COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	ALUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
IVVT Intake	DOOG A		actual CMP - CMP at start of	>= 4.125	[°CA]	Lauritian	"on"		150	r-1		2 DCY
IVVI Intake	P000A	slow response	diagnosis	>= 4.125	[*CA]	Ignition engine	"running"		150	[s]	every 360° CA	2 DC Y
						engine	> 7361248					
						Engine speed	and < 6016	[rpm]			continuous	
							> -10 and <					
						Oil Temp.	130	[°C]				
							> 10 and <					
						Battery voltage	16	[V]				
				disable		No active DTC's:						
1				conditions:		No CRK error	P0335, P0336					
				conditions.		NO CITIC CITO	1 0333, 1 0330					
							P0340,					
							P0341,					
						No CAM error	P0365, P0366					
						No "one tooth off" error IVVT	P0016, P0017					
						No slow response IVVT	P000B					
						No target error IVVT	P0011, P0014					
						No SLV error IVVT	P2089, P2088, P0010, P2091, P2090, P0013					
			actual CMP - CMP at start of									
IVVT Exhaust	P000B	slow response	diagnosis	>= 4.125	[°CA]	Ignition	"on"		150	[s]		2 DCY
						Engine	"running" >					
						Engine speed	6401248 > -10 and <	[rpm]			every 360° CA	
						Oil Temp.	130	[°C]			continuous	
						Battery voltage	> 10 and <	[V]		l		
				disable		No active DTC's:						
				conditions:		No CRK error	P0335, P0336					
						No CAM error	P0340, P0341, P0365, P0366					
						No "one tooth off" error IVVT	P0016, P0017					
						No slow response IVVT	P000A					
					<u> </u>	No target error IVVT	P0011, P0014	<u> </u>		<u> </u>		<u> </u>

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No SLV error IVVT	P2089, P2088, P0010, P2091, P2090, P0013					
IVVT Intake	P0010		open circuit			Ignition	"on" > 12.9 and <		1,7	[s]	100 ms	2 DCY
						PWM signal Battery voltage		[%] [V]			continuous	
				disable conditions:		No active DTC's: No SPI Bus conflict	P0606					
IVVT Intake	P0011	target error	Camshaft position deviation from commanted position	> table values+ 67.875 or 67.875	[°CA]				150	[s]	every 360° CA	2 DCY
						Engine speed	> 7361248 < 6016 >-10 and <	[rpm]			continuous	
						Oil Temp. Commanded Camshaft	130	[°C]				
						Position engine Ignition	Stabilized "running" "on"	[-]				
						Battery voltage	> 10 and <	[V]				
				disable		No active DTC's:						
				conditions:		No CRK error	P0335, P0336					
						No CAM error	P0340, P0341, P0365, P0366					
						No "one tooth off" error IVVT	P0016, P0017 P000A,					
						No slow response IVVT No target error IVVT	P000B P0014					
							P2089, P2088, P0010, P2091,					
						No SLV error IVVT Ignition	P2090, P0013 "on"					
IVVT Exhaust	P0013		open circuit			PWM signal Battery voltage	> 12.9 and < 91.8 > 10 and < 16	[%]	1,7	[s]	100 ms	2 DCY

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
				disable		No active DTC s:						
				conditions:		No SPI Bus conflict	P0606					
IVVT Exhaust	P0014	target error	Camshaft position	> (Camshaft setpoint + 67.875) or < (Camshaft setpoint - 67.875)	[°CA]				150	[s]		2 DCY
TV T Extraudt		target errer	Carrierian position	07.070)	[0, 1]		> 7361248		100	[o]		2001
						Engine speed		[rpm]			every 360° CA	
							> -10 and <				Í	
						Oil Temp.	130	[°C]			continuous	
						Setpoint stable				1		
						Ignition	"on"		1			
						.	> 10 and <	D (1	1	1		
						Battery voltage		[V]				
						Engine	running		-			
			<u> </u>	disable		No active DTC's:						
				disable		TWO delive BTO 3.						
				conditions:		No CRK error	P0335, P0336					
						No CAM error	P0340, P0341, P0365, P0366					
						No "one tooth off" error IVVT	P0016, P0017 P000A,					
						No slow response IVVT	P000A,					
						No target error IVVT	P0011					
						No SLV error IVVT	P2089, P2088, P0010, P2091, P2090, P0013					
					1					+		
IVVT Intake	P0016	reference position changed	Camshaft reference position;	> 135 < 148.875	[°CA]		. 670 and				every 360° CA	2 DCY
one tooth off						Engine speed	> 672 and < 4000	[rnm]	< 2	[s]	once / DCY	
one tooth off					-	Engine speed Oil Temp.	> -10	[rpm]	< 2	[8]	Office / DC Y	
						ECT	> -9.8	[°C]	1	1		
			<u> </u>		1	Ignition	"on"	, ~j		1		
						engine	"running"		1	1	1	
						Ĭ	> 10 and <					
						Battery voltage	16	[V]				
				disable		No active DTC's:		-	1	-		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
				conditions:		No CRK error	P0335, P0336					
						No CAM error	P0340, P0341, P0365, P0366					
						No "one tooth off" error IVVT	P0017 P000A,					
						No slow response IVVT No target error IVVT	P000B P0014					
						No SLV error IVVT	P2089, P2088, P0010, P2091, P2090, P0013					
IVVT Exhaust	P0017	reference position changed	Camshaft reference position;	> -110.125 or < -96.25	[°CA]							2 DCY
one tooth off						Engine speed	> 672 and < 4000	1001	0	r-1	every 360° CA once / DCY	
						Oil Temp. ECT Ignition	> -10 > -9.8 "on"	[°C]	< 2	[s]	once / DC Y	
						Battery voltage Engine	> 10 and <	[V]				
				disable		No active DTC's:	running					
				conditions:		No CRK error	P0335, P0336					
						No CAM error	P0340, P0341, P0365, P0366					
						No "one tooth off" error IVVT	P0016 P000A,					
						No slow response IVVT No target error IVVT	P000B P0011, P0014					
							P2089, P2088, P0010, P2091,					
						No SLV error IVVT	P2090, P0013					
Oxygen Sensor Upstream	P0030	Open Circuit	done by the heater driver at the "ON" state			Ignition	"on"		2500	[ms]	200 ms	2 DCY

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	ALUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
HO2S Heater Control						Battery voltage	> 9	[V]			continuous	
						PWM value	<= 99.609 and >= 4.297	[%]				
Oxygen Sensor			done by the heater driver at									
Upstream	P0031	Short to Ground	the "OFF" state			Ignition	"ON"		2500	[ms]	200 ms	2 DCY
						Battery voltage	> 9	[V]			continuous	
Owner Canaar			done by the bester driver of			PWM value	<= 99.609	[%]				
Oxygen Sensor	P0032	Short to Battery	done by the heater driver at the "ON" state			Ignition	"ON"		2500	[mol	200 ms	2 DCY
Upstream	F0032	Short to Battery	the ON State			Exhaust gas Temp. at lambda	ON		2500	[ms]	200 1115	2 DC1
						sensor up cat	>= 99.98	[°C]			continuous	
						Battery voltage	> 9	[V]			CONTINUOUS	
						PWM value	>= 0.4	[%]		1	1	1
Oxygen Sensor Downstream						Ignition	"on"					
			done by the heater driver at									
HO2S Heater Control	P0036	Open Circuit	the "ON" state			Battery voltage	> 9	[V]	2500	[ms]	200 ms	2 DCY
						D)4/44	4.3 <= PWM	50/1				
						PWM value	<=99.6	[%]			continuous	
Oxygen Sensor			done by the heater driver at							+		
Downstream	P0037	Short to Ground	the "OFF" state			Battery voltage	> 9	[V]	2500		200 ms	2 DCY
20Wilou cam	. 0007	Chert to Cround	tilo or rotato			Dattery vertage	, ,	[1]	2000		200 1110	2001
HO2S Heater Control						PWM value	<=99.6	[%]		1	continuous	
Oxygen Sensor			done by the heater driver at			exhaust gas Temp. at lambda						
Downstream	P0038	Short to Battery	the "ON" state			sensor up cat	> 24.98	[°C]	2500		200 ms	2 DCY
		·				·						
HO2S Heater Control						Battery voltage PWM value	> 9	[V] [%]			continuous	
						PWM value	>= 0.4	[%]				
		deviation measured airflow to	meassured air flow - modeled									
Load TPS Rationality	P0068	modeled airflow	air flow	> 15 50	[%]	Ignition	"on"		1600	[ms]	20 ms	2 DCY
Theresis Dealer Ainth		en 1 e 1 e 1 e 1				1	1					
Throttle Body Airflow		filtered active relative LAM	and a			D-#	40	D //				
Performance	-	correction	and filtered active relative LAM		-	Battery voltage	> 10	[V]		1	continuous	
			correction	> -11 and < 11	[%]	Engine	"running"					
	-		and	/-11 anu < 11	[/0]	Lugine	rummy	1	+	1	1	1
			Close loop active		+	Time after engine start	> 5	[s]	†	1	 	1
			or		1	Ambient pressure	> 69.999	[kPa]		1		
			meassured air flow - modeled				1	,				
			air flow	> 15 50	[%]	Ambient pressure	< 149.99	[kPa]				
			and		1	RPM	> 800	[rpm]				
			filtered active relative LAM					l				
			correction	> 11	[%]	RPM	< 6496	[rpm]				
						Throttle position	< 4.99610	[°]				

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD	VALUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQI	JIRED	FREQUENCY OF CHECKS	MIL ILLUN
			or			Throttle position	> 84.999	[°]		I		
			meassured air flow - modeled			,						
			air flow	<-1550	[%]	Pressure quotient	> 0.3	[-]				
			and	1 10 III 00	[,~]	Pressure quotient	< 0.99	[-]				1
			filtered active relative LAM			System is controlled by mass	V 0.00	. 1				
			correction	> -11 and < 11	[%]	air flow sensor						
			COTTOGUCTI	> II and CII	[70]	No engine state "pull fuel						
			and			cutoff"						
			anu			Electronic throttle control power						1
			Class lass setive									
			Close loop active			stage is on						
			OI magazirad sir flavo madalad									
			meassured air flow - modeled	45 50	FO/ 1							
			air flow	<-1550	[%]							
			and									
			filtered active relative LAM									
			correction	< -11	[%]							1
				disable		No active DTC's:						
				conditions:		No Mass Air Flow error	P0103, P0102					
			1				P0113,					
						No IAT sensor error	P0112,					
						110 11 11 0011001 01101	,					1
						No Canister purge valve error	P0459, P0458					
						140 Gariister purge varve error	1 0400, 1 0400					
						No Ambient pressure sensor	P2229,					
						error	P2228, P2227					
						enor	P0123,					
							P0122,					
			1				P0122, P0223,					
			1				FU223,					
			1				P0222,					
			1			No Throttle Position error	P0121, P0221 P0643,					
			1									
			1				P0642,					
			1				P0653,					
						No Supply voltage error	P0652					
			1						1			
							P0340,					
							P0341,					
						No Camshaft error	P0365, P0366					
							P000A,					
							P000B,					
							P0016, P0017					
			1			ranasis raivo anning offor	P0118,					1
			1	l		No ECT error	P0117,	1				

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	ALUE	SECONDARY PARAMETERS	ENAB CONDIT		TIME REQI	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No variable intake manifold error	P065E,					
AAT Sensor	P0072	short to ground	AAT raw value	< 0.498 (>110°C)	[V]	Ignition	"on"		2000	[ms]		2 DCY
						Battery voltage	> 9	[V]			100 ms	_
				disable		No active DTOIs					continuous	-
				conditions:		No active DTC's:	P009A,					+
						AAT	P0074					
A A T. C	D0070	-h - at t - h - tt - a - a - a - a	A A T	4.070 (.4400)	D. (1)	Lauritia a			0000	[1		2 DCY
AAT Sensor	P0073	short to battery plus	AAT raw value	> 4.976 (<-41°C)	[V]	Ignition Battery voltage	"on" > 9	[V]	2000	[ms]	100 ms	2 DCY
				disable		Battery voltage	2 9	[v]			continuous	+
				conditions:		No active DTC's:					001111111111111111111111111111111111111	†
							P009A,					
						AAT	P0074					
			delta of I measured AAT -									
AAT Sensor	P0074	oscillation check	AAT_MMV I of moving vehicle	> 6	[°C]	Ignition	"on"		2000	[ms]		2 DCY
						Battery voltage	> 9	[V]			100 ms	
						and					continuous	
						Vehicle speed	> 12.5	[mph]				
						for Timer	> 25.5	[s]				+
				disable		Timei	× 25.5	[9]				+
				conditions:		No active DTC's:						†
							P0073,					1
							P0072,					
						No AAT error	P009A					
									immediately			
		plausibility check - for warm-							after			
		start and normal driving	delta of measured AAT -						error is			
AAT Sensor	P009A	conditions conditions only	modled AAT	>= 20.3	[°C]	Ignition	"on"		detected		continuous	2 DCY
						Battery voltage	>= 10	[V]				
						ECT	> -30	[°C]	1			
						measured AAT variation during learning conditions	< 2,3	[°C]	1			1
						Elapsed time after conditions	` 2,0	ار حا				+
						for learning	>= 45	[s]				
						Vehicle speed	<= 100	[mph]				
						Vehicle speed	> 21.875	[mph]	1			
						Mass air flow Mass air flow	< 500.01 > 70.01	[kg/h]	1			+
					-	Engine speed	> 70.01	[kg/h] [rpm]				+
						Engine speed Engine speed	< 6496	[rpm]				+
						ECT	< 120	[°C]	1		1	†
						ECT	> 69	[°C]				
						Intake manifold heat model	< 200	[-]				<u> </u>

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						Elapsed time after conditions						
						for learning	>= 15	[s]				
						No active DTC's:						
						No Ambient pressure sensor error	P2229, P2228, P2227					
						No Mass Air Flow sesnor error	P0103, P0102					
						No IAT error No VS error	P0113, P0112, P0501					
						INO VS entit	P0340,					
						No Camshaft error	P0341, P0365, P0366					
						No Crankshaft error	P0335, P0336 P0118,					
						No ECT error	P0118, P0117, P0101,					
					No LOAD_TPS error	P1101, P0068						
						No Engine off timer error	P2610		_			
						No AAT error	P0073, P0072, P0074					
MAT C	D000 A	plausibility check - for warm- start and normal driving	delta of measured AAT -	00.0	1001	Laudin -			immediately after error is		4	a DOV
AAT Sensor	P009A	conditions conditions only	modled AAT	<= -20.3	[°C]	Ignition Battery voltage	"on" >= 10	[V]	detected		continuous	2 DCY
						ECT	> -30	[°C]				
						measured AAT variation during						
						learning conditions Elapsed time after conditions	< 2,3	[°C]				
						for learning	>= 45	[s]				
						Vehicle speed	<= 100	[mph]				
						Vehicle speed	> 21.875	[mph]				
						Mass air flow	< 500.01	[kg/h]	1			
					1	Mass air flow Engine speed	> 70.01 > 928	[kg/h]	1	.		1
						Engine speed Engine speed	> 928 < 6496	[rpm] [rpm]	+			-
						ECT	< 120	[°C]	+			
					1	ECT	> 69	[°C]	1			†
						Intake manifold heat model	< 200	[-]	1			
						Elapsed time after conditions for learning	>= 15	[s]				
				disable		No active DTC's:						

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	ALUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQU	IIRED	FREQUENCY OF CHECKS	MIL ILLUM.
				conditions:		No Ambient pressure sensor error	P2229, P2228, P2227					
						No Mass Air Flow sesnor error	P0103, P0102					
						No IAT error No VS error	P0113, P0112, P0501					
						No Camshaft error	P0340, P0341, P0365, P0366					
						No Crankshaft error	P0335, P0336					
						No ECT error	P0118, P0117, P0101,					
						No LOAD_TPS error No Engine off timer error	P1101, P0068 P2610					
					No AAT error	P0073, P0072, P0074						
AAT Sensor	P009A	cold start plausibility check against IAT and ECT sensors	absolute minimum of IAT of moving vehicle- AAT at engine start	>= 20.2595.25	[°C]	Ignition	"on"					2 DCY
		agamet in training 20 to concern	and absolute minimum of AAT of moving vehicle - ECT		1 - 1	Battery voltage	> 10	[V]			100 ms	
			at engine start	>= 20.2595.25	[°C]	ECT absolute minimum of IAT of moving vehicle- AAT at	> -30	[°C]	_			
						engine start and absolute minimum of AAT of moving vehicle - ECT at	<=9.8	[°C]			once / DCY	
						engine start Vehicle speed I AAT@engine start - AAT of	<=8.3 =>9.375	[°C] [mph]	_			
						moving vehicle I and I IAT@engine start - IAT of	<=2.25	[°C]	_			
						moving vehicle I and ECT @engine start- ECT of	<=3	[°C]				
						moving vehicle	<=3.75	[°C]	immedeately after			
						ECT @engine start- ECT of moving vehicle and	=>9	[°C]	error is detected			
						for Time length	>20	[s]				

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD \	/ALUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						and						
						Time after engine start	=>60	[s]				
						and						
						Time after engine start	<120	[s]				
						and						
						Engine off timer	>460	[min]				
				P 11		N C PTO						
				disable		No active DTC's:						
				conditions:		No Ambient pressure sensor error	P2229, P2228, P2227					
				oonaniono.		No Mass Air Flow sesnor error	,					
							P0113,			1		
						No IAT error	P0112,					
						No VS error	P0501					
						No Camshaft error	P0340, P0341, P0365, P0366					
						No Crankshaft error	P0335, P0336					
						No ECT error	P0118, P0117, P0101,					
						No LOAD_TPS error	P1101, P0068					
						No AAT error	P0073, P0072, P0074					
						No engine off timer error	P2610					
Load TPS Rationality	P0101	deviation measured airflow to modeled airflow	meassured air flow - modeled air flow	> 15 50	[%]	Ignition	"on"		1600	[ms]	20 ms	2 DCY
		filtered active relative LAM correction	and			Battery voltage	> 10	[V]			continuous	
Mass Air Flow (MAF) Sensor Performance			filtered active relative LAM correction	< -11	[%]	Engine	"running"					
			Close loop active			Time after engine start	> 5	[s]	1	1		1
			or			Ambient pressure	> 69.999	ام] [kPa]	1	1		1
			meassured air flow - modeled			ranbient pressure	/ UJ.333	נייו מן		1		1
			air flow	> 15 50	[%]	Ambient pressure	< 149.99	[kPa]				
			and		[,~]	RPM	> 800	[rpm]				
			filtered active relative LAM					r 15				
			correction	> -11 and < 11	[%]	RPM	< 6496	[rpm]				
			and		1 1	Throttle position	< 4.99610					
			Close loop not active			Throttle position	> 84.999	[°]		1		
			·			Pressure quotient	> 0.3	[-]				
						Pressure quotient	< 0.99	[-]				

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD	VALUE	SECONDARY PARAMETERS	ENABLE CONDITION	TIME REQUIR	FREQUENCY OF CHECKS	MIL ILLUM.
			meassured air flow - modeled			System is controlled by mass				
			air flow	<-1550	[%]	air flow sensor				
					1	No engine state "pull fuel				
			and			cutoff"				
			filtered active relative LAM			Electronic throttle control power				
			correction	> 11	[%]	stage is on				
			and							
			Close loop active							
			or							
			meassured air flow - modeled							
			air flow	<-1550	[%]					1
			and				 	.		↓
			filtered active relative LAM				1			
			correction	> -11 and < 11	[%]					
			and							1
			Close loop not active			No active DTC!	1	 		+
						No active DTC's:				
				-111-1-		No Mara Air Flancas	D0400 D0400			
				disable		No Mass Air Flow error	P0103, P0102 P0113,			1
				aanditiana.		No IAT concer over				
				conditions:		No IAT sensor error	P0112,	-		
						No Canister purge valve error	P0459, P0458			
						No Ambient pressure sensor	P2229,			
						error	P2228, P2227			
							P0123,			
							P0122,			
							P0223,			
							P0222,			
						No Throttle Position error	P0121, P0221			
							P0643,			
			1			1	P0642,			1
						lu o i i	P0653,			1
						No Supply voltage error	P0652			
							D0340			1
							P0340,			
			1			No Company of the same	P0341,			1
						No Camshaft error	P0365, P0366			1
							P000A,			1
							P000A, P000B,			
			1			No Variable valve timin	P0046 P0047			1
			-			No Variable valve timing error	P0016, P0017 P0118,	 		1
						No ECT orror				
			1			No ECT error No variable intake manifold	P0117,			1
							DOGGE			
			-			error No variable intake manifold	P065E,	 		1
						error	P065E,			
						CITOI	FU00E,			1

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	ALUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM
MAF Sensor	P0102	short to ground	mass air flow	< 2.5 (<0.46V)	[kg/h]	Ignition	"on"		480	[ms]	10 ms	2 DCY
		or open circuit		(((((((((((((((((((([3,]	Engine	"running"			[]	continuous	
		- 1				Throttle position	> 0.9	[°]				
						RPM	> 736	[rpm]				
						Battery voltage	> 9	[V]				
						non confirmed crank sensor						
						fault	not present					
				disable		No active DTC's:						
				conditions:								
						No CRK error	P0335, P0336					
MAF Sensor	P0103	short to battery plus	mass air flow	>= 490 (>=4,29V)	[kg/h]	Ignition	"on"		480	[ms]	10 ms	2 DCY
		, ·		, , ,		Engine	"running"				continuous	
						Throttle position	> 0.9	[°]				
						RPM	> 736	[rpm]				
						Battery voltage	> 9	[V]				
						non confirmed crank sensor						
						fault	not present					
				disable conditions:		No active DTC's:						
				conditions.		No CRK error	P0335, P0336					
AT Sensor	P0111	stuck check	deviation of IAT since engine start	< 1.5	[°C]	Ignition	"on"		2000	[ms]	100 ms	2 DCY
AT Sensor Rationality						Battery voltage	>9	[V]			once / DCY	
•						Driven distance since engine						
						start	>= 6.25	miles				
						ECT	>= 69	[°C]				
						Time after engine start	>= 600	[s]				
						AAT	>= -8.3	[°C]				
						Intake manifold heat model						
						changes	>= 100					
				disable		No active DTC's:						
				conditions:		No VS error	P0501					
							P0118,					
						No ECT error	P0117,					
							P0113,					
						No IAT sensor error	P0112,					
			1	1		1	P0101,		i e	1	1	f .
						No LOAD_TPS error	P0101, P1101, P0068					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	ALUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQU	IIRED	FREQUENCY OF CHECKS	MIL ILLUM
		cold start plausibility check							immedeately after error is			
IAT Sensor	P0111	against AAT and ECT sensors							detected		100 ms	2 DCY
			absolute minimum of									
			IAT of moving vehicle - ECT									
			at engine start	>= 20.2595.25	[°C]	Ignition	"on"				once / DCY	
			and			Battery voltage	> 10	[V]				
			absolute minimum of			absolute minimum of						
			IAT of moving vehicle - AAT			IAT of moving vehicle - ECT at						
			at engine start	>= 20.2595.25	[°C]	engine start	<=8.3	[°C]				
						and						
						absolute minimum of	1	1				
						IAT of moving vehicle - AAT at						
						engine start	<=9.8	[°C]				
						I AAT@engine start - AAT of	_ 5.0	[0]				
						moving vehicle I	<=2.25	[°C]				
						and	<=2.25	[د]				
					-	I IAT@engine start - IAT of						
							l .	r. 01				
						moving vehicle I	<=3	[°C]				
						and						
						ECT @engine start- ECT of						
						moving vehicle	<=3.75	[°C]				
						and						
						ECT @engine start- ECT of						
						moving vehicle	=>9	[°C]				
						and						
						Vehicle speed	=>9.375	[mph]				
						for						
						Time length	>20	[s]				
						and		1-1				
						Time after engine start	=>60	[s]			1	1
						and	- 50	[~]				
		1			-	Time after engine start	<120	[s]			 	1
		1			-	and	-120	[_C]			 	1
						Engine off timer	>460	[min]				
						Linging on unier	Z-100	[iiiiii]				
				disable		No active DTC's:						
				uisabie		INO active DTCS:	 		+		-	
						No Ambient pressure sense:	P2229,					
				100		No Ambient pressure sensor	F2229,					
				conditions:		error	P2228, P2227					
						l., ., ., _,						
						No Mass Air Flow sesnor error	P0103, P0102					
		1					P0113,				ĺ	
						No IAT error	P0112,					
						No VS error	P0501					
							[
		1					P0340,				ĺ	
							P0341,					
		1				No Camshaft error	P0365, P0366				1	

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABI CONDITION		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No Crankshaft error	P0335, P0336					
							P0118,					
						No ECT error	P0117, P0101,					
						No LOAD_TPS error	P1101, P0068					
						No AAT error No engine off timer error	P0073, P0072, P0074 P2610					
AT Sensor	P0112	short to ground	IAT raw value	< 0.151 (>126°C)	[V]	Ignition	"on"		1000	[ms]	100 ms	2 DCY
AT Jelisoi	1 0112	Short to ground	IAT Taw value	(0.131 (>120 0)	[v]	Battery voltage	>9	[V]	1000	[iii3]	continuous	2 001
47.0	D0440	1 1 1	10.7	4.040 (5000)	D (1	1 30			4000		400	0.001/
AT Sensor	P0113	short to battery plus	IAT raw value	> 4.849 (< -50°C)	[V]	Ignition Battery voltage	"on" >9	[V]	1000	[ms]	100 ms continuous	2 DCY
						Battery Voltage	73	[•]			continuous	
AT Sensor	P0114	signal intermitten	IAT difference	> 9.8	[°C]	Ignition	"on"		2000	[ms]	100 ms	2 DCY
AT Sensor Intermittent / Rationality						Battery voltage	>9	[V]			continuous	
				disable		No active DTC's:			_			
				disable		No active DTC 3.	P0113,					
				conditions:		No IAT sensor error	P0112, P0111					
						Ignition	"on"					
ECT Sensor	P0116	signal range check	ECT at engine start - IAT at engine start	> table value 1230	[°C]	Time after engine start	>2	[s]	immediately after error is detected		100 ms	2 DCY
LOT OCHSOI	. 0110	Signal range check	origino start	> table value 12oo	[0]	Time arter engine start	72		dottottod		100 1113	2 001
ECT Sensor Rationality			ECT at engine start	> table value 50.2590	[°C]	Battery voltage	>10	[V]			once / DCY	
						IAT at engine start	> -9.75 and < 50.25	[°C]				
						AAT at engine start	> -9.75	[°C]				
						IAT at engine staart - AAT at						
						engine start	< 9.8	[°C]				
						Engine off timer for display Engine off timer signal	>= 420 plausible	[min]				
						gino on amor signar	Piadoloio		1			
				disable		No active DTC's:						
							P0117, P0118, P0116					
				conditions:		No ECT error	(stuck check)					
						No IAT error	P0112, P0113, P0114					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
			ECT back up value - ECT			Ignition	"on"		immediately after error is			
ECT Sensor	P0116	stuck check	back up value at engine start	> table value 639.8	[°C]	ECT @ start	<75.8	[°C]	detected		1 s	2 DCY
ECT Sensor Rationality			ECT raw value - ECT raw value at engine start	> table value 2.319.5	[°C]	battery voltage	<10	[V]			continuous	
				disable conditions:		No active DTC's: No ECT error	P0117, P0118, P0116 (signal range check)					
ECT Sensor	P0117	short to ground	ECT raw value	< 0.27 (136.50°C)	[V]	Ignition Battery voltage IAT IAT Time after engine start	"on" >9 >=-30 or (< -30 and > 120)	[V] [°C] [°C]	1000	[ms]	100 ms continuous	2 DCY
ECT Sensor	P0118	short to battery plus or open circuit	ECT raw value	> 4.96 (-39.75°C)	[V]	Ignition Battery voltage IAT IAT Time after engine start	"on" >9 >=-30 or (< -30 and > 120)	[V] [°C] [s]	1000	[ms]	100 ms continuous	2 DCY
ECT Sensor	P0119	intermitten / noisy	ECT_LIM - ECT_MES	> 5.3	[°C]	Ignition	"on"	[O]	1200	[ms]	100 ms	2 DCY
ECT Sensor Intermittant / Rationality				disable conditions:		Battery voltage No active DTC's: No ECT error	>9 P0117,P0118	[V]			continuous	
Throttle Position												
TP Sensor 1	P0121	rationalty check	actual TPS 1 - calc. value	>1	[-]	Ignition Engine No adaption is requested	"on" "running"		400	[ms]	10 ms continuous	1 DCY
				disable conditions:		No active DTC's: No supply voltage error	P0642, P0643					
TP Sensor 1	P0122	short to ground	TP Volts	< 0.197 (3,94 %)	[V]	Ignition	"on"		200	[ms]	10 ms	1 DCY

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	ALUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
				disable		No active DTC's:						
				conditions:		No supply voltage error	P0642, P0643					
TP Sensor 1	P0123	short to battery plus or open circuit	TP Volts	> 4.815 (96,4 %)	[V]	Ignition	"on"		200	[ms]	10 ms continuous	1 DCY
		or open on our		disable		No active DTC's:					00.1	
				conditions:		No supply voltage error	P0642, P0643					
						Ignition	"on"					
Coolant System	P0128	functional check	ECT model value	> 91.5	[°C]	ECT @ start	> -9.75 and <	[°C]	immediately after error is detected		1 s	2 DCY
·		See description and flow-charts										
Thermostat Monitor		for more details	ECT	< 81	[°C]	IAT @ engine start	> -9.75	[°C]			once / DCY	
						Battery voltage "Trailing throttle fuel cut off"	> 10	[V]	1			
						activation time since engine start	< = 19.9	[%]				
						"Min. load" activation time since engine start		[%]				
					-	"Max. VS" activation time since engine start Engine state "idle speed"	< = 89.8	[%]				
						activation time since engine start	<= 39.8	[%]				
						IAT deviation (decrease) after engine start	> -20.25	[°C]				
						Engine speed	not (> 4800	[rpm]				
						Timer ECT deviaction (decrease)	for 8 and < -3)	[s] [°C]				
				disable		No active DTC's:						
				conditions:		No ECT error	P0116, P0117,					
						No MAF error	P0103, P102		-			
						No VS error	P0501					
						No CKP error	P0335, P0336 P0121,P0122, P0123, P0221,					
						No TPS Error No IAT error	P0222, P0223 P0111, P0112,					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	ALUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
HO2S Electrical Diagnosis	P0130	open circuit	resistance	< 60000	[Ohm]	Delay time	>= 10	[s]	2500	[ms]		2 DCY
			duration in which the conditions for diag are fulfilled	>= 3	[s]	Duration in which the conditions for diag are fulfilled lqnition	>= 3 "on"				100 ms	
						Exhaust gas Temp. at lambda sensor upstream cat	> 599.98				CONTINUOUS	
				disable		No active DTCs:						
				conditions:		No O2 sensor error	P0130, P0131, P0132, P0133, P0134, P2297, P2A00					
						No O2 sensor heater error O2S front dewpoint	P0030, P0031, P0032, P0135 passed	i				
						O2SH state	active					
HO2S Electrical												
	P0131	Short to Ground	signal voltage up stream	< 0.024	[V]	Ignition	"on" < 20 [700		1000	[ms]		2 DCY
						Resistance	°C at HO2S] > 0.024	[Ohm]			100 ms	
						Signal voltage down stream Mass air flow	[lean mixture > 1.4] >=8	[V] [kg/h]			continuous	
						Time for lambda controller at limit	>= 0	[s]				
						Mass air flow for diagnosis (after CPS closed) Time after lambda controller	>= 30	[g]				
						activated	> 20	[s]				
				disable		No active DTCs:					1	

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQI	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
				conditions:		No O2 sensor error	P0130, P0132, P0133, P0134, P0137, P0138, P0140, P2270, P2271, P2297, P22400, P2A01 P0030, P0031, P0032, P0036, P0037, P0038,					
						No O2 sensor heater error No Canister purge solenoid error No mech. canister purge solenoid error No MAF error	P0135, P0141 P0443, P0458, P0459 P0496 P0102, P0103	9				
HO2S Electrical Diagnosis	P0132	Short to Battery	signal voltage up stream	> 1.201 disable	[V]	Ignition No active DTCs:	"ON" P0130, P0131,		2500	[ms]	100 ms	2 DCY
				conditions:		No O2 sensor error	P0133, P0134, P2297, P2A00 P0030, P0031,				continuous	
HO2S Slow Response	P0133	O2 sensor period too long / rich to lean ratio out of range	number of rich to lean and lean to rich cycles	> 50		No O2 sensor heater error Engine speed Exhaust gas Temp. at lambda sensor upstream cat	P0032, P0135 1504 < rpm <3488 > 399.98	[rpm]	260	[s]	10 ms	2 DCY
			total ratio between measured and max. allowed rich time,	>= 1		Mass air flow	> 27.5 and < 120	[kg/h]			once / DCY	

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITION		TIME REQ	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
			total ratio between measured									
			and max. allowed lean time	>= 1		Setpoint stable						
			I ratio lean time - ratio rich									
			time I	< -0.5 or > 0.5		ECT	> 50.25	[°C]				
						Ignition	"ON"					
				disable		No active DTCs:						
				conditions:		No MAF error	P0102, P0103			1		
					1				ļ	.		_
							P0121,					1
							P0122,					
							P0123,					
							P0221,					
							P0222,					
							P0223,					
							P2176,					
							P0101,					
							P0068, P1101					
						110 11 0 01101	P0116,					
						No TCO error	P0117,					
							P0340, P0341					
							P0365,					
							P0366,					
							P000A,					
							P000B,					
							P0010,					
							P0011,					1
							P0013,					1
							P0014,					1
							P0016,					
							P0017,					
							P2088,					1
							P2089,					
						No IVVT error	P2090, P2091					
							P0335, P0336					
					1							
							P0300,					1
							P0301,					
							P0302,					1
							P0303,					1
						No misfire error	P0304, P0313					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	ALUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No O2 sensor error	P0130, P0131, P0132, P0134, P2297, P2A00					
						No O2 sensor heater error No MTC error	P0030, P0031, P0032, P0135 P2100, P2101					
						No canister purge solenoid error No mech. canister purge solenoid error	P0443, P0458, P0459 P0496					
						No FSD error	P0171, P0172					
			İ		i	Ignition	"ON"		İ			2 DCY
			I max. moving mean value -			Exhaust gas Temp. at lambda						
Activity Check	P0134	sensor signal excursion	min moving mean value I	< 0.22	[V]	sensor upstream cat	> 599.98	[°C]	25		100 ms	
						Counter indicating the number of observed p jumps reported by the lambda controller Lean mixture cycle time	> 30 < 2	[s]			once / DCY	
						Rich mixture cycle time	< 2	[s]				
						Lambda control	active					
						Time after start	> 300	[s]				
				disable		No active DTCs:						
				conditions:		No O2 sensor error	P0130, P0131, P0132, P0133, P0134, P2297, P2A00					
						No O2 sensor heater error	P0030, P0031, P0032, P0135					
					1	THE SE SCHOOL HEALER CITO	1 0002, 1 0100			 		
				dep. on heater	1	Ignition	"on"					
Oxygen Sensor				power&rpm	1	Ignition	OH	.	don on	1		
Upstream	P0135	Resistance Out of Range	resistance	>= 1200	[Ohm]	Engine start			dep.on driver		1000 ms	2 DCY
						O2S front dewpoint	passed		shortest		once / DCY	
	1	ĺ			1	Battery voltage	>= 9	[V]	about		triggered	Ī

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
							<= 99.6 and >= 4.3 [max.					
							>= 4.3 [max. battery					
							voltage min.					
							battery					
			number of checks	>= 50	[-]	PWM signal	voltage]	[%]	50	[s]	resistance calc.	
			out of	>= 30	[-]	Timer	>= 0	[s]				
						exhaust gas Temp. at lambda	. 700.00	1001				
						sensor up cat Setpointtemp. used to create	>= 799.98	[°C]		-		
						power integral	=699.98	[°C]				
							300.00	. ~]			1	
						Measure of cooling energy of						
						exhaust gas at sensor location	>= 34256	[J]				
	.			P 11		N C DTO			1			
				disable		No active DTCs:	P0130,					
							P0130, P0131,P0132,					
				conditions:		No O2 sensor error	P0134					
							P0030,					
						No O2 sensor heater error	P0031, P0032					
							D0400 D0400					
						No MAF error	P0102, P0103 P0068,					
						No TPS Error	P0101, P1101					
						No 11 o Elloi	10101,11101					
HO2S Electrical				>60000 [HO2S temp.<								
Diagnosis	P0136	open circuit	resistance	300°C]	[Ohm]	Ignition	"on"		2500	[ms]	100 ms	2 DCY
						Engine	"running"				continuous	
						Exhaust ass Town at lambda						
						Exhaust gas Temp. at lambda sensor downstream cat	> 499.98	[°C]				
						consor downstream out	<= 0.474 and	[V]		1		
						Signal voltage	> 0.376	[V]				
						Detection time	>= 3	[s]				
						or						
						Delay time	>= 5	[s]	1		-	
				disable		No active DTCs:				1		
				นเจลมเซ		INO ACTIVE DTCS.				1		
							P0136,					
							P0137,					
							P0138,					
							P0139,					
							P2270,					
				a an dition a		No C2 concer ower	P2271,					
		l	<u>I</u>	conditions:		No O2 sensor error	P2A01			<u> </u>		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
							P0036, P0037,					
						No O2 sensor heater error No MAF error	P0038, P0141 P0102, P0103					
HO2S Electrical Diagnosis	P0137	Short to Ground	signal voltage down stream	< 0.024	[V]			FI // 3	2500	[ms]	100 ms	2 DCY
						Mass air flow	> 8	[kg/h]			continuous	
						Engine Resistance	"running"	[0]1				
						Detection time	< 25 > 0	[Ohm]				
					1	Mass air flow integral outside of DFCO	> 80	[g]				
						Ignition	"on"	[9]				
						-gueri	0					
				disable		No active DTCs:						
				conditions:		No O2 sensor error No O2 sensor heater error No canister purge solenoid error	P0136, P0137, P0138, P0139, P0140, P2270, P2271, P2A01 P0036, P0037, P0038, P0141 P0443, P0458, P0459					
						No mech. canister purge						
						solenoid error	P0496					
UOOC Flootri!					 	No MAF error	P0102, P0103	ļ				
HO2S Electrical Diagnosis	P0138	Short to Battery	signal voltage down stream	> 1.201	[V]	Ignition	"on"		2500	[ms]	100 ms	2 DCY
	l		1	disable	1	No active DTCs:		 		1	COMMINGOR	
				conditions:		No O2 sensor error	P0136, P0137, P0138, P0139, P0140, P2270, P2271, P2A01					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No O2 sensor heater error	P0036, P0037, P0038, P0141					
			Number of volid quitables			Ignition	"on"		dan an			
HO2S Slow Response	P0139	Slow Response	Number of valid switching times from rich to lean Average of weighted Cycle	>=2	[-]	ECT	> 60	[°C]	dep.on driver		20 ms	2 DCY
			counter for switching time									
			determination	>=1	[-]	signal voltage	> 0.552 5 < MAF <=	[V]			once / DCY	
						Mass air flow	400	[kg/h]				
						Operative readiness of sensor	passed					
						Exhaust gas Temp. at lambda sensor downstream cat	> 499.98	[°C]				
						Time after dew point detection	>= 60 <= 93.195	[s]				
						Vehicle speed	<= 93.195 and >= 12.426	[mph]				
						Dynamic catalyst monolith temperature	> 307	[°C]				
						Weighting factor for measured switching time rich2lean	500	[ms]				
				disable conditions:		No active DTCs: No FSD error	P0171, P0172					
				conduions.		No O2 sensor error	P0171, P0172 P0136, P0137, P0138, P2270, P2271, P2A01					
						No O2 sensor heater error	P0036, P0037, P0038, P0141					
						No MAF error No VS error	P0102, P0103 P0501					
						No TCO error	P0116, P0117,					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	FREQUENCY OF CHECKS	MIL ILLUM.
					No Misfire error	P0300, P0301, P0302, P0303, P0304, P0313			
					No injection valve error	P0201, P0202, P0203, P0204, P0261, P0262, P0264, P0265, P0267, P0268, P0270, P0271			
					No CKP error	P0335, P0336			
					No CMP error	P0340, P0341			
					No IVVT error No mech. canister purge	P0365, P0366, P000A, P000B, P0010, P0011, P0013, P0014, P0016, P0017, P2088, P2099, P2090, P2091			
					solenoid error	P0496			
					No Canister purge solenoid error	P0443, P0458, P0459			
					No MTC error	P2100, P2101			

and O2SH state active once / DCY	COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE S		SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
Fuel Correction Diagnostic, Portion #2 P0140 no activity signal voltage down stream and P028 V ECT								P0122, P0123, P0221, P0222, P0223, P2176, P0101,					
Fuel Correction Diagnostic, Portion #2 P0140 no activity signal voltage down stream and P028H state active active once / DCY once /							Ignition	"on"					
and O2SH state active once / DCY	Diagnostic,	P0140	no activity	signal voltage down stream	> 0.298	[V]			[°C]	50		100 ms	2 DCY
Signal voltage down stream < 0.605 [V]						1	O2SH state		,			once / DCY	
Time after engine start >720				signal voltage down stream	< 0.605	[V]							
lambda closed loop > 1000 [g]							Time after engine start	> 720	[s]				
Lambda set-point shifting							Integrated MAF inegral after						
Mass air flow integrated within rich shift >80 [g]							lambda closed loop	> 1000					
rich shift > 80 [g] Mass air flow integral in DFCO < 10 [g] Lambda set-point shifting = 1.15 [-]							Lambda set-point shifting	= 0.85	[-]				
Mass air flow integral in DFCO Lambda set-point shifting = 1.15 1-1								. 00	[a]				
Lambda set-point shifting							TICH SHIIL	> 00	[9]				
Lambda set-point shifting							Mass air flow integral in DECO	< 10	[a]				
Mass air flow integrated within lean shift > 80 [g]							Lambda set-point shifting						
disable No active DTCs:							Mass air flow integrated within						
Conditions: No CKP error P0335, P0336 No CMP error P0340, P0341 P0365, P0366, P0000A, P0000B, P0011, P0011, P0011, P0013, P0014, P0016, P0017, P2088, P2089,								> 80	[g]				
No CMP error P0340, P0341 P0365, P0366, P000A, P000B, P0010, P0011, P0011, P0013, P0016, P0016, P0017, P2088, P2089,					disable		No active DTCs:						
P0365, P0366, P000A, P000B, P0010, P0011, P0013, P0014, P0016, P0017, P2088, P2089,					conditions:	<u> </u>	No CKP error	P0335, P0336					
P0366, P000A, P000B, P0010, P0011, P0013, P0014, P0016, P0017, P2088, P2089,						1	No CMP error						
NO 1V V 1 ellO1							No IVVT error	P0366, P000A, P000B, P0010, P0011, P0013, P0014, P0016, P0017, P2088,					

COMPONENT/ SYSTEM	TEM FAULT MONITOR STRATEGY CODE DESCRIPTION MALFUNCTION		MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
							P0031,					
							P0032,					
							P0036, P0037,					
							P0037, P0038,					
							P0130,					
							P0131,					
							P0132,					
							P0133,					
							P0137,					
							P0138,					
							P0139,					
							P0141,					
							P2270,					
							P2271, P2297,					
							P2297, P2A00,					
						No O2 sensor error	P2A00,					
						THE SE SENIOR SHEET						
							P0300,					
							P0301,					
							P0302,					
						No Miefire error	P0303, P0304, P0313					
						No Misfire error	P0304, P0313					
						No canister purge solenoid	P0443,					
						error	P0458, P0459					
						No mech. canister purge						
						solenoid error	P0496					
							P0121,					
							P0122,					
							P0123,					
							P0221,					
							P0222, P0223,					
							P0223, P2176,					
							P0101,					
						No TPS error	P0068, P1101					
							P0116,					
						No TCO error	P0117,					
						No FSD error	P0171, P0172					
Oxygen Sensor												
	P0141	Resistance Out of Range	resistance	>= 7000	[Ohm]	Ignition	"on"				triggered	
			and a state of the	50		T:	400	r-1	dep.on			0.000
			number of checks	>= 50		Timer	> 120	[s]	driver		resistance calc.	2 DCY
			out of	>= 30		Operative readiness of sensor			shortest		once / DCY	

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE		SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						Exhaust gas Temp. at lambda						
						sensor downstream cat	< 799.98	[°C]	about			
						Setpointtemp. used to create						
						power integral	= 699.98	[°C]	50			
						Measure of cooling energy of exhaust gas at sensor location	> 27685	เขา				
						Battery voltage	> 10	[V]				
						PWM signal	4.297 < PWM < 99.609	[%]				
				diaahla		No pating DTCs:						
				disable	1	No active DTCs:				-		
				conditions:		No MAF error	P0102, P0103					
							P0068,					
						No TPS Error	P0101, P1101					
						No O2 sensor heater error	P0036, P0037, P0038					
Fuel System	D0171	system to lean	additive adaptive value	> = 1.5	[ms]	Lambda control	closed loop	r 1	> = 25	[s]		2 DCY
ruei Systeili	F0171	system to lean	additive adaptive value	>= 1.5	ling	Evap canister load	< 0.2	[-]	> = 23	ادا	20 ms	2 001
						Engine speed	> 608	[rpm]			multiple	
						3 - 1					1	
						Engine load (mass air flow)	> 71	[mg/stk]				
						Engine coolant temperature	> 65.3	[°C]				
						Ambient pressure	> 69.999	[kPa]				
						Intake air temperature	> -9.8 > -9.8	[°C]				
								11°(;1				
						Ambient air temperature		[0]				
						Ignition	"on"	[0]				
				disable		Ignition		[0]				
				disable		Ignition No active DTCs:	"on" P0459, P0458,					
				disable conditions:		Ignition	"on" P0459, P0458, P0443, P0496					
						Ignition No active DTCs: No CPS error	"on" P0459, P0458,					
						Ignition No active DTCs:	"on" P0459, P0458, P0443, P0496 P0118,					
						Ignition No active DTCs: No CPS error No TCO error No MAF error	"on" P0459, P0458, P0443, P0496 P0118, P0117, P0103, P0102 P0301, P0303,					
						Ignition No active DTCs: No CPS error No TCO error	"on" P0459, P0458, P0443, P0496 P0118, P0117, P0103, P0102 P0301,					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE		SECONDARY PARAMETERS	ENABI CONDITI		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
							P0123,					
						No TPS Error	P0122, P0223, P0222					
							P0130,					
							P0134, P0133,					
							P0135, P0135,					
							P0132,					
							P0131, P0032,					
							P0031,					
							P0030,					
						No upstream error	P2297, P2A00					
							P0340, P0341,					
						No CAM error	P0365, P0366					
						No TPS_PLAUS error	P0068, P0101, P1101					
							P0335, P0336					
							P0262, P0261,					
							P0201,					
							P0265,					
							P0264, P0202,					
							P0268,					
							P0267, P0203,					
							P0203, P0271,					
						No injection valve error	P0270, P0204					
							P2229,					
						No ambient pressure Error	P2228, P2227					
							P0073,					
							P0072,					
						No TAM error	P009A, P0074, P0071					
						NO TAMENO	1 0074, F0071					
Fuel System	P0171	system to lean	multiplicative adaptive value	> = 17.999	[%]	Lambda control	closed loop	[-]	> = 22	[s]	20 ms	2 DCY
•		•				Evap canister load	< 0.2	[-]			multiple	
						Engine speed	> 608	[rpm]				
						Engine load (mass air flow)	> 71	[mg/stk]				

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE		SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						Engine coolant temperature	> 65.3	[°C]				
						Ambient pressure	> 69.999	[°C] [kPa]				
						Intake air temperature	> -9.8	[°C]				
						Ambient air temperature	> -9.8	[°C]				
						Ignition	"on"					
				disable		No active DTCs:						
				conditions:		No CPS error	P0459, P0458, P0443, P0496 P0118,					
						No TCO error	P0117,			1		
						140 100 01101	1 01117,					
						No MAF error	P0103, P0102					
						No misfire error	P0301, P0303, P0304, P0302 P0113, P0112,					
						No TPS Error	P0123, P0122, P0223, P0222					
						No upstream error	P0130, P0134, P0133, P0135, P0132, P0131, P0032, P0031, P0030, P2297, P2A00					
						No CAM error	P0340, P0341, P0365, P0366					
						No TPS_PLAUS error	P0068, P0101, P1101					
						No CRK error	P0335, P0336					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No injection valve error	P0262, P0261, P0201, P0265, P0264, P0202, P0268, P0267, P0203, P0271, P0270, P0204					
						No ambient pressure Error No TAM error	P2229, P2228, P2227 P0073, P0072, P009A, P0074, P0071					
Fuel System	P0171	system to lean	lambda controller in dead stop	< -35.0015	[%]	Lambda control Evap canister load Engine speed	closed loop < 0.2 > 608	[-] [-] [rpm]	> = 35	[s]	20 ms multiple	2 DCY
						Engine load (mass air flow) Engine coolant temperature Ambient pressure Intake air temperature Ambient air temperature Ignition	> 71 > 65.3 > 69.999 > -9.8 > -9.8	[mg/stk] [°C] [kPa] [°C] [°C]				
				disable conditions:		No active DTCs: No CPS error	P0459, P0458, P0443, P0496					
						No TCO error No MAF error	P0118, P0117, P0103, P0102 P0301,					
						No misfire error	P0301, P0303, P0304, P0302 P0113, P0112,					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE		SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
							P0123,					
						No TPS Error	P0122, P0223, P0222					
							P0130,					
							P0134,					
							P0133,					
							P0135,					
							P0132,					
							P0131, P0032,					
							P0032, P0031,					
							P0030,					
							P2297,					
						No upstream error	P2A00			L		
							Dag / 0					
							P0340, P0341,					
						No CAM error	P0341, P0365, P0366					
						140 67 (11) 61161	P0068,					
						No TPS_PLAUS error	P0101, P1101					
						No CRK error	P0335, P0336					
							P0262,					
							P0262,					
							P0201,					
							P0265,					
							P0264,					
							P0202,					
							P0268,					
							P0267,					
							P0203, P0271,					
						No injection valve error	P0271, P0270, P0204					
	1							1				
							P2229,					
						No ambient pressure Error	P2228, P2227					
							P0073,					
							P0072,					
							P009A,					
						No TAM error	P0074, P0071					
Fuel System	P0172	system to rich	additive adaptive value	> = -1.5	[ms]	Lambda control	closed loop	[-]	> = 25	[e]		2 DCY
i dei Oysteili	. 0172	System to non	additive adaptive value	z = 1.0	إدانا	Evap canister load	< 0.2	[-]	/ - 25	[s]	20 ms	2 001
						Engine speed	> 608	[rpm]			multiple	
	l					Engine load (mass air flow)	> 71	[mg/stk]		<u> </u>		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE		SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						Engine coolant temperature	> 65.3	[°C]				
						Ambient pressure	> 69.999	[kPa]				
						Intake air temperature	> -9.8	[°C]				
						Ambient air temperature	> -9.8	[°C]				
						Ignition	"on"					
				disable		No active DTCs:						
				conditions:		No CPS error	P0459, P0458, P0443, P0496					
							P0118,					
						No TCO error	P0117,					
						No MAF error	P0103, P0102					
						No misfire error	P0301, P0303, P0304, P0302					
						No IAT error	P0113, P0112,					
							P0123, P0122, P0223, P0222					
							P0130, P0134, P0133, P0135, P0132,					
							P0131, P0032, P0031, P0030, P2297,					
						·	P2A00 P0340, P0341,					
						No CAM error	P0365, P0366 P0068,					
							P0101, P1101					
						No CRK error	P0335, P0336			<u>L</u>		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No injection valve error	P0262, P0261, P0201, P0265, P0264, P0202, P0268, P0267, P0203, P0271, P0270, P0204					
						No ambient pressure Error No TAM error	P2229, P2228, P2227 P0073, P0072, P009A, P0074, P0071					
Fuel System	P0172	system to rich	multiplicative adaptive value	>= -17.0	[%]	Lambda control Evap canister load Engine speed	closed loop < 0.2 > 608	[-] [-] [rpm]	>= 22	[s]	20 ms multiple	2 DCY
						Engine load (mass air flow) Engine coolant temperature Ambient pressure Intake air temperature Ambient air temperature Ignition	> 71 > 65.3 > 69.999 > -9.8 > -9.8	[mg/stk] [°C] [kPa] [°C] [°C]				
				disable conditions:		No active DTCs: No CPS error	P0459, P0458, P0443, P0496					
						No TCO error No MAF error	P0118, P0117, P0103, P0102 P0301,					
						No misfire error	P0301, P0303, P0304, P0302 P0113, P0112,					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
							P0123,					
						No TPS Error	P0122, P0223, P0222					
							P0130,					
							P0134,					
							P0133,					
							P0135, P0132,					
							P0132, P0131,					
							P0032,					
							P0031,					
							P0030,					
						No unotroom orror	P2297, P2A00					
							P0340,					
							P0341,					
						No CAM error	P0365, P0366 P0068,					
						No TPS_PLAUS error	P0101, P1101					
						No CRK error	P0335, P0336					
							P0262,					
							P0261,					
							P0201, P0265,					
							P0263, P0264,					
							P0202,					
							P0268,					
							P0267,					
							P0203, P0271,					
							P0271,					
							P2229,					
						No ambient pressure Error	P2228, P2227					
							P0073,					
							P0072,					
						l.,	P009A,					
						No TAM error	P0074, P0071					
uel System	P0172	system to rich	lambda controller in dead stop	< 2535.001	[%]	Lambda control	closed loop	[-]	> = 35	[s]	20 ms	2 DCY
		,				Evap canister load	< 0.2	[-]			multiple	
						Engine speed	> 608	[rpm]				
						Engine load (mass air flow)	> 71	[mg/stk]				

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE		SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						Engine coolant temperature	> 65.3	[°C]				
						Ambient pressure	> 69.999	[kPa]	1			
						Intake air temperature	> -9.8	[°C]				
						Ambient air temperature	> -9.8	[°C]	1			
						Ignition	"on"					
						3	_					
				disable		No active DTCs:						
				conditions:			P0459, P0458, P0443, P0496					
				conditions.		140 01 0 01101	P0118,		1			
							P0117,					
						No MAF error	P0103, P0102					
							P0301, P0303, P0304, P0302					
							P0113,					
						No IAT error	P0112,					
							P0123, P0122, P0223, P0222					
						No upstream error No CAM error	P0130, P0134, P0134, P0135, P0132, P0131, P0032, P0031, P0030, P2297, P2A00 P0340, P0341, P0365, P0366 P0068,					
							P0068, P0101, P1101					
						No CRK error	P0335, P0336					

Po262, Po261, Po201, Po205, Po201, Po205, Po204, Po201, Po205, Po204, Po202, Po208, Po208, Po208, Po208, Po208, Po208, Po208, Po208, Po208, Po209,	TIME REQU	TIME RE	EQUIRED	FREQUENCY OF CHECKS	MIL ILLUM.
Cylinder #1 This diagnostic detects the error via the ECM hardware (ATIC39). The diagnosis is only performed if there is no cylinder shut off and between a minimum (320 rpm) and maximum engine speed (worst case for diagnosis is a cold engine and high engine speed, then it is possible that all injectors are activated all the time without interruption). The driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground Logical variable for raw KEY_OFF "off" Ignition "on" Battery voltage > 9 [V] No cyl specific fuel cut off Fuel pump is running Fruel pump is running Engine "running" Engine speed S20 [rpm]					
Cylinder #1 This diagnostic detects the error via the ECM hardware (ATIC39). The diagnosis is only performed if there is no cylinder shut off and between a minimum (320 prm) and maximum engine speed (worst case for diagnosis is a cold engine and high engine speed, then it is possible that all injectors are activated all the time without interruption). The driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground Logical variable for raw KEY_OFF "off" Ignition "on" Battery voltage > 9 [V] No cyl specific fuel cut off Fuel pump is running Fruel pump is running Fingine "running" Engine speed S20 [rpm]					
Cylinder #1 This diagnostic detects the error via the ECM hardware (ATIC39). The diagnosis is only performed if there is no cylinder shut off and between a minimum (320 rpm) and maximum engine speed (worst case for diagnosis is a cold engine and high engine speed, then it is possible that all injectors are activated all the time without interruption). The driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground Logical variable for raw KEY_OFF "off" pen circuit Spen circuit					
Cylinder #1 This diagnostic detects the error via the ECM hardware (ATIC39). The diagnosis is only performed if there is no cylinder shut off and between a minimum (320 rpm) and maximum engine speed (worst case for diagnosis is a cold engine and high engine speed, then it is possible that all injectors are activated all the time without interruption). The driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground This diagnostic detects the error via the ECM hardware (ATIC39). The diagnosis is a cole open circuit Ignition Ignition No cyl specific fuel cut off Fuel pump is running Engine "running" Engine speed > 320 [rpm]					
P0201 error via the ECM hardware (ATIC39). The diagnosis is only performed if there is no cylinder shut off and between a minimum (320 rpm) and maximum engine speed (worst case for diagnosis is a cold engine and high engine speed, then it is possible that all injectors are activated all the time without interruption). The driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground engine speed (sCB), Short to ground engine speed error via the ECM hardware (ATIC39). Battery voltage > 9 [V] No cyl specific fuel cut off engine speed (specific fuel cut off engine speed) Fuel pump is running engine speed e	3200	3200	[ms]	200 ms	2 DCY
(ATIC39). The diagnosis is only performed if there is no cylinder shut off and between a minimum (320 rpm) and maximum engine speed (worst case for diagnosis is a cold engine and high engine speed, then it is possible that all injectors are activated all the time without interruption). The driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground				continuous	
cylinder shut off and between a minimum (320 rpm) and maximum engine speed (worst case for diagnosis is a cold engine and high engine speed, then it is possible that all injectors are activated all the time without interruption). The driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground				Continuous	
minimum (320 rpm) and maximum engine speed (worst case for diagnosis is a cold engine and high engine speed, then it is possible that all injectors are activated all the time without interruption). The driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground Mo cyl specific fuel cut off Fuel pump is running "running" "running" Engine speed > 320 [rpm]					
maximum engine speed (worst case for diagnosis is a cold engine and high engine speed, then it is possible that all injectors are activated all the time without interruption). The driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground					
engine and high engine speed, then it is possible that all injectors are activated all the time without interruption). The driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground					
engine and nigh engine speed, then it is possible that all injectors are activated all the time without interruption). The driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground Engine speed 40006016 [rpm]					
injectors are activated all the time without interruption). The driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground Engine speed 40006016 [rpm]					
driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground Engine speed 5320 [rpm]					
between three errors: Short to battery (SCB), Short to ground Engine speed 40006016 [rpm]					
battery (SCB), Short to ground Engine speed 40006016 [rpm]					1
(SCG) and Open line (OL)					
SCB and real OL are detected by the driver only if the output is					
driven (ON-state), additionally					
SCG will be detected as OL No active DTC's:					
also in ON-state. If the output No Control Module Error P0607					
is non-driven (OFF-state) by the driver, SCG is detected. No fuel pump relay error P0628, P0629					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE	SECONDARY PARAMETER	RS ENAB		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
Injector Control Circuits											
Cylinder #2					Logical variable for raw KEY_OFF	"off"					
	P0202	This diagnostic detects the error via the ECM hardware	open circuit		Ignition	"on"		3200	[ms]	200 ms	2 DCY
		(ATIC39). The diagnosis is only performed if there is no	- Control of the cont		Battery voltage	> 9	[V]		[o]	continuous	
		cylinder shut off and between a minimum (320 rpm) and			No cyl specific fuel cut off						
		maximum engine speed (worst case for diagnosis is a cold			Fuel pump is running						
		engine and high engine speed, then it is possible that all injectors are activated all the			Engine	"running"					
		time without interruption). The driver ATIC39 can distinguish			Engine speed	> 320	[rpm]				
-		between three errors: Short to battery (SCB), Short to ground			Engine speed	40006016	[rpm]				
		(SCG) and Open line (OL). SCB and real OL are detected									
		by the driver only if the output is driven (ON-state), additionally			No active DTC's:						
		SCG will be detected as OL also in ON-state. If the output			No Control Module Error	P0607					
		is non-driven (OFF-state) by the driver, SCG is detected.			No fuel pump relay error	P0628, P0629	9				
Injector Control Circuits											
Cylinder #3					Logical variable for raw KEY_OFF	"off"					-
	P0203	This diagnostic detects the error via the ECM hardware	open circuit		Ignition	"on"		3200	[ms]	200 ms	2 DCY
		(ATIC39). The diagnosis is only performed if there is no			Battery voltage	> 9	[V]			continuous	
		cylinder shut off and between a minimum (320 rpm) and			No cyl specific fuel cut off						
		maximum engine speed (worst case for diagnosis is a cold			Fuel pump is running						
		engine and high engine speed, then it is possible that all			Engine	"running"					
		injectors are activated all the time without interruption). The			Engine speed	> 320	[rpm]				
		driver ATIC39 can distinguish			Engine speed	< 40006016	[rpm]				

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM
		between three errors: Short to battery (SCB), Short to ground			Τ					T		
		(SCG) and Open line (OL).										
		SCB and real OL are detected by the driver only if the output is										
		driven (ON-state), additionally				No active DTC's:						
		SCG will be detected as OL										
		also in ON-state. If the output is non-driven (OFF-state) by				No Control Module Error	P0607					
		the driver, SCG is detected.				No fuel pump relay error	P0628, P0629					
_					 							
Injector Control Circuits					1	Logical variable for raw				1		
Cylinder #4						KEY_OFF	"off"					
	P0204	This diagnostic detects the	an an aircuit			lanition	"on"		2200	[]	200	2 DCV
	P0204	error via the ECM hardware (ATIC39). The diagnosis is	open circuit			Ignition	"on"		3200	[ms]	200 ms	2 DCY
		only performed if there is no				Battery voltage	> 9	[V]			continuous	
		cylinder shut off and between a				No cyl specific fuel cut off						
		minimum (320 rpm) and maximum engine speed (worst				ino cyr specific ruer cut off						
		case for diagnosis is a cold				Fuel pump is running						
		engine and high engine speed,				Engine	"running"					
		then it is possible that all injectors are activated all the					Ü					
		time without interruption). The				Engine speed	> 320	[rpm]		-		
		driver ATIC39 can distinguish				Engine speed	40006016	[rpm]				
		between three errors: Short to battery (SCB), Short to ground										
		(SCG) and Open line (OL).										
		SCB and real OL are detected										
		by the driver only if the output is										
		driven (ON-state), additionally SCG will be detected as OL										
		also in ON-state. If the output				No active DTC's:						
		is non-driven (OFF-state) by				No Control Module Error	P0607					
		the driver, SCG is detected.										
						No fuel pump relay error	P0628, P0629					
TP Sensor 2	P0221	rationalty check	actaul TPS 2 - calc. value	> 1	[-]	Ignition	"on"				10 ms	1 DCY
		,	****			Engine	"running"		400		continuous	
						No adaption is requested						
				disable	1	No active DTC's:	1		1	1		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
				conditions:		No supply voltage error	P0642, P0643					
TP Sensor 2	P0222	short to ground or open circuit	TP Volts	< 0.19 (3,8 %)	[V]	Ignition	"on"		200	[ms]	10 ms continuous	1 DCY
				disable conditions:		No active DTC's:						
						No supply voltage error	P0642, P0643					
TP Sensor 2	P0223	short to battery plus	TP Volts	> 4.823 (96,5 %)	[V]	Ignition	"on"		200	[ms]	10 ms continuous	1 DCY
				disable		No active DTC's:						
				conditions:		No supply voltage error	P0642, P0643					
Injector Control Circuits		This diagnostic datasts the				Logical variable for raw						
Cylinder #1	P0261	This diagnostic detects the error via the ECM hardware	short to ground			KEY_OFF	"off"					
		(ATIC39). The diagnosis is				Ignition	"on"		3200	[ms]	200 ms	2 DCY
		only performed if there is no cylinder shut off and between a							3200	[IIIO]		2 001
		minimum (320 rpm) and				Battery voltage	> 9	[V]			continuous	
		maximum engine speed (worst case for diagnosis is a cold				No cyl specific fuel cut off						
		engine and high engine speed,				Fuel pump is running						
		then it is possible that all injectors are activated all the				r der pump is running						
		time without interruption). The				Engine	"running"					
		driver ATIC39 can distinguish between three errors: Short to				Engine speed	> 320	[rpm]				
		battery (SCB), Short to ground				Engine speed	< 40006016	[rpm]				
		(SCG) and Open line (OL).				Engine opeca	10000010	[ibiii]				
		SCB and real OL are detected by the driver only if the output is										
		driven (ON-state), additionally										
		SCG will be detected as OL also in ON-state. If the output		disable		No active DTC's:						
		is non-driven (OFF-state) by										
		the driver, SCG is detected.		conditions:		No Control Module Error	P0607					
					-	No fuel pump relay error	P0628, P0629					
Injector Control Circuits		This discuss sais data at 1				Logical variable for raw						
Cylinder #1	P0262	This diagnostic detects the error via the ECM hardware	short to battery plus			KEY_OFF	"off"					
		(ATIC39). The diagnosis is							3200		200 ms	2 DCY

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
		cylinder shut off and between a minimum (320 rpm) and			Battery voltage	> 9	[V]			continuous	
		maximum engine speed (worst									
		case for diagnosis is a cold			No cyl specific fuel cut off						
		engine and high engine speed,			Fuel pump is running						
		then it is possible that all			r der parrip te ranning						
		injectors are activated all the time without interruption). The			Engine	"running"					
		driver ATIC39 can distinguish									
		between three errors: Short to			Engine speed	> 320	[rpm]				
		battery (SCB), Short to ground			Engine speed	40006016	[rpm]				
		(SCG) and Open line (OL).			Engine speed	40000010	[ipiii]				
		SCB and real OL are detected									
		by the driver only if the output is									
		driven (ON-state), additionally									
		SCG will be detected as OL also in ON-state. If the output		disable	No active DTC's:						
		is non-driven (OFF-state) by		uisable	No active DTC s.						
		the driver, SCG is detected.		conditions:	No Control Module Error	P0607					
		·			No fuel pump relay error	P0628, P0629					
Injector Control Circuits		This diagnostic detects the			Logical variable for raw						
Cylinder #2	P0264	- C	short to ground		KEY OFF	"off"		3200	[ms]	200 ms	2 DCY
,		(ATIC39). The diagnosis is	<u> </u>		_				1		
		only performed if there is no			Ignition	"on"				continuous	
		cylinder shut off and between a			Pottory voltage	> 9	r\ /1				
		minimum (320 rpm) and			Battery voltage	> 9	[V]				
		maximum engine speed (worst case for diagnosis is a cold			No cyl specific fuel cut off						
		engine and high engine speed,									
		then it is possible that all			Fuel pump is running						
		injectors are activated all the			Engino	"rupping"					
		time without interruption). The			Engine	"running"					
		driver ATIC39 can distinguish			Engine speed	> 320	[rpm]				
		between three errors: Short to				<					
		battery (SCB), Short to ground (SCG) and Open line (OL).			Engine speed	40006016	[rpm]				
		SCB and real OL are detected									
		by the driver only if the output is								1	
		driven (ON-state), additionally		disable							
		SCG will be detected as OL									
		also in ON-state. If the output		conditions:	No active DTC's:						
		is non-driven (OFF-state) by the driver, SCG is detected.			No Control Module Error	P0607					
					No fuel pump relay error	P0628, P0629					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VAL	UE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
Injector Control Circuits Cylinder #2	P0265	This diagnostic detects the error via the ECM hardware	short to battery plus			Logical variable for raw KEY_OFF	"off"					
Cymruer #2	1 0203	(ATIC39). The diagnosis is	Short to battery plus									
		only performed if there is no				Ignition	"on"		3200	[ms]	200 ms	2 DCY
		cylinder shut off and between a minimum (320 rpm) and				Battery voltage	> 9	[V]			continuous	
		maximum engine speed (worst case for diagnosis is a cold				No cyl specific fuel cut off						
		engine and high engine speed, then it is possible that all				Fuel pump is running						
		injectors are activated all the				Engine	"running"					
		time without interruption). The driver ATIC39 can distinguish				Engine speed	> 320	[rpm]				
		between three errors: Short to battery (SCB), Short to ground				Engine speed	< 40006016	[rpm]				
		(SCG) and Open line (OL). SCB and real OL are detected				- ngmo spess		[]				
		by the driver only if the output is										
		driven (ON-state), additionally										
		SCG will be detected as OL also in ON-state. If the output		disable		No active DTC's:						
		is non-driven (OFF-state) by the driver, SCG is detected.		conditions:		No Control Module Error	P0607					
						No fuel pump relay error	P0628, P0629					
Injector Control Circuits Cylinder #3	P0267	This diagnostic detects the error via the ECM hardware	short to ground			Logical variable for raw KEY_OFF	"off"					
		(ATIC39). The diagnosis is				Ignition	"on"		3200	[ms]	200 ms	2 DCY
		only performed if there is no cylinder shut off and between a				ignition	OII		3200	liiiol	200 1113	2 001
		minimum (320 rpm) and				Battery voltage	> 9	[V]			continuous	
		maximum engine speed (worst				No cyl specific fuel cut off						
		case for diagnosis is a cold engine and high engine speed,										
		then it is possible that all				Fuel pump is running						
		injectors are activated all the				Engine	"running"					
		time without interruption). The driver ATIC39 can distinguish			-	Engine speed	> 320	[rpm]				
		between three errors: Short to				пуне эрееи	> 320	[ihiii]				
		battery (SCB), Short to ground				Engine speed	40006016	[rpm]				
		(SCG) and Open line (OL). SCB and real OL are detected										
		by the driver only if the output is										
		driven (ON-state), additionally				1			I			I

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD	/ALUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
		SCG will be detected as OL also in ON-state. If the output		disable		No active DTC's:						
		is non-driven (OFF-state) by the driver, SCG is detected.		conditions:		No Control Module Error	P0607					
						No fuel pump relay error	P0628, P0629					
Injector Control Circuits Cylinder #3	P0268	This diagnostic detects the error via the ECM hardware	short to battery plus			Logical variable for raw KEY_OFF	"off"					
		(ATIC39). The diagnosis is only performed if there is no				Ignition	"on"		3200	[ms]	200 ms	2 DCY
		cylinder shut off and between a minimum (320 rpm) and				Battery voltage	> 9	[V]			continuous	
		maximum engine speed (worst case for diagnosis is a cold				No cyl specific fuel cut off						
		engine and high engine speed, then it is possible that all				Fuel pump is running						
		injectors are activated all the time without interruption). The				Engine	"running"					
		driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground				Engine speed	> 320	[rpm]				
		(SCG) and Open line (OL). SCB and real OL are detected				Engine speed	40006016	[rpm]				
		by the driver only if the output is driven (ON-state), additionally										
		SCG will be detected as OL also in ON-state. If the output		disable		No active DTC's:						
		is non-driven (OFF-state) by the driver, SCG is detected.		conditions:		No Control Module Error	P0607					
						No fuel pump relay error	P0628, P0629					
Injector Control Circuits Cylinder #4	P0270	This diagnostic detects the error via the ECM hardware	short to ground			Logical variable for raw KEY_OFF	"off"					
		(ATIC39). The diagnosis is only performed if there is no				Ignition	"on"		3200	[ms]	200 ms	2 DCY
		cylinder shut off and between a minimum (320 rpm) and				Battery voltage	> 9	[V]			continuous	
		maximum engine speed (worst case for diagnosis is a cold				No cyl specific fuel cut off						
		engine and high engine speed, then it is possible that all				Fuel pump is running						
		injectors are activated all the time without interruption). The				Engine	"running"					
		driver ATIC39 can distinguish				Engine speed	> 320	[rpm]				<u> </u>

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITION		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
		between three errors: Short to battery (SCB), Short to ground				Engine speed	< 40006016	[rpm]				
		(SCG) and Open line (OL). SCB and real OL are detected				angure operation		[.]]				
		by the driver only if the output is driven (ON-state), additionally										
		SCG will be detected as OL also in ON-state. If the output		disable		No active DTC's:						
		is non-driven (OFF-state) by the driver, SCG is detected.		conditions:		No Control Module Error	P0607					
						No fuel pump relay error	P0628, P0629					
Injector Control Circuits Cylinder #4	P0271	This diagnostic detects the error via the ECM hardware	short to battery plus			Logical variable for raw KEY_OFF	"off"					
		(ATIC39). The diagnosis is only performed if there is no				Ignition	"on"		3200	[ms]	200 ms	2 DCY
		cylinder shut off and between a minimum (320 rpm) and				Battery voltage	> 9	[V]			continuous	
		maximum engine speed (worst case for diagnosis is a cold				No cyl specific fuel cut off						
		engine and high engine speed, then it is possible that all				Fuel pump is running						
		injectors are activated all the time without interruption). The				Engine	"running"					
		driver ATIC39 can distinguish between three errors: Short to				Engine speed	> 320	[rpm]				
		battery (SCB), Short to ground (SCG) and Open line (OL).				Engine speed	< 40006016	[rpm]				
		SCB and real OL are detected by the driver only if the output is										
		driven (ON-state), additionally SCG will be detected as OL										
		also in ON-state. If the output is non-driven (OFF-state) by		disable		No active DTC's:						
		the driver, SCG is detected.		conditions:		No Control Module Error	P0607					
						No fuel pump relay error	P0628, P0629					
							more than					
Misfire	P0300	multiple cylinder misfire	multiple cylinder misfire				one single misfire					2 DCY
Cylinder # 1	P0301	single or multiple misfire	emission threshold	AT>2,04		Ignition	"on"		1000	[rev]	180°CA	2 DCY
			misfire rate (MR) 1st intervall	MT>2,70	%	Time after engine start	+2 crankshaft rev.		1000	[rev]	continuous	2 DCY

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD	VALUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM
			emission threshold	AT>2,04	%	engine speed range	608 6528	[rpm]	1000	[rev]	180°CA	2 DCY
			misfire rate (MR)	MT>2,7	%	Engine load	AT > 65195	[mg/stk]	1000	[rev]	continuous	2 DCY
						Engine load	MT > 70185	[mg/stk]				
			catalyst damage misfire rate (MR)	> 8,5	%	rough road Fuel cut off	not active		200	[rev]	180°CA continuous	2 DCY
						Throttle position gradient	503.8949.0	[°TPS/s]				
						MAF difference Engine	3540 "running"	[mg/stk]				
						g2						
				disable conditions:		No active DTC's:						
						No MAF error	P0101, P1101, P0102, P0103					
						No Cam sensor error	P0016, P0340, P0341					
						No Crank sensor error	P0335, P0336	i				
						No TPS error	P0068, P0121, P0122, P0123, P0221, P0222, P0223,					
Cylinder # 2	P0302	single or multiple misfire	emission threshold	AT>2,04		Ignition	"on"		1000	[rev]	180°CA	2 DCY
			misfire rate (MR) 1st intervall	MT>2,70	9/		+2 crankshaft		1000	[roy]		2 DCY
			emission threshold	AT>2,04	%	Time after engine start engine speed range	rev. 608 6528	[rpm]	1000	[rev]	continuous 180°CA	2 DCY
			misfire rate (MR)	MT>2,7	%	Engine load	AT > 65195		1000	[rev]	continuous	2 DCY
						Engine load	MT > 70185	[mg/stk]				
			catalyst damage misfire rate (MR)	> 8,5	%	rough road Fuel cut off	not active		200	[rev]	180°CA continuous	2 DCY

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITION		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						Throttle position gradient	503.8949.0	[°TPS/s]				
						MAF difference Engine	3540 "running"	[mg/stk]				
				disable		No active DTC's:	P0101,					
				conditions:		No MAF error	P1101, P0102, P0103					
						No Cam sensor error	P0016, P0340, P0341					
						No Crank sensor error	P0335, P0336 P0068,					
							P0008, P0121, P0122, P0123, P0221,					
						No TPS error	P0222, P0223,					
Cylinder # 3	P0303	single or multiple misfire	emission threshold	AT>2,04		Ignition	"on"		1000	[rev]	180°CA	2 DCY
			misfire rate (MR) 1st intervall	MT>2,70	%	Time after engine start	+2 crankshaft rev.		1000	[rev]	continuous	2 DCY
			emission threshold	AT>2,04	%	engine speed range	608 6528	[rpm]	1000	[rev]	180°CA	2 DCY
			misfire rate (MR)	MT>2,7	%	Engine load	AT > 65195		1000	[rev]	continuous	2 DCY
						Engine load	MT > 70185	[mg/stk]				
			catalyst damage misfire rate (MR)	> 8,5	%	rough road Fuel cut off	not active		200	[rev]	180°CA continuous	2 DCY
					-	Throttle position gradient	503.8949.0	[°TPS/s]				
						MAF difference Engine	3540 "running"	[mg/stk]				
				disable		No active DTC's:						

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD	VALUE	SECONDARY PARAMETERS	ENABL CONDITION		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
				r			P0101, P1101,					
				conditions:		No MAF error	P0102, P0103					
						No Cam sensor error No Crank sensor error	P0340, P0341 P0335, P0336					
						No TPS error	P0068, P0121, P0122, P0123, P0221, P0222, P0223,					
Cylinder # 4	P0304	single or multiple misfire	emission threshold	AT>2,04		Ignition	"on"		1000	[rev]	180°CA	2 DCY
			misfire rate (MR) 1st intervall	MT>2,70	%	Time after engine start	+2 crankshaft rev.		1000	[rev]	continuous	2 DCY
			emission threshold	AT>2,04	%	engine speed range	608 6528	[rpm]	1000	[rev]	180°CA	2 DCY
			misfire rate (MR)	MT>2,7	%	Engine load	AT > 65195	[mg/stk]	1000	[rev]	continuous	2 DCY
						Engine load	MT > 70185	[mg/stk]				
			catalyst damage misfire rate (MR)	> 8,5	%	rough road Fuel cut off	not active not active		200	[rev]	180°CA continuous	2 DCY
						Throttle position gradient	503.8949.0	[°TPS/s]				
						MAF difference Engine	3540 "running"	[mg/stk]				
				diaabla		No active DTC's:						
				disable conditions:		No MAF error	P0101, P1101, P0102, P0103					
						No Cam sensor error	P0016, P0340, P0341					
						No Crank sensor error	P0335, P0336					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQI	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No TPS error	P0068, P0121, P0122, P0123, P0221, P0222, P0223,					
			misfire with low fuel tank				†					
Misfire	P0313	misfire with low fuel tank level	level			Ignition	"on"					2 DCY
						Time after engine start engine speed range Engine load	+2 crankshaft rev. 608 6528 AT > 65195	[rpm]				
						Engine load	MT > 70185	[mg/stk]				
						rough road Fuel cut off	not active not active					
						Throttle position gradient	503.8949.0	[°TPS/s]				
						MAF difference	3540	[mg/stk]				
						Engine	"running"	[IIIg/SIK]				
				disable		No active DTC's:						
				conditions:		No MAF error	P0101, P1101, P0102, P0103					
						No Cam sensor error	P0016, P0340, P0341					
						No Crank sensor error	P0335, P0336					
							P0068, P0121, P0122, P0123, P0221, P0222,					
						No TPS error	P0223,					
Knock Control	P0325	Circuit Diagnosis	noise level	< 0.1 or > 4.8	[V]	Ignition Engine	"on" "running"		7200	[°CA]	180°CA continuous	2 DCY

The purpose of this diagnostic is to observe the annulo priput signal (knock signal) from the ATMA0 devices that make the microcontroller. The signal is checked continuously by a range check of the signal and with two algorithms, which observe the signal bandwidth A sleve and a master algorithm is used. Both algorithms have to show the same state to increment the failure counter. The absolute noise value of the ATMA0 device is checked if it is inside the normal operating range. The bandwidth of the signal is evaluated for cylinder 2 and 3. In case of short to ground, short to battery or open line the bandwidth is malare than during normal operation. To monitor the bandwidth of the signal the counter is compared with a calibratable threshold. If the bandwidth magnitude of cylinder 2 and 3 does not exceed a value, the cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is reset as soon as the knock signal value of cylinder 2 or 3 exceeds the threshold. If the become counter is certain the excitation and the every and the every accounter is the excitation and the every accounter is the excitation and the every accounter is the excitation and the every accounter is the excitation and the every accounter is the excitation and the every accounter is the excitation and the every accounter is the every accounter is the excitation and the every accounter is the every accounter is the every accounter is the every accounter is the every accounter is the ev	ONENT/ SYSTEM FA	ATEGY ON MALFUNCTION CRITERIA THREASHOLD VALUE SECONDARY PARAMETERS CONDITIONS TIME REQU	FREQUENCY OF CHECKS MIL ILLUM
signal (Knock signal) from the ATM40 device to the microcontroller. The signal is checked continuously by a range check of the signal and with two algorithms, which observe the signal bandwidth. A slave and a master algorithm is used. Both algorithms have to show the same state to increment the failure counter. The absolute noise value of the ATM40 device is checked if it is inside the normal operating range. The bandwidth of the signal is evaluated for cylinder 2 and 3. In case of short to ground, short to battery or open line the bandwidth is smaller than during normal operation. To monitor the bandwidth is maller than during normal operation. To monitor the bandwidth is actilizatioable threshold. If the bandwidth magnitude is compared with a calibratable threshold. If the bandwidth magnitude of cylinder 2 and 3 does not exceed a value, the cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is incremented by 1 every 360°. This cycle counter is the threshold. If the cycle counter is not the threshold. If the cycle counter is not the threshold. If the cycle counter is not the threshold. If the cycle counter is not the threshold. If the cycle counter is not the threshold. If the cycle counter is not the threshold. If the cycle counter is not the threshold. If the cycle counter is not the threshold of the cycle counter is not the threshold. If the cycle counter reaches a max value, a knock sensor			
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the cycle counter reaches a max value, a knock sensor			
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failure is detected as long as			
the slave algorithm confirms			
the failure also. The slave			
algorithm uses the bandwidth of the signal as well. The			

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	A THREASHOLD VALUE \$		SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
		bandwidths of cylinder 2 and 3 are accumulated via an integration method. The accumulated voltage value is compared every revolution with the calibratable threshold. As soon as the threshold is reached the cycle counter is (incremented every 360°) is reset. After the failure has been detected and confirmed, the coresponding P-Code will be stored.				Not in decel fuel cut off						
						Not in decel mode						
						Mass air flow	> 220	[mg/stk]				
						Engine speed	> 2496	[rpm]				
						Mass air flow	> 185272	[mg/stk]				
				disable		No active DTCs:						
				conditions:		No CAM error	P0340, P0341, P0365, P0366					
						No CRK error No ECU error	P0335, P0336 P601, P602, P604					
Knock Control	P0326	plausibility check	master cycle counter slave cycle counter	>= 150 >= 150	[seg]	Ignition Engine	"on" "running"		7200	[°CA]	every 360° CA continuous	2 DCY
			ciave eyele eeumei		[009]	Not in decel fuel cut off	· · · · · · · · · · · · · · · · · · ·				001111111111111111111111111111111111111	
						Not in decel mode						
						Mass air flow Engine speed	> 220 > 2496	[mg/stk] [rpm]				
						Mass air flow	> 185272	[mg/stk]				
				diaabla		No active DTCs						
				disable		No active DTCs:						
				conditions:		No CAM error	P0340, P0341, P0365, P0366					
						No CRK error	P0335, P0336					
						No ECU error	P601, P602, P604					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE		SECONDARY PARAMETERS	ENABLE CONDITIO	TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
Crankshaft sensor circuit Electrical											
Diagnosis	P0335	signal missing	No signal			Ignition	"on"	1440	[°CA]	every 360° CA	1 DCY
Diagnosis	F0333	signal missing	INO Signal			Engine	"running	1440	[CA]	continuous	1 001
							g			COMMINGUE	
Crankshaft Position Sensor Performance											
Diagnosis	P0336	plausibility check	Signal available			Ignition	"on"	3600	[°CA]	every 360° CA	1 DCY
						Engine	"running			continuous	
			+				CRK error	 			
							limp home not				
						Limp Home Not Active	active				
						·					
		playajhility about	Signal available			lanition	""	2460	[0C A]	200° CA	1 DCV
		plausibility check	Signal available			Ignition Engine	"on" "running	2160	[°CA]	every 360° CA continuous	1 DCY
						Liigiile	ranning			Continuous	
									1		
							CRK error				
							limp home not				
						Limp Home Not Active	active				
		plausibility check	Signal available			Ignition	"on"	2520	[°CA]	every 360° CA	1 DCY
						Engine	"running			continuous	
					1		1	-			
		Missing tooth detection	one tooth to many or to few	<> one tooth	1	Fuel cut off	active	7200	[°CA]	720 °CA	1 DCY
		3				Ignition	"on"		1	2	
						Engine	"running				
										multiple	
				disable		No active DTC's:					
					1		P0453,				
				conditions:	1	No CPS error	P0458, P0443				
					1		P0016,				
					1		P0340,				
					1	l., _	P0341,	1			
						No Cam sensor error	P0365, P0366	 			<u> </u>

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE		SECONDARY PARAMETERS	ENABL CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No IV error	P0262, P0261, P0201, P0265, P0264, P0202,					
						No IV error No Crk sensor error	P0268, P0267, P0203, P0271, P0270, P0204 P0335					
						Ignition Engine	"on" "running					
		out of range	segment adaptation over limit	> 7.8	[‰]	Fuel cut off Engine speed	active > 1216 and < 4000	[rpm]	8640	[°CA]	720 °CA multiple	1 DCY
				disable conditions:		No active DTC's: No CPS error	P0453, P0458, P0443					
						No Cam sensor error	P0016, P0340, P0341, P0365, P0366					
						No IV error	P0262, P0261, P0201, P0265, P0264, P0202,					
						No IV error No Crk sensor error	P0268, P0267, P0203, P0271, P0270, P0204 P0335					
Intake Camshaft Position (CMP) Sensor	P0340	No Signal	No signal edge is detected for a max time between two camshaft signal edges			Ignition engine in synchronized mode	"on"		2520	[°CA]	every 360° CA	2 DCY

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE		SECONDARY PARAMETERS	ENABL CONDITIO	TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						N 570					
				disable		No active DTCs:					
				conditions:		No CKP error	P0335, P0336				
Intake Camshaft Position (CMP) Sensor	P0341	plausibility check	Crankshaft tooth number when camshaft 1 interrupt occurs	< 2 and > 22	[-]	Ignition	"on"	2520	[°CA]	every 360° CA	2 DCY
			Crankshaft tooth number when camshaft 1 interrupt occurs	< 62 and > 82	[-]	engine in synchronized mode	active			continuous	
				disable		No active DTCs:					
				conditions:		No CKP error	P0335, P0336				
Exhaust Camshaft Position (CMP) Sensor	P0365	No Signal	No signal edge is detected for a max time between two camshaft signal edges			Ignition engine in synchronized mode	"on" active	3240	[°CA]	every 360° CA continuous	2 DCY
				disable		No active DTCs:					
				conditions:		No CKP error	P0335, P0336				
				conditions.		No CMP Intake error	P0340, P0341				
						* *	,				
			Crankshaft tooth number when camshaft 2 interrupt								
Exhaust Camshaft	P0366	plausibility check	occurs	< 40 and > 58	[-]	Ignition	"on"	3240	[°CA]	every 360° CA	2 DCY
Exhaust Camshaft Position (CMP) Sensor	. 0000		Crankshaft tooth number when camshaft 2 interrupt			engine in synchronized mode	active			continuous	
	1 0000			disable		engine in synchronized mode No active DTCs:	active			continuous	
			when camshaft 2 interrupt	disable conditions:		engine in synchronized mode No active DTCs: No CKP error	active P0335, P0336			continuous	

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE		SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
Catalyst Monitor	P0420	CAT damaged	amplitude ratio O2S	>1	[-]	engine speed Ignition	>= 1312; < 3392 "on"	[rpm]	90	[s]	20 ms	2 DCY
						Engine	"running"					
						mass air flow	>= 130; < 350	[mg/stk]	(driver		once / DCY	
						Hysteresis for mass air flow	10.033	[mg/stk]	dependant)			
						Minimum catalyst temperature	>450	[°C]				
						Maximum catalyst temperature Hysteresis for catalyst	<850	[°C]				
						temperature	50	[°C]				
						ambient pressure MAF integral to engage EGTR after DFCO, CL max purge, forced stimulation on,	>=74.999	[kpa]				
						LS_DOWN ready MAF integral for EGTR	20	[g]				
						activation after MAX to NO_PURGE and back Max. p-share from	5	[g]				
						trimcontroller threshold evap canister load	<190 <=0.8	[s]				
						ECT	>54.75	[°C]				
						evap purge valve	not active/wait ramp open/max purge/min purge/no purge					
						The test reporting and/or corresponding fault code is stored after the oxygen sensor monitors have completed with a pass						
				dicable	1	No active DTCs:	-					
				disable			P0340, P0341,					
				conditions:		No camshaft error No crankshaft error	P0365, P0366 P0335, P0336					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						P0262, P0261, P0201, P0265, P0264, P0202, P0268, P0267, P0203, P0271,			
					No injection valve error No misfire error	P0270, P0204 P0301, P0302, P0303, P0304			
					No ignition coil error No FSD error	P2301, P2304, P2307, P2310 P0171			
					Post Fuel trim Correction error No MTC error	P2096, P2097 P2101, P2100 P065E,			
					No VIM error	P0661, P0662 P2122, P2123, P2127,			
					No PVS error Heater Control downstream	P2128, P2138 P0036, P0037, P0038, P0141			
					Heater Control upstream	P0030, P0031, P0032, P0135			
					System voltage No ECT error	P0563, P0118, P0117,			

FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	FREQUENCY OF CHECKS	MIL ILLUM.
				No TPS Error	P0101, P0068, P1101, P0121, P0221, P2176, P0123, P0122, P0223, P0222			
				No MAF error	P0102, P0103			
				No O2 sensor error upstream	P0132, P0131, P0134, P0130, P2A00, P2297, P0133			
				No O2 sensor error downstream	P0136, P0138, P0137, P0140, P2A01, P0139			
				Evaporative Emission Control Function No EVAM error	P0496, P0459, P0458, P0443			
				No IVVT Error	P2089, P2088, P0010, P000A, P000B, P0016, P0017, P0013, P2090, P2091			
				No ambient pressure Error Supply voltage	P2227, P2228, P2229 P0643, P0642, P0653, P0652			
				Ignition	"on"			

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD	VALUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REG	UIRED	FREQUENCY OF CHECKS	MIL ILLUN
EVAP System	D0442	Small leak detection	Reduced leakage diameter	>= 0.85	[mm]	Time delay	>= 4	[s]	30	[s]	50 ms	2 DCY
Small Leak (1mm)	1 0442	Omail leak detection	reduced leakage diameter	>= 0.00	[]	Time delay	7-4	[9]	30	[0]	once / DCY	2 001
oman Loan (mm)						Ambient pressure	> 74.999	[kPa]			01100 / 120 1	
						Coolant temp	<= 110.25	[°C]				
						Time since engine start	70600	[s]				
						Idle speed	"=active"					
						·	>=1.584 and					
						Fuel Tank Level between	<= 10.428	[gal]				
						Degree of canister saturation	<= 1					
						Tank pressure	> -3 and <1	[kPa]				
						Vehicle speed	"=0"					
							> -8.25 and <					
			<u> </u>			IAT	70	[°C]	<u> </u>			
						Battery voltage	> 9.99	[V]				
						Lambda control	closed loop					
						Modeled Fuel Temperature	< 45	[°C]				
						Minimum purge time at partload	= 10	[s]				
				disable		No active DTCs:						
				conditions:		No DTP error No shut of valve error No CPS error No EVAM error	P0453, P0452, P0451, P0454 P0499, P0498 P0459, P0458, P0443, P0496, P0436 P0446					
						No AMP error No TAM error	P2228, P2227 P0073, P0072, P009A, P0074					
						No MAF error	P0103, P0102 P0122, P0121, P2101, P2100, P2119, P2176,P0068,					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	FREQUENCY OF CHECKS	MIL ILLUM.
					No Ignition coils error	P2301, P2304, P2307, P2310,			
						P0262, P0261, P0201, P0265, P0264, P0202, P0268, P0267, P0203, P0271,			
					No Injectors error No O2 sensor error	P0270, P0204 P0132, P0131, P0134, P2297, P0133, P0032, P0031, P0030, P0135			
					No IAT error	P0113, P0112,			
					No system voltage error No VS error	P0563, P0562 P0501			
					No idle speed controler error No CAM error	P0507, P0506 P0340, P0341, P0365, P0366			
						P000A, P000B, P0016, P0017, 0, P2089, P2088, P0010, P2091,			
					No IVVT error No CRK error	P2090, P0013 P0335, P0336			
					No ECT error	P0118, P0117,			

Canister Purge - CPS Open circuit Engine "running" [%] 3200 [ms] 200 ms	1 MII II I I IM	FREQUENCY OF CHECKS	JIRED	TIME REQI		ENABL CONDITIO	SECONDARY PARAMETERS	ALUE	THREASHOLD VA	MALFUNCTION CRITERIA	MONITOR STRATEGY DESCRIPTION	JT/ SVSTEM I	
POEGS, POEGS,						P0643 P0642	No supply voltage error						
No control module error	-					P0605,	140 Supply Vollage Circl						
No control module error P061 C													
No CAN error U0072,													
No CAN error U00002,		_				P061C	No control module error						
No FSD error							No CAN orror						
No misfire error P0301, P0302, P0304, P0302 P0304, P0303, P0304, P0303, P0304, P0304, P0304, P0304, P0304, P0304, P0304, P0305 P0456, P0442, P0455 P0456, P0442, P0455 P0456, P0442, P0455 P0456, P0442, P0455 P0456, P0442, P0456 P0456,	+	+	+								<u> </u>		
No misfire error P0303, P0302 P0303, P0302 P0303, P0303, P0302 P0303, P0302, P0302 P0303, P0302,	-	+	1			10171,10172	140 1 3D enoi						
No misfire error P0304, P0302						P0301,							1
No EVAP error P2610						P0303,							
EVAP System P0443													
No EVAP error P0442, P0455						P2610	No EOT error						
EVAP System P0443 P0443 P0445 P0445 P0442, P0455 P04						D0456							
EVAP System P0443							No EVAD orror						
Canister Purge - CPS Cani		 	+			F 0442, F 0433	NO LVAF elloi						
Canister Purge - CPS Cani													
The driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground (SCG) and Open line(OL). SCB and OL are detected by the driver only if the output is driver (ON-state). If the output is non-driven (OFF-state) by the driver, SCG is detected only. EVAP System P0446 Stuck closed check Signal voltage S.399 V. Start end Sattery voltage S.9 Continuous Cont						"on"	Ignition				_	P0443	EVAP System
The driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground (SCG) and Open line(OL). SCB and OL are detected by the driver only if the output is driven (ON-state. If the output is non-driven (OFF-state) by the driver, SCG is detected only. EVAP System P0446 Stuck closed check Signal voltage S.399 V. Start end Sattery voltage S.90 Continuous Cont	0 DOV	000	. ,	0000	FO/ 1					,			(O
The driver ATIC39 can distinguish between three errors: Short to battery (SCB), Short to ground (SCG) and Open line(OL). SCB and OL are detected by the driver only if the output is driven (ON-state), additionally SCG will be detected as OL in ON-state. If the output is non-driven (OFF-state) by the driver, SCG is detected only. EVAP System P0446 Stuck closed check Signal voltage S.3.999 [V] Start end State) State (Signal) Start end State (Signal) Stat	2 DCY			3200	[%]					open circuit	-		(Canister Purge - CPS)
Ine Griver A TLC-30 can distinguish between three errors: Short to battery (SCB), Short to ground (SCG) and Open line(OL). SCB and OL are detected by the driver only if the output is driven (ON-state, additionally SCG will be detected as OL in ON-state. If the output is non-driven (OFF-state) by the driver, SCG is detected only.	_	Continuous	1			> 9					1		
continuous netween three continuous co						Off							
Short to ground (SCG) and Open line(OL). SCB and OL are detected by the driver only if the output is driven (ON-state), additionally SCG will be detected as OL in ON-state. If the output is non-driven (OF-state) by the driver, SCG is detected only. EVAP System P0446 stuck closed check signal voltage Short to ground (SCG) and OL and SCB and OL and SCB an			t										
Open line(OL). SCB and OL are detected by the driver only if the output is driven (ON-state), additionally SCG will be detected as OL in ON-state. If the output is non-driven (OFF-state) by the driver, SCG is detected only.													
are detected by the driver only if the output is driven (ON- state), additionally SCG will be detected as OL in ON-state. If the output is non-driven (OFF- state) by the driver, SCG is detected only. EVAP System P0446 stuck closed check signal voltage Signal voltage > 3.999 [V] Start end Startey voltage > 10 [V] Start end 2000 [ms] 500 ms (SOV - Stuck Closed) disable No active DTCs: No SPI Bus conflict P0606 No FP relay error P0628, P0629 Start end 2000 [ms] 500 ms Amass flow through the CPS > 0.015 [kg/h] disable No active DTCs:													
if the output is driven (ON-state), additionally SCG will be detected as OL in ON-state. If the output is non-driven (OFF-state) by the driver, SCG is detected only. EVAP System P0446 stuck closed check signal voltage > 3.999 [V] Start end 2000 [ms] 500 ms Start end 2000 [ms] 500 ms Start end 2000 [ms] 500 ms		_			[%]	91.016 99	PWM signal						
state), additionally SCG will be detected as OL in ON-state. If the output is non-driven (OFF-state) by the driver, SCG is detected only. EVAP System P0446 SOV - Stuck Closed) Sov - Stuck Closed Sov -			1				_						
detected as OL in ON-state. If the output is non-driven (OFF-state) by the driver, SCG is detected only. EVAP System P0446 stuck closed check Signal voltage Signal voltag		+	+				No active DTCs:		dicable				
the output is non-driven (OFF-state) by the driver, SCG is detected only. Possible	_		t			P0606							
Description Description													
EVAP System P0446 stuck closed check signal voltage > 3.999 [V] Start end 2000 [ms] 500 ms						P0628, P0629	No FP relay error						
COV - Stuck Closed Continuous Continuo	+	 	igwdown					_			detected only.		
CON - Stuck Closed Continuous Continu	2 DCY	500 ms	[ms]	2000			Start end	[V]	> 3.999	signal voltage	stuck closed check	P0446	EVAP System
Mass flow through the CPS > 0.015 [kg/h]										Ĭ			-
disable No active DTCs:		continuous							< - 3kpa				(SOV - Stuck Closed)
		_	igspace		[kg/h]	> 0.015	Mass flow through the CPS				1		
		<u> </u>	 				No active DTCs:		disable				
conditions: No supply voltage error P0642, P0643	-	 	+				INO ACTIVE DI CS.		นเจตมเซ				
						P0642, P0643	No supply voltage error		conditions:				
			1 T			D0 400							i
P0499, No shut off valve error P0498, P0449						,	N						

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
							P0453, P452,					
						No DTP error	P0451, P0454					
						No system voltage error	P0562, P0563,					
						190 System Voltage error	F0003,			-		+
EVAP DTP Sensor	P0451	plausibility check				Ignition	"on"		5	[s]	500 ms	2 DCY
			I may Valtage min Valtage I	< 0.039	D/I	Engino	"running"				continuous	
			I max. Voltage - min. Voltage I	< 0.039	[V]	Engine	> 0.2 and <				Continuous	-
						Signal voltage	4.902	[V]				
						Time after start	>= 10	[s]				
					1	Vehicle speed once per DC Moving mean value of the	>= 12.426	[mph]	-	-		
						canister load	< 1	[-]				
						Mass flow through the CPS	> 0.6	[kg/h]				-
						Uninterupted time	> 5	[s]				-
						Evaporative Emission Control						
						Function	= max. Purge					
												_
						No purge and max purge						-
						reached once per DC						
						reaction cities per 2 c						-
				disable		No active DTCs:						
				conditions:		No supply voltage error	P0642, P0643					-
						No DTP Error	P0452, P0453					_
EVAP DTP Sensor	P0452	short to ground	signal voltage	< 0.2(> 1,25 kPa)	[V]	Ignition	"on"		1000	[ms]	100 ms	2 DCY
						Fuel tank level moving mean	>= 0 or < =	f12				
		or open circuit				value	10.428	[gal]			continuous	-
					1					1		1
						W # 870						
				disable	1	No active DTCs:						-
				conditions:		No supply voltage error	P0642, P0643					_
EVAP DTP Sensor	P0453	short to battery plus	signal voltage	> 4.902(< -3,75 kPa)	[V]	Ignition	"on"		1000	[ms]	100 ms	2 DCY
		, , , , , , , , , , , , , , , , , , ,	J J .	2 (2, 2 2)	1	Fuel tank level moving mean	>= 0 or < =			1		
						value	10.428	[gal]			continuous	
			1	· · · · · · · · · · · · · · · · · · ·	_	<u> </u>	1		1		1	1

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE		SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
				disable		No orthog DTO:						
				conditions:		No active DTCs:						
						No supply voltage error	P0642, P0643					
						140 supply voltage entit	1 0042, 1 0043					
						Ignition	"on"					
			max fuel tank pressure - min			Ĭ						
EVAP DTP Sensor	P0454	Signal Noisy	fuel tank pressure	> 0.1	[kPa]	Statistic counter	> 10		5	[s]	500 ms	2 DCY
						Ambient pressure	> 74.999	[kPa]			once / DCY	
						Coolant temp	<= 110.25	[°C]				
					1	Time since engine start	70600	[s]	1			
					-	Idle speed	"=active" >=1.584 and					
					1	Fuel Tank Level between	>=1.584 and <= 10.428	[gol]				
			1		+	i dei Talik Level betweell	<= 10.420	[gal]	1			
						Degree of canister saturation	<= 1					
						Tank pressure		[kPa]				
						Vehicle speed	"=0"					
						·	> -8.25 and <					
						IAT	70	[°C]				
						Battery voltage	> 9.99	[V]				
						Lambda control	closed loop	r. 01				
						Modeled Fuel Temperature	< 45	[°C]				
						Minimum purge time at partload	_ 10	[e]				
						Iviiriiinum purge time at partioau	= 10	[s]				
									1			
				disable		No active DTCs:						
							P0453,					
							P0452,					
				conditions:		No DTP error	P0451, P0454					
						No objet of volve over	P0499, P0498					
						No shut of valve error	P0499, P0498					
					1		P0459,					
					1		P0458,					
							P0443,					
					1	No CPS error	P0496, P0436					
						No EVAM error	P0446					
					1	l	P2229,					
						No AMP error	P2228, P2227 P0073,		1			
							P0073, P0072,					
							P0072, P009A,					
						No TAM error	P003A,					
			<u> </u>		1			 	+		 	
				1	1	No MAF error	P0103, P0102					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						P0123, P0122, P0121, P2101, P2100, P2119, P2176,P0068,			
					No TPS error No Ignition coils error	P1101 P2301, P2304, P2307, P2310,			
					No Injectors error	P2310, P0262, P0261, P0201, P0265, P0264, P0202, P0268, P0267, P0203, P0271, P0270, P0204			
					No O2 sensor error	P0132, P0131, P0134, P2297, P0133, P0032, P0031, P0030, P0135 P0113,			
					No IAT error No system voltage error No VS error No idle speed controler error	P0112, P0563, P0562 P0501 P0507, P0506			
					No CAM error	P0340, P0341, P0365, P0366			

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITION		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No IVVT error	P000A, P000B, P0016, P0017, 0, P2089, P2088, P0010, P2091, P2090, P0013					
						No CRK error	P0335, P0336 P0118,					
						No supply voltage error	P0117, P0643, P0642 P0605, P061A,					
						No control module error	P061B, P061C U0073,					
						No CAN error No FSD error	U0002, P0171, P0172 P0301,					
						No misfire error No EOT error	P0303, P0304, P0302 P2610					
						No EVAP error	P0456, P0442, P0455					
EVAP System Large Leak	P0455	Large Leak Detection	Pressure difference during evacuation	> -1.3	[kPa]	Time delay	>= 20	[s]	25	[s]	50 ms once / DCY	2 DCY
						Ambient pressure Coolant temp Time since engine start	> 74.999 <= 110.25 70600 "=active"	[kPa] [°C] [s]				
						Idle speed Fuel Tank Level between	>=1.584 and <= 10.428	[gal]				
						Degree of canister saturation Tank pressure Vehicle speed	<= 1 > -3 and <1 "=0" > -8.25 and <	[kPa]				
						IAT Battery voltage Lambda control	70 > 9.99 closed loop	[°C] [V]				
						Modeled Fuel Temperature	< 45	[°C]				

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE		SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						Minimum purge time at partload	= 10	[s]				
				disable		No active DTCs:						
							P0453, P0452,					
				conditions:			P0451, P0454					
							P0499, P0498 P0459,					
							P0458, P0443,					
						No CPS error	P0496, P0436 P0446					
						No AMP error	P2229, P2228 P2227					
							P2228, P2227 P0073, P0072,					
						No TAM error	P009A, P0074					
							P0103, P0102					
							P0122, P0121, P2101, P2100, P2119,					
							P2176,P0068, P1101 P2301,					
							P2301, P2304, P2307, P2310,					
							P0262, P0261, P0201, P0265, P0264,					
							P0202, P0268, P0267, P0203, P0271,					
						No Injectors error	P0270, P0204					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						P0132,			
						P0131, P0134,			
						P0134, P2297,			
						P0133,			
						P0032,			
						P0031,			
					No O2 sensor error	P0030, P0135			-
					No IAT error	P0113, P0112,			
					No system voltage error	P0563, P0562			
					No VS error	P0501			
					No idle speed controler error	P0507, P0506			
						P0340,			
						P0341,			
					No CAM error	P0365, P0366			
						P000A,			
						P000B,			
						P0016,			
						P0017, 0, P2089,			
						P2088,			
						P0010,			
						P2091,			
					No IVVT error	P2090, P0013			
					No CRK error	P0335, P0336			
						P0118,			
					No ECT error	P0117,			
					No supply voltage error	P0643, P0642 P0605,			
						P0605,			
						P061A, P061B,			
					No control module error	P061B,			
						U0073,			
					No CAN error	U0002,			
					No FSD error	P0171, P0172			
						P0301,			
						P0303,			
					No misfire error	P0304, P0302			
					No EOT error	P2610			
						P0456,			
					No EVAP error	P0442, P0455			

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						Ignition	"on"					
EVAP System	P0456	Small leak detection	Reduced leakage diameter	< 0.85 and >0.388	[mm]	Time delay	>= 4	[s]	30	[s]	50 ms	2 DCY
Vary Crall Look (Emm)			J								ones / DCV	
Very Small Leak (.5mm)						Ambient pressure	> 74.999	[kPa]			once / DCY	
						Coolant temp	<= 110.25	[°C]		1		
						Time since engine start	70600	[s]				
						Idle speed	"=active"	اما				
						lule speed	>=1.584 and					
						Fuel Tank Level between		[gal]				
								10 1				
						Degree of canister saturation	<= 1					
						Tank pressure	> -3 and <1	[kPa]				
						Vehicle speed	"=0"					
						IAT	> -8.25 and < 70	[°C]				
						Battery voltage	> 9.99	[V]				
						Lambda control	closed loop	1.1				
						Modeled Fuel Temperature	< 45	[°C]				
						Minimum purge time at partload		[s]				
				disable		No active DTCs:						
				conditions:		No DTP error	P0453, P0452, P0451, P0454					
						No shut of valve error	P0499, P0498					
						No CPS error No EVAM error No AMP error	P0459, P0458, P0443, P0496, P0436 P0446 P2229, P2228, P2227					
						No TAM error	P0073, P0072, P009A, P0074					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						P0122, P0121, P2101, P2100,			
					No TPS error	P2119, P2176,P0068, P1101 P2301,			
					No Ignition coils error	P2304, P2307, P2310,			
						P0262, P0261, P0201, P0265, P0264,			
						P0202, P0268, P0267, P0203, P0271,			
					No Injectors error	P0270, P0204 P0132, P0131, P0134, P2297, P0133,			
					No O2 sensor error	P0032, P0031, P0030, P0135 P0113,			
					No IAT error No system voltage error No VS error	P0112, P0563, P0562 P0501			
					No idle speed controler error	P0507, P0506			
					No CAM error	P0340, P0341, P0365, P0366			

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VAL	.UE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No IVVT error	P000A, P000B, P0016, P0017, 0, P2089, P2088, P0010, P2091, P2090, P0013					
						No CRK error	P0335, P0336 P0118, P0117,					
						No supply voltage error	P0643, P0642 P0605, P061A,					
						No control module error No CAN error	P061B, P061C U0073, U0002,					
						No FSD error	P0171, P0172 P0301, P0303,					
						No misfire error No EOT error	P0304, P0302 P2610 P0456,					
		-				No EVAP error	P0442, P0455					
EVAP System (Canister Purge - CPS)	P0458	The driver ATIC39 can distinguish between three errors: Short to battery (SCB),	short to ground			Ignition Engine Battery voltage Logical variable for raw KEY_OFF	"running" > 9		3200	[ms]	200 ms continuous	2 DCY
		Short to ground (SCG) and Open line(OL). SCB and OL are detected by the driver only if the output is driven (ON-		disable		PWM signal No active DTCs:	< 91.016	[%]				
		state), additionally SCG will be detected as OL in ON-state. If the output is non-driven (OFF- state) by the driver, SCG is detected only.		conditions:		No SPI Bus conflict No FP relay error	P0606 P0628, P0629					
EVAP System	P0459	,	short to battery plus			Ignition	"on"		3200	[ms]	200 ms	2 DCY

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
(O		distinguish between three										
(Canister Purge - CPS)		errors: Short to battery (SCB),				Engine Battery voltage	"running" > 9				continuous	
		Short to ground (SCG) and			1	Logical variable for raw	> 9					
		Open line(OL). SCB and OL				KEY OFF	Off					
		are detected by the driver only				PWM signal	> 0.3	[%]				
		if the output is driven (ON-					- 0,0	[,0]				
		state), additionally SCG will be										
		detected as OL in ON-state. If		disable		No active DTCs:						
		the output is non-driven (OFF-		conditions:		No SPI Bus conflict	P0606					
		state) by the driver, SCG is detected only.				No FP relay error	P0628, P0629					
		,										
Fuel Level Sensor				< Fuel tank level	Ì				Ì			
Diagnosis	P0461	stuck check	fuel tank level movement	initialisation+0.132 > Fuel tank level	[gal]	Ignition	"on"		660	[s]	100 ms	2 DCY
			fuel tank level movement	initialisation-0.132	[gal]	Vehicle speed	> 12.426	[mph]			continuous	
							>= 1.055736					
							and <=					
						Moving mean value	10.428	[gal]				
						Fuel cut off	not active	191				
						Part load	active					
						Counter for rationality error	>= 110	[s]				
						Max. filtered VS gradient	>= 0.142899	[mph]				
				disable		No active DTCs:						
				conditions:		No VS error	P0501					
						No fuel level sensor error	P0461(gradie nt), P0462, P0463					
		-										
Fuel Level Sensor			FTL initialidation - moving									
Diagnosis	P0461	Gradient	mean value	< 0.528 or	[gal]	Ignition	"on"		immediately		500 ms	2 DCY
			FTL initialidation - moving	. == . == .			>= 1.584 and					
			mean value	> 4.751736	[gal]	Moving mean value	<= 10.428	[gal]	after fuel		continuous	
						Fuel consumption	>= 2 x 2.64	[gal]	consumption			
				disable	-	No active DTCs:						
				uisable	1	NO active DTCs.						
				conditions:		No fuel level sensor error	P0461(stuck), P0462, P0463					
Fuel Level Sensor Diagnosis	P0462		signal voltage	< 0.498 (> 12,15 gal)	[V]	Ignition	"on"		2.5	[s]	100 ms	2 DCY
Fuel Level Sensor		or open circuit			 						continuous	<u> </u>
Diagnosis	P0463	short to battery plus	signal voltage	> 2.998 (< 0 gal)	[V]	Ignition	"on"					2 DCY

COMPONENT/ SYSTEM	ONENT/ SYSTEM FAULT MONITOR STRATEGY DESCRIPTION		MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
EVAP System						Ignition	"on"					
			DTP difference during the			States during evaporative	= DTP					
(Canister Purge - CPS)	P0496	stuck open check	vapour generation phase	<= -0.2	[kPa]	system monitoring	correction		0,5		50 ms	2 DCY
						Ambient pressure	> 74.999	[kPa]			once / DCY	
						Coolant temp	<= 110.25	[°C]				
						Time since engine start	70600	[s]				
						Idle speed	"=active"					
						'	>=1.584 and					
						Fuel Tank Level between	<= 10.428	[gal]				
								10-1				
						Degree of canister saturation	<= 1					
						Tank pressure		[kPa]				
						Vehicle speed	"=0"	įki aj				
						veriloie specu	> -8.25 and <					
						IAT	70	[°C]				
					1	Battery voltage	> 9.99	[V]				
						Lambda control	closed loop	[v]				
						Modeled Fuel Temperature	< 45	[°C]				
						Minimum purge time at partload		[s]				
				disable		No active DTCs:						
				conditions:		No DTP error	P0453, P0452, P0451, P0454					
						No shut of valve error	P0499, P0498					
						No CPS error No EVAM error	P0459, P0458, P0443, P0496 , P0436 P0446					
						No AMP error	P2229, P2228, P2227 P0073,					
						No TAM error	P0073, P0072, P009A, P0074					
_							P0103, P0102					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALU	E	SECONDARY PARAMETERS	ENABL CONDITION	TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
							P0122,				
							P0121, P2101,				
							P2101, P2100,				
							P2100,				
							P2176,P0068,				
						No TPS error	P1101 P2301,				
							P2301,				
							P2304,				
						No Ignition coils error	P2307, P2310,				
							P0262,				
							P0261, P0201,				
							P0201, P0265,				
							P0264,				
							P0202,				
							P0268,				
							P0267,				
							P0203,				
							P0271,				
						No Injectors error	P0270, P0204				
							P0132,				
							P0131,				
							P0134,				
							P2297,				
							P0133,				
							P0032,				
							P0031, P0030, P0135				
						No O2 sensor error	P0030, P0135 P0113,				
						No IAT error	P0112,				
						NI	Docon Docon				
						No system voltage error No VS error	P0563, P0562 P0501				
						110 10 01101	1 0001				
						No idle speed controler error	P0507, P0506				
							P0340,				
							P0341,				
						No CAM error	P0365, P0366				

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VAI	LUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQI	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No IVVT error	P000A, P000B, P0016, P0017, 0, P2089, P2088, P0010, P2091, P2090, P0013					
						No CRK error	P0335, P0336					
						No ECT error	P0118, P0117,					
						No supply voltage error	P0643, P0642 P0605, P061A,					
						No control module error	P061B, P061C U0073,					
						No CAN error	U0002,					
						No FSD error No misfire error No EOT error	P0171, P0172 P0301, P0303, P0304, P0302 P2610					
						No EVAP error	P0456, P0442, P0455					
EVAP System - Shut off valve	P0498	The driver ATIC39 can distinguish between three errors: Short to battery (SCB),	short to ground			Ignition	"on"		3200	[ms]	200 ms	2 DCY
		Short to ground (SCG) and				Battery voltage	> 10	[V]			continuous	
		Open line(OL). SCB and OL				Engine	"running"	1				
		are detected by the driver only if the output is driven (ON-										
		state), additionally SCG will be								-		
		detected as OL in ON-state. If		disable								
		the output is non-driven (OFF-		conditions:		No active DTCs:						
		state) by the driver, SCG is				N. ODI D. (iii)	Doooo					
		detected only.				No SPI Bus conflict	P0606					
EVAP System - Shut off valve	P0498	The driver ATIC39 can distinguish between three errors: Short to battery (SCB),	or open circuit			Ignition	"on"		3200	[ms]	200 ms	2 DCY
		Short to ground (SCG) and				Battery voltage	> 10	[V]			COMMINUOUS	
		Open line(OL). SCB and OL				Engine	"running"	r , 1		1		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	ALUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
		are detected by the driver only										
		if the output is driven (ON-										
		state), additionally SCG will be										
		detected as OL in ON-state. If		disable								
		the output is non-driven (OFF-		conditions:		No active DTCs:						
		state) by the driver, SCG is				No SPI Bus conflict	P0606					
		detected only.			-	NO SI I Dus connec	1 0000			<u> </u>		
EVAP System - Shut off valve	P0499	The driver ATIC39 can distinguish between three errors: Short to battery (SCB),	short to battery plus			Ignition	"on"		3200	[ms]	200 ms	2 DCY
		Short to ground (SCG) and									continuous	
		Open line(OL). SCB and OL				Battery voltage	> 10	[V]				1
		are detected by the driver only				Engine	"running"					
		if the output is driven (ON-								1	1	
		state), additionally SCG will be										
		detected as OL in ON-state. If		disable								
		the output is non-driven (OFF-		conditions:		No active DTCs:						
		state) by the driver, SCG is										
		detected only.				No SPI Bus conflict	P0606					
Vehicle Speed	P0501	CAN signal check	CAN message	< 50	[/s]	counter	>= 5	[s]	8	[s]	500 ms	2 DCY
			engine spped deviation between commanded and									
Idle Controller	P0506	out of range low	actual engine speed	< 100	[rpm]	Ignition	"on" = idle		4	[s]	100 ms	2 DCY
						engine speed Battery voltage	= idle > 10	[V]			continuous	
						ECT	> 50.25	[°C]				
						201	2 00.20	[0]				
						Vehicle speed	= 0	[mph]				
						Mass air flow	< 220	[mg/stk]				
						PWM signal for canister purge						
					-	solenoid opening	< 89.999	[%]		1	1	1
				disable						-		
				conditions:		No active DTCs:						
						30 2 . 03.					†	1
					1		P0459,					
					1		P0443,					
						No CPS error	P0496, P0458					
							P2227,					
						No Ambient pressure error	P2227, P2228, P2229					
						No Ambient Air Temperature	1 2220, 5 2229			1	1	

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						P2123, P2122,			
					No Accelerator Pedal Position error	P2128, P2127, P2138			
					No Mass Airflow Sensor error	P0102, P0103 P2301,			
					No Ignition Coils error	P2304, P2307, P2310			
					INO Ignition Cons end	P0201,			
						P0202, P0203, P0204,			
						P0261, P0262, P0264,			
						P0265, P0267,			
					No Injectors error	P0268, P0270, P0271			
						P0340, P0341, P0365,			
						P0366, P000A,			
						P0016, P2089, P2088,			
					No Camshaft error	P0010, P0011			
					No Crankshaft error	P0335, P0336 P2100,			
						P2101, P0121, P0222,			
						P0123, P0122,			
					No Throttle Position error	P0221, P0223, P2108 P0116,			
					No ECT error No Intake Air Flow	P0117, P0101,			
					Performance error No Control Module	P1101, P0068			
					Programming Read only Memory error	P061A			

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	ALUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REC	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
					1	No Fuel trim system error	P0171, P0172			1		
						No VS error	P0501					
			engine spped deviation									
Idla Cantuallan	D0507	and of some blok	between commanded and	000	f1	I mariei a a	" - ·- "			r_1	400	0.007
Idle Controller	P0507	out of range high	actual engine speed	> 200	[rpm]	Ignition engine speed	"on" = idle		4	[s]	100 ms continuous	2 DCY
						Battery voltage	> 10	[V]			COMMINGOUS	
						ECT ECT	> 50.25	[°C]				
								,				
						Vehicle speed	= 0	[mph]				
				disable	-	Mass air flow	< 220	[mg/stk]				
						PWM signal for canister purge	00.000	FO/ 1				
				conditions:	1	solenoid opening	< 89.999	[%]		-	-	
						No active DTCs:						
							P0459,					
							P0443,					
						No CPS error	P0496, P0458					
						N. A. I.	P2227,					
						No Ambient pressure error No Ambient Air Temperature	P2228, P2229					
						error	P0072, P0073					
						CHOI	1 0072,1 0070					
							P2123,					
							P2122,					
						No Accelerator Pedal Position	P2128,					
						error	P2127, P2138					
					1	h	B0400 B0455					
					-	No Mass Airflow Sensor error	P0102, P0103 P2301,					
					1	1	P2301, P2304,					
					1	1	P2307,					
					1	No Ignition Coils error	P2310					
						3						
							P0201,					
							P0202,					
					1	1	P0203, P0204,					
							P0204, P0261,					
					1	1	P0261, P0262,					
					1	1	P0262, P0264,					
							P0265,					
							P0267,					
							P0268,					
	I					No Injectors error	P0270, P0271					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
							P0340, P0341, P0365, P0366, P000A, P0016, P2089, P2088,					
						No Camshaft error	P0010, P0011					
						No Crankshaft error	P0335, P0336					
							P2100, P2101, P0121, P0222, P0123, P0122,					
							P0221, P0223, P2108					
							P0116,					
						No ECT error	P0117,					
							P0101,					
						Performance error	P1101, P0068	3				
						No Control Module Programming Read only Memory error No Fuel trim system error	P061A P0171, P0172	2				
						No VS error	P0501					
Idle Controller	P050A	Cold start out of range low	engine spped deviation between commanded and actual engine speed	< 175	[rpm]				4	[s]	100 ms	2 DCY
						Ignition	"on"				once / DCY	
<u> </u>	-		ļ		1	Vehicle speed ECT	= 0	[mph] [°C]		1		
	1					EUI	> -9.75	[-ن]		-		-
						Mass air flow PWM signal for canister purge	< 400.01	[mg/stk]				
						solenoid opening Ignition	< 89.999 "on"	[%]		1		
	1					engine speed	= idle			1		1
			1			Battery voltage	> 10	[V]		1		1
										1		
						Time delay	> 3	[s]				
						Catalyst heating	= active			1		
				-1: 1-1-	-	No active DTC-				-		
	<u> </u>		L	disable		No active DTCs:	<u> </u>					l

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VAL	.UE	SECONDARY PARAMETERS	ENABI CONDITI	TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
							P0459, P0443,				
				conditions:		No CPS error	P0496, P0458				
						No Ambient pressure error	P2227, P2228, P2229				
						No Ambient Air Temperature error	P0072, P0073				
						No Accelerator Pedal Position	P2123, P2122, P2128, P2127, P2138				
						No Mass Airflow Sensor error	P0102, P0103				
							P2301, P2304, P2307,				
						No Ignition Coils error No Injectors error	P2310 P0201, P0202, P0203, P0204, P0261, P0262, P0264, P0265, P0268, P0270, P0271 P0340, P0341, P0365, P0366, P000A, P00016, P2089, P2088,				
_						No Camshaft error	P0010, P0011				
						No Crankshaft error	P0335, P0336				

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	ALUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
							P2100,					
							P2101,					
							P0121,					
							P0222,					
							P0123,					
							P0122,					
							P0221,					
						No Throttle Position error	P0223, P2108					
							P0116,					
						No ECT error	P0117,					
						No Intake Air Flow	P0101,					
						Performance error	P1101, P0068					
						No Control Module						
						Programming Read only						
						Memory error	P061A					
						No Fuel trim system error	P0171, P0172					
						No VS error	P0501					
			engine spped deviation									
	D0504		between commanded and	475	, ,						400	0.001/
dle Controller	P050A	Cold start out of range high	actual engine speed	> 175	[rpm]	Lauritia a	"on"		4	[s]	100 ms once / DCY	2 DCY
						Ignition Vehicle speed	= 0	[mnh]			once / DC Y	
			 			ECT	> -9.75	[mph] [°C]		1		
						201	> 5.10	ر کا				
						Mass air flow	< 400.01	[mg/stk]				
						PWM signal for canister purge		[9]				
						solenoid opening	< 89.999	[%]				
				disable		Ignition	"on"					
				conditions:		engine speed	= idle					
						Battery voltage	> 10	[V]				
						Time delay	> 3	[s]				
						Catalyst heating	= active					
	ļ					l				<u> </u>		
						No active DTCs:				1		
							D0450					1
							P0459, P0443,					1
						No ODO arras						1
					1	No CPS error	P0496, P0458			1		
							P2227,					1
						No Ambient pressure error	P2228, P2229					
	 				+	No Ambient Air Temperature	1 2220, F2229			1	 	
						error	P0072, P0073					1
	-		<u> </u>			Citor	1 0012, 50013			1	 	
							P2123,					
							P2122,					1
	I	ĺ				L <u>_</u>				1	1	
						No Accelerator Pedal Position	P2128,					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE	E	SECONDARY PARAMETERS	ENABL CONDITIO	TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No Mass Airflow Sensor error	P0102, P0103				
						No Ignition Coils error	P2301, P2304, P2307, P2310				
							P0201, P0202, P0203, P0204, P0261, P0262, P0264, P0265, P0267, P0268,				
							P0208, P0270, P0271 P0340, P0341, P0365,				
							P0366, P000A, P0016, P2089, P2088,				
						No Camshaft error	P0010, P0011				
							P0335, P0336 P2100, P2101, P0121, P0222, P0123, P0122, P0221,				
						No Throttle Position error No ECT error	P0223, P2108 P0116, P0117,				
						No Intake Air Flow Performance error No Control Module Programming Read only	P0101, P1101, P0068				
						Memory error No Fuel trim system error No VS error	P061A P0171, P0172 P0501				

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
									1000	[ms]		(1)see note below
System Voltage Diagnosis	P0562	out of range low	signal voltage	< 9	[V]	Ignition Battery voltage	"on" >9 <16,1	[V]		[0]	100 ms	BCIOW
						Engine	"running"	[1]			Continuous	
System Voltage Diagnosis	P0563	out of range high	signal voltage	> 16	[V]				1000	[ms]		Special type "C"
						Ignition Battery voltage	"on" >9 <16,1	[V]			100 ms continuous	
(1) Mil will not illuminate for	those die	agnostics. Either the generator li	ght will some on or the newer to	the instrument duster w	ill ha laat	Engine This has been discussed with C	"running"					
	inese dia	agnostics. Either the generator li	gnt will come on or the power to		ili be iosi-	- This has been discussed with C	ARDS Stall		•			
Brake Switch 1 Diagnosis	P0572		Short to ground / Open	Steady state failure Signal input = 1		Ignition	"on"				10 ms	
				Rationality failure = Implausible switch state		Engine	"running"		steady state = 5	(s)	steady state = once per trip	2 DCY
									Rationality = 25 brake		Rationality =	. 500
						VB Vehicle speed (only used for steady state diagnostic)	> 10 > 6 < 55	[V] [mph]	events		continous	2 DCY
		This diagnostic utilyzes three		disable		No active DTCs:						
		seperate functions to test the brake lamp switch circuit, faulty switch, and for a non mounted					C1232, C1207, C1221,					
		or misadjusted switch. A rationality test compares brake lamp switch to the brake test					C1225, C1233, C1208, C1222,					
		switch. A second test checks the brake lamp switch state		conditions:		Wheel Speed Sensors	C1222, C1226					
		during driving conditions with VS greater then a threashold.				BTS VS	P0719, P0724 P0501					
		A third test checks the brake light switch during deceleration.										
Brake Switch 1 Diagnosis	P0573	-	Short to battery	Decel diagnostic failure Signal input = 0		Ignition	"on"			(s)	10 ms	
			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Rationality failure = Implausible switch state		Engine	"running"		decel test = 2.5	/	continuous	2 DCY

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
									Rationality =			
									25 brake			
						VB vehicle speed (only used for	> 10		events		continuous	2 DCY
						decel diagnostic)	>31	[manh]				
						decei diagnostic)	>31	[mph]				
						vehicle deceleration rate (only used for decel diagnostic)	> 5.6	(mi/(h*s))				
		This diagnostic utilyzes three		diaabla		No active DTCs:	1					
		seperate functions to test the		disable	-	No active DTCs:	04000	-				
		brake lamp switch circuit, faulty switch, and for a non mounted or misadjusted switch. A					C1232, C1207, C1221,					
		rationality test compares brake					C1225,					
		lamp switch to the brake test					C1233,					
		switch. A second test checks					C1208,					
		the brake lamp switch state		1141		N// 10 10	C1222,					
		during driving conditions with		conditions:		Wheel Speed Sensors	C1226					
		VS greater then a threashold. A third test checks the brake				BTS	P0719, P0724					
		light switch during deceleration.				Vehicle speed	P0501					
		light switch during deceleration.										
		The self-test of the ECU is done once at initialization after										
		key "ON" is detected and check- sum is recognised. There are										
Engine Control Module		16 condition bits in ECU to determine the actual fault on										
	P0601		checksum error of code			Ignition	"on"				once after IGK on	1 DCY
Diagnosis	. 0001	200.	ONCORDUM ENDY OF CODE			igindon	511				once / DCY	1 001
									2000	[ms]		
Engine Control Module			checksum error of application									
Diagnosis	P0602	ECU)	data			Ignition	"on"				once after IGK on	1 DCY
		The self-test of the ECU is										
		done once at initialization after										
		key "ON" is detected and check-										
		sum is recognised. There are							ĺ			
		16 condition bits in ECU to										
		determine the actual fault on										
		ECU.							2000	[ms]	once / DCY	

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALU	JE	SECONDARY PARAMETERS	ENABL CONDITIO	TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
Engine Control Module Diagnosis	P0604	The self-test of the ECU is done once at initialization after key "ON" is detected and check-sum is recognised. There are 16 condition bits in ECU to determine the actual fault on ECU.	RAM-check extern			Ignition	"on"			once after IGK on	1 DCY
			RAM check intern					2000	[ms]	once / DCY	
Control module programming ready only memory	P0605	ROM check	internal error			ECM power up		immediately		40 ms continuous	1 DCY
		RAM-check	internal error			ECM power up		480		40 ms continuous	1 DCY
		general level 3 error	internal error			ECM power up		480		40 ms continuous	1 DCY
		FS-IST error on MU	internal error			ECM power up		480		40 ms continuous	1 DCY
Engine Control Module Diagnosis	P0606	SPI (Serial peripheral interface) is a ECU-internal serial interface part of the microcontroller in order to control hardware componends (e.g. lowside driver ATIC39). This diagnosis is based on the supervision of the SPI by the microcontroller hardware	SPI - Bus conflict			Ignition	"on"	600	[ms]	200 ms continuous	1 DCY
Control Module Performance	P0607		ECU Performance (Processor Frequency Error detection)			Ignition	"on"	10	[ms]	10 ms	1 DCY

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
					l					1	continuous	
											40 ms	
ECM	P061A	General level 2 error	MON			Ignition	"on"		480	[ms]	continuous	1 DCY
											40 ms	
ECM	P061B	Torque monitoring error	comparison of 2 values	TQI_SP_MON > TQI_AV_MON delta > characteristic		Ignition	"on"		480	[ms]	continuous	1 DCY
			(real vs. model)	maps		Electric throttle	active					
						Limp home mode	no limp home mode active				40 ms	
ECM	P061C		comparison of a value vs. limit	> 1760 rpm		Ignition key Engine speed limitation	on requested		480	[ms]	continuous	1 DCY
		The purpose is to diagnose electrical errors detected by high side driver hardware for static outputs. The information of the error symptom is delivered by the BSW (Basic										
Fuel Pump Relay	P0628	software).	short to ground			Ignition	"on"		2600	[ms]	200 ms continuous	2 DCY
						Fuel pump is running Engine	"running"				continuous	
						Battery voltage	> 9					
			short to battery or Open									
Fuel Pump Relay	P0629	software).	Circuit			Ignition	"on"		2600	[ms]	200 ms	2 DCY
						Fuel pump is running Engine	"running"				continuous	
						Battery voltage	> 9					
E Valt Dafanana 4									150	[ms]	10 ms	
5 Volt Reference 1 Diagnosis	P0642	short to ground	signal voltage	< 4.75	[V]	Ignition Delay time	"on" >0.02	[s]			continuous	1 DCY
						,						
									150	[ms]	10 ms	

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	'ALUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
5 Volt Reference 1 Diagnosis	P0643	short to battery plus	signal voltage	> 5.25	[V]	Ignition	"on"				continuous	1 DCY
						Delay time	>0.02	[s]				
Malfunction Indicator Lamp (MIL) Control Circuit	P0650	The purpose is to diagnose electrical errors by the hardware for the MIL. The	short to ground			Ignition	"on"		3.2	[s]		2 DCY
		signals are controlled by the	short to battery plus								200 ms continuous	2 DCY
		battery (SCB), Short to ground (SCG) and Open load (OL). SCB and real OL are detected	open circuit	disable		No active DTCs:						2 DCY
		by the driver only if the output is driven (ON-state), additionally SCG will be detected as OL in ON-state. If the output is non-driven (OFF-state) by the driver, SCG is detected only.		conditions:		No control module errors	P0601, P0604, P0605, P0606, P0607, P2610					
		actioned only.										
5 Volt Reference 2 Diagnosis	P0652	short to ground	signal voltage	< 4.75	[V]	Ignition Delay time	"on" >0.02	[s]	150	[ms]	10 ms continuous	1 DCY
5 Volt Reference 2 Diagnosis	P0653	short to battery plus	signal voltage	> 5.25	[V]	Ignition Delay time	"on" >0.02	[s]	150	[ms]	10 ms continuous	1 DCY
Variable intake manifold	P065E	plaus off	Feedback sensor	< 1.001	[V]	Ignition	"on"		1.4	[s]	100 ms	2 DCY
Variable intake manifold Rationality			and Commanded position	0	[-]	Time after engine start	> 3	[s] [°C]			continuous	
			and Commandet position stable or	> 0.4	[s]	Engine speed Engine speed Switching operations in high load engine state without refill the vacuum reservoir	> 608 < 6208 < 13	[/rev] [/rev]				
		plaus on	Feedback sensor	> 3.999	[V]			r J				

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	ALUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
			and									
			Commanded position	1								
			and	> 0.4	[a]							
			Commandet position stable	> 0.4	[s]							
				disable		No active DTC's:						
				conditions:		No ECT error	P0118, P0117,					
				conditions.								
						No Ambient pressure sensor	P2229,					
						error	P2228, P2227 P0113,					
						No IAT sensor error	P0112,					
						140 WAT GENEEL CHOI	P0643,					
							P0642,					
							P0653,					
						No Supply voltage error	P0652					
						No VIM actuator diagnosis error	P0662, P0661.					
		Variable intake manifold is a static driven power stage. This diagnosis detects an elctrical malfunction, short circuit battery (SCB), short circuit to ground (SCG) and open load (OL). The detection is based on the self diagnosis										
Variable intake manifold	P0661	of the lowside drive.	short to ground			Ignition	"on"		1	[s]	200 ms	2 DCY
			or open circuit			Battery voltage	> 9	[V]			continuous	
				-1:L1-	-							
				disable conditions:								
				conditions.								
						No active DTC's:						
						No ECU SPI error	P0606					
		Variable intake manifold is a static driven power stage. This diagnosis detects an elctrical malfunction, short circuit battery (SCB), short circuit to ground (SCG) and open load (OL). The detection is based on the self diagnosis										
Variable intake manifold	P0662	of the lowside drive.	Short to Battery			Ignition	"on"		1	[s]	200 ms	2 DCY
	-	· · · · · · · · · · · · · · · · · · ·	·					1	1			1
variable intake mannoid						Battery voltage	> 9	[V]			continuous	

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	ALUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No active DTC's:						
						No ECU SPI error	P0606					
										1		
Cooling Fan Electrical Diagnosis			The FAN is driven by the ECU via an output driver. The failure detection is done by the driver itself. The purpose is to perform the electrical diagnosis of the FAN actuator to detect electrical faults.									
						Ignition	"on"		3200	[ms]	200 ms	2 DCY
Relay # 1	P0691	short to ground	Fail Time	> 3200	[ms]	Engine	"running" > 9	D/I			continuous	
		or open circuit				Battery voltage FAN power stage	> 9 configured	[V]				
	P0692	short to battery plus	Fail Time	> 3200	[ms]				3200	[ms]		2 DCY
				disable		No active DTCs:						
				conditions:		No ECU SPI error	P0606					
			The FAN is driven by the ECU via an output driver. The failure detection is done by the driver itself. The purpose is to perform the electrical diagnosis of the FAN actuator to detect electrical faults.			Ignition	"on"		3200	[ms]	200 ms	2 DCY
-					Ī							-
Relay # 2	P0693	short to ground or open circuit	Fail Time	> 3200	[ms]	Engine Battery voltage	"running" > 9	[V]			continuous	
						FAN power stage	configured					
	P0694	short to battery plus	Fail Time	> 3200	[ms]				3200	[ms]		2 DCY
				disable	1	No active DTCs:						
				conditions:		No ECU SPI error	P0606					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENAB CONDITI		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
			The FAN is driven by the ECU via an output driver. The failure detection is done by the driver itself. The purpose is to perform the electrical diagnosis of the FAN actuator to detect electrical faults.			Ignition	"on"		3200	[ms]	200 ms	2 DCY
Relay # 3	P0695	short to ground	Fail Time	> 3200	[ms]	Engine	"running"				continuous	
Nelay # 3	F0033	or open circuit	i all Tillie	> 3200	liiol	Battery voltage	> 9	[V]			CONTINUOUS	
		or open circuit				FAN power stage	configured	[v]				
						transmission	"automatic"					
						air condition	configured					
	P0696	short to battery plus	Fail Time	> 3200	[ms]				3200	[ms]		2 DCY
				disable		No active DTCs:						
				conditions:		No ECU SPI error	P0606					
Transmission control system	P0700	Transmission control system error	Transmission control system sends request for MIL and freeze frame parameters			Ignition	"on"		20	[ms]	10 ms	1 DCY
(MIL request)											continuous	
				disable		No active DTCs:	110070					
				conditions:		No CAN errors	U0073,					
Brake Switch 2				Steady state failure								
Diagnosis	P0719			Signal input = 1							10 ms	
				Rationality failure = Implausible switch state		Ignition	"on"		steady state = 5	(s)	steady state = once per trip	
						Engine	"running"		Rationality = 25 brake events		Rationality = continous	2 DCY
		1			1	VB	> 10		CVGIIIG		CONTINUOUS	2001
						Vehicle speed (only used for						
						steady state diagnostic)	> 6 < 55	[mph]				
						steady state diagnostic)	> 6 < 55	[mph]				
		This diagnostic utilyzes three				steady state diagnostic)	> 6 < 55	[mph]				

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
		brake lamp switch circuit, faulty switch, and for a non mounted or misadjusted switch. A rationality test compares brake lamp switch to the brake test switch. A second test checks the brake lamp switch state during driving conditions with VS greater then a threashold. A third test checks the brake		disable conditions:		Wheel Speed Sensors BLS	C1232, C1207, C1221, C1225, C1233, C1208, C1222, C1226					
		light switch during deceleration.		conditions.		VS	P0501					
Brake Switch 2		<u> </u>		Decel diagnostic failure								
Diagnosis	P0724		Short to battery	Signal input = 0 Rationality failure = Implausible switch state		Ignition	"on"		decel test = 2.5 Rationality =	(s)	10 ms continuous	2 DCY
									25 brake			
						Engine	"running"		events		continuous	
						VB vehicle speed (only used for	> 10					
						decel diagnostic)	>31	[mph]				
						vehicle deceleration rate (only used for decel diagnostic)	> 5.6	(mi/(h*s))				
		This diagnostic utilyzes three										
		seperate functions to test the		disable		No active DTCs:						
		brake lamp switch circuit, faulty switch, and for a non mounted or misadjusted switch. A rationality test compares brake lamp switch to the brake test switch. A second test checks the brake lamp switch state during driving conditions with VS greater then a threashold.		conditions:		Wheel Speed Sensors	C1232, C1207, C1221, C1225, C1233, C1208, C1222, C1226					
		A third test checks the brake light switch during deceleration.				BLS Vehicle speed	P0572, P0573 P0501					
Traction Control (TCS)	P0856		Timer	>= 3 is decayed (3 Times	[ms]	Ignition Traction control system on	"on"		immediately		10 ms	2 DCY
		alive rolling count	alive rolling count	wrong)		CAN configured					continuous	
		signal protection	torque request protection	is decayed								
								<u> </u>				
					I	i .				I		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD \	/ALUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM
Load TPS Rationality	P1101	deviation measured airflow to modeled airflow	meassured air flow - modeled air flow	> 15 50	[%]	Battery voltage	> 10	[V]	1600	[ms]	20 ms	2 DCY
Load II 5 Nationality	1 1101	modeled almow	all now	> 13 30	[/0]	Dattery voltage	> 10	[•]	1000	[III3]	20 1113	2 001
Intake Air Flow System		filtered active relative LAM										
Performance		correction	and			Engine	"running"				continuous	
			Close loop not active			Time after engine start	> 5	[s]				
			and			Ambient pressure	> 69.999	[kPa]				
			filtered active relative LAM	44 1 44	FO.(1	l	4.40.00					
			correction	> -11 and < 11	[%]	Ambient pressure	< 149.99	[kPa]				
						RPM RPM	> 800	[rpm]				
							< 6496	[rpm]				
			meassured air flow - modeled			Throttle position	< 4.99610	r.1		-		
			air flow	< -1550	[%]	Throttle position	> 84.999	[°]				
			and	10 00	[/0]	Pressure quotient	> 04.999	[-]	1	1		1
			Close loop not active			Pressure quotient	< 0.99	[-]	1	1		1
			Close loop not dolive			System is controlled by mass	V 0.00	LJ				
			and			air flow sensor						
			filtered active relative LAM			No engine state "pull fuel						
			correction	> -11 and < 11	[%]	cutoff"						
						Electronic throttle control power						
						stage is on						
						Electronic throttle control power						
						stage is on						
				disable								
				conditions:		No active DTC's:						
						No Mass Air Flow error	P0103, P0102					
							P0113,					
						No IAT sensor error	P0112,					
						No Canister purge valve error	P0459, P0458					
						No Ambient pressure sensor	P2229,					
						error	P2228, P2227					
,							P0123,					
							P0122,					
							P0223,					
							P0222,					
						No Throttle Position error	P0121, P0221					
							P0643,					
							P0642,					
						L	P0653,					
						No Supply voltage error	P0652		1	1		
							P0340,					
							P0341,					
				ĺ		No Camshaft error	P0365, P0366			1		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
					No Variable valve timing error No ECT error No variable intake manifold error	P000A, P000B, P0016, P0017 P0118, P0117,					
CAN Bus	P1793	no signal	CAN message		Ignition	"on"		immediately		10 ms continuous	2 DCY
					Ignition	"on"					
IVVT Intake	P2088		Short to Ground		PWM signal		[%]	1,7	[s]	100 ms	2 DCY
		The hardware is able to detect electrical failures in the IVVT solenoid valve circuit. Three symptoms can be distinguished: short circuit to		disable	Battery voltage No active DTC's:	> 10 and < 16	[V]			continuous	
		battery, open circuit and short circuit to ground. Only one symptom can be active at the same time. At the time of the solenoid valve is energized, it		conditions:	No SPI Bus conflict	P0606					
		always ensures that the duty cycle output signal is never 0 or 100 %. With calibration fulfilling proper IVVT performance, and, simultaneously, the output signal is not 0 and 100 % PWM. Not being near 0 % or 100 % is the condition for a									

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
		electrical diagnosis. An eventcounter of the electrical diagnosis counts the reccurrencies of this diagnosis. It is used for activation of diagnosis during thee applyed special energization with 0% or 100 % by the IVVT-controller. The counter runs independant of diagnosis activation and is used for detection of the failure.				Ignition	"on"		1,7	[8]	100 ms	
IVVT Intake	P2089		short to battery plus			PWM signal		[%]	.,,	[O]	continuous	2 DCY
		The hardware is able to detect electrical failures in the IVVT solenoid valve circuit. Three symptoms can be distinguished: short circuit to battery, open circuit and short circuit to ground. Only one symptom can be active at the same time. At the time of the solenoid valve is energized, it always ensures that the duty cycle output signal is never 0 or 100 %. With calibration fulfilling proper IVVT performance, and, simultaneously, the output signal is not 0 and 100 % PWM. Not being near 0 % or 100 % is the condition for a electrical diagnosis. An eventcounter of the electrical diagnosis counts the reccurrencies of this diagnosis. It is used for activation of diagnosis during thee applyed special energization with 0% or 100 % by the IVVT-controller. The counter runs independant of diagnosis activation and is used for detection of the failure.		disable conditions:		No active DTC's: No SPI Bus conflict	> 10 and < 16	[M]				
						Ignition	"on"					
IVVT Exhaust	P2090		Short to Ground			PWM signal Battery voltage	< 91.8 > 10 and < 16	[%] [V]	1,7	[s]	100 ms continuous	2 DCY

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	ALUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
				disable		No active DTC's:						
				conditions:		No SPI Bus conflict	P0606					
		The hardware is able to detect electrical failures in the IVVT solenoid valve circuit. Three symptoms can be distinguished: short circuit to battery, open circuit and short circuit to ground. Only one symptom can be active at the same time. At the time of the solenoid valve is energized, it always ensures that the duty cycle output signal is never 0 or 100 %. With calibration fulfilling proper IVVT performance, and, simultaneously, the output signal is not 0 and 100 % PWM. Not being near 0 % or 100 % is the condition for a electrical diagnosis. An eventcounter of the electrical diagnosis counts the reccurrencies of this diagnosis. It is used for activation of diagnosis during thee applyed special energization with 0% or 100 % by the IVVT-controller. The counter runs independant of diagnosis activation and is used for detection of the failure.										
IVVT Exhaust	P2091		short to battery plus			PWM signal	> 2	[%]	1,7	[s]	100 ms	2 DCY
			71			Battery voltage	> 10 and < 16		1		continuous	
						7 3 -						
				disable		No active DTC's:						
				conditions:		No SPI Bus conflict	P0606					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABLE CONDITIO	TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
		The hardware is able to detect electrical failures in the IVVT solenoid valve circuit. Three symptoms can be distinguished: short circuit to battery, open circuit and short circuit to ground. Only one symptom can be active at the same time. At the time of the solenoid valve is energized, it always ensures that the duty cycle output signal is never 0 or 100 %. With calibration fulfilling proper IVVT performance, and, simultaneously, the output signal is not 0 and 100 % PWM. Not being near 0 % or 100 % is the condition for a electrical diagnosis. An eventcounter of the electrical diagnosis counts the reccurrencies of this diagnosis. It is used for activation of diagnosis during thee applyed special energization with 0% or 100 % by the IVVT-controller. The counter runs independant of diagnosis activation and is used for detection of the failure.									
Fuel Correction Diagnostic, Portion #1	P2096	system too lean	LAM –P-jump delay time from I-share or	> 315	[ms]	Ignition Trim-controller I-share Evaporative Emission Control	"on" = active = canister purge not in	2.5	[s]	100 ms continuous	2 DCY
			lambda set-point shifting (O2 sensor downstream intrusive test)	= active		Function	adaptation				
				disable		No active DTC's:					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VAI	LUE	SECONDARY PARAMETERS	ENABLI CONDITIO	TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
				conditions:			P0116, P0117,				
						No MAF error	P0102, P0103				
							P0171, P0172				
							P0031,				
							P0032,				
							P0036,				
							P0037,				
							P0038,				
							P0131,				
							P0132,				
							P0133,				
							P0130,				
							P0137,				
							P0138,				
							P0139,				
							P0140,				
							P0141,				
							P2270,				
							P2271,				
							P2297,				
							P2A00,				
							P2A01				
							P0121,				
							P0122,				
							P0123,				
							P0221,				
							P0222,				
							P0223,				
							P2176,				
							P0101,				
						No TPS Error	P0068, P1101				
							P2301,				
						L	P2304,				
						No ignition coil error	P2307, P2310				
						No CAT error	P0420				

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No injection valve error No Canister purge solenoid error No MTC error	P0201, P0202, P0203, P0204, P0261, P0262, P0264, P0265, P0267, P0268, P0270, P0271 P0443, P0458, P0459 P2100, P2101				
						No misfire error	P0300, P0301, P0302, P0303, P0304, P0313				
						No CKP error No IVVT error	P0335, P0336 P0365, P0366, P000A, P000B, P0010, P0011, P0013, P0014, P0016, P0017, P2088, P2089, P2090, P2091				
Fuel Correction Diagnostic, Portion #1	P2097	system too rich	LAM –P-jump delay time from I-share	< -380	[ms]	No CMP error Ignition Trim-controller I-share	"on" = active = canister	2.5	[s]	100 ms	2 DCY
						Evaporative Emission Control Function	purge not in adaptation			continuous	

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABI CONDITI	TIME REQU	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
				disable							
				conditions:		No active DTC's:					
							P0116, P0117,				
						No MAF error	P0102, P0103				
							P0171, P0172				
							P0031, P0032, P0036, P0037,				
							P0038, P0131,				
							P0132, P0133, P0130,				
							P0137, P0138, P0139,				
							P0140, P0141,				
							P2270, P2271, P2297,				
							P2A00,				
					1		P2A01	-			
							P0121, P0122,				
							P0123, P0221,				
							P0222, P0223,				
							P2176, P0101,				
						No TPS Error	P0068, P1101				
							P2301, P2304,				
						No ignition coil error	P2307, P2310				
						No CAT error	P0420				

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALU	JE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No injection valve error	P0201, P0202, P0203, P0204, P0261, P0262, P0264, P0265, P0267, P0268, P0270, P0271					
						error	P0458, P0459					
						No MTC error	P2100, P2101					
							P0300, P0301, P0302, P0303, P0304, P0313					
						No IVVT error	P0335, P0336 P0365, P0366, P000A, P000B, P0010, P0011, P0013, P0014, P0016, P0017, P2088, P2090, P2091 P0340, P0341					
						INO CIVII EITOI	1 0040,1 0041					
Throttle Actuator Device		The MTC is checked by the MTC-powerstage IC. It can only be checked if the powerstage is active.	Power stage			Ignition	"on"					
						Engine Battery voltage	"running" >7	[V]	450	[ms]	5 ms continuous	1 DCY

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	ALUE	SECONDARY PARAMETERS	ENAE CONDIT		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
			1 Actual TPS - Commanded									
Throttle Actuator Device	P2101	plausibility check	TPS	> 4.996	[°]	Ignition	"on"		0.5	[s]	10 ms	1 DCY
						Battery voltage	>7	[V]		1-1	continuous	
		short to battery plus	PWM value	> 98.001	[%]	No adaption is requested						
		71			<u> </u>				2.0	[s]		
Throttle Actuator		Actuator malfunction (limp	TPS position - Limp home		-					1		
	P2108	home position)	position	>1.999	[°]	Ignition	"on"				10 ms	1 DCY
	. 2.00		P-0-11011			No adaption is requested	5	1	1	[s]	triggered	. 501
										1	99	
				disable		No active DTCs:						
				conditions:								
							P0121,					
							P0122,					
							P0123,					
							P0221,					
							P0222,					
						No TPS error	P0223,					
							P2176,					
		The throttle position is determined by a two-channeled sensor. Both channels deliver invers dispersing voltage signals. In order to reduce inaccuracy, the two signal voltages are referenced to their supply voltage. After initial										
TP Sensor Rationality	P2119	engine start and compone	TPS by adaptation	>=24.997	[°]	Ignition	"on"		immediately		5 ms	1 DCY
-		spring check - lower position				Powerstage not disabled by						
		not reached	and			processor monitoring		1			once / DCY	
			Diagnosis time	= 0				_				
								1		-		
					-			1	-		5 ms	
		spring check - upper position					1	1		1	0 1110	
		not reached	TPS by adaptation	>= 2.006	[°]			1	immediately		once / DCY	1 DCY
			and		1'			1		1		
			Diagnosis time	= 0								
								1				
										-		
Pedal Value Sensor 1		short to ground	signal voltage	< 0.63	[V]		1		250	[ms]	10 ms	1 DCY

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	'ALUE	SECONDARY PARAMETERS	ENABLE CONDITIO		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
		or open circuit				Ignition	"on"				continuous	
		·										
						No active DTCs:						
						No supply voltage error	P0642, P0643					
Pedal Value Sensor 1	P2123	short to battery plus	signal voltage	> 4.88	[V]	Ignition	"on"		250	[ms]	10 ms	1 DCY
							.				continuous	-
				disable		No active DTCs:	1					
				disable		No dolive B1 Gs.						
				conditions:		No supply voltage error	P0642, P0643					
					n a				0=0			
Pedal Value Sensor 2	P2127	short to ground or open circuit	signal voltage	< 0.12	[V]	Ignition	"on"		250	[ms]	10 ms continuous	1 DCY
		or open circuit									Continuous	
						No active DTCs:						†
						No supply voltage error	P0652, P0653					
Pedal Value Sensor 2	P2128	short to battery plus	signal voltage	> 2.64	[V]	Ignition	"on"		250	[ms]	10 ms	1 DCY
											continuous	
				disable								
				conditions:		No active DTCs:						
						No supply voltage error	P0652, P0653					
						No supply voltage error No active DTCs:	F0052, F0053					
						140 delive B 1 63.						
Pedal Value Sensor	P2138	rationalty check	Voltage Deviation	> 0.4201.387	[V]	Ignition	"on"		350	[ms]	10 ms	1 DCY
		-									continuous	
				disable		No active DTCs:						
							P0642,					
				conditions:		No supply voltage error	P0643,P0652, P0653					
				conditions.		No supply voltage error	F0055					
											5 ms	1
		Adaptation conditions					† †				-	1
TP Sensor Rationality	P2176	exceeded	Vehicle speed	> 0	[mph]	Ignition	"on"	ir	mmediately		continuous	1 DCY
						Powerstage not disabled by						
			Or	> 192	[rp.mo]	processor monitoring						
			engine speed or	> 192	[rpm]	+	 					1
			ECT	> 4.5 < 110.3	[°C]							
			or		. ~]		† †					1
			Battery voltage	> 9	[V]							
			or									
			IAT	< 4.5	[°C]		1				I	1
			1/ (1	· 1.0	[0]		<u> </u>					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	ALUE	SECONDARY PARAMETERS	ENAB CONDITI		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
											<u> </u>	
			TPS1 or TPS2 throttle position sensor voltage differs from the stored limp home position			Ignition	"on"		> 0.6	[s]	5 ms	1 DCY
			·			Powerstage not disabled by						
						processor monitoring					continuous	
						Request for TPS adaptation					 	-
					1							1 DCY
									> 0.6	[s]	5 ms	
		lower mechanical stop adaptation outside range	TPS1 or TPS2 sensor voltage does not reach the minimum lower mechanical position within specified time window.								continuous	
										<u> </u>	 	1
											 	+
			TPS1 or TPS2 sensor voltage does not reach the Limp home position window (at least lower postion).						> 0.6	[s]	5 ms	1 DCY
											<u> </u>	
AMP Sensor	P2227	plausibility check	gradient	> 1.003	[kPa/s]	Ignition	"on"		1	[s]	1 s continuous	2 DCY
			or		1	Engine	"running"		 		COMMINGUES	
			Ambient Pressure from last				j					
			driving cycle- Ambient		l	l					1.	
			Pressure @engine start and	> 20	(kpa)	Vehicle speed Idle	<=0.625	[mph]	4		1 s once / DCY	2 DCY
			mass air flow mmv calc. from		1	luic		1	1		OTICE / DC T	1
			altitude sesnor - mass air flow									
			mmv	> 1.13	[kg/h]	Mass air flow	<=18	[kg/h]	immediately			
						Intake manifold pressure	<=49.9993	[kPa]	after error is		<u> </u>	
					-	ECT	>=39.75	[°C]	detected			
						Duration in which the conditions for diag are fulfilled	>−13	[s]	and the LOAD_TPS			

COMPONENT/ SYSTEI	FAULT	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQI	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						MAF integral out of DFCO since engine start	>=0.8	[kg]	diag is finished			
				disable		No active DTC's:						
				conditions:		No Throttle Position error	P0123, P0122, P0223, P0222, P0121, P0221					
						No Mass Air Flow error	P0103, P0102					
						No Camshaft error	P0340, P0341, P0365, P0366					
						No Crankshaft error	P0335, P0336					
						No Variable valve timing error	P000A, P000B, P0016, P0017					
						No ECT error No Ambient pressure sensor	P0118, P0117,					
						error No Supply voltage error	P2229, P2228 P0643, P0642, P0653, P0652					
						No VS error	P0501					
AMP Sensor	P2228	short to ground	signal voltage	< 2.002 (50,9 kPa)	[V]	Ignition	"ON"		2500	[ms]	10 ms	2 DCY
		or open circuit				Battery voltage	>9	[V]			continuous	
				disable		No active DTC's:	P0643, P0642, P0653,					
				conditions:		No Supply voltage error No Ambient pressure sensor error	P0652 P2227					
AMP Sensor	P2229	short to battery plus	signal voltage	> 4.302 (109,4 kPa)	[V]	Ignition Battery voltage	"ON" >9	[V]	2500	[ms]	10 ms	2 DCY

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
												1
				disable		No active DTC's:						
							P0643, P0642, P0653,					
				conditions:		No Supply voltage error No Ambient pressure sensor	P0652					
						error	P2227					
Fuel Correction Diagnostic, Portion #2						Ignition	"on"					
00 0 0: 0:		Rich voltage not reached		0.005	D /7	FOT	75	1001	05	r-1	400	0 DOV
O2 Sensor Signal Check	P2270	(System Lean)	signal voltage down stream	< 0.605	[V]	ECT Time after engine start	> 75 >720	[°C] (s)	25		100 ms once / DCY	2 DCY
						Integrated MAF inegral after	7120	(3)			ONCE / DOT	1
						lambda closed loop	> 1000	[g]				
						Mass air flow integrated within						
						rich shift Signal voltage down stream	> 80 < 0.679	[g] [V]	-			1
						Lambda set-point shifting	= 0.85	[V] [-1	-			
						O2SH state	active	L J				
				disable		No active DTCs:			-			-
				conditions:		No CKP error	P0335, P0336					
						No CMP error	P0340, P0341					
						No IVVT error	P0365, P0366, P000A, P000B, P0010, P0011, P0013, P0014, P0016, P0017, P2088, P2089, P2090, P2091					
						No MAF error	P0102, P0103					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
							P0031, P0032,					
							P0036,					
							P0037,					
							P0038,					
							P0130,					
							P0131,					
							P0132,					
							P0133,					
							P0137,					
							P0138,					
							P0139,					1
							P0141,					1
							P2270, P2271,					
							P2271, P2297,					1
							P2A00,					
						No O2 sensor error	P2A01					
						110 02 001101 01101						
							P0300,					
							P0301,					
							P0302,					
							P0303,					
						No Misfire error	P0304, P0313					
						No canister purge solenoid	P0443,					
						error	P0458, P0459					
						No mech. canister purge	1 0 100, 1 0 100					
						solenoid error	P0496					
							P0121,					
							P0122,					
							P0123,					1
							P0221,					1
							P0222,					1
							P0223,					
							P2176,					
						No TDC orror	P0101,					
					1	No TPS error	P0068, P1101 P0116,		-			
						No TCO error	P0117,					1
						No FSD error	P0171, P0172					
							,					
						00011						
Fuel Correction					1	O2SH state	active		-			
Diagnostic,		Lean voltage not reached										1
Portion #2	P2271		signal voltage down stream	> 0.298	[V]				20	[s]	100 ms	2 DCY
	1	(-)	J.g. a. ronago domi oli odili	. 3.200	1.,	Ignition	"on"			[~]	. 500	
	1				1	Time after engine start	>720	[s]			once / DCY	

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VAL	UE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQU	JIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						Integrated MAF inegral after						
						lambda closed loop	> 1000	[g]				
						Mass air flow integrated within	1.000	เอา	1			
						lean shift	> 60	[g]				
						Signal voltage down stream	< 0.2	[V]				
						l signam remage are min emeaning		[-]				
						Mass air flow integral in DFCO	< 10	[g]				
						Lambda set-point shifting	= 1.15	[-]				
						ECT	> 75	[°C]				
				disable		No active DTCs:						
				conditions:		No CKP error	P0335, P0336					
						No CMP error	P0340, P0341					
							P0365,					
							P0366,					
							P000A,					
							P000B,					
							P0010,					
							P0010, P0011,					
							P0013,					
							P0014,					
							P0016,					
							P0017,					
							P2088,					
							P2089,					
						No IVVT error	P2090, P2091					
						L	D0400 D0400					
						No MAF error	P0102, P0103		1			
							P0031,					
							P0032,					
							P0036,					
							P0037,		1			
							P0038,		1			
							P0130,		1			
							P0131,		1			
							P0132,					
							P0133,		1			
							P0137,		1			
							P0138,		1			
							P0139,		1			
							P0141,		1			
							P2270,					
							P2271,		1			
							P2297,		1			
							P2A00,		1			
						No O2 sensor error	P2A01	1	1	I		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VA	LUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
						No Misfire error No canister purge solenoid error No mech. canister purge solenoid error No TPS error	P0300, P0301, P0302, P0303, P0304, P0313 P0443, P0458, P0459 P0496 P0121, P0122, P0123, P0221, P0222, P0223, P2176, P0101, P0068, P1101 P0116,					
						No TCO error No FSD error	P0117, P0171, P0172					
							,					
HO2S Performance during Decel Fuel Cut- Off (DFCO) Sensor 1	P2297	Signal Not Plausible in DFCO	signal voltage up stream	> 0.151	[V]	Ignition Operative readiness of sensor Exhaust gas Temp. at lambda	"on"		200	[ms]	100 ms triggered	2 DCY
						sensor upstream cat Air mass flow integral during pull cut off phase Mass air flow	> 599.98 8 < MAF < 500 > 10	[°C] [g] [kg/h]				
				disable conditions:		No active DTCs: No O2 sensor error	P0130, P0131, P0132, P0133, P0134, P2A00					
						No O2 sensor heater error	P0030, P0031, P0032, P0135					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
					No canister purge solenoid	P0443,					
					error	P0458, P0459					
					No mech. canister purge						
					solenoid error	P0496					
					No TPS Error	P0068, P0101, P1101					
						P0201,					
						P0201, P0202,					
						P0203,					
						P0204,					
						P0261,					
						P0262,					
						P0264,					
						P0265,					
						P0267,					
						P0268,					
					No Injection valve error	P0270, P0271					
						P0300,					
						P0301,					
						P0302,					
						P0303,					
					No Misfire error	P0304, P0313					
					No MAF error	P0102, P0103					
					No FSD error	P0171, P0172					+
					Ignition	"on"					
gnition Coils	P2301	Detection of errors are done by hardware diagnosis	short to battery plus		Engine	"running"		1800	[0C A]	180°CA	2 DCY
gillion colls	F2301	naruware diagnosis	Short to battery plus		ECT	> -30	[°C]	1600	[CA]	continuous	2 001
					No cylinder shut off active	<i>y</i> -50	[0]			CONTINUOUS	+
					Spark duration detection valid (Bit15 (MSD) of V_DUR_IGC)						
					Battery voltage	>10			-		+
	-			-	Time after engine start	>10			1	1	+
					No raw key-off	/10					+
					Spark duration detection valid						
					(Bit15 (MSD) of V_DUR_IGC)			1	1		+
					No missing CRK-tooth detected						
									1		+
					No active DTCs:						
						P0340,					
						P0341,					
					No CAM error	P0365, P0366					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
									Т		
					Ignition	"on"					
		Detection of errors are done by									
Ignition Coils	P2304	hardware diagnosis	short to battery plus		Engine	"running"		1800	[°CA]	180°CA	2 DCY
					ECT	> -30	[°C]			continuous	
					No cylinder shut off active						
					Spark duration detection valid (Bit15 (MSD) of V_DUR_IGC)						
					Battery voltage	>10					
					Time after engine start	>16					
					No raw key-off						
					Spark duration detection valid (Bit15 (MSD) of V_DUR_IGC)						
					No missing CRK-tooth detected						
					No active DTOs						
					No active DTCs:						
					No CAM error	P0340, P0341, P0365, P0366					
					Ignition	"on"					
		Detection of errors are done by			-ig. ii.i.o.i.	0			1		
Ignition Coils	P2307	-	short to battery plus		Engine	"running"		1800	[°CA]	180°CA	2 DCY
		-			Engine ECT	> -30	[°C]			continuous	
					No cylinder shut off active						
					Spark duration detection valid (Bit15 (MSD) of V_DUR_IGC) Battery voltage	>10					
					Time after engine start	>16					
					No raw key-off	7 10					
					Spark duration detection valid (Bit15 (MSD) of V_DUR_IGC)						
					No missing CRK-tooth detected						
					No active DTCs:				1		
						P0340, P0341,					
					No CAM error	P0365, P0366					
										1	

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	ALUE	SECONDARY PARAMETERS	ENABI CONDITI		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
Innikian Calla	D0040	Detection of errors are done by				En ein e			4000	[00 A]	400004	0 DOV
Ignition Coils	P2310	hardware diagnosis	short to battery plus			Engine ECT	"running" > -30	[°C]	1800	[°CA]	180°CA continuous	2 DCY
				disable		No cylinder shut off active	> -30	[0]			COMMINUOUS	
				conditions:		Spark duration detection valid (Bit15 (MSD) of V_DUR_IGC) Battery voltage Time after engine start	>10 >16					
						No raw key-off						
						Spark duration detection valid (Bit15 (MSD) of V_DUR_IGC) No missing CRK-tooth detected						
						-						
						No active DTCs:						
						No CAM error	P0340, P0341, P0365, P0366					
Transmission Torque Request (ETCU)	P2544	This diagnosis is activated only if a variant coding is available and shall supervise the correct transmission system type				Ignition	"on"		50	[ms]	10 ms continuous	2 DCY
		coding by comparison of the		disable		No active DTCs:						
		received CAN signals.		conditions:		No CAN error	U0073					
Engine OFF Timer (EOT) Diagnosis	P2610	engine off timer running too fast	comparison of pulse frequency from the EOT with the ECU internal timer	< 0.8	[s]	Hardware and	available and programmed		2	[s]	100 ms	2 DCY
						Engine	"stop"					
		engine off timer running too	comparison of pulse frequency from the EOT with the ECU internal timer	> 1.2	[s]	or Engine	"running"		2	[s]		
		Siow				295	. 3					
		engine off timer stucking	comparison of pulse frequency from the EOT with the ECU internal timer	> 4	[s]	no internal inhibit by timer	, 3		2	[s]		

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD V	ALUE	SECONDARY PARAMETERS	ENABL CONDITIO		TIME REQ	UIRED	FREQUENCY OF CHECKS	MIL ILLUM.
		engine off timer unplausible too often	comparison of pulse frequency from the EOT with the ECU internal timer	> 5 in DC	[-]	or			2	[s]		
						(error re-or debouncing detected) EOT init routine	"finished"					
HO2S Performance Bank 1 Sensor 1		sensor not ready in time	Timer	> 30	[s]	O2S front dewpoint	passed					2 DCY
			or O2 sensor heater plausibility error or	active		Ignition	"on"				100 ms once / DCY	
			Open cirquit O2 sensor upstream of catalyst	active								
				disable		No active DTCs:						
				conditions:		No O2 sensor error	P0130, P0131, P0132, P0133, P0134, P2297,					
						No O2 sensor heater error	P0030, P0031, P0032					
HO2S Performance					1							
Sensor 2	P2A01	Signal Not Plausible in DFCO	signal voltage down stream	> 0.151	[V]	Ignition Signal voltage value before entering fuel cut phase	"on" > 0.601	[V]	2500	[ms]	100 ms multiple	2 DCY
						Trailing throttle fuel cut off Air mass flow during fuel cut off	"ON" 10 < MAF <	[-1				
						phase Signal voltage	500 > 0.601	[9] [V]				
				disable		No active DTCs:						
				conditions:		No MAF error	P0102, P0103					
						No Canister purge solenoid error	P0443, P0458, P0459					
						No mech. canister purge solenoid error	P0496					

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THREASHOLD VALUE	SECONDARY PARAMETE	RS ENABLE CONDITIONS	TIME REQUIRE	FREQUENCY OF CHECKS	MIL ILLUM.
					No O2 sensor error No O2 sensor heater error No TPS Error No Misfire error	P0136, P0137, P0138, P0139, P0140, P2270, P2271 P0036, P0037, P0038, P0141 P0068, P0101, P1101 P0300, P0301, P0302, P0303, P0304, P0313			
					No injection valve error No FSD error	P0201, P0202, P0203, P0204, P0261, P0262, P0264, P0265, P0267, P0268, P0270, P0271			
CAN Bus	U0073	no signal	CAN Bus		Ignition	"on"	immetiately	10 ms continuous	2 DCY
CAN Bus	U0101	no signal	CAN message		Ignition	"on"	immetiately	10 ms continuous	1 DCY
CAN Bus	U0122	no signal	CAN message		Ignition	"on"	immetiately	10 ms continuous	2 DCY

COMPONENT/ SYSTEM	FAULT CODE		MALFUNCTION CRITERIA	THREASHOLD VALUE		SECONDARY PARAMETERS	ENABLE CONDITIONS		TIME REQUIRED		FREQUENCY OF CHECKS	MIL ILLUM.
CAN Lost Communication with BCM	U0140	no signal	CAN message			Ignition Battery voltage Delay time	"on" >9.7 V and < 16.5	[V] [s]	250	[ms]	10 ms continuous	2 DCY
Software Incompatibility with Transmission Control Module	U0302	software incompatibility with TCM	inappropriate ECU Dataset (AT vehicle with MT dataset or MT vehicle with AT dataset)			Ignition	"on"		10	[ms]	10 ms	1 DCY
				disable conditions:		No active DTCs: No CAN errors	U0073					
Vehicle Speed	C1207	circuit high	CAN message via the Wheel Speed Sensors Signal	= true	[-]	Ignition CAN delay after ignition on Traction control system on CAN configured	"on"		100	[ms]	100 ms continuous	2 DCY
			CAN manager in the Wiles			No active DTCs: No CAN error	U0122, U0073					
Vehicle Speed (C1208	circuit high	CAN message via the Wheel Speed Sensors Signal	= true	[-]	Ignition CAN delay after ignition on Traction control system on CAN configured	"on"		100	[ms]	100 ms continuous	2 DCY
						No active DTCs: No CAN error	U0122, U0073					
Vehicle Speed	C1221	no input signal / irrational low	CAN message via the Wheel Speed Sensors Signal	= true	[-]	Ignition CAN delay after ignition on Traction control system on CAN configured	"on"		100	[ms]	100 ms continuous	2 DCY
						No active DTCs: No CAN error	U0122, U0073					
Vehicle Speed	C1222	no input signal / irrational low	CAN message via the Wheel Speed Sensors Signal	= true	[-]	Ignition	"on"		100	[ms]	100 ms	2 DCY

Vehicle Speed C1225 Vehicle Speed C1226	input erratic / noise / irrational high input erratic / noise / irrational high	CAN message via the Wheel Speed Sensors Signal CAN message via the Wheel Speed Sensors Signal	= true	[-]	CAN delay after ignition on Traction control system on CAN configured No active DTCs: No CAN error Ignition CAN delay after ignition on Traction control system on CAN configured No active DTCs: No CAN error Ignition CAN delay after ignition on Traction control system on CAN configured	U0122, U0073 "on" U0122, U0073	100	[ms]	100 ms continuous	2 DCY
Vehicle Speed C1225 I	high input erratic / noise / irrational	Speed Sensors Signal CAN message via the Wheel			Traction control system on CAN configured No active DTCs: No CAN error Ignition CAN delay after ignition on Traction control system on CAN configured No active DTCs: No CAN error Ignition CAN delay after ignition on	"on" U0122, U0073			100 ms continuous	2 DCY
Vehicle Speed C1225 I	high input erratic / noise / irrational	Speed Sensors Signal CAN message via the Wheel			CAN configured No active DTCs: No CAN error Ignition CAN delay after ignition on Traction control system on CAN configured No active DTCs: No CAN error Ignition CAN delay after ignition on	"on" U0122, U0073			continuous	2 DCY
Vehicle Speed C1225 Vehicle Speed C1226 C1226	high input erratic / noise / irrational	Speed Sensors Signal CAN message via the Wheel			No active DTCs: No CAN error Ignition CAN delay after ignition on Traction control system on CAN configured No active DTCs: No CAN error Ignition CAN delay after ignition on	"on" U0122, U0073			continuous	2 DCY
Vehicle Speed C1225 I	high input erratic / noise / irrational	Speed Sensors Signal CAN message via the Wheel			Ignition CAN delay after ignition on Traction control system on CAN configured No active DTCs: No CAN error Ignition CAN delay after ignition on	"on" U0122, U0073			continuous	2 DCY
Vehicle Speed C1225 I	high input erratic / noise / irrational	Speed Sensors Signal CAN message via the Wheel			Ignition CAN delay after ignition on Traction control system on CAN configured No active DTCs: No CAN error Ignition CAN delay after ignition on	"on" U0122, U0073			continuous	2 DCY
Vehicle Speed C1225 I	high input erratic / noise / irrational	Speed Sensors Signal CAN message via the Wheel			Ignition CAN delay after ignition on Traction control system on CAN configured No active DTCs: No CAN error Ignition CAN delay after ignition on	"on" U0122, U0073			continuous	2 DCY
Vehicle Speed C1225 I	high input erratic / noise / irrational	Speed Sensors Signal CAN message via the Wheel			CAN delay after ignition on Traction control system on CAN configured No active DTCs: No CAN error Ignition CAN delay after ignition on	U0122, U0073			continuous	2 DCY
Vehicle Speed C1225	high input erratic / noise / irrational	Speed Sensors Signal CAN message via the Wheel			CAN delay after ignition on Traction control system on CAN configured No active DTCs: No CAN error Ignition CAN delay after ignition on	U0122, U0073			continuous	2 DCY
Vehicle Speed C1226	input erratic / noise / irrational	CAN message via the Wheel			CAN delay after ignition on Traction control system on CAN configured No active DTCs: No CAN error Ignition CAN delay after ignition on	U0122, U0073			continuous	2001
Vehicle Speed C1226			= true	[-]	Traction control system on CAN configured No active DTCs: No CAN error Ignition CAN delay after ignition on	U0073	100	[ms]		
Vehicle Speed C1226			= true	[-]	No active DTCs: No CAN error Ignition CAN delay after ignition on	U0073	100	[ms]		
Vehicle Speed C1226			= true	[-]	No active DTCs: No CAN error Ignition CAN delay after ignition on	U0073	100	[ms]		
Vehicle Speed C1226			= true	[-]	No CAN error Ignition CAN delay after ignition on	U0073	100	[ms]		
Vehicle Speed C1226			= true	[-]	Ignition CAN delay after ignition on	U0073	100	[ms]		
Vehicle Speed C1226			= true	[-]	Ignition CAN delay after ignition on		100	[ms]		
Vehicle Speed C1226			= true	[-]	CAN delay after ignition on	"on"	100	[ms]		
Vehicle Speed C1226			= true	[-]	CAN delay after ignition on	"on"	100	[ms]	1	
	high	Speed Sensors Signal	= true	[-]	CAN delay after ignition on	"on"	100	lmsi		l · ·
Vehicle Speed C1232					Traction control system on			ניייטן	100 ms	2 DCY
Vehicle Speed C1232					Traction control system on				continuous	.
Vehicle Speed C1232					CAN configured					ĺ
Vehicle Speed C1232	•				CAN configured	+ +				-
Vehicle Speed C1232					No active DTCs:	+ +				
Vehicle Speed C1232					110 00110 2 1 00.	U0122,				
Vehicle Speed C1232					No CAN error	U0073				ĺ
Vehicle Speed C1232										
Vehicle Speed C1232		CAN message via the Wheel								
	circuit low	Speed Sensors Signal	= true	[-]	Ignition	"on"	100	[ms]	100 ms	2 DCY
					CAN delay after ignition on					
					Traction control system on					l
					CAN configured	1				.
					No active DTCs:	+				—
					INO active DTCs.	U0122,			 	1
			1	1	No CAN error	U0073				1
			1	1		1				
 		CAN message via the Wheel				1				
Vehicle Speed C1233	circuit low	Speed Sensors Signal	= true	[-]	Ignition	"on"	100	[ms]	100 ms	2 DCY
					CAN delay after ignition on				continuous	
			1	1	Traction control system on					1
				1	CAN configured	1				
			1	1	No active DTC-	1			 	
			 	-	No active DTCs:	U0122,			 	├──
1 1	I				No CAN error	U0073				1
+ +	ĺ		 	1	INO OAN EIIOI	00073			 	