

P006B: MAP - EXHAUST PRESSURE CORRELATION

OVERVIEW

Severity	:	<div><div>High</div></div>
DIY Difficulty Level	:	<div><div>Intermediate</div></div>
Repair Cost	:	\$100-\$300
Can I Still Drive?	:	Yes (Short-term only)

What Does The P006B Code Mean?

This generic powertrain diagnostic trouble code (DTC) typically applies to many OBD-II vehicles. That may include but is not limited to vehicles from Ford, GMC, Chevrolet, Dodge, etc., however it seems to be most common on Ford Powerstroke Diesel Trucks.

If your OBD-II vehicle has stored a code P006B, it means that the powertrain control module (PCM) has detected a discrepancy in the correlating signals between the manifold absolute pressure (MAP) sensor and the exhaust pressure sensor (EPS).

In some vehicle applications, the MAP sensor may be referred to as a barometric pressure sensor. In my professional experience, only vehicles with diesel engines utilize exhaust pressure sensors. If other MAP sensor or exhaust related codes are present, diagnose and repair those before attempting to diagnose a code P006B.

The MAP sensor measures air density (pressure) in the intake manifold in either kilopascal (kPa) units or inches of mercury (Hg). These measurements are received by the PCM as input voltage signals. If the MAP signal is substituted for a barometric pressure signal, it is still measured in similar increments. Diesel equipped vehicles utilize one or more exhaust pressure sensors to monitor exhaust back pressure. Exhaust back pressure is an excellent indicator of catalyst efficiency, diesel particulate filter efficiency, and NOx filter efficiency. Exhaust back pressure is also critical to engine performance and emission reduction in today's clean burning diesel engines.

A code P006B will be stored, and a malfunction indicator lamp (MIL) may be illuminated, if the PCM detects voltage input signals (between the MAP sensor and the exhaust pressure sensor) which differ by more than a programmed degree over a certain period of time and under a particular set of circumstances. A reliable vehicle information source (such as AllData DIY) will yield exact parameters for code storage as it relates to the vehicle in question. In some vehicle applications, MIL illumination may require multiple drive cycles with a failure.

What Are The Symptoms Of The P006B Code?

Symptoms of a P006B engine code may include:

- Abnormally excessive smoke from exhaust
- Excessive fuel consumption
- A general lack of engine performance
- Rich or lean exhaust condition

What Are The Potential Causes Of The P006B Code?

Causes for this code may include:

- Defective exhaust pressure sensor
- Faulty MAP sensor
- Open or shorted wiring or connectors
- PCM or PCM programming error

How Can You Fix The P006B Code?

When diagnosing a code P006B, I would gain access to a diagnostic scanner, a digital volt/ohmmeter (DVOM), and a reliable vehicle information source.

Visually inspect all related wiring and connectors, paying close attention to wiring harnesses and connectors that are routed near hot exhaust components and the sharp edges associated with exhaust shields. If any damaged or burned areas are detected, make repairs as necessary.

My next step would be connecting the scanner to the vehicle diagnostic port and retrieving all stored codes and freeze frame data. I like to write this information down because it may help me later in my diagnosis. After that, I would clear the codes and test-drive the vehicle to see if the code is reset.

If the code is immediately reset, I would use the DVOM to test for reference voltage (typically 5-volts) and a ground at the MAP and exhaust pressure sensor connectors. I would simply connect the positive test lead of the DVOM to the reference voltage pin of the sensor connector and the negative test lead to the ground pin then place the ignition switch in the ON position.

If reference voltage and a ground are present, I would reconnect the sensor in question and test its signal circuit with the engine running. Use the air pressure and exhaust back pressure to voltage chart found within the vehicle information source to determine if the respective sensors are reading accurately. Any sensors which fail to reflect the appropriate degree of voltage (according to the MAP and exhaust back pressure to voltage chart) should be considered defective.

If the MAP and exhaust pressure sensor signal circuits reflect the appropriate level of input voltage (at the sensor connector), use the DVOM to test the corresponding signal circuit at the PCM connector. If there is an accurate sensor signal at the MAP sensor connector and the exhaust pressure sensor connector, but not at the PCM connector, suspect an open circuit between the PCM and the sensor in question.

You may test the MAP sensor and the exhaust pressure sensor using the DVOM. A reliable vehicle information source should yield the necessary specifications. You can use the DVOM (on the ohms setting) to test the MAP and exhaust pressure sensors while they are disconnected. If either of the sensors fail to comply with manufacturer's specifications, it should be considered defective.

As a last resort, disconnect the PCM (and all related controllers) and test individual system circuits using the DVOM. Follow the diagnostic flow charts, wiring diagrams, and connector pin-out diagrams to test individual circuit resistance and/or continuity.

If you have exhausted all other possibilities, you may suspect PCM failure or a PCM programming error.

Technical service bulletins (TSB) which match the vehicle in question (as well as the symptoms and codes stored) may help with your diagnosis

Severity Description

The two sensors related to this code are critical to engine performance and efficiency. Therefore, the P006B should be classified as severe.

Reference Sources

[P006B: MAP - Exhaust Pressure Correlation](#), OBD-Codes.