P2463: DIESEL PARTICULATE FILTER RESTRICTION - SOOT ACCUMULATION

OVERVIEW

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

What Does The P2463 Code Mean?

In my encounters with a stored code P2463, the powertrain control module (PCM) has detected a restriction (due to soot accumulation) in the diesel particulate filter (DPF) system. This code should be exhibited only in diesel powered vehicles.

Because DPF systems are designed to remove ninety-percent of carbon particles (soot) from diesel engine exhaust, soot accumulation can sometimes lead to DPF restriction. DPF systems are critical in facilitating automaker's compliance with strict federal guidelines for clean burning diesel engines. Modern diesel powered vehicles smoke far less than the diesel powered vehicles of yesteryear; primarily due to DPF systems.

Most PDF systems function in a similar manner. The DPF housing resembles a large steel muffler which contains a filtration element. Theoretically, large soot particles are trapped by the filtration element and exhaust gases are allowed to flow through and exit the tailpipe. In the most common design, the DPF contains wall fibers that attract larger soot particles as they flow into the housing. Less common designs rely on a loose web assembly that fills virtually the entire housing. Openings in the filtration device are sized so that larger soot particles are trapped within; exhaust gases flow through and exit the tailpipe.

When the filtration element has accumulated an excessive amount of soot particles, it becomes partially clogged and exhaust back pressure increases. DPF back pressure is monitored by the PCM

using a pressure sensor. Once back pressure reaches a programmed limit, the PCM initiates a regeneration procedure of the filtration element.

A minimum temperature of 1,200-degrees Fahrenheit must be reached (inside the DPF) in order for the filtration element to be regenerated. The regeneration system uses a specialized injection system to accomplish this. The electronically controlled (by the PCM) injection procedure introduces a flammable chemical compound, such as diesel fuel or diesel exhaust fluid, into the DPF. Once the specialized fluid has been introduced, soot particles are incinerated and released into the atmosphere (via the tailpipe) as harmless ions of nitrogen and water. Once the PDF is regenerated, exhaust back pressure drops within acceptable limits.

Active DPF regeneration systems are initiated automatically by the PCM. The process usually occurs while the vehicle is being driven. Passive DPF regeneration systems require driver interaction (after the PCM has presented a cautionary warning) and normally take place after the vehicle is parked. Passive regeneration procedures may take hours to complete. Check your vehicle information source to see with which type of DPF system your vehicle is equipped.

If the PCM detects exhaust pressure levels that fail to reach a programmed limit, a P2463 will be stored and a malfunction indicator lamp (MIL) may be illuminated.

What Are The Symptoms Of The P2463 Code?

Symptoms of a P2463 code may include:

- Other DPF and DPF regeneration codes will likely accompany a stored code P2463
- Excessive black smoke from the exhaust
- Inability to produce and maintain desired RPM levels
- Increased engine temperature
- Overheated DPR housing or other exhaust components

What Are The Potential Causes Of The P2463 Code?

Possible causes for this engine code include:

- Excessive soot accumulation due to insufficient DPF regeneration
- Bad DPF pressure sensor
- Insufficient diesel exhaust fluid
- Incorrect diesel exhaust fluid
- Shorted or open wiring to the DPF injection system or exhaust pressure sensor
- Defective PCM or a PCM programming error
- Faulty exhaust pressure sensor

How Can You Fix The P2463 Code?

Locate a technical service bulletin (TSB)

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 diagnostic scanner, a digital volt/ohmmeter (DVOM), and a reputable vehicle information source (such as All Data DIY) are just a few of the tools that I would use to diagnose a stored P2463.

Visually inspect of related harnesses and connectors

I begin my diagnostic process by inspecting all system related wiring harnesses and connectors. I would carefully inspect harnesses that are located near hot exhaust components and sharp exhaust shields. Other DPF and DPF regeneration codes should be repaired prior to attempting to diagnose and repair a code P2463.

Retrieving all stored codes

I would proceed by connecting the scanner to the diagnostic port and retrieving all stored trouble codes and freeze frame data. This information can be useful later, so I like to write it down prior to clearing the codes and test driving the vehicle.

Test the DPF pressure sensor

If the code is immediately reset, use the DVOM and follow manufacturer's recommendations for testing the DPF pressure sensor. If the sensor does not comply with manufacturer's resistance specifications, it must be replaced.

If the manufacturer's recommended DPF regeneration procedures have not been followed, suspect an actual DPF restriction due to excessive soot accumulation. Initiate the regeneration procedure and see if it rectifies the excessive soot accumulation condition.

Additional diagnostic notes:

- DPF pressure sensor hoses/lines are prone to clogging and collapse
- Incorrect/insufficient diesel exhaust fluid is a very common cause of DPF regeneration failure/soot accumulation
- If the vehicle in question is equipped with a passive regeneration system, follow manufacturer's DPF service intervals carefully to avoid excessive soot accumulation

Severity Description

Because DPF restriction may lead to engine or fuel system damage, this code should be considered severe.

Reference Sources

P2463 Diesel Particulate Filter Restriction - Soot Accumulation, OBD-Codes.