Monitoring       to g per         Monitoring       per         per       per         fiel       to g         practice       per         practice       per         practice       per         practice       per         Synchronization error       P0340       Rat         P1340       Rat         Misfire Detection       P0300 to       Ion         P0304       Ari       and         Detect signals       P1312       Sig         P1341 to P1344       Cor       OR         Ion       P1315       Ion	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	MIL
Monitoring to g peri thranking to g peri thranking the second sec	Description	Criteria	Value	Parameters	Conditions	Required	Illumin.
4onitoring       to g per         4onitoring       to g per         field       to g per         field       to g per         pur, least       pur, least         pur, least       Tim         better       point         pisfire Detection       P0340         Rat       P1340         fisfire Detection       P0300 to         P0304       Ari and         fisfire Detected With Low       P0313         San       pr         vel       P1341 to P1344         or       P1341 to P1344         OR       P1315							
ynchronization error P0340 Rat rear ynchronization error P0340 Rat rear pryse P1340 Rat fisfire Detection P0300 to P0304 At i and fisfire Detected With Low P0313 San uel P1312 Sig star P1341 to P1344 Cor OR	ime for Rear O2 sensor signal	Time for rear O2 to go low. Value	< 1400 msec		-2 < delta load < 2 g/s	13 - 30 sec,	Statistical treatment,
ynchronization error P0340 Rat rear ynchronization error P0340 Rat isfire Detection P0300 to P0304 Rat fisfire Detected With Low P0313 San uel P1341 to P1344 Cor P1341 to P1344 Cor OR	go low. Catalyst monitoring	corrected to standard flow and		Vehicle speed	< 15,5 mph	Once / DCY	6 DCY, after limit i reached: immediate
num       oscifice         fuel       rear         pur,       rear         pur,       lear         rear       pur,         lear       rear         pur,       lear         rear       pur,         lear       rear         pur,       lear         rear       pur,         lear       rear         pur,       lear         out,       star         proverse       P1340         Rat       P1340         fisfire Detection       P0300 to         P0304       Ar         and       p1313         San       p1312         Sign       p1341 to P1344         OR       OR         on detection system error       P1315	erformed at idle. Wait for prottle closed period, then a	catalyst temperature.		Engine speed	900 +200/-100 rpm		illumination
ynchronization error       P0340       Rat         ynchronization error       P0340       Rat         P1340       Rat         fisfire Detection       P0300 to       Ion         P0304       At       and         fisfire Detected With Low       P0313       San         vel       P1340       Cor         P1341 to P1344       Cor         OR       P1315       Ion	umber of front O2 sensor			Load MAF	3,5 – 9 g/s		mummauon
ynchronization error P0340 Rat reau ynchronization error P0340 Rat isfire Detection P0300 to P0304 Rat fisfire Detected With Low P0313 San uel P1341 to P1344 Cor P1341 to P1344 Cor OR	scillations to measure average			Min time after engine start	> 230 s		
ynchronization error       P0340       Rat         ynchronization error       P0340       Rat         prime       P1340       Rat         fisfire Detection       P0300 to       Ion         fisfire Detected With Low       P0313       San         viel       P1312       Sig         P1341 to P1344       Cor         on detection system error       P1315       Ion	el trim value. Then rich fueling			Fuel control	Closed loop - then rich - then lean		
ynchronization error P0340 Rat out to s P1340 Rat fisfire Detection P0300 to P0304 At iand fisfire Detected With Low P0313 San uel P1312 Sig star P1341 to P1344 Cor OR	purge oxygen, wait for high			Catalyst temperature	450 - 700 °C, modeled		
ynchronization error P0340 Rat ynchronization error P0340 Rat P1340 Rat isfire Detection P0300 to P0304 At i and tisfire Detected With Low P0313 San tel P1312 Sign P1341 to P1344 Cor OR	ear O2 sensor value to indicate			Throttle	Closed		
ynchronization error       P0340       Rat         ynchronization error       P0340       Rat         P1340       Rat       Rat         fisfire Detection       P0300 to       Ion         fisfire Detected With Low       P0313       San         viel	urged cat - or max time, then can fueling and measure time for			Nr of Front O2 oscillations for averaged	2		
ynchronization error       P0340       Rat         ynchronization error       P0340       Rat         P1340       Rat         fisfire Detection       P0300 to       Ion         P0304       At i       and         fisfire Detected With Low       P0313       San         uel       Ion       P1312       Sig         betect signals       P1312       Sig       star         on detection system error       P1315       Ion	ear O2 sensor signal to fall.			integrator value.	2		
ynchronization error P0340 Rat ynchronization error P0340 Rat P1340 Rat isfire Detection P0300 to Ion P0304 At i and fisfire Detected With Low P0313 San uel P1312 Sig P1341 to P1344 Cor OR	car 62 sensor signar to ran.			Rich fuelling time	1,5 to 10 seconds		
ynchronization error P0340 Rat to s P1340 Rat tisfire Detection P0300 to P0304 At and tisfire Detected With Low vel P1312 Sig star P1341 to P1344 Cor OR	ime measurement in phase 3			Evaporative canister purge	Not active		
ynchronization error P0340 Rat or by P1340 Rat P1340 Rat Fisfire Detection P0300 to P0304 At i and fisfire Detected With Low P0313 San uel P1312 Sig star P1341 to P1344 Cor OR	egins when front O2 sensor				Time according to value in matrix, examples:		
ynchronization error P0340 Rat to s P1340 Rat fisfire Detection P0300 to P0304 At i and fisfire Detected With Low P0313 San uel P1312 Sig star P1341 to P1344 Cor OR	utput goes below 450 mV and			-	640 mV + 5 sec.		
ynchronization error P0340 Rat to s P1340 Rat fisfire Detection P0300 to Ion P0304 A i and fisfire Detected With Low P0313 San uel P1312 Sig P1341 to P1344 Cor OR	tops when rear O2 sensor output			Lambda integrator	0 ± 15%		
to s P1340 Rat P1340 Rat fisfire Detection P0300 to P0304 A t and fisfire Detected With Low P0313 San uel P1312 Sig star P1341 to P1344 Cor OR on detection system error P1315 Ion	oes below 450 mV			Brake switch status changes	Max 3		
to s to s P1340 Rat P1340 Rat Fisfire Detection P0300 to P0304 A ti and P0304 P0313 San uel P1312 Sign star P1341 to P1344 Cor OR P1315 Ion				No DTC set, pending or confirmed	Front O2 sensor		
to s to s P1340 Rat P1340 Rat Fisfire Detection P0300 to P0304 A ti and P0304 P0313 San uel P1312 Sign star P1341 to P1344 Cor OR P1315 Ion					Rear O2 sensor		
to s P1340 Rat P1340 Rat fisfire Detection P0300 to P0304 A t and fisfire Detected With Low P0313 San uel P1312 Sig star P1341 to P1344 Cor OR on detection system error P1315 Ion					MAF sensor, P0101, P0102, P0103		
to s to s P1340 Rat P1340 Rat P1340 Rat P1340 Rat P1300 to P0300 to P0300 to P0304 A ti and P1313 San P1312 Sign star P1341 to P1344 Cor OR P1315 Ion					11 to 18 V		
to s P1340 Rat P1340 Rat Itisfire Detection P0300 to P0304 A t and fisfire Detected With Low P0313 San uel P1312 Sign star P1341 to P1344 Cor OR on detection system error P1315 Ion							
to s	ationality, Sync error, high due	Ignition	Not synchronized	Engine speed	Running	600 revs	Two DCY
P1340       Rat         P1340       Rat         P1340       Rat         isfire Detection       P0300 to         P0304       At i         and       P0304         fisfire Detected With Low       P0313         san       P1312         etect signals       P1312         P1341 to P1344       Cor         OR       P1315	o soot	15	riot synemonized	Revolutions	>500 after start phase	Once / DCY	1.00.001
isfire Detection P0300 to P0304 At and P0304 At and Isfire Detected With Low P0313 San Isel P1312 Signals P1312 Signals P1341 to P1344 Cor OR P1341 to P1344 OR P1315 Ion P1315				Revolutions	>500 arter start phase	Once / DC I	
iisfire Detection P0300 to P0304 At and P0304 At and IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	ationality, Sync error low	Ignition	Not synchronized	Engine speed	Running	600 revs	Two DCY
P0304 At i and tisfire Detected With Low P0313 San uel P1312 Sig star P1341 to P1344 Or OR on detection system error P1315 Ion	ationality, sync cirol low	ignition	Not synchronized	Revolutions	>500 after start phase	Once / DCY	I WO DC I
P0304 At i and tisfire Detected With Low P0313 San uel P1312 Sig star P1341 to P1344 Or OR on detection system error P1315 Ion				Revolutions	>500 arter start phase	Once / DC I	
P0304 At i and fisfire Detected With Low P0313 San uel P1312 Sig star P1341 to P1344 Or OR on detection system error P1315 Ion	onization detection	Misfire counter 1000 revs	> 3%	Engine speed	> idle rpm at warm engine – 150 rpm	1000 OR 200 revs	Two DCY / MIL bli
tisfire Detected With Low P0313 San rel etect signals P1312 Sig star P1341 to P1344 Cor OR n detection system error P1315 Ion	t idle: combination of ionization	Mistile counter 1000 levs		• •			1 WO DC 1 / WILL DI
tisfire Detected With Low P0313 San uel P1312 Sign star P1341 to P1344 Cor OR OR	nd crankshaft speed evaluation	Mistire counter 200 revs	See separate map	Load change transient MAP (for Man Transmission)	$< \pm$ 3,0 kPa/combustion	Continuous	
Detect signals P1312 Signals P1312 Signals P1344 Correct P1341 to P1344 Correct OR OR P1315 Ion	x			Torque	> 0 and not in disable region		
Detect signals P1312 Signals P1312 Signals P1344 Correct P1341 to P1344 Correct OR OR P1315 Ion				Fuel cut	Not active		
uel P1312 Signals P1312 Signals P1312 Signals P1341 to P1344 Correct OR OR P1341 to P1344 International P1315 International P1				Battery voltage	> 10.0 V		
Detect signals P1312 Signatary P1312 Signatary P1341 to P1344 Correction system error P1315 Ion					Delayed until Coolant temp > 21°C		
Detect signals P1312 Signals P1312 Signals P1344 Correct P1341 to P1344 Correct OR OR P1315 Ion				°C at start	Delayed until Coolant temp > 21°C		
etect signals P1312 Signals P1312 Signals P1341 to P1344 Correct OR							
P1312 Signals P1312 Signals P1341 to P1344 Correct or P1341 to P1344 OR OT P1315 Ion	ame as above	Misfire counter 200 revolutions	See separate map	Same as above	Same as above	200 revolutions	MIL blink
P1341 to P1344 Cor OR on detection system error P1315 Ion				Fuel level	< 8% (5 liters)	Continuous	
P1341 to P1344 Cor OR on detection system error P1315 Ion							
P1341 to P1344 Cor OR on detection system error P1315 Ion	ignal high during fuel cut OR at	Detect signal	High	Engine speed	Engine started	125 revolutions	Two DCY
P1341 to P1344 Cor OR on detection system error P1315 Ion	tart OR compared to defined			Engine synchronization	During or after	Continuous	1.00001
OR O	in dans			Engine synchronization	During or alter	Continuous	
or detection system error P1315 Ion	Semilar tion 1 - 11 OR 2	Detect views1	T	Engine and	En sine started	45	Ture DOV
on detection system error P1315 Ion	Combustion signal cyl 1 OR 2 OR 3 OR 4 missing	Detect signal	Low	6 1	Engine started	45 revolutions	Two DCY
	N 5 OK 4 missing			0,	During or after	Continuous	
				No DTC set, pending or confirmed	Powertrain relay rationality, P0685		
				r		1	
disc	on Detect Module connector	Combustion AND ignition signals	= 0 for more than 25 revs	Engine speed	Running > 400 rpm	25 revolutions	Two DCY
	isconnected			Fuel cut	Not active	Continuous	
				Load	> 10 mg/combustion		
I				1		1	1
on detect module ignition P1350 to P1354 All	Il or single cylinder ignition trig	Knock signal information	= 0 at combustion stroke	Engine speed	Running > 400 rpm	8 revolutions	Two DCY
÷	put to ion detect module				- A		

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		able	Time	MIL
System	Code	Description	Criteria	Value	Parameters	Con	ditions	Required	Illumin.
	1				Tr 1	10 / 1 /			
					Load	> 10 mg/combustion			
. 1 . 1 1	00225	P. 1. 1. 1. 1. 1. 1.	IZ 1 1 1	NT 1 1 1	A 1 ( 11	N. ( 1		0 1 0	TDOV
nock signal	P0325	Faulty knock signal	Knock signal	No knock pulses	Accelerator pedal	Not released		8 revolutions	Two DCY
					Engine speed	Engine started		Continuous	
					Coolant temperature	> 60°°C			
	D0001 - D0004					60.11		1.	T DOV
jector Circuit	P0201 to P0204	El. Check – Min, max, open circuit	Short cut OR open circuit	Short cut to ground, battery or not connected		> 6.0 V		1 sec	Two DCY
		cheun		or not connected	Engine speed	Engine moving OR running	D0 (05	Continuous	
					No DTC set, pending or confirmed	Powertrain relay rationality,	P0685		
		Ta				<u> </u>		1.	
nition coil trigs 1, 2, 3 &	P2300, P2303, P2306, P2309	Control circuit range check min	Short-cut	To ground or not connected		Engine running		1 sec	Two DCY
	P2309				Supply voltage	> 11 V		Continuous	
	P2301, P2304, P2307,	Control circuit range check max	Short-cut	To battery voltage	Engine speed	Engine running		1 sec continuous	Two DCY
	P2310				Supply voltage	> 11 V		Continuous	
	•		1	-	1	-			
VAP Canister Vent Valve	P0498	Circuit continuity check	Short-cut	To ground or not connected		Running		6 sec, Continuous	Two DCY
					Battery voltage	> 11 V			
	P0499		Short-cut	To battery voltage	Purge	Not active		At engine start	
					No DTC set, pending or confirmed	Purge valve, P0441, P0444,	P0445		
						Powertrain relay, P0685, P0	586, P0687		
	P0446	Rationality check	Fuel tank pressure raise after	Not raised 400 Pa within 8	Fuel tank pressure	< -800 Pa		Once per DCY	Two DCY
			EVAP leak check	sec	EVAP test	Not active		Leak check time + 8 sec	
					Canister Vent Valve	Not active			
					Fuel tank pressure sensor	Adaption performed			
					Diagnostic ran and passed for	Canister Vent Valve circuit,	P0498, P0499		
					IAT	>+4 °C			
					No DTC set, pending or confirmed	Purge valve, P0441, P0444,	P0445		
						Fuel tank pressure sensor, PO			
						Powertrain relay, P0685, P0			
					Purge rationality diagnostic	Not active		_	
VAP leak test						Enable	Disable		
eneral conditions					ECT & IAT	>+4 °C	< +4 °C		
					Ambient temperature	+ 35 deg C	+ 35 deg C		
					MAF A	-	±90 mg/comb		
					Fuel tank pressure	< 200 Pa	< 200 Pa		1
					MAP	< -15 kPa	< -15 kPa (during pull-		1
						< 1.5 KI a	< -15 KPa (during puil- down)		1
					Max number of vapor disables in DCY	2	2		
					Ramp 0: Slosh				1
					Pressure change in expected direction		> 70 Pa		
					Pressure change in opposite direction		> 70 Pa		1
					Ramp 0: ECT	> 40 °C		7	1
					Ramp 1: Slosh			7	1
					Pressure change in expected direction		> 300 Pa		1
					Pressure change in opposite direction		> 160 Pa		
					Ramp 2: Slosh		1	-	
					Pressure change in expected direction		> 111 Pa		

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		nable	Time	MIL
System	Code	Description	Criteria	Value	Parameters	Cor	nditions	Required	Illumin.
T		1		1					1
					Battery voltage	10 - 16 Volts			
					Fuel cut	Not active			
					Canister vent valve rationality test	Not active			
					No DTC set, pending or confirmed	*	P0451, P0452, P0453, P1451		
						Tank pressure adaption, P1	452, P1453, P1492, P1493		
						Vehicle speed sensor, P050	1		
						Canister Vent Valve, P044	5, P0498, P0499		
						Purge valve, P0441, P0444	, P0445		
						Brake light switch, P0719,	P0724		
						ECT sensor, P0115, P0117	, P0118, P0119		
						IAT sensor, P0111, P0112,	P0113		
						ABS communication, P162	5		
					Time between test attempts	30 sec			
					at Vehicle speed (hot test)	> 27,3 mph			1
					System power-up	In present DCY, or no test	in previous DCY		1
					Purge	Not active			1
					Purge ramp	Finished, not required for c	old start DCY (<40°C)		
					Purge vapor HC content	Max. 50% of engine's fuel			
					Fuel volume	15 to 85 %	ruge		
					Fuel level	Updated			
					Lambda control	Closed Loop			
						Not active			
					Catalyst diagnostic				
					AIR diagnostic	Not active			
					O2 sensor diagnostic	Not active			
						Enable	Disable		
lle test					Vehicle speed	0	> 0	Once / DCY	
					Brake activations	Max 2	max 2	25 sec	
					Purge adaption	> -5%			
					Purge HC $\Delta$ vs. start		> 20%		
					Lambda integrator ∆ vs. start		> 12,5%		
					Ambient pressure $\Delta$	< 4kPa/3 min	> 4kPa/3 min		
					Fuel tank pressure	> -500 Pa	< -2100 Pa		
					Ramp 0 vapor generation		> 4 Pa/s		
ehicle moving test					Vehicle speed	43,5 - 80,8 mph		Once / DCY	
					Vehicle speed $\Delta$ vs. start		$<\pm 5$ mph	35 s	
					Brake activations	Max 1	Max 1		1
					Purge adaption	> -7%			1
					Purge HC $\Delta$ vs. start		> 15,5%		
					Lambda integrator $\triangle$ vs. start		> 10%		1
					Ambient pressure $\Delta$	< 4kPa/3 min	> 4kPa/3 min		
					Fuel tank pressure	> -700 Pa	< -2750 Pa		
					Ramp 0 vapor generation		> 1,1 Pa/s		1
					r · · · · · · · · · · · · · · · · · · ·				1
iller cap test, big leak /		<u> </u>			Vehicle speed	31,1 – 93,2 mph		Max 50 times	+
gh vapor generation					Vehicle speed ∆ vs. start	51,1 75,2 mpn	> ±7,5 mph	/DCY	1
					Brake activations	Max 1	Max 1	1001	
					Purge adaption	> -24%	141aA 1		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illumin.
	L	Г	[		I amb da inte anten t un start	> 25%	1	-
					Lambda integrator △ vs. start			
					Ambient pressure $\Delta$	< 5kPa/3 min > 5kPa/3 min		
					Fuel tank pressure	> -700 Pa < -2500 Pa		
					Ramp 0 vapor generation	> 12 Pa/s		
AP large leak	P0455	Rationality check	Pressure does not reach specified					Two DCY
3 mm			level in specified time. See					
	P1455	When fuel level info is incorrect						
	·		1				-	
√AP small leak mm < X < 3 mm	P0442	Rationality check	Pressure gradient check. See separate document	Leakage factor 4				Two DCY
	P1442	When fuel level info is incorrect						
VAP very small leak 5 < X < 1 mm	P0456	Rationality check	Pressure gradient check. See separate document	Average leak factor > 0 (valid values -3 to 3) 13				Up to eight DCY
	P1456	When fuel level info is incorrect						
		-						
uel tank pressure sensor	P0452	Low end check	Short cut	To ground or not connected	1 Ignition on	>2 sec	3 sec	Two DCY
	P0453	High end check	Short cut	To battery	Engine speed	Running	Continuous	
P					Battery voltage	>11,0 V		
	P0451	Detionation	Number of flank shifts (of 25 Pa)	. 15 times in 6	Y:+:	2	5	Two DCY
		Rationality			Ignition on	>2 sec	5 sec	I WO DC I
	P1451	When fuel level info is incorrect	Same as above	Same as above	Engine speed	Running	Once / DCY	
					Battery voltage	>11,0 V		
					ECT & IAT	>+4°C		
					Fuel in tank	< 85% (53 liters)		
					No DTC set, pending or confirmed	Fuel tank pressure sensor circuit, P0452, P0453		
						Canister Vent Valve, P0446, P0498, P0499		
						Purge valve, P0441, P0444, P0445		
						Tank pressure adaption, P1452, P1453, P1492, P1493		
					Fuel level	Updated		
el tank pressure sensor	Pressure adaption,				BARO pressure	75 to 106 kPa		
	general conditions				Vehicle speed	0		
					Engine speed	0		
					ECT	<+40°C		
					Fuel tank volume	< 80,5% (50 liter)		
					IAT	> 0°C		
					No DTC set, pending or confirmed	Fuel tank pressure sensor, P0451, P0452, P0453, P1451		
					ECU	First time after Power Up		
	P1452	Sensor Offset	Min failure	Adaption value < -750 Pa	Engine speed	Running	Ignition on + 5s	Two DCY
	P1492	Sensor offset when fuel level info			Fuel tank pressure sensor adaption	Performed	Once / DCY	
		is incorrect			Fuel level	Updated		
		1	1	l	Battery voltage	> 11,0 V		
	P1453	Sensor Offset	Max failure	Adaption value >1000 Pa	Engine speed	Running	Ignition on + 5s	Two DCY
	P1493	Sensor offset when fuel level info			Fuel tank pressure sensor adaption	Performed	Once / DCY	

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	MIL
System	Code	Description	Criteria	Value	Parameters	Conditions	Required	Illumin.
			1	T	1		1	-
		is incorrect			Fuel level	Updated		
					Battery voltage	> 11,0 V		
AP Purge Valve	P0441	Valve leaking	Tank pressure drop when valve is	> 30 Pa/sec	Vehicle speed	0	3 sec	Two DCY
			commanded closed		Fuel volume	15 - 85 %	Once / DCY	
					Engine speed	Running		
					Purge	Not active		
					IAT & ECT at engine start	+4 to +40 °C		
					Battery voltage	11 to 16 Volts		
					MAP	< -15 kPa		
					No DTC set, pending or confirmed	Canister Vent Valve, P0446, P0498, P0499		
						ECT sensor, P0115, P0117, P0118, P0119		
						Vehicle speed sensor, P0501		
						Tank pressure adaption, P1452, P1453, P1492, P1493		
						ABS communication, P1625		
						Powertrain relay, P0685, P0686, P0687		
					Diagnostic ran and passed for	Purge Valve circuit, P0444, P0445		
					ECU	First time after Power Up		
	P0444	Circuit continuity check	Short-cut	Short cut to ground or not	Engine speed	Running	1 sec	Two DCY
		Circuit continuity circek		connected				IWODEI
	P0445		Short-cut	Short cut to battery voltage	Battery voltage	> 11,0 V	Continuous	
					Purge valve	Active (ECT > 40°C)		
					No DTC set, pending or confirmed	Powertrain relay, P0685, P0686, P0687		
					To Die set, penang of committee	1 0 workiam roky, 1 0000, 1 0000, 1 0007		
iel level	P0462	Min signal	AD value	< 2000	Engine speed	Running	1 sec	No MIL, will set alter
	P0463	Max signal	AD value	> 25000	Battery voltage	> 11,0 V		DTC for EVAP
	10405	iviax signal	nio value	> 25000	Battery voltage	/ 11,0 *		rationalities
	P0460							
		Rationality no activity	Fuel level info change	< 1.6% (1 liter)	Engine speed	Running	15.5 miles	
	P0460	Rationality, no activity	Fuel level info change	< 1,6% (1 liter)	Engine speed Battery voltage	Running	15,5 miles	
	P0460	Rationality, no activity	Fuel level info change	< 1,6% (1 liter)	Battery voltage	> 11,0 V	15,5 miles	
	P0460	Rationality, no activity	Fuel level info change	< 1,6% (1 liter)	Battery voltage No DTC set, pending or confirmed	> 11,0 V Fuel level circuit, P0462, P0463	15,5 miles	
	20460	Rationality, no activity	Fuel level info change	< 1,6% (1 liter)	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16%	> 11,0 V Fuel level circuit, P0462, P0463 When volume reference > 85% (53 liters) OR < 3,2% (2	15,5 miles	
	10460	Rationality, no activity	Fuel level info change	< 1,6% (1 liter)	Battery voltage No DTC set, pending or confirmed	> 11,0 V Fuel level circuit, P0462, P0463	15,5 miles	
	P0460	Rationality, no activity	Fuel level info change	< 1,6% (1 liter)	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed,	> 11,0 V Fuel level circuit, P0462, P0463 When volume reference > 85% (53 liters) OR < 3,2% (2 liters), driving distance for evaluation is increased to 93,2	15,5 miles	
					Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed, and a new reference will be taken.	<ul> <li>&gt; 11,0 V</li> <li>Fuel level circuit, P0462, P0463</li> <li>When volume reference &gt; 85% (53 liters) OR &lt; 3,2% (2 liters), driving distance for evaluation is increased to 93,2 miles.</li> </ul>		No MII will set alter
	P0460 P0461	Rationality, no activity	Fuel level info change	Fuel consumption less than	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed, and a new reference will be taken. Reference volume updated when Vehicle sneed	> 11,0 V Fuel level circuit, P0462, P0463 When volume reference > 85% (53 liters) OR < 3,2% (2 liters), driving distance for evaluation is increased to 93,2 miles.           -           -           > 24,9 mph	15,5 miles 5 X 21,7 miles	No MIL, will set alter DTC for EVAP
				Fuel consumption less than 0.8% (0,5 liters). 5 checks done for fault setting.	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed, and a new reference will be taken. Reference volume updated when Vehicle sneed Evaluation distance	<ul> <li>&gt; 11,0 V</li> <li>Fuel level circuit, P0462, P0463</li> <li>When volume reference &gt; 85% (53 liters) OR &lt; 3,2% (2 liters), driving distance for evaluation is increased to 93,2 miles.</li> <li>&gt; 24,9 mph</li> <li>21,7 miles</li> </ul>		
				Fuel consumption less than 0,8% (0,5 liters). 5 checks done for fault setting. Results saved in buffer, also	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed, and a new reference will be taken. Reference volume updated when Vehicle sneed Evaluation distance	> 11,0 V Fuel level circuit, P0462, P0463 When volume reference > 85% (53 liters) OR < 3,2% (2 liters), driving distance for evaluation is increased to 93,2 miles.           -           -           > 24,9 mph		DTC for EVAP
				Fuel consumption less than 0.8% (0,5 liters). 5 checks done for fault setting.	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed, and a new reference will be taken. Reference volume updated when Vehicle sneed Evaluation distance	<ul> <li>&gt; 11,0 V</li> <li>Fuel level circuit, P0462, P0463</li> <li>When volume reference &gt; 85% (53 liters) OR &lt; 3,2% (2 liters), driving distance for evaluation is increased to 93,2 miles.</li> <li>&gt; 24,9 mph</li> <li>21,7 miles</li> </ul>		
				Fuel consumption less than 0,8% (0,5 liters). 5 checks done for fault setting. Results saved in buffer, also	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed, and a new reference will be taken. Reference volume updated when Vehicle sneed Evaluation distance Evaluation distance when fuel level >90%	<ul> <li>&gt; 11,0 V</li> <li>Fuel level circuit, P0462, P0463</li> <li>When volume reference &gt; 85% (53 liters) OR &lt; 3,2% (2 liters), driving distance for evaluation is increased to 93,2 miles.</li> <li>&gt; 24,9 mph</li> <li>21,7 miles</li> <li>43,5 miles</li> </ul>		DTC for EVAP
sel trim, long term				Fuel consumption less than 0,8% (0,5 liters). 5 checks done for fault setting. Results saved in buffer, also	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed, and a new reference will be taken. Reference volume updated when Vehicle sneed Evaluation distance Evaluation distance when fuel level >90%	<ul> <li>&gt; 11,0 V</li> <li>Fuel level circuit, P0462, P0463</li> <li>When volume reference &gt; 85% (53 liters) OR &lt; 3,2% (2 liters), driving distance for evaluation is increased to 93,2 miles.</li> <li>&gt; 24,9 mph</li> <li>21,7 miles</li> <li>43,5 miles</li> </ul>		DTC for EVAP
uel trim, long term	P0461	Rationality, fuel consumption	Fuel level change	Fuel consumption less than 0,8% (0,5 liters). 5 checks done for fault setting. Results saved in buffer, also between DCY:s.	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed, and a new reference will be taken. Reference volume updated when Vehicle sneed Evaluation distance Evaluation distance when fuel level >90% Diagnostic ran and passed for	<ul> <li>&gt; 11,0 V</li> <li>Fuel level circuit, P0462, P0463</li> <li>When volume reference &gt; 85% (53 liters) OR &lt; 3,2% (2 liters), driving distance for evaluation is increased to 93,2 miles.</li> <li>&gt; 24,9 mph</li> <li>21,7 miles</li> <li>43,5 miles</li> <li>Fuel tank level sensor, P0460, P0462, P0463</li> </ul>	5 X 21,7 miles	DTC for EVAP rationalities
uel trim, long term	P0461	Rationality, fuel consumption Rationality, fuel consumption System lean System rich Fuel trim matrix with 20	Fuel level change	Fuel consumption less than 0,8% (0,5 liters). 5 checks done for fault setting. Results saved in buffer, also between DCY:s. <-24,6%	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed, and a new reference will be taken. Reference volume updated when Vehicle sneed Evaluation distance Evaluation distance when fuel level >90% Diagnostic ran and passed for Engine speed	<ul> <li>&gt; 11,0 V</li> <li>Fuel level circuit, P0462, P0463</li> <li>When volume reference &gt; 85% (53 liters) OR &lt; 3,2% (2 liters), driving distance for evaluation is increased to 93,2 miles.</li> <li>&gt; 24,9 mph</li> <li>21,7 miles</li> <li>43,5 miles</li> <li>Fuel tank level sensor, P0460, P0462, P0463</li> <li>Running</li> </ul>	5 X 21,7 miles	DTC for EVAP rationalities
iel trim, long term	P0461	Rationality, fuel consumption Rationality, fuel consumption System lean System rich Fuel trim matrix with 20 load/rpm cells. Diagnostic will	Fuel level change	Fuel consumption less than 0,8% (0,5 liters). 5 checks done for fault setting. Results saved in buffer, also between DCY:s. <-24,6%	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed, and a new reference will be taken. Reference volume updated when Vehicle sneed Evaluation distance Evaluation distance when fuel level >90% Diagnostic ran and passed for Engine speed Lambda control	<ul> <li>&gt; 11,0 V</li> <li>Fuel level circuit, P0462, P0463</li> <li>When volume reference &gt; 85% (53 liters) OR &lt; 3,2% (2 liters), driving distance for evaluation is increased to 93,2 miles.</li> <li>&gt; 24,9 mph</li> <li>21,7 miles</li> <li>43,5 miles</li> <li>Fuel tank level sensor, P0460, P0462, P0463</li> <li>Running</li> <li>Active</li> </ul>	5 X 21,7 miles	DTC for EVAP rationalities
iel trim, long term	P0461	Rationality, fuel consumption         Rationality, fuel consumption         System lean         System rich         Fuel trim matrix with 20         load/rpm cells. Diagnostic will         fail if the trim value in present	Fuel level change	Fuel consumption less than 0,8% (0,5 liters). 5 checks done for fault setting. Results saved in buffer, also between DCY:s. <-24,6%	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed, and a new reference will be taken. Reference volume updated when Vehicle sneed Evaluation distance Evaluation distance Evaluation distance when fuel level >90% Diagnostic ran and passed for Engine speed Lambda control Fuel trim	<ul> <li>&gt; 11,0 V</li> <li>Fuel level circuit, P0462, P0463</li> <li>When volume reference &gt; 85% (53 liters) OR &lt; 3,2% (2 liters), driving distance for evaluation is increased to 93,2 miles.</li> <li>&gt; 24,9 mph</li> <li>21,7 miles</li> <li>43,5 miles</li> <li>Fuel tank level sensor, P0460, P0462, P0463</li> </ul> Running Active <ul> <li>6 updates in actual load/rpm cell (100 msec cycle time)</li> </ul>	5 X 21,7 miles	DTC for EVAP rationalities
iel trim, long term	P0461	Rationality, fuel consumption Rationality, fuel consumption System lean System rich Fuel trim matrix with 20 load/rpm cells. Diagnostic will	Fuel level change	Fuel consumption less than 0,8% (0,5 liters). 5 checks done for fault setting. Results saved in buffer, also between DCY:s. <-24,6%	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed, and a new reference will be taken.  Reference volume updated when Vehicle sneed Evaluation distance Evaluation distance when fuel level >90% Diagnostic ran and passed for Engine speed Lambda control Fuel trim Coolant temperature	<ul> <li>&gt; 11,0 V</li> <li>Fuel level circuit, P0462, P0463</li> <li>When volume reference &gt; 85% (53 liters) OR &lt; 3,2% (2 liters), driving distance for evaluation is increased to 93,2 miles.</li> <li>&gt; 24,9 mph</li> <li>21,7 miles</li> <li>43,5 miles</li> <li>Fuel tank level sensor, P0460, P0462, P0463</li> </ul> Running Active <ul> <li>6 updates in actual load/rpm cell (100 msec cycle time)</li> <li>&gt; 71 deg C</li> </ul>	5 X 21,7 miles	DTC for EVAP rationalities
el trim, long term	P0461	Rationality, fuel consumption         Rationality, fuel consumption         System lean         System rich         Fuel trim matrix with 20         load/rpm cells. Diagnostic will         fail if the trim value in present	Fuel level change	Fuel consumption less than 0,8% (0,5 liters). 5 checks done for fault setting. Results saved in buffer, also between DCY:s. <-24,6%	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed, and a new reference will be taken.  Reference volume updated when Vehicle sneed Evaluation distance Evaluation distance when fuel level >90% Diagnostic ran and passed for Engine speed Lambda control Fuel trim Coolant temperature	<ul> <li>&gt; 11,0 V</li> <li>Fuel level circuit, P0462, P0463</li> <li>When volume reference &gt; 85% (53 liters) OR &lt; 3,2% (2 liters), driving distance for evaluation is increased to 93,2 miles.</li> <li>&gt; 24,9 mph</li> <li>21,7 miles</li> <li>43,5 miles</li> <li>Fuel tank level sensor, P0460, P0462, P0463</li> <li>Running</li> <li>Active</li> <li>6 updates in actual load/rpm cell (100 msec cycle time)</li> <li>&gt; 71 deg C</li> <li>MAF, P0101, P0102, P0103</li> <li>ECT sensor, P0115, P0117, P0118, P0119</li> </ul>	5 X 21,7 miles	DTC for EVAP rationalities
tel trim, long term	P0461	Rationality, fuel consumption         Rationality, fuel consumption         System lean         System rich         Fuel trim matrix with 20         load/rpm cells. Diagnostic will         fail if the trim value in present	Fuel level change	Fuel consumption less than 0,8% (0,5 liters). 5 checks done for fault setting. Results saved in buffer, also between DCY:s. <-24,6%	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed, and a new reference will be taken.  Reference volume updated when Vehicle sneed Evaluation distance Evaluation distance when fuel level >90% Diagnostic ran and passed for Engine speed Lambda control Fuel trim Coolant temperature	<ul> <li>&gt; 11,0 V</li> <li>Fuel level circuit, P0462, P0463</li> <li>When volume reference &gt; 85% (53 liters) OR &lt; 3,2% (2 liters), driving distance for evaluation is increased to 93,2 miles.</li> <li>&gt; 24,9 mph</li> <li>21,7 miles</li> <li>43,5 miles</li> <li>Fuel tank level sensor, P0460, P0462, P0463</li> </ul> Running Active <ul> <li>6 updates in actual load/rpm cell (100 msec cycle time)</li> <li>&gt; 71 deg C</li> <li>MAF, P0101, P0102, P0103</li> </ul>	5 X 21,7 miles	DTC for EVAP rationalities
iel trim, long term	P0461	Rationality, fuel consumption         Rationality, fuel consumption         System lean         System rich         Fuel trim matrix with 20         load/rpm cells. Diagnostic will         fail if the trim value in present	Fuel level change	Fuel consumption less than 0,8% (0,5 liters). 5 checks done for fault setting. Results saved in buffer, also between DCY:s. <-24,6%	Battery voltage No DTC set, pending or confirmed If the volume increases with more than 16% (10 liters) during DCY, refueling is assumed, and a new reference will be taken.  Reference volume updated when Vehicle sneed Evaluation distance Evaluation distance when fuel level >90% Diagnostic ran and passed for Engine speed Lambda control Fuel trim Coolant temperature	<ul> <li>&gt; 11,0 V</li> <li>Fuel level circuit, P0462, P0463</li> <li>When volume reference &gt; 85% (53 liters) OR &lt; 3,2% (2 liters), driving distance for evaluation is increased to 93,2 miles.</li> <li>&gt; 24,9 mph</li> <li>21,7 miles</li> <li>43,5 miles</li> <li>Fuel tank level sensor, P0460, P0462, P0463</li> <li>Running</li> <li>Active</li> <li>6 updates in actual load/rpm cell (100 msec cycle time)</li> <li>&gt; 71 deg C</li> <li>MAF, P0101, P0102, P0103</li> <li>ECT sensor, P0115, P0117, P0118, P0119</li> </ul>	5 X 21,7 miles	DTC for EVAP rationalities

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illumin
·		•					<b>_</b>	
					Front O2 sensor heater	Active - sensor warmed up		
					Closed-loop fueling	Active		
	P0131	Range check low	Voltage	< 100 mV in 30 sec	Engine speed	Running	30 sec	Two DCY
		-	÷		Rear sensor signal	> 700 mV	Continuous	
					Front O2 sensor heater	Active - sensor warmed up		
					Battery voltage	> 11,0V		
					Lambda control	Active > 5 sec		
					Load	> 0		
					AIR	Not active		
					EVAP leak test	Not active		
					Fuel cut	Not active		
	2010/		¥7. 1.	200		n :	10	
	P0134	Circuit Continuity check	Voltage	300 to 600 mV	Engine speed	Running	10 sec	Two DCY
					Battery voltage	> 11,0V	Continuous	
					Sensor heater	Active		
					Sensor heater active time from engine starting			
					depending on IAT or ECT at start.	-8 to 8°C for 270 sec		
						>8°C for 80 sec		
					EVAP leak test	Not active		
					No DTC set, pending or confirmed	IAT sensor, P0111, P0112, P0113		
					Lambda control	Closed loop		
	P0133	Response rate	Signal switches	< 4 in 140 revolutions	Engine speed	1500 – 3000 rpm	135 revolutions	Two DCY
			OR		Lambda control	Closed loop	Once / DCY	
			Revolutions	> 110 for 4 switches	Battery voltage	> 11,0 V		
					Engine load	210 - 500 mg/combustion		
					Lambda Integrator	Within ±15%		
					ECT	> 70°C		
					Time from engine starting	> 180 sec		
					Purge fuel factor	> -10%		
					No DTC set, pending or confirmed	O2 Sensor Switch Point, P1131, P1132		
					No DTC set, pending or commend	MAF, P0101, P0102, P0103		
						MAF, P0101, P0102, P0105		
nsor Switch Point	D1121	Considerly and and design and the	T	> 11,5 revolutions	Engine and	Durania -	20 / 25 revolutions	Two DCY
usor Switch Point	P1131 P1132	Switch point trim value	Lean Rich		Engine speed	Running > 70 ° C	20 / 25 revolutions Continuous	I WO DC Y
	r1132		Kich	> 11,5 revolutions	Coolant temp		Continuous	
					Delta load, positive	< 60 mg/combustion/250 msec		
					Delta load, negative	> - 15 mg/combustion/250 msec		
					Engine speed	1500 - 2800 rpm		
					Load	200 - 400 mg/combustion		
					Time after engine start	>200 s		
					Fuel control	Closed loop		
					Rear sensor voltage for trim activation	> 625 mV or < 575 mV		
					Purge adaption	> -5%		
					Stable time	25 sec		
					Additional stable time if after fuel-cut	40 sec		
					Time between adaptions	10 sec		
					No DTC set, pending or confirmed	MAF, P0101, P0102, P0103		
					Diagnostic ran and passed for	Rear O2 Sensor, P0137, P0138, P0140		
	1	1			Diagnosale fall and passed for	1000 02 000001, 10107, 10100, 10140		1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illumin
ont O2 sensor heater	P0031	Range check min	Short cut	To ground or not connected	Engine speed	Running	6 sec	Two DCY
					Battery voltage	> 11,0 V	Continuous	
					O2 heater frequency	10 % < PWM < 85 %		
					02 neutor nequency			
	P0032	Range check max	Short cut	To battery voltage	Engine speed	Running	6 sec	Two DCY
		0		, ,	Battery voltage	> 11,0 V	Continuous	
					O2 heater frequency	10 % < PWM < 85 %		
	P0030	Rationality	Heater current	< 300 mA for > 16 sec	Engine speed	Running	16 sec	Two DCY
		-			Battery voltage	> 11,0 V	Continuous	
					PWM Duty Cycle	10 to 85 %		
					No DTC set, pending or confirmed	Front O2 sensor heater circuit, P0031, P0032		
					rto D i e set, penang of comme	Fuel pump relay, P0628, P0629		
						r act pump relay, r 0020, r 0020		
ar 02 sensor	P0137	Signal low	Voltage	< 100 mV for > 30 sec	Engine speed	Running	6 sec	Two DCY
		-	-		Battery voltage	> 11,0 V	Continuous	
					Rear O2 sensor heater	Active - sensor warmed up		
					Lambda closed loop	> 5 sec		
					Lambda integrator	Within -20 to +20 %		
					•			
					Load	> 210 mg		
						No EVAP leak test		
						No Fuel Cut		
	-				No DTC set, pending or confirmed	MAF, P0101, P0102, P0103		
	P0138	Signal high	W-lt	>1200 mV	Engine speed	Duration	6	Two DCY
	P0158	Signal high	Voltage	>1200 III V		Running	6 sec Continuous	I WO DC I
					Battery voltage	> 11,0 V	Continuous	
	-				Rear O2 sensor heater	Active - sensor warmed up		
	P0140	Activity	Sensor voltage	>400 mV	Engine speed	Running	200 msec	Two DCY
	10140	reuvity	Belisor voltage	>400 m V	Fuel cut	Active for $> 6,5$ sec	Once/DCY	1wo Del
						> 11.0 V	Once/DC I	
					Battery voltage			
					Lambda control	Active for > 20 sec		
					Rear O2 sensor heater	Active - sensor warmed up		
ar O2 sensor heater	P0037	Range check min	Short cut	To ground or not connected	Engine speed	Running	6 sec	Two DCY
a 62 sensor neater	10037	Kange check min	Short cut	To ground or not collifected	Battery voltage	> 11,0 V	Continuous	IWODEI
							Continuous	
					Sensor heater	Active		
					O2 heater frequency	10 % < PWM < 85 %		
	P0038	Range check max	Short cut	To battery voltage	Engine speed	Running	6 sec	Two DCY
	10030	Nange Check max	Short cut			> 11,0 V		IWODCI
					Battery voltage		Continuous	
					Sensor heater	Active		
					O2 heater frequency	10 % < PWM < 85 %		
	P0036	Pationality	Heater current	< 200 mA for > 16 sec	Engine speed	Pupping	16 500	Two DCY
	P0030	Rationality	rieater current	< 200 mA for > 16 sec	Engine speed	Running	16 sec	I WO DCY
					Battery voltage	> 11,0 V	Continuous	
					Sensor heater	Active		
					No DTC set, pending or confirmed	Rear O2 sensor heater circuit, P0037, P0038		
						Fuel pump relay, P0628, P0629		

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	MIL
System	Code	Description	Criteria	Value	Parameters	Conditions	Required	Illumin
	Inces						<b>a</b>	
AP – Turbocharger Boo essure Correlation	stP023D	Rationality MAP vs. Turbo boost sensors	Pressure difference	> 12 kPa for 3 readings	Engine speed	0	3 readings	Two DCY
ssure Correlation		sensors			Vehicle speed	0	Once / DCY	
					Ignition on	Ignition off OR engine not moving OR no rpm for 3 sec		
					No DTC set, pending or confirmed	MAP circuit, PP0107, P0108		
						Turbo boost pressure sensor circuit, P0237, P0238		
AP sensor	P0106	Rationality	MAP	> 50 kPa for 400 msec	Engine speed	Running > 1300 rpm	5 readings	Two DCY
AI SCHSOI	10100	Rationanty		> 50 KI a 101 400 Ilisee	Accelerator pedal	Released for > 400 msec	Once / DCY	I WO DC I
					Load	< 110 mg/combustion	Once / DC I	
						-		
					No DTC set, pending or confirmed	MAP circuit, P0107, P0108		
						Crankshaft position sensor, P0337, P0339		
	P0109	Rationality	MAP	<10 kPa or >140 kPa for 2,0	Engine speed	Cranking	Once / DCY	Two DCY
				sec				
	P0107	Range check min	Short-cut	To ground or not connected	Ignition	On (Engine not moving OR engine moving OR engine	1 sec Continuous	Two DCY
						rinning)		
	P0108	Range check max	Short-cut	To sensor supply voltage	Ignition	On (Engine not moving OR engine moving OR engine	1 sec Continuous	Two DCY
	<u> </u>			Į	I	running)		<b>I</b>
urbo boost pressure	P0237	Range check min	Short-cut	To ground or not connected	Ignition	On (Engine not moving OR engine moving OR engine	1 sec Continuous	Two DCY
isor						running)		
P0238	P0238	Range check max	Short-cut	To sensor supply voltage	Ignition	On (Engine not moving OR engine moving OR engine	1 sec Continuous	Two DCY
						running)		
AF sensor	P0102	Range check, low signal	Short-cut	To ground or not connected	Engine speed	Running OR Moving	Continuous	Two DCY
					No DTC set, pending or confirmed	Powertrain relay, P0685, P0686, P0687		
	P0103	Range check, high signal	Short-cut	To sensor supply voltage	Engine speed	Running OR Moving	Continuous	Two DCY
					No DTC set, pending or confirmed	Powertrain relay, P0685, P0686, P0687		
	-	1		1		-		
AF sensor, rationality	P0101		MAF deviation AND	> -24%	Engine speed	Running	500 samples or more	Two DCY
		sensor signal with mass air flow calculated from throttle area,	Fuel Trim	> -20%	Battery Voltage	> 11 Volts	Continuous	
		BARO, MAP and Turbo Boost	OR MAF deviation AND	> 24%	Coolant Temperature	67 - 115 ℃		
		sensors. Samples are taken in	Fuel Trim	> 20%	Engine Speed	1400 – 4000 rpm		
		two load windows, below and	OR MAF deviation	> ±30%	Pressure quote, MAP vs. pressure before	0,39 - 0,70		
		above 15 g air/sec. To report			throttle MAP deviation between samples	< ±2,5 kPa in 1500 msec		
		fault, the average deviation in one of the windows has to be above			Calculated Mass Air Flow (from MAP)	> 7 g/s		
		the limit after 500 samples. To			Boost by-pass status change	No change for 500 ms		
					Vehicle speed to enable test	-		
		report pass, 500 samples have to			veniere specu to chable test	> 18,6 mph for 60 sec		
		be taken in both load windows			-	Inactive		
		be taken in both load windows with less deviation than the fault			Fuel cut	Inactive		
		be taken in both load windows			Fuel cut Ambient pressure, modeled	> 72 kPa		
		be taken in both load windows with less deviation than the fault			Fuel cut Ambient pressure, modeled ECT at start	> 72 kPa > -7°C		
		be taken in both load windows with less deviation than the fault			Fuel cut Ambient pressure, modeled	> 72 kPa > -7°C MAP sensor, P0106, P0107, P0108		
		be taken in both load windows with less deviation than the fault			Fuel cut Ambient pressure, modeled ECT at start	> 72 kPa > -7°C MAP sensor, P0106, P0107, P0108 IAT sensor, P0111, P0112, P0113		
		be taken in both load windows with less deviation than the fault			Fuel cut Ambient pressure, modeled ECT at start	> 72 kPa > -7°C MAP sensor, P0106, P0107, P0108		
Г sensor	P0112	be taken in both load windows with less deviation than the fault	Device driver detects min error	Circuit low	Fuel cut Ambient pressure, modeled ECT at start	> 72 kPa > -7°C MAP sensor, P0106, P0107, P0108 IAT sensor, P0111, P0112, P0113	1 sec Continuous	Two DCY

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illumin
	- DOLLO	<b>D</b> 1 1			I			
	P0113	Range check max	Device driver detects max error	Circuit high	Ignition	On (Engine not moving OR engine moving OR engine running)	1 sec Continuous	Two DCY
	P0111	Rationality, no activity	IAT sensor output change	< 1 °C	Soak time	> 600 min	900 sec	Two DCY
	10111	Radonanty, no activity	in trisensor output enange	10	Run time	> 900 sec	Once / DCY	1wo Del
					Engine	Running	Once / De I	
					Load	> 270 mg/comb		
					For time	150 sec cumulative		
					ECM reset	Not allowed		
	<u> </u>							
T sensor	P0115	Rationality, No activity	Temp. change	< 2 °C	Engine speed	Running	Load condition depandant	Two DCY
					Load < 150 mg/combustion	180 sec	Once / DCY	
					AND > 270 mg/combustion	150 sec		
					ECT at start	=< 71 °C		
					Vehicle speed	> 0 mph		
					No DTC set, pending or confirmed	ECT circuit, P0117, P0118		
	-					-	-	
ermostat / ECT ionality	P0128	Rationality	Sample period of 200 sec starts when modeled ECT reaches 80	> 30 °C above modeled ECT	Engine speed	Running	300 to 700 sec	Two DCY
onanty			°C. Comparison at end of sample	OR	ECT at start-up	< 52 °C	Once / DCY	
			period: Mean value of difference	> Calculated limit below	Calculated coolant temp	> 80 °C		
			between ECT reading and modeled coolant temperature	modeled ECT	Idle portion of DCY	< 50 %		
		modeled coolant temperature		Fuel cut portion of DCY	< 50 %			
				Ambient pressure, modeled	> 72 kPa			
					ECT at start	> -7°C		
					Time after start	< 750 sec		
					Diagnostic ran and passed for	ECT sensor, P0115, P0117, P0118, P0119		
					1	IAT sensor, P0111, P0112, P0113		
						Vehicle speed		
					Disables for remainder of DCY if Vehicle	> 87 mph for > 30 sec		
					sneed	(accumulated time)		
					Block heater start	Not allowed		
w sided ECT rationality	P0126	Rationality	Sample period of 60 sec starts	ECT < 5 ° C	Engine speed	Running	150 to 300 sec	Two DCY
" sided Del Tationantj	10120	rationality	when modeled ECT reaches 10		ECT at start-up	<0 °C	Once / DCY	1.00001
			°C. Comparison at end of sample		IAT or ECT sensor	Below -7 deg C		
			period: Mean value of ECT reading is compared with		Idle portion of DCY	< 50 %		
			threshold		Fuel cut portion of DCY	< 50 %		
					Ambient pressure, modeled	> 72 kPa		
					Time after start	< 800 sec		
					No DTC set, pending or confirmed	ECT sensor circuit, P0117, P0118		
					ç · · · · ·	IAT sensor, P0112, P0113		
					Diagnostic ran and passed for	ABS communication, P1625		
					- <u> </u>	Vehicle speed, P0501		
						ECT sensor rationality, P0115 P0119		
						IAT sensor rationality P0111	I	
					Disables for remainder of DCY if Vehicle	> 87 mph for > 30 sec (cumulative)		
					speed Block heater start	Not allowed		
	<u> </u>	I	1	1				L
T sensor	P0117	Range check min	Device driver detects min error	Circuit low	Engine speed	Not moving OR running	1 sec Continuous	Two DCY
	1		1	1		1	1	1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	MIL
System	Code	Description	Criteria	Value	Parameters	Conditions	Required	Illumin
	20110	<b>D</b> 1 1	<b>N</b> 1 1 1 1 1		les · ·			T DOV
	P0118	Range check max	Device driver detects max error	Circuit high	Engine speed	Not moving OR running	1 sec Continuous	Two DCY
	P0119	Too quick change	Mean value in stack (of 5 values)	> 10 °C	Engine speed	Running	5 readings, time base 100 msec	Two DCY
					Comparison of each ECT reading, insert into	> 5 °C	Continuous	
					stack when diff. from previous reading			
	P0119	Too quick change	Difference between consecutive	> 60 °C	Engine speed	Running	Continuous	Two DCY
			values		No DTC set, pending or confirmed	ECT sensor circuit, P0117, P0118		
	Į		When the three hald have been			ł		ł
T sensor stuck above	P011B	Rationality	ECT vs IAT reading at engine	ECT > 20 deg C above IAT	Engine speed	Running	45 sec	Two DCY
ximum enable / ECT vs.			start	OR				
T comparison				IAT > 30 deg C above ECT	Engine off time	> 600 min	Once / DCY	
					Engine run time	45 sec		
					ECT drop after 45 sec	< 2 deg C		
					Block heater start	Not allowed		
					ECM reset	Not allowed		
								1
urbocharger bypass valve	P0034	Control circuit Low	Device driver detects valve error	Circuit low	Engine speed	Running	Continuous	Two DCY
					Turbo bypass valve	Active		
	P0035	Control circuit High	Device driver detects valve error	Circuit high	Engine speed	Running	Continuous	Two DCY
		-		-	Turbo bypass valve	Active		
					• •			
POO	P0033	Rationality	Mean value of 50 MAF pulsations	s>1.90 mg/sec	Engine speed	Running < 3500 rpm	600 msec,	Two DCY
		-	at Accelerator released	-	Turbo bypass valve	Commanded Open	> 1 time	
					Turbo boost pressure	> Ambient pressure + 35 kPa	Continuous	
			AND		Ambient pressure model	Updated		
			Mean value of 50 Turbo Boost	> 1.1kPa	Ambient pressure, modeled	> 72 kPa		
			Pressure pulsations at Accelerator		ECT at start	> -7°C		
			released		No DTC set, pending or confirmed	MAP sensor, P0106, P0107, P0108		
					The Bire seq penaling of commined	Powertrain relay, P0685, P0686, P0687		
					Mean value of Throttle during pulsation period	-		
					stean value of Finotice during pulsation period	.~ 2,0 %		
								-
rbocharger wastegate	P0245	Control circuit Low	Device driver detects min error	Circuit low	Engine speed	Running	Continuous	Two DCY
enoid					No DTC set, pending or confirmed	Powertrain relay functional test, P0685		
	P0246	Control circuit High	Device driver detects max error	Circuit high	Engine speed	Running	Continuous	Two DCY
								1
	P0244	Functional test	Turbo boost pressure decrease	+ 12 to - 10 kPa/sec	Engine speed	> 2200 rpm & < 5000 rpm	1,0 sec	Two DCY
			slope		Turbo boost pressure	> Ambient pressure + 39 kPa	Continuous	
			AND Mean pressure diff over	> 23 kPa	Ambient pressure model	Updated		
			throttle		Ambient pressure, modeled	> 72 kPa		
				kPa	ECT	>71°C		
					1	> /1°C 5 - 50%		
					Accelerator position			
					Max throttle change during sample period vs. start value	< 10%		
						. 700		
					ECT at start (out of limits)	>-7°C		
					Boost adaption No DTC set, pending or confirmed	Done (also in earlier DCY) Wastegate circuit, P0245, P0246		
	1	1	1					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illumin
					Diagnostic ran and passed for	Turbo boost pressure sensor, P0237, P0238, P023D		
						MAP sensor, P0106, P0107, P0108		
		Functional test	Pressure difference over throttle	< -300 mg/comb	Same as above		500 msec	
							Continuous	
ne to closed loop	P0125	Rationality	Time before entering closed loop	> 600 sec	Engine speed	Running	600 sec	Two DCY
					Start Temperature, lowest of ECT/IAT	< -7°C	Once / DCY	
			Time before entering closed loop	>150 sec	Engine speed	Running	300 sec	Two DCY
			This before entering closed loop	100 000	Start Temperature, lowest of ECT/IAT	$-7^{\circ}C < T < 10^{\circ}C$	Once / DCY	1.00001
					Start Temperature, rowest of EC1/1A1	-7 C < 1 < 10 C	Once / De I	
			Time before onto include	× 60	Engine aread	Pure in a	120	Two DCY
			Time before entering closed loop	> 60 sec	Engine speed	Running	120 sec	I WO DCY
					Start Temperature, lowest of ECT/IAT	>10°C	Once / DCY	
	P		-	1				
ankshaft position sensor	P0337	Sensor circuit low	Engine speed at cranking	< 100 rpm	Cranking defined by		3,5 sec	Immediately
					Battery voltage	$\Delta > 0.6 \text{ V}$	Once / DCY	
					AND MAP vs. Ambient pressure diff.	> 2 kPa		
					IF above conditions not met:	For 2 sec		
					THEN Close throttle	For 1,5 sec		
					MAP vs. Ambient pressure diff.	> 5 kPa		
					AND check engine speed	> 5 Ki u		
					AND check engine speed			
	<b>D</b> 0000	<b>N</b>					2	T. DOV
	P0339	Rationality	Lost position in same DCY	Position found then lost during 10 msec, > 7 times	Vehicle speed	= 0 mph	3 sec	Two DCY
				during 10 msec, > 7 times	Engine speed	Cranking OR Running < 3 sec	Continuous	
					Ignition	On		
			Lost position in same DCY	Position found then lost	Vehicle speed	> 18,6 mph	Error occurs 3 times	Two DCY
				during 10 msec, > 3 times	Brake	Not active	Continuous	
					Engine speed	Running > 3 sec		
					Ignition	On		
					-0			
hicle speed	P0501	Fault reported from ABS	Wheel Angular Velocity Front	Not received within 1 sec	Ignition	On for > 3 sec	1 sec, continuous	Two DCY
incie specu	10001	aun reported from ADS	Left Validity bit AND	1.00 received within 1 SCC	-		1 See, contindous	I WO DC I
				4	Battery voltage	6.0 V to 16.0 V		
			Wheel Angular Velocity Front Right Validity bit		Nodes on HS CAN	Not in sleep mode OR programming mode		
			Right valuity bit		No DTC set, pending or confirmed	Lost communication with ABS module, P1625		
	r		-	1	1			
ake light switch	P0719	Rationality - low	Vehicle speed	4 times decreases from 24,9		Running	Once / DCY	Two DCY
				to 1,9 mph within 2 to 12	Brake	Not active		
	P0724	Rationality - high	Vehicle speed	4 times increases from 1,9	Engine speed	Running	Once / DCY	Two DCY
				to 24,9 mph within 2 to 12	Brake	Active		
	1	1	-I	1	1	- 1	L	I
celerator position sensor	P2122	Range check min	Short cut	To ground OR open circuit	Ignition	Off OR On	100 msec	Immediately
		÷		(< 10%)	-			
	P2123	Range check max	Short cut	To battery (>93%)	Engine speed	Moving, not moving, running, stopping	Continuous	
	P2121	Rationality check	Detected by MCP if Main	Signal out of range (< 10%,	Ignition	Off OR On	100 msec	Immediately
			processor faulty	> 93%) Min or max fault not		Moving, not moving, running, stopping	Continuous	
					Engine speed			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illumin
	-			1	No DTC and non-income and and	Accel and Leismit B2122 B2122		
					No DTC set, pending or confirmed	Accel. pos 1 circuit, P2122, P2123		
elerator position sensor	P2127	Range check min	Short cut	To ground OR open circuit	Ignition	Off OR On	100 msec	Immediately
celerator position sensor		Ū.		(< 5%)	Ignition			minediatery
	P2128	Range check max	Short cut	To battery (> 50%)	Engine speed	Moving, not moving, running, stopping	Continuous	
							100	
	P2126	Rationality check	Detected by MCP if Main processor faulty	Signal out of range (< 5%, 1 50%)	lgnition	Off OR On	100 msec	Immediately
			processor many	Min or max fault not	Engine speed	Moving, not moving, running, stopping	Continuous	
				possible to determine	No DTC set, pending or confirmed	Accel. pos 2 circuit, P2127, P2128		
						A		
elerator position sensor	P2138	Rationality check, correlation	Difference between 1 & 2	> 5,2%	Ignition	Off OR On	200 msec	Immediately
2		fault	OR difference between adaptation	> 3,4% for 192 msec	Engine speed	Moving, not moving, running, stopping	Continuous	
			values of 1 & 2					
ottle position sensor 1	P0122	Range check min	Short cut	To ground OR open circuit	Ignition	Off OR On	100 msec	Immediately
once position sensor 1		-		(< 5.5%)	<u> </u>			minediately
	P0123	Range check max	Short cut	To battery (> 94,5%)	Engine speed	Moving, not moving, running, stopping	Continuous	
	P0121	Rationality check	Detected by MCP if Main	Signal out of range (< 5,5% > 94,5%)	Ignition	Off OR On	100 msec	Immediately
			processor faulty	Min or max fault not	Engine speed	Moving, not moving, running, stopping	Continuous	
				nossible to determine	No DTC set, pending or confirmed	Throttle pos 1 circuit, P0122, P0123		
					No DTC set, pending of committee	1110the pos 1 circuit, 10122, 10125		
rottle position sensor 2	P0222	Range check min	Short cut	To ground OR open circuit	Ignition	Off OR On	100 msec	Immediately
1		-		(< 5.5%)				
	P0223	Range check max	Short cut	To battery (> 94,5%)	Engine speed	Moving, not moving, running, stopping	Continuous	
	P0221	Detionality about	Detected by MCP if Main	Simulant of annas ( < 5.50)	Titi	Off OR On	100	T
	P0221	Rationality check	processor faulty	Signal out of range (< 5,5% > 94,5%)	, ignition	OII OR OII	100 msec	Immediately
				Min or max fault not	Engine speed	Moving, not moving, running, stopping	Continuous	
				possible to determine	No DTC set, pending or confirmed	Throttle pos 2 circuit, P0222, P0223		
						-		
rottle position sensors 1	P2135	Rationality check, correlation	Difference between 1 & 2	> 4%	Ignition	Off OR On	200 msec	Immediately
2		fault	OR difference between adaptation	>4% for 192 msec	Engine speed	Moving, not moving, running, stopping	Continuous	
			values of 1 & 2					
rottle motor	P2176	Rationality check, throttle min	Throttle movement	No movement after 10	Ignition	Off OR On	1,5 sec	Immediately
		pos learning fault		alternations	Engine speed	Moving, not moving, running, stopping	Continuous	
					0 I			
	P0638	Rationality check, throttle	Throttle movement	In wrong direction OR	Ignition	Off OR On	400 msec	Immediately
		position fault		Does not follow calculated	Engine speed	Moving, not moving, running, stopping	Continuous	5
				movement test pattern OR				
				> Calculated limit in	1			
				Bowden cable mode				
	P1523	Rationality check, throttle defaul	Throttle position	> 41% detected by Main	Imition	Off OR On	1 sec	Immediately
	1 1525	position fault	-	OR	Ignition		1 sec	mineuratery
		·		Not within 27% to 41%	Engine speed	Moving, not moving, running, stopping	Continuous	
			MAF Air flow	detected by MCP OR > 23 g/s	Throttle motor power	Disabled		
				-				
	P1681	Sensor switching fault	Transistor to pull one throttle	700 msec	Engine speed	Not moving, moving, running, stopping	700 msec	Immediately
			sensor to ground does not toggle					
			within OR TPS1 is grounded like TPS2	TPS1 changes > 20% when	Ignition	On	Continuous	
			-	grounding TPS2	Ţ		1	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illumii
System	Coue	Description	Cincila	value	1 al ameters	Conditions	Kequireu	mumi
	1		TPS2 is not grounded like it	TPS2 > 25%				
			should be					
				<b>-</b>			1	-
CM int ROM	P0601	ROM checksum control	Checksum	Faulty for 200 msec	Ignition	On	200 msec	Immediately
					Engine speed	Running, moving, not moving, stopping	Continuous	
CM int RAM	P0604	RAM check	RAM	Faulty for 200 msec	Ignition	On	200 msec	Immediately
					Engine speed	Running, moving, not moving, stopping	Continuous	
CM int comm	P0606	Internal communication	ECM CPU Internal serial	Faulty for 200 msec	Ignition	On	200 msec	Immediately
		supervision	communication		Engine speed	Running, moving, not moving, stopping	Continuous	
			·		*	·		
CM CPU fault	P0607	CPU control	CPU	Faulty for 200 msec	Engine speed	Ignition off, not moving, moving, running, stopping	200 msec	Immediately
				·	-			*
d Of Line programmin	g P0602	ECU programming supervision	CAN vehicle configuration	Unprogrammed	Ignition	On	Continuous	Two DCY
ult	P0610		Variant data	Unprogrammed	1		200 msec	
	P0630		VIN	Unprogrammed	1			
	P0632		Wheel circumference	Unprogrammed	1			
	1		I		1		1	
ref 1	P0641	Voltage supply 1 out of range	Voltage supply 1	Not within 87,75 to 92,25%	6 Ignition	On	100 msec	Immediately
		6 II 5 6	5 11 5		Engine speed	Running, moving, not moving, stopping	Continuous	
					Lingine speed	running, no mg, not no mg, sopping	continuous	
ef 2	P0651	Voltage supply 2 out of range	Voltage supply 2	Not within 87,75 to 92,25%	a Ignition	On	100 msec	Immediately
1012	10001	voluge supply 2 out of range	vonage suppry 2	1 (ot within 07,75 to 52,257	Engine speed	Running, moving, not moving, stopping	Continuous	innication
					Eligine specu	Running, moving, not moving, stopping	Continuous	
CM int A/D	P1680	Comparison A/D conversion of	Main processor vs. MCP A/D	> 3%	Ignition	On	200 msec	Immediately
CM IIII A/D	F 1080	Pedal Position sensor	conversion difference of Pedal	> 570			Continuous	minediatery
		r cum r osmon sensor			Engine speed	Running, moving, not moving, stopping	Continuous	
~	1			h			1.	
CM CAN data	P1623	Transmission controller data missing on CAN BUS	Message TCM general status	Not received within 1 sec	Ignition	On (3 sec since power up)	1 sec	Two DCY
		missing on CAN BOS			Battery voltage	6 – 18 V	Continuous	
					Communication	Normal Communication not disabled with diagnostic service	¢	
					Gear box	Automatic		
					Recover from a reset, over or under voltage			
					condition			
FCS/ADS CAN data					Ignition	On for more than 3 sec	3 sec	Two DCY
S/ABS CAN data	P1625	TCS/ABS controller data missing	Message ABS general status	Not received within 1 coo			0.000	INUDUI
CS/ABS CAN data	P1625	TCS/ABS controller data missing on CAN BUS		Not received within 1 sec	-			
CS/ABS CAN data	P1625	TCS/ABS controller data missing on CAN BUS	OR		Battery voltage	6 – 18 V	Continuous	
CS/ABS CAN data	P1625	TCS/ABS controller data missing on CAN BUS	OR message response to Wheel	Not received within 1 sec	-			
CS/ABS CAN data	P1625	TCS/ABS controller data missin; on CAN BUS	OR		Battery voltage	6 – 18 V		
		on CAN BUS	OR message response to Wheel Angular Velocity Front Right Validity bit check	Not received within 1 sec	Battery voltage HS CAN	6 – 18 V All nodes not in sleep mode	Continuous	
	P1625	TCS/ABS controller data missing on CAN BUS Circuit continuity check	OR message response to Wheel		Battery voltage HS CAN d Engine speed	6 – 18 V All nodes not in sleep mode Not moving OR Running	Continuous	Two DCY
	P0628	on CAN BUS	OR message response to Wheel Angular Velocity Front Right Validity bit check	Not received within 1 sec	Battery voltage HS CAN	6 – 18 V All nodes not in sleep mode Not moving OR Running > 11,0 V	Continuous	Two DCY
		on CAN BUS	OR message response to Wheel Angular Velocity Front Right Validity bit check	Not received within 1 sec	Battery voltage HS CAN d Engine speed	6 – 18 V All nodes not in sleep mode Not moving OR Running	Continuous	Two DCY
	P0628 P0629	on CAN BUS	OR message response to Wheel Angular Velocity Front Right Validity bit check Short-cut	Not received within 1 sec	Battery voltage HS CAN d Engine speed Battery voltage	6 – 18 V All nodes not in sleep mode Not moving OR Running > 11,0 V On	Continuous	
iel pump relay	P0628	on CAN BUS	OR message response to Wheel Angular Velocity Front Right Validity bit check Short-cut	Not received within 1 sec	Battery voltage HS CAN d Engine speed Battery voltage Ignition	6 – 18 V All nodes not in sleep mode Not moving OR Running > 11,0 V	Continuous	Two DCY Two DCY
iel pump relay	P0628 P0629	on CAN BUS Circuit continuity check	OR message response to Wheel Angular Velocity Front Right Validity bit check Short-cut Short-cut	Not received within 1 sec To ground or not connected To battery voltage	Battery voltage HS CAN d Engine speed Battery voltage Ignition	6 – 18 V All nodes not in sleep mode Not moving OR Running > 11,0 V On	Continuous           1 sec           Continuous	
iel pump relay	P0628 P0629	on CAN BUS Circuit continuity check	OR message response to Wheel Angular Velocity Front Right Validity bit check Short-cut Short-cut	Not received within 1 sec To ground or not connected To battery voltage	Battery voltage HS CAN d Engine speed Battery voltage Ignition d Engine speed	6 – 18 V All nodes not in sleep mode Not moving OR Running > 11,0 V On Not moving OR Running	Continuous           1 sec           Continuous           0,5 sec	
iel pump relay	P0628 P0629 P0686	on CAN BUS Circuit continuity check	OR message response to Wheel Angular Velocity Front Right Validity hit check Short-cut Short-cut Short-cut	Not received within 1 sec         To ground or not connected         To battery voltage         To ground or not connected	Battery voltage HS CAN d Engine speed Battery voltage Ignition d Engine speed Battery voltage	6 – 18 V All nodes not in sleep mode Not moving OR Running > 11,0 V On Not moving OR Running > 11,0 V	Continuous           1 sec           Continuous           0,5 sec	
el pump relay	P0628 P0629 P0686 P0687	on CAN BUS Circuit continuity check Circuit continuity check	OR message response to Wheel Angular Velocity Front Right Validity hit check Short-cut Short-cut Short-cut	To ground or not connected To battery voltage To battery voltage	Battery voltage HS CAN	6 – 18 V All nodes not in sleep mode Not moving OR Running > 11,0 V On Not moving OR Running > 11,0 V On	Continuous           1 sec           Continuous           0,5 sec           Continuous	Two DCY
CS/ABS CAN data tel pump relay owertrain relay	P0628 P0629 P0686	on CAN BUS Circuit continuity check	OR message response to Wheel Angular Velocity Front Right Validity hit check Short-cut Short-cut Short-cut	Not received within 1 sec         To ground or not connected         To battery voltage         To ground or not connected	Battery voltage HS CAN d Engine speed Battery voltage Ignition d Engine speed Battery voltage	6 – 18 V All nodes not in sleep mode Not moving OR Running > 11,0 V On Not moving OR Running > 11,0 V	Continuous           1 sec           Continuous           0,5 sec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illumin
System	Coue	Description	Criteria	value	Farameters	Conditions	Kequireu	mumm
			Injector 1	Reports low fault				
			Injector 2	Reports low fault				
			Injector 3	Reports low fault				
			Injector 4	Reports low fault				
			Combustion detect signals	0				
			In	h				
dle Rpm Control	P0506		e	Nominal – 100 rpm	Vehicle speed	0	10 sec	Two DCY
			AND Load	< 225 mg/comb	Battery voltage	> 11,0 V	Continuous	
			· · · · · · · · ·	Reached maximum	Accelerator pedal	Released		
			AND all of the above during	10 sec	Throttle limphome, P0606, P0638, P1681, P0121, P0641, P0221, P0651, P2138	Not active		
					Ambient pressure, modeled	> 72 kPa		
	P0507		Engine idle	Nominal + 200 rpm	Vehicle speed	0	10 sec	Two DCY
			AND Air to raise idle rpm	Reached minimum	Battery voltage	> 11,0 V	Continuous	
			AND all of the above during	10 sec	Accelerator pedal	Released		
					Throttle limphome, P0606, P0638, P1681,	Not active		
					P0121. P0641. P0221. P0651. P2138 Ambient pressure, modeled	> 72 kPa		
		·			· ·	•		
old start emission	P1400		Timing retard	< 5 degrees	Cold start strategy	Enabled	10 sec cumulative	Two DCY
luction strategy			or Idle speed increase	< 75 rpm	Load Load stable	< 380 mg/comb < 10 mg/comb/100 msec change, after this 1,5 sec before	Once / DCY	
anosne	•		The speed merease	e vo ipin		To me come, for more enange, and this is see before		•
gnition off timer diagnos	ticP2610		Comparison of ECM clock timer	Diff more than 6 secs	ECM reset	No	660 secs	Two DCY
		1. Checks that timer starts at	with ignition off timer after 60 Comparison of monitor timer and	Diff more then 60 coor	Ignition off time	60 secs	Once / DCY	
		igntion off with a test after 60	ignition off timer. Check done att		Engine	Has run in this driving cycle		
		secs and 2. That it measures correctly for	600					