SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA & THRESHOLD VALUE(S)	SECONDARY MONITORING PARAMETERS AND ENABLE CONDITIONS	MONITORING TIME LENGTH AND FREQUENCY OF CHECK	MIL Illumination Type
Manifold Absolute Pressure / Throttle Position Rational	P0105	This DTC detects a skewed MAP/TP sensor Rationality Test	Predicted TP/MAP value in relation to actual TP/MAP vs engine speed > 1600 rpm or < 4000 rpm	No TP, MAP, MAP High, MAP low, IAC DTC's Engine speed Delta < 100 rpm TP Delta < 2% Delta EGR Flow < 9.8% IAC Delta < 10 counts	2 failures within a 3 test sample after two consecutive trips** Continuous	DTC Type B
Manifold Absolute Pressure Circuit Low Input	P0107	.20 volts to 4.24 volts This DTC detects a continuous short to low or open in either the signal circuit or the MAP sensor Range check	Raw MAP < .20 volts, RPM >1600, TP >15.2 RPM< 1600, TP > 0	No TP DTC's TP>=15.2% when engine speed >1600rpm or TP >= 0% when eng speed <=1600rpm	200 test failures within a 1000 test sample** Continuous	DTC Type A
Manifold Absolute Pressure Circuit High Input	P0108	.20 volts to 4.24 volts This DTC detects a continuous short to high in either the signal circuit or the MAP sensor Rationality Check	Raw MAP > 4.24 volts RPM > 1600, TP < 9.8 RPM < 1600, TP < 2	No TP DTC's TP <= 9.8% when eng speed >1600rpm or TP <=2% when eng. speed <=1600 rpm	200 test failures within a 1000 sample** Continuous	DTC Type A
Intake Air Temperature Circuit Low Input	P0112	.25 volts To 4.96 volts This DTC detects a continuous short to ground in either the IAT signal circuit or the IAT sensor Range Check	IAT < .25 volts	Eng run time > 10 sec	20 test failures within a 60 test sample - 1 sample per sec Continuous	DTC Type A
Intake Air Temperature Circuit High Input	P0113	.25 volts To 4.96 volts This DTC detects a continuous short to high in the IAT signal circuit or the IAT sensor Range Check	IAT > 4.96 volts	No VSS & ECT DTC's VSS < 15 mph ECT>60 deg C airflow < 16gm/sec Eng run time > 10 sec	20 test failures within a 60 test sample - 1 sample per sec Continuous	DTC Type A
Engine Coolant Temperature Circuit Low Input	P0117	.14 volts to 4.7 volts This DTC detects a continuous short to ground in the ECT signal circuit or the ECT sensor Range Check	Low Resistance Pullup - Coolant Temp < .14 volts High Resistance Pullup - Coolant Temp. < .14 volts	Engine run time>= 11 sec	3 test failures within 10 samples - 1 sample per sec Continuous	DTC Type A
Engine Coolant Temperature Circuit High Input	P0118	.14 volts to 4.7 volts This DTC detects a continuous short to high or open in the ECT signal circuit or the ECT sensor Range Check	Low Resistance Pullup - Coolant Temp > 4.7 volts High Resistance Pullup - Coolant Temp > 4.7 volts	Engine run time >= 25 sec	3 test failures within 10 samples - 1 sample per sec Continuous	DTC Type A

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Throttle Position Sensor A Circuit Low Input	P0122	.2 volts to 4.9 volts. This DTC detects a continuous short to low or open in either the signal circuit or the TP Range Check	TP < .20 volts	None	200 failures within a 1000 test samples** Continuous	DTC Type A
Throttle Position Sensor A Circuit High Input	P0123	.2 volts to 4.9 volts. This DTC detects a continuous short to high in either the signal circuit or the TP Range Check	TP > 4.90 volts	None	30 failures within a 1000 test samples** Continuous	DTC Type A
Insufficient Coolant Temperature for Closed Loop Fuel Control	P0125	This DTC detects if a stabilized minimum closed loop is reached and maintained after engine start-up Rationality Check	If timer is exceeded ECT < 0 Deg C	No ECT & IAT DTC's Fast eqn - CLT = 120 sec when 0>ECT>-16 deg C & IAT >0 deg C or -20<ECT<-16 deg C & IAT >20 deg C Slow eqn - CLT = 300 seconds when 0>ECT>-16 deg C & IAT<0 deg C or -20<ECT<-16 & IAT<20 deg C	3 failures /sample after 2 consecutive trips - 1 sec Continuous	DTC Type B
Front O2 Sensor Circuit Low Voltage	P0131	0 to 1.1 V This DTC determines if the 02 sensor or circuit is shorted to low by checking for a lean condition during steady throttle and PE Range check Low	02 Voltage < .291 V & 02 Voltage <.291 V in PE mode	No MAP, CRK, IAT, ECT, TP, Fuel Trim, Misfire, Cam, EGR, CCP DTC's Closed loop 14.5 <= A/F ratio <= 14.8 above met for .5 secs In closed loop In drive (if auto)	900 failures in a 1000 sample test , and failure remains active for 2 passes of rear 02. 90 failures in a 100 sample test in PE mode - .1 sec , continuous	DTC Type B
O2 Sensor Circuit High Voltage	P0132	0 to 1.1 V This DTC determines if the 02 sensor or circuit is shorted to high by checking for a rich condition during steady throttle and DFCO Range Check High	02 Voltage > .787V 02 Voltage > .587 V in Decel fuel cut off	No MAP, CRK, IAT, ECT, TP, , Fuel Trim, Misfire, Cam, EGR, CCP DTC's Closed loop 14.5 <= A/F ratio <= 14.8 above met for .5 secs In closed loop In drive (if auto)	900 failures in a 1000 sample test , and failure remains active for 2 passes of rear 02. 90 failures in a 100 sample test in DFCO mode -.1 sec, continuous	DTC Type B
Front O2 Sensor Circuit Slow Response	P0133	0 to 1.1 V This DTC determines if the 02 sensor is functioning properly by checking its response time Rationality Check	02 Average transition time lean/rich > 125 msec or rich/lean > 156 msec, 1500 < RPM < 3200	No MAP, CRK, IAT, ECT, TP, Fuel Trim, Misfire, Cam, EGR, CCP, DTC's Closed loop 02 Voltage low threshold .300 02 high threshold .600 V Airflow > 7 g/sec 1500 < rpm < 3200	100 seconds after closed loop enable once per ignition	DTC Type B

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Front O2 Circuit No Activity Detected	P0134	0V to1.1V This DTC determines if the 02 sensor or the 02 sensor circuit has developed an open Circuit Continuity Check	.391 V <= 02 voltage <= .491V	No MAP, CRK, IAT, ECT, TP, Fuel Trim, Misfire, Cam, EGR, CCP, Voltage, DTC's engine run time > 60 secs. Predictive front 02 temp > 450 Deg C (pred. from RPM and Airflow)	900 failures in a 1000 sample test - .1 sec per sample Continuous	DTC Type B
Rear O2 Sensor Circuit Low Voltage	P0137	0 to 1.1 V This DTC determines if the 02 sensor or circuit is shorted to low by checking for a lean condition during steady throttle and PE Range Check Low	02 voltage < .022 V 02 voltage < .291 V in Power Enrichment	No MAP, CRK, IAT, ECT, TP, Fuel Trim, Misfire, Cam, EGR, CCP, DTC's Closed loop 14.5 <= A/F ratio <= 14.8 above met for .5 secs. In drive(if auto). In closed loop.	1000 failures in a 1000 sample test , 3 consecutive tests 90 failures in a 100 sample test in PE mode - .1 sec per sample, Continuous	DTC Type B
Rear O2 Sensor Circuit High Voltage	P0138	0V to 1.1V This DTC determines if the 02 sensor or circuit is shorted to high by checking for a rich condition during steady throttle and DFCO Range Check High	02 voltage > 1.065 V 02 voltage > .587 V in Decel fuel cut off	No MAP, CRK, IAT, ECT, TP, Fuel Trim, Misfire, Cam, EGR, CCP, DTC's closed loop 14.5 <= A/F ratio <= 14.8 above met for .5 secs. In closed loop. In drive (if auto).	1000 failures in a 1000 sample test, 3 consecutive tests 90 failures in a 100 sample test in PE mode - .1 sec per sample, continuous	DTC Type B
Rear O2 Sensor Circuit No Activity Detected	P0140	0 V to 1.1 V This DTC determines if the 02 sensor or 02 sensor circuit has developed an open Circuit Continuity Check	.425 V <= 02 Voltage<=.460 V	No MAP, CRK, IAT, ECT, TP, Fuel Trim, Misfire, Cam, EGR, CCP, DTC's engine run time > 60 secs Predictive 02 rear temp > 426 Deg C (rpm/airflow)	1450 failures in a 1500 sample test - .1 sec per sample, continuous	DTC Type B
Rear O2 Sensor Heater Circuit Malfunction	P0141	10.0 V To 16V for not more than 15 seconds This DTC determines if the 02 sensor heater is functioning properly by monitoring the amount of time necessary for the 02 sensor to become active after ignition key-up Rationality Check	The elapsed time to obtain +.150V or -.146V from mean 02 bias voltage *time based on table: time vs start-up coolant temperature	No MAP, CRK, IAT, ECT, TP, Fuel Trim, Misfire, Cam, EGR, CCP, DTC's engine run time > 5 secs bias samples > 5 counts .332 V < bias voltage < .591 V air flow < 17 g/sec Delta (ECT -IAT) <= 10deg C ECT < 50 deg C	* Time determined by table	DTC Type B

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Fuel System too Lean	P0171	Determines if the system is in a lean condition	Long Term Fuel > 14.8%	No ECT, CRK, MAP, IAT,IAC, TP, CCP, Map, TP,CAM, 02's, EGR Flow, Misfire DTC's 70 KPa< Baro 2< Airflow < 80 g/sec 20 < MAP < 90 KPa -20 < IAT < 80 Deg C 500 < RPM < 4000 TP < 75% 60 < ECT < 115 deg C	If lean counter > 3 seconds Continuous	DTC Type A
Fuel System Too Rich	P0172	Determines if the system is in a rich condition	Long Term Fuel > 21.1%	No ECT, MAP, CRK, IAC, CAM, IAT, TP, VSS, CCP, 02S DTC's 70 KPa< Baro 2< Airflow < 80 g/sec 20 < MAP < 90 KPa -20 < IAT < 80 Deg C 500 < RPM < 4000 TP < 75% 60 < ECT < 115 deg C	If rich counter > 3 seconds Continuous	DTC Type A
Random/Multiple Cylinder Misfire Detected	P0300	These DTC's will determine if a random misfire or a cylinder specific misfire is occurring by monitoring crankshaft velocity	Deceleration/Acceleration Spike vs Engine Speed vs Load vs Camshaft position vs Crankshaft position FTP Threshold - 2% I/M Threshold - 2% Catalyst Damage - see speed/load chart	No TP, CRK, IAT, MAP, CAM, IAC, FUEL TRIM, ECT, V5B, Misfire DTC's 562 < Eng. Spd< 6500 rpm(DOHC) 5500 (SOHC) 8< ign. V<16 2 sec < engine run time < 5 sec Coolant temp > -7 deg C	5 failed 200 revolution blocks out of 16 (emission level) 1 failed 200 revolution block out of 16 (catalyst damaging) Continuous	DTC Type B (emission Level) DTC Type A (Catalyst damaging)
Cylinder 1 Misfire Detected	P0301	same as above	same as above	same as above	same as above	same as above
Cylinder 2 Misfire Detected	P0302	same as above	same as above	same as above	same as above	same as above
Cylinder 3 Misfire Detected	P0303	same as above	same as above	same as above	same as above	same as above
Cylinder 4 Misfire Detected	P0304	same as above	same as above	same as above	same as above	same as above
Knock Sensor 1 Circuit Low Input	P0327	This DTC will detect an open or short in the knock sensor circuit Range Check	KS noise > 8 A/D counts or < 202 A/D counts	No ECT, TP or P0125 DTC's TP > 9.8% ECT > 65 deg C 3600< RPM < 2200 eng run time > 10 sec	Conditions are met for 5 sec Continuous	DTC Type B
Crankshaft Position Sensor Circuit Range/Performance	P0336	This DTC will detect an open or short in the crankshaft position sensor circuit Range Check	Low res Period > 6.41 & sync pulse missing	None	10 fails to turn on light** Continuous	DTC Type A

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Camshaft position Sensor Circuit Malfunction	P0340	This DTC will detect if a cam signal is not present Circuit Continuity	Cam pulse not seen in 107 engine revolutions	MAP > 30 kPa	Once per ignition	DTC Type B
Camshaft Position Sensor Circuit Range/Performance	P0341	This DTC will determine if the Cam is synchronized correctly	If the cam signal falls in the wrong location 3 times	MAP > 30 kPa	Once per ignition	DTC Type B
Exhaust Gas Recirculation Flow Insufficient Detected	P0401	This diagnostic will determine if there is a reduction in EGR flow. Functional Check	With EGR valve open, the peak + MAP delta is monitored over a time of 1.0 seconds. This value is compared and subtracted with a threshold from Engine Speed vs Baro. The result is statistically filtered (EWMA) and compared to a decision limit.	No EGR pintle, TP, CAM, CRK, V5B, MAP, VSS, IAT, ECT or IAC DTC's 1250 rpm < eng. speed < 2600 rpm Throttle is closed 35 mph < vehicle speed ECT >70 deg C Baro> 9500 feet	Once per ignition cycle	DTC Type A
Exhaust Gas Recirculation Circuit Range/Performance	P0404	This Diagnostic will determine whether the EGR valve is within a certain operating range. Range Check	Error > 10%, if commanded EGR position is < 80% Error > 23.4%, if commanded EGR position is > 80% Error occurs for 10 seconds	Battery Voltage > 11 Volts	10 seconds Continuous every 100 mseconds	DTC Type B
Exhaust Gas Recirculation Sensor "A" Circuit Low	P0405	Circuit Check	5 second timer EGR Voltage < 7 counts 7 A/D counts	Battery Voltage > 11 Volts	5 seconds Continuous every 100 mseconds	DTC Type A
Catalyst System Efficiency Below Threshold	P0420	This DTC will determine the efficiency of the catalyst system based on the FTP Oxygen Storage	Deviation difference Average = 13 mv from O2 sensor #2	No O2s, ECT, Fuel Trim, CAM, CRK, V5B, VSS, misfire, MAP, IAT, TP DTC's 5< airflow < 20 g/sec eng. air load < 80% Eng speed < 3500 rpm delta eng load < 10.6% ECT > 70 deg C 15 < VSS < 255 mph Converter Temp model >400 Deg C 35%<O2 Sensor duty cycle<65%	50 trips per test. See CATMON description	DTC Type A
Evaporative Emission Control System Malfunction	P0440	This diagnostic will monitor the amount of energy contained in the purge solenoid Functional Check	The number of falling edges of the CCP PWM > 24 in one second	No MAP, ECT & TP DTC's 25 % < Duty Cycle < 78 % Eng vacuum > 70 KPa ECT> 68 deg C 2% < TP < 99.6% Eng. Vacuum < 20 KPa airfuel = 14.7 & Closed Loop 11 V < Voltage < 16 V	Counter 30 counts - 1 sec/count continuous	DTC Type B
Vehicle Speed Sensor Malfunction	P0500	This DTC monitors the output of the VSS sensor Functional check	No sensor output during vehicle coast down	1450 < Rpm < 4400 MAP < 23 kPa Closed TP	Continuous 5.2 sec fail threshold	DTC Type A

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Idle Control system RPM lower than expected	P0506	This DTC will determine if a low idle is the result of a IAC valve or circuit at normal operating temperature. Functional Check	Actual rpm < desired rpm - 100 rpm	No TP, ECT, MAP, Misfire, VSS, EGR Pintle DTC's VSS=0 TP = 0 Baro > 70 Kpa 9<Voltage < 18 IAT > -25 Deg C	Continuous 17 seconds	DTC Type B
Idle Control System RPM higher than expected	P0507	This DTC will determine if a high idle is the result of a IAC valve or circuit at normal operating temperature. Functional Check	Actual rpm > desired rpm + 200 rpm	Same as above	Same as above	DTC Type B
Serial Communication Link Malfunction	P0600	This DTC will check to assure that the serial data messages are properly transmitted between the ECM and the TCM Functional Check	The data stream is verified for proper checksum	None	6.25 msec/failure - 250 failures Continuous	DTC Type A
Internal Control Module Memory Check Sum Error	P0601	This DTC will determine when the ECM RAM is faulty Functional Check	Cal'd check sum does not equal stored check sum	None	1 failure/ Ign. cycle Continuous	DTC Type A
Control Module Programming Error	P0602	This DTC will check to see if the PCM is programmed properly Functional Check	Write patterns are not equal	None	1 failure / Ign. cycle on key up	DTC Type A
Internal Control Module Keep Alive memory (KAM) Error	P0603	This DTC checks that the cal'd checksum = stored check sum Functional Check	Cal'd check sum does not equal stored check sum	None	2 failures/ Ign. cycle Continuous	DTC Type A
Internal Control Module Random Access Memory (RAM) Error	P0604	This DTC checks to see if write patterns match Functional Check	Write patterns are not equal	None	1 failure / Ign. cycle on key up	DTC Type A
PCM Processor Error	P0606	This DTC checks for illegal interrupts Functional Check	Any illegal interrupts ?	None	2 failures/ Ign. cycle Continuous	DTC Type A

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Transmission Control System Electrical	P0702	This DTC checks for Power to the Transmission Actuators Circuit Continuity	The GFD feedbacks don't indicate voltage present at the Transmission Actuators	No 1660 DTC Engine Speed > 300 rpm 9.5 V <Ign voltage<17V A/D converter has not failed Fuel pump relay activated	2 failures/ign. cycle Continuous	DTC Type A
Transmission Range Sensor Circuit Malfunction (PRNDL Input)	P0705	This DTC checks for illegal shift range positions Functional Check	Any illegal shift positions for 500 msec	No P0708 DTC Ign. voltage> 9.5V	2 failures/ign. cycle Continuous	DTC Type A
Transmission Range Sensor Circuit Range/Performance	P0706	This DTC checks that parity = valid parity Range Check	Any parity descrepancies for 10 sec	No P0705, P0708 DTC Ign. Voltage > 9.5V	2 failures/ign. cycle Continuous	DTC Type A
Transmission Range Sensor Circuit High Input	P0708	This DTC checks for a disconnected switch Range Check	All inputs from switch read high for 500 msec	Ign. voltage > 9.5V	2 failures/ign. cycle Continuous	DTC Type A
Transmission Fluid Temperature Sensor Circuit Malfunction	P0710	Functional Check	Transmission fluid temperature < ((ECT + IAT)/2) - 40 Deg C for >= 1,280 seconds	No ECT, IAT, P1623, P0712, P0713 or P1639 DTC's	2 failures/ign. cycle Continuous	DTC Type A
Transmission Fluid Temperature Sensor Circuit Range/Performance	P0711	Range Check	Transmission Fluid Temperature > (IAT+9 deg C)	No ECT, IAT, P1623, P0710, P0712, P0713, P0714 or P1639 DTC's Vehicle has experienced a cold soak (i.e., coolant temp = IAT ± 6 deg C) Engine run time > 2 seconds IAT < 40 deg C	1 failures/ign. cycle Once per ignition cycle	DTC Type A (behaves as a Type B
Transmission Fluid Temperature Sensor Circuit Low Input	P0712	Range Low Check	Transmission Fluid Temperature < .196 Volts for 30 seconds	No ECT, IAT, P1623, P1639 DTC's ECT < 100 deg C	2 failures/ign. cycle Continuous	DTC Type A
Transmission Fluid Temperature Sensor Circuit High Input	P0713	Range High Check	Transmission Fluid Temperature > 4.7 Volts for 30 seconds or more	No ECT, IAT, P1623, P1639 DTC's ECT > -17 deg C Engine Run Time > 240 seconds	2 failures/ign. cycle Continuous	DTC Type A
Transmission Fluid Temperature Sensor Circuit Intermittent	P0714	Circuit Continuity	Transmission Fluid Temperature changes > .196 Volts for 4 consecutive 1 second loop cycles	No P1639 DTC	2 failures/ign. cycle Continuous	DTC Type A
Turbine Speed Sensor Circuit Range/Performance	P0716	0 rpm to 7200 rpm This DTC detects an unrealistically large change in turbine speed Range Check	Delta Turbine speed > (The sum of last 8 turbine speed time/pulse)/8 * 1.72 or < (the sum of last 8 turbine speed time/pulse)/8 * .52. for 731 msecs	Turbine speed > 1400 RPM	2 failures/ign. cycle Continuous	DTC Type A
Turbine Speed Sensor Circuit No Signal	P0717	This DTC checks for Turbine speed equal to 0 Functional Check	Turbine speed = 0 and eng. speed > 3400 rpm for 2 secs or Output speed > 10 Km/hour for 2 seconds and turbine speed = 0	No P0722 or P0721 DTCs	2 failures/ign. cycle Continuous	DTC Type A

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Output speed sensor circuit Range/Performance	P0721	0 rpm to 7200 rpm This DTC detects an unrealistically large change in output speed Range Check	Output speed delta > (filtered output speed time/pulse) * 1.44 or < (filtered ouput speed time/pulse) * .56 for 731 msecs NOTE: 8 pulses are received/360 degree revolution of turbine	Output speed > 24 KPH	2 failures/ign. cycle Continuous	DTC Type A
Output Speed Sensor Circuit No Signal	P0722	This DTC will detect a loss of output speed Functional Check	Turbine speed pull down when an upshift is commanded	No P0716, P0717 DTC's Turbine speed > 1400 rpm (turbine speed/ engine speed) < .78 Output speed < 5 kph TP delta < 11% for > 1.5 secs A forward drive gear is selected	2 failures/ign. cycle Continuous	DTC Type A
Engine Speed Input Circuit No Signal	P0727	0 to 7200 rpm This DTC will detect a loss of an engine speed signal Functional Check	ECM indicates E.S. > zero via SPI communications while zero E.S. indicated by hardware signal	no 1601 DTC (SPI Fail)	2 failures/ign. cycle Continuous	DTC Type A
Incorrect Gear Ratio (no forward gears available)	P0730	This DTC looks for the occurrence when no gears are available from an initial start Functional check	No turbine speed pulldown during commanded upshift	No P0716, P0717, P0727 DTC's	2 failures/ign. cycle Continuous	DTC Type A
Gear 1 Incorrect Ratio	P0731	This DTC looks for the commanded gear ratio Functional Check	Commanded gear ratio does not equal actual gear ratio for +/- .0152% for time period based on magnitude of slip (larger the magnitude of slip, the faster the diagnostic will trigger)	Eng. torque > a k value which is a function of gear. Output speed and turbine speed are not substituted A forward drive gear is selected	10 ms/test 50 tests/failure 2 failures/ign. cycle Continuous	DTC Type A
Gear 2 Incorrect Ratio	P0732	same as above	same as above	same as above	same as above	DTC Type A
Gear 3 Incorrect Ratio	P0733	same as above	same as above	same as above	same as above	DTC Type A
Gear 4 Incorrect Ratio	P0734	same as above	same as above	same as above	same as above	DTC Type A
Torque Converter Clutch System Performance or Stuck Off	P0741	This DTC detects the inability to lock up the TCC Rationality Check	Engine - turbine does not equal 0 when the TCC is commanded on	No P0716, P0717, P0727 DTC's	2 failures/ign. cycle Continuous	DTC Type A
Torque Converter Clutch System Stuck On	P0742	This DTC detects when the TCC is unable to be disengaged Rationality Check	When TCC is commanded off, the engine speed = turbine speed	No P0716, P0717, P0727 DTC's Eng. speed < 3200 rpm Eng. Torque > some calibrated value obtained from a lookup table based on turbine speed	2 failures/ign. cycle Continuous	DTC Type A
1-2 Shift Malfunction (2nd gear stuck on)	P0781	This DTC looks for gears higher than the commanded ratio Functional/Range Check	1st gear commanded and (turbine/output speed) = 2nd, 3rd or 4th ratio +/- 4% for 3 secs	No P0716, P0717, P0727, P0705, P0706, P0708 DTC's Engine torque > 100 Nm Output speed and turbine speed are not substituted	2 failures/ign. cycle Continuous	DTC Type A
2-3 Shift Malfunction (3rd gear stuck on)	P0782	same as above	same as above	same as above	2 failures/ign. cycle Continuous	DTC Type A

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3-4 Shift Malfunction (4th gear stuck on)	P0783	Same as above	Same as above	Same as above	2 failures/ign. cycle Continuous	DTC Type A
Oxygen Sensor System - Too Few O2S R/L and L/R Switches	P1133	0 V to 1.0 V This DTC determines if the 02 sensor is functioning properly by checking its switches Rationality Check	02 sensor switches < 10 counts	No MAP, IAT, ECT, TP, Fuel trim, Misfire, Cam, EGR, CCP, Voltage and crank DTC's Closed loop 02 Voltage low threshold .300 V High threshold .600 V Flow > 7 g/sec 1500 < RPM < 3000	100 seconds after closed loop enable, Once per ignition	DTC Type B
02 Sensor Circuit Transfer Switch Time Ratio Malfunction	P1134	0 V to 1.0 V This DTC will determine if the 02 sensor is functioning properly by checking its ratio Rationality Check	Ratio of average response time ratio < .6 or Ratio of average response time ratio > 2.8	No MAP, IAT, ECT, TP, Fuel trim, Misfire, Cam, EGR, CCP, Voltage and crank DTC's & closed loop & 02 Voltage low threshold .300 V and high threshold .600 V & flow > 7 g/sec & 1500 < RPM < 3000	100 seconds after closed loop enable, Once per ignition	DTC Type B
Crank Position Error not Learned	P1336	This DTC determines whether the crankshaft position sensor learned allowing it to be used in the misfire diagnostic Range Check	Position error not learned in the PCM processor	Vehicle speed > 15 mph	1 failure/ignition cycle Continuous	DTC Type A
Exhaust Gas Recirculation System - Valve B	P01404	This DTC detects a malfunction in the operation of the EGR valve Functional Check	Close Value Position> 4% if RPM < 5000 Closed Value Position> 7.8 % if RPM > 5000 for 20 seconds when desired EGR position equals 0	Battery Voltage > 11 volts	20 seconds Continuous every 100 msec	DTC Type A
Idle Control System Low/Closed	P1508	This DTC will determine if a low idle is the result of an engine mechanical problem Functional check.	The IAC Motor intrusive test looks for a delta combustible air grams when closing the IAC Motor. Threshold = 400	4000<Combustible air grams< 9000 45<IAC<150 Delta TP < .8% Delta rpm < 50 Enable criteria present for 15 seconds	Continuous when low or high rpm p0506, p0507 are present	DTC Type B
Idle Control System High/Open	P1509	This DTC will determine if a high idle is the result of an engine mechanical problem. Functional Check	Same as above	Same as above	Same as above	DTC Type B
Serial Communication Problem with Device1 (PCM)	P1601	This DTC will determine if the ECM-TCM SPI communications are functioning correctly Functional Check	No Communication for 500 mseconds or 5 bad messages received in a row or 10 SPI interrupts received within 10 mseconds.	9.5V< Ignition Voltage < 17V	2 failures per ign cycle Continuous	DTC Type A

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SENSED PARAMETER	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA & THRESHOLD VALUE(S)	SECONDARY MONITORING PARAMETERS AND ENABLE CONDITIONS	MONITORING TIME LENGTH AND FREQUENCY OF CHECK	MIL Illumination Type
Transmission Temperature Pull-up Resistor Fault	P1623	Range check	Transmission Temperature range change request results in < .098 volt difference for 5 consecutive attempts	No P1639, P0712, P0713 DTC's	2 failures per ign cycle Continuous	DTC Type A
PCM System Reset	P1625	This DTC will determine when the TCM microprocessor has an invalid ROM checksum or receives illegal interrupts Functional Check	Cal'd checksum does not equal stored checksum or illegal interrupts are received	None	2 failures per ign cycle Continuous	DTC Type A
A/D Failure	P1627	This DTC Checks to see if the A/D converter becomes faulty in the PCM Functional Check	Check A/D read Voltage in range .1 to 4.88 volts	None	5 Fails Continuous	DTC Type A
Engine Coolant Temperature Pull-Up Resistor Failed	P1628	This DTC detects the ability to switch the value of the resistor Functional Check	When A/D voltage < 3 volts	No ECT faults	5 failures per ignition, Continuous	DTC Type B
5 Volt Reference Low/High	P1635	This DTC verifies the 5 volt reference line Functional Check	3.7< AD Volt < 5.0 or Volt state invalid	None	Continuous	DTC Type A
A/D Failure (TC Code)	P1639	This DTC verifies the integrity of the analog/digital converter	the A/D converter does not complete in a specified amount of time and 5 counts < A/D conversions< 250 counts	None	2 failures/ign. cycle Continuous	DTC Type A
QDM/QDM C Fault	P1660	This DTC verifies the integrity of the GFD Functional Check	Inability to reset the actuator fault	9.5V < Ign. Voltage < 17V	2 failures/ign. cycle Continuous	DTC Type A

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