

P2007: INTAKE MANIFOLD RUNNER CONTROL STUCK CLOSED BANK 2

OVERVIEW

Severity	:	<div><div>Medium</div></div>
DIY Difficulty Level	:	<div><div>Advanced</div></div>
Repair Cost	:	\$50-\$1850
Can I Still Drive?	:	Yes

What Does The P2007 Code Mean?

If your OBD II equipped vehicle has stored a code P2007, it means that the powertrain control module (PCM) has detected that the intake manifold air control (IMRC) actuator for engine bank two is stuck in the closed position. Bank 2 indicates that the malfunction is related to the bank of the engine that does not contain cylinder #1.

The PCM controls the IMRC system, which is used to manage and fine tune air flow as it enters the lower intake manifold, cylinder heads, and the combustion chambers. Carefully shaped metal flaps, which fit snugly into the intake port of each cylinder, are opened and closed by an electronic runner control solenoid.

The runner flaps are bolted to a thin metal rod that extends the length of each cylinder head and passes through the center of each intake port. The flaps are opened with one motion but this also means that all of the flaps will be inoperative if one of them is stuck or binding.

The IMRC actuator is usually attached to the rod using a mechanical arm or a gear. A vacuum diaphragm is used on some models to operate the actuator. With the vacuum operated actuator, the PCM controls an electronic solenoid that regulates intake vacuum to the IMRC actuator.

Channeling and restricting the air flow, as it is drawn into the engine creates a swirling effect. Research data has shown us that the swirling effect helps the air/fuel mixture to be atomized more

thoroughly. More complete atomization helps to reduce exhaust emissions, improve fuel efficiency, and optimize engine performance.

Different manufacturers use varying IMRC methods. Consult your vehicle information source (All Data DIY is an excellent resource) for the details of the IMRC system with which the vehicle in question is equipped. Typically, the IMRC runners are somewhat closed during starting/idling situations and opened completely when the throttle plate is opened.

In order to ensure that the IMRC system is functioning properly, the PCM monitors input signals from the IMRC runner position sensor, manifold absolute pressure (MAP) sensor, manifold air temperature sensor, intake air temperature sensor, throttle position sensor, the oxygen sensors, and mass airflow (MAF) sensor (among others).

The PCM monitors actual runner flap position and adjusts it according to engine drivability data as it is input to the PCM and computed. A code P2007 will be stored, and a malfunction indicator lamp may be illuminated, if the PCM doesn't see a sufficient change in MAP or manifold air temperature as expected with the desired repositioning of the flaps (by the IMRC actuator). In some models, multiple ignition cycles with an IMRC actuator failure, will be required for MIL illumination.

What Are The Symptoms Of The P2007 Code?

Symptoms of a P2007 code may include:

- Hesitation upon acceleration
- Rich exhaust
- Diminished fuel efficiency
- Engine surge

What Are The Potential Causes Of The P2007 Code?

Possible causes for this engine code include:

- Loose or binding intake manifold runners bank 2
- Defective IMRC actuator solenoid bank 2
- Bad intake manifold runner position sensor bank 2
- Open or shorted wiring in the IMRC actuator solenoid control circuit
- Carbon buildup on the IMRC flaps or intake manifold ports
- Faulty MAP Sensor
- Corroded IMRC actuator solenoid connector face

How Can You Fix The P2007 Code?

Preparation

A diagnostic scanner, a digital volt/ohmmeter (DVOM), and a reliable vehicle information source will be necessary when attempting to diagnose a code P2007. I would check technical service bulletins (TSB) for the particular symptoms, stored code/s, and vehicle make and model before beginning my diagnosis. If I find a related TSB, the information will often help in diagnosing the code in question.

Step 1

My usual starting point (for any diagnosis) is a visual inspection of related system wiring and connector faces. In this case, I know that IMRC actuator connectors are prone to corrosion. This could cause an open circuit, so I would focus attention on the area.

Step 2

Now, I would connect the scanner to the vehicle diagnostic connector and retrieve all stored codes and freeze frame data. I make a habit of writing this information down just in case this is an intermittent code; then I clear the codes and test-drive the vehicle to see if the code is reset.

Step 3

Proceeding, I would gain access to the IMRC actuator solenoid and IMRC runner position sensor, if the code is reset. Consult your vehicle information source for testing specifications for both of these components. Use the DVOM to perform a resistance test on the solenoid and the sensor. If either of these parts fails to comply with specs, replace it and retest the system.

Step 4

Disconnect all related controllers before testing circuit resistance with the DVOM to prevent PCM damage. If actuator and sensor resistance are in compliance with manufacturer's specifications, use the DVOM to test resistance and continuity on all system circuits. Repair or replace shorted or open circuits as needed.

Additional diagnostic notes:

- Use caution when handling small screws or rivets in or near intake manifold openings
- Test for IMR flap binding with the actuator disconnected from the shaft
- The screws (or rivets) that secure the flaps to the shaft may loosen or fall out causing the flaps to bind
- Carbon coking inside the intake manifold walls can cause IMRC flaps to bind

Reference Sources

[Diagnostic Trouble Code \(DTC\) Charts and Descriptions for P2007](#) - Page 129.