P2455: DIESEL PARTICULATE FILTER PRESSURE SENSOR A CIRCUIT HIGH

OVERVIEW

Severity	:	High
DIY Difficulty Level	:	Intermediate
Repair Cost	:	**$200-$450**
Can I Still Drive?	:	**Yes** (Short-term only)

What Does The P2455 Code Mean?

When a code P2455 is stored, the powertrain control module (PCM) has detected a high voltage input signal from the circuit of the diesel particulate filter (DPF) pressure sensor that has been given the designation A. This code is used only in vehicles equipped with diesel engines.

DPF systems are quickly becoming the norm in diesel powered vehicles. They are designed to remove ninety-percent of carbon particles (soot) from diesel engine exhaust. Diesel engines are known for the black smoke that billows from the exhaust (especially under heavy acceleration). Soot is the main component of this smoke. The DPF is contained in a steel housing and normally resembles a muffler or catalytic converter. It is positioned before the catalytic converter (and/or the NOx trap).

In theory, large soot particles are trapped in the DPF element while smaller particles and other (exhaust gas) compounds are allowed to flow through. Paper fibers, metal fibers, ceramic fibers, silicone wall fibers, and cordierite wall fibers are some elemental compounds that are currently being used to trap large soot particles. The most common type of fiber used in DPF applications is ceramic based cordierite because of its excellent filtration characteristics. Cordierite is known for having problems with overheating at higher temperatures, making it susceptible to malfunctions in vehicles equipped with passive DPF systems.

Of course, the filtration element is the heart of the DPF. Large particles of soot should be trapped

between the fibers and engine exhaust is allowed to flow through. When there is a large accumulation of soot particles accumulated by the DPF, exhaust pressure increases. After exhaust pressure has reached a predetermined level, the filtration element must be regenerated. Regeneration of the DPF permits exhaust gases to continue flowing through the DPF and helps to maintain the correct level of exhaust pressure.

Systems that are automatically regenerated are known as active DPF systems. The PCM is programmed to inject chemicals (including but not limited to diesel fuel and diesel exhaust fluid) into the exhaust at programmed intervals in this type of system. An electronically controlled injection causes exhaust temperature to increase, allowing trapped soot particles to burn and be released as ions of nitrogen and oxygen. Similar in theory are passive DPF systems. They require some type of input from the operator. Some models require a qualified repair facility for the regeneration process. The DPF regeneration could take several hours to accomplish once it is begun.

After the filtration element is effectively regenerated, exhaust pressure should decrease to an acceptable level. The DPF pressure sensor is typically mounted remotely and away from the DPF. Exhaust back pressure is monitored (as it enters the DPF) using silicon hoses (connected to the DPF and the DPF pressure sensor).

A code P2455 will be stored if the PCM detects an exhaust pressure condition that is higher than manufacturer's specifications or an electrical input signal from DPF pressure sensor A which is higher than programmed limitations.

What Are The Symptoms Of The P2455 Code?

Symptoms of a P2455 code may include:

- Excessive black smoke from the exhaust
- Increased engine temperatures
- Higher than normal transmission temperatures
- Diminished engine performance

What Are The Potential Causes Of The P2455 Code?

Potential causes for this code to set are:

- Exhaust leaks
- Clogged DPF pressure sensor tubes/hoses
- Open or shorted circuit/s in the DPF pressure sensor A circuit
- Faulty DPF pressure sensor
- The diesel exhaust fluid reservoir may be empty
- Improper diesel exhaust fluid

- Inept DPF regeneration
- The active DPF regeneration system is inoperative

How Can You Fix The P2455 Code?

A good starting point is always to check for technical service bulletins (TSB) for your particular vehicle. Your issue may be a known issue with a known fix put out by the manufacturer and can save you time and money during diagnosis.

In order to diagnose a code P2455, a digital volt/ohmmeter, a manufacturer's service manual, and a diagnostic scanner will be needed.

Step 1

I recommend that you start your diagnosis with a visual inspection of related harnesses and connectors. Inspect wiring that is routed near hot exhaust components and/or jagged edges. Be certain that you check alternator output, battery voltage, and battery terminal ends at this time.

Step 2

Proceed by connecting the scanner and retrieving all stored codes and freeze frame data. Don't forget to write this information down for future reference, and then clear all stored codes.

Step 3

Use the DVOM and follow manufacturer's recommendations for testing the DPF pressure sensor. Consult the service manual for specific instructions. Any sensor that fails to comply with manufacturer's resistance specifications must be replaced.

Step 4

The DPF pressure sensor supply hoses should be checked for clogs and/or breakage if the sensor checks out. Replace hoses that are burnt, cracked, or collapsed (high temp silicon hoses are recommended).

Step 5

If sensor supply lines are intact, and the sensor is operational, you may begin testing system circuits. To prevent PCM damage, disconnect all related controllers prior to testing resistance and/or continuity with the DVOM.

Additional diagnostic notes:

- Check DPF regeneration fluid before attempting to diagnose this code

- Clogged sensor ports and clogged sensor tubes are common when this code is stored
- DPF pressure sensor hoses that are melted or cut, may need to be rerouted after replacement

Severity Description

Conditions that could lead to this code may also lead to internal engine or fuel system damage and should be considered urgent.

Reference Sources

P2455 Diesel Particulate Filter Pressure Sensor A Circuit High, OBD-Codes.