

DTC P0107

CIRCUIT DESCRIPTION

The manifold absolute pressure (MAP) sensor responds to pressure changes in the intake manifold. The pressure changes occur based on the engine load. The MAP sensor has the following circuits:

- **5-volt** reference circuit
- Low reference circuit
- MAP sensor signal circuit

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 pressure (BARO). 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.

If the PCM detects a MAP sensor signal voltage that is excessively low, DTC P0107 sets.

DTC DESCRIPTOR

This diagnostic procedure supports the following DTC:

DTC P0107 Manifold Absolute Pressure (MAP) Sensor Circuit Low Voltage

CONDITIONS FOR RUNNING THE DTC

- DTCs P0068, P0120, P0220, P2135 are not set.
- The engine is running.
- The throttle angle is **0 percent** when the engine speed is less than **800 RPM** .OR
- The throttle angle is more than **12.5 percent** when the engine speed is more than **800 RPM** .
- DTC P0107 runs continuously when the above conditions are met.

CONDITIONS FOR SETTING THE DTC

The PCM detects that the MAP sensor voltage is less than **0.055 volt** for more than **4 seconds** .

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.

TEST

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
2	1. Turn ON the ignition, with the engine OFF. 2. Monitor the Diagnostic Trouble Code (DTC) Information with the scan tool. Is DTC P0641 also set?	—	Go to DTC P0641	Go to Step 3
3	Observe the MAP sensor parameter with the scan tool. Is the voltage less than the specified value?	0.1 V	Go to Step 5	Go to Step 4
4	1. Observe the Freeze Frame/Failure Records for this DTC. 2. Turn OFF the ignition for 30 seconds. 3. Start the engine. 4. Operate the vehicle within the Conditions for Running the DTC. You may also operate the vehicle within the conditions that you observed from the Freeze Frame/Failure Records. Did the DTC fail this ignition?	—	Go to Step 5	Go to Inspection Conditions
5	1. Turn OFF the ignition. 2. Disconnect the manifold absolute pressure (MAP) sensor electrical connector. 3. Turn ON the ignition, with the engine OFF. 4. Measure the voltage from the 5-volt reference circuit of the MAP sensor to a good ground, with a DMM, at the MAP sensor connector. Is the voltage more than the specified value?	4.8 V	Go to Step 6	Go to Step 7
6	1. Connect a 3-amp fused jumper wire between the 5-volt reference circuit of the MAP sensor and the signal circuit of the MAP sensor. 2. Observe the MAP sensor parameter with the scan tool. Is the voltage more than the specified value?	4.9 V	Go to Step 9	Go to Step 8
7	Test the 5-volt reference circuit between the powertrain control module (PCM) and the MAP sensor for an open. Did you find and correct the condition?	—	Go to Step 13	Go to Step 10
8	Test the MAP sensor signal circuit between the powertrain control module (PCM) and the MAP sensor for a short to ground or an open. Did you find and correct the condition?	—	Go to Step 13	Go to Step 10
9	Test for an intermittent and for a poor connection at the MAP sensor. Did you find and correct the condition?	—	Go to Step 13	Go to Step 11
10	Test for an intermittent and for a poor connection at the PCM. Did you find and correct the condition?	—	Go to Step 13	Go to Step 12
11	Replace the MAP sensor. Did you complete the replacement?	—	Go to Step 13	—

Steps 1-11

Step	Action	Values	Yes	No
12	Replace the PCM. Did you complete the replacement?	—	Go to Step 13	—
13	<ol style="list-style-type: none"> 1. Clear the DTCs with a scan tool. 2. Turn OFF the ignition for 30 seconds. 3. Start the engine. 4. Operate the vehicle within the Conditions for Running the DTC. You may also operate the vehicle within the conditions that you observed from the Freeze Frame/Failure Records. Did the DTC fail this ignition?	—	Go to Step 2	Go to Step 14
14	Observe the Capture Info with a scan tool. Are there any DTCs that have not been diagnosed?	—	Go to Diagnostic Trouble Code (DTC) List - Vehicle in Vehicle DTC Information	System OK

Steps 12-14