
DTC P0300

System Description

The powertrain control module (PCM) uses information from the crankshaft position (CKP) sensor and the camshaft position (CMP) sensor in order to determine when an engine misfire is occurring. By monitoring variations in the crankshaft rotation speed for each cylinder, the PCM is able to detect individual misfire events. A misfire rate that is high enough can cause the 3-way catalytic converter (TWC) to overheat under certain driving conditions. The malfunction indicator lamp (MIL) will flash ON and OFF when the conditions for TWC overheating are present. If the PCM detects a misfire rate sufficient to cause emission levels to exceed mandated standards, DTC P0300 will set.

DTC Descriptor

This diagnostic procedure supports the following DTC:

DTC P0300 Engine Misfire Detected

Conditions for Running the DTC

- DTCs P0101, P0102, P0103, P0106, P0107, P0108, P0116, P0117, P0118, P0125, P0128, P0220, P0315, P0335, P0336, P0341, P0342, P0343, P0502, P0503, P1114, P1115, P1120, P1258 are not set.
- The engine speed is between 450-5,000 RPM.
- The ignition voltage is between 10-18 volts.
- The engine coolant temperature (ECT) is between -7 and +130°C (+19 and +266°F).
- The fuel level is more than 10 percent.
- The throttle angle is steady within 1 percent.
- The antilock brake system (ABS) and the traction control system (TCS) are not active.
- The transmission is not changing gears.
- The A/C clutch is not changing states.
- The PCM is not in fuel shut-off or decel fuel cut-off mode.
- The PCM is not receiving a rough road signal.
- DTC P0300 runs continuously once the above conditions are met.

Conditions for Setting the DTC

The PCM is detecting a crankshaft rotation speed variation indicating a misfire sufficient to cause emission levels to exceed mandated standards.

Action Taken When the DTC Sets

- The control module illuminates the malfunction indicator lamp (MIL) on the second consecutive ignition cycle that the diagnostic runs and fails.
- The control module records the operating conditions at the time the diagnostic fails. The first time the diagnostic fails, the control module stores this information in the Failure Records. If the diagnostic reports a failure on the second consecutive ignition cycle, the control module records the operating conditions at the time of the failure. The control module writes the operating conditions to the Freeze Frame and updates the Failure Records.

Conditions for Clearing the MIL/DTC

- The control module turns OFF the malfunction indicator lamp (MIL) after 3 consecutive ignition cycles that the diagnostic runs and does not fail.
- A current DTC, Last Test Failed, clears when the diagnostic runs and passes.
- A history DTC clears after 40 consecutive warm-up cycles, if no failures are reported by this or any other emission related diagnostic.
- Clear the MIL and the DTC with a scan tool.

Diagnostic Aids

- Excessive vibration from sources other than the engine could cause DTC P0300 to set. The following are possible sources of vibration:
 - Thickness variation of the brake rotors--Refer to [Symptoms - Hydraulic Brakes](#) in Hydraulic Brakes.
 - The drive shaft not balanced--Refer to [Vibration Analysis - Driveline](#) in Vibration Diagnosis and Correction.
 - Worn or damaged accessory drive belt--Refer to [Symptoms - Engine Mechanical](#) in Engine Mechanical - 4.8L, 5.3L and 6.0L.
- There may be more or less cylinders actually misfiring than indicated by the scan tool.
- Spray water on the secondary ignition components using a spray bottle. Look and listen for arcing or misfiring.
- If there are multiple misfires on only one bank, inspect the fuel injector and ignition coil, power and ground circuits for that bank. Refer to [Engine Controls Schematics](#) .

Test Description

The number below refers to the step number on the diagnostic table.

2. If the actual CKP variation values are not within the learned values, the misfire counters may increment.

Step	Action	Values	Yes	No
1	Did you perform the Diagnostic System Check - Vehicle?	--	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
	Important: You must perform the Crankshaft Position (CKP) System Variation Learn Procedure before proceeding with this diagnostic table.			

2	<p>Refer to Crankshaft Position System Variation Learn .</p> <ol style="list-style-type: none"> 1. Start the engine. 2. Allow the engine to idle or operate within the conditions listed in the Freeze Frame/Failure Records. 3. Monitor all of the Misfire counters with the scan tool. <p>Are any of the Misfire current counters incrementing?</p>	--	Go to Step 3	Go to Diagnostic Aids
3	Are any other DTCs set?	--	Go to Diagnostic Trouble Code (DTC) List - Vehicle in Vehicle DTC Information	Go to Step 4
4	Can any abnormal engine noise be heard?	--	Go to Symptoms - Engine Mechanical in Engine Mechanical - 4.8L, 5.3L and 6.0L	Go to Step 5
5	Does the scan tool indicate that the heated oxygen sensor (HO2S) bank 1 sensor 1 or HO2S bank 2 sensor 1 voltage parameters are below the specified value?	200 mV	Go to DTC P0131 or P0151	Go to Step 6
6	Does the scan tool indicate that the HO2S bank 1 sensor 1 or HO2S bank 2 sensor 1 voltage parameters are fixed above the specified value?	900 mV	Go to DTC P0132 or P0152	Go to Step 7
7	<p>Inspect the following components:</p> <ul style="list-style-type: none"> • The vacuum hoses and seals for splits, restrictions, and improper connections--Refer to Emission Hose Routing Diagram . • The throttle body and intake manifold for vacuum leaks • The crankcase ventilation system for vacuum leaks--Refer to Crankcase Ventilation System Inspection/Diagnosis in Engine Mechanical - 4.8L, 5.3L, and 6.0L. 	--		

	<ul style="list-style-type: none"> • The powertrain control module (PCM) grounds for corrosion and loose connections--Refer to Ground Distribution Schematics in Wiring Systems. • The exhaust system for restrictions--Refer to Restricted Exhaust in Engine Exhaust. • The fuel for contamination-- Refer to Alcohol/Contaminants-in-Fuel Diagnosis . 			
	Did you find and correct the condition?		Go to Step 20	Go to Step 8
8	<p>Important: An erratic or inconsistent spark is considered a no spark.</p> <ol style="list-style-type: none"> 1.Turn OFF the ignition. 2.Disconnect the spark plug wire from the spark plug that corresponds to the Misfire Current counters that were incrementing. Refer to Spark Plug Wire Replacement . 3.Install the J 26792 Spark Tester. 4.Start the engine. 	--		
	Does the spark jump the tester gap?		Go to Step 10	Go to Step 9
9	<ol style="list-style-type: none"> 1.Remove the spark plug wire for the affected cylinders. Refer to Spark Plug Wire Replacement . 2.Inspect the spark plug wire. Refer to Spark Plug Wire Inspection . 3.Measure the resistance of the spark plug wire with a DMM. 	397-1,484 ohms		
	Is the resistance within the specified value?		Go to Electronic Ignition (EI) System Diagnosis	Go to Step 19
10	<ol style="list-style-type: none"> 1.Remove the spark plug from the cylinder that indicated a misfire. Refer to Spark Plug Replacement . 2.Inspect the spark plug. Refer to Spark Plug Inspection . 	--		
	Does the spark plug appear to be OK?		Go to Step 11	Go to Step 12
	<ol style="list-style-type: none"> 1. Exchange the suspected spark plug with another cylinder that is operating properly. Refer to Spark Plug Replacement . 2. Operate the vehicle under the 			

11	<p>same conditions that the misfire occurred.</p> <p>Did the misfire move with the spark plug?</p>	--	Go to Step 18	Go to Step 15
12	Is the spark plug oil or coolant fouled?	--	Go to Symptoms - Engine Mechanical in Engine Mechanical - 4.8L, 5.3L, and 6.0L	Go to Step 13
13	Is the spark plug gas fouled?	--	Go to Step 16	Go to Step 14
14	Did the spark plug show any signs of being cracked, worn, or improperly gapped?	--	Go to Step 17	Go to Step 15
15	<p>Perform the fuel injector coil test. Refer to Fuel Injector Solenoid Coil Test .</p> <p>Did you find and correct the condition?</p>	--	Go to Step 20	Go to Symptoms - Engine Mechanical in Engine Mechanical - 4.8L, 5.3L, and 6.0L
16	<p>Perform the fuel system diagnosis. Refer to Fuel System Diagnosis .</p> <p>Did you find and correct the condition?</p>	--	Go to Step 20	Go to Symptoms - Engine Mechanical in Engine Mechanical - 4.8L, 5.3L, and 6.0L
17	<p>Replace or gap the spark plug. Refer to Spark Plug Replacement .</p> <p>Did you complete the action?</p>	--	Go to Step 20	--
18	<p>Replace the faulty spark plug. Refer to Spark Plug Replacement .</p> <p>Did you complete the replacement?</p>	--	Go to Step 20	--
19	<p>Replace the faulty spark plug wires. Refer to Spark Plug Wire Replacement .</p> <p>Did you complete the replacement?</p>	--	Go to Step 20	--
20	Was the customer concern the malfunction indicator lamp (MIL) flashing?	--	Go to Step 21	Go to Step 22
	<ol style="list-style-type: none"> 1. Operate the vehicle at the specified value for 4 minutes. 2. Operate the vehicle within the 			

21	<p>Conditions for Running the DTC P0420 or P0430 as specified in the supporting text. Refer to DTC P0420 or P0430 .</p> <p>Does the DTC run and pass?</p>	2,500 RPM	Go to Step 22	Go to DTC P0420 or P0430
22	<p>1. Clear the DTCs with a scan tool.</p> <p>2. Turn OFF the ignition for 30 seconds.</p> <p>3. Start the engine.</p> <p>4. Operate the vehicle within the Conditions for Running the DTC.</p> <p>You may also operate the vehicle within the conditions that you observed from the Freeze Frame/Failure Records.</p> <p>Did the DTC fail this ignition?</p>	--	Go to Step 2	Go to Step 23
23	<p>Observe the Capture Info with a scan tool.</p> <p>Are there any DTCs that have not been diagnosed?</p>	--	Go to Diagnostic Trouble Code (DTC) List - Vehicle in Vehicle DTC Information	System OK