soak. It becomes visible on the following
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp est amb air temp Engine stop coolant temp engine run time i'rig distance travelled @ vehicle speed above evap tuel volatility factor fuel level fuel level fuel level fuel level error: engine coolant temp error: purge valve error: ngine coolant temp error: purge valve error: ngine coolant temp error: intake air temp altitude adaption fank vacuum out or nage start (coolant - Intake air) start engine coolant temp Start intake air temp Start intake air temp	0.020" leak	See P0455 or 0           1.5           32.25           74.25           600           5.1           1.6           8           11.0           88.1           10.2           -	tails)         ° C           ° C         ° C           ° C         sec           miles         mph           factor         %           %         %           -         -           -<	600 sec each test approx. 6 test average	once per engine off	value exceeds threshold then 4 sec	once code has been set approx. 6 test average run length ( The MIL actually is requested during shut down soak. It becomes visible on the following
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp est amb air temp Engines top coolant temp engine run time trip distance travelled @ vehicle speed above evap fuel volatility factor fuel level fuel level fuel level fuel level fuel level fuel evel fuel evel fuel evel fuel evel fuel evel fuel speed error: nyine coolant temp error: nyine coolant temp error: nyine voltage error: air mass meter error: air mass meter error: air ass meter error: air ass meter error: air temp fathfuel adption fath vacuum out of range start (coolant - intake air) start tengine coolant temp Start intake air temp Start intake air temp Start intake air temp time since previous test amb pressure	0.020" leak	(see PO455 or d) 1.5 32.25 74.25 600 5.1 1.6 8 11.0 88.1 10.2 - - - - - - - - - - - - -	tails)           °C           °C           °C           °C           °C           °C           °C           Sec           miles           mph           %	600 sec each test approx. 6 test average	once per engine off	value exceeds threshold then 4 sec	once code has been set approx. 6 test average run length ( The MIL actually is requested during shut down soak. It becomes visible on the following
Small Leak - 0.020 *	P0442 natural		based on: (peak pressure - peak vacuum) <		or vac. pulldown suspect leak est amb air temp est amb air temp Engine stop coolant temp engine run time i'rig distance travelled @ vehicle speed above evap tuel volatility factor fuel level fuel level fuel level fuel level error: engine coolant temp error: purge valve error: ngine coolant temp error: purge valve error: ngine coolant temp error: intake air temp altitude adaption fank vacuum out or nage start (coolant - Intake air) start engine coolant temp Start intake air temp Start intake air temp	0.020" leak	(see PO455 or d) 1.5 32.25 74.25 600 5.1 1.6 8 11.0 88.1 10.2 - - - - - - - - - - - - -	tails) C C C C C C C C C C C C C C C C C C C	600 sec each test approx. 6 test average	once per engine off	value exceeds threshold then 4 sec	once code has been set approx. 6 test average run length ( The MIL actually is requested during shut down soak. It becomes visible on the following

Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold	Specifie	Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MIL
System Purge Solenoid	Code P0443	Description	Signal and Criteria	Value IC Internal	Units	Parameters	Condition	Value 80	mm	Required	0.01 sec	for Code 4 sec	Illumination two driving
Purge Solenoid Control Circuit	P0443 P0458	circuit continuity - open circuit continuity - ground	Voltage	IC Internal		engine speed battery voltage	>	9.99	rpm V	0.01 sec	continuous	4 sec	cycles each
	P0459	circuit continuity - voltage				battery voltage	<	18.1	V			or 50 sec	with: 4 sec
						output	activated and deactiv	vated for complete	checking			cumulative	continuous
													or 50 sec cumulative
Evaporative System and Leak Monitor Canister Vent Valve	P0446	underpressure in tank	tank pressure <	-800	Pa	fuel system status	closed loop	-	· · · ·	approx.	0.1 sec	4 sec	two driving
Bandor Von Vario	1 10110	and oprobate in tank				vehicle speed	<	1.9	mph	5 sec	0.1000	continuous	cycles each
						engine	idling	-	-		one		with: 4 sec
						battery voltage	>	10.5	V	Only one	completed		continuous
	+					battery voltage	<	18.1	V Pa	test per	test per		or 50 sec
	+				· · · · · ·	fuel tank pressure fuel tank pressure	~ ~	1300	Pa Pa	will be completed.	driving cycle		cumulative
						ratio: ( MAP Model / Baro )	<	0.812	-	completed.	Cycle		
						est amb air temp	>	1.5	°C	The test			
						est amb air temp	<	32.25	°C	will attempt			
						fuel level	>	11.2	%	to run up			
						fuel level	<	91.2 9.75	° C	to 10 times until it			
						engine start temp - amb. temp time after engine start	>	600	sec	successfully			
						or fuel mixture adaptation	stable	-	-	completes			
						amb pressure	>	68	kPa	a test			
						maximum number of attempts	<	10	-				
					+	error: mass air flow	not set						
	+				+	error: coolant temp error: intake air temp	not set	-			+		
	1	<u> </u>			+	error: fuel tank pres	not set				1		
						error: system voltage	not set				1		
						error: purge valve	not set	-	-				
						error: vehicle speed	not set	-	-				
						error: canister vent valve	not set	-					
						error: purge valve flow	not set	-	· · ·				
				1011		error: accelerator pedal	not set	-	-				
Evap Vent Solenoid Control Circuit	P0449 P0498	circuit continuity - open	Voltage	IC Internal	-	engine speed	>	80 9.99	rpm V	0.01 sec	0.01 sec	4 sec	two driving
Control Circuit	P0498 P0499	circuit continuity - ground circuit continuity - voltage				battery voltage battery voltage	>	18.1	V	Only one	continuous	or 50 sec	cycles each with: 4 sec
	1 0 100	onour continuity tonago				output	activated and deactiv			test per		cumulative	continuous
													or 50 sec
									[ · · · ·				cumulative
Fuel Tank	P0450	rationality - signal oscillation	delta pressure signal	813	Pa	ambient temperature model	>	-7.5	°C	25.5	0.1 sec	4 sec	two driving
Pressure Sensor			( = current pressure - old pressure) >			vehicle speed >=	<=	18.75	mph	sec	continuous	continuous	cycles each
						time after canister vent valve open	>	4	sec			or 50 sec	with: 4 sec
													or 50 sec cumulative
i i i i i i i i i i i i i i i i i i i	D0454	rotionality signal range sheets	l annon aignal -	1750	De	time ofter engine start		1	1	25.5	0.1.000	4 000	
	P0451	rationality - signal range check	sensor signal >= sensor signal >=	-3500	Pa Pa	time after engine start time after canister vent valve open	>	4	sec sec	25.5 sec	0.1 sec continuous	4 sec continuous	two driving cycles each
	·		ounder ognar v								Contandodo	or 50 sec	with: 4 sec
	1	or											or 50 sec
		rationality - drift check	delta pressure signal	344	Pa	Vent solenoid valve open	TRUE	-	-				cumulative
			( = current pressure			Caniter purge flow (closed)	<=	0.0 68000	g/sec				
			- reference pressure at start ) >			ambient pressure fuel level	>	88.4	Pa %				
	+					fuel level	>	11.2	%				
					· · · · ·	fuel level	<	150	%				
						Or							
						fuel level valid for running							
						Evap. leak detection	TRUE	-	-				
						Vehicle speed	>	0 93.75	mph				
· · · · · · · · · · · · · · · · · · ·					+	Vehicle speed Or	<	33.13	mph		+		
	1				1	ambient temperature model	<=		°C		1		
						ambient temperature model	>=		°C				
	I					time	>	3	Sec				
					1	I					1		
	P0452	circuit continuity - ground	sensor signal voltage <	0.1514	V	engine running	TRUE	TRUE	·····	10 sec	0.1 sec	4 sec	two driving
	P0453	circuit continuity - voltage	sensor signal voltage >	4.702	V						continuous	or 50 sec	cycles each
	1								····		+	UI JU SEC	with: 4 sec or 50 sec
	1				+	1					1		cumulative
Large leak	P0455	vacuum pulldown slope	absolute value			fuel system status	closed loop	-	-	11 sec	0.1 sec	4 sec	two driving
			of vacuum pulldown slope <			vehicle speed	<	1.9	mph			continuous	cycles each
				4.5 7.6	Pa/sec	engine	idling	-	-	Only one	one		with: 4 sec
				[ KLTLDSFS05	4	battery voltage	>	10.5	V V	test per	completed		continuous
	+				+	battery voltage fuel tank pressure	<	-2500	V Pa	driving cycle completed.	test per driving		or 50 sec cumulative
					+	fuel tank pressure	<	1300	Pa	completed.	cycle		cumulauve
	1				1	ratio: ( MAP Model / Baro )	<	0.81	-	The test			
						est amb air temp	>	1.5	°C	will attempt			
						est amb air temp	<	32.25	°C	to run up			
				1	1	fuel level	>	11.4	%	to 10 times	1	1	
						feat land							
						fuel level	<	88.1	% °C	until it			
						engine start temp - amb. temp	<	9.75	°C	successfully			
						engine start temp - amb. temp time after engine start	< >			successfully completes			
						engine start temp - amb. temp	<	9.75 600	°C	successfully			
						engine start temp - amb. temp time after engine start or fuel mixture adaptation amb pressure error: mass air flow	<     stable	9.75 600	° C sec	successfully completes			
						engine start temp - amb. temp time after engine start or fuel mixture adaptation amb pressure error: mass air flow error: coolant temp	stable not set	9.75 600 - 68	°C sec - kPa - -	successfully completes			
						engine start temp - amb. temp time after engine start or fuel mixture adaptation amb pressure error: mass air flow	<     stable     not set	9.75 600 - 68	° C sec kPa	successfully completes			

|   |                |   | 000   |                    |                   | ngine   |   |  |   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|---|----------------|---|---|--------------------|-------------------|---|---|--
--
--
--
--
---|---|---|-------------------------|---|--------------------------|-------|-----------------------|---------------|--------|----|---|--|--|-----
---|------------------|--|--|--------------------------|-------|-----------------------|---------------|--------|----|--|---|--|------------|---|-----|--|----------------------------|--------------------------|-------|-----------------------|---------------|--------|----|---|---|--|---|--|------------------------------|--|---|--------------------------|-------|-----------------------|---------------|--------|----|---|--|--|---|--|---|--|---|--------------------------|-------|-----------------------|---------------|--------|----|---|---|--|---
---|---|--|---|--------------------------|-------|-----------------------|---------------|--------|----|---|---|--|---|---|---|--|---|--------------------------|-------|-----------------------|---------------|--------|----|--|--|--
--|---|---|--|---|--------------------------|-------|-----------------------|---------------|--------|----|---|---|--|--|---|---|--|---|--------------------------|-------|-----------------------|---------------|--------|----|--|--|--|---|---|---|--|---|--------------------------|-------|-----------------------|--|--------|----
--|--|--|---|--|---|--|---|--------------------------|-------|-----------------------|---|--------|----|---|--|--|---|--|---|--|---|--------------------------|-------|-----------------------|---------------|--------|----
--|--|--|---|--|---|--|---|--------------------------|-------|-----------------------|---|--------|----|--|---|--|---|--|---|--|---|
| Component/<br>System  | Fault<br>Code  | Monitor Strategy<br>Description                             | Primary Malfunction<br>Signal and Criteria  | Threshold<br>Value | Specifie<br>Units | Secondary<br>Parameters   | Enable<br>Condition   | Enable<br>Value  | Units   
   
   
   
   
   | Time<br>Required  | Frequency<br>of Checks                  | Criteria<br>for Code    | MIL<br>Illumination                                   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Jystem  | Code           | Description   | Signal and Criteria   | value              | Units             | •   | · · ·   |  |   
   
   
   
   
   | Kequireu  | OI CHECKS                               | Ior code                | munimation  |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | error: purge valve<br>error: vehicle speed  | not set   |  |   
   
   
   
   
   |   | +                                       |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | error: canister vent valve  | not set   | -  | -   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| ļ   |                |   |   |                    |                   | error: purge valve flow   | not set   | -  |   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | error: accelerator pedal  | not set   |  |   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Fuel Level Sensor Circuit   | P0461          | rationality   | fuel level change <   | 4.6                | %                 | Primary fuel level  | <   | 41.1   | %   
   
   
   
   
   | 1   | 0.1 sec                                 | 4 sec                   | no  |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| fuel level sensor 1   |                |   | and   |                    |                   | Secondary fuel level  | <=  | 6.2  | liter   
   
   
   
   
   |   | continuous                              | continuous              |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   |                |   | cumulative driving distance >   | 120.0              | km                | Or  |   |  |   
   
   
   
   
   |   |   | or 50 sec               |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   |                |   |   |                    |                   | Primary fuel level<br>Secondary fuel level  | <   | 41.1<br>6.2  | liter<br>liter  
   
   
   
   
   |   |   | cumulative              |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   |                |   |   |                    |                   | and   |   |  |   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   |                |   |   |                    |                   | battery voltage   | >=  | 10.5   | V   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   |                |   |   |                    |                   | battery voltage<br>engine starting  | <=<br>TRUE  | 18.1   | V   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   |                |   |   |                    |                   | electrical fuel level sensor(s)   | INCE  |  |   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   |                |   |   |                    |                   | without failure   | TRUE  | -  | -   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   |                |   | Or  |                    |                   | OR  |   |  |   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   |                |   | cumulative driving distance >=  | 162.0              | km                | Primary fuel level  | >=  | 41.1   | %   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   |                |   | Ť   |                    |                   | Secondary fuel level  | <   | 6.2  | %   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   |                |   |   |                    |                   | battery voltage<br>battery voltage  | >=<br><=  | 10.5<br>18.1   | V<br>V  
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   |                |   |   |                    |                   | engine starting   | TRUE  | -  | -<br>-  
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   |                |   |   |                    |                   | electrical fuel level sensor(s)   |   |  |   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   |                |   |   |                    |                   | without failure   | TRUE  | -  | -   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   | P0462          | range check low   | voltage <   | 0.25               | V                 | battery voltage   | >=  | 10.5   | V<br>V  
   
   
   
   
   | 60 sec  | 0.1 sec                                 | 4 sec cont.             | no  |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | battery voltage<br>engine started   | <=<br>TRUE  | 18   | V<br>-  
   
   
   
   
   |   | continuous                              | or 50 sec<br>cumulative |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| 1   | P0463          | range check high  | voltage >   | 3.2                | v                 | battery voltage   | >=  | 10.5   | V   
   
   
   
   
   | 60 sec  | 0.1 sec                                 | 4 sec cont.             | no  |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | battery voltage   | <=  | 18   | v   
   
   
   
   
   |   | continuous                              | or 50 sec               |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | engine started  | TRUE  | -  | -   
   
   
   
   
   |   |   | cumulative              |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   | he is   | 10.5               |                   | 1   |   | 0.7  |   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Cooling fan 1 relay<br>Control Circuit  | P0480<br>P0691 | circuit continuity - open<br>circuit continuity - ground    | Voltage   | IC Internal        |                   | engine speed<br>battery voltage   | >   | 9.99   | rpm<br>V  
   
   
   
   
   | 0.01 sec  | 0.01 sec<br>continuous                  | 4 sec<br>continuous     | two driving<br>cycles each                            |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Control Circuit   | P0692          | circuit continuity - yoltage                                |   |                    | <u>.</u>          | battery voltage   |   | 18.1   | V V   
   
   
   
   
   |   | continuous                              | or 50 sec               | with: 4 sec   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   |   |   |  |   
   
   
   
   
   |   |   | cumulative              | continuous  |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Cooling fan 2 relay   | P0481          | circuit continuity - open                                   | Voltage   | IC Internal        |                   |   |   |  |   
   
   
   
   
   |   |   |                         | or 50 sec   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Control Circuit   | P0693<br>P0694 | circuit continuity - ground<br>circuit continuity - voltage |   |                    |                   |   |   |  |   
   
   
   
   
   |   |   |                         | cumulative  |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                | onour communy voltage                                       |   |                    | ·                 |   |   |  |   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Evaporative System and Leak Monitor   |                |   |   |                    |                   |   |   |  | 1   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Leaking purge valve   | P0496          | underpressure in tank                                       | tank pressure loss gradient <   | -60                | Pa                | fuel system status  | closed loop   |  |   
   
   
   
   
   | about 4 sec   | 0.1 sec                                 | 4 sec                   | two driving   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| ļļ  | · · · · · ·    |   |   |                    | ·                 | vehicle speed<br>engine   | <<br>idling   | - 1.9  | mph<br>-  
   
   
   
   
   | Only one  | one                                     | continuous              | cycles<br>with: 4 sec                                 |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| · · · · · · · · · · · · · · · · · · ·   |                |   |   |                    |                   | battery voltage   | >   | 10.5   | V   
   
   
   
   
   | test per  | completed                               |                         | continuous  |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | battery voltage   | <   | 18.1   | V   
   
   
   
   
   | driving cycle   | test per                                |                         | or 50 sec   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    | ·                 | fuel tank pressure<br>fuel tank pressure  | ~ ~   | -2500<br>1300  | Pa<br>Pa  
   
   
   
   
   | completed.  | driving<br>cycle                        |                         | cumulative  |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | ratio: ( MAP Model / Baro )   | <   | 0.81   | - Fa  
   
   
   
   
   | The test  | Cycle                                   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | fuel level  | >   | 11.4   | %   
   
   
   
   
   | will attempt  |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | fuel level  |   | 88.1   | ° C   
   
   
   
   
   | to run up   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| l   |                |   |   |                    |                   |   | <   | 0.75   |   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| · · · · · · · · · · · · · · · · · · ·   |                |   |   |                    |                   | engine start temp - amb. temp   | <   | 9.75<br>600  |   
   
   
   
   
   | to 10 times<br>until it   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| I   |                |   |   |                    |                   | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation  |   | 600  | sec   
   
   
   
   
   | until it<br>successfully  |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure  | <   | 600<br>-<br>68   |   
   
   
   
   
   | until it<br>successfully<br>completes   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts  | <   | 600<br>-<br>68<br>10   | sec   
   
   
   
   
   | until it<br>successfully  |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp  | <ul> <li></li> <li>stable</li> <li>&gt;</li> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> </ul>  | 600<br>-<br>68   | sec<br>-<br>kPa<br>-  
   
   
   
   
   | until it<br>successfully<br>completes   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow  | <pre> &lt;     stable     sable     </pre>  | 600<br>-<br>68<br>10<br>1.5<br>32.25   | sec<br>-<br>kPa<br>-<br>° C<br>-<br>° C<br>-  
   
   
   
   
   | until it<br>successfully<br>completes   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | engine start temp - amb. temp<br>time after engine start<br>or tuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: coolant temp   | <pre></pre>   | 600<br>-<br>68<br>10<br>1.5<br>32.25   | sec<br>-<br>kPa<br>-<br>° C<br>° C<br>-<br>-  
   
   
   
   
   | until it<br>successfully<br>completes   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow  | <pre> &lt;     stable     stable     s     stable     c     s     c     not set     not set     not set     not set </pre>  | 600<br>68<br>10<br>1.5<br>32.25  | sec<br>-<br>kPa<br>-<br>° C<br>-<br>° C<br>-  
   
   
   
   
   | until it<br>successfully<br>completes   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>error: mass air flow<br>error: coolant temp<br>error: intake air temp<br>error: intake air temp<br>error: intake air temp<br>error: ituel tank pres<br>error: voltage   | <ul> <li></li> <li>stable</li> <li>&gt;</li> <li></li> <li></li> <li>not set</li> <li>not set</li> <li>not set</li> <li>not set</li> </ul>  | 600<br>  | sec<br>-<br>kPa<br>-<br>° C<br>° C<br>-<br>-<br>-<br>-<br>-<br>-  
   
   
   
   
   | until it<br>successfully<br>completes   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: make air temp<br>error: intake air temp<br>error: system voltage<br>error: system voltage  | <pre> &lt;     stable     stable     stable     </pre> <pre> </pre> <pre> </pre> <pre> </pre> <pre> </pre> <pre> </pre> <pre> </pre> <pre> </pre> <pre> </pre> <pre> </pre> <pre> </pre> <pre> </pre> <pre> </pre> <pre> </pre> <pre> </pre> <pre>     </pre> <pre>     </pre> <pre>     </pre> <pre>     </pre> <pre>     </pre> <pre>     </pre> <pre>     </pre> <pre>     </pre> <pre>     </pre> <pre>     </pre> <pre>            <pre>           <pre>           <pre></pre></pre></pre></pre>   | 600<br>-<br>68<br>10<br>1.5<br>32.25<br>-<br>-<br>-<br>-   | sec<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-  
   
   
   
   
   | until it<br>successfully<br>completes   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>error: mass air flow<br>error: coolant temp<br>error: intake air temp<br>error: intake air temp<br>error: juel tank pres<br>error: juel tank pres<br>error: juel tank pres<br>error: juel tank pres<br>error: vehicle speed<br>error: vehicle speed   | stable stable stable c c not set  | 600<br>- 68<br>10<br>1.5<br>32.25<br>  | sec<br>-<br>kPa<br>-<br>° C<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-   
   
   
   
   
   | until it<br>successfully<br>completes   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>error: mass air flow<br>error: coolant temp<br>error: intake air temp<br>error: intake air temp<br>error: intake air temp<br>error: system voltage<br>error: system voltage<br>error: purge valve<br>error: consister vent valve<br>error: canister vent valve  | stable stable stable < < <  <   | 600<br>  | sec<br>-<br>kPa<br>-<br>° C<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-  
   
   
   
   
   | until it<br>successfully<br>completes   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
|   |                |   |   |                    |                   | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>error: mass air flow<br>error: coolant temp<br>error: intake air temp<br>error: intake air temp<br>error: juel tank pres<br>error: juel tank pres<br>error: juel tank pres<br>error: juel tank pres<br>error: vehicle speed<br>error: vehicle speed   | stable stable stable c c not set  | 600<br>-<br>68<br>10<br>1.5<br>32,25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-      | sec<br>-<br>kPa<br>-<br>° C<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-   
   
   
   
   
   | until it<br>successfully<br>completes   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purne valve  | P0497          | vacuum pulidown slope                                       | lank vacuum >   |                    |                   | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>error: mass air flow<br>error: coolant temp<br>error: intake air temp<br>error: intake air temp<br>error: intake air temp<br>error: system voltage<br>error: system voltage<br>error: system voltage<br>error: vehicle speed<br>error: cehicle speed<br>error: caccierator pedal  | <<br>><br>stable<br>><br><<br><<br>><br><<br>not set<br>not set<br>set<br>set<br>set<br>set<br>set<br>set<br>set<br>set<br>set | 600<br>  | sec<br>-<br>kPa<br>-<br>° C<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-   
   
   
   
  | until it<br>successfully<br>completes<br>a test  
  | 0.1 sec                                 | 4 sec                   | two driving   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   |  |  |   |                    
   |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  
   |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |  |  |   |   |   |  |   |                          |       |                       |  
   |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  |  |   |   
  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purge valve  | P0497          | vacuum pulidown slope                                       | tank vacuum >   | -1.221             | Pa                | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>error: mass air flow<br>error: coult and temp<br>error: intake air temp<br>error: intake air temp<br>error: intake air temp<br>error: system voltage<br>error: system voltage<br>error: vehicle speed<br>error: vehicle speed<br>error: zehicle speed<br>error: zehicle speed<br>error: zehicle speed   | <ul> <li></li> <li>&gt; stable</li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>ont set</li> <li>ont set</li> <li>ont set</li> <li>ont set</li> </ul>  | 600<br>68<br>10<br>1.5<br>32.25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec<br>-<br>kPa<br>-<br>° C<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-   
   
   
   
   
   | until it<br>successfully<br>completes<br>a test<br>11 sec   | 0.1 sec                                 | 4 sec<br>continuous     | two driving<br>cycles each                            |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purge valve  | P0497          | vacuum pulidown slope                                       | lank vacuum >   | -1.221             | Pa                | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: constitute<br>error: constitute<br>error: constitute<br>error: constitute<br>error: system voltage<br>error: purge valve<br>error: system voltage<br>error: purge valve<br>error: canister vent valve<br>error: canister vent valve<br>error: canister vent valve<br>error: canister vent valve<br>error: scelerator pedal<br>fuel system status<br>vehicle speed<br>engine  | <<br>><br>stable<br>><br><<br><<br><<br>not set<br>not set<br>closed loop<br><<br>closed loop<br>diling   | 600<br>68<br>10<br>1.5<br>32.25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           -           kPa           -           ° C           -      - <tr <="" td=""><td>until it<br/>successfully<br/>completes<br/>a test<br/>test<br/>11 sec<br/>Only one</td><td>one</td><td></td><td>cycles each<br/>with: 4 sec</td></tr> <tr><td>Stuck Closed Purge valve</td><td>P0497</td><td>vacuum pulidown slope</td><td>tank vacuum &gt;</td><td>-1.221</td><td>Pa</td><td>engine start temp - amb. temp<br/>time after engine start<br/>or fuel mixture adaptation<br/>amb pressure<br/>maximum number of attempts<br/>est amb air temp<br/>est amb air temp<br/>error: mass air flow<br/>error: coult and temp<br/>error: initake air temp<br/>error: initake air temp<br/>error: utentak pres<br/>error: system voltage<br/>error: vehicle speed<br/>error: vehicle speed<br/>error: cacelerator pedal<br/>fuel system status<br/>vehicle speed<br/>engine<br/>battery voltage</td><td>&lt;<br/>&gt;<br/>stable<br/>&gt;<br/>stable &gt;<br/>ort set not set ort set &gt;</td><td>600<br/>68<br/>10<br/>1.5<br/>32,25<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-</td><td>sec   </td><td>until it<br/>successfully<br/>completes<br/>a test<br/>test<br/>11 sec<br/>Only one<br/>test per</td><td>one<br/>completed</td><td></td><td>cycles each<br/>with: 4 sec<br/>continuous</td></tr> <tr><td>Stuck Closed Purge valve</td><td>P0497</td><td>vacuum pulidown slope</td><td>lank vacuum &gt;</td><td>-1.221</td><td>Pa</td><td>engine start temp - amb. temp<br/>time after engine start<br/>or fuel mixture adaptation<br/>amb pressure<br/>maximum number of attempts<br/>est amb air temp<br/>est amb air temp<br/>error: constitute<br/>error: constitute<br/>error: constitute<br/>error: constitute<br/>error: system voltage<br/>error: purge valve<br/>error: system voltage<br/>error: purge valve<br/>error: canister vent valve<br/>error: canister vent valve<br/>error: canister vent valve<br/>error: canister vent valve<br/>error: scelerator pedal<br/>fuel system status<br/>vehicle speed<br/>engine</td><td>&lt;<br/>&gt;<br/>stable<br/>&gt;<br/>&lt;<br/>&lt;<br/>&lt;<br/>not set<br/>not set<br/>closed loop<br/>&lt;<br/>closed loop<br/>diling</td><td>600<br/>68<br/>10<br/>1.5<br/>32.25<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-</td><td>sec<br/>kPa</td><td>until it<br/>successfully<br/>completes<br/>a test<br/>test<br/>11 sec<br/>Only one</td><td>one</td><td></td><td>cycles each<br/>with: 4 sec</td></tr> <tr><td>Stuck Closed Purge valve</td><td>P0497</td><td>vacuum pulidown slope</td><td>tank vacuum &gt;</td><td>-1.221</td><td>Pa</td><td>engine start temp - amb. temp<br/>time after engine start<br/>or tuel mixture adaptation<br/>amb pressure<br/>maximum number of attempts<br/>est amb air temp<br/>est amb air temp<br/>error: mass air flow<br/>error: coultant temp<br/>error: tueltant temp<br/>error: tueltank pres<br/>error: usite air temp<br/>error: tueltank pres<br/>error: usite valve<br/>error: usite valve<br/>error: cuelte valve<br/>error: cuelte valve<br/>error: cuelte valve<br/>error: cuelte valve<br/>error: cuelte valve<br/>error: cuelte
valve<br/>fluel system status<br/>vehicle speed<br/>engine<br/>battery voltage<br/>battery voltage<br/>tuel tank pressure<br/>fluel system</td><td>Stable Stable Stable  &lt;</td><td>600<br/>68<br/>10<br/>1.5<br/>32.25<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-</td><td>sec           -</td><td>until it<br/>successfully<br/>completes<br/>a test<br/>test<br/>11 sec<br/>Unly one<br/>test per<br/>driving cycle<br/>completed.</td><td>one<br/>completed<br/>test per</td><td></td><td>cycles each<br/>with: 4 sec<br/>continuous<br/>or 50 sec</td></tr> <tr><td>Stuck Closed Purge valve</td><td>P0497</td><td>vacuum pulidown slope</td><td>lank vacuum &gt;</td><td>-1.221</td><td>Pa</td><td>engine start temp - amb. temp<br/>time after engine start<br/>or fuel mixture adaptation<br/>amb pressure<br/>maximum number of attempts<br/>est amb air temp<br/>est amb air temp<br/>error: mass air flow<br/>error: coolant temp<br/>error: tinake air temp<br/>error: tuel tank pres<br/>error: tuel tank pres<br/>error: use air temp<br/>error: use avait temp<br/>error: use avait temp<br/>error: canister vent valve<br/>error: use avait temp<br/>error: bester<br/>use avait temp<br/>tuel tank pressure<br/>tuel tank pressure<br/>tuel tank pressure<br/>tuel tank pressure</td><td><ul> <li></li> <li>&gt; stable</li> <li>&gt;</li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>distance</li> <li>closed loop</li> <li></li> /ul></td><td>600<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-</td><td>sec           ·</td><td>until it<br/>successfully<br/>completes<br/>a test<br/>11 sec<br/>Only one<br/>test per<br/>driving cycle<br/>completed.</td><td>one<br/>completed<br/>test per<br/>driving</td><td></td><td>cycles each<br/>with: 4 sec<br/>continuous<br/>or 50 sec</td></tr> <tr><td>Stuck Closed Purge valve</td><td>P0497</td><td>vacuum pulidown slope</td><td>lank vacuum &gt;</td><td>-1.221</td><td>Pa</td><td>engine start temp - amb. temp<br/>time after engine start<br/>or tuel mixture adaptation<br/>amb pressure<br/>maximum number of attempts<br/>est amb air temp<br/>est amb air temp<br/>error: mass air flow<br/>error: coultant temp<br/>error: tueltant temp<br/>error: tueltank pres<br/>error: usite air temp<br/>error: tueltank pres<br/>error: usite valve<br/>error: usite valve<br/>error: cuelte valve<br/>error: cuelte valve<br/>error: cuelte valve<br/>error: cuelte valve<br/>error: cuelte valve<br/>error: cuelte valve<br/>fluel system status<br/>vehicle speed<br/>engine<br/>battery voltage<br/>battery voltage<br/>tuel tank pressure<br/>fluel system</td><td>Stable Stable Stable  &lt;</td><td>600<br/>68<br/>10<br/>1.5<br/>32.25<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-</td><td>sec           -</td><td>until it<br/>successfully<br/>completes<br/>a test<br/>test<br/>Unit sec<br/>Unit /td><td>one<br/>completed<br/>test per<br/>driving</td><td></td><td>cycles each<br/>with: 4 sec<br/>continuous<br/>or 50 sec</td></tr> <tr><td>Stuck Closed Purge valve</td><td>P0497</td><td>vacuum pulidown slope</td><td>lank vacuum &gt;</td><td>-1.221</td><td>Pa</td><td>engine start temp - amb. temp<br/>time after engine start<br/>or tuel mixture adaptation<br/>amb pressure<br/>est amb air temp<br/>est amb air temp<br/>error: mass air flow<br/>error: coalant temp<br/>error: intake air temp<br/>error: tuel tank pres<br/>error: ushicle speed<br/>error: vehicle speed<br/>error: vehicle speed<br/>error: casciert vent valve<br/>error: vehicle speed<br/>error: casciert vent valve<br/>error: casciert vent valve<br/>error: voltage<br/>battery voltage<br/>battery voltage<br/>tuel tank pressure<br/>tuel tank pressure<br/>tuel tank pressure<br/>tatio: (MAP Model / Baro )<br/>est amb air temp<br/>fuel evel</td><td><pre>     </pre> <pre>         <pre>             Stable             S             Stable             C             Satable             Constant Set             not set             set             closed loop             closed loop</pre></pre></td><td>600<br/>68<br/>10<br/>1.5<br/>32.25<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-</td><td>sec           ·      ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·      ·</td><td>until it<br/>successfully<br/>completes<br/>a test<br/>test<br/>Only one<br/>test per<br/>driving cycle<br/>completed.<br/>The test<br/>will attempt<br/>to 10 times</td><td>one<br/>completed<br/>test per<br/>driving</td><td></td><td>cycles each<br/>with: 4 sec<br/>continuous<br/>or 50 sec</td></tr> <tr><td>Stuck Closed Purge valve</td><td>P0497</td><td>vacuum pulidown słope</td><td>tank vacuum &gt;</td><td>-1.221</td><td>Pa</td><td>engine start temp - amb. temp<br/>time after engine start<br/>or fuel mixture adaptation<br/>amb pressure<br/>maximum number of attempts<br/>est amb air temp<br/>est amb air temp<br/>error: mass air flow<br/>error: nutake air temp<br/>error: ruitake seet<br/>error: engine seatwe<br/>error: anister vent valve<br/>error: anister vent valve<br/>error: accelerator pedal<br/>fuel system status<br/>vehicle speed<br/>engine<br/>battery voltage<br/>fuel tank pressure<br/>fuel tank pressure<br/>fuel tank pressure<br/>fate: (MAP Model / Baro )<br/>est amb air temp<br/>fuel level<br/>fuel level</td><td><ul> <li></li> <li>&gt; stable</li> <li>&gt; </li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>diding</li> <li></li> /ul></td><td>600<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-</td><td>sec           -      -           -           -           -           -           -           -           -           -           -           -           -           -           -     <td>until it<br/>successfully<br/>completes<br/>a test<br/>11 sec<br/>Only one<br/>test per<br/>driving cycle<br/>completed.<br/>The test<br/>will attempt<br/>to run up<br/>to 10 times<br/>until it it</td><td>one<br/>completed<br/>test per<br/>driving</td><td></td><td>cycles each<br/>with: 4 sec<br/>continuous<br/>or 50 sec</td></td></tr> <tr><td>Stuck Closed Purge valve</td><td>P0497</td><td>vacuum pulidown slope</td><td>lank vacuum &gt;</td><td>-1.221</td><td>Pa</td><td>engine start temp - amb. temp<br/>time after engine start<br/>or tuel mixture adaptation<br/>amb pressure<br/>est amb air temp<br/>est amb air temp<br/>error: mass air flow<br/>error: colar temp<br/>error: intake air temp<br/>error: tuel tank pres<br/>error: ushica est temp<br/>error: vehicle speed<br/>error: vehicle speed<br/>error: vehicle speed<br/>error: cascelerator pedal<br/>tel system
status<br/>vehicle speed<br/>engine<br/>battery voltage<br/>battery voltage<br/>battery voltage<br/>battery voltage<br/>est amb air temp<br/>est amb air temp<br/>tuel temp<br/>est amb air temp<br/>tuel level<br/>engine status</td><td><ul> <li></li> <li>&gt; stable</li> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>set</li> <li></li> /ul></td><td>600<br/>68<br/>10<br/>1.5<br/>32,25<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-</td><td>sec           -      -           -           -           -           -           -           -           -           -           -           -           -           -   -</td><td>until it<br/>successfully<br/>completes<br/>a test<br/>11 sec<br/>Only one<br/>test per<br/>driving cycle<br/>completed.<br/>The test<br/>will attempt<br/>to 10 times<br/>until it<br/>successfully</td><td>one<br/>completed<br/>test per<br/>driving</td><td></td><td>cycles each<br/>with: 4 sec<br/>continuous<br/>or 50 sec</td></tr> <tr><td>Stuck Closed Purge valve</td><td>P0497</td><td>vacuum pulldown slope</td><td>lank vacuum &gt;</td><td>-1.221</td><td>Pa</td><td>engine start temp - amb. temp<br/>time after engine start<br/>or fuel mixture adaptation<br/>amb pressure<br/>maximum number of attempts<br/>est amb air temp<br/>est amb air temp<br/>error: mass air flow<br/>error: nutake air temp<br/>error: ruitake seet<br/>error: engine seatwe<br/>error: anister vent valve<br/>error: anister vent valve<br/>error: accelerator pedal<br/>fuel system status<br/>vehicle speed<br/>engine<br/>battery voltage<br/>fuel tank pressure<br/>fuel tank pressure<br/>fuel tank pressure<br/>fate: (MAP Model / Baro )<br/>est amb air temp<br/>fuel level<br/>fuel level</td><td><ul> <li></li> <li>&gt; stable</li> <li>&gt; </li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>diding</li> <li></li> /ul></td><td>600<br/>68<br/>10<br/>1.5<br/>32,25<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-</td><td>sec           -      -      -      -      -      -      -      -      -      -      -      -      -      -      -      -      -      -      -</td><td>until it<br/>successfully<br/>completes<br/>a test<br/>11 sec<br/>Only one<br/>test per<br/>driving cycle<br/>completed.<br/>The test<br/>will attempt<br/>to run up<br/>to 10 times<br/>until it it</td><td>one<br/>completed<br/>test per<br/>driving</td><td></td><td>cycles each<br/>with: 4 sec<br/>continuous<br/>or 50 sec</td></tr> <tr><td>Stuck Closed Purge valve</td><td>P0497</td><td>vacuum pulidown slope</td><td>Image: Image: /td><td>-1.221</td><td>Pa</td><td>engine start temp - amb. temp<br/>time after engine start<br/>or tuel mixture adaptation<br/>amb pressure<br/>maximum number of attempts<br/>est amb air temp<br/>est amb air temp<br/>error: mass air flow<br/>error: colar temp<br/>error: tuel tank pres<br/>error: uel avie flow<br/>error: canister vent valve<br/>error: ansister vent valve<br/>error: accelerator pedal<br/>fuel system status<br/>vehicle speed<br/>engine<br/>battery voltage<br/>battery voltage<br/>battery voltage<br/>tuel tank pressure<br/>fuel tank pressure<br/>fuel ank pressure<br/>fuel tevel<br/>engine start temp<br/>est amb air temp<br/>fuel level<br/>engine start temp - amb. temp<br/>time after engine start<br/>or fuel mixture adaptation<br/>amb pressure</td><td><pre>     </pre> <pre>         <pre>             Stable             Stable             Sable             Sable             Sable             Sable             Sable             not set             closed loop             &lt;                  closed loop                  &lt;</pre></pre></td><td>600<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-</td><td>sec           -</td><td>until it<br/>successfully<br/>completes<br/>a test<br/>11 sec<br/>Only one<br/>test per<br/>driving cycle<br/>completed.<br/>The test<br/>will attempt<br/>to run up<br/>to 10 times<br/>until it<br/>successfully</td><td>one<br/>completed<br/>test per<br/>driving</td><td></td><td>cycles each<br/>with: 4 sec<br/>continuous<br/>or 50 sec</td></tr> <tr><td>Stuck Closed Purge valve</td><td>P0497</td><td>vacuum pulidown slope</td><td>Image: Image: /td><td>-1.221</td><td>Pa</td><td>engine start temp - amb. temp<br/>time after engine start<br/>or fuel mixture adaptation<br/>amb pressure<br/>est amb ait temp<br/>error: mass air flow<br/>error: coolant temp<br/>error: intake air temp<br/>error: intake air temp<br/>error: intake air temp<br/>error: intake air temp<br/>error: uptage valve<br/>error: vehicle speed<br/>error: vehicle speed<br/>error: vehicle speed<br/>error: coolant vehicle<br/>error: adaption<br/>error: adaption<br/>est amb air temp<br/>tuel tevel<br/>tuel tevel<br/>tuel tevel<br/>tuel evel<br/>tuel ered<br/>tuel eressure<br/>fror: mass air flow</td><td><ul> <li></li> <li>&gt; stable</li> <li>&gt;</li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>ot set</li> <li>ot set</li> <li>ot set</li> <li>ot set</li> <li></li> <l< td=""><td>600<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-</td><td>sec           -</td><td>until it<br/>successfully<br/>completes<br/>a test<br/>11 sec<br/>Only one<br/>test per<br/>driving cycle<br/>completed.<br/>The test<br/>will attempt<br/>to run up<br/>to 10 times<br/>until it<br/>successfully</td><td>one<br/>completed<br/>test per<br/>driving</td><td></td><td>cycles each<br/>with: 4 sec<br/>continuous<br/>or 50 sec</td></l<></ul></td></tr> <tr><td>Stuck Closed Purge valve</td><td>P0497</td><td>Vacuum pulidown slope</td><td>lank vacuum &gt;</td><td>-1.221</td><td>Pa</td><td>engine start temp - amb. temp<br/>time after engine start<br/>or tuel mixture adaptation<br/>amb pressure<br/>maximum number of attempts<br/>est amb air temp<br/>est amb air temp<br/>error: mass air flow<br/>error: colar temp<br/>error: tuel tank pres<br/>error: uel avie flow<br/>error: canister vent valve<br/>error: ansister vent valve<br/>error: accelerator pedal<br/>fuel system status<br/>vehicle speed<br/>engine<br/>battery voltage<br/>battery voltage<br/>battery voltage<br/>tuel tank pressure<br/>fuel tank pressure<br/>fuel ank pressure<br/>fuel tevel<br/>engine start temp<br/>est amb air temp<br/>fuel level<br/>engine start temp - amb. temp<br/>time after engine start<br/>or fuel mixture adaptation<br/>amb pressure</td><td><pre>     </pre> <pre>         <pre>             Stable             Stable             Stable             Comparison of the stable             not set             set             set</pre></pre></td><td>600<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-</td><td>sec           -</td><td>until it<br/>successfully<br/>completes<br/>a test<br/>11 sec<br/>Only one<br/>test per<br/>driving cycle<br/>completed.<br/>The test<br/>will attempt<br/>to run up<br/>to 10 times<br/>until it<br/>successfully</td><td>one<br/>completed<br/>test per<br/>driving</td><td></td><td>cycles each<br/>with: 4 sec<br/>continuous<br/>or 50 sec</td></tr> <tr><td>Stuck Closed Purge valve</td><td>P0497</td><td>vacuum pulidown slope</td><td>Image: Image: /td><td>-1.221</td><td>Pa</td><td>engine
start temp - amb. temp<br/>time after engine start<br/>or tuel mixture adaptation<br/>amb pressure<br/>maximum number of attempts<br/>est amb air temp<br/>est amb air temp<br/>error: mass air flow<br/>error: colar temp<br/>error: tuel tank pres<br/>error: upt ank pres<br/>error: upt avalve<br/>error: upt avalve<br/>error: cuel evalve<br/>error: evalve<br/>error: evalve<br/>error: evalve<br/>error: evalve<br/>error: ansister vent valve<br/>error: accelerator pedal<br/>fuel system status<br/>vehicle speed<br/>engine<br/>battery voltage<br/>battery voltage<br/>tuel tank pressure<br/>fuel asystem status<br/>vehicle speed<br/>engine<br/>est amb air temp<br/>est amb air temp<br/>fuel level<br/>engine start temp - amb. temp<br/>time atter engine start<br/>or fuel mixture adaptation<br/>amb pressure<br/>error: mass air flow</td><td>Stable Stable Stable  &lt;</td><td>600<br/>68<br/>10<br/>1.5<br/>32,25<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-</td><td>sec           -</td><td>until it<br/>successfully<br/>completes<br/>a test<br/>11 sec<br/>Only one<br/>test per<br/>driving cycle<br/>completed.<br/>The test<br/>will attempt<br/>to run up<br/>to 10 times<br/>until it<br/>successfully</td><td>one<br/>completed<br/>test per<br/>driving</td><td></td><td>cycles each<br/>with: 4 sec<br/>continuous<br/>or 50 sec</td></tr> | until it<br>successfully<br>completes<br>a test<br>test<br>11 sec<br>Only one   | one                                     |                         | cycles each<br>with: 4 sec                            | Stuck Closed Purge valve | P0497 | vacuum pulidown slope | tank vacuum > | -1.221 | Pa | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: coult and temp<br>error: initake air temp<br>error: initake air temp<br>error: utentak pres<br>error: system voltage<br>error: vehicle speed<br>error: vehicle speed<br>error: cacelerator pedal<br>fuel system status<br>vehicle speed<br>engine<br>battery voltage | <<br>><br>stable<br>><br>stable ><br>ort set not set ort set > | 600<br>68<br>10<br>1.5<br>32,25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec | until it<br>successfully<br>completes<br>a test<br>test<br>11 sec<br>Only one<br>test per | one<br>completed |  | cycles each<br>with: 4 sec<br>continuous | Stuck Closed Purge valve | P0497 | vacuum pulidown slope | lank vacuum > | -1.221 | Pa | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: constitute<br>error: constitute<br>error: constitute<br>error: constitute<br>error: system voltage<br>error: purge valve<br>error: system voltage<br>error: purge valve<br>error: canister vent valve<br>error: canister vent valve<br>error: canister vent valve<br>error: canister vent valve<br>error: scelerator pedal<br>fuel system status<br>vehicle speed<br>engine | <<br>><br>stable<br>><br><<br><<br><<br>not set<br>not set<br>closed loop<br><<br>closed loop<br>diling | 600<br>68<br>10<br>1.5<br>32.25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec<br>kPa | until it<br>successfully<br>completes<br>a test<br>test<br>11 sec<br>Only one | one |  | cycles each<br>with: 4 sec | Stuck Closed Purge valve | P0497 | vacuum pulidown slope | tank vacuum > | -1.221 | Pa | engine start temp - amb. temp<br>time after engine start<br>or tuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: coultant temp<br>error: tueltant temp<br>error: tueltank pres<br>error: usite air temp<br>error: tueltank pres<br>error: usite valve<br>error: usite valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>fluel system status<br>vehicle speed<br>engine<br>battery voltage<br>battery voltage<br>tuel tank pressure<br>fluel system | Stable Stable Stable  < | 600<br>68<br>10<br>1.5<br>32.25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           - | until it<br>successfully<br>completes<br>a test<br>test<br>11 sec<br>Unly one<br>test per<br>driving cycle<br>completed. | one<br>completed<br>test per |  | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec | Stuck Closed Purge valve | P0497 | vacuum pulidown slope | lank vacuum > | -1.221 | Pa | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: coolant temp<br>error: tinake air temp<br>error: tuel tank pres<br>error: tuel tank pres<br>error: use air temp<br>error: use avait temp<br>error: use avait temp<br>error: canister vent valve<br>error: use avait temp<br>error: bester<br>use avait temp<br>tuel tank pressure<br>tuel tank pressure<br>tuel tank pressure<br>tuel tank pressure | <ul> <li></li> <li>&gt; stable</li> <li>&gt;</li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>distance</li> <li>closed loop</li> <li></li> /ul> | 600<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·
          · | until it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed. | one<br>completed<br>test per<br>driving |  | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec | Stuck Closed Purge valve | P0497 | vacuum pulidown slope | lank vacuum > | -1.221 | Pa | engine start temp - amb. temp<br>time after engine start<br>or tuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: coultant temp<br>error: tueltant temp<br>error: tueltank pres<br>error: usite air temp<br>error: tueltank pres<br>error: usite valve<br>error: usite valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>fluel system status<br>vehicle speed<br>engine<br>battery voltage<br>battery voltage<br>tuel tank pressure<br>fluel system | Stable Stable Stable  < | 600<br>68<br>10<br>1.5<br>32.25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           - | until it<br>successfully<br>completes<br>a test<br>test<br>Unit sec<br>Unit | one<br>completed<br>test per<br>driving |  | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec | Stuck Closed Purge valve | P0497 | vacuum pulidown slope | lank vacuum > | -1.221 | Pa | engine start temp - amb. temp<br>time after engine start<br>or tuel mixture adaptation<br>amb pressure<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: coalant temp<br>error: intake air temp<br>error: tuel tank pres<br>error: ushicle speed<br>error: vehicle speed<br>error: vehicle speed<br>error: casciert vent valve<br>error: vehicle speed<br>error: casciert vent valve<br>error: casciert vent valve<br>error: voltage<br>battery voltage<br>battery voltage<br>tuel tank pressure<br>tuel tank pressure<br>tuel tank pressure<br>tatio: (MAP Model / Baro )<br>est amb air temp<br>fuel evel | <pre>     </pre> <pre>         <pre>             Stable             S             Stable             C             Satable             Constant Set             not set             set             closed loop             closed loop</pre></pre> | 600<br>68<br>10<br>1.5<br>32.25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           ·      ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·      · | until it<br>successfully<br>completes<br>a test<br>test<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to 10 times | one<br>completed<br>test per<br>driving |  | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec | Stuck Closed Purge valve | P0497 | vacuum pulidown słope | tank vacuum > | -1.221 | Pa | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: nutake air temp<br>error: ruitake seet<br>error: engine seatwe<br>error: anister vent valve<br>error: anister vent valve<br>error: accelerator pedal<br>fuel system status<br>vehicle speed<br>engine<br>battery voltage<br>fuel tank pressure<br>fuel tank pressure<br>fuel tank pressure<br>fate: (MAP Model / Baro )<br>est amb air temp<br>fuel level<br>fuel level | <ul> <li></li> <li>&gt; stable</li> <li>&gt; </li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>diding</li> <li></li> /ul> | 600<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           -      -           -           -           -           -           -           -           -           -           -           -           -           -           - <td>until it<br/>successfully<br/>completes<br/>a test<br/>11 sec<br/>Only one<br/>test per<br/>driving cycle<br/>completed.<br/>The test<br/>will attempt<br/>to run up<br/>to 10 times<br/>until it it</td> <td>one<br/>completed<br/>test per<br/>driving</td> <td></td> <td>cycles each<br/>with: 4 sec<br/>continuous<br/>or 50 sec</td> | until it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to run up<br>to 10 times<br>until it it | one<br>completed<br>test per<br>driving |  | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec | Stuck Closed Purge valve | P0497 | vacuum pulidown slope | lank vacuum > | -1.221 | Pa | engine start temp - amb. temp<br>time after engine start<br>or tuel mixture adaptation<br>amb pressure<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: colar temp<br>error: intake air temp<br>error: tuel tank pres<br>error: ushica est temp<br>error: vehicle speed<br>error: vehicle speed<br>error: vehicle speed<br>error: cascelerator pedal<br>tel system status<br>vehicle speed<br>engine<br>battery voltage<br>battery voltage<br>battery voltage<br>battery voltage<br>est amb air temp<br>est amb air temp<br>tuel temp<br>est amb air temp<br>tuel level<br>engine status | <ul> <li></li> <li>&gt; stable</li> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>set</li> <li></li> /ul> | 600<br>68<br>10<br>1.5<br>32,25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           -      -           -           -           -           -           -           -           -           -           -           -           -           -   - | until it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to 10 times<br>until it<br>successfully | one<br>completed<br>test per<br>driving |  | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec | Stuck Closed Purge valve | P0497 | vacuum pulldown slope | lank vacuum > | -1.221 | Pa | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: nutake air temp<br>error: ruitake seet<br>error: engine seatwe<br>error: anister vent valve<br>error: anister vent valve<br>error: accelerator pedal<br>fuel system status<br>vehicle speed<br>engine<br>battery voltage<br>fuel tank pressure<br>fuel tank pressure<br>fuel tank pressure<br>fate: (MAP Model / Baro )<br>est amb air temp<br>fuel level<br>fuel level | <ul> <li></li> <li>&gt; stable</li> <li>&gt; </li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>diding</li> <li></li> /ul> | 600<br>68<br>10<br>1.5<br>32,25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           -      -      -      -      -      -      -      -      -      -      -      -      -      -      -      -      -      -      - | until
it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to run up<br>to 10 times<br>until it it | one<br>completed<br>test per<br>driving |  | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec | Stuck Closed Purge valve | P0497 | vacuum pulidown slope | Image: | -1.221 | Pa | engine start temp - amb. temp<br>time after engine start<br>or tuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: colar temp<br>error: tuel tank pres<br>error: uel avie flow<br>error: canister vent valve<br>error: ansister vent valve<br>error: accelerator pedal<br>fuel system status<br>vehicle speed<br>engine<br>battery voltage<br>battery voltage<br>battery voltage<br>tuel tank pressure<br>fuel tank pressure<br>fuel ank pressure<br>fuel tevel<br>engine start temp<br>est amb air temp<br>fuel level<br>engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure | <pre>     </pre> <pre>         <pre>             Stable             Stable             Sable             Sable             Sable             Sable             Sable             not set             closed loop             &lt;                  closed loop                  &lt;</pre></pre> | 600<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           - | until it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to run up<br>to 10 times<br>until it<br>successfully | one<br>completed<br>test per<br>driving |  | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec | Stuck Closed Purge valve | P0497 | vacuum pulidown slope | Image: | -1.221 | Pa | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>est amb ait temp<br>error: mass air flow<br>error: coolant temp<br>error: intake air temp<br>error: intake air temp<br>error: intake air temp<br>error: intake air temp<br>error: uptage valve<br>error: vehicle speed<br>error: vehicle speed<br>error: vehicle speed<br>error: coolant vehicle<br>error: adaption<br>error: adaption<br>est amb air temp<br>tuel tevel<br>tuel tevel<br>tuel tevel<br>tuel evel<br>tuel ered<br>tuel eressure<br>fror: mass air flow | <ul> <li></li> <li>&gt; stable</li> <li>&gt;</li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>ot set</li> <li>ot set</li> <li>ot set</li> <li>ot set</li> <li></li> <l< td=""><td>600<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-</td><td>sec           -</td><td>until it<br/>successfully<br/>completes<br/>a test<br/>11 sec<br/>Only one<br/>test per<br/>driving cycle<br/>completed.<br/>The test<br/>will attempt<br/>to run up<br/>to 10 times<br/>until it<br/>successfully</td><td>one<br/>completed<br/>test per<br/>driving</td><td></td><td>cycles each<br/>with: 4 sec<br/>continuous<br/>or 50 sec</td></l<></ul> | 600<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           - | until it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to run up<br>to 10 times<br>until it<br>successfully | one<br>completed<br>test per<br>driving |  | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec | Stuck Closed Purge valve | P0497 | Vacuum pulidown slope | lank vacuum > | -1.221 | Pa | engine start temp - amb. temp<br>time after engine start<br>or tuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: colar temp<br>error: tuel tank pres<br>error: uel avie flow<br>error: canister vent valve<br>error: ansister vent valve<br>error: accelerator pedal<br>fuel system status<br>vehicle speed<br>engine<br>battery voltage<br>battery voltage<br>battery voltage<br>tuel tank pressure<br>fuel tank pressure<br>fuel ank pressure<br>fuel tevel<br>engine start
temp<br>est amb air temp<br>fuel level<br>engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure | <pre>     </pre> <pre>         <pre>             Stable             Stable             Stable             Comparison of the stable             not set             set             set</pre></pre> | 600<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           - | until it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to run up<br>to 10 times<br>until it<br>successfully | one<br>completed<br>test per<br>driving |  | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec | Stuck Closed Purge valve | P0497 | vacuum pulidown slope | Image: | -1.221 | Pa | engine start temp - amb. temp<br>time after engine start<br>or tuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: colar temp<br>error: tuel tank pres<br>error: upt ank pres<br>error: upt avalve<br>error: upt avalve<br>error: cuel evalve<br>error: evalve<br>error: evalve<br>error: evalve<br>error: evalve<br>error: ansister vent valve<br>error: accelerator pedal<br>fuel system status<br>vehicle speed<br>engine<br>battery voltage<br>battery voltage<br>tuel tank pressure<br>fuel asystem status<br>vehicle speed<br>engine<br>est amb air temp<br>est amb air temp<br>fuel level<br>engine start temp - amb. temp<br>time atter engine start<br>or fuel mixture adaptation<br>amb pressure<br>error: mass air flow | Stable Stable Stable  < | 600<br>68<br>10<br>1.5<br>32,25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           - | until it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to run up<br>to 10 times<br>until it<br>successfully | one<br>completed<br>test per<br>driving |  | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec |
| until it<br>successfully<br>completes<br>a test<br>test<br>11 sec<br>Only one | one            |   | cycles each<br>with: 4 sec  |                    |                   |   |   |  |   
   
   
   
   
   |   |   |                         |   |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purge valve  | P0497          | vacuum pulidown slope                                       | tank vacuum >   | -1.221             | Pa                | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: coult and temp<br>error: initake air temp<br>error: initake air temp<br>error: utentak pres<br>error: system voltage<br>error: vehicle speed<br>error: vehicle speed<br>error: cacelerator pedal<br>fuel system status<br>vehicle speed<br>engine<br>battery voltage   | <<br>><br>stable<br>><br>stable ><br>ort set not set ort set >  | 600<br>68<br>10<br>1.5<br>32,25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec   
   
   
   
   
   | until it<br>successfully<br>completes<br>a test<br>test<br>11 sec<br>Only one<br>test per   | one<br>completed                        |                         | cycles each<br>with: 4 sec<br>continuous              |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purge valve  | P0497          | vacuum pulidown slope                                       | lank vacuum >   | -1.221             | Pa                | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: constitute<br>error: constitute<br>error: constitute<br>error: constitute<br>error: system voltage<br>error: purge valve<br>error: system voltage<br>error: purge valve<br>error: canister vent valve<br>error: canister vent valve<br>error: canister vent valve<br>error: canister vent valve<br>error: scelerator pedal<br>fuel system status<br>vehicle speed<br>engine  | <<br>><br>stable<br>><br><<br><<br><<br>not set<br>not set<br>closed loop<br><<br>closed loop<br>diling   | 600<br>68<br>10<br>1.5<br>32.25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec<br>kPa  
   
   
   
   
   | until it<br>successfully<br>completes<br>a test<br>test<br>11 sec<br>Only one   | one                                     |                         | cycles each<br>with: 4 sec                            |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purge valve  | P0497          | vacuum pulidown slope                                       | tank vacuum >   | -1.221             | Pa                | engine start temp - amb. temp<br>time after engine start<br>or tuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: coultant temp<br>error: tueltant temp<br>error: tueltank pres<br>error: usite air temp<br>error: tueltank pres<br>error: usite valve<br>error: usite valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>fluel system status<br>vehicle speed<br>engine<br>battery voltage<br>battery voltage<br>tuel tank pressure<br>fluel system   | Stable Stable Stable  <   | 600<br>68<br>10<br>1.5<br>32.25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           -   
   
   
   
   
   | until it<br>successfully<br>completes<br>a test<br>test<br>11 sec<br>Unly one<br>test per<br>driving cycle<br>completed.  | one<br>completed<br>test per            |                         | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purge valve  | P0497          | vacuum pulidown slope                                       | lank vacuum >   | -1.221             | Pa                | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: coolant temp<br>error: tinake air temp<br>error: tuel tank pres<br>error: tuel tank pres<br>error: use air temp<br>error: use avait temp<br>error: use avait temp<br>error: canister vent valve<br>error: use avait temp<br>error: bester<br>use avait temp<br>tuel tank pressure<br>tuel tank pressure<br>tuel tank pressure<br>tuel tank pressure   | <ul> <li></li> <li>&gt; stable</li> <li>&gt;</li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>distance</li> <li>closed loop</li> <li></li> /ul>  | 600<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-                             | sec           ·  
   
   
   
   
  | until it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed.  | one<br>completed<br>test per<br>driving |                         | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   
  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |  |  |   |   |   |  |   |                          |       |                       |  
   |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |   
  |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purge valve  | P0497          | vacuum pulidown slope                                       | lank vacuum >   | -1.221             | Pa                | engine start temp - amb. temp<br>time after engine start<br>or tuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: coultant temp<br>error: tueltant temp<br>error: tueltank pres<br>error: usite air temp<br>error: tueltank pres<br>error: usite valve<br>error: usite valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>error: cuelte valve<br>fluel system status<br>vehicle speed<br>engine<br>battery voltage<br>battery voltage<br>tuel tank pressure<br>fluel system   | Stable Stable Stable  <   | 600<br>68<br>10<br>1.5<br>32.25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           -   
   
   
   
   
   | until it<br>successfully<br>completes<br>a test<br>test<br>Unit sec<br>Unit | one<br>completed<br>test per<br>driving |                         | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   |  |  |   
  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |  |  |   |   |   |  |   |                          |       |                       |   
  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  |  |   |  
   |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purge valve  | P0497          | vacuum pulidown slope                                       | lank vacuum >   | -1.221             | Pa                | engine start temp - amb. temp<br>time after engine start<br>or tuel mixture adaptation<br>amb pressure<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: coalant temp<br>error: intake air temp<br>error: tuel tank pres<br>error: ushicle speed<br>error: vehicle speed<br>error: vehicle speed<br>error: casciert vent valve<br>error: vehicle speed<br>error: casciert vent valve<br>error: casciert vent valve<br>error: voltage<br>battery voltage<br>battery voltage<br>tuel tank pressure<br>tuel tank pressure<br>tuel tank pressure<br>tatio: (MAP Model / Baro )<br>est amb air temp<br>fuel evel   | <pre>     </pre> <pre>         <pre>             Stable             S             Stable             C             Satable             Constant Set             not set             set             closed loop             closed loop</pre></pre>   | 600<br>68<br>10<br>1.5<br>32.25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           ·      ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·           ·      ·   
   
   
   
   
   | until it<br>successfully<br>completes<br>a test<br>test<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to 10 times   | one<br>completed<br>test per<br>driving |                         | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   |   
          |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |  
   |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |  |  |   |   |   |  |   |                          |       |                       |   
  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  |  |          
  |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purge valve  | P0497          | vacuum pulidown słope                                       | tank vacuum >   | -1.221             | Pa                | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: nutake air temp<br>error: ruitake seet<br>error: engine seatwe<br>error: anister vent valve<br>error: anister vent valve<br>error: accelerator pedal<br>fuel system status<br>vehicle speed<br>engine<br>battery voltage<br>fuel tank pressure<br>fuel tank pressure<br>fuel tank pressure<br>fate: (MAP Model / Baro )<br>est amb air temp<br>fuel level<br>fuel level  | <ul> <li></li> <li>&gt; stable</li> <li>&gt; </li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>diding</li> <li></li> /ul>  | 600<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-                             | sec           -      -           -           -           -           -           -           -           -           -           -           -           -           -           - <td>until it<br/>successfully<br/>completes<br/>a test<br/>11 sec<br/>Only one<br/>test per<br/>driving cycle<br/>completed.<br/>The test<br/>will attempt<br/>to run up<br/>to 10 times<br/>until it it</td> <td>one<br/>completed<br/>test per<br/>driving</td> <td></td> <td>cycles each<br/>with: 4 sec<br/>continuous<br/>or 50 sec</td>  
   
   
   
   
   | until it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to run up<br>to 10 times<br>until it it   | one<br>completed<br>test per<br>driving |                         | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   |   
  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |  
   |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |  |  |   |   |   |  |   |                          |       |                       |       
  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purge valve  | P0497          | vacuum pulidown slope                                       | lank vacuum >   | -1.221             | Pa                | engine start temp - amb. temp<br>time after engine start<br>or tuel mixture adaptation<br>amb pressure<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: colar temp<br>error: intake air temp<br>error: tuel tank pres<br>error: ushica est temp<br>error: vehicle speed<br>error: vehicle speed<br>error: vehicle speed<br>error: cascelerator pedal<br>tel system status<br>vehicle speed<br>engine<br>battery voltage<br>battery voltage<br>battery voltage<br>battery voltage<br>est amb air temp<br>est amb air temp<br>tuel temp<br>est amb air temp<br>tuel level<br>engine status   | <ul> <li></li> <li>&gt; stable</li> <li></li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>set</li> <li></li> /ul>   | 600<br>68<br>10<br>1.5<br>32,25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           -      -           -           -           -           -           -           -           -           -           -           -           -           -   -   
   
   
   
   
  | until it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to 10 times<br>until it<br>successfully   | one<br>completed<br>test per<br>driving |                         | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                     
 |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |  |  |   |   |            
                            |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |   
  |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purge valve  | P0497          | vacuum pulldown slope                                       | lank vacuum >   | -1.221             | Pa                | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: nutake air temp<br>error: ruitake seet<br>error: engine seatwe<br>error: anister vent valve<br>error: anister vent valve<br>error: accelerator pedal<br>fuel system status<br>vehicle speed<br>engine<br>battery voltage<br>fuel tank pressure<br>fuel tank pressure<br>fuel tank pressure<br>fate: (MAP Model / Baro )<br>est amb air temp<br>fuel level<br>fuel level  | <ul> <li></li> <li>&gt; stable</li> <li>&gt; </li> <li></li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>diding</li> <li></li> /ul>  | 600<br>68<br>10<br>1.5<br>32,25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           -      -      -      -      -      -      -      -      -      -      -      -      -      -      -      -      -      -      -   
   
   
   
   
   | until it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to run up<br>to 10 times<br>until it it   | one<br>completed<br>test per<br>driving |                         | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   |   
  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |  
   |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |  |  |   |   |   |  |   |                          |       |                       |       
  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purge valve  | P0497          | vacuum pulidown slope                                       | Image:        | -1.221             | Pa                | engine start temp - amb. temp<br>time after engine start<br>or tuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: colar temp<br>error: tuel tank pres<br>error: uel avie flow<br>error: canister vent valve<br>error: ansister vent valve<br>error: accelerator pedal<br>fuel system status<br>vehicle speed<br>engine<br>battery voltage<br>battery voltage<br>battery voltage<br>tuel tank pressure<br>fuel tank pressure<br>fuel ank pressure<br>fuel tevel<br>engine start temp<br>est amb air temp<br>fuel level<br>engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure  | <pre>     </pre> <pre>         <pre>             Stable             Stable             Sable             Sable             Sable             Sable             Sable             not set             closed loop             &lt;                  closed loop                  &lt;</pre></pre>  | 600<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-                             | sec           -   
   
   
   
   
   | until it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to run up<br>to 10 times<br>until it<br>successfully  | one<br>completed<br>test per<br>driving |                         | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   |               
  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  
  |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |  |
   |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purge valve  | P0497          | vacuum pulidown slope                                       | Image: | -1.221             | Pa                | engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure<br>est amb ait temp<br>error: mass air flow<br>error: coolant temp<br>error: intake air temp<br>error: intake air temp<br>error: intake air temp<br>error: intake air temp<br>error: uptage valve<br>error: vehicle speed<br>error: vehicle speed<br>error: vehicle speed<br>error: coolant vehicle<br>error: adaption<br>error: adaption<br>est amb air temp<br>tuel tevel<br>tuel tevel<br>tuel tevel<br>tuel evel<br>tuel ered<br>tuel eressure<br>fror: mass air flow | <ul> <li></li> <li>&gt; stable</li> <li>&gt;</li> <li></li> <li></li> <li></li> <li></li> <li>not set</li> <li>ot set</li> <li>ot set</li> <li>ot set</li> <li>ot set</li> <li></li> <l< td=""><td>600<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-<br/>-</td><td>sec           -</td><td>until it<br/>successfully<br/>completes<br/>a test<br/>11 sec<br/>Only one<br/>test per<br/>driving cycle<br/>completed.<br/>The test<br/>will attempt<br/>to run up<br/>to 10 times<br/>until it<br/>successfully</td><td>one<br/>completed<br/>test per<br/>driving</td><td></td><td>cycles each<br/>with: 4 sec<br/>continuous<br/>or 50 sec</td></l<></ul>  | 600<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-                             | sec           -   
   
   
   
   
   | until it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to run up<br>to 10 times<br>until it<br>successfully  | one<br>completed<br>test per<br>driving |                         | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   |   
  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |  
   |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |  |  |   |   |   |  |   |                          |       |                       |   
  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  |   
                          |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purge valve  | P0497          | Vacuum pulidown slope                                       | lank vacuum >   | -1.221             | Pa                | engine start temp - amb. temp<br>time after engine start<br>or tuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: colar temp<br>error: tuel tank pres<br>error: uel avie flow<br>error: canister vent valve<br>error: ansister vent valve<br>error: accelerator pedal<br>fuel system status<br>vehicle speed<br>engine<br>battery voltage<br>battery voltage<br>battery voltage<br>tuel tank pressure<br>fuel tank pressure<br>fuel ank pressure<br>fuel tevel<br>engine start temp<br>est amb air temp<br>fuel level<br>engine start temp - amb. temp<br>time after engine start<br>or fuel mixture adaptation<br>amb pressure  | <pre>     </pre> <pre>         <pre>             Stable             Stable             Stable             Comparison of the stable             not set             set             set</pre></pre>  | 600<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-                             | sec           -   
   
   
   
   
   | until it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to run up<br>to 10 times<br>until it<br>successfully  | one<br>completed<br>test per<br>driving |                         | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   |   
  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  
  |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |  |  
                 |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |
| Stuck Closed Purge valve  | P0497          | vacuum pulidown slope                                       | Image: | -1.221             | Pa                | engine start temp - amb. temp<br>time after engine start<br>or tuel mixture adaptation<br>amb pressure<br>maximum number of attempts<br>est amb air temp<br>est amb air temp<br>error: mass air flow<br>error: colar temp<br>error: tuel tank pres<br>error: upt ank pres<br>error: upt avalve<br>error: upt avalve<br>error: cuel evalve<br>error: evalve<br>error: evalve<br>error: evalve<br>error: evalve<br>error: ansister vent valve<br>error: accelerator pedal<br>fuel system status<br>vehicle speed<br>engine<br>battery voltage<br>battery voltage<br>tuel tank pressure<br>fuel asystem status<br>vehicle speed<br>engine<br>est amb air temp<br>est amb air temp<br>fuel level<br>engine start temp - amb. temp<br>time atter engine start<br>or fuel mixture adaptation<br>amb pressure<br>error: mass air flow  | Stable Stable Stable  <   | 600<br>68<br>10<br>1.5<br>32,25<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- | sec           -   
   
   
   
   
   | until it<br>successfully<br>completes<br>a test<br>11 sec<br>Only one<br>test per<br>driving cycle<br>completed.<br>The test<br>will attempt<br>to run up<br>to 10 times<br>until it<br>successfully  | one<br>completed<br>test per<br>driving |                         | cycles each<br>with: 4 sec<br>continuous<br>or 50 sec |                          |       |                       |               |        |    |   |  |  |     |   |                  |  |  |                          |       |                       |               |        |    |  |   |  |            |   |     |  |                            |                          |       |                       |               |        |    |   |   |  |   |  |                              |  |   |                          |       |                       |               |        |    |   
   |  |  |   |  |   |  |   |                          |       |                       |               |        |    |   |   |  |   |   |   |  |   |                          |       |                       |               |        |    |   |   
   |  |   |   |   |  |   |                          |       |                       |               |        |    |  |  |  |  |   |   |  |   |                          |       |                       |               |        |    |   |   |  |  |   |   |  |   |                          |       |                       |               |        |    |  |   
  |  |   |   |   |  |   |                          |       |                       |  |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |   |  
   |  |   |  |   |  |   |                          |       |                       |               |        |    |  |  |  |   |  |   |  |   |                          |       |                       |   |        |    |  |   |  |   |  |   |  |   |

	Fault	Monitor Strategy	Primary Malfunction	Threshold	Specifie	Secondary	Enable	Enable	Units	Time	Frequency	Criteria	MIL
Component/ System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value	Onits	Required	of Checks	for Code	Illumination
						error: vehicle speed	not set	-	-				
						error: canister vent valve	not set		-				
						error: purge valve flow error: accelerator pedal	not set						
Idle Speed System (disabled during cold start)	P0506	functional check	desired rpm - actual rpm >	100	rpm	load (for underspeed only)	<	99.9 99.9	%	10 sec	0.1 sec	4 sec	two driving
(disabled during cold start)	F0300			100	ipin.	coolant temp.	>	-11.3	°C	10 Sec	continuous	continuous	cycles each
	P0507		desired rpm - actual rpm <	-200	rpm	intake air temp	>	-11.3	°C			or 50 sec	with: 4 sec
			fuel cut off due to overspeed >	3	count	vehicle altitude factor ( sea level = 1.0 )	at idle >	0.594	factor			cumulative	continuous or 50 sec
			during this idle			time after engine start	>	3.84	sec				
						evap purge (high HC conc.) cold start idle speed control	FALSE						cumulative
						intrusive evap test	not active						
						intrusive secondary air test (=not applicab	not active						
					·	error: throttle position error: vehicle speed	not set						
						error: coolant temperature	not set						
						error: intake air temperature	not set						
		· · · · · · · · · · · · · · · · · · ·			·	error: evap system error: evap purge valve	not set						
Idle Speed System	Docoa	for the state of	late day as a strict man			For all and a for a formation of the second se		-10 +40	°c	7	0.4		ture debile e
(enabled during cold start)	PUSUA	functional check	desired rpm - actual rpm > during catalyst heating on	100	rpm	Engine coolant start temp. vehicle	> at idle	-10 +40		7 sec	0.1 sec continuous	4 sec continuous	two driving cycles each
			desired rpm - actual rpm <	-200	rpm	altitude factor ( sea level = 1.0 )	>	0.594	factor			or 50 sec	with: 4 sec
			during catalyst heating on			Engine coolant start temp. catalyst heating	TRUE	80	°C			cumulative	or 50 sec
					·	evap purge (high HC conc.)	FALSE	-					cumulative
						idle speed control catalyst heating	TRUE	-	-				
						intrusive evap test error: throttle position	not set		-				
						error: vehicle speed	not set		-				
						error: coolant temperature	not set	-	-				
						error: intake air temperature error: evap system	not set						
						error: evap purge valve	not set	-	-				
									ļ		1		
System Voltage	D0562	range check low	powertrain supply relay feedback input voltage	9.99	v	time after engine start	>	180	sec	2 sec	0.1 sec	4 sec	no
	F 0302	Tange check low	Voltage	5.55	v	time alter engine start	-	100	360	2 360	continuous	continuous	110
	P0563	range check high	voltage	18.1	V	time after engine start	>	180	sec			or 50 sec	
						vehicle speed	>	3.1	mph			cumulative	
ECM monitoring					1								
	D0601	rationality	urena DOM sheekeum during initialization		times	abaalaum aslaulation at nouver	TDUE	·····		20.000	0.01.000	4 000	oo do oot
	P0601	rationality	wrong ROM checksum during initialization reaches ROMRSTA_UM times.	5	times	checksum calculation at power	TRUE	-	-	30 sec	0.01 sec	4 sec	code set
	P0601	rationality	wrong ROM checksum during initialization reaches ROMRSTA_UM times.	5	times	down in the last driving cycle	TRUE	-	-	30 sec	0.01 sec at key off	4 sec continuous	code set then 5 sec
	P0601		reaches ROMRSTA_UM times.		times	down in the last driving cycle completely finished	TRUE	-	-		at key off	continuous	then 5 sec
	P0601	rationality rationality	reaches ROMRSTA_UM times.	-	times	down in the last driving cycle completely finished partial checksum on critical	TRUE		-	30 sec 30 sec	at key off 0.01 sec	continuous 4 sec	then 5 sec
		rationality	reaches ROMRSTA_UM times.		times	down in the last driving cycle completely finished	TRUE		-		at key off 0.01 sec at key on	continuous	then 5 sec
	P0602	rationality rationality - programming incomplete	reaches ROMRSTA_UM times. wrong cyclic ROM checksum of critical regions service ECU bit set in calibration		times	down in the last driving cycle completely finished partial checksum on critical variables				30 sec	at key off 0.01 sec at key on 0.01 sec at key on	continuous 4 sec continuous	then 5 sec code set then 5 sec
		rationality rationality - programming incomplete	reaches ROMRSTA_UM times. wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test		times	down in the last driving cycle completely finished partial checksum on critical				30 sec	0.01 sec at key on 0.01 sec	continuous 4 sec continuous 4 sec	then 5 sec code set then 5 sec code set
	P0602	rationality rationality - programming incomplete	reaches ROMRSTA_UM times. wrong cyclic ROM checksum of critical regions service ECU bit set in calibration		- 	down in the last driving cycle completely finished partial checksum on critical variables - power down calculation	- completly			30 sec 1 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec	continuous 4 sec continuous 4 sec continuous 4 sec	then 5 sec code set then 5 sec code set then 5 sec code set
	P0602	rationality rationality - programming incomplete	reaches ROMRSTA_UM times. wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test		- 	down in the last driving cycle completely finished partial checksum on critical variables				30 sec 1 sec	at key off 0.01 sec at key on 0.01 sec at key on	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec	code set then 5 sec code set then 5 sec
	P0602	rationality rationality - programming incomplete	reaches ROMRSTA_UM times. wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test		- 	down in the last driving cycle completely finished partial checksum on critical variables - power down calculation	- completly			30 sec 1 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec	continuous 4 sec continuous 4 sec continuous 4 sec continuous	then 5 sec code set then 5 sec code set then 5 sec code set
	P0602 P0603	rationality rationality - programming incomplete ETC monitoring controller reset	reaches ROMRSTA_UM times. wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times		- 	down in the last driving cycle completely finished partial checksum on critical variables - power down calculation in the last driving cycle	completly finished			30 sec 1 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative	then 5 sec code set code set then 5 sec code set then 5 sec then 5 sec
	P0602 P0603	rationality rationality - programming incomplete ETC monitoring controller reset	reaches ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times  RAM writeability check read and write test		- 	down in the last driving cycle completely finished partial checksum on critical variables - power down calculation	- completly			30 sec 1 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec	then 5 sec code set then 5 sec code set then 5 sec code set
	P0602 P0603 P0604	rationality rationality - programming incomplete ETC monitoring controller reset functional check cyclic RAM-check	reaches ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times  RAM writeability check read and write test writeability check of RAM	- service ECU bit s 3	- 	down in the last driving cycle completely finished partial checksum on critical variables - power down calculation in the last driving cycle power down calculation in the last driving cycle	completly finished completly finished			30 sec 1 sec 5 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous	then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec
	P0602 P0603 P0604	rationality rationality - programming incomplete ETC monitoring controller reset functional check cyclic RAM-check Electronic Throttle Control (ETC) checks	reaches ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times  RAM writeability check read and write test		- 	down in the last driving cycle completely finished partial checksum on critical variables power down calculation in the last driving cycle power down calculation in the last driving cycle power down calculation	completly finished completly finished completly			30 sec 1 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous 4 sec	then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set
	P0602 P0603 P0604	rationality rationality - programming incomplete ETC monitoring controller reset functional check cyclic RAM-check	reaches ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times  RAM writeability check read and write test writeability check of RAM	- service ECU bit s 3	- 	down in the last driving cycle completely finished partial checksum on critical variables - power down calculation in the last driving cycle power down calculation in the last driving cycle	completly finished completly finished			30 sec 1 sec 5 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous	then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec
	P0602 P0603 P0604	rationality	reaches ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times  RAM writeability check read and write test writeability check of RAM SW internal	- service ECU bit s 3	- 	down in the last driving cycle completely finished partial checksum on critical variables power down calculation in the last driving cycle power down calculation in the last driving cycle power down calculation	completly finished completly finished completly			30 sec 1 sec 5 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec	continuous 4 sec continuous 4 sec continuous 4 sec continuous cumulative 4 sec continuous 4 sec continuous	then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set
	P0602 P0603 P0604	rationality rationality - programming incomplete ETC monitoring controller reset functional check cyclic RAM-check Electronic Throttle Control (ETC) checks ETC monitoring torque comparison ETC monitoring engine speed signal ETC monitoring volumetric efficiency signal ETC monitoring volumetric efficiency signal ETC monitoring volumetric efficiency signal	reaches ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times  RAM writeability check read and write test writeability check of RAM SW internal	- service ECU bit s 3	- 	down in the last driving cycle completely finished partial checksum on critical variables power down calculation in the last driving cycle power down calculation in the last driving cycle power down calculation	completly finished completly finished completly			30 sec 1 sec 5 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous 4 sec continuous or 50 sec	then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set
	P0602 P0603 P0604	rationality rationality - programming incomplete ETC monitoring controller reset functional check cyclic RAM-check Electronic Throttle Control (ETC) checks ETC monitoring torque comparison ETC monitoring engine speed signal ETC monitoring engine speed signal ETC monitoring volumetric efficiency signal ETC monitoring MC corry group B, A/D converter supply w	reaches ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times  RAM writeability check read and write test writeability check of RAM SW internal ion crosscheck	- service ECU bit s 3	- 	down in the last driving cycle completely finished partial checksum on critical variables power down calculation in the last driving cycle power down calculation in the last driving cycle power down calculation	completly finished completly finished completly			30 sec 1 sec 5 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous 4 sec continuous or 50 sec	then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set
	P0602 P0603 P0604	rationality rationality rationality rationality FIC monitoring controller reset  functional check cyclic RAM-check Electronic Throttle Control (ETC) checks ETC monitoring engine speed signal ETC monitoring trotle ceroscheck Control FIC spark advance, A/D corv. grp. A, react ETC monitoring Moulte cell signal ETC monitoring Moulte cell signal ETC monitoring Moulte cell signal ETC monitoring redundant pedal signal ETC monitoring redundant pedal signal	reaches ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times  RAM writeability check read and write test writeability check of RAM SW internal ion crosscheck oltage crosscheck	- service ECU bit s	- 	down in the last driving cycle completely finished partial checksum on critical variables power down calculation in the last driving cycle power down calculation in the last driving cycle power down calculation	completly finished completly finished completly			30 sec 1 sec 5 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous 4 sec continuous or 50 sec	then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set
	P0602 P0603 P0604	rationality rationality - programming incomplete ETC monitoring controller reset functional check cyclic RAM-check Electronic Throttle Control (ETC) checks ETC monitoring torque comparison ETC monitoring torque comparison ETC monitoring volumetric efficiency signal ETC monitoring woller efficiency signal ETC monitoring throttle crosscheck ETC monitoring throttle crosscheck ETC monitoring throttle crosscheck ETC monitoring throttle crosscheck ETC monitoring throttle Cortor (ETC) checks	reaches_ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times  RAM writeability check read and write test writeability check of RAM SW internal ion crosscheck	- service ECU bit s 3	- 	down in the last driving cycle completely finished partial checksum on critical variables power down calculation in the last driving cycle power down calculation in the last driving cycle power down calculation	completly finished completly finished completly			30 sec 1 sec 5 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous 4 sec continuous or 50 sec	then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set
	P0602 P0603 P0604	rationality rationality rationality rationality FTC monitoring controller reset  functional check cyclic RAM-check EffC monitoring troute comparison ETC monitoring engine speed signal ETC monitoring troute certific efficiency signal ETC monitoring troute resolution effic mon. vol. Eff., spark advance, A/D corv. grp. A, react ETC monitoring Mark Corv group B, A/D converter supply vie ETC monitoring redundant pedal signal	reaches ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times  RAM writeability check read and write test writeability check of RAM SW internal ion crosscheck oltage crosscheck	- service ECU bit s	- 	down in the last driving cycle completely finished partial checksum on critical variables power down calculation in the last driving cycle power down calculation in the last driving cycle power down calculation	completly finished completly finished completly			30 sec 1 sec 5 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous 4 sec continuous or 50 sec	then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set
	P0602 P0603 P0603 P0604 P0606	rationality rationality - programming incomplete ETC monitoring controller reset functional check cyclic RAM-check Electronic Throttle Control (ETC) checks ETC monitoring torque comparison ETC monitoring engine speed signal ETC monitoring engine speed signal ETC monitoring volumetric efficiency signal ETC monitoring AD corry group B, AD converter supply we ETC monitoring AD corry group B, AD converter supply we ETC monitoring AD corry group B, AD converter supply we ETC monitoring the cost of the cost o	reaches ROMRSTA_UM times.  vrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times RAM writeability check read and write test writeability check of RAM SW internal on crosscheck Oltage crosscheck SW internal	SW Internal		down in the last driving cycle completely finished partial checksum on critical variables 	completly finished completly finished completly			30 sec 1 sec 5 sec 5 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec at key off	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous or 50 sec cumulative	then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec
Fuel Pump Relay Control	P0602 P0603 P0603 P0604 P0606	rationality rationality - programming incomplete ETC monitoring controller reset functional check cyclic RAM-check Electronic Throttle Control (ETC) checks ETC monitoring torque comparison ETC monitoring torque comparison ETC monitoring volumetric efficiency signal ETC monitoring woller efficiency signal ETC monitoring throttle crosscheck ETC monitoring throttle crosscheck ETC monitoring throttle crosscheck ETC monitoring throttle crosscheck ETC monitoring throttle Cortor (ETC) checks	reaches ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times  RAM writeability check read and write test writeability check of RAM SW internal ion crosscheck SW internal voltage crosscheck	SW Internal		down in the last driving cycle completely finished partial checksum on critical variables power down calculation in the last driving cycle power down calculation in the last driving cycle power down calculation in the last driving cycle power down calculation in the last driving cycle	completly finished completly finished completly finished			30 sec 1 sec 5 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous 4 sec continuous or 50 sec	then 5 sec code set then 5 sec then 5 sec
Fuel Pump Relay Control Circuit	P0602 P0603 P0604 P0606 P0606	rationality rationality - programming incomplete ETC monitoring controller reset functional check cyclic RAM-check Electronic Throttle Control (ETC) checks ETC monitoring torque comparison ETC monitoring engine speed signal ETC monitoring engine speed signal ETC monitoring volumetric efficiency signal ETC monitoring AD corry group B, AD converter supply we ETC monitoring AD corry group B, AD converter supply we ETC monitoring AD corry group B, AD converter supply we ETC monitoring the cost of the cost o	reaches ROMRSTA_UM times.  vrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times RAM writeability check read and write test writeability check of RAM SW internal on crosscheck Oltage crosscheck SW internal	SW Internal		down in the last driving cycle completely finished partial checksum on critical variables 	completly finished completly finished completly			30 sec 1 sec 5 sec 5 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec at key off	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous or 50 sec cumulative	then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec
	P0602 P0603 P0604 P0606 P0606	rationality rationality - programming incomplete ETC monitoring controller reset functional check functional check Electronic Throttle Control (ETC) checks ETC monitoring torque comparison ETC monitoring volumetric efficiency signal ETC monitoring volumetric efficiency signal ETC monitoring trotque coscheck ETC monitoring trotgue coscheck ETC monito	reaches ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times  RAM writeability check read and write test writeability check of RAM SW internal on crosscheck oltage crosscheck SW internal voltage < voltage < voltage >	SW Internal		down in the last driving cycle completely finished partial checksum on critical variables 	completly finished completly finished completly finished			30 sec 1 sec 5 sec 5 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec at key off	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous or 50 sec 50 sec	then 5 sec code set then 5 sec then 5 sec
	P0602 P0603 P0604 P0606 P0606	rationality rationality - programming incomplete ETC monitoring controller reset functional check functional check Electronic Throttle Control (ETC) checks ETC monitoring torque comparison ETC monitoring volumetric efficiency signal ETC monitoring volumetric efficiency signal ETC monitoring trotque coscheck ETC monitoring trotgue coscheck ETC monito	reaches ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times  RAM writeability check read and write test writeability check of RAM SW internal on crosscheck oltage crosscheck SW internal voltage < voltage < voltage >	SW Internal		down in the last driving cycle completely finished partial checksum on critical variables power down calculation in the last driving cycle power down calculation in the last driving cycle power down calculation in the last driving cycle power down calculation in the last driving cycle	completly finished completly finished completly finished			30 sec 1 sec 5 sec 5 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec at key off	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous or 50 sec 50 sec	then 5 sec code set then 5 sec then 5 sec then 5 sec then 5 sec code set then 5 sec code set then 5 sec
	P0602 P0603 P0603 P0604 P0604 P0606 P0606 P0606	rationality rationality rationality rationality FTC monitoring controller reset  FTC monitoring control (ETC) checks ETC monitoring torque comparison ETC monitoring torque comparison ETC monitoring torque comparison ETC monitoring volumetric efficiency signal ETC monitoring volumetric efficiency signal ETC monitoring throttle conscheck ETC monitoring throttle conscheck ETC monitoring throttle conscheck SPI failure of throttle output stage  circuit continuity - open circuit continuity - voltage	reaches_ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches_DURNPRST_A times  RAM writeability check read and write test writeability check of RAM SW internal ion crosscheck SW internal voltage cosscheck SW internal voltage >	SW Internal		down in the last driving cycle completely finished partial checksum on critical variables power down calculation in the last driving cycle power down calculation pump command off engine speed battery voltage	completly finished completly finished completly finished			30 sec 1 sec 5 sec 5 sec 5 sec 0.1 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec at key off	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous or 50 sec 50 sec	then 5 sec code set then 5 sec then 5 sec
	P0602 P0603 P0603 P0604 P0604 P0606 P0606 P0606	rationality rationality - programming incomplete ETC monitoring controller reset functional check functional check Electronic Throttle Control (ETC) checks ETC monitoring torque comparison ETC monitoring volumetric efficiency signal ETC monitoring volumetric efficiency signal ETC monitoring trotque coscheck ETC monitoring trotgue coscheck ETC monito	reaches ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches DURNPRST_A times  RAM writeability check read and write test writeability check of RAM SW internal on crosscheck oltage crosscheck SW internal voltage < voltage < voltage >	SW Internal		down in the last driving cycle completely finished partial checksum on critical variables power down calculation in the last driving cycle power down calculation in the last driving cycle	completly finished completly finished completly finished			30 sec 1 sec 5 sec 5 sec 5 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec at key off	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous or 50 sec 50 sec	then 5 sec code set then 5 sec then 5 sec code set then 5 sec code set then 5 sec code set then 5 sec
	P0602 P0603 P0603 P0604 P0604 P0606 P0606 P0606	rationality rationality rationality rationality FTC monitoring controller reset  FTC monitoring control (ETC) checks ETC monitoring torque comparison ETC monitoring torque comparison ETC monitoring torque comparison ETC monitoring volumetric efficiency signal ETC monitoring volumetric efficiency signal ETC monitoring throttle conscheck ETC monitoring throttle conscheck ETC monitoring throttle conscheck SPI failure of throttle output stage  circuit continuity - open circuit continuity - voltage	reaches_ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches_DURNPRST_A times  RAM writeability check read and write test writeability check of RAM SW internal ion crosscheck SW internal voltage cosscheck SW internal voltage >	SW Internal		down in the last driving cycle completely finished partial checksum on critical variables 	completly finished completly finished completly finished > > > <			30 sec 1 sec 5 sec 5 sec 5 sec 0.1 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec at key off	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous or 50 sec 50 sec	then 5 sec code set then 5 sec then 5 sec then 5 sec then 5 sec code set then 5 sec code set then 5 sec
	P0602 P0603 P0603 P0604 P0604 P0606 P0606 P0606	rationality rationality rationality rationality FTC monitoring controller reset  FTC monitoring control (ETC) checks ETC monitoring torque comparison ETC monitoring torque comparison ETC monitoring torque comparison ETC monitoring volumetric efficiency signal ETC monitoring volumetric efficiency signal ETC monitoring throttle conscheck ETC monitoring throttle conscheck ETC monitoring throttle conscheck SPI failure of throttle output stage  circuit continuity - open circuit continuity - voltage	reaches_ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches_DURNPRST_A times  RAM writeability check read and write test writeability check of RAM SW internal ion crosscheck SW internal voltage cosscheck SW internal voltage >	SW Internal		down in the last driving cycle completely finished partial checksum on critical variables power down calculation in the last driving cycle power down calculation in the last driving cycle	completly finished completly finished completly finished			30 sec 1 sec 5 sec 5 sec 5 sec 0.1 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec at key off	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous or 50 sec 50 sec	then 5 sec code set then 5 sec then 5 sec then 5 sec then 5 sec code set then 5 sec code set then 5 sec
Circuit	P0602 P0603 P0603 P0604 P0606 P0606 P0606	rationality rationality rationality rationality FTC monitoring controller reset  FTC monitoring control (ETC) checks ETC monitoring torque comparison ETC monitoring torque comparison ETC monitoring torque comparison ETC monitoring volumetric efficiency signal ETC monitoring volumetric efficiency signal ETC monitoring throttle conscheck ETC monitoring throttle conscheck ETC monitoring throttle conscheck SPI failure of throttle output stage  circuit continuity - open circuit continuity - voltage	reaches_ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches_DURNPRST_A times  RAM writeability check read and write test writeability check of RAM SW internal ion crosscheck SW internal voltage cosscheck SW internal voltage >	SW Internal		down in the last driving cycle completely finished partial checksum on critical variables 	completly finished completly finished completly finished > > > <			30 sec 1 sec 5 sec 5 sec 5 sec 0.1 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec at key off	continuous 4 sec continuous 4 sec continuous 4 sec continuous or 50 sec cumulative 4 sec continuous or 50 sec 50 sec	then 5 sec code set then 5 sec then 5 sec then 5 sec then 5 sec code set then 5 sec code set then 5 sec
	P0602 P0603 P0603 P0604 P0606 P0606 P0606 P0627 P0629 P0629	rationality rationality rationality rationality FTC monitoring controller reset  FTC monitoring control (ETC) checks ETC monitoring torque comparison ETC monitoring torque comparison ETC monitoring torque comparison ETC monitoring volumetric efficiency signal ETC monitoring volumetric efficiency signal ETC monitoring throttle conscheck ETC monitoring throttle conscheck ETC monitoring throttle conscheck SPI failure of throttle output stage  circuit continuity - open circuit continuity - voltage	reaches_ROMRSTA_UM times.  wrong cyclic ROM checksum of critical regions service ECU bit set in calibration SW internal. Error from shut-down path test reaches_DURNPRST_A times  RAM writeability check read and write test writeability check of RAM SW internal ion crosscheck SW internal voltage cosscheck SW internal voltage >	SW Internal		down in the last driving cycle completely finished partial checksum on critical variables 	completly finished completly finished completly finished > > > <			30 sec 1 sec 5 sec 5 sec 5 sec 0.1 sec	at key off 0.01 sec at key on 0.01 sec at key on 0.01 sec continuous 0.01 sec at key off 0.01 sec at key off	Continuous 4 sec continuous 4 sec continuous 4 sec continuous 4 sec continuous 4 sec continuous 5 sec cumulative 50 sec cumulative 50 sec cumulative 4 sec continuous 5 sec 5	then 5 sec code set then 5 sec

Component/	Fault	Monitor Strategy	Primary Malfunction	Threshold			Enable	Enable	Units	Time	Frequency	Criteria	MIL
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	Value		Required	of Checks	for Code	Illumination
		motor control range check long term								5.0 sec (latched)		cumulative	
		long term								(laterieu)			
5V reference voltage						Í		1					
monitoring	P0641	circuit continuity - open	Voltage	IC Internal	-	ignition key on	TRUE	-	-	3 sec	0.01 sec	4 sec	code set
	P0642 P0643	circuit continuity - ground circuit continuity - voltage			·   · · · ·	ECM power relay	TRUE	-			+	continuous	then 5 sec
		circuit continuity - open	Voltage	IC Internal	-								
	P0652 P0653	circuit continuity - ground circuit continuity - voltage			·   · · · · ·				+		+		
	1 0035	circuit continuity - voltage			·   · · · ·				+				
	P0697	circuit continuity - open	Voltage	IC Internal	-								
	P0698 P0699	circuit continuity - ground circuit continuity - voltage			·   ·								
	1 0035	circuit continuity - voltage											
MIL Control Circuit	P0650	circuit continuity - open	Voltage	IC Internal	-	engine speed	>	80	rpm	0.01 sec	0.01 sec	4 sec	no
		circuit continuity - ground				battery voltage	>	10	V		continuous	continuous	(but is
		circuit continuity - voltage				battery voltage	<pre>activated and deac</pre>	18.1 tivated for complet				or 50 sec	shown in Mode \$03)
								1	1				
Fransmission Control Module	P0700	OBD emission fault	signal input	-	-	-		-	-	0.01 sec	0.01 sec	4 sec cont.	code set
MIL Illumination Request		detected by the TCM									continuous	or 50 sec	then 5 sec
	(Specific TCI	M DTC shown in freeze frame)					· · · · · · · · · · · · · · · · · · ·		+			cumulative	
ehicle speed sensor			I		1	1			1	· · · · · · · · · · · · · · · · · · ·			
Manual Transmission	P0501	rationality	vehicle speed	171.9	mph		-	-	-	2 sec	0.1 sec	4 sec	two driving
		(high range check)									continuous	continuous	cycles each
	P0502	rationality	vehicle speed	3.1	mph	engine speed	>	1800	rpm	3 sec		or 50 sec	with: 4 sec
		(low range check)			·   · · · ·	engine speed fuel shut off	TRUE	3520	rpm -		+	cumulative	continuous or 50 sec
						coolant temperature	>	40	°C				cumulative
Clutch Pedal Position Sensor	P0806	rationality - input cltuth pos. state changes	detected clutch pedal press count <			gear changes detected		20	count	approx.	0.1 sec	4 sec	code set
Manual Transmission		Input citutn pos. state changes			presses	( ratio of engine speed to vehicle speed range change )			+	500 sec	continuous	or 50 sec	then 5 sec
					detected		>	10	sec			cumulative	
						vehicle speed	>	25.0	mph				
					·   ·	between gear change detects							
	P0807	Circuit Continuity - Ground	Voltage <	0.249	v								
	P0808	Circuit Continuity - Voltage	Voltage >	4.75	V								
Ignition Coil Driver Circuit Serial Co	ommunication				·   ·				+		+		
	P167D	Internal SPI communication fault		IC Internal		battery voltage	<	18.1	v	0.01 sec	0.01 sec	4 sec	two driving
						battery voltage	>	9	v				cycles each
					·   ·	engine speed	<	6000	rpm				with: 4 sec continuous
					· · · ·								or 50 sec
													cumulative
									-				
Electronic Throttle Control	P2100	circuit switch-off	output circuits not deactivated					-	· · ·	0.1 sec	0.01 sec	4 sec	code set
	12100	circuit switch on	as commanded						1	0.1 300	at key on	continuous	then 5 sec
	P2101	difference between set and	difference between set and	4 50	%	electronic throttle adaptation	not active	-	1 -	0.5 sec	0.01 sec	4 sec cont.	code set
		actual position of throttle blade	actual position of throttle blade >	dep. on rate of c	hange	battery voltage	>	7	V		continuous	or 50 sec	then 5 sec
	P2105	Electronic Theorem (ETO) should	[Table DWDKSBAMX ]		-		a second attac		-	<b>5</b>	0.01	cumulative	
	P2105	Electronic Throttle Control (ETC) checks ETC monitoring watchdog shutdown path			·   ·	power down processing in the last driving cycle	finished	-	· ·	5 sec	0.01 sec at key on	4 sec continuous	code set then 5 sec
	P2119	functionality of return spring	throttle blade return response	0.56	sec	vehicle speed	<=	0	mph	0.56 sec	0.01 sec	4 sec	code set
						engine speed	<	40	rpm		at key on	continuous	then 5 sec
					·+·	engine coolant temperature	>=	5.25		once			
					·+··	engine coolant temperature intake air temperature	<= >=	100.5 5.25	°C	per ignition	+		
						intake air temperature	<=	143.8	°C	on			
						battery voltage	>	10.0	V				
					·   · · · ·	accelerator pedal position	<<	14.9	%		+		
Electronic Throttle Control					1	1		1	+		-	-	
	P2176	throttle exchange detection	range check poti1 value at lower stop		·   · · · ·	vehicle speed	<=	0	mph	1 sec	0.01 sec	4 sec	code set
		learn fail	throttle potentiometer 1 voltage <	4.12	V	engine speed	<	40	rpm		at key on	continuous	then 5 sec
		or initial throttle learn failed	or throttle potentiometer 1 voltage >	4.55	v	engine coolant temperature engine coolant temperature	>=	5.25 100.5	°C °C	once per	+		
		or		4.00		intake air temperature	>=	5.25	°C	ignition			
		learning prohibited due to	range check poti2 value at lower stop			intake air temperature	<=	143.8	°C	on			
		secondary parameters not met or	throttle potentiometer 2 voltage <	0.341	V	battery voltage accelerator pedal position	>	10.0	V %		+		
		minimum throttle position	throttle potentiometer 2 voltage >	0.988	v			14.3	/*				
		out of range	·····										
					1	1		1					
Fuel System Lean/Rich						air mass flow	>=	6.9 41.7	g/sec	approx.	0.1 sec	4 sec	two driving
Multiplicative						air mass flow engine load	<=	41.7	g/sec %	300 sec from engine	continuous	or 50 sec	cycles each with: 4 sec
		fuel trim limits exceded	delta lambda correction >	1.23	factor	engine load	<=	80.0	%	start ( after		cumulative	continuous
Bank 1		range - multiplicative	or delta lambda correction <	0.78	factor	engine speed	>=	1200.0	rpm	adaptation			or 50 sec
Bank 1	P2178												l cumulativo
		( load > threshold and air flow > threshold )	delta lambda correction -	4.00	factor	engine speed	<= TRUE	4000.0	rpm	has		After	cumulative
Bank 1	P2178 P2179 P2180	( load > threshold and air flow > threshold )	delta lambda correction > or delta lambda correction <	1.23	factor		<= TRUE <=	99.6	99.6 °C	nas		After	cunulative

<b>-</b>			KPUZ LI									
Component/ System	Fault Monitor Strat Code Descriptio		Threshold Value	Specifie Units	Secondary Parameters	Enable Condition	Enable Value	Units	Time Required	Frequency of Checks	Criteria for Code	MIL Illumination
		······································			intake air temperature	<=	60	°C				
					primary A/F sensor 1 readiness	TRUE	-	-				
					primary A/F sensor 2 readiness	TRUE	-	· ·				
					command lambda catalyst heating	> not set	0.83	· ·				
				· · · · ·	critical misfire rate detected	not set	-	· ·				
					deceleration fuel cut-off	not set	-	-				
					transient compensation wide open throttle	not set	-					
					integrated fuel mass	>	700.0	g		····		
					and empty-valid fuel level	not set	-	-				
					error: cam control diagnosis	not set	-	· ·				
					error: inection value fault error: catalyst damaging misfire	not set		+				
					enor: catalyst damaging missile	101301						
Fuel System Lean/Rich	i i			Ì			1	İ		1		
additive												
Bank 1	P2187 range - additive	delta fuel load correction >	6.1	%	air mass flow	>=	1.7	<i>a</i> /200				
	P2187         range - additive           P2188         low speed and low load	or delta fuel load correction <	-6.0	%	air mass flow	<=	7.8	g/sec g/sec	· · · · · · · · · · · · · · · · · · ·			
			0.0		engine load	>=	11.0	%				
Bank 2	P2189	delta fuel load correction >	6.1	%	engine load	<=	45.0	%				
	P2190	or delta fuel load correction <	-6.0	%	engine speed	>=	520.0 1120.0	rpm				
					engine speed closed loop control	TRUE		rpm		+		
					engine coolant temperature	>	60	°C				
					intake air temperature	<=	60	°C				
				+	primary A/F sensor 1 readiness primary A/F sensor 2 readiness	TRUE				+		
· · · · · · · · · · · · · · · · · · ·	<u> </u>			+	command lambda	>	0.83			+		
					catalyst heating	not set	-	-				
				1	critical misfire rate detected	not set	-					
	· · · · · · · · · · · · · · · · · · ·			+	deceleration fuel cut-off transient compensation	not set	-	· ·				
					wide open throttle	not set		-				
					integrated fuel mass	>	700.0	g				
					and empty-valid fuel level	not set	-					
					error: cam control diagnosis error: inection value fault	not set						
				-	error: catalyst damaging misfire	not set		-				
					, , , , , , , , , , , , , , , , , , ,							
Oxygen Sensor								ļ				
sensor circuit (secondary O2) bank 1 sensor 2	P2232 sensor line short circuit	secondary O2 sensor			secondary O2 heating stable	TRUE	-	- · ·	10 sec	0.01 sec	4 sec	two driving
bank 2 sensor 2	P2235 to heater output line	voltage gradient >	2	V	and secondary O2 dew point end	TRUE			10 300	continuous		cycles each
		within time after heater turn off <	0.04	sec	for time	>	90	sec			or 50 sec	with: 4 sec
		for occurrences >		count	engine running	TRUE	-				cumulative	continuous
		out of heater turn offs	6	count	battery voltage mod. exhaust-gas temp.	~ ~	10.4 800	° C				or 50 sec cumulative
				· · · ·	time after dew point exceeded		10	sec				Currulative
Oxygen Sensor				T	engine running	TRUE		· .				
sensor response (secondary O2)					battery voltage	>	10.4	V				
bank 1 sensor 2	P2270 oscillation check low	secondary O2 sensor voltage <	0.582 0.661	V	secondary O2 sensor	ready	-	-	approx.	0.1 sec	4 sec	two driving
bank 2 sensor 2	P2272	for time > then	100	sec	for time secondary O2 closed loop control	> active	10	sec	600 sec	continuous	continuous or 50 sec	cycles each with: 4 sec
		ramping in enrichment by	0.2	lambda	DFCO	FALSE	-		additional		cumulative	continuous
· · · · · · · · · · · · · · · · · · ·		at gradient	0.017	λ/sec	engine air flow (intrusive test)	>	5.56	g/sec	time if			or 50 sec
		for time (after enrichment limit reached)	10	sec	and engine air flow	<	33.33	g/sec	fuel level			cumulative
					for time engine air flow (passive monitor)	>	9.72	sec g/sec	is low and not failed			
					sec. O2 trim - fast lean correction	FALSE	5.12	g/sec	600 sec			
					sec. O2 trim - fast rich correction	FALSE						
					sec. O2 trim - slow correction	FALSE	+	<u> </u>				
	+			+	sec. O2 aging DFCO test failed	FALSE running	+			+		
	<u>                                      </u>			+	engine scheduled by System Manager	TRUE	1	1		+		
bank 1 sensor 2	P2271 oscillation check high	secondary O2 sensor voltage >	0.582 0.661	V	engine running	TRUE	-	i -				
bank 2 sensor 2	P2273	for time >	100	sec	battery voltage	>	10.4	V				
		then	0.07	la sub d	secondary O2 sensor	ready	-	•				
	· · · · · · · · · · · · · · · · · · ·	ramping in enleanment by at gradient	0.07	lambda λ/sec	for time secondary O2 closed loop control	> active	10	sec				
		for time (after enleanment limit reached)	10	Sec	DFCO	FALSE		·····		+		
					engine air flow (intrusive test)	>	5.56	g/sec				
					and engine air flow	<	33.33	g/sec				
				· · · ·	for time engine air flow (passive monitor)	>	9.72	sec d/sec				
	<u> </u>			+	engine air flow (passive monitor) sec. O2 trim - fast lean correction	FALSE	3.12	g/sec	· · · · · · · · · · · · · · · · · · ·	+	· · · ·	
					sec. O2 trim - fast rich correction	FALSE						
				1	sec. O2 trim - slow correction	FALSE	+	<u> </u>		+		
				+	sec. O2 aging DFCO test failed engine	FALSE	+	+	·	+		
				·····	scheduled by System Manager	TRUE	+	+		+		
Real time clock				i i				Ì				
Engine Off Timer Status	P2610 engine off timer signal check	engine off timer not valid	3.0		engine start successful during previous dr	TRUE	-		0.1 sec	0.1 sec	4 sec	two driving
( performed during					real time clock active	TRUE	-			continuous	continuous	cycles each
engine off operation )				+	<b> </b>						or 50 sec	with: 4 sec
h	l			· · · ·			+	+	·	+	cumulative	or 50 sec
					<u>                                      </u>				·	<u> </u>		cumulative
a 10 - 1 -	1		1	1	1		1	1		1		
Real time clock												
Engine Off Timer Rationality	P2610 engine off timer incremental	reference clock time delta -	6	counts	engine start successful	TRUE	-	-	0.1 sec	0.1 sec	4 sec	two driving

Component/	Fault Code	Monitor Strategy	Primary Malfunction Signal and Criteria	Threshold Value	Specifie Units		Enable Condition	Enable Value	Units	Time	Frequency	Criteria	MIL
System	Code	Description	Signal and Criteria	Value	Units	Parameters	Condition	value		Required	of Checks	for Code	lilumination
( performed during		check	engine off timer delta >			failure counts	>=	3	3		continuous	continuous	cycles each
engine running operation )												or 50 sec	with: 4 sec
												cumulative	continuous
eference clock = independantly			reference clock time delta -	6	counts	engine start successful	TRUE	-	-				or 50 sec
captured time value )			engine off timer delta <			failure counts	>=	3	counts				cumulative
BD ISO-15765 Communication Bus									1				
	U0073	ISO-15765 Bus Error	Invalid Message Received			CAN Bus	initialized			1 sec	0.01 sec	4 sec	code set
			or Dual Port Ram Hardware Error;			consisting of:	and ready			0.01 sec	continuous	continuous	then 5 see
			or No Communication / Bus Off			ignition on for	>	3	sec	0.02 sec		or 50 sec	
						battery voltage	>	9.9	V			cumulative	
						battery voltage	<	18.1	V				
						normal bus communication	running	-					
	U0101	Communication with TCM	TCM Message Timeout	message		Automatic Transmission	equipped	-	-	2.5 sec	0.01 sec	4 sec	code set
				missing,		CAN Bus	initialized	-			continuous	continuous	then 5 se
				delayed,		consisting of:	and ready		T			or 50 sec	
				or		ignition on for	>	3	sec			cumulative	
				invalid		battery voltage	>	9.9	V				
				content		battery voltage	<	18.1	V				
						normal bus communication	running	-					

#### LOOK-UP TABLES (COMMON)

P0011, P0021 KFDWNWDMXE / 2 (internal manufacturer cross reference) Maximum Allowed Deviation - Intake Camshaft Position

KFRINH / 2

Maximum Allowed Deviatio	Maximum Allowed Deviation - Intake Camsnaft Position													
degrees crank	Modeled Engin	e Oil Temperat	ure(°C)											
Engine Speed (rpm)	0	60	80	100	130									
800	6.00	6.00	7.00	9.00	11.00									
1200	6.00	6.00	6.00	6.00	7.00									
1600	6.00	6.00	6.00	6.00	7.00									
2000	6.00	6.00	6.00	6.00	6.00									
2500	6.00	6.00	6.00	6.00	6.00									
4000	6.00	6.00	6.00	6.00	6.00									

P0116

KLTCWCSTAB (internal manufacturer cross reference)

Engine coolant temperatur	e model based o	on ambient te	mperature + e	ngine off time	output			
Time (seconds)	1000	7200	10800	14400	21600	32400	43200	50400
Coefficient:	0.996	0.488	0.270	0.191	0.106	0.063	0.031	0.008

P0141, P0161

#### (internal manufacturer cross reference)

Sensor Element (Ceramic) Impedance, Nominal Value - Secondary 02 Sensor											
Ohms Modeled Exhaust Gas Temperature at Secondary O2 Sensor ( ° C )											
O2 Heater Power (watts)	300	360	420	480	540						
0.7	344	328	304	272	224						
0.8	248	240	232	200	168						
1.0	200	184	168	152	128						

FRINH1 / 2 (internal manufacturer cross reference)

	Multiplication Factor for Int	ternal Resistar	nce KFRINH No	ominal Value -	Secondary O2	Sensor			
Modeled Exhaust Gas Temperature at Secondary O2 Sensor ( ° C )									
		300	360	420	480	540			
	factor	15.00	10.00	6.00	4.00	2.50			

296

#### LOOK-UP TABLES (COMMON)

#### P0327, P0332, P0328, P0333

NGKRWN

UDKSNO

(internal manufacturer cross reference)

RPM dynamic threshold for disabling knock diagnosis

RPM	400.0	800.0	1200.0	1600.0	2000.0	2400.0	2800	3200	3600	4000	4400	4800	5200
RPM per second	500.01	600.01	800.01	1000.01	1200.02	1400.02	1600.02	1700.02	1800	1900	2000	2100	2100

P0327, P0332 UDKSNU

UDKSNU (internal manufacturer cross reference) Reference voltage threshold for knock sensor diagnosis - Lower Limit

Vereferice voltage timeshold for knock sensor diagnosis - Lower Limit													
Engine Speed ( rpm )													
	400	800	1200	1600	2000	2400	2800	3200	3600	4000	4400	4800	5200
Peak RMS Voltage (V)	0.056	0.060	0.067	0.079	0.089	0.104	0.121	0.132	0.139	0.145	0.155	0.181	0.192

P0328, P0333

#### (internal manufacturer cross reference)

	Reference voltage threshold for knock sensor diagnosis - Upper Limit													
Engine Speed ( rpm )														
		400	800	1200	1600	2000	2400	2800	3200	3600	4000	4400	4800	5200
	Peak RMS Voltage (V)	3.120	4.904	5.796	6.815	7.834	9.108	10.000	11.911	18.790	22.714	25.287	27.197	30.637

#### P0442

#### KFEONVPT (internal manufacturer cross reference) Vacuum / Pressure Threshold for Fuel Tank Leak Detection

acuum / Pressure Thres									
Vacuum / Pressure (hPa)	Ambient Temp	erature (Model)	(C)						
Fuel Level (%)	0	5.3	9.8	15	20.3	24.8	30	34.5	39.8
5%	10.61	12.07	12.60	11.25	9.92	9.67	12.24	14.02	14.32
16%	10.94	12.67	13.19	11.57	10.03	10.08	12.58	14.16	14.22
27%	8.27	9.99	10.91	10.24	9.59	8.29	10.29	12.17	13.60
38%	6.93	8.24	8.14	8.64	9.83	7.44	7.82	8.67	8.95
49%	7.32	8.11	6.36	6.43	7.50	5.24	7.80	8.91	8.76
60%	7.09	7.29	7.01	6.53	5.82	5.60	7.57	8.95	8.78
71%	5.03	4.72	5.71	7.15	6.68	6.16	7.72	8.91	8.78
82%	5.48	5.53	5.30	6.80	6.15	5.67	7.62	8.94	8.78
93%	5.36	5.35	5.40	6.83	6.16	5.63	7.61	8.94	8.78
	Tank Capacity	65.8	Liters						
Vacuum / Pressure (Pa)									
vacuum / Pressure (Pa)	Ambient Temp	erature (Model)	(C)						
Fuel Level (%)	Ambient Temp	erature (Model) 5.3	(C) 9.8	15	20.3	24.8	30	34.5	39.8
	Ambient Temp 0 1061			15 1125	20.3 992	24.8 967	30 1224	34.5 1402	
Fuel Level (%)	0	5.3	9.8	-			1224		1432
Fuel Level (%) 5%	0 1061	5.3 1207	9.8 1260	1125	992	967	1224	1402	39.8 1432 1422 1360
Fuel Level (%) 5% 16%	0 1061 1094	5.3 1207 1267	9.8 1260 1319	1125 1157	992 1003	967 1008	1224 1258 1029	1402 1416	1432 1422
Fuel Level (%) 5% 16% 27%	0 1061 1094 827	5.3 1207 1267 999	9.8 1260 1319 1091	1125 1157 1024	992 1003 959	967 1008 829	1224 1258 1029	1402 1416 1217	1432 1422 1360
Fuel Level (%) 5% 16% 27% 38%	0 1061 1094 827 693	5.3 1207 1267 999 824	9.8 1260 1319 1091 814	1125 1157 1024 864	992 1003 959 983	967 1008 829 744	1224 1258 1029 782 780	1402 1416 1217 867	1432 1422 1360 895
Fuel Level (%) 5% 16% 27% 38% 49%	0 1061 1094 827 693 732	5.3 1207 1267 999 824 811	9.8 1260 1319 1091 814 636	1125 1157 1024 864 643	992 1003 959 983 750	967 1008 829 744 524	1224 1258 1029 782 780 757	1402 1416 1217 867 891	1432 1422 1360 895 876 876
Fuel Level (%) 5% 16% 27% 38% 49% 60%	0 1061 1094 827 693 732 709	5.3 1207 1267 999 824 811 729 472 553	9.8 1260 1319 1091 814 636 701 571 530	1125 1157 1024 864 643 653	992 1003 959 983 750 582	967 1008 829 744 524 560 616 567	1224 1258 1029 782 780 757	1402 1416 1217 867 891 895	1432 1422 1360 895 876

#### LOOK-UP TABLES (COMMON)

#### P0455 KLTLDSFS05 (internal manufacturer cross reference)

Vacuum Gradient Threshold for Fuel Tank Leak Detection										
Fuel Level liters	0	10	20	25	30	35	40	45	50	60
hPa / sec	0.045	0.045	0.052	0.054	0.055	0.056	0.068	0.076	0.076	0.076
	Tank Capacity	68.1	Liters							
Fuel Level (%)	0	14.7	29.4	36.7	44.1	51.4	58.7	66.1	73.4	88.1
Pa / sec	4.5	4.5	5.2	5.4	5.5	5.6	6.8	7.6	7.6	7.6

#### P2101 DWDKSBAMX (internal manufacturer cross reference)

Maximum Throttle Angle Deviation per computation cycle											
	Percent Throttle Opening (%)										
	0	0.3	1	5	15						
Percent Throttle Delta (%)	4	6	11	20	50						