DTC	FAULT DESCRIPTION	MONITORING CONDITIONS	OBD II	CK ENG	OTHER	DEFAULT ACTION	POSSIBLE CAUSES
P0010	VVT Circuit malfunction – A bank	Drive vehicle; accelerate rapidly to cruise, decelerate to stop, repeat several times	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: Sets VVT drive PWM duty cycle to 0 (intake camshaft fully retarded)	VVT solenoid valve to ECM PWM drive circuit fault VVT solenoid valve to ECM ground circuit fault VVT solenoid failure
P0020	VVT Circuit malfunction – B bank	Drive vehicle; accelerate rapidly to cruise, decelerate to stop, repeat several times	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Sets VVT drive PWM duty cycle to 0 (intake camshaft fully retarded)	VVT solenoid valve to ECM PWM drive circuit fault VVT solenoid valve to ECM ground circuit fault VVT solenoid failure
P0300	Random misfire detected	Engine at normal operating temperature; IAT > 18 °F (-8 °C); drive at steady speed between idle – 2500 rpm; > 2 minutes 30 seconds Surface elevation < 8,000 ft (2,438 m)	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	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 (Cylinder misfire detected DTC also flagged) Ignition module ground circuit open circuit, high resistance Ignition module / coil failure
P1313	Misfire rate catalyst damage A bank (1) NOTE: This DTC will flag only when accompanied by an individual cylinder misfire DTC: P0300 – P0308.	Engine at normal operating temperature; IAT > 18 °F (-8 °C); drive at steady speed between idle – 2500 rpm; > 2 minutes 30 seconds Surface elevation < 8,000 ft (2,438 m)	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	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 ground circuit open circuit, high resistance Ignition module / coil 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 normal operating temperature; IAT > 18 °F (-8 °C); drive at steady speed between idle – 2500 rpm; > 2 minutes 30 seconds Surface elevation < 8,000 ft (2,438 m)	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	Refer to P1313 Possible Causes
P1316	Misfire excess emission NOTE: This DTC will flag only when accompanied by an individual cylinder misfire DTC: P0300 – P0308.	Engine at normal operating temperature; IAT > 18 °F (-8 °C); drive at steady speed between idle – 2500 rpm; > 2 minutes 30 seconds Surface elevation < 8,000 ft (2,438 m)	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	Refer to P1313 Possible Causes
P1647	ECM HO2S control malfunction – B bank, upstream	Ignition ON > 8 seconds	Y	2	N	When CK ENG MIL is activated (DTC flagged; second trip), ECM: – Inhibits B bank upstream HO2S operation	HO2S heater failure HO2S sensing circuit short circuit to ground or high voltage HO2S sensing circuit open circuit ECM failure