

2000 2.4L (LD9) N-car (Malibu/Cutlass/Alero/GrandAm) ENGINE DIAGNOSTIC PARAMETERS

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SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA AND THRESHOLD VALUE(S)	SECONDARY PARAMETERS AND ENABLE CONDITIONS	TIME LENGTH AND FREQUENCY	MIL ILLUMINATION TYPE
Manifold Pressure/Throttle Position Sensor Rationality AMT	P0105	Detects a MAP or TP Sensor that is stuck or out of range	Change in MAP > or < Table value	600 > RPM > 6375 Engine run time > 40 Sec Δ TCC < 2.5% Δ RPM < 50 RPM Δ IAC < 5 steps Δ TPS < 2% Above condition met for 1.5 Sec None of the following DTC's set: 107, 108, 117, 118, 122, 123, 131, 132, 171, 172, 200, 300, 336, 340, 341, 440, 1441, 442, 502, 506, 507	70/80 Cts 125 ms/Ct Continuous check	DTC Type B
Manifold Pressure/Throttle Position Sensor Rationality SMT	P0105	Detects a MAP or TP Sensor that is stuck or out of range	Change in MAP > or < Table value	800 > RPM > 6375 Engine run time > 40 Sec Δ TCC < 2.5% Δ RPM < 50 RPM Δ IAC < 5 steps Δ TPS < 2% Above condition met for 1.5 Sec None of the following DTC's set: 107, 108, 117, 118, 122, 123, 131, 132, 171, 172, 200, 300, 336, 340, 341, 440, 1441, 442, 502, 506, 507	70/80 Cts 125 ms/Ct Continuous check	DTC Type B
Manifold Pressure Too Low	P0107	Detects a continuous short to ground or a MAP sensor signal that is out of range low	MAP < 0.08 V (11.8 kPa)	RPM < 1000 Or RPM > 1000 TP Sensor >15.2 % None of the following DTC's set: 122, 123	400/500 Cts 15.6 ms/Ct Continuous check	DTC Type B
Manifold Pressure Too High	P0108	Detects a continuous short to voltage or a MAP sensor signal that is out of range high	MAP > 3.80 V (82 kPa)	TP Sensor < 12% VSS < 1 MPH Engine run time > 20 - 40 sec None of the following DTC's set: 122, 123	80/100 Cts 15.6 ms/Ct Continuous check	DTC Type B
Intake Air Temperature Sensor Shorted	P0112	Detects a continuous short to voltage or an IAT sensor signal that is out of range high	IAT < 48 Cts (> 128°C)	VSS > 15 MPH Engine run time > 320 sec None of the following DTC's set: 117, 118, 125, 502, 503	25/100 Cts 125 ms/Ct Continuous check	DTC Type B
Intake Air Temperature Sensor Open	P0113	Detects a continuous short to ground or an open in the IAT sensor signal	IAT > 253 Cts (< -57°C)	VSS < 15 MPH Engine run time > 320 sec ECT > -40°C None of the following DTC's set: 117, 118, 125, 502, 503	25/100 Cts 125 ms/Ct Continuous check	DTC Type B
Coolant Temperature Sensor Shorted	P0117	Detects a continuous short to voltage or an ECT sensor signal that is out of range high	ECT < 4 Cts (> 138°C) (High R) Or ECT < 36 Cts (> 142°C) (Low R)	Engine run time > 128 sec	50/100 Cts 125 ms/Ct Continuous check	DTC Type B

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Coolant Temperature Sensor Open	P0118	Detects a continuous short to ground or an open in the ECT sensor signal	ECT > 251 Cts (< -50°C) (High R) Or ECT > 252 Cts (< -71°C) (Low R)	Engine run time > 60 sec	50/100 Cts 125 ms/Ct Continuous check	DTC Type B
TP Sensor Low	P0122	Detects a TP Sensor that is open or shorted to ground	TP Sensor < .10 V	Engine running	50/200 Cts 125 ms/Ct Continuous check	DTC Type B
TP Sensor High (Part "A")	P0123	Detects a TP Sensor signal that is shorted to voltage	TP Sensor > 3.91 V	Engine running RPM < 1500 MAP < 60 kPa None of the following DTC's set: 107, 108	110/200 Cts 125 ms/Ct Continuous check	DTC Type B
TP Sensor High (Part "B")	P0123	Detects a TP Sensor signal that is shorted to voltage	TP Sensor > 4.86 V	Engine running None of the following DTC's set: 107, 108	110/200 Cts 125 ms/Ct Continuous check	DTC Type B
Closed Loop Engine Coolant Temperature Rationality	P0125	Detects if engine coolant temperature rises too slowly due to an ECT or cooling system fault	If actual accumulated air flow is > predicted air flow before engine coolant reaches 40°C	30 sec < engine runtime < 20 min. Min Average flow > 10 g/sec Min distance traveled > .5 miles Min MPH to update distance > 25 mph Min air flow to update distance > 10 g/sec IAT > -7°C Start up ECT < 35°C None of the following DTC's set: 105, 107, 108, 112, 113, 117, 118, 122, 123,130, 171, 172, 200, 300, 336, 480, 481, 502, 503, 602, 1621 (481 w/dual fans and 503 w/auto trans)	30 Cts 1 sec/Ct Once per ignition cycle	DTC Type B
Thermostat Engine Coolant Temperature Rationality	P0128	Detects if engine coolant temperature rises too slowly due to an ECT or cooling system fault	If actual accumulated air flow is > predicted air flow before engine coolant reaches 70°C	30 sec < engine runtime < 20 min. Min Average flow > 15 g/sec Min distance traveled > 1.5 miles Min MPH to update distance > 25 mph Min air flow to update distance > 10 g/sec IAT > -7°C Start up ECT < 65°C None of the following DTC's set: 105, 107, 108, 112, 113, 117, 118, 122, 123,130, 171, 172, 200, 300, 336, 480, 481, 502, 503, 602, 1621 (481 w/dual fans and 503 w/auto trans)	30 Cts 1 sec/Ct Once per ignition cycle	DTC Type B
O2S 1 Closed Loop Rationality	P0130	Detects when a vehicle goes open loop or will not remain in closed loop	Vehicle not in closed loop	Engine runtime > 65 Coolant temp > 65°C 1200 < RPM < 3410 10% < TP < 40% None of the following DTC's set: 107, 108, 117, 118, 122, 123, 131, 132, 134, 200, 300, 325, 336, 440, 1441, 442, 446, 502, 601, 602, 1621	40/100 125 ms/Ct Continuous check	DTC Type B

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O2S 1 Lean	P0131	Detects an O2S 1 signal which is below the range considered lean	O2S 1 < 52 mV	ECT > 70°C Air flow > 3 g/sec Above conditions met for 20 sec 8% < TP < 50.2% Above condition met for 3.8 sec None of the following DTC's set: 105, 107, 108,112, 113, 117, 118, 122, 123, 171, 200, 300, 336, 440, 1441, 442, 446, 506, 507, 601, 602	999/1000 Cts 125 ms/Ct Continuous check	DTC Type B
O2S 1 Rich	P0132	Detects an O2S 1 signal which is above the range considered rich	O2S 1 > 946 mV or O2S 1 > 1042 mV for 2.5 sec while in DFCO	ECT > 70°C Air flow > 3 g/sec Above conditions met for 20 sec 8 % TP 50.2% Above condition met for 3.8 sec None of the following DTC's set: 105, 107, 108,112, 113, 117, 118, 122, 123, 171, 200, 300, 336, 440, 1441, 442, 446, 506, 507, 601, 602	399/400 Cts 125 ms/Ct Continuous check	DTC Type B
O2S 1 Slow Response AMT	P0133	Determines if the O2S 1 is functioning properly by checking its response time	Avg. O2S 1 Response Times: R/L > 1199 ms L/R > 600 ms R/L + L/R > 1200	Engine run time > 200 sec TP between 8% & 15% RPM between 1800 & 2300 EVAP > 80% PWM ECT > 75°C PLM > 220 Engine operating in Closed Loop None of the following DTC's set: 105, 107, 108,112, 113, 117, 118, 122, 123, 171, 200, 300, 336, 440, 1441, 442, 446, 506, 507, 601, 602	30 sec Once per ignition cycle	DTC Type B
O2S 1 Slow Response SMT	P0133	Determines if the O2S 1 is functioning properly by checking its response time	Avg. O2S 1 Response Times: R/L > 1199 ms L/R > 600 ms R/L + L/R > 1200	Engine run time > 200 sec TP between 8% & 15% RPM between 1800 & 2300 EVAP > 80% PWM ECT > 75°C PLM > 220 Engine operating in Closed Loop None of the following DTC's set: 105, 107, 108,112, 113, 117, 118, 122, 123, 171, 200, 300, 336, 440, 1441, 442, 446, 506, 507, 601, 602	30 sec Once per ignition cycle	DTC Type B
O2S 1 Not Enough Switches AMT	P1133	Determines if the O2S 1 is functioning properly by checking the number of switches	O2S 1 Switch Numbers L/R < 1 Cts R/L < 1 Cts	Engine run time > 200 sec TP between 8% & 15% RPM between 1800 & 2300 EVAP > 80% PWM ECT > 75°C PLM > 220 Engine operating in Closed Loop None of the following DTC's set: 105, 107, 108,112, 113, 117, 118, 122, 123, 171, 200, 300, 336, 440, 1441, 442, 446, 506, 507, 601, 602	30 sec Once an ignition cycle	DTC Type B

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O2S 1 Not Enough Switches SMT	P1133	Determines if the O2S 1 is functioning properly by checking the number of switches	O2S 1 Switch Numbers L/R < 1 Cts R/L < 1 Cts	Engine run time > 200 sec TP between 8% & 15% RPM between 1800 & 2300 EVAP > 80% PWM ECT > 75°C PLM > 220 Engine operating in Closed Loop None of the following DTC's set: 105, 107, 108,112, 113, 117, 118, 122, 123, 171, 200, 300, 336, 440, 1441, 442, 446, 506, 507, 601, 602	30 sec Once an ignition cycle	DTC Type B
O2S 1 Open	P0134	Detects an O2S 1 signal that is not switching at bias voltage	399 mV < O2S 1 < 499 mV	ECT > 70°C Air flow > 3 g/sec Above conditions met for 20 sec Engine run time > 30 sec 8% < TP < 56% None of the following DTC's set: 105, 107, 108,112, 113, 117, 118, 122, 123, 171, 200, 300, 336, 440, 1441, 442, 446, 506, 507, 601, 602	999/1000 Cts 125 ms/Ct Continuous check	DTC Type B
O2S 2 Lean	P0137	Detects an O2S 2 signal which is below the range considered lean	O2S 2 < 44 mV	ECT > 40°C Air flow > 5.5 g/sec Above conditions met for 140 sec 8% < TP < 50.2% Above condition met for 3.8 sec None of the following DTC's set: 105, 107, 108,112, 113, 117, 118, 122, 123, 171, 200, 300, 336, 440, 1441, 442, 446, 506, 507, 601, 602	1199/1200 Cts 125 ms/Ct Continuous check	DTC Type B
O2S 2 Lean in PE	P1137	Detects and O2S 2 signal which is below the range considered lean while in power enrichment	O2S 1 > 700 O2S 2 < 399	Vehicle operating in PE Engine operating in Closed Loop Fuel level > 10% None of the following DTC's set: 105, 107, 108,112, 113, 117, 118, 122, 123, 171, 200, 300, 336, 440, 1441, 442, 446, 506, 507, 601, 602	48/80 Cts 125 ms/Ct Continuous check	DTC Type B
O2S 2 Rich	P0138	Detects an O2S 2 signal which is above the range considered rich	O2S 2 > 1042 mV	ECT > 40°C Air flow > 5.5 g/sec Above conditions met for 140 sec 8% < TP < 50.2% Above condition met for 3.8 sec None of the following DTC's set: 105, 107, 108,112, 113, 117, 118, 122, 123, 171, 200, 300, 336, 440, 1441, 442, 446, 506, 507, 601, 602	399/400 Cts 125 ms/Ct Continuous check	DTC Type B
O2S 2 Rich in DFCO	P1138	Detects and O2S 2 signal which is above the range considered rich while in a fuel cutoff condition	O2S 2 > 650	Vehicle operating in DFCO Engine operating in Closed Loop Fuel Level > 10% None of the following DTC's set: 105, 107, 108,112, 113, 117, 118, 122, 123, 171, 200, 300, 336, 440, 1441, 442, 446, 506, 507, 601, 602	48/80 Cts 125 ms/Ct Continuous check	DTC Type B

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O2S 2 Open	P0140	Detects a signal that is not switching at bias voltage	425 mV < O2S 2 < 460 mV	ECT > 40°C Air flow > 5.5 g/sec Above conditions met for 140 sec 4% < TP < 56% None of the following DTC's set: 105, 107, 108, 112, 113, 117, 118, 122, 123, 171, 200, 300, 336, 440, 1441, 442, 446, 506, 507, 601, 602	999/1000 Cts 125 ms/Ct Continuous check	DTC Type B
O2S 2 Heater Circuit Malfunction	P0141	Checks for sensor activity within a given period of time after cold start	O2S 2 Voltage Changes < ±148 mV From Mean O2S 2 Bias Voltage	Engine run time < 255 sec SUC and SUM < 45°C Difference in ECT & IAT < 7°C Average flow prior to activity must be < 20 g/sec Battery voltage > 11.6 V, < 16 V 395 mV < O2 S2 mV @ Start-up < 491 mV None of the following DTC's set: 105, 107, 108, 112, 113, 117, 118, 122, 123, 171, 200, 300, 336, 440, 1441, 442, 446, 506, 507, 601, 602	Time determined by table Once per ignition cycle	DTC Type B
Fuel Trim Lean AMT	P0171	Monitors fuel control system during normal operating range of FTI 110 < FTI < 145	Fuel Trim Index > 165	Baro > 72 kPa ECT > 60°C & < 115°C IAT > -25°C & < 115 °C MAP > 28 kPa RPM between 550 & 3410 VSS < 82 MPH Fuel level > 9.8 % None of the following DTC's set: 105, 107, 108, 112, 113, 117, 118, 122, 123, 125, 131, 132, 133, 134, 1133, 200, 300, 325, 336, 340, 341, 1441, 446, 502, 503, 601, 602	Continuous check	DTC Type B
Fuel Trim Lean SMT	P0171	Monitors fuel control system during normal operating range of FTI 110 < FTI < 145	Fuel Trim Index > 165	Baro > 72 kPa ECT > 60°C & < 115°C IAT > -25°C & < 115 °C MAP > 26 kPa RPM between 850 & 3410 VSS < 82 MPH Fuel level > 9.8 % None of the following DTC's set: 105, 107, 108, 112, 113, 117, 118, 122, 123, 125, 131, 132, 133, 134, 1133, 200, 300, 325, 336, 340, 341, 1441, 446, 502, 503, 601, 602	Continuous check	DTC Type B

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Fuel Trim Rich AMT	P0172	Monitors fuel control system during normal operating range of FTI 110 < FTI < 145	Fuel Trim Index < 70	Baro > 72 kPa ECT > 60°C & < 115°C IAT > -25°C & < 115 °C MAP > 28 kPa RPM between 550 & 3410 VSS < 82 MPH Fuel level > 9.8 % None of the following DTC's set: 105, 107, 108, 112, 113, 117, 118, 122, 123, 125, 131, 132, 133, 134, 1133, 200, 300, 325, 336, 340, 341, 1441, 446, 502, 503, 601, 602	16 sec Continuous check Once every 360 seconds purge vapor test is executed	DTC Type B
Fuel Trim Rich SMT	P0172	Monitors fuel control system during normal operating range of FTI 110 < FTI < 145	Fuel Trim Index < 70	Baro > 72 kPa ECT > 60°C & < 115°C IAT > -25°C & < 115 °C MAP > 28 kPa RPM between 850 & 3410 VSS < 82 MPH Fuel level > 9.8 % None of the following DTC's set: 105, 107, 108, 112, 113, 117, 118, 122, 123, 125, 131, 132, 133, 134, 1133, 200, 300, 325, 336, 340, 341, 1441, 446, 502, 503, 601, 602	16 sec Continuous check Once every 390 seconds purge vapor test is executed	DTC Type B
Injector Circuit Problem	P0201 P0202 P0203 P0204	Monitors fuel injectors for proper electrical operation	Injector Current < 4 Amps	Engine running Battery Voltage > 9 V	7 sec Continuous check	DTC Type B
Random Misfire Cylinder 1 Misfire Cylinder 2 Misfire Cylinder 3 Misfire Cylinder 4 Misfire	P0300 P0301 P0302 P0303 P0304	Detects a change in crankshaft angular velocity	FTP Threshold - 1 % I/M Threshold - 1 % Catalyst Damage - see speed/load chart	Engine run time > 5 sec RPM Between 469 & 6406 -7°C < ECT < 123°C Fuel level > 10% Battery voltage > 9 V, < 17 V None of the following DTC's set: 105, 107, 112, 113, 117, 118, 122, 123, 125, 131, 132, 133, 134, 1133, 171, 172, 325, 336, 340, 341, 1336, 502, 503, 506, 507, 601, 1621, 740, 742	Emission Level One "early" exceedence or four normal exceedences Catalyst Damage Level Three exceedences in FTP region or one exceedence outside FTP region Continuous check	DTC Type B EMISSION DTC Type A CATALYST DAMAGING
Knock Sensor (KS) Output	P0325	Detects a disconnected or faulty knock sensor	Inst. Voltage - Avg. Voltage < .1562 V or Inst. Voltage - Avg. Voltage < -.2344 V	1800 < RPM < 2400 ECT > 56°C MAP > 60 kPa Engine run time > 20 sec 34 < Vacuum < 45 None of the following DTC's set: 122, 123	117/120 Cts Continuous check	DTC Type B
Crankshaft Sensor Position Resync	P0336	Detects an open crank sensor or too many resyncs	7x Resync Counter > 15 Counts	Engine Running No 340 or 341 DTC set	256 sec Continuous check	DTC Type B

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Camshaft Sensor Missing	P0340	Checks for a missing camshaft sensor signal	No Change In Cam Activity > 60 Cycles	Engine Running	60 Cycles Cycle = 180°Crankshaft rotation Continuous check	DTC Type B
Camshaft Sensor Position Resync too often	P0341	Monitors for too many resyncs in the camshaft sensor signal	Cam Resync Counter > 15 Counts	Engine Running	256 seconds Continuous check	DTC Type B
Misfire Crank Angle Sensing Error	P1336	Detects invalid crankshaft angle correction factors	CCF Sum above or below 2 by 7 Counts (2 = 65536 counts)	None of the following DTC's set: 336, 340, 341	.5 sec Once per ignition cycle	DTC Type A
Catalyst Monitor	P0420	Detects a catalytic converter with unacceptable amounts of oxygen storage capabilities	Oxygen Storage Capability (OSC) Time Difference ≥ 0.095 sec OSC Time Difference = OSC Worst Pass Thresh - OSC Compensation Factor * (O2S 2 Response Time - O2S 1 Response Time) OSC Worst Pass Thresh = .97 sec	Engine speed ≥ 1000 RPM for minimum of 34 sec since end of last idle period Predicted catalyst temp $\geq 501^{\circ}\text{C}$, $< 701^{\circ}\text{C}$ Baro ≥ 72.3 kPa IAT between -20.5°C & 80°C ECT between 70°C & 125°C Idle ≤ 45 sec MPH < 3 Test attempted this trip ≤ 12 $-75 \text{ RPM} \leq (\text{Engine Speed} - \text{Desired Speed}) \leq 150 \text{ RPM}$ Engine run time > 520 sec Battery voltage > 9 V Flow < 7.0 g/sec <u>Rapid Step Response Enable Criteria</u> OSC Time Difference Step $\geq .310$ sec OSC Time Difference Step ≥ 0.00 sec None of the following DTC's set: 105, 107, 108, 112, 113, 117, 118, 122, 123, 131, 132, 133, 134, 1133, 137, 138, 140, 141, 171, 172, 200, 300, 325, 336, 340, 341, 440, 1441, 442, 446, 452, 453, 480, 481, 502, 503, 506, 507, 601, 602, 1621	Maximum 1 test attempt per idle period Minimum of 1 test per trip Maximum of 6 tests per trip Maximum of 6 trips to detect failure when Rapid Step Response is enabled 15.6 Ms/Ct	DTC Type A

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Catalyst Monitor SMT	P0420	Detects a catalytic converter with unacceptable amounts of oxygen storage capabilities	Oxygen Storage Capability (OSC) Time Difference ≥ 0.212 sec OSC Time Difference = OSC Worst Pass Thresh - OSC Compensation Factor * (O2S 2 Response Time - O2S 1 Response Time) OSC Worst Pass Thresh = 2.35 sec	Engine speed ≥ 1200 RPM for minimum of 44 sec since end of last idle period Predicted catalyst temp $\geq 495^{\circ}\text{C}$, $< 650^{\circ}\text{C}$ Baro ≥ 72.3 kPa IAT between -20.5°C & 80°C ECT between 70°C & 125°C Idle ≤ 45 sec MPH < 3 Test attempted this trip ≤ 12 -75 RPM \leq (Engine Speed - Desired Speed) ≤ 150 RPM Engine run time > 520 sec Battery voltage > 9 V Flow < 9 g/sec <u>Rapid Step Response Enable Criteria</u> OSC Time Difference Step $\geq .690$ sec OSC Time Difference Step ≥ 0.00 sec None of the following DTC's set: 105, 107, 108, 112, 113, 117, 118, 122, 123, 131, 132, 133, 134, 1133, 137, 138, 140, 141, 171, 172, 200, 300, 325, 336, 340, 341, 440, 1441, 442, 446, 452, 453, 480, 481, 502, 503, 506, 507, 601, 602, 1621	Maximum 1 test attempt per idle period Minimum of 1 test per trip Maximum of 6 tests per trip Maximum of 6 trips to detect failure when Rapid Step Response is enabled 15.6 Ms/Ct	DTC Type A
EVAP System Large Leak Detected	P0440	Checks for adequate vacuum being held in the fuel tank when applied	Vac < 3.0 V	Baro > 75 kPa SUC and SUM between 4°C & 30°C SUC - SUM $< 8^{\circ}\text{C}$ Fuel Level between 15% - 85% $7\% < \text{TPS} < 35\%$ MPH < 70 Purge Solenoid enabled None of the following DTC's set: 105, 107, 108, 112, 113, 117, 118, 122, 123, 125, 131, 132, 133, 134, 1133, 452, 453, 502, 503, 601, 602, 1621	400 sec Once per ignition cycle	DTC Type A
EVAP Purge Valve Leaking	P1441	Checks for a stuck open purge solenoid	Vac > 2.0 V	Baro > 75 kPa SUC and SUM between 4°C & 30°C SUC - SUM $< 8^{\circ}\text{C}$ Fuel Level between 15% - 85% $7\% < \text{TPS} < 35\%$ MPH < 70 Engine running None of the following DTC's set: 105, 107, 108, 112, 113, 117, 118, 122, 123, 125, 131, 132, 133, 134, 1133, 452, 453, 502, 503, 601, 602, 1621	75 sec Once per ignition cycle	DTC Type A

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EVAP System Small Leak Detected	P0442	Checks for a small leak in the fuel vapor handling system	0.024 - 0.10 V Per Sec Decay Varies With Fuel Level (0.040" Criteria) 0.009 - 0.013 V Per Sec Decay Varies With Fuel Level (0.020" Criteria)	Baro > 75 kPa SUC and SUM between 4°C & 30°C SUC - SUM < 8°C Fuel Level between 15% - 85% 7% < TPS < 35% MPH < 70 Purge Solenoid enabled None of the following DTC's set: 105, 107, 108, 112, 113, , 117, 118, 122, 123, 125, 131, 132, 133, 134, 1133, 452, 453, 502, 503, 601, 602, 1621	15 sec Once per ignition cycle	DTC Type A
EVAP Canister Vent Blocked	P0446	Checks for excessively high vacuum in the vapor handling system	Vac > 4.2 V	Baro > 75 kPa SUC and SUM between 4°C & 30°C SUC - SUM < 8°C Fuel Level between 15% - 85% 7% < TPS < 35% MPH < 70 Purge Solenoid enabled None of the following DTC's set: 105, 107, 108, 112, 113, 117, 118, 122, 123, 125, 131, 132, 133, 134, 1133, 452, 453, 502, 503, 601, 602, 1621	100 sec Once per ignition cycle	DTC Type A
EVAP Tank Vacuum Sensor Low	P0452	Detects a continuous short to ground or a disconnected tank vacuum sensor	Tank vacuum transducer < .1 V	Engine running	25 sec Continuous check	DTC Type A
EVAP Tank Vacuum Sensor High	P0453	Detects a tank vacuum sensor that is shorted to voltage	Tank vacuum transducer > 4.9 V	Engine running	25 sec Continuous check	DTC Type A
Low Speed Fan Fault	P0480	Checks commanded fan state against output to fan relay	Battery voltage > 9.5V		50/100 Cts Continuous check	DTC Type A
High Speed Fan Fault	P0481	Checks commanded fan state against output to fan relay	Battery voltage > 9.5V		50/100 Cts Continuous check	DTC Type A
Vehicle Speed Sensor Loss SMT	P0502	Detects a missing VSS signal	VSS < 2 MPH	RPM between 1700 & 3600 TPS < 1% Vacuum between 70 kPa & 80 kPa	5 sec Continuous check	DTC Type B
Idle Speed Low	P0506	Detects an idle speed which is less than a delta from desired	IAC > 145 Steps	Engine run time > 20 sec Baro > 72 kPa ECT > 40°C Idle Speed > 100 RPM below desired Idle stabilized for 5 sec Battery voltage > 11.6 V, < 17.1 V None of the following DTC's set: 105, 107, 108, 112, 113, 117, 118, 122, 123, 125, 128, 130, 131, 132, 133, 134, 1133, 171, 172, 200, 300, 336, 440, 1441, 442, 446, 452, 453, 480, 502, 503	18.8 sec Continuous check	DTC Type B

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Idle Speed High	P0507	Detects an idle speed which is greater than a delta from desired	IAC < 2 Steps	Engine run time > 20 sec Baro > 72 kPa ECT > 40°C Idle Speed > 60 RPM above desired Idle stabilized for 5 sec Battery voltage > 11.6 V, < 17.1 V None of the following DTC's set: 105, 107, 108, 112, 113, 117, 118, 122, 123, 125, 128, 130, 131, 132, 133, 134, 1133, 171, 172, 200, 300, 336, 440, 1441, 442, 446, 452, 453, 480, 502, 503	12.5 sec Continuous check	DTC Type B
PCM Has EE PROM Flash Error	P0601	Checks for an incorrect checksum or Program ID failure	Checksum Detection Incorrect > 3 Times		Continuous check	DTC Type A
EE PROM Not Programmed	P0602	Checks for a PCM that is not programmed	Unprogrammed EE PROM		Immediately Once per key cycle	DTC Type A
EE PROM General Fault	P1621	Checks for a write error	Incorrect Checksum		Immediately on next key up if flagged on previous key down Once at key down	DTC Type A