P2456: DIESEL PARTICULATE FILTER PRESSURE SENSOR A CIRCUIT INTERMITTENT

OVERVIEW

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

What Does The P2456 Code Mean?

If a P2456 is stored, the powertrain control module (PCM) has detected a voltage input signal from the circuit of the diesel particulate filter (DPF) pressure sensor known as A, that is erratic or intermittent. P2456 is used exclusively in diesel equipped vehicles.

DPF systems are designed to remove ninety-percent of carbon particles (soot) from diesel engine exhaust. Large soot particles are trapped in the DPF element while smaller particles and other (exhaust gas) compounds are allowed to flow through.

At the nucleus of the DPF is the filtration element. Some of the elemental compounds currently being used in DPF construction include: paper fibers, metal fibers, ceramic fibers, silicone wall fibers, and cordierite wall fibers. Ceramic based cordierite is most common because of its excellent filtration.

It is however known for overheating at higher temperatures, making it susceptible in vehicles equipped with passive DPF systems. Large particles of soot should be trapped between the fibers and engine exhaust is allowed to flow through. When there is a large concentration of soot particles in the element, exhaust pressure increases.

The filtration element must be regenerated once soot concentration has reached a certain level. Regeneration permits exhaust gases to flow through the DPF so that the correct level of exhaust

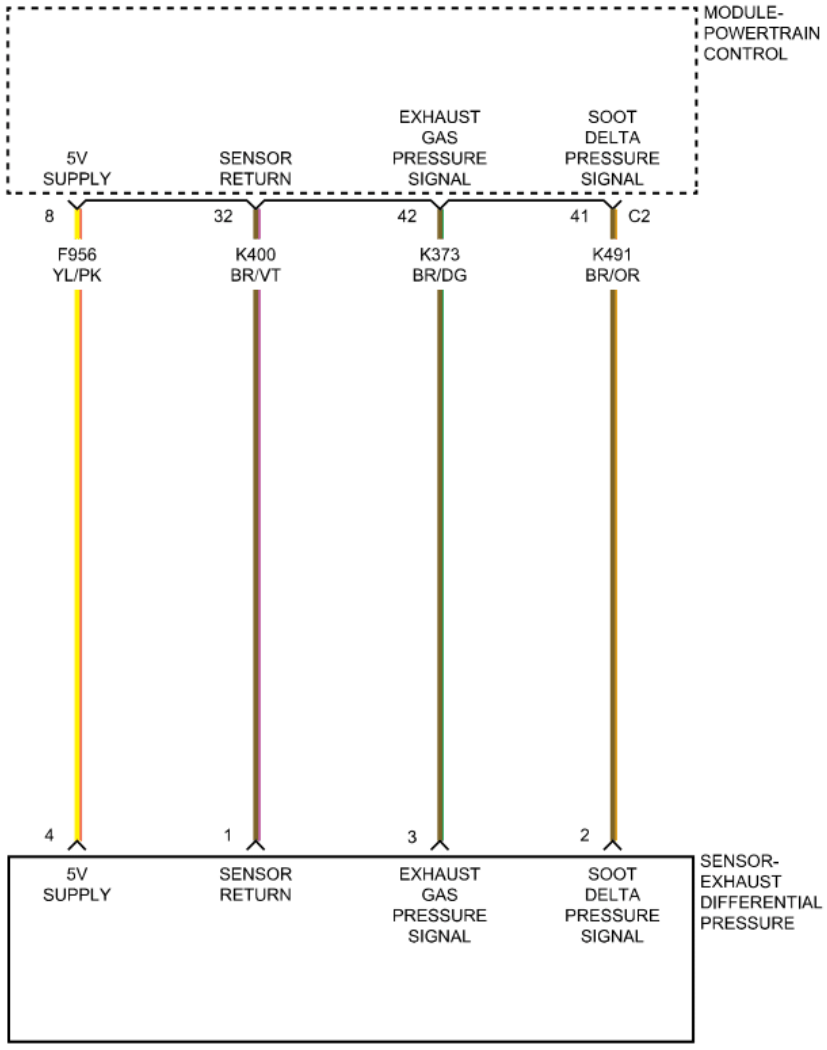
back pressure can be maintained.

Automatically regenerated systems are known as active DPF systems. The PCM is programmed to inject chemicals (diesel fuel, diesel exhaust fluid, etc.) into the exhaust at scheduled intervals in this type of system. This injection produces increased exhaust temperatures, allowing trapped soot particles be incinerated as ions of nitrogen and oxygen.

Passive DPF systems are similar in theory. They are activated with input from the operator. A qualified repair facility will have to perform the regeneration procedure on some models. It could take several hours to accomplish DPF regeneration once it has begun.

While active regeneration systems are working as the vehicle is being driven, passive systems typically are activated when the vehicle is parked.

Once the filtration element is regenerated, exhaust pressure should return to a normal level. The DPF pressure sensor is typically mounted remotely; away from the excessive heat of the DPF. Exhaust back pressure is monitored using silicon hoses (connected near the DPF inlet and the DPF pressure sensor). If the PCM detects an exhaust pressure condition or an electrical input signal from DPF pressure sensor A that is intermittent or erratic, a code P2456 may be stored.



P2456 wiring diagram

What Are The Symptoms Of The P2456 Code?

Symptoms of a P2456 code may include:

- Reduced engine performance
- Excessive black smoke from engine exhaust
- An increase in engine temperatures

What Are The Potential Causes Of The P2456 Code?

Potential causes for this code to set are:

- Exhaust leaks
- Open/shorted circuit/s in the DPF pressure sensor A circuit
- Defective DPF pressure sensor
- Clogged, cracked, or collapsed DPF pressure sensor tubes/hoses
- Diesel exhaust fluid reservoir empty
- Incorrect diesel exhaust fluid

How Can You Fix The P2456 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.

A manufacturer's service manual, a diagnostic scanner, and a digital volt/ohmmeter will be instrumental in diagnosing a code P2456. An infrared thermometer may also be helpful.

Step 1

I would begin my diagnosis with a visual inspection of related harnesses and connectors; paying close attention to wiring that is routed near hot exhaust components and/or sharp edges. Test alternator output, check the battery, and battery terminal ends at this time.

Step 2

I would continue by connecting the scanner and retrieving all stored codes and freeze frame data. Be sure to write this information down for future reference. Clear the codes and test drive the vehicle.

Step 3

Check to make sure that diesel exhaust fluid is present (where applicable) and that it is of the correct type, especially if the code immediately resets. A lack of diesel exhaust fluid is possibly the most common cause of this code being stored. The DPF will not be regenerated effectively without the proper type of diesel exhaust fluid. Poor DPF regeneration will cause an increase in exhaust pressure.

Step 4

Using the DVOM, test the DPF pressure sensor. Consult the manufacturer's service manual for

instructions. The sensor must be replaced if it fails to comply with manufacturer's resistance specifications.

Step 5

Check for clogs and/or breakage in the DPF pressure sensor supply hoses, if the sensor checks out. Clear or replace hoses as required (high temp silicon hoses must be used).

Step 6

If supply lines are intact and the sensor is operational, begin testing system circuits. Disconnect all related controllers before testing resistance and/or continuity with the DVOM. Repair or replace open or shorted circuits as necessary.

Additional diagnostic notes:

- Clogged sensor ports and clogged sensor tubes are common
- Consult the owners/service manual to find out if your vehicle is equipped with an active DPF regeneration system or a passive system
- If DPF pressure sensor hoses are melted or cracked, they may need to be rerouted after replacement

Severity Description

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

Reference Sources

P2456 Diesel Particulate Filter Pressure Sensor A Circuit Intermittent, OBD-Codes.