



DTC Summaries

V8 AJ26 Engine Management – 1998/99 MY (1999 SC only)

OBD II MONITORING CONDITIONS:

When testing for DTC reoccurrence, it can be determined if the Service Drive Cycle was of sufficient length by performing a PDU “Systems Readiness Test”.

The Systems Readiness Test is accessed via the PDU menu structure. PDU will report if any portion of the Systems Readiness Test has not been completed in the following manner:

The following less frequently performed tests are identified as incomplete:

- Module \$51 (identifies EMS ECM)
 - Catalyst
 - Evaporative purge system
 - O2 Sensor
 - EGR system

Further confirmation of the System Readiness Test status is available by retrieving the logged DTCs.

If DTC P1000 is logged in memory, the on-board diagnostic tests **have not** been completed.

If DTC P1111 is logged in memory, all on-board diagnostic tests **have** been completed.

Refer to page 2 for important information regarding the use of this Summary.

NOTES

MONITORING CONDITIONS	"SERVICE DRIVE CYCLE" For the particular DTC. Operate the vehicle as described to check for a reoccurrence of the DTC.	
OBD II	Y	YES – indicates that the DTC is an OBD II DTC.
	N	NO – indicates that the DTC is a non OBD II DTC.
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".
	N	NO – indicates that the CHECK ENGINE MIL is not activated
OTHER	N	None
	1	1 "TRIP" to activate indicator(s).
	2	2 CONSECUTIVE "TRIPS" to activate indicator(s).
	R	RED MIL
	A	AMBER MIL
	M	MESSAGE
	N/A	NORMALLY ASPIRATED
	SC	SUPERCHARGED
DEFAULT ACTION	ECM default action; Logged – DTC stored in memory buffer; Flagged – DTC stored in memory / CHECK ENGINE MIL activated.	
POSSIBLE CAUSES	HIGH VOLTAGE – High voltage can be either EMS sensor supply voltage (5 volt) or B+ voltage.	

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

PDU DATALOGGER ACRONYMS

ACCREQ	A/C compressor clutch request	FBRAKE2	Brake switch	PKBRAKE	Park brake switch
ACHPS	A/C refrigerant high pressure switch	FP1	Fuel pump 1	PNPS	Park / neutral position switch (rotary switch)
ACLPS	A/C refrigerant low pressure switch	FPRLY1	Fuel pump relay 1	PPS1	Pedal position sensor track A
ADV	Ignition timing advance (Cyl 1, A bank)	FP2	Fuel pump 2	PPS2	Pedal position sensor track B
BARO	Barometric pressure sensor	FPRLY2	Fuel pump relay 2	RPM	Engine speed
BAT1+	Battery B+ supply to ECM	FTP	Fuel tank pressure	SPS	Sensor power supply monitor
CCV	Canister close valve	GUARD1	Mechanical guard sensor	STFT1	Short term fuel trim A bank
CLV	Calculated load value	O2SB1D	Oxygen sensor (downstream) A bank	STFT2	Short term fuel trim B bank
CRANKREQ	Crank request (from BPM)	O2SB2D	Oxygen sensor (downstream) B bank	STFTB1D	Short term fuel trim A bank downstream
CRUISEA	Cruise control accel / decel switch	HO2SB1U	Heated oxygen sensor (upstream) A bank	STFTB1U	Short term fuel trim A bank upstream
CRUISEB	Cruise resume / cancel switch	HO2SB2U	Heated oxygen sensor (upstream) B bank	STFTB2D	Short term fuel trim B bank downstream
CRUISEC	Cruise cancel switch	HTDSC	Heated windshield request	STFTB2U	Short term fuel trim B bank upstream
CRUISED	Cruise control set / inch / decel switch	IAT	Intake air temperature	TPS	Throttle position sensor
CRUISEO	Cruise control ON / OFF switch	IAT2	Intake air temperature 2	TPS1	Throttle position sensor track 1
CRUISER	Cruise control resume switch	KS1A	Knock sensor 1 A bank	TPS2	Throttle position sensor track 2
CRUISES	Cruise control set / inch / accel switch	KS1B	Knock sensor 1 B bank	TTP	Target throttle position
CRUISEC1	Cruise control cancel switch	KS4A	Knock sensor 4 A bank	VSS	Vehicle speed
DTC1	Number of DTCs logged this trip	KS4B	Knock sensor 4 B bank	VSVRM	Vacuum switching valve release monitor
DTCS	Number of permanent DTCs logged	KSFA	Knock sensor fail A bank	VSVAM	Vacuum switching valve atmosphere monitor
ECT	Engine coolant temperature	KSFB	Knock sensor fail B bank	VSVVM	Vacuum switching valve vacuum monitor
EGR	Exhaust gas recirculation	LTFT1	Long term fuel trim A bank	VVTBM	Variable valve timing (B bank) monitor
EVAP	Evaporative emission system monitor	LTFT2	Long term fuel trim B bank		
FANF	Cooling fan fast	MAF	Mass air flow		
FANFRLY	Cooling fan relay fast	MAFGND1	MAFS ground		
FANS	Cooling fan slow	MAFS1	Mass air flow sensor		
FANSRLY	Cooling fan relay slow	MPROBE	Measurement probe (RED)		

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0101	MAFS range / performance	Engine at normal operating temperature; drive 43 – 59 mph (70 – 95 km/h); 1500 – 2500 rpm; > 10 seconds	Y	2	2 [A, M]	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Substitutes throttle angle for engine load measurement – Limits engine speed to 3000 rpm – Inhibits canister purge – Inhibits EGR	Blocked air cleaner Air intake leak Engine breather leak Throttle control malfunction (TPS) MAFS to ECM sensing circuit high resistance MAFS to ECM sensing circuit intermittent short circuit to ground MAFS supply circuit high resistance MAFS failure
P0102	MAFS sense circuit low voltage	Ignition ON > 5 seconds	Y	2	1 [A, M]	When AMBER MIL is activated (DTC logged; first trip), ECM: – Substitutes throttle angle for engine load measurement – Limits engine speed to 3000 rpm – Inhibits canister purge – Inhibits EGR	Blocked air filter MAFS to ECM sensing circuit high resistance or open circuit MAFS to ECM sensing circuit intermittent short circuit to ground MAFS supply circuit open circuit or short circuit to ground MAFS failure
P0103	MAFS sense circuit high voltage	Ignition ON > 5 seconds	Y	2	1	When AMBER MIL is activated [A, M] (DTC logged; first trip), ECM: – Substitutes throttle angle for engine load measurement – Limits engine speed to 3000 rpm – Inhibits canister purge – Inhibits EGR	MAFS to ECM reference ground circuit open circuit MAFS to ECM sensing circuit short circuit to high voltage MAFS failure
P0106	BARO circuit low voltage	Ignition ON > 5 seconds	Y	2	N	None	BARO failure (internal ECM fault)
P0107	BARO circuit high voltage	Ignition ON > 5 seconds	Y	2	N	None	BARO failure (internal ECM fault)

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0111	IATS range / performance	Engine idle > 40 seconds	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Substitutes fixed temperature of 50 °C (122 °F)	Blocked air cleaner Air intake leak Engine breather leak IATS to ECM wiring open circuit or high resistance IATS to ECM sensing circuit short circuit to high voltage IATS failure
P0112	IATS sense circuit high voltage (low air temperature)	Ignition ON > 5 seconds	Y	2	N	When DTC is logged (first trip), ECM: – Substitutes fixed temperature of 50 °C (122 °F)	IATS to ECM wiring open circuit or high resistance IATS to ECM sensing circuit short circuit to high voltage IATS failure
P0113	IATS sense circuit low voltage (high air temperature)	Ignition ON > 5 seconds	Y	2	N	When DTC is logged (first trip), ECM: – Substitutes fixed temperature of 50 °C (122 °F)	IATS to ECM wiring short circuit to ground IATS failure
P0116	ECTS range / performance	Engine coolant temperature ambient; start engine; drive at normal operating temperature > 13 mph (20 km/h) > 3 minutes	Y	2	2 [A, M]	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Substitutes transmission fluid temperature (via CAN) – Limits engine speed to 3000 rpm – Inhibits canister purge – Inhibits EGR – Inhibits VVT	Low coolant level Contaminated coolant Engine thermostat failure ECTS to ECM sensing circuit high resistance when hot ECTS to ECM sensing circuit intermittent high resistance ECTS failure
P0117	ECTS sense circuit high voltage (low coolant temperature)	Ignition ON > 5 seconds	Y	2	1 [A, M]	When AMBER MIL is activated (DTC logged; first trip), ECM: – Substitutes transmission fluid temperature (via CAN) – Limits engine speed to 3000 rpm – Inhibits canister purge – Inhibits EGR – Inhibits VVT	ECTS disconnected ECTS to ECM sensing circuit high resistance, open circuit or short circuit to high voltage ECTS failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0118	ECTS sense circuit low voltage (high coolant temperature)	Ignition ON > 5 seconds	Y	2	1 [A, M]	Refer to P0117 Default Action	Engine overheat condition ECTS to ECM wiring short circuit to ground ECTS failure
P0121	TPS circuit range / performance	Ignition ON > 5 seconds	Y	2	1 [R, M]	When RED MIL is activated (DTC logged; first trip), ECM: – Defaults throttle to mechanical guard mode – Inhibits idle speed control – Inhibits cruise control – Inhibits traction control / stability control – Inhibits power limiting	TPS to ECM wiring open circuit or high resistance TPS to ECM sensing circuits ("1" or "2") short circuit to high voltage TPS failure
P0122	TPS circuit "1" low voltage	Ignition ON > 5 seconds	Y	2	1 [R, M]	Refer to P0121 Default Action	TPS to ECM sensing circuit "1" (TPS pin 3) open circuit or high resistance TPS failure
P0123	TPS circuit "1" high voltage	Ignition ON > 5 seconds	Y	2	1 [R, M]	Refer to P0121 Default Action	TPS to ECM sensing circuit "1" (TPS pin 3) short circuit to high voltage TPS failure
P0125	ECTS response (for closed loop fuel control)	Engine coolant temperature ambient; start engine; run engine to > 60 °C (140 °F) > 2 minutes	Y	2	1 [A, M]	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Substitutes transmission fluid temperature (via CAN) – Limits engine speed to 3000 rpm – Inhibits canister purge – Inhibits EGR – Inhibits VVT	Low coolant level Contaminated coolant Engine thermostat failure ECTS to ECM sensing circuit high resistance, open circuit or short circuit to high voltage
P0131	HO2S sense circuit low voltage – A bank, upstream (1)	Engine at normal operating temperature; drive at steady speed > 40 mph (60 km/h); engine speed 1300 – 4500 rpm > 1 minute 20 seconds	Y	2	N	None	HO2S disconnected HO2S to ECM wiring open circuit HO2S short circuit to ground HO2S failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0132	HO2S sense circuit high voltage – A bank, upstream (1)	Engine at normal operating temperature; drive at steady speed > 3 mph (4 km/h)	Y	2	N	None	HO2S sensing circuit short circuit to high voltage HO2S ground (BRD – braided shield) open circuit HO2S failure
P0133	HO2S sense circuit slow response – A bank, upstream (1)	Engine at normal operating temperature; drive at 50 – 62 mph (80 – 100 km/h); engine speed 1500 – 2500 rpm >10 seconds	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits A bank closed loop fuel metering – Inhibits A bank adaptive fuel metering	Engine misfire HO2S disconnected HO2S mechanical damage HO2S to ECM wiring intermittent open circuit HO2S sensing circuit short circuit to high voltage HO2S short circuit to ground HO2S ground (BRD – braided shield) open circuit HO2S heater circuit fault Exhaust leak Low exhaust temperature Injector flow partially blocked Catalyst efficiency decrease HO2S failure
P0135	HO2S heater circuit malfunction – A bank, upstream (1)	Engine at normal operating temperature; drive at steady speed > 20 mph (30 km/h)	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits A bank closed loop fuel metering – Inhibits A bank adaptive fuel metering – Inhibits A bank downstream O2S control	HO2S disconnected HO2S heater power supply open circuit HO2S heater to ECM wiring short circuit or open circuit HO2S heater failure
P0137	O2S sense circuit low voltage – A bank, downstream (2)	Ambient temperature < 70 °C (158 °F); engine at normal operating temperature; drive at steady speed > 13 mph (20 km/h) > 1 minute 10 seconds	Y	2	N	None	O2S disconnected O2S to ECM wiring open circuit O2S short circuit to ground O2S failure
P0138	O2S sense circuit high voltage – A bank, downstream (2)	Ambient temperature < 70 °C (158 °F); engine at normal operating temperature; drive at steady speed > 13 mph (20 km/h) > 1 minute 10 seconds	Y	2	N	None	O2S sensing circuit short circuit to high voltage O2S ground (BRD – braided shield) open circuit O2S failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0140	O2S sense circuit no activity – A bank, downstream (2)	Engine at normal operating temperature; drive > 13 mph (20 km/h); engine speed > 1500 rpm; > 1 minute	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits A bank downstream O2S control	O2S disconnected O2S mechanical damage O2S to ECM wiring open circuit O2S sensing circuit short circuit to high voltage O2S short circuit to ground O2S ground (BRD – braided shield) open circuit Exhaust leak Low exhaust temperature O2S failure
P0151	HO2S sense circuit low voltage – B bank, upstream (1)	Engine at normal operating temperature; drive at steady speed > 40 mph (60 km/h); engine speed 1300 – 4500 rpm > 1 minute 20 seconds	Y	2	N	None	HO2S disconnected HO2S to ECM wiring open circuit HO2S short circuit to ground HO2S failure
P0152	HO2S sense circuit high voltage – B bank, upstream (1)	Engine at normal operating temperature; drive at steady speed > 3 mph (4 km/h)	Y	2	N	None	HO2S sensing circuit short circuit to high voltage HO2S ground (BRD – braided shield) open circuit HO2S failure
P0153	HO2S sense circuit slow response – B bank, upstream (1)	Engine at normal operating temperature; drive at 50 – 62 mph (80 – 100 km/h); engine speed 1500 – 2500 rpm >10 seconds	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits B bank closed loop fuel metering – Inhibits B bank adaptive fuel metering	Engine misfire HO2S disconnected HO2S mechanical damage HO2S to ECM wiring intermittent open circuit HO2S sensing circuit short circuit to high voltage HO2S short circuit to ground HO2S ground (BRD – braided shield) open circuit HO2S heater circuit fault Exhaust leak Low exhaust temperature Injector flow partially blocked Catalyst efficiency decrease HO2S failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0155	HO2S heater circuit malfunction – B bank, upstream (1)	Engine at normal operating temperature; drive at steady speed > 20 mph (30 km/h)	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits B bank closed loop fuel metering – Inhibits B bank adaptive fuel metering – Inhibits B bank downstream O2S control	HO2S disconnected HO2S heater power supply open circuit HO2S heater to ECM wiring short circuit or open circuit HO2S heater failure
P0157	O2S sense circuit low voltage – B bank, downstream (2)	Ambient temperature < 70 °C (158 °F); engine at normal operating temperature; drive at steady speed > 13 mph (20 km/h) > 1 minute 10 seconds	Y	2	N	None	O2S disconnected O2S to ECM wiring open circuit O2S short circuit to ground
P0158	O2S sense circuit high voltage – B bank, downstream (2)	Ambient temperature < 70 °C (158 °F); engine at normal operating temperature; drive at steady speed > 13 mph (20 km/h) > 1 minute 10 seconds	Y	2	N	None	O2S sensing circuit short circuit to high voltage O2S ground (BRD – braided shield) open circuit O2S failure
P0160	O2S sense circuit no activity – B bank, downstream (2)	Engine at normal operating temperature; drive > 13 mph (20 km/h); engine speed > 1500 rpm; > 1 minute	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits B bank downstream O2S control	O2S disconnected O2S mechanical damage O2S to ECM wiring open circuit O2S sensing circuit short circuit to high voltage O2S short circuit to ground O2S ground (BRD – braided shield) open circuit Exhaust leak Low exhaust temperature O2S failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0171	A bank combustion too lean	Engine at normal operating temperature; drive at steady speed > 40 mph; engine speed 1300 – 4500 rpm > 1 minute 20 seconds	Y	2	2 [A, M]	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits downstream O2S control If DTC P0174 is also flagged, ECM: – Limits engine speed to 3000 rpm – Inhibits canister purge* – Inhibits EGR * Inhibited when “lean” fault is first detected	Engine misfire Air intake leak between MAFS and throttle Fuel filter, system blockage Fuel injector blockage Fuel pressure regulator failure (low fuel pressure) Low fuel pump output HO2S harness wiring condition fault Exhaust leak (before catalyst) ECM receiving incorrect signal from one or more of the following components: ECTS, MAFS, IATS, TPS
P0172	A bank combustion too rich	Engine at normal operating temperature; drive at steady speed > 40 mph; engine speed 1300 – 4500 rpm > 1 minute 20 seconds	Y	2	2 [A, M]	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits downstream O2S control If DTC P0175 is also flagged, ECM: – Limits engine speed to 3000 rpm – Inhibits canister purge – Inhibits EGR	Blocked air filter Fuel system return blockage Leaking fuel injector(s) Fuel pressure regulator failure (high fuel pressure) ECM receiving incorrect signal from one or more of the following components: ECTS, MAFS, IATS, TPS
P0174	B bank combustion too lean	Engine at normal operating temperature; drive at steady speed > 40 mph; engine speed 1300 – 4500 rpm > 1 minute 20 seconds	Y	2	2 [A, M]	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits downstream O2S control If DTC P0171 is also flagged, ECM: – Limits engine speed to 3000 rpm – Inhibits canister purge* – Inhibits EGR * Inhibited when “lean” fault is first detected	Engine misfire Air intake leak between MAFS and throttle Fuel filter, system blockage Fuel injector blockage Fuel pressure regulator failure (low fuel pressure) Low fuel pump output HO2S harness wiring condition fault Exhaust leak (before catalyst) ECM receiving incorrect signal from one or more of the following components: ECTS, MAFS, IATS, TPS

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0175	B bank combustion too rich	Engine at normal operating temperature; drive at steady speed > 40 mph; engine speed 1300 – 4500 rpm > 1 minute 20 seconds	Y	2	2 [A, M]	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits downstream O2S control If DTC P0172 is also flagged, ECM: – Limits engine speed to 3000 rpm – Inhibits canister purge – Inhibits EGR	Blocked air filter Fuel system return blockage Leaking fuel injector(s) Fuel pressure regulator failure (high fuel pressure) ECM receiving incorrect signal from one or more of the following components: ECTS, MAFS, IATS, TPS
P0201	Fuel injector circuit malfunction – cylinder A1 (1)	Engine at normal operating temperature; run engine > 30 seconds; engine speed 500 – 2500 rpm	Y	2	1 [A, M]	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Limits engine speed to 3000 rpm – Inhibits canister purge – Inhibits EGR If DTCs for all A bank injectors are flagged: – Inhibits A bank closed loop fuel metering – Inhibits A bank adaptive fuel metering – Inhibits A bank downstream O2S control	Injector disconnected Injector harness wiring open or short circuit Injector failure
P0202	Fuel injector circuit malfunction – cylinder A2 (2)	Engine at normal operating temperature; run engine > 30 seconds; engine speed 500 – 2500 rpm	Y	2	1 [A, M]	Refer to P0201 Default Action	Injector disconnected Injector harness wiring open or short circuit Injector failure
P0203	Fuel injector circuit malfunction – cylinder A3 (3)	Engine at normal operating temperature; run engine > 30 seconds; engine speed 500 – 2500 rpm	Y	2	1 [A, M]	Refer to P0201 Default Action	Injector disconnected Injector harness wiring open or short circuit Injector failure
P0204	Fuel injector circuit malfunction – cylinder A4 (4)	Engine at normal operating temperature; run engine > 30 seconds; engine speed 500 – 2500 rpm	Y	2	1 [A, M]	Refer to P0201 Default Action	Injector disconnected Injector harness wiring open or short circuit Injector failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0205	Fuel injector circuit malfunction – cylinder B1 (5)	Engine at normal operating temperature; run engine > 30 seconds; engine speed 500 – 2500 rpm	Y	2	1 [A, M]	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Limits engine speed to 3000 rpm – Inhibits canister purge – Inhibits EGR If DTCs for all B bank injectors are flagged: – Inhibits B bank closed loop fuel metering – Inhibits B bank adaptive fuel metering – Inhibits B bank downstream O2S control	Injector disconnected Injector harness wiring open or short circuit Injector failure
P0206	Fuel injector circuit malfunction – cylinder B2 (6)	Engine at normal operating temperature; run engine > 30 seconds; engine speed 500 – 2500 rpm	Y	2	1 [A, M]	Refer to P0205 Default Action	Injector disconnected Injector harness wiring open or short circuit Injector failure
P0207	Fuel injector circuit malfunction – cylinder B3 (7)	Engine at normal operating temperature; run engine > 30 seconds; engine speed 500 – 2500 rpm	Y	2	1 [A, M]	Refer to P0205 Default Action	Injector disconnected Injector harness wiring open or short circuit Injector failure
P0208	Fuel injector circuit malfunction – cylinder B4 (8)	Engine at normal operating temperature; run engine > 30 seconds; engine speed 500 – 2500 rpm	Y	2	1 [A, M]	Refer to P0205 Default Action	Injector disconnected Injector harness wiring open or short circuit Injector failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0222	TPS circuit "2" low voltage	Ignition ON > 5 seconds	Y	2	1 [R, M]	When RED MIL is activated (DTC logged; first trip), ECM: – Defaults throttle to mechanical guard mode – Inhibits idle speed control – Inhibits cruise control – Inhibits traction control / stability control – Inhibits power limiting	TPS to ECM sensing circuit "2" (TPS pin 2) open circuit or high resistance TPS failure
P0223	TPS circuit "2" high voltage	Ignition ON > 5 seconds	Y	2	1 [R, M]	Refer to P0222 Default Action	TPS to ECM sensing circuit "2" (TPS pin 2) short circuit to high voltage TPS failure
P0300	Random misfire detected	Engine at idle, or steady between 500 – 2500 rpm; > 2 minutes 30 seconds	Y	1 or 2 **	1 [A, M]	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Limits engine speed to 3000 rpm – Inhibits closed loop fuel metering – Inhibits adaptive fuel metering – Inhibits canister purge – Inhibits EGR	Cylinder compression low Worn camshaft / broken valve spring(s) Fuel delivery pressure (low / high) Fuel injector(s) blocked / leaking Fuel injector(s) continuously open Fuel contamination Fuel injector circuit fault(s) (Injector DTCs also flagged) Spark plug failure / fouled / incorrect gap ECM to ignition module primary circuit fault(s) (Cylinder misfire detected DTC also flagged) Ignition module to ignition coil primary circuit fault(s) (Cylinder misfire detected DTC also flagged) Ignition module ground circuit open circuit, high resistance Ignition coil failure Ignition module failure

** If, on the first trip, the misfire is severe enough to cause excess exhaust emission, individual cylinder DTC plus DTC P1316 will be flagged; CHECK ENGINE MIL will flash.

If, on the first trip, the misfire is severe enough to cause catalyst damage, individual cylinder DTC plus DTC P1313 (A bank) or P1314 (B bank) will be flagged; CHECK ENGINE MIL will flash.

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0301	Misfire detected – cylinder A1 (1)	Engine at idle, or steady between 500 – 2500 rpm; > 2 minutes 30 seconds	Y	1 or 2 **	1 [A, M]	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Limits engine speed to 3000 rpm – Inhibits A bank closed loop fuel metering – Inhibits A bank adaptive fuel metering – Inhibits canister purge – Inhibits EGR	Refer to P0300 Possible Faults
P0302	Misfire detected – cylinder A2 (2)	Engine at idle, or steady between 500 – 2500 rpm; > 2 minutes 30 seconds	Y	1 or 2 **	1 [A, M]	Refer to P0301 Default Action	Refer to P0300 Possible Faults
P0303	Misfire detected – cylinder A3 (3)	Engine at idle, or steady between 500 – 2500 rpm; > 2 minutes 30 seconds	Y	1 or 2 **	1 [A, M]	Refer to P0301 Default Action	Refer to P0300 Possible Faults
P0304	Misfire detected – cylinder A4 (4)	Engine at idle, or steady between 500 – 2500 rpm; > 2 minutes 30 seconds	Y	1 or 2 **	1 [A, M]	Refer to P0301 Default Action	Refer to P0300 Possible Faults
P0305	Misfire detected – cylinder B1 (5)	Engine at idle, or steady between 500 – 2500 rpm; > 2 minutes 30 seconds	Y	1 or 2 **	1 [A, M]	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Limits engine speed to 3000 rpm – Inhibits B bank closed loop fuel metering – Inhibits B bank adaptive fuel metering – Inhibits canister purge – Inhibits EGR	Refer to P0300 Possible Faults
P0306	Misfire detected – cylinder B2 (6)	Engine at idle, or steady between 500 – 2500 rpm; > 2 minutes 30 seconds	Y	1 or 2 **	1 [A, M]	Refer to P0305 Default Action	Refer to P0300 Possible Faults
P0307	Misfire detected – cylinder B3 (7)	Engine at idle, or steady between 500 – 2500 rpm; > 2 minutes 30 seconds	Y	1 or 2 **	1 [A, M]	Refer to P0305 Default Action	Refer to P0300 Possible Faults
P0308	Misfire detected – cylinder B4 (8)	Engine at idle, or steady between 500 – 2500 rpm; > 2 minutes 30 seconds	Y	1 or 2 **	1 [A, M]	Refer to P0305 Default Action	Refer to P0300 Possible Faults

** If, on the first trip, the misfire is severe enough to cause excess exhaust emission, individual cylinder DTC plus DTC P1316 will be flagged; CHECK ENGINE MIL will flash.

If, on the first trip, the misfire is severe enough to cause catalyst damage, individual cylinder DTC plus DTC P1313 (A bank) or P1314 (B bank) will be flagged; CHECK ENGINE MIL will flash.

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0327	KS sense circuit out of range (low voltage) – A bank	Ignition ON > 5 seconds	Y	2	N/A: N SC: 2 [A,M]	When DTC is logged (first trip), ECM: – Sets ignition retard to maximum	Poor sensor contact with the cylinder block KS to ECM sense circuit short circuit to ground KS failure
P0328	KS sense circuit out of range (high voltage) – A bank	Ignition ON > 5 seconds	Y	2	N/A: N SC: 2 [A,M]	When DTC is logged (first trip), ECM: – Sets ignition retard to maximum	Poor sensor contact with the cylinder block KS to ECM sense circuit high resistance or open circuit KS to ECM sense circuit short circuit to high voltage KS failure
P0332	KS sense circuit out of range (low voltage) – B bank	Ignition ON > 5 seconds	Y	2	N/A: N SC: 2 [A,M]	When DTC is logged (first trip), ECM: – Sets ignition retard to maximum	Poor sensor contact with the cylinder block KS to ECM sense circuit short circuit to ground KS failure
P0333	KS sense circuit out of range (high voltage) – B bank	Ignition ON > 5 seconds	Y	2	N/A: N SC: 2 [A,M]	When DTC is logged (first trip), ECM: – Sets ignition retard to maximum	Poor sensor contact with the cylinder block KS to ECM sense circuit high resistance or open circuit KS to ECM sense circuit short circuit to high voltage KS failure
P0335	CKPS circuit malfunction	Crank engine > 5 seconds – engine will not start; or start engine, run steady > 1000 rpm; or engine stall, ignition ON	Y	2	N	None	CKPS disconnected CKPS gap incorrect / foreign matter on sensor face CKPS sensing circuit open circuit, short circuit to ground, short circuit to high voltage CKPS failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0340	CMPS circuit malfunction	Crank engine > 5 seconds	Y	2	N	When fault is detected, ECM: – Guesses camshaft position (engine starts 50% of time – rough running)	CMPS disconnected CMPS gap incorrect / foreign matter on sensor face CMPS sensing circuit open circuit, short circuit to ground, short circuit to high voltage CMPS failure
P0351	Ignition coil (A1) primary / secondary circuit malfunction	Run engine steady < 3000 rpm > 5 seconds	Y	2	1 [A, M]	When fault is detected, ECM: – Inhibits individual cylinder fuel injection – Inhibits A bank closed loop fuel metering – Inhibits A bank downstream O2S control	ECM to ignition module primary circuit open circuit, short circuit to ground, high resistance Ignition module to ignition coil primary circuit open circuit, short circuit to ground, high resistance Ignition module ground circuit open circuit, high resistance Ignition coil failure Ignition module failure
P0352	Ignition coil (A2) primary / secondary circuit malfunction	Run engine steady < 3000 rpm > 5 seconds	Y	2	1 [A, M]	Refer to P0351 Default Action	Refer to P0351 Possible Causes
P0353	Ignition coil (A3) primary / secondary circuit malfunction	Run engine steady < 3000 rpm > 5 seconds	Y	2	1 [A, M]	Refer to P0351 Default Action	Refer to P0351 Possible Causes
P0354	Ignition coil (A4) primary / secondary circuit malfunction	Run engine steady < 3000 rpm > 5 seconds	Y	2	1 [A, M]	Refer to P0351 Default Action	Refer to P0351 Possible Causes
P0355	Ignition coil (B1) primary / secondary circuit malfunction	Run engine steady < 3000 rpm > 5 seconds	Y	2	1 [A, M]	When fault is detected, ECM: – Inhibits individual cylinder fuel injection – Inhibits B bank closed loop fuel metering – Inhibits B bank downstream O2S control	Refer to P0351 Possible Causes
P0356	Ignition coil (B2) primary / secondary circuit malfunction	Run engine steady < 3000 rpm > 5 seconds	Y	2	1 [A, M]	Refer to P0355 Default Action	Refer to P0351 Possible Causes

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0357	Ignition coil (B3) primary / secondary circuit malfunction	Run engine steady < 3000 rpm > 5 seconds	Y	2	1 [A, M]	Refer to P0355 Default Action	Refer to P0351 Possible Causes
P0358	Ignition coil (B4) primary / secondary circuit malfunction	Run engine steady < 3000 rpm > 5 seconds	Y	2	1 [A, M]	Refer to P0355 Default Action	Refer to P0351 Possible Causes
P0400	EGR flow malfunction	Engine at normal operating temperature; normal, varied driving for 3 minutes; then decel. / accel. 50 – 60 mph (80 – 95 km/h), within 6 seconds between 1700 – 2050 rpm	Y	2	N	None	EGR valve connector pins high resistance EGR pipe / exhaust manifold leak EGR pipe blocked EGR valve stuck open / closed, blocked EGR valve failure
P0405	EGR drive circuits open circuit	Ignition ON > 5 seconds	Y	2	N	None	EGR valve power supply circuit open circuit EGR valve to ECM drive circuit pair – EGR pins 1/3, 4/6 open circuit, high resistance EGR valve failure (stepper motor open circuit)
P0406	EGR drive circuits short circuit	Ignition ON > 5 seconds	Y	2	N	When fault is detected, ECM: – Inhibits EGR	EGR valve to ECM drive circuit pair – EGR pins 1/3, 4/6 short circuit to ground or high voltage EGR valve failure (stepper motor short circuit)
P0420	Catalyst efficiency below threshold – A bank	Ambient (IATS) temperature > 20 °C (68 °F); engine at normal operating temperature; normal, varied driving for 3 minutes; then, constant steady throttle 50 – 60 mph (80 – 95 km/h), 1500 – 2300 rpm > 15 seconds; then, constant steady throttle 30 – 38 mph (50 – 60 km/h), 1100 – 1900 rpm > 15 seconds	Y	2	N	None	HO2S / O2S disconnected HO2S / O2S to ECM wiring fault HO2S heater to ECM wiring fault HO2S heater failure Upstream HO2S failure Downstream O2S failure Catalyst failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0430	Catalyst efficiency below threshold – B bank	Ambient (IATS) temperature > 20 °C (68 °F); engine at normal operating temperature; normal, varied driving for 3 minutes; then, constant steady throttle 50 – 60 mph (80 – 95 km/h), 1500 – 2300 rpm > 15 seconds; then, constant steady throttle 30 – 38 mph (50 – 60 km/h), 1100 – 1900 rpm > 15 seconds	Y	2	N	None	HO2S / O2S disconnected HO2S / O2S to ECM wiring fault HO2S heater to ECM wiring fault HO2S heater failure Upstream HO2S failure Downstream O2S failure Catalyst failure
P0442	EVAP (system) leak detected	Fuel tank level between 15% - 85% full; after start-up, run engine 7 minutes. With engine at normal operating temperature, drive vehicle 39 - 50 mph (62 - 80 km/h) 6> minutes	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits adaptive fuel metering – Inhibits canister purge	Fuel cap off Fuel cap seal defective EVAP system leak (canister damage, pipework damage) EVAPP valve to ECM drive circuit open circuit, short circuit, high resistance EVAPP valve to engine purge pipe damaged / blocked / leaking EVAPP operating vacuum hose leak / blockage EVAPP valve failure
P0444	EVAPP valve circuit open circuit	Engine at normal operating temperature; vehicle stationary; brakes applied; gear "D"; idle > 10 seconds	Y	2	N	Refer to P0442 Default Action	EVAPP to ECM drive circuit open circuit or high resistance EVAPP failure
P0445	EVAPP valve circuit short circuit	Engine at normal operating temperature; vehicle stationary; brakes applied; gear "D"; idle > 10 seconds	Y	2	N	Refer to P0442 Default Action	EVAPP to ECM drive circuit short circuit to ground EVAPP failure
P0447	CCV (canister close valve) circuit open circuit	Ignition ON > 5 seconds (ECM CCV drive inactive – valve open)	Y	2	N	When CHECK ENGINE MIL is activated (DTC flagged; second trip), ECM: – Inhibits EVAP leak check monitoring – Inhibits adaptive fuel metering – Inhibits canister purge	CCV to ECM drive circuit open circuit, high resistance or short circuit to ground CCV failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0448	CCV (canister close valve) circuit short circuit	Ignition ON > 5 seconds (ECM CCV drive active – valve closed; evaporative leak check active – P0442)	Y	2	N	When CHECK ENGINE MIL is activated (DTC flagged; second trip), ECM: – Inhibits EVAP leak check monitoring – Inhibits adaptive fuel metering – Inhibits canister purge	CCV to ECM drive circuit short circuit to high voltage CCV failure
P0452	FTP (fuel tank pressure) sensor circuit low voltage	Ignition ON > 5 seconds	Y	2	N	When CHECK ENGINE MIL is activated (DTC flagged; second trip), ECM: – Inhibits EVAP leak check monitoring	Inhibits EVAP leak check monitoring FTP sensor disconnected FTP sensor to ECM sense circuit open circuit or short circuit to ground FTP sensor to ECM power supply circuit open circuit or short circuit to ground FTP sensor failure
P0453	FTP (fuel tank pressure) sensor circuit high voltage	Ignition ON > 5 seconds	Y	2	N	When CHECK ENGINE MIL is activated (DTC flagged; second trip), ECM: – Inhibits EVAP leak check monitoring	FTP sensor to ECM signal ground circuit open circuit FTP sensor to ECM wiring (supply, sense, signal ground) short circuit to each other FTP sensor to ECM sense circuit short circuit to high voltage FTP sensor failure
P0460	Fuel level sense signal performance	Drive > 30 miles (48 km)	Y	2	N	None	Fuel level sensor to instrument pack circuits intermittent short or open circuit, high resistance Fuel level sensor failure Instrument pack fault (incorrect fuel level data)
P0506	Idle rpm lower than expected	Engine at normal operating temperature; transmission at normal operating temperature; gear “N”; idle > 1 minute 40 seconds (no electrical load, A/C compressor, radiator fans, brake pedal switching during period)	Y	2	N	None	Air intake blockage Accessory drive overload (defective / seized component) Throttle valve stuck closed Throttle assembly failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0507	Idle rpm higher than expected	Engine at normal operating temperature; transmission at normal operating temperature; gear "N"; idle > 1 minute 40 seconds (no electrical load, A/C compressor, radiator fans, brake pedal switching during period)	Y	2	N	None	Intake air leak between MAFS and throttle Intake air leak between throttle and engine Engine breather leak Cruise control vacuum failure Throttle valve stuck open Throttle assembly failure
P0560	Vehicle voltage malfunction	Ignition ON > 35 seconds	Y	2	N	None	ECM battery power supply open circuit, high resistance ECM ignition power supply open circuit, high resistance
P0566	Cruise control CANCEL switch ON fault	Ignition ON > 75 seconds	N	N	1 [A, M]	When fault is detected, ECM: – Inhibits cruise control	Cruise control switches internal steering wheel 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	Cruise control RESUME switch ON fault	Ignition ON > 75 seconds	N	N	1 [A, M]	When fault is detected, ECM: – Inhibits cruise control	Cruise control switches internal steering wheel 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	Cruise control switch ground malfunction	Ignition ON > 5 seconds	N	N	1 [A, M]	When fault is detected, ECM: – Inhibits cruise control	Cruise control switches internal steering wheel open circuit Steering wheel cassette reel open circuit or high resistance Cassette reel to ECM circuit (ACCEL / DECEL) open circuit or high resistance ACCEL / DECEL switch failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0569	Cruise control DECEL / SET (SET -) switch ON fault	Ignition ON > 10 minutes	N	N	1 [A, M]	When fault is detected, ECM: - Inhibits cruise control	Cruise control switches internal steering wheel short circuit to ground Steering wheel cassette reel short circuit to ground Cassette reel to ECM circuit short circuit to ground DECEL / set switch failure (stuck ON)
P0570	Cruise control ACCEL / SET (SET +) switch ON fault	Ignition ON > 10 minutes	N	N	1 [A, M]	When fault is detected, ECM: - Inhibits cruise control	Cruise control switches internal steering wheel short circuit to ground Steering wheel cassette reel short circuit to ground Cassette reel to ECM circuit short circuit to ground ACCEL / set failure (stuck ON)
P0603	ECM data corrupted	Ignition ON > 5 seconds	Y	1	N	None	ECM failure
P1000	System checks not complete since last memory clear	"System Readiness Test"	N	N	N	None	See page 1
P1104	MAFS ground malfunction	Ignition ON > 5 seconds	Y	2	1 [A, M]	When AMBER MIL is activated (DTC logged; first trip), ECM: - Substitutes throttle angle for engine load measurement - Limits engine speed to 3000 rpm - Inhibits canister purge - Inhibits EGR	MAFS to ECM reference ground circuit open circuit, short circuit to high voltage, high resistance MAFS to ECM sensing circuit open circuit MAFS failure
P1111	System checks complete since last memory clear	"System Readiness Test"	N	N	N	None	See page 1
P1112	IATS 2 sense circuit high voltage (low charge air temperature)	Ignition ON > 5 seconds	Y	2	1 [A, M]	When AMBER MIL is activated (DTC logged; first trip), ECM: - Limits throttle opening to 30% - Substitutes fixed charge air temperature of 120 °C (248 °F)	IATS 2 disconnected IATS 2 to ECM sensing circuit high resistance, open circuit or short circuit to high voltage IATS 2 failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P1113	IATS 2 sense circuit low voltage (high charge air temperature)	Ignition ON > 5 seconds	Y	2	1 [A, M]	When AMBER MIL is activated (DTC logged; first trip), ECM: – Limits throttle opening to 30% – Substitutes fixed charge air temperature of 120 °C (248 °F)	Supercharger intercooler failure IATS 2 to ECM sensing circuit short circuit to ground IATS 2 failure
P1121	Pedal position sensor circuit "A" range / performance	Ignition ON > 5 seconds	N	N	1 [A, M]	None	Pedal position sensor to ECM sense circuit "A" (sensor pin 5) open circuit, short circuit or high resistance Sensor power supply fault Sensor reference ground fault Pedal position sensor failure
P1122	Pedal position sensor circuit "A" low voltage	Ignition ON > 5 seconds	N	N	1 [A, M]	None	Pedal position sensor to ECM sense circuit "A" (sensor pin 5) wire open circuit or high resistance Sensor power supply fault Pedal position sensor failure
P1123	Pedal position sensor circuit "A" high voltage	Ignition ON > 5 seconds	N	N	1 [A, M]	None	Pedal position sensor to ECM sense circuit "A" (sensor pin 5) wire short circuit to high voltage Pedal position sensor failure
P1221	Pedal position sensor circuit "B" range / performance	Ignition ON > 5 seconds	N	N	1 [A, M]	None	Pedal position sensor to ECM sense circuit "B" (sensor pin 3) open circuit, short circuit or high resistance Sensor power supply fault Sensor reference ground fault Pedal position sensor failure
P1222	Pedal position sensor circuit "B" low voltage	Ignition ON > 5 seconds	N	N	1 [A, M]	None	Pedal position sensor to ECM sense circuit "B" (sensor pin 3) wire open circuit or high resistance Sensor power supply fault Pedal position sensor failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P1223	Pedal position sensor circuit "B" high voltage	Ignition ON > 5 seconds	N	N	1 [A, M]	None	Pedal position sensor to ECM sense circuit "B" (sensor pin 3) wire short circuit to high voltage Pedal position sensor failure
P1224	Throttle control position error	Ignition ON > 3 minutes	Y	2	1 [R, M]	When RED MIL is activated (DTC logged; first trip), ECM: – Defaults throttle to mechanical guard mode – Inhibits idle speed control – Inhibits cruise control – Inhibits traction control / stability control – Inhibits power limiting	Throttle adaptations not performed after battery disconnect TPS disconnected TPS to ECM sense circuits open circuit, high resistance Throttle motor power relay failure Throttle motor power relay to ECM circuit fault Throttle motor power relay power supply open circuit ECM ground circuit fault (relay coil drive) Throttle motor to ECM drive circuits open circuit, short circuit, high resistance Throttle motor failure Throttle assembly failure
P1226	Mechanical guard sensor range / performance	Ignition ON > 5 seconds	Y	2	1 [A, M]	When AMBER MIL is activated (DTC logged; first trip), ECM: – Inhibits cruise control	Mechanical guard sensor to ECM sense circuit open circuit, short circuit or high resistance Sensor power supply fault Sensor reference ground fault Mechanical guard sensor failure Mechanical guard actuator seized / spring broken
P1227	Mechanical guard sensor circuit low voltage	Ignition ON > 5 seconds	Y	2	1 [A, M]	When AMBER MIL is activated (DTC logged; first trip), ECM: – Inhibits cruise control	Mechanical guard sensor to ECM sense circuit open circuit or high resistance Sensor power supply fault Mechanical guard sensor failure
P1228	Mechanical guard sensor circuit high voltage	Ignition ON > 5 seconds	Y	2	1 [A, M]	When AMBER MIL is activated (DTC logged; first trip), ECM: – Inhibits cruise control	Mechanical guard sensor to ECM sense circuit short circuit to high voltage Mechanical guard sensor failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P1229	Throttle motor control circuit malfunction	Ignition ON > 5 seconds	Y	2	1 [R, M]	When RED MIL is activated (DTC logged; first trip), ECM: – Defaults throttle to mechanical guard mode – Inhibits idle speed control – Inhibits cruise control – Inhibits traction control / stability control – Inhibits power limiting	Throttle motor disconnected Throttle motor to ECM drive circuits short circuit or open circuit Throttle motor failure
P1230	Fuel pump relay malfunction Note: This DTC covers the N/A system single fuel pump and the SC system fuel pump 1.	Ignition ON > 5 seconds	Y	2	N/A: N SC: 2 [A,M]	N/A – None SC – When fault is detected, ECM: – Operates fuel pump 2	Fuel pump relay failure Fuel pump relay to ECM circuit fault Fuel pump relay coil power supply open circuit ECM ground circuit fault (relay coil drive)
P1235	VSV 1 circuit range / performance (mechanical guard position)	Drive with cruise control engaged > 15 seconds	N	N	1 [A, M]	When fault is detected, ECM: – Inhibits cruise control	Vacuum leak / blockage between the throttle elbow and the throttle vacuum actuator Vacuum actuator failure Mechanical guard actuator seized / spring broken
P1236	VSV 1 (vacuum) circuit failure	Ignition ON > 5 seconds	N	N	1 [A, M]	When fault is detected, ECM: – Inhibits cruise control	VSV 1 disconnected VSV 1 to ECM drive circuit high resistance, open circuit or short circuit VSV 1 power supply open circuit VSV 1 failure
P1237	VSV 2 (atmosphere) circuit failure	Ignition ON > 5 seconds	N	N	1 [A, M]	When fault is detected, ECM: – Inhibits cruise control	VSV 2 disconnected VSV 2 to ECM drive circuit high resistance, open circuit or short circuit VSV 2 power supply open circuit VSV 2 failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P1238	VSV 3 (release) circuit failure	Ignition ON > 5 seconds	N	N	1 [A, M]	When fault is detected, ECM: – Inhibits cruise control	VSV 3 disconnected VSV 3 to ECM drive circuit high resistance, open circuit or short circuit VSV 3 ground circuit fault VSV 3 failure
P1240	Sensor reference voltage malfunction (throttle sensors, fuel tank pressure sensor) (ECM pins EM10-21, EM11-8)	Ignition ON > 5 seconds	Y	2	1 [R, M]	When RED MIL is activated (DTC logged; first trip), ECM: – Defaults throttle to mechanical guard mode – Inhibits idle speed control – Inhibits cruise control – Inhibits traction control / stability control – Inhibits power limiting	ECM to sensors reference voltage circuit short circuit to ground, short circuit to high voltage, open circuit, high resistance TPS, pedal position and mechanical guard sensor(s), fuel tank pressure sensor failure(s)
P1241	Sensor reference voltage low (throttle sensors, fuel tank pressure sensor) (ECM pins EM10-21, EM11-8)	Ignition ON > 5 seconds	Y	2	1 [R, M]	Refer to P1240 Default Action	ECM to sensors reference voltage circuit short circuit to ground TPS, pedal position and mechanical guard sensor(s), fuel tank pressure sensor failure(s)
P1242	Sensor reference voltage high (throttle sensors, fuel tank pressure sensor) (ECM pins EM10-21, EM11-8)	Ignition ON > 5 seconds	Y	2	1 [R, M]	Refer to P1240 Default Action	ECM to sensors reference voltage circuit open circuit, high resistance, short circuit to high voltage TPS, pedal position and mechanical guard sensor(s), fuel tank pressure sensor failure(s)
P1243	Sensor reference ground malfunction (throttle sensors, fuel tank pressure sensor, ECTS, IATS, IATS 2) (ECM pins EM10-20, EM11-12)	Ignition ON > 5 seconds	Y	2	1 [R, M]	Refer to P1240 Default Action	ECM to sensors reference ground circuit open circuit, high resistance Throttle sensor(s), fuel tank pressure sensor, ECTS, IATS, IATS 2 failure(s)
P1245	Engine crank signal low voltage	Start engine; idle	Y	2	N	None	Starter relay coil to ECM / BPM circuit open circuit

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P1246	Engine crank signal high voltage	Start engine; drive / accelerate > 13 mph (20 km/h) 1200 – 3000 rpm decelerate to stop; repeat (5 times total)	Y	2	N	None	Starter relay coil to ECM / BPM circuit short circuit to B+ voltage BPM failure
P1250	Engine load malfunction	Engine at normal operating temperature; drive vehicle; accelerate from 3500 to 6000 rpm within 6 seconds; drive 43 – 59 mph (70 – 95 km/h); 1500 – 2500 rpm; > 10 seconds	N	N	N	None	Air intake leak Engine breather leak TPS circuit fault (DTC P0121) Throttle valve spring failure
P1251	Throttle position malfunction (engine off)	Drive vehicle; decelerate to stop, ignition OFF > 5 seconds (foot off accelerator); ignition ON	N	N	N	None	TPS to ECM wiring open circuit or high resistance TPS to ECM sensing circuits ("1" or "2") short circuit to high voltage TPS failure Throttle motor disconnected Throttle motor to ECM drive circuits short circuit or open circuit Throttle motor failure Throttle assembly failure
P1252	Mechanical guard position malfunction (cruise control)	Drive vehicle; engage cruise control > 5 seconds	N	N	1 [A, M]	When fault is detected, ECM: – Inhibits cruise control	VSV 1,2,3 vacuum and/or electrical circuit fault(s) open circuit, short circuit or high resistance Mechanical guard sensor to ECM sense circuit Mechanical guard sensor failure Mechanical guard actuator seized / spring broken Throttle vacuum actuator fault
P1253	Mechanical guard position malfunction (engine off)	Engine at normal operating temperature; drive / accelerate from 3500 to 6000 rpm within 6 seconds; decelerate to stop, ignition OFF > 5 seconds (foot off accelerator); ignition ON	N	N	1 [A, M]	When fault is detected, ECM: – Inhibits cruise control	VSV 1,2,3 vacuum and/or electrical circuit fault(s) Mechanical guard sensor to ECM sense circuit open circuit, short circuit or high resistance Mechanical guard sensor failure Mechanical guard actuator seized / spring broken Throttle vacuum actuator fault

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P1260	Security input malfunction	Ignition ON > 10 seconds	N	N	N	None	KTM to ECM circuit short circuit, high resistance or open circuit KTM failure
P1313	Misfire rate catalyst damage – A bank (1) Note: This DTC will flag only when accompanied by a random or individual cylinder misfire DTC: P0300; P0301 – P0304	Engine at idle, or steady between 500 – 2500 rpm; > 2 minutes 30 seconds	Y	1	1 [A, M]	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Limits engine speed to 3000 rpm – Inhibits A bank closed loop fuel metering – Inhibits A bank adaptive fuel metering – Inhibits canister purge – Inhibits EGR	Cylinder compression low Worn camshaft / broken valve spring(s) Fuel delivery pressure (low / high) Fuel injector(s) blocked / leaking Fuel injector(s) continuously open Fuel contamination Fuel injector circuit fault(s) (Injector DTCs also flagged) Spark plug failure / fouled / incorrect gap ECM to ignition module primary circuit fault(s) (Cylinder misfire detected DTC also flagged) Ignition module to ignition coil primary circuit fault(s) (Cylinder misfire detected DTC also flagged) Ignition module ground circuit open circuit, high resistance Ignition coil failure Ignition module failure
P1314	Misfire rate catalyst damage – B bank (2) Note: This DTC will flag only when accompanied by an individual cylinder misfire DTC: P0300 – P0308.	Engine at idle, or steady between 500 – 2500 rpm; > 2 minutes 30 seconds	Y	1	1 [A, M]	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Limits engine speed to 3000 rpm – Inhibits B bank closed loop fuel metering – Inhibits B bank adaptive fuel metering – Inhibits canister purge – Inhibits EGR	Refer to P1313 Possible Causes

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P1316	Misfire excess emission Note: This DTC will flag only when accompanied by an individual cylinder misfire DTC: P0300 – P0308.	Engine at idle, or steady between 500 – 2500 rpm; > 2 minutes 30 seconds	Y	1	1 [A, M]	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Limits engine speed to 3000 rpm – Inhibits closed loop fuel metering – Inhibits adaptive fuel metering – Inhibits canister purge – Inhibits EGR	Refer to P1313 Possible Causes
P1336	CKPS / CMPS sensors synchronization malfunction	Run engine > 5 seconds	Y	2	N	None	CKPS / CMPS disconnected CKPS / CMPS gap incorrect / foreign matter on sensor face CKPS / CMPS sensing circuit open circuit, short circuit to ground, short circuit to high voltage CKPS / CMPS failure
P1367	Ignition monitor (ignition module 1)	Run engine > 5 seconds < 3000 rpm	Y	2	1 [A, M]	When fault is detected, ECM: – Limits engine speed to 3000 rpm	Ignition module 1 disconnected Ignition module 1 to ECM circuits open circuit, short circuit to ground or short circuit to B+ voltage Ignition module 1 ground circuit fault Ignition coil relay failure Ignition coil open / short circuit Ignition module 1 failure
P1368	Ignition monitor (ignition module 2)	Run engine > 5 seconds < 3000 rpm	Y	2	1 [A, M]	When fault is detected, ECM: – Limits engine speed to 3000 rpm	Ignition module 2 disconnected Ignition module 2 to ECM circuits open circuit, short circuit to ground or short circuit to B+ voltage Ignition module 2 ground circuit fault Ignition coil relay failure Ignition coil open / short circuit Ignition module 2 failure

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P1392	VVT solenoid circuit open circuit – A bank	Ignition ON > 5 seconds	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits VVT	ECM to VVT solenoid valve circuit open circuit, high resistance, short circuit to high voltage VVT solenoid valve failure
P1393	VVT solenoid circuit short circuit – A bank	Ignition ON > 5 seconds	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits VVT	ECM to VVT solenoid valve short circuit to ground VVT solenoid valve failure
P1396	VVT solenoid malfunction – B bank	Engine at normal operating temperature; drive > 13 mph (20 km/h) > 1700 rpm > 5 seconds	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits VVT	ECM to VVT solenoid valve circuit fault (refer to P1392, P1393) VVT solenoid valve actuator sticking Oil supply fault VVT unit fault Camshaft drive fault CKPS / CMPS circuits fault(s) (refer to P0335, P0340)
P1397	VVT solenoid circuit open circuit – B bank	Ignition ON > 5 seconds	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits VVT	ECM to VVT solenoid valve open circuit, high resistance, short circuit to high voltage VVT solenoid valve failure
P1398	VVT solenoid circuit short circuit – B bank	Ignition ON > 5 seconds	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits VVT	ECM to VVT solenoid valve short circuit to ground VVT solenoid valve failure
P1474	Intercooler coolant pump relay malfunction	Ignition ON > 5 seconds	Y	2	1 [A, M]	When AMBER MIL is activated (DTC logged; first trip), ECM: – Limits throttle opening to 30%	Intercooler pump relay failure Intercooler pump relay to ECM drive circuit fault Intercooler pump relay coil ground circuit fault ECM power supply fault
P1475	Radiator fans slow (series) circuit malfunction	Engine at normal operating temperature; fans cycle ON / OFF	N	N	N	None	Radiator fan control relay module to ECM “series” drive circuit (relay pin 9) fault Relay coil ignition power supply open circuit ECM ground circuit fault (relay coil drive) ECTS circuit malfunction (refer to P0116)

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P1476	Radiator fans fast (parallel) circuit malfunction	Engine at normal operating temperature; fans cycle ON / OFF	N	N	N	None	Radiator fan control relay module to ECM "parallel" drive circuit (relay pin 7) fault Relay coil ignition power supply open circuit ECM ground circuit fault (relay coil drive) ECTS circuit malfunction (refer to P0116)
P1516	Gear change PARK / NEUTRAL driving malfunction	Engine at normal operating temperature; drive 50 – 63 mph (80 – 100 km/h) 1800 – 2200 rpm > 30 seconds	Y	2	N	None	Transmission rotary switch to ECM circuit open circuit or high resistance Rotary switch failure D – 4 switch to TCM circuit open circuit or high resistance D – 4 switch fault
P1517	Engine cranking PARK / NEUTRAL malfunction	Start engine	N	N*	N	When fault is detected, ECM: – Inhibits fuel injection	Transmission rotary switch to ECM circuit open circuit or high resistance Rotary switch failure
P1571	Brake switch malfunction	Drive vehicle; engage cruise control > 10 seconds disengage cruise control; repeat (5 total cycles)	N	N	1 [A, M]	When fault is detected, ECM: – Inhibits cruise control	Brake switch to ECM circuit open circuit, short circuit to ground, high resistance Brake switch ignition switched ground circuit open circuit Brake switch failure Brake cancel switch to ECM circuit open circuit, short circuit to ground, high resistance Brake cancel switch to cruise control switch to ECM circuit open circuit, short circuit to ground, high resistance Brake cancel switch ignition switched power supply open circuit Brake cancel switch failure Cruise control switch failure

* If engine will not start, CHECK ENGINE MIL will remain on.

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P1606	EMS control relay malfunction	Ignition ON; ignition OFF; ignition ON > 5 seconds	N	N	None	None	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	ECM microprocessor-to-microprocessor communication failure	Ignition ON > 5 seconds	Y	2	N	None	ECM FCCP (programming) circuit (ECM pin EM11-3) short circuit to ground ECM failure
P1611	Throttle angle malfunction	Ignition ON > 5 seconds	Y	2	1 [R, M]	When RED MIL is activated (first trip), ECM: – Defaults throttle to mechanical guard mode – Inhibits idle speed control – Inhibits cruise control – Inhibits traction / stability control – Inhibits power limiting	TPS circuit fault (refer to P0121) Pedal position sensor circuit fault (refer to P01121) Throttle assembly failure ECM failure
P1612	Throttle offset malfunction	Ignition ON > 5 seconds	Y	2	1 [R, M]	Refer to P1611 Default Action	TPS circuit fault (refer to P0121) Pedal position sensor circuit fault (refer to P01121) Throttle assembly failure ECM failure
P1637	CAN ABS/TCCM token missing	Ignition ON > 5 seconds	Y	2	N	When fault is detected, ECM: – Inhibits cruise control (Idle speed control quality deteriorates)	CAN open circuit fault – ABS/TCCM to ECM CAN short circuit fault ABS/TCCM failure ECM failure
P1638	CAN INST token missing	Ignition ON > 5 seconds	Y	1	N	None (Engine speed and coolant temperature data missing at instrument pack)	CAN open circuit fault – INST to ECM CAN short circuit fault INST failure ECM failure
P1642	CAN circuit malfunction	Ignition ON > 5 seconds	Y	1	N	When fault is detected, ECM: – Inhibits cruise control (All CAN data unavailable)	CAN short circuit fault Control module failure – check for additional flagged DTC(s) to locate control module source

DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P1643	CAN TCM token missing	Ignition ON > 5 seconds	Y	2	N	When fault is detected, ECM: – Limits throttle to 30% (Torque reduction request data missing results in harsh transmission shifts)	CAN open circuit fault – TCM to ECM CAN short circuit fault TCM failure ECM failure
P1646	Fuel pump 2 (SC) relay malfunction Note: This DTC applies only to the SC system fuel pump 2.	Ignition ON > 5 seconds	Y	2	2 [A, M]	None	Fuel pump 2 relay failure Fuel pump 2 relay to ECM circuit fault Fuel pump 2 relay coil power supply open circuit ECM ground circuit fault (relay coil drive)