

P02E7: DIESEL INTAKE AIR FLOW POSITION SENSOR CIRCUIT RANGE/PERFORMANCE

OVERVIEW

Severity	:	Medium
DIY Difficulty Level	:	Intermediate
Repair Cost	:	\$100-\$300
Can I Still Drive?	:	Yes

What Does The P02E7 Code Mean?

The Diesel Intake Air Flow Position Sensor (DIAFPS) is usually bolted to the throttle body mounted to the intake manifold or in a tube in the intake air stream. The DIAFPS sensor converts the incoming airflow volume into an electrical signal for the Powertrain Control Module (PCM).

The PCM receives this voltage signal to determine how much clean, filtered air is entering the engine versus how much is entering through the exhaust system via the Exhaust Gas Recirculation System, or EGR System. When the EGR system is activated, the PCM should note a change in airflow.

If not, then there may be something wrong with the EGR system, or there may be something wrong with the DIAFPS, also known as a MAF sensor. This code is set if this input does not match normal engine operating conditions stored in the PCM's memory, even for a second, as these diagnostic trouble codes demonstrate. It also looks at the voltage signal from the DIAFPS to determine if it is correct at initial Key On.

The code P02E7 Diesel Intake Air Flow Position Sensor Circuit Range/Performance indicates an out of range or performance problem detected in the diesel intake air flow position sensor circuit.

It could have been set because of mechanical (physical damage to the sensor itself, thereby causing an electrical fault) or electrical (DIAFPS sensor circuit) issues. These cannot be overlooked in the

troubleshooting stage, especially when dealing with an intermittent problem.

Troubleshooting steps may vary depending upon manufacturer, type of DIAFCS motor/control and wire colors.

What Are The Symptoms Of The P02E7 Code?

Symptoms of a P02E7 trouble code may include:

- Malfunction Indicator Light On
- Possible low idle speed only
- No EGR System operation
- No Regeneration of the diesel particulate filter to burn off the soot build up (won't burn off soot out of the DPF catalyst)

What Are The Potential Causes Of The P02E7 Code?

Causes for this P02E7 code may include:

- Open in the signal circuit to the DIAFPS sensor – possible
- Short to voltage in the signal circuit to the DIAFPS sensor – possible
- Short to ground in the signal circuit to the DIAFPS sensor – possible
- Failed DIAFPS Sensor – likely
- Failed PCM – unlikely

How Can You Fix The P02E7 Code?

A good starting point is always to check for technical service bulletins (TSB) for your 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.

Next, locate the DIAFPS sensor on your vehicle. This sensor is usually bolted to the throttle body mounted to the intake manifold or in a tube in the intake air stream. Once located, visually inspect the connector and wiring. Look for scraping, rubbing, bare wires, burn spots or melted plastic.

Pull the connector apart and carefully inspect the terminals (the metal parts) inside the connector. See if they look burned or have a green tint indicating corrosion. Use electrical contact cleaner and a plastic bristle brush if cleaning of the terminals is needed. Let dry and apply electrical grease where the terminals contact.

If you have a scan tool, clear the diagnostic trouble codes from memory, and see if P02E7 code returns. If it does not, then the connections were most likely your problem.

If the P02E7 code does return, we will need to test the DIAFPS sensor and its associated circuits.

With the Key Off, disconnect the electrical connector at the DIAFPS sensor. Connect a Digital Voltmeter black lead to the ground terminal at the DIAFPS sensor wiring harness connector.

Connect the red lead of the Digital Voltmeter to the signal terminal at the DIAFPS sensor wiring harness connector. Turn Key On Engine Off. Check manufacturer's specifications; voltmeter should read 5 volts. If not, repair the signal or ground wire, or replace the PCM.

If the prior test passed and you continue to get a P02E7, this would most likely indicate a failed DIAFCS sensor, although a failed PCM could not be ruled out until the DIAFCS sensor had been replaced. If unsure, seek assistance from a trained automotive diagnostician. PCMs must be programmed, or calibrated to the vehicle to be installed correctly.

Severity Description

Severity in all cases will be not severe. Since they are electrical failures, the PCM can compensate adequately for them.

Reference Sources

[P02E7: Diesel Intake Air Flow Position Sensor Circuit Range/Performance](#), OBD-Codes.