

For the specific DTCs required for each system, see table. Systems such as fuel delivery, misfire, and comprehensive components may not be listed in a system status list. These tests run continuously on some vehicles and may not require an indicator. The PCM compares the actual MAF sensor frequency signal to the predicted MAF value. This comparison will determine if the signal is stuck based on a lack of variation, or is too low or too high for a given operating condition. DTC P0101 sets if the actual MAF sensor frequency signal is not within a predetermined range of the calculated MAF value. The Powertrain Control Module (PCM) supplies 5 volts to the MAP sensor on the 5-volt reference circuit. The PCM also provides a ground on the low reference circuit. The MAP sensor provides a signal to the PCM on the MAP sensor signal circuit which is relative to the pressure changes in the manifold. The PCM should detect a low signal voltage at a low MAP, such as during an idle or a deceleration. The PCM should detect a high signal voltage at a high MAP, such as the ignition is ON, with the engine OFF, or at a Wide Open Throttle (WOT). The MAP sensor is also used in order to determine the Barometric (BARO) pressure. This occurs when the ignition switch is turned ON, with the engine OFF. The BARO reading may also be updated whenever the engine is operated at WOT. The PCM monitors the MAP sensor signal for voltage outside of the normal range. The PCM calculates a predicted value for the MAP sensor based on throttle position and engine speed. The PCM then compares the predicted value to the actual MAP sensor signal. The DTC P0106 will set if the MAP sensor signal is not within the predicted range. Thoroughly inspect any circuitry that is suspected of causing the intermittent complaint. See under SELF-DIAGNOSTIC SYSTEM.

**DTC P1336: CRANKSHAFT SYSTEM VARIATION NOT LEARNED**

**NOTE:** To locate components, see **COMPONENT LOCATIONS** . For circuit reference, see **WIRING DIAGRAMS** article. For connector terminal identification, see **CONNECTOR IDENTIFICATION** .

**Description**

The crankshaft position system variation learn feature is used to calculate reference period errors caused by slight tolerance variations in the crankshaft, and the crankshaft position (CKP) sensors. The calculated error allows the Powertrain Control Module (PCM) to accurately compensate for reference period variations. This enhances the ability of the PCM to detect misfire events over a wider range of engine speed and load.

**Conditions For Running DTC**

- DTCs P0335, P0336, P0341, P0342, or P0343 are not set.
- The engine coolant temperature ECT is more than 158°F (70°C).

**Conditions For Setting DTC**

The crankshaft position system variation values are not stored in the PCM memory.

**Action Taken When 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 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 Procedures

1. Did you perform the Diagnostic System Check-Engine Controls? If yes, go to next step. If no, see **DIAGNOSTIC SYSTEM CHECK - ENGINE CONTROLS** under SELF-DIAGNOSTIC SYSTEM.
2. Perform the crankshaft position system variation learn procedure. See **CRANKSHAFT POSITION SENSOR** under PROGRAMMING. When complete, go to next step. If no, see **DIAGNOSTIC AIDS** .
3. Clear the DTCs with a scan tool. Turn OFF the ignition. Start the engine. Operate the vehicle within the Conditions for Running DTC. Does the DTC run and pass? If yes, go to next step. If no, go to step 2 .
4. Observe the stored information, Capture Info with a scan tool. Does the scan tool display any DTCs that you have not diagnosed? If yes, see **DIAGNOSTIC TROUBLE CODE DEFINITIONS** . If no, system is okay.

### Diagnostic Aids

The crankshaft position system variation compensating values are stored in PCM memory after a learn procedure has been performed. If the actual crankshaft position variation is not within the crankshaft position system variation compensating values stored in the PCM, DTC P0300 may set.

The crankshaft position system variation learn procedure is also required when the following service procedures have been performed, regardless of whether DTC P1336 is set:

- An engine replacement.
- A PCM replacement.
- A harmonic balancer replacement.
- A CKP sensor replacement.
- Any engine repairs which disturb the CKP sensor relationship.

If the crankshaft position system variation learn procedure cannot be performed successfully, check for the following conditions and correct as necessary:

- A damaged reluctor wheel.

- Excessive crankshaft runout.
- A damaged crankshaft.
- Interference in the signal circuit of the crankshaft position (CKP) sensor.
- A coolant temperature that is not within the Conditions for Running DTC.
- The ignition switch is in the ON position until the battery is drained.
- A PCM power disconnect with the ignition ON may erase the stored value and set the DTC P1336.

The Powertrain Control Module (PCM) monitors the voltage on the 5-volt reference 1 circuit. If the voltage is out of tolerance, the PCM will set DTC P1635.