

# Powertrain DTC Summaries – EOBD

## Quick Reference Diagnostic Guide

Jaguar XJ Range V6, V8 N/A and V8 SC 2003.5 Model Year

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Refer to pages 2 – 9 for important information regarding the use of “Powertrain DTC Summaries”.

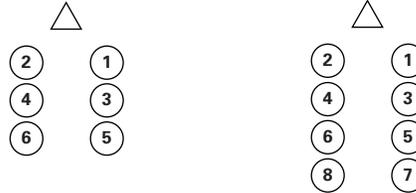
**REFERENCE:** It is recommended that the applicable “Electrical Guide” be referenced when using the information contained in this document.

## KEY TO COLUMN HEADINGS

DTC	Diagnostic Trouble Code.
SYS	The powertrain system with which the DTC is associated – EMS (ALL SYSTEMS), V6 EMS, V8 EMS, V8 SC EMS, TRANS, DSC. DTC retrieval tools: EOBD – indicates that the DTC is an EOBD code and can be accessed via a generic scan tool or WDS. JAG – indicates that the DTC is not an EOBD code and is accessed only via WDS.
FAULT DESCRIPTION	Fault description.
MONITORING CONDITIONS	“DIAGNOSTIC MONITOR DRIVE CYCLE” for the particular DTC. Operate the vehicle as described to check for a reoccurrence of the DTC. Refer to pages 4 – 7. Use WDS Datalogger or Scan Tool to monitor specified engine parameter(s).
CHECK ENGINE MIL (CK ENG)	1 1 TRIP – indicates that the CHECK ENGINE MIL is activated by a fault occurring during ONE “TRIP”. 2 2 TRIPS – indicates that the CHECK ENGINE MIL is activated by a fault occurring during TWO CONSECUTIVE “TRIPS”. Refer to page 3 for definition of OBD “TRIP”. N NO – indicates that the CHECK ENGINE MIL is not activated.
OTHER	Driver Warnings: N = None R = RED MIL (warning lamp) plus Message Center message A = AMBER MIL (warning lamp) plus Message Center message C = Charge indicator
DEFAULT ACTION	Control Module default action: Logged – DTC stored in ECM memory buffer; Flagged – DTC stored in ECM memory / CHECK ENGINE MIL activated.
CM PIN	ECM (system – Engine Management System) / TCM (system – Transmission) connector pin number(s)
POSSIBLE CAUSES	Possible causes are listed in the order of diagnostic checking. HIGH VOLTAGE – High voltage can be either sensor supply voltage (5 volts) or B+ voltage.

## CYLINDER NUMBERING

Engine cylinder numbering is as follows:



## OBD SYSTEM READINESS – ENGINE MANAGEMENT

If DTC P1000 is flagged after DTCs have been cleared, all engine management OBD diagnostic monitor drive cycles HAVE NOT BEEN COMPLETED.

If DTC P1111 is flagged after DTCs have been cleared, all engine management OBD diagnostic monitor drive cycles HAVE BEEN COMPLETED.

## OBD SYSTEM READINESS – TRANSMISSION

Use WDS Datalogger “TOTAL NUMBER OF DTC SET” to determine if transmission OBD monitoring has been completed.

## OBD “TRIPS”

The OBD system defines 1 TRIP as an ignition cycle (ignition key OFF; wait 30 seconds; ignition key ON) plus a minimum engine coolant temperature increase of 22 °C (40 °F) after which, the engine coolant temperature has to reach a minimum of 71°C (160 °F).

## **OBD DIAGNOSTIC MONITORS**

The Engine Management and Transmission Control systems are continuously checked during vehicle operation by the Engine Control Module (ECM) and Transmission Control Module (TCM) on-board diagnostic (OBD) facilities. Powertrain OBD incorporates seven diagnostic monitors. Each monitor has an associated group of DTCs. The diagnostic monitors will complete the diagnostic test(s) if a specified service "drive cycle" is carried out.

The seven diagnostic monitors are as follows:

- Heated Oxygen Sensors Monitor
- Adaptive Fuel Monitor
- Misfire Monitor
- Catalyst Efficiency Monitor
- Purge Monitor
- Exhaust Gas Recirculation Monitor
- Comprehensive Component Monitor (Engine Management / Transmission)

## **DIAGNOSTIC MONITORS DRIVE CYCLES**

Technicians can ensure that an OBD Monitor drive cycle is completed and that all or specific components have been checked by completing a specified drive cycle. Use the following service drive cycles to confirm that the components and subsystems covered by the Diagnostic Monitors are operating correctly.

## **HEATED OXYGEN SENSORS MONITOR DRIVE CYCLE**

### **Upstream (Universal) oxygen sensors:**

- 1 Engine OFF; cooling fans inoperative > 20 seconds.
- 2 Start engine and bring to normal operating temperature > 82 °C (180 °F).
- 3 Drive the vehicle between 3000 – 4000 rpm in 3rd gear at a steady speed. Lift foot completely off accelerator and coast to a stop within 30 seconds. Do not touch accelerator pedal for 4 seconds after coming to a stop.
- 4 Repeat step 3.
- 5 Idle engine for 11 minutes.

### **Downstream oxygen sensors:**

- 1 Start engine and bring to normal operating temperature > 82 °C (180 °F).
- 2 Drive the vehicle steadily between 48 – 97 km/h (30 – 60 mph) for 10 minutes.
- 3 Drive the vehicle above 3000 rpm in 3rd gear at a steady speed. Lift foot completely off accelerator and coast for 30 seconds.

### **Oxygen sensor heaters:**

- 1 Start engine and bring to normal operating temperature > 82 °C (180 °F).
- 2 Idle engine for 3 minutes.

## **ADAPTIVE FUEL MONITOR DRIVE CYCLE**

- 1 Start engine and bring to normal operating temperature > 82 °C (180 °F).
- 2 Idle for a minimum of 10 minutes.

## **MISFIRE MONITOR DRIVE CYCLE**

- 1 Record flagged DTC (s) and accompanying WDS DTC Monitor freeze frame(s) data.
- 2 Fuel level > 25%.
- 3 Start the engine at a coolant temperature lower than the recorded freeze frame value (from Step 1).
- 4 Drive the vehicle to the recorded freeze frame conditions for 4 minutes. If CHECK ENGINE MIL flashes, lower the engine speed until the flashing stops.

### **Note regarding misfire monitor DTCs:**

If, on the first trip, the misfire is severe enough to cause excess exhaust emission, the individual cylinder DTC plus DTC P1316 will be logged. The CHECK ENGINE MIL will not be activated. If the fault reoccurs on the second trip, the individual cylinder DTC plus DTC P1316 will be flagged, and the CHECK ENGINE MIL will be activated.

If, on the first trip, the misfire is severe enough to cause catalyst damage (more severe than excess exhaust emission), the CHECK ENGINE MIL will flash while the fault is present and the individual cylinder DTC plus DTC P1313 (bank 1), DTC P1314 (bank 2) will be logged. When the fault is no longer present the MIL will be deactivated. If the fault reoccurs on the second trip, the CHECK ENGINE MIL will flash while the fault is present and the individual cylinder DTC plus DTC P1313 (bank 1), DTC P1314 (bank 2) will be flagged. When the fault is no longer present the CHECK ENGINE MIL will be activated.

## **CATALYST EFFICIENCY MONITOR DRIVE CYCLE**

- 1 Start engine and bring to normal operating temperature > 75 °C (167 °F).
- 2 With the gear selector in Park or Neutral, hold the engine speed at 2500 rpm for 5 minutes.
- 3 Drive vehicle ensuring that vehicle speed exceeds 15 km/h (10 mph) and the engine speed exceeds 1500 rpm.
- 4 Stop the vehicle and check for any temporary DTCs using WDS.

### **PURGE SYSTEM MONITOR DRIVE CYCLE**

- 1 Fuel level > 15% and < 85%. If it is necessary to add fuel, reduce vapor concentration by driving the vehicle steadily for 30 minutes avoiding driving conditions that will produce excessive fuel movement.
- 2 Ambient temperature > -5 °C (23 °F); engine at normal operating temperature > 82 °C (180 °F).
- 3 Drive the vehicle steadily for 15 minutes avoiding driving conditions that will produce excessive fuel movement. Using WDS, ensure that the EVAP Canister Purge Valve is operating by observing “PURGE VAPOR MANAGEMENT VALVE – DUTY CYCLE”.
- 4 Gently coast to a stop. Idle engine 2 minutes. Using WDS, ensure that the EVAP Canister Purge Valve is operating by observing “PURGE VAPOR MANAGEMENT VALVE – DUTY CYCLE”.

NOTE: The diagnostic will not run if the vapor concentration in the fuel tank is too great.

NOTE: If Purge System DTCs are flagged after conducting the drive cycle, there may be a Purge System mechanical fault. Refer to P0441 Possible Causes.exhaust gas recirculation MONITOR DRIVE CYCLE

- 1 Start engine and bring to normal operating temperature > 82 °C (180 °F).
- 2 Drive the vehicle in 3rd gear at 2500 rpm. Maintain a steady speed for 1 minute, then lift foot completely off accelerator and coast for a minimum of 10 seconds.

### **EXHAUST GAS RECIRCULATION MONITOR DRIVE CYCLE**

- 1 Start engine and bring to normal operating temperature > 82 °C (180 °F).
- 2 Drive the vehicle in 3rd gear at 2500 rpm. Maintain a steady speed for 1 minute, then lift foot completely off accelerator and coast for a minimum of 10 seconds.

### **COMPREHENSIVE COMPONENT MONITOR ENGINE MANAGEMENT DRIVE CYCLE**

To avoid unnecessary complexity, a single comprehensive engine management drive cycle has not been developed for XJ Range. Refer to the individual DTC for specific drive cycle / monitoring conditions.

### **COMPREHENSIVE COMPONENT MONITOR TRANSMISSION DRIVE CYCLE**

To avoid unnecessary complexity, a single comprehensive transmission drive cycle has not been developed for XJ Range. Refer to the individual DTC for specific drive cycle / monitoring conditions.

## CONTROL MODULE AND GENERAL ACRONYMS:

AMP	Power Amplifier
ASCM	Adaptive Speed Control Module
ASM	Air Suspension Module
AUDIO	Audio Unit
CATS	Computer Active Suspension System
CCM	Climate Control Module
CPM	Cellular Phone Module
DDM	Driver Door Module
DSCM	Dynamic Stability Control Module
DSM	Driver Seat Module
ECM	Engine Control Module
FEM	Front Electronic Module
HLM	Headlamp Leveling Module
IC	Instrument Cluster
IS	Intrusion Sensor
JGM	J-Gate Module
MCP	Multimedia Control Panel
NCM	Navigation Control Module
PAM	Parking Aid Module
PATS	Passive Anti-Theft System
PBM	Parking Brake Module
RCCM	Rear Climate Control Module
RCM	Restraints Control Module
REM	Rear Electronic Module
RMM	Rear Memory Module
SCLM	Steering Column Lock Module
TCM	Transmission Control Module
VAM	Voice Activation Module
VICS	Vehicle Information Control System

## POWERTRAIN CONTROL ACRONYMS:

A/C	Air conditioning	IAT Sensor	Intake Air Temperature Sensor
APP Sensor	Accelerator Pedal Position Sensor	IC	Instrument Cluster
ASC	Adaptive Speed Control	IMT Valve 1	Intake Manifold Tuning Valve: Bottom
B+	Battery Voltage	IMT Valve 2	Intake Manifold Tuning Valve: Top
Bank 1	RH Engine cylinder bank (cylinders 1, 3, 5, 7) (A Bank)	IP Sensor	Injection Pressure Sensor
Bank 2	LH Engine cylinder bank (cylinders 2, 4, 6, 8) (B Bank)	KS 1	Knock Sensor – Bank 1
BARO Sensor	Barometric Pressure Sensor	KS 2	Knock Sensor – Bank 2
CAN	Controller Area Network	MAF Sensor	Mass Air Flow Sensor
CKP Sensor	Crankshaft Position Sensor	MAP Sensor	Manifold Absolute Pressure Sensor
CMP Sensor 1	Camshaft Position Sensor – Bank 1	N/A	Normally Aspirated
CMP Sensor 2	Camshaft Position Sensor – Bank 2	SC	Supercharged
DLC	Data Link Connector	TCC	Torque converter clutch
DSC	Dynamic Stability Control	TCM	Transmission Control Module
ECM	Engine Control Module	TFT Sensor	Transmission Fluid Temperature Sensor
ECT Sensor	Engine Coolant Temperature Sensor	TP Sensor	Throttle Position Sensor
EFT Sensor	Engine Fuel Temperature Sensor	V6	V6 Engine
EGR	Exhaust Gas Recirculation	V8	V8 Engine
EOT Sensor	Engine Oil Temperature Sensor	VVT Solenoid Valve 1	Variable Valve Timing Solenoid Valve – Bank 1
EVAP Canister Close Valve	Evaporative Emission Canister Close Valve	VVT Solenoid Valve 2	Variable Valve Timing Solenoid Valve – Bank 2
EVAP Canister Purge Valve	Evaporative Emission Canister Purge Valve		
FTP Sensor	Fuel Tank Pressure Sensor		
HO2 Sensor 1 / 1	Heated Oxygen Sensor – Bank 1 / Upstream		
HO2 Sensor 1 / 2	Heated Oxygen Sensor – Bank 1 / Downstream		
HO2 Sensor 2 / 1	Heated Oxygen Sensor – Bank 2 / Upstream		
HO2 Sensor 2 / 2	Heated Oxygen Sensor – Bank 2 / Downstream		

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0010	EMS EOBD	VVT circuit malfunction – bank 1	Idle engine 30 seconds Accelerate from stop through complete engine rpm range Coast to a stop  Drive the vehicle steadily between 48 – 97 km/h (30 – 60 mph) for 5 minutes; coast to a stop  Accelerate smoothly through complete accelerator pedal travel; coast to a stop Idle engine 30 seconds	2	N	ECM Default: – Bank 1 VVT hold current set at a constant value of 450 mA (V6) 520 mA (V8)	P11 -109	VVT solenoid valve disconnected VVT solenoid valve to ECM PWM drive circuit: open circuit, short circuit, high resistance VVT solenoid failure
P0020	EMS EOBD	VVT circuit malfunction – bank 2	Idle engine 30 seconds Accelerate from stop through complete engine rpm range; coast to a stop  Drive the vehicle steadily between 48 – 97 km/h (30 – 60 mph) for 5 minutes; coast to a stop  Accelerate smoothly through complete accelerator pedal travel; coast to a stop Idle engine 30 seconds	2	N	ECM Default: – Bank 2 VVT hold current set at a constant value of 450 mA (V6) 520 mA (V8)	P11 -110	VVT solenoid valve disconnected VVT solenoid valve to ECM PWM drive circuit: open circuit, short circuit, high resistance VVT solenoid failure
P0031	EMS EOBD	HO2 Sensor heater control circuit low current – bank 1, upstream (1/1)	Heated oxygen sensors monitor drive cycle – page 5 (Oxygen sensor heaters)	2	N	ECM Default: – Bank 1 closed loop fuel metering and adaptive fuel metering inhibited  – Canister purge inhibited  – Bank 1 upstream HO2S heater control circuit switched off	P11 -001 -002 -029 -030	HO2 Sensor 1/1 heater power supply circuit: open circuit HO2 Sensor 1/1 heater control circuit: open circuit, high resistance HO2 Sensor 1/1 heater ground circuit(s) fault (P11-029, P11-030) HO2 Sensor 1/1 heater failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0032	EMS EOBD	HO2 Sensor heater control circuit high current – bank 1, upstream (1/1)	Heated oxygen sensors monitor drive cycle – page 5 (Oxygen sensor heaters)	2	N	ECM Default: – Bank 1 closed loop fuel metering and adaptive fuel metering inhibited – Canister purge inhibited – Bank 1 upstream HO2S heater control circuit switched off	PI1 -001 -002 -029 -030	HO2 Sensor 1/1 heater control circuit: short circuit to ground HO2 Sensor 1/1 heater ground circuit(s) fault (PI1-029, PI1-030) HO2 Sensor 1/1 heater failure
P0037	EMS EOBD	HO2 Sensor heater control circuit low resistance – bank 1, downstream (1/2)	Heated oxygen sensors monitor drive cycle – page 5 (Oxygen sensor heaters)	2	N	None	PI1 -092	HO2 Sensor 1/2 heater control circuit: short circuit to ground HO2 Sensor 1/2 heater failure
P0038	EMS EOBD	HO2 Sensor heater control circuit high resistance – bank 1, downstream (1/2)	Heated oxygen sensors monitor drive cycle – page 5 (Oxygen sensor heaters)	2	N	None	PI1 -092	HO2 Sensor 1/2 heater control circuit: open circuit; high resistance HO2 Sensor 1/2 heater failure
P0051	EMS EOBD	HO2 Sensor heater control circuit low current – bank 2, upstream (2/1)	Heated oxygen sensors monitor drive cycle – page 5 (Oxygen sensor heaters)	2	N	ECM Default: – Bank 2 closed loop fuel metering and adaptive fuel metering inhibited – Canister purge inhibited – Bank 2 upstream HO2S heater control circuit switched off	PI1 -055 -056 -081 -082	HO2 Sensor 2/1 heater power supply circuit: open circuit HO2 Sensor 2/1 heater control circuit: open circuit, high resistance HO2 Sensor 2/1 heater ground circuit(s) fault (PI1-081, PI1-082) HO2 Sensor 2/1 heater failure
P0052	EMS EOBD	HO2 Sensor heater control circuit high current – bank 2, upstream (2/1)	Heated oxygen sensors monitor drive cycle – page 5 (Oxygen sensor heaters)	2	N	ECM Default: – Bank 2 closed loop fuel metering and adaptive fuel metering inhibited – Canister purge inhibited – Bank 2 upstream HO2S heater control circuit switched off	PI1 -055 -056 -081 -082	HO2 Sensor 2/1 heater control circuit: short circuit to ground HO2 Sensor 2/1 heater ground circuit(s) fault (PI1-081, PI1-082) HO2 Sensor 2/1 heater failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0057	EMS EOBD	HO2 Sensor heater control circuit low resistance – bank 2, downstream (2/2)	Heated oxygen sensors monitor drive cycle – page 5 (Oxygen sensor heaters)	2	N	None	PI1-093	HO2 Sensor 2/2 heater control circuit: short circuit to ground HO2 Sensor 2/2 heater failure
P0058	EMS EOBD	HO2 Sensor heater control circuit high resistance – bank 2, downstream (2/2)	Heated oxygen sensors monitor drive cycle – page 5 (Oxygen sensor heaters)	2	N	None	PI1-093	HO2 Sensor 2/2 heater control circuit: open circuit; high resistance HO2 Sensor 2/2 heater failure
P0096	V8 SC EMS EOBD	IAT Sensor 2 circuit range / performance	Engine coolant temperature < 40 °C (104 °F) Ambient temperature < 40 °C (104 °F) Engine coolant temperature and ambient temperature within 10 °C (20 °F) of each other Start engine and drive above 1500 rpm at a steady speed for a minimum of 2 minutes	2	A	ECM Default: – Default value of 70 °C (158 °F) used	PI1-072	IAT Sensor 2 disconnected IAT Sensor 2 to ECM sensing circuit: open circuit IAT Sensor 2 failure
P0097	V8 SC EMS EOBD	IAT Sensor 2 circuit high voltage (low air temperature)	Ignition ON 10 seconds	2	A	ECM Default: – Default value of 70 °C (158 °F) used	PI1-072	IAT Sensor 2 disconnected IAT Sensor 2 to ECM wiring: open circuit or high resistance IAT Sensor 2 to ECM sensing circuit: short circuit to B+ voltage IAT Sensor 2 failure
P0098	V8 SC EMS EOBD	IAT Sensor 2 circuit low voltage (high air temperature)	Ignition ON 10 seconds	2	A	ECM Default: – Default value of 70 °C (158 °F) used	PI1-072	IAT Sensor 2 to ECM wiring: short circuit to ground IAT Sensor 2 failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0101	EMS EOBD	MAF Sensor circuit range / performance	Fuel level > 25%. Start engine and bring to normal operating temperature > 82 °C (180 °F) Drive the vehicle steadily in 4th or 5th gear on a level road between 1700 – 2300 rpm (V6), 1200 – 1800 rpm (V8); hold the engine speed constant for 40 seconds while maintaining a steady throttle	2	A	ECM Default: – Default air mass used – Adaptive fuel metering inhibited – Catalyst warm up ignition retard inhibited – Canister purge inhibited – Maximum engine speed reduced	P11-044	Blocked air cleaner Air intake leak Engine breather leak Throttle control malfunction MAF Sensor to ECM sensing circuit: high resistance, intermittent short circuit to ground MAF Sensor supply circuit: high resistance MAF Sensor failure Throttle adaption fault (check throttle position voltage at Ignition ON)
P0102	EMS EOBD	MAF Sensor circuit low voltage	Ignition ON 10 seconds	2	A	ECM Default: – Default air mass used – Adaptive fuel metering inhibited – Catalyst warm up ignition retard inhibited – Canister purge inhibited – Maximum engine speed reduced	P11-044	Blocked air cleaner Air intake leak between MAF Sensor and throttle MAF Sensor to ECM sensing circuit: high resistance, open circuit, intermittent short circuit to ground MAF Sensor supply circuit: open circuit, short circuit to ground MAF Sensor failure
P0103	EMS EOBD	MAF Sensor circuit high voltage	Ignition ON 10 seconds	2	A	ECM Default: – Default air mass used – Adaptive fuel metering inhibited – Catalyst warm up ignition retard inhibited – Canister purge inhibited – Maximum engine speed reduced	P11-044 -045 -046	MAF Sensor to ECM sensing circuit: short circuit to B+ voltage MAF Sensor to ECM sensor ground circuit: open circuit MAF Sensor failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0105	EMS EOBD	MAP Sensor circuit malfunction	Fuel level > 25% Start engine and bring to normal operating temperature > 82 °C (180 °F) Drive the vehicle steadily in 4th or 5th gear on a level road between 1700 – 2300 rpm (V6), 1200 – 1800 rpm (V8); hold the engine speed constant for 40 seconds while maintaining a steady throttle	2	N	ECM Default: – Default value of 1.013 BAR (29.92 in hg) used	PI1 -127	Intake manifold air leak (loose or missing component) MAP Sensor to ECM circuit(s) fault MAP Sensor failure Throttle adaption fault (check throttle position voltage at Ignition ON)
P0106	EMS EOBD	BARO Sensor circuit range / performance	Engine temperature cool (cooling fans not running) Remove ignition key for 20 seconds (cooling fans not running) Ignition key in, position II for 5 seconds (do not start) Repeat cycle twice more	2	N	ECM Default: – Default value of 1 BAR (29.53 in hg) used	—	BARO Sensor failure (internal ECM fault)
P0107	EMS EOBD	BARO Sensor circuit low voltage	Ignition ON 10 seconds	2	N	ECM Default: – Default value of 1 BAR (29.53 in hg) used	—	BARO Sensor failure (internal ECM fault)
P0108	EMS EOBD	BARO Sensor circuit high voltage	Ignition ON 10 seconds	2	N	ECM Default: – Default value of 1 BAR (29.53 in hg) used	—	BARO Sensor failure (internal ECM fault)

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0111	EMS EOBD	IAT Sensor circuit range / performance	Engine OFF; coolant temperature <35 °C (95 °F) Start engine and hold 3000 rpm in P or N for 30 seconds	2	N	ECM Default: – Default value substituted 25 °C (77 °F) (V6) 50 °C (122 °F) V8	PI1 -071	Blocked air cleaner Air intake leak Engine breather leak IAT Sensor to ECM wiring: open circuit or high resistance IAT Sensor to ECM sensing circuit: short circuit to high voltage IAT Sensor failure
P0112	EMS EOBD	IAT Sensor circuit high voltage (low air temperature)	Ignition ON 10 seconds	2	N	ECM Default: – Default value substituted 25 °C (77 °F) (V6) 50 °C (122 °F) V8	PI1 -071	IAT Sensor disconnected IAT Sensor to ECM wiring: open circuit or high resistance IAT Sensor to ECM sensing circuit: short circuit to B+ voltage IAT Sensor failure
P0113	EMS EOBD	IAT Sensor circuit low voltage (high air temperature)	Ignition ON 10 seconds	2	N	ECM Default: – Default value substituted 25 °C (77 °F) (V6) 50 °C (122 °F) V8	PI1 -071	IAT Sensor to ECM wiring: short circuit to ground IAT Sensor failure
P0116	EMS EOBD	ECT Sensor circuit range / performance	Engine coolant temperature and ambient temperature within 10 °C (20 °F) of each other Start engine and drive the vehicle steadily in 4th or 5th gear above 1700 rpm until the engine coolant temperature reaches 80 °C (176 °F) CAUTION: Overheating is possible if the ECT sensor is faulty and cooling fans do not operate	2	A	ECM Default: – EOT value substituted (no greater than 95 °C (203 °F)) – Closed loop fuel metering inhibited – Adaptive fuel metering inhibited – Catalyst warm-up ignition retard inhibited – Canister purge inhibited – Maximum engine speed reduced	PI1 -070	ECT Sensor disconnected Low coolant level Contaminated coolant Engine thermostat failure ECT Sensor to ECM sensing circuit: open circuit, high resistance when hot, intermittent high resistance ECT Sensor failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0117	EMS EOBD	ECT Sensor circuit high voltage (low coolant temperature)	Ignition ON 10 seconds	2	A	ECM Default: <ul style="list-style-type: none"> <li>- EOT value substituted (no greater than 95 °C (203 °F))</li> <li>- Closed loop fuel metering inhibited</li> <li>- Adaptive fuel metering inhibited</li> <li>- Catalyst warm-up ignition retard inhibited</li> <li>- Canister purge inhibited</li> <li>- Maximum engine speed reduced</li> </ul>	P11-070	ECT Sensor disconnected ECT Sensor to ECM sensing circuit: high resistance, open circuit, short circuit to B+ voltage ECT Sensor failure
P0118	EMS EOBD	ECT Sensor circuit low voltage (high coolant temperature)	Ignition ON 10 seconds	2	A	ECM Default: <ul style="list-style-type: none"> <li>- EOT value substituted (no greater than 95 °C (203 °F))</li> <li>- Closed loop fuel metering inhibited</li> <li>- Adaptive fuel metering inhibited</li> <li>- Catalyst warm-up ignition retard inhibited</li> <li>- Canister purge inhibited</li> <li>- Maximum engine speed reduced</li> </ul>	P11-070	Engine overheat condition ECT Sensor to ECM wiring: short circuit to ground ECT Sensor failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0121	EMS EOBD	TP Sensor range / performance (TP1 compared to TP2)	Battery voltage > 10 volts Ignition ON Slowly press accelerator pedal to the floor over a 5 second period Slowly return the pedal to rest Repeat 3 times	2	R	ECM Default: – Throttle motor and throttle motor relay disabled – Throttle valve opening set to default value – Idle speed controlled by fuel injection intervention – Idle speed adaption inhibited	PI1 -075 -076	TP Sensor to ECM wiring: open circuit, high resistance TP Sensor to ECM sensing circuits (TP1 or TP2): short circuit to B+ voltage TP Sensor failure
P0122	EMS EOBD	TP Sensor circuit 1 low voltage	Battery voltage > 10 volts Ignition ON Slowly press accelerator pedal to the floor over a 5 second period Slowly return the pedal to rest Repeat 3 times	2	R	ECM Default: – Throttle motor and throttle motor relay disabled – Throttle valve opening set to default value – Idle speed controlled by fuel injection intervention – Idle speed adaption inhibited	PI1 -075	TP Sensor to ECM sensing circuit (TP1): open circuit, short circuit to ground, high resistance TP Sensor failure
P0123	EMS EOBD	TP Sensor circuit 1 high voltage	Battery voltage > 10 volts Ignition ON Slowly press accelerator pedal to the floor over a 5 second period Slowly return the pedal to rest Repeat 3 times	2	R	ECM Default: – Throttle motor and throttle motor relay disabled – Throttle valve opening set to default value – Idle speed controlled by fuel injection intervention – Idle speed adaption inhibited	PI1 -075	TP Sensor to ECM sensing circuit (TP1): short circuit to high voltage TP Sensor failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0125	EMS EOBD	ECT Sensor response (for closed loop fuel control)  (Coolant thermostat monitor)	Engine coolant temperature and ambient temperature within 10 °C (20 °F) of each other  Start engine and drive the vehicle steadily in 4th or 5th gear above 1700 rpm until the engine coolant temperature reaches 80 °C (176 °F)  CAUTION: Overheating is possible if the ECT sensor is faulty and cooling fans do not operate	2	A	ECM Default: – EOT value substituted (no greater than 95 °C (203 °F)) – Closed loop fuel metering inhibited – Adaptive fuel metering inhibited – Catalyst warm-up ignition retard inhibited – Canister purge inhibited – Maximum engine speed reduced	P11 -070	ECT Sensor disconnected Low coolant level Contaminated coolant Engine coolant thermostat failure ECT Sensor to ECM sensing circuit: high resistance, open circuit or short circuit to high voltage Engine cooling fan stuck on high speed Above normal air flow through engine compartment due to accident damage and/or missing panels
P0128	EMS EOBD	Coolant thermostat range / performance	Engine OFF; coolant temperature < 35 °C (95 °F) Start engine and drive until normal engine operating temperature > 85 °C (180 °F)	2	N	None	—	Contaminated coolant Engine coolant thermostat failure ECT Sensor failure (ECT Sensor DTC(s) also flagged)
P0131	EMS EOBD	HO2 Sensor sense circuit low current – bank 1, upstream (1/1)  (Universal oxygen sensor: lean condition at ECM – high current at sensor)	Heated oxygen sensors monitor drive cycle – page 5 (Upstream oxygen sensors)	2	N	None	P11 -083 -084	HO2 Sensor 1/1 disconnected HO2 Sensor 1/1 to ECM variable current circuit fault (HO2 Sensor pin 3) ECM to HO2 Sensor 1/1 constant current circuit fault (HO2 Sensor pin 4) HO2 Sensor 1/1 failure
P0132	EMS EOBD	HO2 Sensor sense circuit high current – bank 1, upstream (1/1)  (Universal oxygen sensor: rich condition at ECM – low current at sensor)	Heated oxygen sensors monitor drive cycle – page 5 (Upstream oxygen sensors)	2	N	None	P11 -083 -084	HO2 Sensor 1/1 disconnected HO2 Sensor 1/1 to ECM variable current circuit fault (HO2 Sensor pin 3) ECM to HO2 Sensor 1/1 constant current circuit fault (HO2 Sensor pin 4) HO2 Sensor 1/1 failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0133	EMS EOBD	HO2 Sensor sense circuit slow response – bank 1, upstream (1/1)	Heated oxygen sensors monitor drive cycle – page 5 (Upstream oxygen sensors)	2	N	ECM Default: – Bank 1 closed loop fuel metering inhibited – Canister purge inhibited	PI1 -083 -084	Engine misfire HO2 Sensor 1/1 disconnected HO2 Sensor 1/1 mechanical damage HO2 Sensor 1/1 to ECM wiring fault HO2 Sensor 1/1 short circuit to ground HO2 Sensor 1/1 to ECM wiring shield open circuit HO2 Sensor 1/1 heater circuit fault Exhaust leak Low exhaust temperature Injector flow partially blocked Catalyst efficiency decrease HO2 Sensor 1/1 failure
P0137	EMS EOBD	HO2 Sensor sense circuit low voltage – bank 1, downstream (1/2)	Heated oxygen sensors monitor drive cycle – page 5 (Downstream oxygen sensors)	2	N	None	PI1 -128	HO2 Sensor 1/2 disconnected HO2 Sensor 1/2 to ECM wiring open circuit HO2 Sensor 1/2 short circuit to ground HO2 Sensor 1/2 failure
P0138	EMS EOBD	HO2 Sensor sense circuit high voltage – bank 1, downstream (1/2)	Heated oxygen sensors monitor drive cycle – page 5 (Downstream oxygen sensors)	2	N	None	PI1 -128	HO2 Sensor 1/2 sensing circuit: short circuit to high voltage HO2 Sensor 1/2 ground (BRD – braided shield) open circuit HO2 Sensor 1/2 failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0140	EMS EOBD	HO2 Sensor sense circuit no activity – bank 1, downstream (1/2)	Heated oxygen sensors monitor drive cycle – page 5 (Downstream oxygen sensors)	2	N	None	P11 -128	HO2 Sensor 1/2 disconnected HO2 Sensor 1/2 mechanical damage HO2 Sensor 1/2 to ECM wiring open circuit HO2 Sensor 1/2 sensing circuit: short circuit to high voltage HO2 Sensor 1/2 short circuit to ground HO2 Sensor 1/2 ground (BRD – braided shield) open circuit Exhaust leak Low exhaust temperature HO2 Sensor 1/2 failure
P0151	EMS EOBD	HO2 Sensor sense circuit low current – bank 2, upstream (2/1)  (Universal oxygen sensor: lean condition at ECM – high current at sensor)	Heated oxygen sensors monitor drive cycle – page 5 (Upstream oxygen sensors)	2	N	None	P11 -107 -108	HO2 Sensor 2/1 disconnected HO2 Sensor 2/1 to ECM variable current circuit fault (HO2 Sensor pin 3) ECM to HO2 Sensor 2/1 constant current circuit fault (HO2 Sensor pin 4) HO2 Sensor 2/1 failure
P0152	EMS EOBD	HO2 Sensor sense circuit high current – bank 2, upstream (2/1)  (Universal oxygen sensor: rich condition at ECM – low current at sensor)	Heated oxygen sensors monitor drive cycle – page 5 (Upstream oxygen sensors)	2	N	None	P11 -107 -108	HO2 Sensor 2/1 disconnected HO2 Sensor 2/1 to ECM variable current circuit fault (HO2 Sensor pin 3) ECM to HO2 Sensor 2/1 constant current circuit fault (HO2 Sensor pin 4) HO2 Sensor 2/1 failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0153	EMS EOBD	HO2 Sensor sense circuit slow response – bank 2, upstream (2/1)	Heated oxygen sensors monitor drive cycle – page 5 (Upstream oxygen sensors)	2	N	ECM Default: – Bank 1 closed loop fuel metering inhibited – Canister purge inhibited	PI1 -107 -108	Engine misfire HO2 Sensor 2/1 disconnected HO2 Sensor 2/1 mechanical damage HO2 Sensor 2/1 to ECM wiring fault HO2 Sensor 2/1 short circuit to ground HO2 Sensor 2/1 to ECM wiring shield open circuit HO2 Sensor 2/1 heater circuit fault Exhaust leak Low exhaust temperature Injector flow partially blocked Catalyst efficiency decrease HO2 Sensor 2/1 failure
P0157	EMS EOBD	HO2 Sensor sense circuit low voltage – bank 2, downstream (2/2)	Heated oxygen sensors monitor drive cycle – page 5 (Downstream oxygen sensors)	2	N	None	PI1 -129	HO2 Sensor 2/2 disconnected HO2 Sensor 2/2 to ECM wiring open circuit HO2 Sensor 2/2 short circuit to ground HO2 Sensor 2/2 failure
P0158	EMS EOBD	HO2 Sensor sense circuit high voltage – bank 2, downstream (2/2)	Heated oxygen sensors monitor drive cycle – page 5 (Downstream oxygen sensors)	2	N	None	PI1 -129	HO2 Sensor 2/2 sensing circuit: short circuit to high voltage HO2 Sensor 2/2 ground (BRD – braided shield) open circuit HO2 Sensor 2/2 failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0160	EMS EOBD	HO2 Sensor sense circuit no activity – bank 2, downstream (2/2)	Heated oxygen sensors monitor drive cycle – page 5 (Downstream oxygen sensors)	2	N	None	PI1-129	HO2 Sensor 2/2 disconnected HO2 Sensor 2/2 mechanical damage HO2 Sensor 2/2 to ECM wiring open circuit HO2 Sensor 2/2 sensing circuit short circuit to high voltage HO2 Sensor 2/2 short circuit to ground HO2 Sensor 2/2 ground (BRD – braided shield) open circuit Exhaust leak Low exhaust temperature HO2 Sensor 2/2 failure
P0171	EMS EOBD	Bank 1 combustion too lean	Start engine and bring to normal operating temperature > 82 °C (180 °F) Idle for 10 minutes	2	N	ECM Default: – Bank 1 catalyst warm-up ignition retard inhibited – Bank 1 closed loop fuel metering inhibited – Canister purge inhibited – Maximum engine speed reduced	—	Engine misfire Air intake leak between MAF Sensor and cylinder head Fuel filter / system restriction Fuel injector restriction IP Sensor fault (low fuel pressure) Low fuel pump output HO2 Sensor(s) (1/1, 1/2) harness wiring condition fault EFT Sensor fault (low fuel temperature) MAF Sensor fault (low intake air flow) Exhaust leak (before catalyst) ECM receiving incorrect signal from one or more of the following components: ECT Sensor, MAF Sensor, IAT Sensor, IP Sensor, EFT Sensor, TP Sensor

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0172	EMS EOBD	Bank 1 combustion too rich	Start engine and bring to normal operating temperature > 82 °C (180 °F) Idle for 10 minutes	2	N	ECM Default: – Bank 1 catalyst warm-up ignition retard inhibited – Bank 1 closed loop fuel metering inhibited – Canister purge inhibited – Maximum engine speed reduced	—	Restricted air filter Leaking fuel injector(s) IP Sensor fault (high fuel pressure) EFT Sensor fault (high fuel temperature) MAF Sensor fault (high intake air flow) HO2 Sensor(s) (1/1, 1/2) harness wiring condition fault ECM receiving incorrect signal from one or more of the following components: ECT Sensor, MAF Sensor, IAT Sensor, IP Sensor, EFT Sensor, TP Sensor
P0174	EMS EOBD	Bank 2 combustion too lean	Start engine and bring to normal operating temperature > 82 °C (180 °F) Idle for 10 minutes	2	N	ECM Default: – Bank 2 catalyst warm-up ignition retard inhibited – Bank 2 closed loop fuel metering inhibited – Canister purge inhibited – Maximum engine speed reduced	—	Engine misfire Air intake leak between MAF Sensor and cylinder head Fuel filter / system restriction Fuel injector restriction IP Sensor fault (low fuel pressure) Low fuel pump output HO2 Sensor(s) (2/1, 2/2) harness wiring condition fault EFT Sensor fault (low fuel temperature) MAF Sensor fault (low intake air flow) Exhaust leak (before catalyst) ECM receiving incorrect signal from one or more of the following components: ECT Sensor, MAF Sensor, IAT Sensor, IP Sensor, EFT Sensor, TP Sensor

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0175	EMS EOBD	Bank 2 combustion too rich	Start engine and bring to normal operating temperature > 82 °C (180 °F) Idle for 10 minutes	2	N	ECM Default: – Bank 2 catalyst warm-up ignition retard inhibited – Bank 2 closed loop fuel metering inhibited – Canister purge inhibited – Maximum engine speed reduced	—	Restricted air filter Leaking fuel injector(s) IP Sensor fault (high fuel pressure) EFT Sensor fault (high fuel temperature) MAF Sensor fault (high intake air flow) HO2 Sensor(s) (2/1, 2/2) harness wiring condition fault ECM receiving incorrect signal from one or more of the following components: ECT Sensor, MAF Sensor, IAT Sensor, IP Sensor, EFT Sensor, TP Sensor
P0181	EMS EOBD	EFT Sensor range / performance	Engine OFF; coolant temperature < 35 °C (95 °F) Start engine and drive until normal engine operating temperature > 82 °C (180 °F) Drive for an additional 25 minutes	2	N	ECM Default: – Default value of 25 °C (77 °F) used	P11-050	EFT Sensor disconnected EFT Sensor to ECM sensing circuit: high resistance, open circuit, short circuit to ground short circuit to high voltage EFT Sensor to splice sensor ground circuit: high resistance, open circuit EFT Sensor failure
P0182	EMS EOBD	EFT Sensor circuit low voltage (high temperature)	Ignition ON 10 seconds	2	N	ECM Default: – Default value of 25 °C (77 °F) used	P11-050	EFT Sensor to ECM sensing circuit: short circuit to ground EFT Sensor to splice sensor ground circuit: short circuit EFT Sensor failure
P0183	EMS EOBD	EFT Sensor circuit high voltage (low temperature)	Ignition ON 10 seconds	2	N	ECM Default: – Default value of 25 °C (77 °F) used	P11-050	EFT Sensor disconnected EFT Sensor to ECM sensing circuit: high resistance, open circuit, short circuit to high voltage EFT Sensor to splice sensor ground circuit: high resistance, open circuit EFT Sensor failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0191	EMS EOBD	IP Sensor circuit range / performance	Fuel level > 25% Idle engine 30 seconds Accelerate from stop through complete engine rpm range; coast to a stop Drive the vehicle steadily between 48 – 97 km/h (30 – 60 mph) for 5 minutes; coast to a stop Accelerate smoothly through complete accelerator pedal travel; coast to a stop Idle engine 30 seconds	2	N	ECM Default: – Default value of 3.80 BAR (55.11 psi) used – Fuel pump feedback control inhibited	PI1 -073	Fuel filter / system restriction Fuel system leak Incorrect fuel pump output IP Sensor to ECM sensing circuit: high resistance, open circuit, short circuit to ground, short circuit to high voltage IP Sensor to splice sensor supply circuit: high resistance, open circuit IP Sensor to splice sensor ground circuit: high resistance, open circuit, short circuit to ground, short circuit to high voltage IP Sensor failure
P0192	EMS EOBD	IP Sensor sensor circuit low voltage (low pressure)	Ignition ON 10 seconds	2	N	ECM Default: – Default value of 3.80 BAR (55.11 psi) used – Fuel pump feedback control inhibited	PI1 -073	IP Sensor disconnected IP Sensor to ECM sensing circuit: open circuit or short circuit to ground IP Sensor to splice sensor supply circuit: high resistance open circuit IP Sensor failure
P0193	EMS EOBD	IP Sensor sensor circuit high voltage (high pressure)	Ignition ON 10 seconds	2	N	ECM Default: – Default value of 3.80 BAR (55.11 psi) used – Fuel pump feedback control inhibited	PI1 -073	IP Sensor to ECM wiring (supply, sense): short circuit to each other IP Sensor to ECM sense circuit: short circuit to high voltage IP Sensor to splice sensor ground circuit: open circuit IP Sensor failure
P0196	EMS EOBD	EOT Sensor range / performance	Engine OFF; coolant temperature < 35 °C (95 °F) Start engine and drive until normal engine operating temperature > 82 °C (180 °F)	2	N	ECM Default: – ECT substituted	PI1 -078	EOT Sensor to ECM sensing circuit: high resistance when hot, intermittent high resistance EOT Sensor failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0197	EMS EOBD	EOT Sensor low voltage (high temperature)	Ignition ON 10 seconds	2	N	ECM Default: – ECT substituted	P11 -078	EOT Sensor to ECM sensing circuit: short circuit to ground EOT Sensor failure
P0198	EMS EOBD	EOT Sensor high voltage (low temperature)	Ignition ON 10 seconds	2	N	ECM Default: – ECT substituted	P11 -078	EOT Sensor disconnected EOT Sensor to ECM sensing circuit: high resistance, open circuit, short circuit to B+ voltage EOT Sensor failure
P0201	EMS EOBD	Fuel injector 1 circuit malfunction	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Bank 1 closed loop fuel metering inhibited – Bank 1 adaptive fuel metering inhibited – Bank 1 catalyst warm up ignition retard inhibited – Canister purge inhibited – Maximum engine speed reduced	V6 P11 -115 V8 P11 -120	Injector disconnected Injector harness wiring: open circuit, short circuit Injector failure
P0202	EMS EOBD	Fuel injector 2 circuit malfunction	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Bank 2 closed loop fuel metering inhibited – Bank 2 adaptive fuel metering inhibited – Bank 2 catalyst warm up ignition retard inhibited – Canister purge inhibited – Maximum engine speed reduced	V6 P11 -120 V8 P11 -115	Injector disconnected Injector harness wiring: open circuit, short circuit Injector failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0203	EMS EOBD	Fuel injector 3 circuit malfunction	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Bank 1 closed loop fuel metering inhibited – Bank 1 adaptive fuel metering inhibited – Bank 1 catalyst warm up ignition retard inhibited – Canister purge inhibited – Maximum engine speed reduced	P11-114	Injector disconnected Injector harness wiring: open circuit, short circuit Injector failure
P0204	EMS EOBD	Fuel injector 4 circuit malfunction	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Bank 2 closed loop fuel metering inhibited – Bank 2 adaptive fuel metering inhibited – Bank 2 catalyst warm up ignition retard inhibited – Canister purge inhibited – Maximum engine speed reduced	P11-119	Injector disconnected Injector harness wiring: open circuit, short circuit Injector failure
P0205	EMS EOBD	Fuel injector 5 circuit malfunction	Start engine. Battery voltage > 12 volts Idle for 2 minutes.	2	A	ECM Default: – Bank 1 closed loop fuel metering inhibited – Bank 1 adaptive fuel metering inhibited – Bank 1 catalyst warm up ignition retard inhibited – Canister purge inhibited – Maximum engine speed reduced	P11-113	Injector disconnected Injector harness wiring: open circuit, short circuit Injector failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0206	EMS EOBD	Fuel injector 6 circuit malfunction	Start engine. Battery voltage > 12 volts Idle for 2 minutes.	2	A	ECM Default: – Bank 2 closed loop fuel metering inhibited – Bank 2 adaptive fuel metering inhibited – Bank 2 catalyst warm up ignition retard inhibited – Canister purge inhibited – Maximum engine speed reduced	P11-118	Injector disconnected Injector harness wiring: open circuit, short circuit Injector failure
P0207	V8 EMS EOBD	Fuel injector 7 circuit malfunction	Start engine. Battery voltage > 12 volts Idle for 2 minutes.	2	A	ECM Default: – Bank 1 closed loop fuel metering inhibited – Bank 1 adaptive fuel metering inhibited – Bank 1 catalyst warm up ignition retard inhibited – Canister purge inhibited – Maximum engine speed reduced	P11-117	Injector disconnected Injector harness wiring: open circuit, short circuit Injector failure
P0208	V8 EMS EOBD	Fuel injector 8 circuit malfunction	Start engine. Battery voltage > 12 volts Idle for 2 minutes.	2	A	ECM Default: – Bank 2 closed loop fuel metering inhibited – Bank 2 adaptive fuel metering inhibited – Bank 2 catalyst warm up ignition retard inhibited – Canister purge inhibited – Maximum engine speed reduced	P11-112	Injector disconnected Injector harness wiring: open circuit, short circuit Injector failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0222	EMS EOBD	TP Sensor sense circuit 2 (TP2) low voltage	Battery voltage > 10 volts Ignition ON Slowly press accelerator pedal to the floor over a 5 second period Slowly return the pedal to rest Repeat 3 times	2	R	ECM Default: – Throttle motor and throttle motor relay disabled – Throttle valve opening set to default value – Idle speed controlled by fuel injection intervention – Idle speed adaption inhibited	PI1 -076	TP Sensor to ECM sensing circuit (TP2): open circuit, short circuit to ground, high resistance TP Sensor failure
P0223	EMS EOBD	TP Sensor sense circuit 2 (TP2) high voltage	Battery voltage > 10 volts Ignition ON Slowly press accelerator pedal to the floor over a 5 second period Slowly return the pedal to rest Repeat 3 times	2	R	ECM Default: – Throttle motor and throttle motor relay disabled – Throttle valve opening set to default value – Idle speed controlled by fuel injection intervention – Idle speed adaption inhibited	PI1 -076	TP Sensor to ECM sensing circuit (TP2): short circuit to high voltage TP Sensor failure
P0230	REM*	Fuel pump drive circuit fault  * DTC flagged by REM and stored in REM	None	N	N	None	CR73 -3 -4	Fuel pump drive circuit(s): short circuit to B+ voltage REM fuel pump drive failure
P0231	REM*	Fuel pump drive circuit fault  * DTC flagged by REM and stored in REM	None	N	N	None	CR73 -3 -4	Fuel pump drive circuit(s): open circuit REM fuel pump drive failure
P0232	REM*	Fuel pump drive circuit fault  * DTC flagged by REM and stored in REM	None	N	N	None	CR73 -3 -4	Fuel pump drive circuit(s): short circuit to ground, short circuit to each other REM fuel pump drive failure



DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0307	V8 EMS EOBD	Misfire detected – cylinder 7 *Refer to Misfire Note, page 6	Misfire monitor drive cycle – page 6	1 or 2*	N	None	—	Refer to P0300 Possible Causes
P0308	V8 EMS EOBD	Misfire detected – cylinder 8 *Refer to Misfire Note, page 6	Misfire monitor drive cycle – page 6	1 or 2*	N	None	—	Refer to P0300 Possible Causes
P0327	EMS EOBD	Bank 1 KS sense circuit out of range – low voltage	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Maximum ignition retard – Maximum engine speed reduced	PI1 -098	Poor sensor contact with the cylinder block KS to ECM sense circuit short circuit to ground KS failure
P0328	EMS EOBD	Bank 1 KS sense circuit out of range – high voltage	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Maximum ignition retard – Maximum engine speed reduced	PI1 -098	Poor sensor contact with the cylinder block KS to ECM sense circuit: high resistance, open circuit, short circuit to high voltage KS failure
P0332	EMS EOBD	Bank 2 KS sense circuit out of range – low voltage	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Maximum ignition retard – Maximum engine speed reduced	PI1 -099	Poor sensor contact with the cylinder block KS to ECM sense circuit short circuit to ground KS failure
P0333	EMS EOBD	Bank 2 KS sense circuit out of range – high voltage	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Maximum ignition retard – Maximum engine speed reduced	PI1 -099	Poor sensor contact with the cylinder block KS to ECM sense circuit: high resistance, open circuit, short circuit to high voltage KS failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0335	EMS EOBD	CKP Sensor circuit malfunction	Start engine; increase engine speed to 1500 rpm and hold for 30 seconds  Repeat 2 additional times  Note: If CKP Sensor fault exists, engine will start after approximately 5 seconds of cranking as the ECM will default to CMP Sensor 1 signal for synchronization.	2	A	ECM Default: – Maximum engine speed reduced – CMP Sensor 1 signal used for synchronization	P11 -036 -037	CKP Sensor disconnected CKP Sensor gap incorrect / foreign matter on sensor face CKP Sensor sensing circuit: open circuit, short circuit to ground, short circuit to high voltage CKP Sensor failure
P0336	EMS EOBD	CKP Sensor circuit range / performance	Start engine; momentarily race the engine; stop engine Repeat 2 additional times Start engine; drive vehicle; select 2nd gear  Accelerate smoothly through complete accelerator pedal travel; coast to a stop	2	A	ECM Default: – Maximum engine speed reduced	P11 -036 -037	CKP Sensor retractor: foreign matter / damaged teeth CKP Sensor sensing circuit: intermittent open circuit, short circuit to ground, short circuit to high voltage CKP Sensor failure
P0340	EMS EOBD	CMP Sensor 1 circuit malfunction – bank 1	Start engine; momentarily race the engine; stop engine Repeat 2 additional times Idle engine 1 minute	2	N	None	P11 -094 -095	CMP Sensor disconnected CMP Sensor gap incorrect / foreign matter on sensor face CMP Sensor sensing circuit: open circuit, short circuit to ground, short circuit to high voltage CMP Sensor 1 failure
P0341	EMS EOBD	CMP Sensor 1 circuit range / performance – bank 1	Start engine; momentarily race the engine; stop engine Repeat 2 additional times Idle engine 1 minute	2	N	None	P11 -094 -095	CMP Sensor disconnected CMP Sensor gap incorrect / foreign matter on sensor face CMP Sensor sensing circuit: open circuit, short circuit to ground, short circuit to high voltage CMP Sensor 1 failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0351	EMS EOBD	Ignition module primary circuit malfunction – cylinder 1	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Bank 1 closed loop fuel metering inhibited – Bank 1 sub feedback control inhibited – Bank 1 adaptive fuel metering inhibited – Maximum engine speed reduced – Fuel injection cut off (cylinder 1)	PI1-087	ECM to ignition module / coil primary circuit: open circuit, short circuit to ground, high resistance Ignition module / coil ground circuit: open circuit, high resistance Ignition module / coil B+ voltage supply circuit: open circuit Ignition module / coil failure
P0352	EMS EOBD	Ignition module primary circuit malfunction – cylinder 2	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Bank 2 closed loop fuel metering inhibited – Bank 2 sub feedback control inhibited – Bank 2 adaptive fuel metering inhibited – Maximum engine speed reduced – Fuel injection cut off (cylinder 2)	PI1-061	ECM to ignition module / coil primary circuit: open circuit, short circuit to ground, high resistance Ignition module / coil ground circuit: open circuit, high resistance Ignition module / coil B+ voltage supply circuit: open circuit Ignition module / coil failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0353	EMS EOBD	Ignition module primary circuit malfunction – cylinder 3	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Bank 1 closed loop fuel metering inhibited – Bank 1 sub feedback control inhibited – Bank 1 adaptive fuel metering inhibited – Maximum engine speed reduced – Fuel injection cut off (cylinder 3)	PI1 -088	ECM to ignition module / coil primary circuit: open circuit, short circuit to ground, high resistance Ignition module / coil ground circuit: open circuit, high resistance Ignition module / coil B+ voltage supply circuit: open circuit Ignition module / coil failure
P0354	EMS EOBD	Ignition module primary circuit malfunction – cylinder 4	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Bank 2 closed loop fuel metering inhibited – Bank 2 sub feedback control inhibited – Bank 2 adaptive fuel metering inhibited – Maximum engine speed reduced – Fuel injection cut off (cylinder 4)	PI1 -062	ECM to ignition module / coil primary circuit: open circuit, short circuit to ground, high resistance Ignition module / coil ground circuit: open circuit, high resistance Ignition module / coil B+ voltage supply circuit: open circuit Ignition module / coil failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0355	EMS EOBD	Ignition module primary circuit malfunction – cylinder 5	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Bank 1 closed loop fuel metering inhibited – Bank 1 sub feedback control inhibited – Bank 1 adaptive fuel metering inhibited – Maximum engine speed reduced – Fuel injection cut off (cylinder 5)	PI1 -089	ECM to ignition module / coil primary circuit: open circuit, short circuit to ground, high resistance Ignition module / coil ground circuit: open circuit, high resistance Ignition module / coil B+ voltage supply circuit: open circuit Ignition module / coil failure
P0356	EMS EOBD	Ignition module primary circuit malfunction – cylinder 6	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Bank 2 closed loop fuel metering inhibited – Bank 2 sub feedback control inhibited – Bank 2 adaptive fuel metering inhibited – Maximum engine speed reduced – Fuel injection cut off (cylinder 6)	PI1 -063	ECM to ignition module / coil primary circuit: open circuit, short circuit to ground, high resistance Ignition module / coil ground circuit: open circuit, high resistance Ignition module / coil B+ voltage supply circuit: open circuit Ignition module / coil failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0357	V8 EMS EOBD	Ignition module primary circuit malfunction – cylinder 7	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Bank 1 closed loop fuel metering inhibited – Bank 1 sub feedback control inhibited – Bank 1 adaptive fuel metering inhibited – Maximum engine speed reduced – Fuel injection cut off (cylinder 7)	PI1 -090	ECM to ignition module / coil primary circuit: open circuit, short circuit to ground, high resistance Ignition module / coil ground circuit: open circuit, high resistance Ignition module / coil B+ voltage supply circuit: open circuit Ignition module / coil failure
P0358	V8 EMS EOBD	Ignition module primary circuit malfunction – cylinder 8	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: – Bank 2 closed loop fuel metering inhibited – Bank 2 sub feedback control inhibited – Bank 2 adaptive fuel metering inhibited – Maximum engine speed reduced – Fuel injection cut off (cylinder 8)	PI1 -064	ECM to ignition module / coil primary circuit: open circuit, short circuit to ground, high resistance Ignition module / coil ground circuit: open circuit, high resistance Ignition module / coil B+ voltage supply circuit: open circuit Ignition module / coil failure
P0400	V8 EMS EOBD	EGR flow malfunction	EGR Monitor drive cycle – page 7	2	N	None	—	EGR valve incorrectly fitted or loose EGR pipe blocked EGR valve stuck open / closed, blocked EGR valve failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0405	V8 EMS EOBD	EGR valve drive circuits low voltage	Ignition ON 10 seconds	2	N	None	IP1 -057 -058 -059 -060	EGR valve power supply circuit open circuit EGR valve to ECM drive circuit pair (EGR valve pins 1/4, 6/3): open circuit, high resistance EGR valve failure (stepper motor open circuit)
P0406	V8 EMS EOBD	EGR valve drive circuits high voltage	Ignition ON 10 seconds	2	N	None	IP1 -057 -058 -059 -600	EGR valve to ECM drive circuit pair (EGR valve pins 1/4, 6/3): short circuit to ground or high voltage EGR valve failure (stepper motor short circuit)
P0420	EMS EOBD	Catalytic converter system efficiency below threshold – bank 1	Catalyst efficiency monitor drive cycle – page 6  * If a replacement new catalyst fails the catalyst efficiency monitor test causing DTC P0420 to be flagged, drive the vehicle 16 kilometers (10 miles) and repeat the drive cycle.	2	N	None	—	Catalyst failure* due to following causes: – Thermal meltdown – Fractured or mis-shaped substrate – Poisoned substrate from high oil consumption or incorrect fuel Upstream and downstream HO2 Sensors swapped positions HO2 Sensor to ECM wiring fault HO2 Sensor heater to ECM wiring fault HO2 Sensor heater failure Upstream HO2 Sensor failure Downstream HO2 Sensor failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0430	EMS EOBD	Catalytic converter system efficiency below threshold – bank 2	Catalyst efficiency monitor drive cycle – page 6  * If a replacement new catalyst fails the catalyst efficiency monitor test causing DTC P0430 to be flagged, drive the vehicle 16 kilometers (10 miles) and repeat the drive cycle.	2	N	None	—	Catalyst failure* due to following causes: – Thermal meltdown – Fractured or mis-shaped substrate – Poisoned substrate from high oil consumption or incorrect fuel Upstream and downstream HO2 Sensors swapped positions HO2 Sensor to ECM wiring fault HO2 Sensor heater to ECM wiring fault HO2 Sensor heater failure Upstream HO2 Sensor failure Downstream HO2 Sensor failure
P0441	EMS EOBD	EVAP system incorrect purge flow	Purge system monitor drive cycle – page 7	2	N	ECM Default: – Canister purge inhibited – Adaptive fuel metering inhibited	—	EVAP Canister Purge Valve purge pipe to intake manifold blocked, disconnected EVAP canister vent restricted EVAP Canister Purge Valve to engine pipe: disconnected EVAP Canister Purge Valve failure (stuck closed)
P0444	EMS EOBD	EVAP Canister Purge Valve circuit open circuit	Purge system monitor drive cycle – page 7	2	N	ECM Default: – Canister purge inhibited – Adaptive fuel metering inhibited	P11-066	EVAP Canister Purge Valve disconnected EVAP Canister Purge Valve to ECM drive circuit: open circuit, high resistance EVAP Canister Purge Valve failure
P0445	EMS EOBD	EVAP Canister Purge Valve circuit short circuit	Purge system monitor drive cycle – page 7	2	N	ECM Default: – Canister purge inhibited – Adaptive fuel metering inhibited	P11-066	EVAP Canister Purge Valve to ECM drive circuit: short circuit to ground EVAP Canister Purge Valve failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0460	EMS EOBD	Fuel level sensor(s) circuit range / performance	Fuel tank empty Fill in stages: 1/4, 1/2, 3/4, full Check fuel gauge reading at each stage	2	N	None	—	Fuel level sensor to REM circuit(s): intermittent short circuit, open circuit, high resistance Fuel level sensor failure REM fault (incorrect fuel level data)
P0480	EMS EOBD	Radiator cooling fan module drive circuit malfunction	Start engine Battery voltage > 12 volts Idle for 2 minutes	N	N	ECM Default: – With ignition ON, fan operates at maximum speed	PI1 -051	ECM to radiator cooling fan module drive circuit: short circuit, open circuit, high resistance Radiator cooling fan fault Radiator cooling fan module fault
P0506	EMS EOBD	Idle RPM lower than expected	Start engine and drive until normal engine operating temperature > 82 °C (180 °F) Stop vehicle and idle 30 seconds Drive vehicle for 2 minutes Stop vehicle and idle 30 seconds Repeat drive / idle two additional times	2	N	None	—	Air intake restriction Accessory drive overload (defective / seized component) Throttle valve stuck closed Throttle body failure
P0507	EMS EOBD	Idle RPM higher than expected	Start engine and drive until normal engine operating temperature > 82 °C (180 °F) Stop vehicle and idle 30 seconds Drive vehicle for 2 minutes Stop vehicle and idle 30 seconds Repeat drive / idle two additional times	2	N	None	—	Intake air leak between MAF sensor and throttle Intake air leak between throttle and engine Engine crankcase breather leak Throttle valve stuck open Throttle body failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0532	EMS JAG	Air conditioning pressure sensor circuit low voltage (high pressure)	Start engine Use WDS to monitor air conditioning pressure sensor signal voltage Set climate control to a low temperature; operate for 2 minutes Switch off climate control; wait 2 minutes	N	N	ECM Default: – Air conditioning compressor clutch inhibited	P11 -121	Air conditioning pressure sensor disconnected Air conditioning pressure sensor to ECM sense circuit: open circuit, short circuit to ground Air conditioning pressure sensor to splice sensor supply circuit: open circuit, high resistance Air conditioning pressure sensor failure
P0533	EMS JAG	Air conditioning pressure sensor circuit high voltage (low pressure)	Start engine Use WDS to monitor air conditioning pressure sensor signal voltage Set climate control to a low temperature; operate for 2 minutes Switch off climate control; wait 2 minutes	N	N	ECM Default: – Air conditioning compressor clutch inhibited	P11 -121	Air conditioning pressure sensor to splice sensor ground circuit: open circuit, high resistance Air conditioning pressure sensor to ECM sense circuit: short circuit to high voltage Air conditioning pressure sensor failure
P0560	EMS EOBD	Battery power supply voltage malfunction	Engine temperature cool (cooling fans not running) Remove ignition key for 20 seconds (cooling fans not running) Ignition key in, position II for 5 seconds (do not start) Repeat cycle two additional times	2	N	None	P11 -022	ECM battery power supply open circuit, high resistance

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0566	EMS JAG	Speed control CANCEL switch ON fault	Ignition ON 45 seconds	N	A	ECM Default: – Speed control inhibited	P11 -047	Speed control switches internal steering wheel circuit: short circuit to ground Steering wheel cassette reel: short circuit to ground Cassette reel to ECM circuit: short circuit to ground CANCEL switch failure (stuck ON)
P0567	EMS JAG	Speed control RESUME switch ON fault	Ignition ON 45 seconds	N	A	ECM Default: – Speed control inhibited	P11 -047	Speed control switches internal steering wheel circuit: short circuit to ground Steering wheel cassette reel: short circuit to ground Cassette reel to ECM circuit: short circuit to ground RESUME switch failure (stuck ON)
P0568	EMS JAG	Speed control input signal low / high resistance	Ignition ON 45 seconds	N	A	ECM Default: – Speed control inhibited	P11 -047	Speed control switches internal steering wheel circuit: open circuit; high resistance Steering wheel cassette reel open circuit, high resistance Cassette reel to ECM circuit: open circuit, high resistance
P0569	EMS JAG	Speed control SET / - switch ON fault	Ignition ON for more than 5 minutes	N	A	ECM Default: – Speed control inhibited	P11 -047	Speed control switches internal steering wheel circuit: short circuit to ground Steering wheel cassette reel: short circuit to ground Cassette reel to ECM circuit: short circuit to ground SET / - switch failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0570	EMS JAG	Speed control SET / + switch ON fault	Ignition ON for more than 5 minutes	N	A	ECM Default: – Speed control inhibited	PI1 -047	Speed control switches internal steering wheel circuit: short circuit to ground Steering wheel cassette reel: short circuit to ground Cassette reel to ECM circuit: short circuit to ground SET / + switch failure
P0603	EMS EOBD	ECM Keep alive memory error	Engine temperature cool (cooling fans not running) Remove ignition key for 20 seconds (cooling fans not running) Ignition key in, position II for 5 seconds (do not start) Repeat cycle two additional times.	2	N	None	—	ECM Failure
P0605	TRANS EOBD	TCM Self test error	Ignition ON 10 seconds	2	A	TCM Default: – Mechanical limp home mode	—	TCM failure
P0606	TRANS EOBD	TCM “Watch dog” circuit malfunction	Ignition ON 10 seconds	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure
P0610	TRANS JAG	TCM Configuration error	Ignition ON 10 seconds	N	A	TCM Default: – Mechanical limp home mode	—	Reconfigure TCM and/or ECM using WDS
P0617	EMS EOBD	Starter relay drive circuit high voltage / starter relay request on (ignition switch position III START)	Ignition ON Battery voltage > 12 volts P or N selected Crank engine for more than 2 seconds	2	N	None	PI1 -041	Starter relay drive circuit: short circuit to high voltage Starter relay failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0641	TRANS EOBD	Sensor supply voltage circuit malfunction	Ignition ON 10 seconds	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure
P0651	TRANS EOBD	Pressure regulator and shift solenoid supply circuit malfunction	Ignition ON 10 seconds	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure
P0666	TRANS JAG	Substrate temperature sensor circuit malfunction	Drive the vehicle steadily between 48 – 97 km/h (30 – 60 mph) for 5 minutes Coast to a stop	N	N	None	—	TCM / control valve failure
P0701	TRANS EOBD	TCM control errors	Drive vehicle from stop to 113 km/h (70 mph) Coast to a stop	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure Dynamic Stability Control system fault
P0702	TRANS EOBD	TCM Battery power supply low voltage (short time)	Ignition ON 10 seconds	2	A	TCM Default: – Mechanical limp home mode	GB2 -14	Battery power supply fuse failure Battery power supply: intermittent open circuit
P0705	TRANS EOBD	Gear position switch circuit malfunction	Switch ignition ON Move the gear selector slowly from P to the 2 position, then back to P	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure
P0706	TRANS JAG	J Gate selector position plausibility fault	Switch ignition ON Move the gear selector slowly from P to the 2 position, then back to P	N	A	TCM Default: – Shift strategy fixed – J Gate “manual” function disabled – If selected, Sport Mode disabled	—	TCM / J Gate Module CAN fault J Gate Module failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0709	TRANS JAG	J Gate selector Intermediate position fault	Switch ignition ON Move the gear selector slowly from P to the 2 position, then back to P	N	A	TCM Default: – Shift strategy fixed – J Gate “manual” function disabled – If selected, Sport Mode disabled	—	J Gate Module failure
P0710	TRANS JAG	Transmission fluid temperature sensor circuit malfunction	Drive the vehicle steadily between 48 – 97 km/h (30 – 60 mph) for 5 minutes Coast to a stop.	N	N	None	—	TCM / TCM fluid temperature sensor failure
P0711	TRANS JAG	Transmission fluid temperature range fault	Drive the vehicle steadily between 48 – 97 km/h (30 – 60 mph) for 5 minutes Coast to a stop.	N	N	None	—	Transmission fluid over-temperature: drain and replace transmission fluid
P0715	TRANS EOBD	Turbine speed sensor circuit failure	Drive the vehicle steadily between 48 – 97 km/h (30 – 60 mph) for 5 minutes Coast to a stop.	2	A	TCM Default: – Mechanical limp home mode	—	TCM / TCM turbine speed sensor failure
P0720	TRANS JAG	Output speed sensor circuit failure	Drive vehicle from stop to 113 km/h (70 mph) Coast to a stop.	N	N	TCM Default: – Substitute DSC vehicle speed for transmission output speed	—	TCM / control valve failure
P0721	TRANS EOBD	Output speed sensor signal gradient fault	Drive vehicle from stop to 113 km/h (70 mph) Coast to a stop.	2	A	TCM Default: – Mechanical limp home mode – Substitute DSC vehicle speed for transmission output speed	—	Transmission mechanical failure TCM / control valve failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0725	TRANS EOBD	Engine over-speed range fault	Using full acceleration, drive vehicle from stop to 113 km/h (70 mph) Coast to a stop	2	A	TCM Default: – Mechanical limp home mode	—	TCM / ECM CAN Fault
P0729	TRANS EOBD	Sixth gear ratio fault	Drive vehicle from stop to 113 km/h (70 mph) Ensure that Sixth gear is engaged by moving the gear selector to the 5 position and observing that the transmission down shifts Coast to a stop	2	A	TCM Default: – Mechanical limp home mode	—	ECM torque signal fault Transmission mechanical failure
P0730	TRANS JAG	Gear ratio fault	Drive vehicle from stop to 113 km/h (70 mph) Ensure that Sixth gear is engaged by moving the gear selector to the 5 position and observing that the transmission down shifts Coast to a stop	N	N	None	—	ECM torque signal fault Transmission mechanical failure
P0731	TRANS EOBD	First gear ratio fault	Start vehicle and select gear position 2 Accelerate hard until the engine speed reaches 4500 rpm, after the transmission has shifted to second gear Stop the vehicle Repeat two additional times	2	A	TCM Default: – Mechanical limp home mode	—	ECM torque signal fault Transmission mechanical failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0732	TRANS EOBD	Second gear ratio fault	Start vehicle and select gear position 2 Accelerate the vehicle until second gear is engaged Drive the vehicle for 5 minutes in second gear Vary the vehicle speed and acceleration rate.	2	A	TCM Default: – Mechanical limp home mode	—	ECM torque signal fault Transmission mechanical failure
P0733	TRANS EOBD	Third gear ratio fault	Start vehicle and select gear position 3 Accelerate the vehicle until third gear is engaged Drive the vehicle for 5 minutes in third gear Vary the vehicle speed and acceleration rate.	2	A	TCM Default: – Mechanical limp home mode	—	ECM torque signal fault Transmission mechanical failure
P0734	TRANS EOBD	Fourth gear ratio fault	Start vehicle and select gear position 4 Accelerate the vehicle until fourth gear is engaged Drive the vehicle for 5 minutes in fourth gear Vary the vehicle speed and acceleration rate.	2	A	TCM Default: – Mechanical limp home mode	—	ECM torque signal fault Transmission mechanical failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0735	TRANS EOBD	Fifth gear ratio fault	Start vehicle and select gear position 5 Accelerate the vehicle until fifth gear is engaged Drive the vehicle for 5 minutes in fifth gear Vary the vehicle speed and acceleration rate.	2	A	TCM Default: – Mechanical limp home mode	—	ECM torque signal fault Transmission mechanical failure
P0736	TRANS EOBD	Reverse gear ratio fault	Start vehicle and select REVERSE gear Accelerate the vehicle at different rates for 1 minute.	2	A	TCM Default: – Mechanical limp home mode	—	ECM torque signal fault Transmission mechanical failure
P0740	TRANS EOBD	Torque converter clutch pressure regulator solenoid circuit malfunction	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure
P0741	TRANS JAG	Torque converter clutch pressure regulator solenoid stuck open	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks Ensure that the torque convertor remains locked for at least 1 minute.	N	N	TCM Default: – Deactivate torque converter clutch pressure regulator; lock up clutch disabled	—	TCM / control valve failure Transmission mechanical failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0743	TRANS EOBD	Torque converter clutch pressure regulator solenoid circuit plausibility error	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks  Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure
P0750	TRANS EOBD	Pressure regulator solenoid 1 circuit malfunction	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks  Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure
P0753	TRANS EOBD	Pressure regulator solenoid 1 circuit plausibility error	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks  Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure
P0755	TRANS EOBD	Pressure regulator solenoid 2 circuit malfunction	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks  Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0758	TRANS EOBD	Pressure regulator solenoid 2 circuit plausibility error	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks  Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure
P0760	TRANS EOBD	Pressure regulator solenoid 3 circuit malfunction	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks  Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure
P0763	TRANS EOBD	Pressure regulator solenoid 3 circuit plausibility error	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks  Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure
P0765	TRANS EOBD	Pressure regulator solenoid 4 circuit malfunction	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks  Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0768	TRANS EOBD	Pressure regulator solenoid 4 circuit plausibility error	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks  Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure
P0770	TRANS EOBD	Pressure regulator solenoid 5 circuit malfunction	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks  Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure
P0773	TRANS EOBD	Pressure regulator solenoid 5 circuit plausibility error	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks  Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure
P0780	TRANS JAG	Gear load fault	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks  Ensure that the torque convertor remains locked for at least 1 minute.	N	N	None	—	ECM torque signal fault Transmission mechanical failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0781	TRANS EOBD	1-2 / 2-1 Gear load fault	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Electronic limp home mode	—	ECM torque signal fault Transmission mechanical failure
P0782	TRANS EOBD	2-3 / 3-2 Gear load fault	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Electronic limp home mode	—	ECM torque signal fault Transmission mechanical failure
P0783	TRANS EOBD	3-4 / 4-3 Gear load fault	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Electronic limp home mode	—	ECM torque signal fault Transmission mechanical failure
P0784	TRANS EOBD	4-5 / 5-4 Gear load fault	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Electronic limp home mode	—	ECM torque signal fault Transmission mechanical failure
P0787	TRANS EOBD	Shift solenoid circuit malfunction	Ignition ON 10 seconds	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P0788	TRANS EOBD	Shift solenoid circuit plausibility error	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks  Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Mechanical limp home mode	—	TCM / control valve failure
P0825	TRANS JAG	Gear positions R, D plausibility error	Ignition ON Slowly move gear selector from Park to Drive, then back to Park.	N	A	None	—	J Gate incorrectly adjusted J Gate Module failure
P0829	TRANS EOBD	5–6 Gear load fault	Drive the vehicle at 113 km/h (70 mph), then reduce the throttle angle until the torque convertor locks  Ensure that the torque convertor remains locked for at least 1 minute.	2	A	TCM Default: – Electronic limp home mode	—	ECM torque signal fault Transmission mechanical failure
P0860	TRANS (ECM*) JAG	J Gate CAN network malfunction  * J Gate / CAN monitored by ECM	Ignition ON 10 seconds	N	A	ECM Default: – Speed control inhibited – Maximum throttle opening for N range inhibited – Throttle opening limited to 30% – Maximum engine speed reduced	P11 -123 -124	CAN open circuit fault CAN short circuit fault J Gate Module failure
P1000	EMS JAG	System (OBD) check not complete since last memory clear	System Readiness Test	N	N	None	—	Refer to page 3

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1104	EMS EOBD	MAF Sensor ground malfunction	Ignition ON 10 seconds	2	A	ECM Default: – Calculated default air mass used – Adaptive fuel metering inhibited – Sub feedback control inhibited – Catalyst warm up ignition retard inhibited – EGR inhibited (V8) – Canister purge inhibited – Maximum engine speed reduced	PI1 -045 -046	MAF Sensor to ECM sensor ground circuit open circuit, short circuit to high voltage, high resistance MAF Sensor to ECM sensing circuit: open circuit MAF Sensor failure
P1107	EMS EOBD	MAP Sensor sense circuit low voltage	Ignition ON 10 seconds	2	N	ECM Default: – Default value of 1.013 BAR (29.92 in hg) used	PI1 -127	MAP Sensor to ECM sense circuit: open circuit, short circuit to ground MAP Sensor sensor supply circuit (to splice): open circuit MAP Sensor failure
P1108	EMS EOBD	MAP Sensor sense circuit high voltage	Ignition ON 10 seconds	2	N	ECM Default: – Default value of 1.013 BAR (29.92 in hg) used	PI1 -127	MAP Sensor sensor ground circuit (to splice): open circuit MAP Sensor to ECM sense circuit: short circuit to high voltage MAP Sensor failure
P1111	EMS JAG	System (OBD) checks complete since last memory clear	System Readiness Test	N	N	None	—	Refer to page 3

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1122	EMS EOBD	APP Sensor sense circuit low voltage – APP1	Battery voltage > 10 volts Ignition ON Slowly press accelerator pedal to the floor over a 5 second period. Slowly return the pedal to rest Repeat 3 times	2	R	ECM Default: – APP angle default value used – Speed control inhibited – APP adaption (wear, variance) inhibited	P11 -102	APP Sensor to ECM sense circuit (APP1): open circuit, short circuit to ground, high resistance APP Sensor sensor supply circuit: open circuit, high resistance APP Sensor failure
P1123	EMS EOBD	APP Sensor sense circuit high voltage – APP1  Note: This DTC could be flagged by both sensor element sensing circuit having faults.	Battery voltage > 10 volts Ignition P11ON Slowly press accelerator pedal to the floor over a 5 second period Slowly return the pedal to rest Repeat 3 times	2	R	ECM Default: – APP angle default value used – Speed control inhibited – APP adaption (wear, variance) inhibited	P11 -102 -103	APP Sensor sensor to ECM sense circuit(s) (APP1 or APP2): short circuit to high voltage APP Sensor sensor ground circuit(s): open circuit APP Sensor failure
P1146	V6EMS EOBD	Generator “CONTROL” circuit low voltage / request high	Battery voltage > 12 volts Switch OFF all electrical consumers Start engine; idle for 16 minutes with all electrical consumers switched OFF	2	C	None	P11 -053	Generator to ECM “CONTROL” circuit: open circuit, high resistance Generator regulator failure
P1215	EMS EOBD	APP Sensor sense circuit low voltage – APP2	Battery voltage > 10 volts Ignition ON Slowly press accelerator pedal to the floor over a 5 second period Slowly return the pedal to rest Repeat 3 times	2	R	ECM Default: – APP angle default value used – Speed control inhibited – APP adaption (wear, variance) inhibited	P11 -103	APP Sensor to ECM sense circuit (APP2): open circuit, short circuit to ground, high resistance APP Sensor sensor supply circuit (to splice): open circuit, high resistance APP Sensor failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1216	EMS EOBD	APP Sensor sense circuit high voltage – APP2  Note: This DTC could be flagged by both sensor element sensing circuit having faults.	Battery voltage > 10 volts Ignition ON Slowly press accelerator pedal to the floor over a 5 second period Slowly return the pedal to rest Repeat 3 times	2	R	ECM Default: – APP angle default value used – Speed control inhibited – APP adaptations (wear, variance) inhibited	P11 -102 -103	APP Sensor sensor to ECM sense circuit(s) (APP2 or APP1): short circuit to high voltage APP Sensor sensor ground circuit(s) (to splice): open circuit APP Sensor failure
P1224	EMS EOBD	Throttle control position error	Battery voltage > 10 volts Ignition ON Slowly press accelerator pedal to the floor over a 5 second period Slowly return the pedal to rest Repeat 3 times	2	R	ECM Default: – Engine shut down – Speed control disabled	P11 -080 -106 -052 -134	Throttle motor failure Throttle body failure
P1229	EMS EOBD	Throttle motor control circuit malfunction	Battery voltage > 10 volts Ignition ON Slowly press accelerator pedal to the floor over a 5 second period Slowly return the pedal to rest Repeat 3 times	2	R	ECM Default: – Throttle motor and throttle motor relay disabled – Throttle valve opening set to default value – Idle speed controlled by fuel injection intervention – Idle speed adaption inhibited – Speed control disabled	P11 -080 -106 -052 -134 -004 -005 -054	Throttle motor disconnected Throttle motor to ECM drive circuits: short circuit or open circuit ECM ground circuit fault(s) (P11-004, 005, 054) Throttle motor failure Throttle body failure
P1233	V8 SC EMS EOBD	Fuel pump 2 drive circuit fault	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	N	ECM Default: – Fuel pump 2 feedback control inhibited	P11 -053	ECM to Fuel Pump 2 Module control drive circuit: open circuit, short circuit, high resistance Fuel Pump 2 Module failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1234	EMS EOBD	No fuel pump (1 SC) commands received by ECM	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	N	ECM Default: – Fuel pump feedback control inhibited	P11 -027	ECM to REM fuel pump control circuit: open circuit, short circuit, high resistance REM failure
P1235	REM* JAG	Fuel pump PWM control circuit out-of-range low  * DTC flagged by REM and stored in REM	None	N	N	None	CR11 -19	ECM to REM fuel pump control circuit: open circuit, short circuit, high resistance ECM failure
P1236	REM* JAG	Fuel pump PWM control circuit out-of-range high  * DTC flagged by REM and stored in REM	None	N	N	None	CR11 -18	ECM to REM fuel pump control circuit: open circuit, short circuit, high resistance ECM failure
P1236	EMS EOBD	Fuel pump (1 SC) not activated when requested by ECM	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	N	ECM Default: – Fuel pump feedback control inhibited	P11 -027	ECM to REM fuel pump control circuit: open circuit, short circuit, high resistance REM failure
P1240	EMS EOBD	Sensor power supply circuit malfunction	Ignition ON 10 seconds	2	R	None	P11 -012 -013	ECM to sensors sensor supply voltage circuit(s): short circuit to ground, short circuit to high voltage, open circuit, high resistance
P1241	EMS EOBD	Sensor power supply circuit low voltage	Ignition ON 10 seconds	2	R	ECM Default: – Throttle motor and throttle motor relay disabled – Throttle valve opening set to default value – Idle speed controlled by fuel injection intervention – Idle speed adaption inhibited	P11 -012 -013	ECM to sensors sensor supply voltage circuit(s): short circuit to ground

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1242	EMS EOBD	Sensor power supply circuit high voltage	Ignition ON 10 seconds	2	R	ECM Default: – Throttle motor and throttle motor relay disabled – Throttle valve opening set to default value – Idle speed controlled by fuel injection intervention – Idle speed adaption inhibited	P11 -012 -013	ECM to sensors supply voltage circuit(s): open circuit, high resistance, short circuit to high voltage
P1243	EMS EOBD	Sensor ground circuits open circuit	Ignition ON 10 seconds	2	N	None	P11 -019 -020	ECM to sensors sensor ground circuit(s): open circuit, high resistance
P1244	V6 EMS EOBD	Generator "CONTROL" circuit high voltage / request low	Battery voltage > 12 volts Switch OFF all electrical consumers Start engine; idle for 16 minutes with all electrical consumers switched OFF	2	C	ECM Default: – Cooling fan speed increased	P11 -053	Generator to ECM "CONTROL" circuit: short circuit to high voltage Generator regulator failure Generator failure
P1245	EMS EOBD	Engine crank signal low voltage	Remove starter relay Turn ignition switch to position III (START); hold for > 1 second	2	N	None	P11 -006	Ignition switch to ECM circuit:: open circuit Ignition switch failure
P1246	EMS EOBD	Engine crank signal high voltage	Drive vehicle > 15 km/h (9 mph) between 1500 – 4000 rpm; stop vehicle Start and stop vehicle > 5 times	2	N	None	P11 -006	Ignition switch to ECM circuit: short circuit to high voltage Ignition switch failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1250	EMS EOBD	Throttle valve return spring malfunction	Idle engine Switch OFF ignition for 10 seconds Start engine and repeat	2	R	ECM Default: – Vehicle speed limited – Throttle opening limited to 30% – Speed control inhibited	—	Throttle return spring failure (throttle body failure)
P1251	EMS EOBD	Throttle motor relay OFF failure	Engine temperature cool (cooling fans not running) Remove ignition key for 20 seconds (cooling fans not running) Ignition key in, position II for 5 seconds (do not start) Repeat cycle two additional times	2	R	ECM Default: – Throttle motor and throttle motor relay disabled – Throttle valve opening set to default value – Idle speed controlled by fuel injection intervention – Idle speed adaption inhibited	PI1-052	Throttle motor relay coil power supply circuit: open circuit (fuse) Throttle motor relay failure Throttle motor relay coil to ECM circuit: open circuit ECM ground circuit fault (relay coil drive)
P1254	EMS EOBD	Throttle “limp home” spring malfunction	Idle engine Switch OFF ignition for 10 seconds Start engine and repeat	2	R	ECM Default: – Vehicle speed limited – Throttle opening limited to 30% – Speed control inhibited	—	Throttle limp home spring failure (throttle body failure)
P1260	EMS JAG	Security input malfunction	Start engine	N	N	None	—	Invalid ignition key code Passive anti-theft system (PATS) signal to instrument pack missing or corrupted Security message (PATS) CAN failure NOTE: To clear this DTC, the failure must first be rectified, followed by an ignition ON cycle to allow a successful PATS identification exchange between the ECM and the IC. The fault code can then be cleared.

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1313	EMS EOBD	Misfire rate catalyst damage – bank 1  NOTE: This DTC will flag only when accompanied by an individual cylinder misfire DTC: P0300 – P0308	Misfire monitor drive cycle – page 6	2	A	ECM Default: – Maximum engine speed reduced	—	ECM to ignition coil primary circuit fault (Cylinder misfire detected DTC also flagged) Fuel injector circuit fault(s) (Injector DTCs also flagged) Ignition coil failure Spark plug failure / fouled / incorrect gap Cylinder compression low Fuel delivery pressure (low / high) Fuel injector(s) restricted / leaking Fuel injector(s) continuously open Fuel contamination Worn camshaft / broken valve spring(s)
P1314	EMS EOBD	Misfire rate catalyst damage – bank 2  NOTE: This DTC will flag only when accompanied by an individual cylinder misfire DTC: P0300 – P0308	Misfire monitor drive cycle – page 6	2	A	ECM Default: – Maximum engine speed reduced	—	ECM to ignition coil primary circuit fault (Cylinder misfire detected DTC also flagged) Fuel injector circuit fault(s) (Injector DTCs also flagged) Ignition coil failure Spark plug failure / fouled / incorrect gap Cylinder compression low Fuel delivery pressure (low / high) Fuel injector(s) restricted / leaking Fuel injector(s) continuously open Fuel contamination Worn camshaft / broken valve spring(s)

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1316	EMS EOBD	Misfire excess emission  NOTE: This DTC will flag only when accompanied by an individual cylinder misfire DTC: P0300 – P0308	Misfire monitor drive cycle – page 6	2	N	None	—	ECM to ignition coil primary circuit fault (Cylinder misfire detected DTC also flagged) Fuel injector circuit fault(s) (injector DTCs also flagged) Ignition coil failure Spark plug failure / fouled / incorrect gap Cylinder compression low Fuel delivery pressure (low / high) Fuel injector(s) restricted / leaking Fuel injector(s) continuously open Fuel contamination Worn camshaft / broken valve spring(s)
P1338	EMS EOBD	Fuel pump (1 SC) drive circuit low / high voltage	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	N	ECM Default: – Fuel pump feedback control inhibited	P11-027	REM to fuel pump drive circuit: open circuit, short circuit, high resistance REM failure Fuel pump failure
P1339	V8 SC EMS EOBD	Fuel pump 2 drive circuit low voltage / high voltage fault	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	N	ECM Default: – Fuel pump 2 feedback control inhibited	P11-053-011	Fuel Pump 2 Module to fuel pump drive circuit: open circuit, short circuit, high resistance Fuel Pump 2 Module to ECM monitor circuit: open circuit, short circuit, high resistance Fuel Pump 2 Module failure Fuel pump 2 failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1340	EMS EOBD	CMP Sensor 2 circuit malfunction – bank 2	Start engine; momentarily race the engine; stop engine Repeat 2 additional times Idle engine 1 minute	2	N	None	P11 -068 -069	CMP Sensor disconnected CMP Sensor gap incorrect / foreign matter on sensor face CMP Sensor sensing circuit: open circuit, short circuit to ground, short circuit to high voltage CMP Sensor 2 failure
P1341	EMS EOBD	CMP Sensor 2 circuit range / performance – bank 2	Start engine; momentarily race the engine; stop engine Repeat 2 additional times Idle engine 1 minute	2	N	None	P11 -068 -069	CMP Sensor disconnected CMP Sensor gap incorrect / foreign matter on sensor face CMP Sensor sensing circuit: open circuit, short circuit to ground, short circuit to high voltage CMP Sensor 2 failure
P1344	EMS EOBD	APP Sensor sense circuits APP1 and APP2 range / performance	Battery voltage > 10 volts Ignition ON Slowly press accelerator pedal to the floor over a 5 second period Slowly return the pedal to rest Repeat 3 times	2	R	ECM Default: – APP angle default value used – Speed control inhibited – APP adaption (wear, variance) inhibited	P11 -102 -103	APP Sensor to ECM sense circuits: short circuit, open circuit, high resistance APP Sensor sensor supply circuits: short circuit, open circuit, high resistance APP Sensor sensor ground circuits: open circuit APP Sensor failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1367	EMS EOBD	Ignition module(s) bank 1 fault	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: <ul style="list-style-type: none"> <li>- Closed loop fuel metering inhibited</li> <li>- Adaptive fuel metering inhibited</li> <li>- Catalyst warm up ignition retard inhibited</li> <li>- EGR Inhibited (V8)</li> <li>- Canister purge inhibited</li> <li>- Maximum engine speed reduced</li> <li>- Fuel injection cut off (bank 1 cylinders)</li> </ul>	P11 -131	Ignition monitoring circuit between splice and ECM: open circuit, short circuit to ground, short circuit to B+ voltage Ignition module / coil bank 1 ground circuit fault
P1368	EMS EOBD	Ignition module(s) bank 2 fault	Start engine Battery voltage > 12 volts Idle for 2 minutes	2	A	ECM Default: <ul style="list-style-type: none"> <li>- Closed loop fuel metering inhibited</li> <li>- Adaptive fuel metering inhibited</li> <li>- Catalyst warm up ignition retard inhibited</li> <li>- EGR Inhibited (V8)</li> <li>- Canister purge inhibited</li> <li>- Maximum engine speed reduced</li> <li>- Fuel injection cut off (bank 2 cylinders)</li> </ul>	P11 -132	Ignition monitoring circuit between splice and ECM: open circuit, short circuit to ground, short circuit to B+ voltage Ignition module / coil bank 2 ground circuit fault

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1384	EMS EOBD	VVT solenoid malfunction – bank 1	Idle engine 30 seconds Accelerate from stop through complete engine rpm range; coast to a stop Drive the vehicle steadily between 48 – 97 km/h (30 – 60 mph) for 5 minutes; coast to a stop Accelerate smoothly through complete accelerator pedal travel; coast to a stop Idle engine 30 seconds	2	N	ECM Default: – Bank 1 VVT hold current set at a constant valve of 450 mA	P11 -109	VVT Solenoid Valve 1 to ECM PWM drive circuit fault VVT Solenoid Valve 1 ground circuit fault VVT Solenoid Valve 1 failure Oil contamination VVT 1 oil flow fault VVT / camshaft mechanical failure – bank 1
P1396	EMS EOBD	VVT solenoid malfunction – bank 2	Idle engine 30 seconds Accelerate from stop through complete engine rpm range; coast to a stop Drive the vehicle steadily between 48 – 97 km/h (30 – 60 mph) for 5 minutes; coast to a stop Accelerate smoothly through complete accelerator pedal travel; coast to a stop Idle engine 30 seconds	2	N	ECM Default: – Bank 2 VVT hold current set at a constant valve of 450 mA	P11 -110	VVT Solenoid Valve 2 to ECM PWM drive circuit fault VVT Solenoid Valve 2 ground circuit fault VVT Solenoid Valve 2 failure Oil contamination VVT 2 oil flow fault VVT / camshaft mechanical failure – bank 2
P1410	V8 SC EMS JAG	Air cleaner solenoid valve drive circuit malfunction	Start engine Idle for 2 minutes	N	N	None	P11 -014	ECM to air cleaner solenoid circuit: open circuit, short circuit, high resistance Air cleaner solenoid failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1474	V8 SC EMS EOBD	Intercooler coolant pump malfunction	Start engine and bring to normal engine operating temperature > 80 °C (176 °F) Drive vehicle in Drive at 80 km/h (50 mph) – 105 km/h (65 mph) for > 10 minutes.	2	N	ECM Default: – Default value of 70 °C (158 °F) used	—	Intercooler coolant pump failure
P1516	EMS EOBD	Gear change P / N driving malfunction	Drive vehicle > 15 km/h (9 mph) between 1500 – 4000 rpm for > 10 seconds	2	A	ECM Default: – Speed control inhibited – Maximum engine speed reduced	P11-031	ECM P/N circuit: short circuit to high voltage; high resistance Gear selector cable setting incorrect J Gate assembly incorrect setting J Gate / ECM CAN fault
P1517	EMS EOBD	Gear change P / N starting malfunction	Start engine in P Start engine in N Check that engine does not start in R, D, 5, 4, 3, 2	2	A	ECM Default: – Speed control inhibited – Maximum throttle opening for N range inhibited – Maximum engine speed reduced	P11-031	ECM P/N circuit: short circuit to ground, short circuit to high voltage; high resistance Gear selector cable setting incorrect J Gate assembly incorrect setting J Gate / ECM CAN fault
P1532	V6 EMS EOBD	IMT Valve 2 (top) circuit malfunction	Battery voltage > 12 volts Start engine and bring to normal operating temperature > 82 °C (180 °F) Run engine at 5000 rpm in N for 20 seconds	2	N	ECM Default: – IMT 2 Inhibited	P11-039	IMT Valve 2 (top) disconnected IMT Valve 2 (top) to ECM drive circuit fault IMT Valve 2 (top) power supply circuit fault IMT Valve 2 (top) failure
P1549	V6 EMS EOBD	IMT Valve 1 (bottom) circuit malfunction	Battery voltage > 12 volts Start engine and bring to normal operating temperature > 82 °C (180 °F) Run engine at 5000 rpm in N for 20 seconds	2	N	ECM Default: – IMT 1 Inhibited	P11-038	IMT Valve 1 (bottom) disconnected IMT Valve 1 (bottom) to ECM drive circuit fault IMT Valve 1 (bottom) power supply circuit fault IMT Valve 1 (bottom) failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1571	EMS JAG	Brake ON / OFF switch; brake cancel switch malfunction (Brake ON / OFF switch – normally open; brake cancel switch – normally closed)	Start engine; idle in P, N Press brake pedal for > 10 seconds; release brake pedal Repeat 5 times – or– Drive > 80 km/h (50 mph) > 1 minute (do not press the brake pedal); momentarily press the brake pedal Repeat 10 times –or– Using WDS, monitor both circuits Pedal at rest = “0” (both circuits); pedal pressed = “1” (both circuits)	N	A	ECM Default: – Speed control inhibited – Maximum engine speed reduced – J Gate locked in Park	PI1 -008 -009	Brake ON / OFF switch to ECM circuit: open circuit, short circuit to ground, high resistance Brake ON / OFF power supply circuit: open circuit Brake ON / OFF switch failure Brake cancel switch to ECM circuit: open circuit, short circuit to ground, high resistance Brake cancel switch power supply circuit: open circuit Brake cancel switch failure
P1582	EMS JAG	“Flight recorder” data is stored if any one of five conditions occur:	1 Inertia switch activated 2 Throttle Limp Home mode 3 Engine starts and stumbles 4 Engine fail to start 5 Engine stall	N	N	None	PI1 -010	If none of the five conditions occur, check: Inertia switch to ECM circuit: short circuit to B+ voltage Inertia switch failure
P1603	TRANS EOBD	TCM Internal communications error	Ignition ON 10 seconds	1	A	None	—	TCM / control valve failure
P1605	TRANS JAG	TCM RAM error	Ignition ON, then OFF Cycle ignition switch 6 times	N	N	None	GB2 -14	Battery power supply circuit: open circuit, short circuit to ground TCM / control valve failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1606	EMS EOBD	EMS control relay malfunction	Ignition key switched OFF > 5 seconds; cooling fans not running	1	N	None	P11-040	ECM control relay failure ECM control relay to ECM circuit fault ECM control relay coil power supply open circuit ECM ground circuit fault (relay coil drive)
P1609	EMS EOBD	ECM microprocessor to microprocessor communication failure	Ignition ON 10 seconds	2	R	ECM Default: – Throttle motor and throttle motor relay disabled – Throttle valve opening set to default value – Idle speed controlled by fuel injection intervention – Idle speed adaption inhibited	—	ECM Failure
P1611	EMS EOBD	ECM sub CPU failure	Drive vehicle Engage speed control Refer to Owner's Handbook and ensure that speed control engages normally	2	R	ECM Default: – Throttle motor and throttle motor relay disabled – Throttle valve opening set to default value – Idle speed controlled by fuel injection intervention – Idle speed adaption inhibited	—	ECM Failure
P1629	V6EMS EOBD	Generator "FIELD" circuit failure	Battery voltage > 12 volts Switch OFF all electrical consumers Ignition ON 15 seconds Start engine; momentarily idle with all electrical consumers switched OFF Switch ignition OFF Switch ignition ON	2	C	None	P11-065	ECM to generator "FIELD" return circuit: open circuit, high resistance Generator regulator failure Generator failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1631	EMS EOBD	Throttle motor relay coil drive circuit OFF failure	Engine temperature cool (cooling fans not running) Remove ignition key for 20 seconds (cooling fans not running) Ignition key in, position II for 5 seconds (do not start) Repeat cycle twice more	2	R	ECM Default: – Throttle motor and throttle motor relay disabled – Throttle valve opening set to default value – Idle speed controlled by fuel injection intervention – Idle speed adaption inhibited	PI1 -052	Throttle motor relay coil power supply circuit: open circuit (fuse) Throttle motor relay failure Throttle motor relay coil to ECM drive circuit: open circuit, short circuit to ground
P1632	EMS EOBD	Generator charge system failure / generator "CHARGE / FAULT" circuit failure	Battery voltage > 12 volts Switch OFF all electrical consumers Start engine; idle for 16 minutes with all electrical consumers switched OFF If no reoccurrence of DTC(s): hold engine > 1500 rpm for one minute in N	2	C	None	PI1 -079	ECM to generator "CHARGE / FAULT" circuit: short circuit, open circuit, high resistance Generator regulator failure Generator failure
P1633	EMS EOBD	ECM main CPU failure	Ignition ON 10 seconds	2	R	ECM Default: – Throttle motor and throttle motor relay disabled – Throttle valve opening set to default value – Idle speed controlled by fuel injection intervention – Idle speed adaption inhibited	—	ECM Failure
P1634	EMS EOBD	Throttle "watch dog" circuit malfunction	Idle engine Switch OFF ignition for 10 seconds Start engine and repeat	2	R	ECM Default: – Vehicle speed limited – Throttle opening limited to 30% – Speed control inhibited	—	ECM Failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1637	EMS EOBD	CAN ECM to DSCM network malfunction	Ignition ON 10 seconds	2	A	ECM Default: – Speed control inhibited – Maximum throttle opening for N range inhibited – Throttle opening limited to 30% – Maximum engine speed reduced	PI1 -123 -124	CAN open circuit fault – DSCM to ECM CAN short circuit fault DSCM failure ECM failure
P1638	EMS EOBD	CAN ECM / IC network malfunction	Ignition ON 10 seconds	1	N	None (Engine will not start – PATS failure)	PI1 -123 -124	CAN open circuit fault – IC to ECM CAN short circuit fault IC failure ECM failure
P1642	EMS EOBD	CAN circuit malfunction	Ignition ON 10 seconds	1	A	ECM Default: – Speed control inhibited – Maximum throttle opening for N range inhibited – Throttle opening limited to 30% – Maximum engine speed reduced (Engine will not start – PATS failure)	PI1 -123 -124	CAN short circuit fault Control module failure – check for additional flagged DTC(s) to locate control module source
P1643	EMS EOBD	CAN ECM / TCM network malfunction	Ignition ON 10 seconds	2	A	ECM Default: – Speed control inhibited – Maximum throttle opening for N range inhibited – Throttle opening limited to 30% – Maximum engine speed reduced	PI1 -123 -124	CAN open circuit fault – TCM to ECM CAN short circuit fault TCM failure ECM failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1646	EMS EOBD	ECM HO2 Sensor control malfunction – bank 1 upstream (1/1)	Drive vehicle for 10 minutes	2	N	ECM Default: – HO2S 1/1 control circuit inhibited	—	HO2 Sensor 1/1 heater failure HO2 Sensor 1/1 sensing circuit: short circuit to ground, short circuit to high voltage, open circuit, high resistance ECM failure
P1647	EMS EOBD	ECM HO2 Sensor control malfunction – bank 2 upstream (2/1)	Drive vehicle for 10 minutes	2	N	ECM Default: – HO2S 2/1 control circuit inhibited	—	HO2 Sensor 2/1 heater failure HO2 Sensor 2/1 sensing circuit: short circuit to ground, short circuit to high voltage, open circuit, high resistance ECM failure
P1648	EMS EOBD	ECM internal Knock Sensor CPU self test failure	Start engine Battery voltage > 12 volts. Idle for 2 minutes	2	A	ECM Default: – Maximum ignition retard – Maximum engine speed reduced	—	ECM failure
P1656	EMS EOBD	TP Sensor amplifier circuit malfunction	Ignition ON 10 seconds	2	A	ECM Default: – Maximum engine speed reduced	P11-075	ECM failure
P1657	EMS EOBD	Throttle motor relay coil drive circuit ON failure	Engine temperature cool (cooling fans not running) Remove ignition key for 20 seconds (cooling fans not running) Ignition key in, position II for 5 seconds (do not start) Repeat cycle two additional times	2	R	ECM Default: – Vehicle speed limited – Throttle opening limited to 30% – Speed control inhibited	P11-052-134	Throttle motor relay failure Throttle motor relay coil to ECM drive circuit: short circuit to B+ voltage

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1658	EMS EOBD	Throttle motor relay ON failure	Engine temperature cool (cooling fans not running) Remove ignition key for 20 seconds (cooling fans not running) Ignition key in, position II for 5 seconds (do not start) Repeat cycle two additional times	2	R	ECM Default: – Vehicle speed limited – Throttle opening limited to 30% – Speed control inhibited	P11 -052	Throttle motor relay failure Throttle motor relay coil to ECM drive circuit: short circuit to B+ voltage
P1672	EMS JAG	CAN ECM / ASM network malfunction	Ignition ON 10 seconds	N	N	ECM Default: None ASM Default: – Firm suspension setting	P11 -123 -124	CAN open circuit fault – ASM to ECM CAN short circuit fault ASM failure ECM failure
P1696	EMS JAG	CAN ECM / ASCM network malfunction	Ignition ON 10 seconds	N	N	ECM Default: – Speed control inhibited	P11 -123 -124	CAN open circuit fault – ASCM to ECM CAN short circuit fault ASCM failure ECM failure
P1697	EMS JAG	Adaptive speed control HEADWAY switch(es) circuit malfunction	Ignition ON 45 seconds	N	A	ECM Default: – Speed control inhibited	P11 -047	Speed control switches internal steering wheel circuit: short circuit to ground Steering wheel cassette reel: short circuit to ground Cassette reel to ECM circuit: short circuit to ground HEADWAY + / - switch(es) failure (stuck ON)
P1699	EMS EOBD	CAN ECM / CCM network malfunction	Ignition ON 10 seconds	2	N	None	P11 -123 -124	CAN open circuit fault – CCM to ECM CAN short circuit fault CCM failure ECM failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1749	TRANS JAG	PARK / NEUTRAL circuit malfunction	Ignition ON Move gear selector to N; leave in N for 5 seconds, then return to P.	N	N	None	GB2 -10	TCM TO ECM P / N circuit: open circuit, short circuit to ground, short circuit to B+ voltage TCM / control valve failure
P1774	TRANS JAG	CAN TCM / J Gate Module network malfunction	Ignition ON 10 seconds	N	A	TCM Default: – Manual gear selection disabled – Sport mode disabled	GB2 -2 -6	CAN open circuit fault – TCM to J Gate Module CAN short circuit fault J Gate Module failure
P1783	TRANS EOBD	Transmission over-temperature shut-down	Drive vehicle for 1 hour while continually performing hard acceleration starts / stops.	N	A	TCM Default: – Mechanical limp home mode	—	Transmission fluid level low Transmission fluid cooler circuit: obstructed, leaking Transmission fluid cooler fins blocked by debris Transmission mechanical failure
P1794	TRANS EOBD	TCM ignition switched power supply circuit malfunction	Ignition ON 10 seconds	2	A	TCM Default: – Mechanical limp home mode	GB2 -9	Ignition switched power supply fuse failure Ignition switched power supply circuit: short circuit to ground, open circuit
P1796	TRANS EOBD	CAN network fault	Ignition ON 10 seconds	2	A	TCM Default: – Mechanical limp home mode	GB2 -2 -6	CAN open circuit or short circuit fault TCM / control valve failure
P1797	TRANS EOBD	CAN TCM / ECM network malfunction	Ignition ON 10 seconds	2	A	TCM Default: – Mechanical limp home mode	GB2 -2 -6	CAN open circuit fault – TCM to ECM CAN short circuit fault ECM failure TCM / control valve failure

DTC	SYS	FAULT DESCRIPTION	MONITORING CONDITIONS	CK ENG	OTHER	DEFAULT ACTION	CM PIN	POSSIBLE CAUSES
P1798	TRANS JAG	CAN TCM / IC network malfunction	Ignition ON 10 seconds	N	N	None	GB2 -2 -6	CAN open circuit fault – TCM to IC CAN short circuit fault IC failure TCM / control valve failure
P1799	TRANS JAG	CAN TCM / DSCM network malfunction	Ignition ON 10 seconds	N	N	TCM Default: – Substitute transmission output speed for DSC vehicle speed	GB2 -2 -6	CAN open circuit fault – TCM to DSCM CAN short circuit fault DSCM failure TCM / control valve failure