2006 1.6L (L91) used on this vehicle: Aveo w / Auto trans
DIAGNOSTIC PARAMETERS

NOTE: Printing this file may require 8.5" x 14" (legal size) paper, depending on your printer setup.

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
O2_11_HeaterShortLow	P0031	Detects a short to ground or open circuit of O2 sensor heater circuit output. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this diagnostic.	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
O2_11_HeaterShortHigh	P0032	Detects a short to battery O2 sensor heater circuit output. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
O2_12_HeaterShortLow	P0037	Detects a short to ground or open circuit of O2 sensor heater circuit output. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this diagnostic.	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
O2_12_HeaterShortHigh	P0038	Detects a short to battery of O2 sensor heater circuit output. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this diagnostic.	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
CAN_TCM_Communication	U0073	Detects if CAN	Fail Criteria Met	=	TRUE	-	OFVC Device Control Active	=	FALSE	-	20 test failures within 30 test	Type A

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			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
		communication between engine and transmission products are corrupted.	(Periodic TCM message not received)				AND Engine Running AND Ignition Voltage AND Engine Run Time	= > >	RUN 11 2	- V s	samples. Continuous monitoring every 31.2mS	
MAP_TPS_Rationality	P0106	The MAP reading is compared to expected MAP high and low limits based on engine speed & Throttle Position	**Vehicle in Power condition** Altitude compensated MAP Altitude compensated MAP **OR** **Vehicle in Deceleration condition** Altitude compensated MAP	< > <	See Attachment A See Attachment A See Attachment B	kPa kPa kPa	**Common Stable conditions criteria:** Engine State AND ((MAP_TPS_Rationality Fault Active AND Valid barometric pressure update) OR MAP_TPS_Rationality_Fault_Active OR MAP_TPS_Rat. Test has Failed this Key Cycle AND AND Trans.Torque Converter Clutch Condition Stable **Decel Stable Conditions Criteria** Engine speed AND Engine speed AND Idle Airflow Stable AND Coolant Temperature **Power Stable Conditions Criteria** Engine speed AND Engine speed AND HVAC Clutch transitioning AND Traction control active AND Torque fuel reduction active AND Brake Switch Activated AND Coolant Temperature AND Power steering cramped AND Delta engine speed AND (Delta TPS OR Delta MAP) AND Delta Idle Airflow **Common Enable Conditions Criteria** MAP Short Fail Criteria AND Off-board device control AND TPS Short Fail Criteria Met AND Disabling Faults Present **Decel Enable Conditions Criteria** Decel Stable Conditions Present AND Throttle position	= ≠ = ≠ ≠ = ≥ ≤ ≤ ≥ ≥ ≤ = = = = ≥ = ≤ ≤ ≤ ≠ = = = = RUN P0106 TRUE P0106 P0106 TRUE 1300 4500 4.9988 -10 1300 4500 FALSE FALSE FALSE FALSE 60 FALSE 200 2.9999 5 4.9988 P0108/ P0107 FALSE FALSE FALSE TRUE 0.2014	- - - - - - rpm rpm % C rpm rpm - - - - - - rpm % kPa % - - - - - %	Decel Test: MAP out of range for 20 fail samples out of 40 total test samples. Continuous monitoring every 125 msec Power Test: MAP out of range for 100 out of 200 total test samples. Continuous monitoring every 125 msec	Type B

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
							AND Vehicle Speed	≥	15	kph		
							AND The minimum consecutive time that the engine operating conditions must meet the enable criteria	≥	1.5	s		
							IF Conditions above satisfied					
							SET MAP Rationality Diag. Decel. Conditions Met	=	TRUE	-		
							Power Enable Conditions Criteria					
							Power Stable Conditions Present	=	TRUE			
							AND The minimum consecutive time that the engine operating conditions must meet the enable criteria	≥	1.5	s		
							IF Conditions above satisfied					
							SET MAP Rationality Diag. Power High Conditions Met	=	TRUE	-		
							SET MAP Rationality Diag. Power Low Conditions Met	=	TRUE	-		
MAP_ShortLow	**P0107**	This code detects a continuous short to low or open in either the signal circuit or the MAP	Raw MAP Signal	<	2.00 of sensor reading scale	%	TPS Active Fault Present	=	FALSE	-	320 test failures within a 640 test sample (2.5 sec./5.0 sec.). Continuous monitoring 7.81 msec	Type A
							AND TPS Short Fail Criteria Met	=	FALSE	-		
							AND Ignition Voltage	>	11	V		
							AND Either of the following conditions					
							Engine Speed	≤	1000	rpm		
							AND Throttle Position	≥	0	%		
							OR					
							Engine Speed	>	1000	rpm		
							AND Throttle Position	≥	10.0006	%		
							IF Conditions above satisfied					
							SET MAP Circuit Diag. Short Low Conditions Met	=	TRUE	-		
MAP_ShortHigh	**P0108**	This code detects a continuous short to high in either the signal circuit or the MAP sensor	Raw MAP Signal	>	98.00 of sensor reading scale	%	TPS Active Fault Present	=	FALSE	-	320 test failures within a 640 test samples (2.5 sec./5.0 sec.). Continuous monitoring 7.81msec	Type A
							AND TPS Short Fail Criteria Met	=	FALSE	-		
							AND Engine Running Time	≥	Attachment C	s		
							AND Either of the following conditions					
							Engine Speed	≤	2500	rpm		
							AND Throttle Position	≤	14.9994	%		
							OR					
							Engine Speed	>	2500	rpm		
							AND Throttle Position	≤	35.0006	%		
							IF Conditions above satisfied					
							SET MAP Circuit Diag. Short High Conditions Met	=	TRUE	-		
IAT_Stuck	**P0110**	Start Test: Monitors the difference between max and min IAT in order to detect movement in IAT for a certain time. AND Drive test: Performs the max and min delta check while driving under load for a length of time followed by an idle for a certain time.	Max IAT - Min IAT	≤	3	°C	**Common Enable Conditions Criteria**				Monitor runs once per key cycle	Type B
			AND				Startup Coolant Saved?	=	TRUE			
			Drive conditions complete	=	TRUE	boolean	AND Startup IAT Saved?	=	TRUE	enum		
			AND				AND Soak Time	≥	480	min		
			Idle conditions complete	=	TRUE	boolean	AND Engine currently running?	=	Eng_Run	enum		
							AND Disabling Faults Present	=	FALSE	boolean		
							AND IAT stored previous trip?	=	TRUE	boolean		
							IAT Stuck Start Test Enable Conditions					
							AND Stuck Start Enable Timer	>	10 (1.25)	counts (sec)		
							IAT Stuck Drive Test Conditions					
							AND Throttle Position	>	0.2014	%		

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							AND Vehicle Speed	≥	40	kph		
							AND Airflow	≥	12	g/sec		
							AND Stuck Drive Test Counter	≥	2400	counts		
									(300)	(sec)		
							IAT Stuck Idle Test Conditions					
							AND Throttle Position	≤	0.2014	%		
							AND Vehicle Speed	≤	2	kph		
							AND Stuck Drive Conditions Complete?	=	TRUE	boolean		
							AND Stuck Idle Test Counter	≥	480	counts		
									(60)	(sec)		
IAT_Skewed	**P0111**	Skew Low Test: Monitors the difference between the startup coolant and IAT values	Startup Coolant - Startup IAT AND Skewed Low Drive Conditions Met	≥	20	°C	**Common Enable Conditions Criteria**				Monitor runs once per key cycle	Type B
							Startup Coolant Saved?	=	TRUE			
							AND Startup IAT Saved?	=	TRUE	enum		
							AND Soak Time	≥	480	min		
							AND Engine currently running?	=	Eng_Run	enum		
							AND Disabling faults present?	=	FALSE	boolean		
							AND IAT stored previous trip?	=	TRUE	boolean		
							Skewed Low Test					
		Skew High Test: Monitors the difference between the startup IAT and coolant values	Startup IAT - Startup Coolant AND Skewed High Drive Conditions Met	≥	20	°C	IAT Skew Low Test Reporting Allowed?	=	TRUE	boolean		
							AND Startup Coolant	>	-20	°C		
							AND Airflow	>	12	g/s		
							AND Vehicle Speed	>	40	kph		
							AND Skewed Low Delay Timer	≥	120	sec		
							AND Abs(IAT - Startup IAT)	≤	10	°C		
							Skewed High Test					
							Skewed High Test reporting allowed?	=	TRUE			
							AND Airflow	>	12	g/s		
							AND Vehicle Speed	>	40	kph		
							AND Skewed High Delay Timer	≥	120	sec		
							AND Abs(IAT - Startup IAT)	≤	10	°C		
							AND IAT	<	Attachment M	°C		
IAT_ShortLow (High Temperature)	**P0112**	This code detects a continuous short to ground in either the signal circuit or the sensor	Raw IAT signal	<	2.00 of sensor reading scale (149°C)	%	IF Engine State	=	RUN	-	80 test failures within a 160 test samples (10.0s/20.0s) Continuous monitoring every 125ms	Type A
							AND VSS Fault Active	≠	P0502	-		
							AND Vehicle Speed	>	50	kph		
							SET IAT Short Low Enable Criteria Met	=	TRUE	-		
							ELSE					
							IF Engine Running Time	>	120	s		
							OR Soak Time	>	480	Min.		
							SET IAT Short Low Enable Criteria Met	=	TRUE	-		
IAT_ShortHigh (Low Temperature)	**P0113**	This code detects a continuous short to high in either the signal circuit or the sensor	Raw IAT signal	>	98.00 of sensor reading scale (-38°C)	%	IF VSS Fault Active	≠	P0502	-	80 test failures within a 160 test samples (4.0 sec./120.0 sec.) Continuous monitoring every 125msec	Type A
							AND Coolant Short Active Fault Present	=	FALSE	-		
							AND MAF Active Fault Present	=	FALSE	-		
							AND Engine Air Flow	<	15	g/s		
							AND Vehicle Speed	<	25	kph		
							AND (Engine Coolant Temperature	>	70			
							AND Engine Running Time)	>	120	s		

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
							OR (Soak Time	>	480			
							AND Engine Coolant temperature	>	60	°C		
							AND Engine State)	=	RUN	-		
							SET IAT Short High Enable Criteria Met	=	TRUE	-		
CoolantStuck	**P0116**	This code detects a coolant temp sensor that is stuck within an expected range of movement.	(Coolant temperature - Start up Coolant temperature)	<	3	C	Engine State	=	RUN	-	240 test failures withing 300 samples 125 msec loop time Test runs once per key cycle	Type B
							AND Vehicle soak time	>	360	minutes		
							AND No Disabling Faults Present?	=	TRUE	-		
CoolantShortLow (High Temperature)	**P0117**	This code detects a continuous short to ground in the signal circuit or the sensor	Raw Coolant signal	>	97.66 of sensor reading scale (149°C)	%	IF Engine Running Time	>	120	s	80 test failures within 160 test samples at 125 ms loop time Continuous monitoring	Type A
							SET Coolant Short Low Enable Criteria Met to TRUE					
							ELSE					
							IF Soak Time	>	360	Min.		
							AND Engine Running	=	RUN	-		
							SET Enable Criteria Met	=	TRUE	-		
CoolantShortHigh (Low Temperature)	**P0118**	This code detects a continuous open or short to battery in the signal circuit or the sensor	Raw Coolant signal	<	1.95 of sensor reading scale (-38°C)	%	IF Engine Running Time	>	120	s	80 test failures within 160 test samples at 125 ms loop time Continuous monitoring	Type A
							SET Coolant Short High Enable Criteria Met	=	TRUE	-		
							ELSE					
							IF Soak Time					
							AND Intake Air Temp	>=	-10	C		
							AND Engine Running	=	RUN	-		
							SET Coolant Short High Enable Criteria Met	=	TRUE	-		
CoolCL_Temp	**P0125**	This diagnostic monitors the time it takes for the coolant temperature to reach the closed loop temperature and compares against a maximum threshold in order to make a PASS/FAIL determination, provided airflow and idle conditions are met.	Coolant Temperature	<	See Attachment Table 1	degC	Test complete	=	FALSE	-	Monitor runs once per key cycle	Type B
			when				AND Reporting not allowed	=	FALSE	-		
			Timer	>	See Attachment Table 2	s	AND Disabling Faults Present	=	FALSE	-		
							AND Coolant sensor within range	=	TRUE	-		
							AND Startup coolant temp	<=	34	degC		
							AND Engine running	=	RUN	-		
							AND Startup coolant temp saved	=	TRUE	-		
							Test will not report a failure if:					
							Accumulated Airflow	<	See Attachment I Table 3	g/sec		
							AND					
							Accumulate Idle Time	>	See Attachment I Table 4	sec		
Thermostat_Temp	**P0128**	The Thermostat Diagnostic monitors the time it takes for the coolant temperature to reach either the maximum temperature required to enable other diagnostics or the manufacturer recomended	Coolant Temperature	<	See Attachment I Table 5	degC	Test not complete	=	FALSE	-	Monitor runs once per key cycle	Type B
			when				AND Reporting allowed	=	FALSE	-		
			Timer	>	See Attachment I Table 6	s	AND Disabling Faults Present	=	FALSE	-		
							AND Coolant sensor within range	=	TRUE	-		
							AND Minimum IAT	>=	-7	degC		
							AND Engine running	=	RUN	-		
							AND Startup coolant temp saved	=	TRUE	-		

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
		Thermostat Regulating Temperature - 11 degC, and compares it against a threshold in order to make a PASS/FAIL determination, provided airflow and idle conditions are met.					AND Thermostat target temp - Startup coolant temp **Test will not report a failure if:** Accumulate Idle Time AND Accumulated Airflow	>= > <	11 See Attachment I Table 7 See Attachment I Table 8	degC sec g/sec		
CoolHigh_Temp	**P0217**	This diagnostic introduces a calibratable delay and simultaneously looks out for excessive engine loads. Once the delay period passes and excessive loads have not been experienced, the diagnostic checks whether the undefaulted coolant temperature has exceeded a maximum threshold in order to make a PASS/FAIL determination.	Coolant Temperature	>=	110	degC	Engine running AND Reporting allowed AND Disabling Faults Present AND Coolant sensor out of range AND Undefaulted Coolant Temp AND Undefaulted IAT AND (Soak time OR Undefaulted Coolant Temp AND Delay Timer AND Airflow conditions too high **Test will not report a failure if:** EWMA Airflow AND Average Airflow OVER Airflow Evaluation time	= = = = >= >= >= <= > = > > =	RUN FALSE FALSE FALSE 50 35 360 45 60 FALSE 33 35	- - - - degC degC minutes degC sec g/sec g/sec sec	Monitor runs once per key cycle	Type B
O2_11_ShortHigh	**P0132**	Determines if O2 sensor circuit is shorted high	O2 sensor filtered voltage	>	0.9521		Sensor cooled status flag AND Transient Conditions status flag AND Off-board device control AND Airflow AND Engine stable conditions met AND Ignition Voltage AND Sensor warm enough AND Fuel reduction active AND Engine running AND Engine Run Time AND Coolant Temperature AND Closed loop requesting stoich A/F Ratio? AND DFCO enabled AND Enable Timer	= = = ≥ = ≥ = = = ≥ ≥ = = ≥	FALSE FALSE FALSE 6 FALSE 10 FALSE FALSE RUN 10 60 TRUE FALSE 3	- - - g/s - V - - - s C - - s	100 test failures within 120 test samples at 125 ms loop time Continuous monitoring	Type A
O2_12_ShortHigh	**P0138**	Determines if O2 sensor circuit is shorted high	O2 sensor filtered voltage	>	0.95		Sensor cooled status flag AND Transient Conditions status flag AND Off-board device control AND Air Flow AND Engine stable conditions met AND Ignition voltage AND Sensor warm enough AND Fuel reduction active AND Engine running	= = = ≥ = ≥ = = =	FALSE FALSE FALSE 6 FALSE 10 FALSE FALSE RUN	- - - g/s - V - - -	850 test failures within 1200 test samples at 125 ms loop time Continuous monitoring	Type A

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
							AND Engine Run time	≥	10	s		
							AND Engine coolant warm enough	≥	60	C		
							AND Closed loop requesting stoich A/F Ratio?	=	TRUE	-		
							AND DFCO enabled	=	FALSE	-		
							AND Enable Timer	≥	3	s		
O2_11_ShortLow	**P0131**	Determines if O2 sensor circuit is shorted low	O2 sensor filtered voltage	<	0.05		Sensor cooled status flag	=	FALSE	-	100 test failures within 120 test samples at 125 ms loop time Continuous monitoring	Type A
							AND Transient Conditions status flag	=	FALSE	-		
							AND Off-board device control	=	FALSE	-		
							AND Airflow	≥	6	g/s		
							AND Engine stable conditions met	=	FALSE	-		
							AND Ignition Voltage	≥	10	V		
							AND Sensor warm enough	=	FALSE	-		
							AND Fuel reduction active	=	FALSE	-		
							AND Engine running	=	RUN	-		
							AND Engine Run Time	≥	10	s		
							AND Coolant Temperature	≥	60	C		
							AND Closed loop requesting stoich A/F Ratio?	=	TRUE	-		
							AND DFCO enabled	=	FALSE	-		
							AND Enable Timer	≥	3	s		
O2_12_ShortLow	**P0137**	Determines if O2 sensor circuit is shorted low	O2 sensor filtered voltage	<	0.05		Sensor cooled status flag	=	FALSE	-	850 test failures within 1200 test samples at 125 ms loop time Continuous monitoring	Type A
							AND Transient Conditions status flag	=	FALSE	-		
							AND Off-board device control	=	FALSE	-		
							AND Airflow	≥	6	g/s		
							AND Engine stable conditions met	=	FALSE	-		
							AND Ignition Voltage	≥	10	V		
							AND Sensor warm enough	=	FALSE	-		
							AND Fuel reduction active	=	FALSE	-		
							AND Engine running	=	RUN	-		
							AND Engine Run Time	≥	10	s		
							AND Coolant Temperature	≥	60	C		
							AND Closed loop requesting stoich A/F Ratio?	=	TRUE	-		
							AND DFCO enabled	=	FALSE	-		
							AND Enable Timer	≥	3	s		
O2_11_Heater (Heater Current)	**P0135**	Compares the current that is passing through the O2 Heater to a low limit	Filtered O2 Heater Current	<	Attachment G	A	Ignition ON?	=		-	20 test failures within a 40 test samples. Continuous monitoring every 125 ms.	Type B
							AND Engine Run Time	>	60	s		
							AND Heater Duty Cycle Commanded	>	0.1	%		
							AND Max - Min Commanded Duty Cycle	<	0.05	%		
							AND Enable Timer	≥	0.375	s		
O2_12_Heater (Heater Current)	**P0141**	Compares the current that is passing through the O2 Heater to a low limit	Filtered O2 Heater Current	<	Attachment G	A	Ignition ON?	=		-	60 test failures within a 70 test samples. Continuous monitoring every 125 ms.	Type B
							AND Engine Run Time	>	30	s		
							AND Heater Duty Cycle Commanded	>	0.1	%		
							AND Max - Min Commanded Duty Cycle	<	0.05	%		
							AND Enable Timer	≥	0.375	s		
O2_11_Response	**P0133**	Determines O2 sensor functionality by checking its response rate	Did enough switches occur?				Current BLM Cell Valid?	=	TRUE	-	Data collected for 90 sec. Once data colelcted and calculation is completed, test results are reported and test begins again	Type B
			Switch counter	>=	60	counts	OR BLM Option selected	=	FALSE	-		
			OR				AND Engine Speed	>=	1500	rpm		
			Switch counter	>=	60	counts	AND Engine Speed	<=	4300	rpm		

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			OR All of these conditions must be met to "pass" the diagnostic:				AND Airflow	<=	9	g/s	begins again.	
							AND Airflow	>=	40	g/s		
							AND Run Time	>	60	s		
			Lean to Rich Ave Time	<	13	counts	AND Coolant Temperature	>	70	C		
			Rich to Lean Ave Time	<	11	counts	AND Stoichimetric Air/Fuel Ratio Commanded?	=	TRUE	-		
			Resp Ratio Low	>	0.5996	counts	AND DFCO Exit with Rich Bias Fueling	=	FALSE	-		
			Ress Ratio High	<	2	counts	AND TORQ Fuel Reduction in effect	=	FALSE	-		
							AND Disabling Faults Present	=	FALSE	-		
							AND Enable Timer	>	2	s		
O2_11_Open	**P0134**	Determines if O2 sensor circuit is open	O2 sensor voltage	≥	0.4219	V	Sensor cooled status flag	=	FALSE	-	612 test failures within a 720 test samples. Continuous monitoring every 125 ms.	Type A
			OR O2 sensor voltage	≤	0.48	V	AND Transient Conditions status flag	=	FALSE	-		
							AND Off-board device control	=	FALSE	-		
							AND Airflow	≥	6	g/s		
							AND Engine stable conditions met	=	FALSE	-		
							AND Ignition Voltage	≥	10	V		
							AND Sensor warm enough	=	FALSE	-		
							AND Fuel reduction active	=	FALSE	-		
							AND Disabling Faults Present	=	FALSE	-		
							AND Engine Run Time	≥	60	s		
							AND Coolant Temperature	≥	60	C		
							AND DFCO active	=	FALSE	-		
O2_12_Response	**P0139**	Determines if Rear O2 Sensor is acceptable for Idle Catalyst Monitor use	Response time for Stage 1 ICMD Fuel Shift	>=	25	sec	IF Idle Catalyst Monitor Diagnostic is enabled	=	TRUE		50 second maximum time allowed for test to complete during idle	Type B
			OR Response time for Stage 2 ICMD Fuel Shift	>=	25	sec	SET O2 Bank 1 Sensor 2 Resp. Diag. Enable Criteria Met	=	TRUE	-		
O2_12_Open	**P0140**	Determines if O2 sensor circuit is open	O2 sensor voltage	≥	0.4219	V	Sensor cooled status flag	=	FALSE	-	1300 test failures within a 1500 test samples. Continuous monitoring every 125 ms.	Type A
			OR O2 sensor voltage	≤	0.478	V	AND Transient Conditions status flag	=	FALSE	-		
							AND Off-board device control	=	FALSE	-		
							AND Airflow	≥	6	g/s		
							AND Engine stable conditions met	=	FALSE	-		
							AND Ignition Voltage	≥	10	V		
							AND Fuel reduction active	=	FALSE	-		
							AND Disabling Faults Present	=	FALSE	-		
							AND Engine Run Time	≥	60	s		
							AND Coolant Temperature	≥	60	C		
							AND DFCO active	=	FALSE	-		
Fueltrim_B1_Lean **Fueltrim_B1_Rich**	**P0171** **P0172**	**Fuel Trim Limits Exceeded**					Engine Speed	≥	700	rpm	6 test failures within a 10 test samples at loop time of 125ms Continuous monitoring	Type B Type B
							AND Engine Speed	≤	6000	rpm		
		A - The average of short term fuel trim values:	Rich Limit Average	>	1.0601	Mult.	AND Engine coolant temperature	≥	70	C		
			Lean Limit Average	<	0.94	Mult.	AND Engine coolant temperature	≤	115	C		
		AND					AND Intake Air Temperature	≥	-40	C		
		B - The average of adaptive index multiplier values	Rich Limit Average	>	0.80	Mult.	AND Intake Air Temperature	≤	120	C		
			Lean Limit Average	<	1.220	Mult.	AND Throttle Position	≥	0	%		
							AND Throttle Position	≤	95.0012	%		
		Fuel Trim Limits Exceeded					AND Engine Load	≥	25	kPa		
							AND Engine Load	≤	99.6992	kPa		
							AND Intake Air Flow	≥	1.5	g/s		

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			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
		A - The average of short term fuel trim values:	Rich Limit Average Lean Limit Average				AND Intake Air Flow AND Barometric Pressure AND Vehicle Speed AND System Voltage AND Closed Loop Active AND BLM learn Allowed AND Other diagnostic fault active	≤ ≥ ≤ ≥ = = =	45 72 140 11 TRUE TRUE FALSE	g/s kPa kph V - - -		
		AND B - The average of adaptive index multiplier values	Rich Limit Average Lean Limit Average									
Fueltrim_B1_ICO_Lean **Fueltrim_B1_ICO_Rich**	**P2187** **P2188**	**Fuel Trim Idle Condition Option Limits Exceeded**					AND Other diagnostic fault during this key cycle	=	FALSE	-	3 test failures within a 10 test samples at loop time of 125ms Continuous monitoring	Type B Type B
		A - The average of short term fuel trim values:	Rich Limit Average Lean Limit Average	> <	1.5 0.8	Mult. Mult.						
		AND B - The average of adaptive index multiplier values	Rich Limit Average Lean Limit Average	> <	0.78 1.24	Mult. Mult.						
Inj_Cyl_1_ShortLow	**P0261**	Detects a short to ground, to battery or open circuit on fuel injector output. When the output state does not match the expected return voltage, the output driver hardware reports “Fail Criteria Met” to the OBD system. There are no ECM calibration parameters for this diagnostic	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
Inj_Cyl_1_ShortHigh	**P0262**	Detects a short to ground, to battery or open circuit on fuel injector output. When the output state does not match the expected return voltage, the output driver hardware reports “Fail Criteria Met” to the OBD system. There are no ECM calibration parameters for this diagnostic	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
Inj_Cyl_2_ShortLow	**P0264**	Detects a short to ground, to battery or open circuit on fuel injector output. When the output state does not match the expected return voltage, the output driver hardware reports “Fail Criteria Met” to the OBD	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
		system. There are no ECM calibration parameters for this diagnostic										
Inj_Cyl_2_ShortHigh	**P0265**	Detects a short to ground, to battery or open circuit on fuel injector output. When the output state does not match the expected return voltage, the output driver hardware reports “Fail Criteria Met” to the OBD system. There are no ECM calibration parameters for this diagnostic	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
Inj_Cyl_3_ShortLow	**P0267**	Detects a short to ground, to battery or open circuit on fuel injector output. When the output state does not match the expected return voltage, the output driver hardware reports “Fail Criteria Met” to the OBD system. There are no ECM calibration parameters for this diagnostic	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
Inj_Cyl_3_ShortHigh	**P0268**	Detects a short to ground, to battery or open circuit on fuel injector output. When the output state does not match the expected return voltage, the output driver hardware reports “Fail Criteria Met” to the OBD system. There are no ECM calibration parameters for this diagnostic	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
Inj_Cyl_4_ShortLow	**P0270**	Detects a short to ground, to battery or open circuit on fuel injector output. When the output state does not match the expected return voltage, the output driver hardware reports “Fail Criteria Met” to the OBD system. There are no ECM calibration parameters for this diagnostic	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
Inj_Cyl_4_ShortHigh	**P0271**	Detects a short to	Fail Criteria Met	=	TRUE	-	Disabling Faults Present	=	FALSE	-	40 test failures within a 80	Type A

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DIAGNOSTIC PARAMETERS

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Malfunction Criteria Operator	Malfunction Criteria Threshold Value	Malfunction Criteria Unit	Enable Conditions: Secondary Parameters	Enable Conditions: Operator	Enable Conditions: Secondary Parameter Enable Value	Enable Conditions: Unit	Time required	MIL Illum.
		ground, to battery or open circuit on fuel injector output. When the output state does not match the expected return voltage, the output driver hardware reports “Fail Criteria Met” to the OBD system. There are no ECM calibration parameters for this diagnostic					AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= ≥ ≤ ≥	RUN 11 16 0.5	- V V s	test samples. Continuous monitoring every 125 ms.	
Misfire	**P0300**	These DTC will determine if a multiple cylinder misfire or a cylinder specific misfire is occurring by monitoring crankshaft acceleration.	Individual event misfire detection		See attachment F See attachment F		Misfire Not Delayed (No active delays) AND All delays expired (Misfire Delay Counter = 0)	= =	0 0	engine cycles		Type B
Misfire_Cyl_1	**P0301**											Type B
Misfire_Cyl_2	**P0302**											Type B
Misfire_Cyl_3	**P0303**											Type B
Misfire_Cyl_4	**P0304**											Type B
			Emissions damaging	>	See Attachment F See Attachment F	-	Engine load and engine speed is in a non-detectable region AND Time since detectable region entered	≠ >=	TRUE 10	eng.cyc.	Emissions damaging: 7 misfires in 5 out of 16 100 engine cycle analysis blocks, 4 times. See Attachment F	
			Catalyst damaging	>	See Attachment F X misfires in 600 events (based on RPM and Load)	-	**Flare up and Flare down No-Delay Period** Engine Run time AND Engine Load AND Time since negative torque conditions entered Vehicle Operator Induced Actions	< >= >= =	10 See Attachment F 10 FALSE	s % eng.cyc. boolean	Catalyst damaging: # of misfires (See Attachment F) based on RPM and Load in 1 out of 16 100 engine cycle analysis blocks more than 3 times inside FTP conditions (misfire liad <= 75 AND RPM <= 3200 rpm) or just once (1) outside FTP conditions. See Attachment F	

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
							Cam Error					
							Cam Error Present	=	FALSE			
							AND Time since cam error removed	>	30	eng.cyc.		
							Intrusive Diagnostics					
							Intrusive diagnostics active (EGRFLOW)	=	FALSE			
							Time since intrusive diagnostic became inactive	>=	31	eng.cyc.		
							Low Fuel Level					
							Fuel Level	>	0.15	%		
							AND Fuel Level Fault	=	FALSE			
							AND Vehicle in plant	=	FALSE			
							AND Time since low fuel conditions met	>=	500	eng.cyc.		
							All cylinders fueled					
							Number of cylinders fueled	=	4			
							AND Fuel Cut Off	=	FALSE			
							AND DFCO	=	FALSE			
							AND High Vehicle Speed Fuel Shut Off	=	FALSE			
							AND High RPM Fuel Shut Off	=	FALSE			
							AND Time since all cylinders fueled	>=	16	eng.cyc.		
							Delta Throttle					
							Current Throttle Position	>	Previous Throttle			
							AND Delta Throttle Position	>	14.9994	%		
							AND Time since throttle delta occurred	>=	0	eng.cyc.		
							Current Throttle Position	<	Previous Throttle			
							AND Delta Throttle Position	>	14.9994	%		
							AND Time since throttle delta occurred	>=	0	eng.cyc.		
							Abusive Engine Speed					
							Engine Speed	>=	7025	RPM		
							AND Time since engine speed exceedence occurred	>	4999	eng.cyc.		
							Crankshaft speed patterns normal					
							Run Time	>=	10	seconds		

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DIAGNOSTIC PARAMETERS

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
							AND Consecutive Positive Crank Delta	<	15	events		
							AND Time since Consecutive Positive conditions occurred	>=	0	engine cycles		
							OR					
							Consecutive Negative Crank Delta	<	15	events		
							AND Time since Consecutive Neagative conditions occurred	>=	0	eng.cyc.		
							Flare up and Flare down No-Delay Period					
							Run Time	<	10	seconds		
							AND Consecutive Positive Crank Delta	<	22.5	events		
							AND Time since Consecutive Positive conditions occurred	>=	0	engine cycles		
							OR					
							Consecutive Negative Crank Delta	<	22.5	events		
							AND Time since Consecutive Neagative conditions occurred	>=	0	eng.cyc.		
							Engine Speed Range					
							Run time	>=	10	seconds		
							AND Engine Speed	<	6525	RPM		
							AND Engine Speed	>	600	RPM		
							AND Time since engine speed conditions met	>=	15	eng.cyc.		
							Ignition Voltage					
							Run Time	>=	10	seconds		
							AND Ignition Voltage	>	10.9936	volts		
							AND Ignition Voltage	<	15.9907	volts		
							AND Time since ignition voltage conditions met	>=	15	eng.cyc.		
							Coolant Temperature					
							Start up Coolant Temperature	<	-7			
							AND Coolant Temperature	>	21			
							ELSE Else if (Coolant temperature	>	-7			
							AND Coolant temperature)	<	120			
							AND Time since delay enabled	>=	15	eng.cyc.		

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DIAGNOSTIC PARAMETERS

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
							Disabling faults present / Disabiling Active Faults	≠	P0340 / P0016 / P0118 / P0117 / P0116 / P0335 / P0336 / P2110 / 0108 / P0107 / P0106 / P0502	-		
							Vehicle Operator Induced Actions Run Time AND Engine Load AND Engine Speed AND Time since action completed	 < = >=	 10 Attachment F 1500 10	 seconds % RPM eng.cyc.		
ToothErrorCorrection	**P0315**	This DTC indicates that crankwheel tooth error has not been learned.	Tooth error sample counter AND Individual Factors are NOT valid OR Sum of Factors	< <= >= >= <=	30 0.995 1.005 0.0004 -0.0004	count	Engine State	=	RUN	-	Continuous monitoring performed every 125 ms.	Type A
KnockSystem	**P0324**	**Internal Malfunction** This DTC will detect a malfunction in the knock filter integrated circuit.	Knock Filtered Value Knock Filtered Value	< >	25.00 75.00	- -	Intake Manifold Vacuum AND CCESC enabled AND Engine Speed	≤ = ≤	Attachment E TRUE 1600	kPa - rpm	Must receive 110 short low failures within 200 executions OR 110 short high failures within 200 executions. Continuous monitoring performed every 125 ms.	Type B
KnockSensor	**P0325**	Detects knock sensor failures and knock sensor wiring failures. There is also a sensor short to ground test.	Filter coefficient	<	1.00	%	Intake Manifold Vacuum AND CCESC enabled AND Engine Speed	≤ = ≤	Attachment E TRUE 1600	kPa - rpm	Must receive 100 failures within 200 executions. Continuous monitoring performed every 125 ms.	Type B
CrankNoSignal	**P0335**	This diagnostic will detect 58X reference pulse not seen during crank	Crank Tooth Error Count	>	2	counts	Engine State OR Engine State OR Engine State AND CAM Fault Present AND Camshaft Position Sensor State Change from last State AND (Startup MAP - Current MAP) AND (Startup Ignition Voltage - Current Ignition Voltage)	= = = = ≠ <	KEYON CRANK STALL FALSE Current Cam_State 1.2031 0.6001	- - - - - kPa V	8 seconds	Type A
CrankNoisySignal	**P0336**	This diagnostic will detect extra/missing pulses between consecutive 58X reference pulses	Crank Tooth Error Count (CRKRTERR)	>	2	pulse	Engine Running AND Crank Sensor Back up not Active	= =	RUN FALSE	- - counts	10 test failures within a 100 test samples at loop time of 7.8ms Continuous monitoring	Type B

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DIAGNOSTIC PARAMETERS

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
EST_Output_1_Fault	**P0351**	Detects a short to ground, to battery or open circuit on ESC output. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this diagnostic.	Fail Criteria Met	= =	TRUE TRUE	- -	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
EST_Output_2_Fault	**P0352**	Detects a short to ground, to battery or open circuit on ESC output. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this diagnostic.	Fail Criteria Met	= =	TRUE TRUE	- -	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
CatalystBank1	**P0420**	The ICMD Diagnostic manipulates Airfuel and stores the times it takes for the pre and post converter oxygen sensors to switch. It then calculates EWMA values and compares them against calibratable thresholds inorder to determine the PASS/FAIL status.	EWMA Oxygen Storage Time for Bank 1	>=	2 (passing) 2.5	s	Engine Runtime AND Purge Concentration Learned AND Airflow AND Airflow AND Throttle position AND Coolant Temperature AND Coolant Temperature AND Ambient Temperature AND Ambient Temperature AND Barometer AND Too many test attempts AND Closed Loop enabled AND Torque Fuel Reduction active AND Catalyst Temperature AND Catalyst Temperature AND Fuel Integrator deviation from stoich AND Vehicle speed AND AT not in P/N (for PNModeSelected=FALSE, AT only) AND BLM Learn completed AND Low idle airflow not present (airflow delay complete) AND Airfuel ramping AND Idle Time AND Test not complete AND Disabling Faults Present AND Instrumentation slews active AND OFVC device control active	>= = <= >= <= >= <= >= <= >= <= = = <= >= <= <= <= = = = = <= = = = =	570 TRUE 6.5 2.25 1.5015 70 109 -7 105 72 12 TRUE FALSE 975 300 0.03 3 TRUE TRUE TRUE FALSE 75 FALSE FALSE FALSE FALSE	sec. - g/s g/s % degC degC degC degC kPa - - - degC degC kph - - - - sec. - - - -	Test runs a maximum of 2 tests per key cycle unless step change detected. (6 tests per key cycle after step change detected)	Type A

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
EVPD_ContinuousPurgeFlow	**P0496**	Test is failed if tank vacuum exceeds prescribed threshold, based on fuel level, for a prescribed time.	Tank vacuum greater than threshold	>	Attachment J	in H2O	Ignition Voltage	>	9	V	Test Runs once per key cycle	Type A
							AND Ignition Voltage	<	16	V		
			AND Fail timer greater than threshold	>	2	s	AND Barometric pressure	>	72	kPa		
							AND Engine off time	>	720	min		
							OR (Startup IAT-Startup ECT	<	12	°C		
							AND Startup ECT -Startup IAT)	<	12	°C		
							AND Startup ECT	>	0	°C		
							AND Startup ECT	<	40	°C		
							AND Startup IAT	>	0	°C		
							AND Startup IAT	<	40	°C		
							AND Start-up IAT-IAT	<	3	°C		
							AND Engine Run Time	>	1	s		
							AND Engine Run Time	<	100	s		
EVPD_SmallLeakTest	**P0442**	If a corrected vacuum decay slope and the individual segment slopes exceed their respective thresholds and the segment slopes are not convex then a small leak is present	Decay slope, (beginning at decay start threshold and lasting for decay time) minus the larger vapor correction term, (purge leak vapor term OR Post decay vapor term) greater than a threshold, (the product of a base term using fuel level AND a temperature bias term) AND All segment slopes greater than their threshold, (the product of a base term AND a temperature bias term AND a segment bias term) AND The current segment slope minus the prior segment slope less than the convex threshold				Ignition Voltage	>	9	V	Test Runs once per key cycle	Type A
					10	in H2O	AND Ignition Voltage	<	16	V		
							AND Barometric pressure	>	72	kPa		
					10	s	AND Engine off time	>	720	min		
				-			OR (Startup IAT-Startup ECT	<	12	°C		
							AND Startup ECT -Startup IAT)	<	12	°C		
							AND Startup ECT	>	0	°C		
							AND Startup ECT	<	40	°C		
				>			AND Startup IAT	>	0	°C		
					Attachment J		AND Startup IAT	<	40	°C		
							AND Start-up IAT-IAT	<	3	°C		
				x	Attachment J		AND Engine Run Time	>	1	s		
							AND Purge enable time	<	Attachment J	s		
							AND Cold test timer	<	360	s		
					2	Cnt	AND Fuel level	>	0.24	Pct		
							AND Fuel level	<	0.94	Pct		
				>			AND (Idle conditions met	=	TRUE			
					Attachment J	in H2O/s	(Engine speed	<	1500	rpm		
				x	Attachment J	mul	AND Vehicle speed	<	3	kph		
				x	Attachment J	mul	AND Throttle position)	<	1.001	Pct		
							OR Creep conditions met	=	FALSE			
							(Engine speed		1500	rpm		
							AND Vehicle speed		6	kph		
							AND Throttle position)		1.9989	Pct		
							AND Fuel not sloshing	=	FALSE			
							((Vehicle speed		2			
							OR Throttle position)		1.001			
				<	Attachment J	in H2O/s	OR 125ms MAP change		10			
							OR 125ms Engine speed		100			
							AND 125ms Fuel level delta)		Attachment J			
					0.0498							
EVPD_LargeLeakTest	**P0455**	Test is failed if tank vacuum cannot reach	At idle AND Tank vacuum	= <	TRUE		Ignition Voltage	>	9	V	Test Runs once per key cycle	Type A
							AND Ignition Voltage	<	16	V		

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DIAGNOSTIC PARAMETERS

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
		prescribed vaccum after a prescribed purge volume has been drawn from the tank	is less than threshold		10.2002	in. H2O	AND Barometric pressure	>	72	kPa		
			AND purge integral				AND Engine off time	>	720	min		
			greater than threshold	>	Attachment J	Cnt	OR (Startup IAT-Startup ECT	<	12	°C		
							AND Startup ECT -Startup IAT)	<	12	°C		
			OR				AND Startup ECT	>	0	°C		
							AND Startup ECT	<	40	°C		
			Not at idle	=	FALSE		AND Startup IAT	>	0	°C		
			AND Tank vacuum				AND Startup IAT	<	40	°C		
			is less than threshold	<	10.5	in. H2O	AND Start-up IAT-IAT	<	3	°C		
			AND purge integral	>	Attachment J	Cnt	AND Purge enable time	<	Attachment J	s		
			greater than threshold				AND Engine Run Time	>	1	s		
							AND Cold test timer	<	360	s		
EVPD_VerySmallLeakTest	P0456	If a corrected vacuum decay slope and the individual segment slopes exceed their respective thresholds and the segment slopes are not convex then a small leak is present	Decay slope, (beginning at decay start threshold and lasting for decay time) minus the larger vapor correction term, (purge leak vapor term OR Post decay vapor term)				Ignition Voltage	>	9	V	Test Runs once per key cycle	Type A
					10	in H2O	AND Ignition Voltage	<	16	V		
							AND Barometric pressure	>	72	kPa		
					360	s	AND Engine off time	>	720	min		
				-			OR (Startup IAT-Startup ECT	<	12	°C		
							AND Startup ECT -Startup IAT	<	12	°C		
							AND Startup ECT	>	0	°C		
							AND Startup ECT	<	40	°C		
			greater than a threshold,	>			AND Startup IAT	>	0	°C		
			(the product of a base term		Attachment J		AND Startup IAT	<	40	°C		
			using fuel level				AND Start-up IAT-IAT	<	3	°C		
			AND a temperature bias term)	x	Attachment J		AND Engine Run Time	>	1	s		
							AND Purge enable time	<	Attachment J	s		
			AND				AND Cold test timer	<	330	s		
			All		5	Cnt	AND Fuel level	>	0.24	Pct		
			segment slopes				AND Fuel level	<	0.94	Pct		
			greater than their threshold,	>			AND (Idle conditions met	=	TRUE			
			(the product of a base term		Attachment J	in H2O/s	(Engine speed	<	1500	rpm		
			AND a temperature bias term	x	Attachment J	mul	AND Vehicle speed	<	3	kph		
			AND a segment bias term)	x	Attachment J	mul	AND Throttle position)	<	1.001	Pct		
							OR Creep conditions met	=	FALSE			
			AND				(Engine speed		1500	rpm		
							AND Vehicle speed		6	kph		
			The current segment slope				AND Throttle position))		1.9989	Pct		
			minus the				AND Fuel not sloshing	=	FALSE			
			prior segment slope				((Vehicle speed		2			
			less than the				OR Throttle position)		1.001			
			convex threshold	<	Attachment J	in H2O/s	OR 125ms MAP change		10			
							OR 125ms Engine speed)		100			
							AND 125ms Fuel level delta)		Attachment J			
							AND (Creep delay time					
							If Vehicle Speed	>	2	kph		
							AND AND Creep Delay Timer / Decay Time)	>	50	pct		
					0.0195							

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
EVPD_RestrictedVentPath	P0446	Test is failed if tank vacuum exceeds a prescribed threshold for a prescribed time when purging at a prescribed rate.	Tank vacuum greater than threshold for time greater than threshold when purging at the prescribed rate	> >	8 2 0.15	in H2O s g/s	Ignition Voltage AND Ignition Voltage AND Barometric pressure AND Engine off time OR (Startup IAT-Startup ECT AND Startup ECT -Startup IAT) AND Startup ECT AND Startup ECT AND Startup IAT AND Startup IAT AND Start-up IAT-IAT AND Engine Run Time AND Purge enable time AND Cold test timer AND Fuel level AND Fuel level AND Restricted path test time	> < > > < < > < > < < > < < > < <	9 16 72 720 12 12 0 40 0 40 3 1 Attachment J 360 0.24 0.94 120	V V kPa min °C °C °C °C °C °C °C s s s Pct Pct s	Test Runs once per key cycle	Type A
PurgeSolenoidOutShortLow	P0458	Detects a short to ground or open circuit on Purge Solenoid output circuit. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this diagnostic.	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
PurgeSolenoidOutShortHigh	P0459	Detects a short to battery on Purge Solenoid output circuit. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this diagnostic.	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
OUTD_EGR_CircuitFault	P0403	Detects a short to ground, battery or open circuit on EGR output circuit. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are ECM calibration	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
		no ECM calibration parameters for this diagnostic										
OUTD_VentShortLow	**P0498**	Detects a short to ground or open circuit on Vent Valve output circuit. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this diagnostic	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
OUTD_VentShortHigh	**P0499**	Detects a short to battery on Vent Valve output circuit. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this diagnostic	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
TankPresStuck Transiton Monitor Logic: (Normal purge to purge off)	**P0451**	Continuously monitors the fuel tank pressure sensor output for a stuck condition	Delta Tank Vacuum for Time Period	< >	0.9995 10	%	**Enable conditions for Purge Transition test:** (Normal purge to Purge off) Evaporative system active flag Purge flow	= > = >	0 0.3501 0 0.3501	enum g/s enum g/s	Runs during transition from normal purge to purge off	Type B
Evaporative Emissions Diagnostic Mode Logic:			Vacuum Intergral (signed) modified by multiplier for Time Period	> >	Attachment K * 0.95 10	counts	OR **Enable Conditions during Evap Diagnostic test:** Evaporative diagnostic status	= 	2 or 3 (2 = Evap Diag Control) (3= Closed Loop Purge)	enum	Can run once per key cycle	
TankPresShortLow	**P0452**	Detects sensor signal short to low voltage	Raw Tank Pressure	<	0.017	%	IF Ignition ON SET Enable Criteria Met Flag to TRUE	= =	ON TRUE	- -	100 test failures within a 200 test samples. Continuous monitoring every 125 ms.	Type A
TankPresShortHigh	**P0453**	Detects sensor signal short to high voltage	Raw Tank Pressure	>	0.983	%	IF Ignition ON SET Enable Criteria Met Flag to TRUE	= =	ON TRUE	- -	100 test failures within a 200 test samples. Continuous monitoring every 125 ms.	Type A

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
TankPresNoisySignal	**P0454**	The Tank Pressure Noisy Diagnostic continuously monitors the fuel tank pressure to determine if there is external noise impinging on the fuel tank pressure measurement.	Delta Tank Pressure > Limit?	>	33.0002		IF Engine Running AND Intake Air Temperature AND Fuel Tank Vac Offset Update Complete? AND Diag Tank Pres Short Fault Present? OR Nosiy Signal Disabling Faults Present	= >= = = =	RUN 0 TRUE FALSE FALSE	 C - - -	12 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type B
FuelLevelConsumption (Stuck)	**P0461**	Detects a stuck fuel level sender	Fuel Level Change AND Present Odometer - Previous Odometer	<= >=	0.035 250		IF Engine Running AND Fuel Level Fault Present	= =	RUN FALSE	- -	Dependent on drive conditions	Type B
FuelLevelShortLo	**P0462**	Detects a continuous short to low or open in either the signal circuit or the fuel level sender	Raw fuel level sender output	<	0.05	%	IF Engine Running Set Short diagnostic Enable Criteria Met Flag	= =	RUN TRUE	- -	80 test failures within a 160 test samples. Continuous monitoring every 125 ms.	Type A
FuelLevelShortHi	**P0463**	Detects a continuous short to battery in either the signal circuit or the fuel level sender	Raw fuel level sender output	>	0.85	%	IF Engine Running Set Short diagnostic Enable Criteria Met Flag	= =	RUN TRUE	- -	80 test failures within a 160 test samples. Continuous monitoring every 125 ms.	Type A
FuelLevelNoisySignal	**P0464**		Difference between previous and current Fuel Level Raw Signal	>	0.0392		**Determination of Steady Conditions** IF Engine Running Delta MAP AND Delay Timer THEN Set Delta MAP Condition Not Exceeded Flag to TRUE OR Delta RPM AND Delay Timer THEN Set Delta RPM Conditon Not Exceeded Flag to TRUE OR Thottle Position AND Delay Timer THEN Set TPS Condition Not Exceeded Flag to TRUE OR Vehicle Speed AND For Delay Timer of THEN Set V. Speed Condition Not Exceeded Flag to TRUE **Determination of Noisy Signal Enable Cond.** IF Engine Running AND Intake Air temperature AND Fuel Level Active Fault Present AND Nosiy Signal Disabling Faults Present? AND Delta MAP Condition Exceeded	= =< >= = =< >= = =< >= = >= >= = = >= = = =	RUN 10 5 TRUE 50 5 TRUE 1.9989 5 TRUE 1 5 TRUE RUN -10 FALSE FALSE FALSE	- kPa s - rpm s - % s - kph s - - - - -	50 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type B

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DIAGNOSTIC PARAMETERS

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
							AND Delta RPM Conditon Exceeded	=	FALSE	-		
							AND TPS Conditon Exceeded	=	FALSE	-		
							AND Vehicle Speed Conditon Exceeded	=	FALSE	-		
							THEN Set Enable Criteria Met Conditions are Satisfied	=	TRUE	-		
Fan1_OutputFault	**P0480**	This will detect a short to ground, to battery or open circuit on Fan relay output. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this diagnostic.	Fail Criteria Met	=	TRUE	-	Disabling Faults Present	=	FALSE	-	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
							AND Engine Running	=	RUN	-		
				=	TRUE	-	AND Ignition Voltage	≥	11	V		
							AND Ignition Voltage	≤	16	V		
							AND Enable Time delay	≥	0.5	s		
Fan2_OutputFault	**P0481**	This will detect a short to ground, to battery or open circuit on Fan relay output. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this diagnostic.	Fail Criteria Met	=	TRUE	-	Disabling Faults Present	=	FALSE	-	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type A
							AND Engine Running	=	RUN	-		
				=	TRUE	-	AND Ignition Voltage	≥	11	V		
							AND Ignition Voltage	≤	16	V		
							AND Enable Time delay	≥	0.5	s		
VSS_NoSignal	**P0502**	Detects the lack of vehicle speed signal to the PCM	**Power Test**				**Power and Decel.tests Common Criteria**				280 test failures within a 300 test samples. Continuous monitoring every 125 ms.	Type B
			VSS Power Enable Criteira Met	=	TRUE	-	Engine Running	=	TRUE	-		
			IF VSS Fault		Active		AND VSS disabling malf present	=	FALSE	-		
			Vehicle Speed	≤	10	kph	AND TPS fault present	=	FALSE	-		
			ELSE				AND MAP fault present	=	FALSE	-		
			Vehicle Speed	<	5	kph	AND Ignition Voltage	<	16	V		
			Deceleration Test				AND Ignition Voltage	>	11	V		
			VSS Decel. Enable Criteira Met	=	TRUE	-	AND Engine Coolant Temperature	>	60	C		
			Vehicle Speed	<	5	kph						
			Delta Engine Speed	≥	50	rpm	**Power Test**					
							AND MAP	>	60	kPa		
							AND TPS	≤	60.0006	%		
							AND TPS	≥	25	%		
							AND Engine Speed	≤	4000	rpm		
							AND Engine Speed	≥	2600	rpm		
							OR					
							Deceleration Test					
							AND MAP	<	30	kPa		
							AND TPS	<	0.7996	%		
							AND Engine Speed	≤	6000	rpm		
							AND Engine Speed	≥	1800	rpm		

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
							AND Transmission in gear	=	TRUE	-		
BrakeSwitchCorrelation	**P0504**	Detects failures in the 2 brake inputs by comparing them to each other while driving.	IF time from state change of one brake input to when the other brake input changes state (making switch states equal again), is greater than a cal, increase fail count. ELSE, decrease fail count	>	0.5	sec	Engine running (AND (VSS_NoSignal diagnostic fail AND Cruise vehicle speed filt OR VSS_NoSignal diagnostic fail)	= = > =	RUN (3) False (0) 20 True (1)	- - kph -	Fail count > 39 with countup = 3, countdown =1	Type B
IdleRPM_TooLow	**P0506**	Determines if a low idle condition exists.	Idle engine speed error	>	100	rpm	Normal Idle conditions AND Canister Purge Fuel Flow AND Barometric Pressure AND Engine Run Time AND Air Intake Temperature AND Coolant Temperature AND Ignition Voltage AND Ignition Voltage AND Enable Conditions Timer AND Intrumentation slew commanded AND OFVC Device ControlActive	= ≤ > ≥ ≥ ≥ ≥ ≤ > = =	TRUE 100 72 2 -20 -10 11 16 3 FALSE FALSE	 kPa s C C V V s - -	10 sec.	Type B
IdleRPM_TooHigh	**P0507**	Determines if a high idle condition exists.	Idle engine speed error	>	200	rpm	Normal Idle conditions AND Canister Purge Fuel Flow AND Barometric Pressure AND Engine running long enough AND Air Intake Temperature AND Coolant Temperature AND Ignition Voltage AND Ignition Voltage AND Enable timer AND Intrumentation slew commanded AND OFVC Device ControlActive	= ≤ > ≥ ≥ ≥ ≥ ≤ > = 	TRUE 100 72 2 -20 -10 11 16 3 FALSE 	 kPa s C C V V s - -	10 sec.	Type B
AC_PresShortLow	**P0532**	This code detects a continuous short to ground in either the circuit or the sensor	Raw A/C pressure	<	98.999	%	Engine running		TRUE		80 test failures within a 160 test sample. Continuous monitoring every 125msec	Type C
AC_PresShortHigh	**P0533**	This code detects a continuous short to high voltage in either the circuit or the sensor	Raw A/C pressure	>	0.9995	%	Engine running		TRUE		80 test failures within a 160 test sample. Continuous monitoring every 125msec	Type C
SysVoltLow	**P0562**	Voltage too Low (engine side)	System voltage	<	11	V	Engine Running	=	RUN	-	Test failed if fail conditions last for 300 counts within 360 counts, in loop time of 125ms	Type C

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DIAGNOSTIC PARAMETERS

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
SysVoltHigh	**P0563**	Voltage too High (engine side)	System voltage	>	16	V	Engine Running	=	RUN	-	Test failed if fail conditions last for 300 counts within 360 counts, in loop time of 125ms	Type B
CRZD_AnalogInputRange	**P0564**	Monitors the status of the invalid input flag when the input voltage is converted to the switch input signals.	Cruise Control Analog Input Evaluation Criteria Met AND Cruise Control Analog Input Evaluation Criteria Met	= =	TRUE TRUE	boolean boolean	Engine Running AND Ignition Voltage AND Cruise type = CRUZ OR Cruise type = Learn AND Learned Cruise Type = CRUZ	= >= = = =	RUN 7.9956 1 3 1	- V enum. enum. enum.		Type C
CRZD_OnOffInputNoisy	**P0565**	Evaluates if the momentary switch is switching too quickly for too long	Cruise Control On-Off Noisy Evaluation Criteria Met (transition detected)	=	TRUE	boolean	Engine Running AND Ignition Voltage AND Cruise type = CRUZ OR Cruise type = Learn AND Learned Cruise Type = CRUZ	= >= = = =	RUN 7.9956 1 3 1	- V enum. enum. enum.		Type C
CRZD_ResumeInputNoisy	**P0567**	Evaluates if the momentary switch is switching too quickly for too long	Cruise Control Resume Noisy Evaluation Criteria Met (transition detected)	=	TRUE	boolean	Engine Running AND Ignition Voltage AND Cruise type = CRUZ OR Cruise type = Learn AND Learned Cruise Type = CRUZ	= >= = = =	RUN 7.9956 1 3 1	- V enum. enum. enum.		Type C
CRZD_ResumeInputStuck	**P0567**	Evaluates if the momentary switch is stuck for too long	Cruise Control Resume Stuck Evaluation Criteria Met (input asserted)	=	TRUE	boolean	Engine Running AND Ignition Voltage AND Cruise type = CRUZ OR Cruise type = Learn AND Learned Cruise Type = CRUZ	= >= = = =	RUN 7.9956 1 3 1	- V enum. enum. enum.		Type C
CRZD_SetInputNoisy	**P0568**	Evaluates if the momentary switch is switching too quickly for too long	Cruise Control Set Noisy Evaluation Criteria Met (transition detected)	=	TRUE	boolean	Engine Running AND Ignition Voltage AND Cruise type = CRUZ OR Cruise type = Learn AND Learned Cruise Type = CRUZ	= >= = = =	RUN 7.9956 1 3 1	- V enum. enum. enum.		Type C
CRZD_SetInputStuck	**P0568**	Evaluates if the momentary switch is stuck for too long	Cruise Control Set Stuck Evaluation Criteria Met (input asserted)	=	TRUE	boolean	Engine Running AND Ignition Voltage AND Cruise type = CRUZ OR Cruise type = Learn AND Learned Cruise Type = CRUZ	= >= = = =	RUN 7.9956 1 3 1	- V enum. enum. enum.		Type C
BrakeLampSwitch	**P0571**	Detects failures in the brake lamp input by monitoring it while vehicle comes to a stop.	If Vehicle speed < cal AND Vehicle Accel < cal THEN for cal sec, Check that Brake Lamp is ON ND Brake lamp transition Occurr If both occur, decrease fail count. ELSE	< < > = =	3 -6 3 ON (1) TRUE (1)	kph/s kph/s sec	Engine running AND VSS_NoSignal diagnostic fail AND Cruise vehicle speed filter	= = >	RUN (3) False (0) 20	- - kph	Fail count > 15 with countup = 1, countdown =5	Type B

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DIAGNOSTIC PARAMETERS

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
			Increase fail count.									
FileROM_Checksum	**P0601**	Checksum of S/W and calibrations = expected checksum. No data errors.	Checksum of S/W and calibrations N.E. expected checksum.				None - Runs when ECM is ON				Product power down	Type A
SYST_SW_VerMismatch	**P0602**	Checks inconsistencies between Main CPU and checking CPU software/calibrations	Checking CPU's software and calibration versions do not match Main CPU	≠	2560	hex	None - Runs when ECM is ON	=		-	Product power on	Type A
COND_SW_VerMismatch	**P0602**	Detects inconsistencies between Checking CPU version and Main CPU calibration.	Checking CPU's version is not compatible with Main CPU calibration.	≠ ≠ ≠	17 17 17		IO_PIC_Init_Msg_Rcvd	=	1	-	Product power on	Type A
VIN_Written_Diagnostic	**P0630**	Determines if VIN is stored	VIN	>	0		None - Runs when ECM is ON				Product power on	Type A
FileRAM	**P0604**	Detects errors in Main CPU stack usage.	RAM content	≠	expected	counts					8 failures Product tested at power on	Type A
FileRAM_Stack	**P0604**	Detects errors in Main CPU stack usage.	IF Stack Pointer does not return to same value each loop, OR data pattern written to top and bottom of stack memory area is changed, Fail the diagnostic.	≠ ≠	initial value of FRAMSADR Pattern	hex hex	Calibration enables diagnostic	=	1	-	Product power on	Type A
AD_InputCorrelation	**P0606**	Detects errors in A/D processing of Accel Pedal Sensor inputs by comparing readings from separate A/D units.	APS1: Error Threshold is Dynamic + Static If difference between primary and redundant APS1 readings > threshold, increase APS1 fail count. ELSE, decrease APS1 fail count. APS2: Error Threshold is Dynamic + Static If difference between primary ELSE, decrease APS2 fail count.	 > > 	4.9988 0.0977 0.0488 CADC1THR 4.9988 0.0977 0.0488 CADC2THR	%Vref %Vref %Vref %Vref	Ignition On AND Ignition voltage AND Ignition voltage	= > <	1 9 18	- V V	Continuous	Type A

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
COND_CheckCPU_ByMain	**P0606**										5 sec	Type A
ETC_DualPath	**P0606**	Detects errors in critical ETC calculations by comparing results of primary and redundant paths.	Primary and redundant accel pedal position difference > cal (primary) OR: Primary and redundant accel pedal position difference > cal (redundant) OR: Primary and redundant ETC Driver Command Modes not equal. OR: Primary and redundant ETC Driver Command Modes not equal. (redundant) OR: Primary and redundant ETC Power Control Modes not equal. OR: Primary and redundant ETC Power Control Modes not equal. (redundant)	>= ≠ ≠ ≠ ≠	0.3 29.9988 RTCDCM ETCDCM RTCPCM ETCPCM	%Pedal / 100 %Pedal / 100 enum enum enum enum	none			-	Varies	Type A
WDOG_TimerFault	**P0606**	Detects if Watchdog timer (COP) is not able to reset Main CPU when actively tested.	At end of powerdown logic, Main CPU stops servicing COP and measures time for reset. If time > expected, this is a failure.	≠		-	None - Runs when PCM is powering OFF.	=		-	1 test per poweroff	Type A
TRQD_Torque_Control	**P161B**	Determines if Delivered Torque Is Grossly Different From Desired Torque	When Dynamic Torque Error While Net Torque OR torque throttle load OR Dynamic Torque Error While Desired ETC throttle position	>= > <	Attachment L 20 0.9979 Attachment L 0	Pct N-m Pct Pct Pct	IF Engine State	=	3	Enum	500 fails in 1000 samples 500 fails in 1000 samples	Type A
TRQD_TorqCntrlSS	**P161B**	Determines if Delivered Torque Is Grossly Different From Desired Torque	When Steady State Torque Error While Actual Net Torque OR Torque Throttle Load	>	40 20 0.9979	N-m N-m Pct	IF Engine State AND Engine Speed AND Desired Flywheel Torque FOR Steady State Torque Timer	= > Within >	3 800 20 1	Enum RPM N-m Sec	2 fails in 20 samples	Type A
RedundantTorqueRtnl	**P161B**	Determines if Delivered Torque Is Greater than Desired Torque	Normalized Fuel Flow	>	Attachment L	g/s	IF Pedal Position AND Engine Speed - Desired Engine Speed AND Torque Command Source AND Injectors Enabled	< > = =	0.8 0 0 1	Pct RPM Enum Boolean	50 test failures before (test samples - test failures) > 50	Type A

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
		With Zero Pedal										
OUTD_ACCR_ShortLow	**P0646**	Detects a short to ground or open circuit on A/C clutch output circuit. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type C
OUTD_ACCR_ShortHigh	**P0647**	Detects a short to battery on A/C clutch output circuit. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this	Fail Criteria Met	=	TRUE	-	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type C
MainRelay_OutputFault	**P0685**	Detects a short to ground, to battery or open circuit on Main Relay output. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this	Fail Criteria Met	= = TRUE	TRUE TRUE	- -	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	19 test failures within a 40 test samples. Continuous monitoring every 125 ms.	Type A
MIL_OutputFault	**P0650**	Detects a short to ground, to battery or open circuit on MIL output. When the output state does not match the expected return voltage, the output driver hardware reports "Fail Criteria Met" to the OBD system. There are no ECM calibration parameters for this diagnostic.	Fail Criteria Met	= = TRUE	TRUE TRUE	- -	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type C
VIM_1_OutputFault	**P0660**	Detects a short to ground, to battery or open circuit on VGIS 1 output	Fail Criteria Met	= = TRUE	TRUE TRUE	- -	Disabling Faults Present AND Engine Running AND Ignition Voltage AND Ignition Voltage AND Enable Time delay	= = ≥ ≤ ≥	FALSE RUN 11 16 0.5	- - V V s	40 test failures within a 80 test samples. Continuous monitoring every 125 ms.	Type Z

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
O2_11_LeanPE	**P1166**	Determines if O2 sensor indicates lean exhaust while in Power Enrichment (PE)	O2 sensor filtered voltage AND Air Fuel Ratio	< ≤	0.3501 13.5	V -	Sensor cooled status flag AND Transient Conditions status flag AND Off-board device control AND Airflow AND Engine stable conditions met AND Ignition voltage AND Sensor warm enough AND Fuel reduction active AND Engine running AND Engine Run Time AND Power Enrichment conditions present AND Coolant Temperature AND Enable Timer	= = = ≥ = ≥ = = = ≥ = ≥ ≥	FALSE FALSE FALSE 6 FALSE 10 FALSE FALSE RUN 10 TRUE 60 2	- - - g/s - V - - - s - C s	90 test failures in 100 test samples. Monitored at 125 msec during Power Engrichment events	Type B
O2_12_LeanPE	**P1137**	Determines if O2 sensor indicates lean exhaust while in Power Enrichment (PE)	O2 sensor filtered voltage AND Air Fuel Ratio	< ≤	0.3501 13.5	V -	Sensor cooled status flag AND Transient Conditions status flag AND Off-board device control AND Airflow AND Engine stable conditions met AND Ignition voltage AND Fuel reduction active AND Engine running AND Engine Run Time AND Power Enrichment conditions present AND Coolant Temperature AND Enable Timer	= = = ≥ = ≥ = = ≥ = ≥ ≥	FALSE FALSE FALSE 6 FALSE 10 FALSE RUN 10 TRUE 60 2	- - - g/s - V - - s - C s	90 test failures in 100 test samples. Monitored at 125 msec during Power Engrichment events	Type B
O2_11_RichDFCO	**P2297**	Determines if O2 sensor indicates rich exhaust while in decel fuel cut-off (DFCO)	O2 sensor filtered voltage	>	0.5498	V	Sensor cooled status flag AND Transient Conditions status flag AND Off-board device control AND Airflow AND Engine stable conditions met AND Ignition voltage AND Sensor warm enough AND Fuel reduction active AND Engine running AND Engine Runtime AND Deceleration Fuel Cut Off conditions present AND Coolant Temperature AND Enable Timer	= = = ≥ = ≥ = = = ≥ = ≥ ≥	FALSE FALSE FALSE 6 FALSE 10 FALSE FALSE RUN 10 TRUE 60 2	- - - g/s - V - - - s - C s	90 test failures in 100 test samples. Monitored at 125 msec during Decel Fuel Cut Off events	Type A
O2_12_RichDFCO	**P1138**	Determines if O2 sensor indicates rich exhaust while in decel fuel cut-off (DFCO)	O2 sensor filtered voltage	>	0.125	V	Sensor cooled status flag AND Transient Conditions status flag AND Off-board device control AND Airflow AND Engine stable conditions met AND Battery Voltage AND Fuel reduction active	= = = ≥ = ≥ =	FALSE FALSE FALSE 6 FALSE 10 FALSE	- - - g/s - V -	90 test failures in 100 test samples. Monitored at 125 msec during Decel Fuel Cut Off events	Type B

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Malfunction Criteria Operator	Malfunction Criteria Threshold Value	Malfunction Criteria Unit	Enable Conditions: Secondary Parameters	Enable Conditions: Operator	Enable Conditions: Secondary Parameter Enable Value	Enable Conditions: Unit	Time required	MIL Illum.
							AND Engine running	=	RUN	-		
							AND Engine Runtime	≥	10	s		
							AND Deceleration Fuel Cut Off conditions present	=	TRUE	-		
							AND Coolant temperature	≥	60	C		
							AND Enable Timer	≥	2	s		
LowPwrCtr	**P2610**	The LPC SPI Diagnostic allows the Low Power Counter to count down and simulateneously enables a test timer to run for a calibratable length of time and then compares the time elapsed recorded by the LPC (counter delta) against that recorded by the test timer in order to make a PASS/FAIL determination.	LPC timer - LPC delta	>	200	seconds	Test complete	=	FALSE	-		Type B
							AND Engine running	=	RUN	-		
							AND Engine Runtime	>=	10	sec		
							AND Battery Voltage	>	11	volts		
LowPwrCtrReset	**P2610**	The LPC Reset Test checks for abnormal resets of the Low Power Counter	Abnormal reset if:				Non Volatile Memory Failure Occurred	=	FALSE	-		Type B
				<>	RUN	-						
				=	TRUE	-						
				>	11	Volts						
				=	FALSE	-						
				=	FALSE	-						
				=	TRUE	-						
ETC_TPS_1_LoRange	**P0122**	This code detects a short to ground in either the circuit or the sensor (5-95%)	Raw TPS1	<	4.9988	%	Ignition On	=	1	-	Fail count > 15 with countup = 3, countdown =1 (15.6msec continuos loop)	Type B
ETC_TPS_1_HiRange	**P0123**	This code detects a continuous short to high or open circuit in either the circuit or the sensor (5-95%)	Raw TPS1	>	95.0012	%	Ignition On	=	1	-	Fail count > 15 with countup = 3, countdown =1 (15.6msec continuos loop)	Type B
ETC_TPS_2_LoRange	**P0222**	This code detects a continuous short to ground or open in either the circuit or the sensor (5-95%)	Raw TPS2 %V < cal	<	4.9988	%	Ignition On	=	1	-	Fail count > 15 with countup = 3, countdown =1 (15.6msec continuos loop)	Type B
ETC_TPS_2_HiRange	**P0223**	This code detects a	Raw TPS2 %V > cal	>	95.9991	%	Ignition On	=	1	-	Fail count > 15 with countup =	Type B

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
		continuous short to high in either the circuit or the sensor (5-95%)									3, countdown =1 (15.6msec continuos loop)	
ETC_TPS_Corr	P2135	Determines if TPS # 1 disagrees with TPS # 2 (0-100%)	Difference between normalized values of TPS1 and TPS2 > cal	>	4.5013	%	Ignition On	=	1	-	Fail count > 20 with countup = 3, countdown =1 (15.6msec continuos loop)	Type A
ETC_VREF_A_Range	P0641	This code detects errors in sensor reference voltage # 1 that would affect sensor value	% of Vref1 > Scaled Vref1 OR % of Vref1 < Scaled Vref1	> <	110.001 89.9994	% %	Ignition On	=	1	-	Fail count > 35 with countup = 3, countdown =1 (15.6msec continuos loop)	Type A
ETC_VREF_B_Range	P0651	This code detects errors in sensor reference voltage # 2 that would affect sensor value	% of Vref2 > Scaled Vref1 OR % of Vref2 < Scaled Vref1	> <	110.001 89.9994	% %	Ignition On	=	1	-	Fail count > 35 with countup = 3, countdown =1 (15.6msec continuos loop)	Type A
ETC_APS_1_LoRange	P2122	This code detects a continuous short to ground or open in either the circuit or the sensor (0-100%)	Raw APS1 %V < cal OR VrefA Fail Criteria is met	< =	4.9988 TRUE	% Boolean	Ignition On Fail is NOT reported if: VrefA Fail Count > 0 OR A/D converter is not failed.	=	1	-	Fail count > 12 with countup = 3, countdown =1 (15.6msec continuos loop)	Type A
ETC_APS_1_HiRange	P2123	This code detects a short to high in either the circuit or the sensor (0-100%)	Raw APS1 %V > cal OR VrefA Fail Criteria is met	> =	95.9991 TRUE	% Boolean	Ignition On Fail is NOT reported if: VrefA Fail Count > 0 OR A/D converter is not failed.	=	1	-	Fail count > 12 with countup = 3, countdown =1 (15.6msec continuos loop)	Type A
ETC_APS_2_LoRange	P2127	This code detects a continuous short to ground or open in either the circuit or the sensor (0-100%)	Raw APS2 %V < cal OR VrefB Fail Criteria is met	< =	2.5024 TRUE	% Boolean	Ignition On Fail is NOT reported if: VrefB Fail Count > 0 OR A/D converter is not failed.	=	1	-	Fail count > 12 with countup = 3, countdown =1 (15.6msec continuos loop)	Type A
ETC_APS_2_HiRange	P2128	This code detects a short to high in either the circuit or the sensor (0-100%)	Raw APS2 %V > cal OR VrefB Fail Criteria is met	> =	54.9988 TRUE	% Boolean	Ignition On Fail is NOT reported if: VrefB Fail Count > 0 OR A/D converter is not failed.	=	1	-	Fail count > 12 with countup = 3, countdown =1 (15.6msec continuos loop)	Type A
ETC_APS_1_2_Corr	P2138	This code detects a correlation error between APS 1 and APS 2 (0-100%)	Difference between APS1 and APS2 Normalized values > cal Difference between APS learned minimums > cal	> >	5.4993 4.5044	% %	Ignition On Ignition On	= =	1 1	- -	Fail count > 20 with countup = 3, countdown =1 (15.6msec continuos loop)	Type A

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DIAGNOSTIC PARAMETERS

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
ETC TPS - Airflow Correlation Error	**P0068**	The engine airflow measurements not based on throttle position are compared with throttle position based estimated airflow. If measured airflow is much higher than throttle based estimated airflow, the throttle body may not be throttling the engine.	Speed-Density Airflow - ETC estimated airflow > cal	>	9	g/s	Engine running AND Throttle Actuation Mode AND MAP Sensor failure AND IAT sensor failure	= ≠ = =	RUN 0 FALSE FALSE	-	Fail count > 250 with countup = 0, countdown =1 (15.6msec continuous loop)	Type A
ETC_ThrottleActuation	**P2101**	This code detects ETC position control problems. Fault set for large differences between Indicated and Desired Throttle position (0-100%).	IF Indicated TPS - Desired TPS > cal this is Too Hi Fail, ELSE IF Indicated TPS < cal AND (Indicated TPS - Desired TPS) < cal OR (Indicated TPS - Desired TPS) < cal this is Too Lo Fail	> <	8 39.998 -8 -20	% Throt % Throt % Throt % Throt	Engine running AND Throttle Actuation Mode is Normal AND Ignition Voltage	= = >	RUN (3) Normal (2) 5	- V	Hi side fail 100 failures within 1000 test samples (15.6msec) Lo side fail 150 failures within 1000 test samples (15.6msec)	Type A
ETC_ThrotActPerf_SS	**P1516**	This code detects ETC position control problems at steady state conditions (desired value stable). Fault set for large differences between Indicated and Desired Throttle position (0-100%).	IF Abs(Indicated TPS - Desired TPS) > cal	>	5	% Throt	Engine running AND Throttle Actuation Mode is Normal AND (delta Desired TPS FOR delta TS timer)	= = < >	RUN (3) Normal (2) 5 0.125	enum enum %Throt sec	Fail Thresh: 30sec Sample Thresh: 30sec	Type A
ETC_TPS_ThrotRet	**P2119**	This code detects when throttle fails to return to the unpowered default position when power to the ETC motor is turned off. Fault set for failure to return to defaul position within a time.	If throttle did not return to default range within cal seconds of turning off, increment fail count. Normalized value of either TPS within expected default range anytime while enabled. (TPS1 Norm > Lo limit AND TPS1 Norm < Hi Limit) OR (TPS2 Norm > Lo limit AND TPS2 Norm < Hi Limit) Time depends on engine temperature If Coolant temp is very low,	 > < > <	 11.9995 25 11.9995 25	 %Vref %Vref %Vref %Vref	Throttle Actuation Mode Previous AND Throttle Actuation Mode AND (Desired TPS OR Desired TPS AND ETCS_Power_Control_Mode AND ETC_TPS_1_LoRange Failure AND ETC_TPS_1_HiRange Failure AND ETC_TPS_2_LoRange Failure AND ETC_TPS_2_HiRange Failure AND ETC_TPS_Corr Failure AND VREF_A_Range Failure AND VREF_B_Range Failure	≠ = < > = = = = = = = =	Off (0) Off (0) 11.9995 25 Normal (2) False (0) False (0) False (0) False (0) False (0) False (0) False (0)	boolean boolean %Vref %Vref enum boolean boolean boolean boolean boolean boolean boolean	Fail count > 23 with countup = 3, countdown =1	Type C

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DIAGNOSTIC PARAMETERS

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
			Use long time ELSE, use regular time	< <	4 1	sec sec						
ETC_ForcedIdle	**P2104**	This code detects if the system is in Forced Idle Mode	Forced Idle Mode is active				Ignition On	=	KEY_ON	enum		Type A
ETC_ForcedShutdown	**P2105**	This code detects if the system is in Forced Engine Shutdown Mode	Forced Engine Shutdown Mode Active				Ignition On	=	KEY_ON	enum		Type A
ETC_LimitPerf	**P2106**	This code detects if the system is in Limit Performance Mode	Limit Performance Mode is active				Ignition On	=	KEY_ON	enum		Type A
ETC_PowerManage	**P2110**	This code detects if the system is in Power Management Mode	Power Management Mode is active				Ignition On	=	KEY_ON	enum		Type A
ClutchPedalSwitchShortLow	**P0834**	Determines if Clutch Pedal Switch circuit is Shorted Low	When vehicle is driven through speeds				Is Clutch Pedal Switch Installed in the vehicle?	=	1	enum.		Type Z
							AND Ignition Voltage	<=	16	V		
			Lower than	<	3	kph	AND Ignition Voltage	>=	11	V		
			AND higher than	>	52	kph	IF Conditions above are satisfied					
			AND no clutch pedal switch transition is seen	=	CPSDCSCS	boolean	SET Clutch Pedal Switch Transition Enable Criteria Met	=	TRUE	boolean		
			AND current clutch pedal switch state	=	TRUE	boolean						
ClutchPedalSwitchShortHigh	**P0835**	Determines if Clutch Pedal Switch circuit is Shorted High	When vehicle is driven through speeds				Is Clutch Pedal Switch Installed in the vehicle?	=	1	enum.		Type Z
							AND Ignition Voltage	<=	16	V		
			Lower than	<	3	kph	AND Ignition Voltage	>=	11	V		
			AND higher than	>	52	kph	IF Conditions above are satisfied					
			AND no clutch pedal switch transition is seen	=	CPSDCSCS	boolean	SET Clutch Pedal Switch Transition Enable Criteria Met	=	TRUE	boolean		
			AND current clutch pedal switch state	=	FALSE	boolean						
G Sensor Rough Road Rationality	**P1391**	This diagnostic detects a g-sensor value that is out of normal range at idle. It also detects a g-sensor signal that is stuck during driving conditions.	Idle Test:				Gsensor is Rough Road Source	=	3	enum	180 failures in 200 tests	Type C
			G-sensor outout	<	-0.3867	G	AND G-sensor short fault	=	FALSE	boolean	Sensor read every 7.81 msec	
			or				AND Engine Run time	>	10	sec	Diagnostic continuously monitored each 125 msec	
			G-sensor outout	>	2.2109	G						
			Driving Test:				Test A (IDLE):					
			G-sensor output delta				AND Vehicle speed	<=	5	kph		
			(Max - Min)	<	0.0002	G						
							Test B:					
							AND Vehicle speed	>=	30	kph		
							AND Vehicle speed	<=	70	kph		

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
G Sensor Rough Road Low Volts	**P1392**	This diagnostic detects a g-secnsor short to ground	G-Sensor output	<	1.9989	%	Gsensor is Rough Road Source AND Engine Run Time	>= 	10 	sec 	80 failures in160 tests Sensor read every 7.81 msec Diagnostic continuously monitored each 125 msec	Type C
G Sensor Rough Road High Volts	**P1393**	This diagnostic detects a g-sensor short to power	G-Sensor output	>	97.9995	%	Gsensor is Rough Road Source AND Engine Run Time	>= 	10 	sec 	80 failures in160 tests Sensor read every 7.81 msec Diagnostic continuously monitored each 125 msec	Type C
WSSD Rough Road System fault	**P1396**	Determines if there is excessive variation in the wheel speed sensor (missins edge)	Delta Wheel Speed (Current - Previous)	>	10	kph	Rough Road Source AND Engine Run Time	= >	4 (WS) 10	enum sec	3 failures in 128 samples Variation monitored at 7.81 msec continuously.	Type C
WSSD Rough Road Serial Data fault	**P1397**	Determines if the wheel speed sensor has failed	Linear Wheel Speed with no WSS Active fault OR Linear Wheel Speed with active WSS fault	< <=	30 10	kph kph	Disabling Faults Present AND Coolant Temp AND System Voltage AND System Voltage AND Engine State	= >= > < =	FALSE 60 11 16 RUN	boolean C V V enum	180 failures in 200 samples. Monitored continuously at 125 msec	Type C
EGR Insufficient Flow	**P0401**	This diagnostic will determine if there is a reduction in EGR flow	Filtered MAP change (Expected - Actual) Attachment D' The associated change in MAP is compared with a threshold from RPM vs Baro table . The results are statistically filtered (EWMA) and compared to a decision decision limit. DTC is set when the filtered result exceeds the decision limit.	> >	0 (passing) -1 (failing)	kPa kPa	**EGR Flow Diag Enable Conditions** Disabling Faults Present AND EGR Flow test Complete this key cycle AND EGRF Flow test abort requested AND EGR EngineConditions Met AND EGR Flow Transient Conditions Met AND EGR Flow Stability Conditions Met AND OffBoard control requested **Engine Conditions** EGR Flow Test Delay AND EGRF Flow test abort AND EGR Hardware Conditions Met AND IAT AND IAT AND Vehicle Speed AND Throttle Position AND Baro AND Engine Speed **Stability Conditions** EGR EngineConditions Met AND EGR Flow Transient Conditions Met AND EGR Flow Diag Enabled AND EGR Position AND Altitude Compensated MAP AND Altitude Compensated MAP AND Engine Speed AND Engine Speed AND Delta MAP **Transient Conditions**	= = = = = = = = = = > < > > > = = = < >= <= >= <= 	FALSE FALSE FALSE TRUE TRUE TRUE FALSE FALSE FALSE TRUE -3 120 45 1.001 72 1300 TRUE TRUE TRUE 1.001 10 37 1400 2900 1 	boolean boolean boolean boolean boolean boolean boolean boolean boolean boolean DegC DegC kph % kPa rpm boolean boolean boolean % kPa kPa rpm rpm kPa 		Type A

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DIAGNOSTIC PARAMETERS

Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
							EGR EngineConditions Met	=	TRUE	boolean		
							AND DFCO status condition met	=	TRUE	boolean		
							AND Current AC Clutch state	=	Previous state	enum		
							AND Torque Fuel Ratio Correction enabled	=	FALSE	boolean		
							AND Current TCC state	=	Previous state	enum		
							AND Delta Idle Airflow	<	14.9994	g/s		
EGR Excessive Flow during Crank	**P0402**	Detects an EGR open to a large value during crank.	EGR Raw Position	>	70.0012	%	Engine State	=	CRANK	enum		Type B
							AND OffBoard control requested	=	FALSE	boolean		
							AND Ignition Voltage	>=	10	volts		
							AND Ignition Voltage	<=	16	volts		
EGR Open Valve Position Error	**P0404**	This DTC will detect an open valve position error	Current - Commanded	>	14.9994 14.9994	%	Engine State	=	RUN	enum		Type B
							AND EGR Flow Conditions Met	=	TRUE	boolean		
							AND OffBoard control requested	=	FALSE	boolean		
							AND EGR Open Valve Disabling Faults	=	FALSE	boolean		
							AND IAT	>	-3	DegC		
							AND IAT	<	120	DegC		
							AND IAT	>=	3	DegC		
EGR Closed Valve Pintle Error	**P042E**	This DTC will detect an EGR valve that will not close completely	Current - Learned Low Raw EGR Position	>	10.0006	%	Engine State	=	RUN	enum		Type B
							AND OffBoard control not requested	=	FALSE	boolean		
							AND Closed Valve Disabling faults not present	=	FALSE	boolean		
							AND EGR Hardware Conditions Met	=	TRUE	boolean		
							AND IAT	>	-3	DegC		
							AND IAT	<	120	DegC		
							AND IAT	>=	3	DegC		
EGR Pintle Position Sensor Circuit Low	**P0405**	This DTC will detect open/short low circuit or sensor	EGR position signal	<	1.9989	%	Engine State	=	RUN	enum		Type A
							AND Ignition Voltage	>=	11.7002	volt		
							AND Ignition Voltage	<=	16	volt		
EGR Pintle Position High Voltage	**P0406**	This DTC will detect short high circuit or sensor	EGR position signal	>	98.0011	%	Engine State	=	RUN	enum		Type A
							AND Ignition Voltage	>=	11.7002	volt		
							AND Ignition Voltage	<=	16	volt		
Intake Air System Leak	**P2282**	Determines if an engine vacuum leak exists. Under idle conditions, the MAP estimate correction is a weighted difference between the predicted MAP and the actual MAP reading.	Current IC value	>	8 8 8 8		Normal Idle conditions	=	TRUE	boolean		Type B
							AND Canister Purge Fuel Flow	≤	100	g/sec		
							AND Barometric Pressure	>	72	kPa		
							AND Engine Run Time	≥	2	s		
							AND Air Intake Temperature	≥	-20	C		
							AND Coolant Temperature	≥	-10	C		
							AND Ignition Voltage	≥	11	V		
							AND Ignition Voltage	≤	16	V		
							AND Enable Conditions Timer	>	3	s		
							AND Intrumentation slew commanded	=	FALSE	boolean		
							AND OFVC Device Control	=	FALSE	boolean		

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Component/System	Fault Code	Monitor Strategy Description	Malfunction Criteria				Enable Conditions				Time required	MIL Illum.
			Malfunction Criteria	Operator	Threshold Value	Unit	Secondary Parameters	Operator	Secondary Parameter Enable Value	Unit		
Variable Geometry Intake System Circuit Low	**P2077**	This code detects a short to ground in either the circuit or the sensor	VGIS sensor signal	<	4.9988	%	Engine Runtime	>	5	sec	40 test failures within 80 test samples. Continuous monitoring every 125 msec.	Type Z
Variable Geometry Intake System Circuit High	**P2078**	This code detects a continuous short to high or open circuit in either the circuit or the sensor (5-95%)	VGIS sensor signal	>	94.9996	%	Engine Runtime	>	5	sec	40 test failures within 80 test samples. Continuous monitoring every 125 msec.	Type Z
Variable Geometry Intake System Performance	**P2076**	This code detects a sensor that is not in the desired position	Actual VGIS State	=	Desired VGIS State	n/a	No disabling Faults Present AND Previous VGIS circuit Fail high AND Previous VGIS circuit Fail Low AND Engine Runtime AND IAT AND Current VGIS Position state AND Manifold Absolute Vacuum AND Low Vacuum Timer AND VGIS Enable Timer	= = = > > = < < >	FALSE FALSE FALSE 1 15 Previous VGIS state 30 6 1	boolean boolean boolean sec degC boolean kPa sec sec	40 test failures within 80 test samples. Continuous monitoring every 125 msec.	Type Z
CAM Rationality	**P0016**	This diagnostic will determine if CAM sensor is synchronized correctly	CAM sensor reference pulse is not detected at the correct interval every 4 cylinders				Engine State AND Crank No Signal Fault AND Crank Signal Noisy Fault AND Cam No Signal Test Reported	= = = =	RUN FALSE FALSE TRUE	enum boolean boolean boolean		Type B
CAM Position No Signal	**P0340**	This diagnostic will determine if no CAM sensor signal is present	CAM sensor is not seen once every 4 cylinders				Engine State AND Crank No Signal Fault AND Crank Signal Noisy Fault	= = =	RUN FALSE FALSE	enum boolean boolean		Type A
Anti-Theft, No Response	**U0167**	Detects communication link failure between ECM and Immobilizer	No immobilizer message ID for ECM release time window (1.0 or 1.5sec)	Ignition on Immobilizer option autodetected ECM release time window expired VSS < 512 kph	Keyword 2000 serial	Software	Type Cnl		Digital Digital			
Anti-Theft Incorrect Response	**P1631**	Detects incorrect messa identification received	Wrong immobilizer message received	Ignition on Immobilizer option selected ECM release time window expired VSS < 512 kph	Keyword 2000 serial	Software	Type Cnl					

Diasabling Fault List

Subsystem List	DTC	Fault Type	MIL Enabled	RatioMonitor	Controller (Internal) Diagnostics	Coolant C/L and Thermostat	Coolant High Rationality	ECT Stuck	O2 Heater Current Low B1, S1	O2 Heater Current Low B1, S2	O2 Response B1, S1	O2 Voltage Diagnostics B1, S1	O2 Voltage Diagnostics B1, S2	Purge Limiting Active Fault	Purge Limiting Fault This Key On	Evaporative Emissions Diags. Active Fault	Evaporative Emissions Diags. Key-On Fau	FLOS_HtrControl	FLSD_Consump	FLSD_Noisy	FTRM_B1_Active	FTRM_B1_KeyOn	Idle RPM Diagnostic (IACD)	Intake Air Temperature Rationality Diag.	ICMD	KNOD_KeyON	MAPD_Rat	MISF_Active	MISF_KeyOn	Output Driver (OUTD)	OUTD_IMMOLamp	TECD_Active	TECD_KeyOn	VCPD_Common	VCPD_B1_Intake_Meas	VCPD_B2_Intake_Meas	VCPD_CamState	VCPD_B1_Intake_PhaseError	VCPD_B2_Intake_PhaseError	VCPD_B1_Intake_PhaseResponse	VCPD_B2_Intake_PhaseResponse	VCPD_B1_IntakeToothOfsets	VCPD_B2_IntakeToothOfsets	VCPD_B1_IntakeTargetWheel	VCPD_B2_IntakeTargetWheel	VCPD_B1_IntakeValveStuck	VCPD_B2_IntakeValveStuck	TKPD_Noisy	Torque Diagnostics (No List Entries)	Trans MIL Request	Cam State	Vehicle Speed Sensor Diag.	IATD Short High	IATD Short Low
				CaDGDM_RM_DisablingFaultsList	CaCOND_DsblFltList	CaECTD_DisablingFaultList	CaECTD_HighDisablingFaultList	CaECTD_StuckCoolSensrDsblFaults	CaEOSD_O2_11_HtrDsblFaultList	CaEOSD_O2_12_HtrDsblFaultList	CaEOSD_O2_11_RespDsblngFltLst	CaEOSD_11_VoltDisablingFaultsList	CaEOSD_12_VoltDisablingFaultsList	CaEVAP_LimitingFaultList	CaEVAP_LimitingFaultsThisKeyOnList	CaEVPD_DsblFaultList	CaEVPD_DsblFaultsThisKeyOnList	CaFLOS_HeaterDisblFaultList	CaFLSD_FuelConsumtionDsblgFlts	CaFLSD_NoisySigDsblgFlts	CaFTRM_B1_DsblActFaultList	CaFTRM_B1_DsblFaultListThisKeyOn	CaIACD_DsblFaultList	CaIATD_DisablingFaultsList	CeICMD_DisablingFaultsList	CaKNOD_DisablingKeyOnFaultsList	SaMAPD_FaultTable	CaMISF_DsblgActiveFaultList	CaMISF_DsblgActiveKeyOnFaultList	CaOUTD_DsblFltList	CaOUTD_DsblFltList	CaTECD_DisablingActiveFaultsList	CaTECD_DisablingKeyOnFaultsList	CaVCPD_ComFltLst	CaVCPD_BX_Intk_MeasFltLst, ARRAY	CaVCPD_BX_Intk_MeasFltLst, ARRAY	CaVCPD_CamStDsblFltLst	CaVCPD_BX_Intk_PhsrErrDsblFltLst, ARRAY	CaVCPD_BX_Intk_PhsrErrDsblFltLst, ARRAY	CaVCPD_BX_Intk_PhsrRespDsblFltLs t, ARRAY	CaVCPD_BX_Intk_PhsrRespDsblFltLs t, ARRAY	CaVCPD_BX_Intk_ToothOfsDsblFltLst , ARRAY	CaVCPD_BX_Intk_ToothOfsDsblFltLst , ARRAY	CaVCPD_BX_Intk_TrgWhlDsblFltLst, ARRAY	CaVCPD_BX_Intk_TrgWhlDsblFltLst, ARRAY	CaTKPD_NoisySigDsblgFlts	CaTQDR_DsblFaultActiveList[	CaTKPD_NoisySigDsblgFlts	CaTQDR_DsblFaultActiveList[	CeTRVD_PERF_DsblFltList	CaVCPD_CamStDsblFltLst	CaVSSD_DisablingFaultsList	CaIATD_DisablingFaultsList	CaIATD_DisablingFaultsList
AC_PresShortHigh	P 0533	C	No																																																	
AC_PresShortLow	P 0532	C	No																																																
AD_InputCorrelation	P 0606	A	Yes																																															
BrakeLampSwitch	P 0571	B	Yes																																															
BrakeSwitchCorrelation	P 0504	B	Yes																																															
CamNoSignal	P 0340	A	Yes																			x		x		x	x		x	x			x	x															
CamRationality	P 0016	B	Yes																					x		x	x		x	x			x	x															
CAN_Communication	P 0600	Z	No																																														
CAN_TCM_Communication	U 0073	A	No																																														
CatalystBank1	P 0420	A	Yes																																														
Clutch Pedal Switch Short High	P 0832	Z	No																																														
Clutch Pedal Switch Short Low	P 0831	Z	No																																														
COND_CheckCPU_ByMain	P 0606	A	No																																														
COND_MainCPU_ByCheck	P 0606	A	Yes																																														
COND_Sequencing	B 1606	A	Yes																																														
COND_SW_VerMismatch	P 0602	A	Yes																																														
CoolantShortHigh	P 0118	A	Yes	x		x	x	x			x	x	x			x						x			x	x	x		x	x			x	x														x	x	x
CoolantShortHighInt	P 1115	Z	No																																															
CoolantShortLow	P 0117	A	Yes	x		x	x	x			x	x	x			x						x		x	x	x	x		x	x			x	x														x	x	x
CoolantShortLowInt	P 1114	Z	No																																															
CoolantStuck	P 0116	B	Yes	x		x	x				x	x	x			x						x		x		x	x		x	x			x	x														x		
CoolICL_Temp	P 0125	B	Yes	x																		x		x		x			x																				x		
CoolHigh_Temp	P 0217	B	Yes	x							x	x	x									x		x		x			x																				x		
CrankNoisySignal	P 0336	B	Yes			x	x				x	x	x		x								x	x		x	x	x	x	x			x	x														x		
CrankNoSignal	P 0335	A	Yes			x	x				x	x	x		x								x	x		x	x	x	x	x			x	x														x		
CRZD_AnalogInputRange	P 0564	C	No																																															
CRZD_CancelInputNoisy	P 0566	C	No																																															
CRZD_CancelInputStuck	P 0566	C	No																																															
CRZD_OnOffInputNoisy	P 0565	C	No																																														
CRZD_OnOffInputStuck	P 0565	C	No																																														
CRZD_ResumeInputNoisy	P 0567	C	No																																														
CRZD_ResumeInputStuck	P 0567	C	No																																														
CRZD_SetInputNoisy	P 0568	C	No																																														
CRZD_SetInputStuck	P 0568	C	No																																														
EST_Cylinder_1_Fault	P 0351	A	Yes			x	x				x	x	x		x								x	x		x							x	x														x		
EST_Cylinder_2_Fault	P 0352	A	Yes			x	x				x	x	x		x								x	x		x							x	x														x		
ETC_Airflow_Act	P 0068	A	Yes																																															
ETC_APS_1_2_Corr	P 2138	A	Yes	x																																														
ETC_APS_1_HiRange	P 2123	A	Yes	x																																														
ETC_APS_1_LoRange	P 2122	A	Yes	x																																														
ETC_APS_2_HiRange	P 2128	A	Yes	x																																														
ETC_APS_2_LoRange	P 2127	A	Yes	x																																														
ETC_DualPath	P 0606	A	Yes																																															
ETC_ForcedIdle	P 2104	A	Yes																																															
ETC_ForcedShutdown	P 2105	A	Yes																																															

Diasabling Fault List

Subsystem List	DTC	Fault Type	MIL Enabled	RatioMonitor	Controller (Internal) Diagnostics	Coolant C/L and Thermostat	Coolant High Rationality	ECT Stuck	O2 Heater Current Low B1, S1	O2 Heater Current Low B1, S2	O2 Response B1, S1	O2 Voltage Diagnostics B1, S1	O2 Voltage Diagnostics B1, S2	Purge Limiting Active Fault	Purge Limiting Fault This Key On	Evaporative Emissions Diags. Active Fault	Evaporative Emissions Diags. Key-On Fau	FLOS_HtrControl	FLSD_Consump	FLSD_Noisy	FTRM_B1_Active	FTRM_B1_KeyOn	Idle RPM Diagnostic (IACD)	Intake Air Temperature Rationality Diag.	ICMD	KNOD_KeyON	MAPD_Rat	MISF_Active	MISF_KeyOn	Output Driver (OUTD)	OUTD_IMMOLamp	TECD_Active	TECD_KeyOn	VCPD_Common	VCPD_B1_Intake_Meas	VCPD_B2_Intake_Meas	VCPD_CamState	VCPD_B1_Intake_PhaseError	VCPD_B2_Intake_PhaseError	VCPD_B1_Intake_PhaseResponse	VCPD_B2_Intake_PhaseResponse	VCPD_B1_IntakeToothOfsets	VCPD_B2_IntakeToothOfsets	VCPD_B1_IntakeTargetWheel	VCPD_B2_IntakeTargetWheel	VCPD_B1_IntakeValveStuck	VCPD_B2_IntakeValveStuck	TKPD_Noisy	Torque Diagnostics (No List Entries)	Trans MIL Request	Cam State	Vehicle Speed Sensor Diag.	IATD Short High	IATD Short Low
				CaDGDM_RM_DisablingFaultsList	CaCOND_DsblFltList	CaECTD_DisablingFaultList	CaECTD_HighDisablingFaultList	CaECTD_StuckCoolSensrDsblFaults	CaEOSD_O2_11_HtrDsblFaultList	CaEOSD_O2_12_HtrDsblFaultList	CaEOSD_O2_11_RespDsblngFltLst	CaEOSD_11_VoltDisablingFaultsList	CaEOSD_12_VoltDisablingFaultsList	CaEVAP_LimitingFaultList	CaEVAP_LimitingFaultsThisKeyOnList	CaEVPD_DsblFaultList	CaEVPD_DsblFaultsThisKeyOnList	CaFLOS_HeaterDisblFaultList	CaFLSD_FuelConsumtionDsblgFlts	CaFLSD_NoisySigDsblgFlts	CaFTRM_B1_DsblActFaultList	CaFTRM_B1_DsblFaultListThisKeyOn	CaIACD_DsblFaultList	CaIATD_DisablingFaultsList	CeICMD_DisablingFaultsList	CaKNOD_DisablingKeyOnFaultsList	SaMAPD_FaultTable	CaMISF_DsblgActiveFaultList	CaMISF_DsblgActiveKeyOnFaultList	CaOUTD_DsblFltList	CaOUTD_DsblFltList	CaTECD_DisablingActiveFaultsList	CaTECD_DisablingKeyOnFaultsList	CaVCPD_ComFltLst	CaVCPD_BX_Intk_MeasFltLst, ARRAY	CaVCPD_BX_Intk_MeasFltLst, ARRAY	CaVCPD_CamStDsblFltLst	CaVCPD_BX_Intk_PhsrErrDsblFltLst, ARRAY	CaVCPD_BX_Intk_PhsrErrDsblFltLst, ARRAY	CaVCPD_BX_Intk_PhsrRespDsblFltLs t, ARRAY	CaVCPD_BX_Intk_PhsrRespDsblFltLs t, ARRAY	CaVCPD_BX_Intk_ToothOfsDsblFltLst , ARRAY	CaVCPD_BX_Intk_ToothOfsDsblFltLst , ARRAY	CaVCPD_BX_Intk_TrgWhlDsblFltLst, ARRAY	CaVCPD_BX_Intk_TrgWhlDsblFltLst, ARRAY	CaTKPD_NoisySigDsblgFlts	CaTQDR_DsblFaultActiveList[	CaTKPD_NoisySigDsblgFlts	CaTQDR_DsblFaultActiveList[	CeTRVD_PERF_DsblFltList	CaVCPD_CamStDsblFltLst	CaVSSD_DisablingFaultsList	CaIATD_DisablingFaultsList	CaIATD_DisablingFaultsList
ETC_LimitPerf	P 2106	A	Yes																																																	
ETC_PowerManage	P 2110	A	Yes			x	x				x	x	x			x						x	x	x		x		x	x	x			x																x		
ETC_ThrotActPerf_SS	P 1516	A	Yes																																																
ETC_ThrottleActuation	P 2101	A	Yes																																																
ETC_TPS_1_HiRange	P 0123	B	Yes																																																
ETC_TPS_1_LoRange	P 0122	B	Yes																																																
ETC_TPS_2_HiRange	P 0223	B	Yes																																																
ETC_TPS_2_LoRange	P 0222	B	Yes																																																
ETC_TPS_Corr	P 2135	A	Yes																																																
ETC_TPS_ThrotRet	P 2119	C	No																																																
ETC_VREF_A_Range	P 0641	A	Yes																																																
ETC_VREF_B_Range	P 0651	A	Yes																																																
EVPD_ContinuousPurgeFlow	P 0496	A	Yes								x	x	x								x		x		x																										
EVPD_LargeLeakTest	P 0455	A	Yes																																																
EVPD_RestrictedVentPath	P 0446	A	Yes																																																
EVPD_SmallLeakTest	P 0442	A	Yes																																																
EVPD_VerySmallLeakTest	P 0456	A	Yes																																																
Fan1_OutputFault	P 0480	A	Yes				x																																												
Fan2_OutputFault	P 0481	A	Yes				x																																												
FileRAM	P 0604	A	Yes														x																																		
FileRAM_Stack	P 0604	A	Yes														x																																	
FileROM_Checksum	P 0601	A	Yes														x																																	
FuelLevelConsumption (Stuck)	P 0461	B	Yes													x																																		
FuelLevelNoisySignal	P 0464	B	Yes													x																																		
FuelLevelShortHi	P 0463	A	Yes													x			x																															
FuelLevelShortLo	P 0462	A	Yes													x			x																															
FuelPumpFault	P 0230	Z	No																																															
Fueltrim_B1_ICO_Lean	P 2187	B	Yes																																															
Fueltrim_B1_ICO_Rich	P 2188	B	Yes																																															
Fueltrim_B1_Lean	P 0171	B	Yes								x	x	x	x											x																									
Fueltrim_B1_Rich	P 0172	B	Yes								x	x	x	x											x																									
IAT_Stuck	P 0110	B	Yes	x							x									x	x		x		x		x																						x		
IAT_Skewed	P 0111	B	Yes	x							x									x	x		x		x		x																						x		
IAT_ShortHigh	P 0113	A	Yes	x		x	x				x					x				x	x		x	x	x		x																					x	x	x
IAT_ShortHighInt	P 1111	Z	No																																																
IAT_ShortLow	P 0112	A	Yes	x		x	x				x					x				x	x		x	x	x		x																					x	x	x
IAT_ShortLowInt	P 1112	Z	No																																																
IdleRPM_TooHigh	P 0507	B	Yes								x	x	x	x								x			x																						x		
IdleRPM_TooLow	P 0506	B	Yes											x								x			x																									
IMMOBILIZER	x	x	x																																																
Inj_Cylinder_1 High Voltage	P 0262	A	Yes			x	x				x	x	x		x							x	x		x		x				x	x																x		
Inj_Cylinder_1 Low Voltage	P 0261	A	Yes			x	x				x	x	x		x							x	x		x		x				x	x																x		
Inj_Cylinder_2 High Voltage	P 0265	A	Yes			x	x				x	x	x		x							x	x		x		x				x	x																x		
Inj_Cylinder_2 Low Voltage	P 0264	A	Yes			x	x				x	x	x		x							x	x		x		x				x	x																x		
Inj_Cylinder_3 High Voltage	P 0268	A	Yes			x	x				x	x	x		x							x	x		x		x				x	x																x		

Diasabling Fault List

Subsystem List	DTC	Fault Type	MIL Enabled	RatioMonitor	Controller (Internal) Diagnostics	Coolant C/L and Thermostat	Coolant High Rationality	ECT Stuck	O2 Heater Current Low B1, S1	O2 Heater Current Low B1, S2	O2 Response B1, S1	O2 Voltage Diagnostics B1, S1	O2 Voltage Diagnostics B1, S2	Purge Limiting Active Fault	Purge Limiting Fault This Key On	Evaporative Emissions Diags. Active Fault	Evaporative Emissions Diags. Key-On Fau	FLOS_HtrControl	FLSD_Consump	FLSD_Noisy	FTRM_B1_Active	FTRM_B1_KeyOn	Idle RPM Diagnostic (IACD)	Intake Air Temperature Rationality Diag.	ICMD	KNOD_KeyON	MAPD_Rat	MISF_Active	MISF_KeyOn	Output Driver (OUTD)	OUTD_IMMOLamp	TECD_Active	TECD_KeyOn	VCPD_Common	VCPD_B1_Intake_Meas	VCPD_B2_Intake_Meas	VCPD_CamState	VCPD_B1_Intake_PhaseError	VCPD_B2_Intake_PhaseError	VCPD_B1_Intake_PhaseResponse	VCPD_B2_Intake_PhaseResponse	VCPD_B1_IntakeToothOfsets	VCPD_B2_IntakeToothOfsets	VCPD_B1_IntakeTargetWheel	VCPD_B2_IntakeTargetWheel	VCPD_B1_IntakeValveStuck	VCPD_B2_IntakeValveStuck	TKPD_Noisy	Torque Diagnostics (No List Entries)	Trans MIL Request	Cam State	Vehicle Speed Sensor Diag.	IATD Short High	IATD Short Low
				CaDGDM_RM_DisablingFaultsList	CaCOND_DsblFltList	CaECTD_DisablingFaultList	CaECTD_HighDisablingFaultList	CaECTD_StuckCoolSensrDsblFaults	CaEOSD_O2_11_HtrDsblFaultList	CaEOSD_O2_12_HtrDsblFaultList	CaEOSD_O2_11_RespDsblngFltLst	CaEOSD_11_VoltDisablingFaultsLst	CaEOSD_12_VoltDisablingFaultsLst	CaEVAP_LimitingFaultList	CaEVAP_LimitingFaultsThisKeyOnLis t	CaEVPD_DsblFaultList	CaEVPD_DsblFaultsThisKeyOnLst	CaFLOS_HeaterDisblFaultList	CaFLSD_FuelConsumtionDsblgFlts	CaFLSD_NoisySigDsblgFlts	CaFTRM_B1_DsblActFaultList	CaFTRM_B1_DsblFaultListThisKeyOn	CaIACD_DsblFaultList	CaIATD_DisablingFaultsList	CeICMD_DisablingFaultsList	CaKNOD_DisablingKeyOnFaultsList	SaMAPD_FaultTable	CaMISF_DsblgActiveFaultList	CaMISF_DsblgActiveKeyOnFaultList	CaOUTD_DsblFltList	CaOUTD_DsblFltList	CaTECD_DisablingActiveFaultsList	CaTECD_DisablingKeyOnFaultsList	CaVCPD_ComFltLst	CaVCPD_BX_Intk_MeasFltLst, ARRAY	CaVCPD_BX_Intk_MeasFltLst, ARRAY	CaVCPD_CamStDsblFltLst	CaVCPD_BX_Intk_PhsrErrDsblFltLst, ARRAY	CaVCPD_BX_Intk_PhsrErrDsblFltLst, ARRAY	CaVCPD_BX_Intk_PhsrRespDsblFltLs t, ARRAY	CaVCPD_BX_Intk_PhsrRespDsblFltLs t, ARRAY	CaVCPD_BX_Intk_ToothOfsDsblFltLst , ARRAY	CaVCPD_BX_Intk_ToothOfsDsblFltLst , ARRAY	CaVCPD_BX_Intk_TrgtWhlDsblFltLst, ARRAY	CaVCPD_BX_Intk_TrgtWhlDsblFltLst, ARRAY	CaTKPD_NoisySigDsblgFlts	CaTQDR_DsblFaultActiveList[	CaTKPD_NoisySigDsblgFlts	CaTQDR_DsblFaultActiveList[	CeTRVD_PERF_DsblFltList	CaVCPD_CamStDsblFltLst	CaVSSD_DisablingFaultsList	CaIATD_DisablingFaultsList	CaIATD_DisablingFaultsList
Inj_Cylinder_3 Low Voltage	P 0267	A	Yes			x	x				x	x	x		x							x	x	x		x					x	x															x		
Inj_Cylinder_4 High Voltage	P 0271	A	Yes			x	x				x	x	x		x							x	x			x					x	x															x		
Inj_Cylinder_4 Low Voltage	P 0270	A	Yes			x	x				x	x	x		x							x	x	x		x					x	x															x		
KnockSensor	P 0325	B	Yes																							x						x	x																	
KnockSystem	P 0324	B	Yes																		x					x						x	x																	
LowPwrCtr	P 2610	B	Yes				x	x																																										
LowPwrCtrReset	P 2610	B	Yes				x	x																																										
MainCPU_ClockFault	P 0606	A	Yes																																														
MainRelay_OutputFault	P 0685	A	Yes																																														
MAP_ShortHigh	P 0108	A	Yes	x		x	x				x	x	x	x							x	x		x	x	x	x	x	x			x	x													x	x	x
MAP_ShortHighInt	P 1106	Z	Yes																																														
MAP_ShortLow	P 0107	A	Yes	x		x	x				x	x	x	x							x	x		x	x	x	x	x	x			x	x													x	x	x
MAP_ShortLowInt	P 1107	Z	Yes																																														
MAP_TPS_Rationality	P 0106	A	Yes	x		x	x				x	x	x	x										x	x	x	x		x	x			x	x													x	x	x
MIL_OutputFault	P 0650	C	Yes																																														
Misfire_Cyl_1	P 0301	B	Yes																																														
Misfire_Cyl_2	P 0302	B	Yes																																														
Misfire_Cyl_3	P 0303	B	Yes																																														
Misfire_Cyl_4	P 0304	B	Yes																																														
Misfire	P 0300	B	Yes								x	x	x	x								x	x	x		x		x																				x		
Misfire_LowFuelLevel	P 0313	Z	No								x	x	x	x								x	x	x		x																					x		
O2_11 Heater Current Low	P 0135	B	Yes								x	x		x								x	x			x																							
O2_11_Heater Low Voltage	P 0031	A	Yes						x		x	x		x								x	x			x																							
O2_11_Heater High Voltage	P 0032	A	Yes						x		x	x		x								x	x			x																							
O2_11_LeanPE	P 1166	B	Yes								x			x												x																							
O2_11_Open	P 0134	A	Yes								x				x							x	x			x																							
O2_11_Response	P 0133	B	Yes												x							x	x			x																							
O2_11_RichDFCO	P 2297	A	Yes								x			x												x																							
O2_11_ShortHigh	P 0132	A	Yes								x				x							x	x			x																							
O2_11_ShortLow	P 0131	A	Yes								x				x							x	x			x																							
O2_12_Heater Current Low	P 0141	B	Yes										x													x																							
O2_12_Heater Low Voltage	P 0037	A	Yes							x			x													x																							
O2_12_Heater High Voltage	P 0038	A	Yes							x			x													x																							
O2_12_LeanPE	P 1137	B	Yes																							x								?	?	?	?	?	?	?	?	?	?	?	?	?	?					
O2_12_Open	P 0140	A	Yes																							x																							
O2_12_Response	P 0139	B	Yes																																														
O2_12_RichDFCO	P 1138	B	Yes																							x								?	?	?	?	?	?	?	?	?	?	?	?	?	?					
O2_12_ShortHigh	P 0138	A	Yes																							x																							
O2_12_ShortLow	P 0137	A	Yes																							x																							
OUTD_ACCR_ShortHigh	P 0647	C	No																																														
OUTD_ACCR_ShortLow	P 0646	C	No																																														
OUTD_EGRCircuitFault	P 0403	A	Yes																																														
OUTD_VentShortHigh	P 0499	A	Yes														x																																
OUTD_VentShortLow	P 0498	A	Yes														x																																
Purge_Solenoid Short Low	P 0459	A	Yes								x	x	x			x						x				x		x																						

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				CaDGDM_RM_DisablingFaultsList	CaCOND_DsblFltList	CaECTD_DisablingFaultList	CaECTD_HighDisablingFaultList	CaECTD_StuckCoolSensrDsblFaults	CaEOSD_O2_11_HtrDsblFaultList	CaEOSD_O2_12_HtrDsblFaultList	CaEOSD_O2_11_RespDsblngFltLst	CaEOSD_11_VoltDisablingFaultsList	CaEOSD_12_VoltDisablingFaultsList	CaEVAP_LimitingFaultList	CaEVAP_LimitingFaultsThisKeyOnList	CaEVPD_DsblFaultList	CaEVPD_DsblFaultsThisKeyOnList	CaFLOS_HeaterDisblFaultList	CaFLSD_FuelConsumtionDsblgFlts	CaFLSD_NoisySigDsblgFlts	CaFTRM_B1_DsblActFaultList	CaFTRM_B1_DsblFaultListThisKeyOn	CalACD_DsblFaultList	CalATD_DisablingFaultsList	CeICMD_DisablingFaultsList	CaKNOD_DisablingKeyOnFaultsList	SaMAPD_FaultTable	CaMISF_DsblgActiveFaultList	CaMISF_DsblgActiveKeyOnFaultList	CaOUTD_DsblFltList	CaOUTD_DsblFltList	CaTECD_DisablingActiveFaultsList	CaTECD_DisablingKeyOnFaultsList	CaVCPD_ComFltLst	CaVCPD_BX_Intk_MeasFltLst, ARRAY	CaVCPD_BX_Intk_MeasFltLst, ARRAY	CaVCPD_CamStDsblFltLst	CaVCPD_BX_Intk_PhsrErrDsblFltLst, ARRAY	CaVCPD_BX_Intk_PhsrErrDsblFltLst, ARRAY	CaVCPD_BX_Intk_PhsrRespDsblFltLs t, ARRAY	CaVCPD_BX_Intk_PhsrRespDsblFltLs t, ARRAY	CaVCPD_BX_Intk_ToothOfsDsblFltLst , ARRAY	CaVCPD_BX_Intk_ToothOfsDsblFltLst , ARRAY	CaVCPD_BX_Intk_TrgtWhlDsblFltLst, ARRAY	CaVCPD_BX_Intk_TrgtWhlDsblFltLst, ARRAY	CaTKPD_NoisySigDsblgFlts	CaTQDR_DsblFaultActiveList[	CaTKPD_NoisySigDsblgFlts	CaTQDR_DsblFaultActiveList[	CeTRVD_PERF_DsblFltList	CaVCPD_CamStDsblFltLst	CaVSSD_DisablingFaultsList	CaIATD_DisablingFaultsList	CaIATD_DisablingFaultsList
Purge_Solenoid Short High	P 0458	A	Yes								x	x	x			x						x			x		x																						
SYST_SW_VerMismatch	P 0602	Z	No																																														
SysVoltHigh	P 0563	B	Yes			x	x	x			x	x	x	x					x	x	x	x	x	x	x	x	x			x																x	x
SysVoltLow	P 0562	C	No			x	x	x			x	x	x	x					x	x	x	x	x	x	x	x	x			x																x	x
TankPresShortHigh	P 0453	A	Yes													x																																	
TankPresShortLow	P 0452	A	Yes													x																																	
TankPresStuck	P 0451	B	Yes														x																																
TankPresNoisy	P 0454	B	Yes													x																																	
Thermostat_Temp	P 0128	B	Yes																																														
ToothErrorCorrection	P 0315	A	Yes																																														
TQDR_DesTorqRatnl	P 061B	A	Yes																																													
Trans_MilRequest	P 0700	A	Yes																																														
TRQD_TorqCntrlSS	P 161B	A	Yes																																													
TRQD_TorqueControl	P 161B	A	Yes																																														
VGID_Ratnly	P 2076	Z	No																																														
VGID_ShortHigh	P 2078	Z	No																																														
VGID_ShorLow	P 2077	Z	No																																														
VSS_NoSignal	P 0501	B	Yes	x								x	x			x			x	x	x	x	x	x	x		x	x	x			x	x														x	x
WDOG_TimerFault	P 0606	A	Yes																																														
BNDL_LimpHome_Requested																																																	
BNDL_FailSafeDefaultModeEnbld																																																	
												X:	Diagnostic (left margin) disables above																																								
													Do not disable for those diagnostics in blue above																																							

KtMAPD_p_PowerPredictedMAP_Min.data																		
	Speed																	
Throttle position		0	400	800	1200	1600	2000	2400	2800	3200	3600	4000	4400	4800	5200	5600	6000	6400
	0	25	20	10	10	8	8	8	7	7	6	6	6	6	6	6	6	6
	12.5	63	30	15	11	8	8	8	8	7	7	7	7	7	7	7	7	7
	25	67	61	55	50	45	42.5	40	37.5	35	32.5	30	27.5	25	23	23	23	23
	37.5	87	85	83	81	79	77	75	73	71	69	67	65	63	61	59	57	55
	50	89	88	87	86	85	84	83	82	81	80	79	78	77	76	75	74	73
	62.5	89	88.5	88	87.5	87	86.5	86	85.5	85	84.5	84	83.5	83	82.5	82	81.5	81
	75	94	93.5	93	92.5	92	91.5	91	90.5	90	89.5	89	88.5	88	87.5	87	86.5	86
	87.5	95	94.5	94	93.5	93	92.5	92	91.5	91	90.5	90	89.5	89	88.5	88	87.5	87
	100	98	97.5	97	96.5	96	95.5	95	94.5	94	93.5	93	92.5	92	91.5	91	90.5	90
KtMAPD_p_PowerPredictedMAP_Max.data																		
	Speed																	
Throttle position		0	400	800	1200	1600	2000	2400	2800	3200	3600	4000	4400	4800	5200	5600	6000	6400
	0	100	94	88	82	76	70	64	58	52	46	40	34	34	34	34	34	34
	12.5	100	97.5	97.5	97.5	97.5	97.5	97.5	95	87	78	67	59	57.5	57.5	57.5	57.5	57.5
	25	105	105	105	105	105	105	105	105	105	102	98	91	84	77	70	63	56
	37.5	105	105	105	105	105	105	105	105	105	105	103	101	99	97	95	93	91
	50	105	105	105	105	105	105	105	105	105	105	105	104.5	104	103.5	103	102.5	102
	62.5	105	105	105	105	105	105	105	105	105	104.5	104	103.5	103	102.5	102	101.5	101
	75	105	105	105	105	105	105	105	105	104.5	104	103.5	103	102.5	102	101.5	101	100.5
	87.5	105	105	105	105	105	105	105	105	104.5	104	103.5	103	102.5	102	101.5	101	100.5
	100	105	105	105	105	105	105	105	105	105	105	104.5	104	103.5	103	102.5	102	101.5
						BACK												

KtMAPD_p_DecelPredictedMAP_Max				
float x	w			
0	60			
400	60			
800	60			
1200	60			
1600	60			
2000	55			
2400	50			
2800	45			
3200	40			
3600	37.5			
4000	35			
4400	32.5			
4800	30			
5200	30			
5600	30			
6000	30			
6400	30			
	BACK			

Attachment C

KtMAPD_t_ShortHiEngRunThrsh				
Engine Coolant temp (°C	Time (s)			
-40	10			
-30	10			BACK
-20	10			
-10	10			
0	10			
10	10			
20	10			
30	10			
40	10			

Attachment D

KtEGRF_p_ExpectedMAP_Chg				BACK
Engine Sp	**65 kPa**	**85 kPa**	**105 kPa**	
0	4.5	6.828125	7.246094	
100	4.472656	6.269531	6.503906	
200	4.253906	5.609375	6.050781	
300	3.632813	4.4375	5.578125	
400	2.984375	3.699219	5.03125	
500	2.601563	3.40625	4.507813	
600	2.625	3.476563	4.1875	
700	2.878906	3.777344	4.195313	
800	2.792969	4.1875	4.542969	
900	2.964844	4.449219	5.007813	
1000	3.152344	4.4375	5.035156	
1100	3.023438	4.453125	5.035156	
1200	2.347656	4.527344	5.035156	
1300	2.1875	4.546875	5.035156	
1400	2.1875	4.546875	5.035156	
1500	2.1875	4.546875	5.035156	
1600	2.1875	4.546875	5.035156	

Attachment E

KtKNOD_p_EngIMEP_Thrsh				
Engine Speed	Intake Manifold Vacuum			
0	600			
800	600			
1600	600			
2400	600			BACK
3200	600			
4000	600			
4800	600			
5600	600			
6400	600			

KtMISF_t_CylModeMisfireThrsh.data BACK

		RPM																				
		400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3500	4000	4500	5000	5500	6000	6500	7000
% LOAD	0	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09
	6.25	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09
	12.5	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09
	18.75	3.00E+04	2.50E+04	2.50E+04	2.00E+04	1.80E+04	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09
	25	16500	16500	16500	4.21E+03	2.90E+03	1.26E+03	1.60E+03	1.50E+03	1.05E+03	1.03E+03	8.00E+02	6.00E+02	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09
	31.25	12000	11000	11000	5700	2210	2025	1700	1050	1100	1000	600	570	4.30E+02	3.60E+02	2.40E+02	2.30E+02	1.90E+02	1.70E+02	1.40E+02	4.29E+09	4.29E+09	4.29E+09
	37.5	20127	12500	12500	5800	2522	2150	1250	1050	900	850	600	500	400	330	260	230	210	130	120	110	90	4.29E+09
	43.75	25000	14000	14000	5900	3200	2200	1550	1010	790	850	550	400	400	340	260	240	210	140	145	135	115	9.50E+01
	50	30000	18000	18000	6046	3372	2300	1600	1210	975	950	700	460	400	360	265	255	230	140	135	125	105	8.50E+01
	56.25	35000	35000	22000	8000	4087	2400	1700	1400	1025	950	800	500	400	380	265	255	230	140	145	135	115	9.50E+01
	62.5	4.00E+04	4.00E+04	3.00E+04	10000	6000	2624	1900	1500	1100	975	820	550	420	400	270	255	240	150	160	150	130	1.10E+02
	68.75	4.50E+04	4.50E+04	4.00E+04	1.20E+04	8000	4600	2100	1600	1200	1000	700	650	450	410	350	280	250	150	160	150	130	1.10E+02
	75	4.29E+09	4.29E+09	4.29E+09	4.29E+09	1.20E+04	6600	2500	1700	1300	1100	900	700	480	440	350	280	280	170	170	160	1.40E+02	1.20E+02
	81.25	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	8.60E+03	3500	1800	1400	1200	1000	840	500	500	400	370	310	180	190	1.80E+02	1.60E+02	1.40E+02
	87.5	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.50E+03	2000	1500	1300	1100	946	700	600	410	400	330	220	2.00E+02	1.90E+02	1.70E+02	1.50E+02
	93.75	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	2.50E+03	1600	1400	1200	1050	824	700	500	450	350	2.50E+02	2.20E+02	4.29E+09	4.29E+09	4.29E+09
	100	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	1.12E+03	700	550	500	4.60E+02	3.00E+02	4.29E+09	4.29E+09	4.29E+09	4.29E+09

BACK

KtMISF_t_RevModeMisfireThrsh.data

		RPM																				
		400	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3500	4000	4500	5000	5500	6000	6500	7000
% LOAD	0	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09
	6.25	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09
	12.5	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09
	18.75	10000	15500	15500	7800	8000	10500	4.29E+09	4.29E+09	1175	4.29E+09	4.29E+09	690	970	770	3.30E+02	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09
	25	16000	36000	36000	12000	7000	2500	3900	3150	2100	1775	1575	1275	800	590	280	200	145	135	8.80E+01	4.29E+09	4.29E+09	4.29E+09
	31.25	17649	16000	16000	13900	6000	5000	3400	2488	2400	1600	1099	856	652	527	329	225	187	190	142	4.29E+09	4.29E+09	4.29E+09
	37.5	23693	23693	23693	14179	7910	6471	4010	2823	2300	2000	1400	1200	791	653	403	260	190	148	105	95	85	4.29E+09
	43.75	30000	30000	30000	22000	15000	6151	4882	3800	2700	2500	1600	1400	1000	738	460	313	300	162	143	133	123	1.13E+02
	50	38000	38000	38000	28000	19000	7500	5500	4100	2877	2700	1800	1600	1200	869	539	353	320	210	149	139	129	1.19E+02
	56.25	45000	45000	45000	33000	23000	8300	6000	4200	3200	3000	2000	1800	1400	961	615	392	340	240	175	165	155	1.45E+02
	62.5	60000	60000	60000	38000	28000	8800	6500	4740	3500	3100	2400	2000	1600	1200	684	449	360	250	205	195	185	1.75E+02
	68.75	70000	70000	70000	45000	33000	9300	7000	4545	3632	3300	2800	2200	1800	1300	748	530	380	264	213	203	193	1.83E+02
	75	8.00E+04	8.00E+04	80000	60000	38000	9800	7500	5000	4017	3600	3000	2400	2000	1400	814	700	430	300	235	2.25E+02	2.15E+02	2.05E+02
	81.25	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	10300	8000	5400	4100	3800	3200	2800	2200	1500	900	720	470	335	2.85E+02	2.75E+02	2.65E+02	2.55E+02
	87.5	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	8500	5800	4200	4000	3600	3000	2400	1600	1100	750	520	4.00E+02	3.00E+02	2.90E+02	2.70E+02	2.60E+02
	93.75	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	6200	4600	4100	3800	3200	2600	1700	1300	780	610	4.80E+02	3.50E+02	4.29E+09	4.29E+09	4.29E+09
	100	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	4.29E+09	5000	4500	4000	3400	2800	1800	1400	1000	7.10E+02	5.10E+02	4.29E+09	4.29E+09	4.29E+09	4.29E+09

BACK

KtMISF_CatDmgCntsToFailBlock1.data

		RPM											
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500
% LOAD	0	255	255	255	255	255	255	255	255	255	255	255	255	255
	12.5	120	120	120	120	120	120	120	120	120	120	120	120	120
	25	97	91	88	80	79	77	79	72	41	37	27	36	29
	37.5	97	91	91	76	80	73	79	61	29	19	16	15	15
	50	80	80	74	66	75	65	61	53	23	14	12	14	14
	62.5	57	57	57	57	60	54	54	46	18	12	12	14	13
	75	50	50	50	50	45	41	41	38	12	12	11	13	12
	87.5	17	17	17	17	17	17	29	25	11	11	10	12	12
	100	17	17	17	17	17	17	26	18	10	10	10	10	15

KtMISF_ZeroTorqLineLoad.data

RPM			
400	17.5		BACK
600	17.5		
800	19.4		
1000	18.7		
1200	16.6		
1400	14.8		
1600	14.6		
1800	14		
2000	14.101		
2200	14.2		
2400	13.8		
2600	14		
2800	14.101		
3000	14.7		
3500	15.9		
4000	16.701		
4500	17.799		
5000	17.999		
5500	19		
6000	20		
6500	25		
7000	99.001		

Attachment G

KtEOSD_I_11_HtrCurrFiltThrsh.data				BACK
0	0			
12.5	0.025			
25	0.025			
37.5	0.025			
50	0.025			
62.5	0.025			
75	0.025			
87.5	0.025			
100	0.025			
KtEOSD_I_12_HtrCurrFiltThrsh.data				BACK
0	0			
12.5	0.1			
25	0.1			
37.5	0.1			
50	0.1			
62.5	0.1			
75	0.1			
87.5	0.1			
100	0.1			

Attachment I

TABLE 1			BACK		
KtFUEL_T_CL_Enbl_CoolThrsh.data					
-40	11				
-30	11				
-20	11				
-10	0				
0	-4				
10	5				
20	15				
30	25				
40	35				
50	35				
60	35				
70	35				
80	35				
90	35				
100	35				
110	35				
120	35				
TABLE 2			BACK		
KtECTD_t_DeltaCoolCL_TimeThrsh.data					
0	100				
8.33	120				
19.44	300				
27	450				
35	600				
TABLE 3			BACK		
KtECTD_m_CoolCL_AirflowThrsh					
-40	8000				
-20	1500				
0	400				
20	100				
40	100				
60	100				
80	100				
100	100				
120	100				
TABLE 4			BACK		
KtECTD_t_CoolCL_IdleThrsh					
-40	600				

Attachment I

-20	50				
0	30				
20	10				
40	10				
60	10				
80	10				
100	10				
120	10				

TABLE 5			BACK		
KtECTD_T_ThermostatThrsh.data					
-40	60				
-20	70				
0	77				
20	77				
40	77				
60	77				
80	77				
100	77				
120	77				
TABLE 6			BACK		
KtECTD_t_ThermoTimeThrsh.data					
-40	1700				
-20	1500				
0	1000				
20	600				
40	240				
60	180				
80	120				
100	60				
120	60				
TABLE 7			BACK		
KtECTD_t_ThermoIdleThrsh.data					
-40	850				
-20	750				
0	500				
20	300				
40	120				
60	90				
80	60				
100	30				
120	30				
TABLE 8			BACK		
KtECTD_m_ThermoAirflowThrsh.data					
-40	17000				
-20	13000				

Attachment I

0	9000				
20	6000				
40	5000				
60	4000				
80	2000				
100	325				
120	325				

KtEVPD_p_PurgFlowTnkVacThrsh							
							Back
0	5.8633						
0.0625	5.4443						
0.125	5.0488						
0.1875	4.6787						
0.25	4.332						
0.3125	4.0107						
0.375	3.7139						
0.4375	3.4404						
0.5	3.1924						
0.5625	2.9688						
0.625	2.7695						
0.6875	2.5938						
0.75	2.4434						
0.8125	2.3174						
0.875	2.2158						
0.9375	2.1387						
1	2.0859						
KtEVPD_Cnt_LrgLeakColdVacIdx.data							
0	3000						
0.0625	3000						
0.125	3000						
0.1875	3000						
0.25	3000						
0.3125	3000						
0.375	3000						
0.4375	3000						
0.5	3000						
0.5625	3000						
0.625	3000						
0.6875	3000						
0.75	3000						
0.8125	3000						
0.875	3000						
0.9375	3000						
1	3000						

KtEVPD_Cnt_PresetVacIdx.data							
0	3000						
0.0625	3000						
0.125	3000						
0.1875	3000						
0.25	3000						
0.3125	3000						
0.375	3000						
0.4375	3000						
0.5	3000						
0.5625	3000						
0.625	3000						
0.6875	3000						
0.75	3000						
0.8125	3000						
0.875	3000						
0.9375	3000						
1	3000						
KtEVPD_dp_SmLeakDecaySlope.data				BACK			
0	0.4004						
6.25	0.3848						
12.5	0.3691						
18.75	0.3535						
25	0.3379						
31.25	0.3223						
37.5	0.3066						
43.75	0.291						
50	0.2754						
56.25	0.2598						
62.5	0.2441						
68.75	0.2285						
75	0.2129						
81.25	0.1973						
87.5	0.1816						
93.75	0.166						
100	0.1504						

KtEVPD_dp_VrySmLeakDecaySlope.data							
0	0.1201						
6.25	0.1162						
12.5	0.1123						
18.75	0.1084						
25	0.1055						
31.25	0.1016						
37.5	0.0977						
43.75	0.0938						
50	0.0898						
56.25	0.0859						
62.5	0.082						
68.75	0.0791						
75	0.0752						
81.25	0.0713						
87.5	0.0674						
93.75	0.0635						
100	0.0596						
KtEVPD_Pct_FuelSlosh.data			BACK				
0	0.029						
0.0625	0.029						
0.125	0.029						
0.1875	0.029						
0.25	0.029						
0.3125	0.029						
0.375	0.029						
0.4375	0.029						
0.5	0.029						
0.5625	0.029						
0.625	0.029						
0.6875	0.029						
0.75	0.029						
0.8125	0.029						
0.875	0.029						
0.9375	0.029						
1	0.029						

KtEVPD_SmLeakDecaySlopeMod[0].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						
KtEVPD_SmLeakSlpThrshTempComp				BACK			
0	1						
4	1						
8	1						
12	1						
16	1						
20	1						
24	1						
28	1						
32	1.0156						
36	1.0313						
40	1.0313						
KtEVPD_SmLeakDecaySlopeMod[1].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						

KtEVPD_SmLeakDecaySlopeMod[2].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						
KtEVPD_SmLeakDecaySlopeMod[3].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						
KtEVPD_SmLeakDecaySlopeMod[4].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						

KtEVPD_SmLeakDecaySlopeMod[5].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						
KtEVPD_SmLeakDecaySlopeMod[6].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						
KtEVPD_SmLeakDecaySlopeMod[7].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						

KtEVPD_SmLeakDecaySlopeMod[8].data	
0	0
0.125	0
0.25	0
0.375	0
0.5	0
0.625	0
0.75	0
0.875	0
1	0
KtEVPD_SmLeakSlpThrshTempComp.data	
0	1
4	1
8	1
12	1
16	1
20	1
24	1
28	1
32	1.0156
36	1.0313
40	1.0313
KtEVPD_t_ColdLeakPurgEnblThrsh.data	BACK
-40	400
-28	400
-16	400
-4	400
8	300
20	120
32	100
44	90
56	60
68	60
80	60
92	60
104	60
116	60
128	60
140	60
152	60

KtEVPD_VrySmLeakDecaySlopeMod.data							
KtEVPD_VrySmLeakDecaySlopeMod[0].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						
KtEVPD_VrySmLeakDecaySlopeMod[1].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						
KtEVPD_VrySmLeakDecaySlopeMod[2].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						

KtEVPD_VrySmLeakDecaySlopeMod[3].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						
KtEVPD_VrySmLeakDecaySlopeMod[4].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						
KtEVPD_VrySmLeakDecaySlopeMod[5].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						
KtEVPD_VrySmLeakDecaySlopeMod[6].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						

KtEVPD_VrySmLeakDecaySlopeMod[7].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						
KtEVPD_VrySmLeakDecaySlopeMod[8].data							
0	0						
0.125	0						
0.25	0						
0.375	0						
0.5	0						
0.625	0						
0.75	0						
0.875	0						
1	0						
KtEVPD_VrySmLkSlpThrshTempComp.data							
0	1						
4	1.0234						
8	1.0469						
12	1.0625						
16	1.0859						
20	1.1094						
24	1.1328						
28	1.1563						
32	1.1797						
36	1.1953						
40	1.2188						

Attachment K

KtEVPD_Cnt_LrgLeakColdVacIdx.data					
0	3000				
0.0625	3000				BACK
0.125	3000				
0.1875	3000				
0.25	3000				
0.3125	3000				
0.375	3000				
0.4375	3000				
0.5	3000				
0.5625	3000				
0.625	3000				
0.6875	3000				
0.75	3000				
0.8125	3000				
0.875	3000				
0.9375	3000				
1	3000				

KtTORQ_RationalityFuelFlowLimit				BACK
800	2			
1600	2.4688			
2400	2.6094			
3200	2.9375			
4000	3.3906			
4800	3.7969			
5600	4.2031			
6400	4.6016			
KtTRQD_Pct_LoTorqErrThrsh				
-50	-120			
-40	-120			
-30	-120			
-20	-120			
-10	-120			
0	-120			
10	-120			
20	-120			
30	-120			
40	-120			
50	-120			
60	-120			
70	-120			
80	-120			
90	-120			
100	-120			
KtTRQD_Pct_HiTorqErrThrsh				
-50	40			
-40	40			
-30	40			
-20	40			
-10	40			
0	35			
10	30			
20	30			
30	30			
40	30			
50	30			
60	30			
70	30			
80	30			
90	30			
100	30			

Attachment M

KtlATD_T_SkwHiMaxIAT				BACK
-40	-10			
-40	-10			
-20	10			
0	30			
20	50			
40	70			
60	90			