P02E1: DIESEL INTAKE AIR FLOW CONTROL PERFORMANCE

OVERVIEW

Severity	:	Medium
DIY Difficulty Level	:	Intermediate
Repair Cost	:	**$200-$500**
Can I Still Drive?	:	**Yes**

What Does The P02E1 Code Mean?

The Diesel Intake Air Flow Control System (DIAFCS) is usually bolted to the intake manifold in the intake air stream. The DIAFCS system controls the amount of incoming airflow by varying a signal to a motor operated by the Powertrain Control Module (PCM). The motor opens and closes a throttle plate which regulates the airflow.

The PCM knows how much clean, filtered air is entering the engine based upon the Diesel Intake Airflow Position Sensor, also known as a MAF sensor. When the air flow control system is activated, the PCM should note a change in airflow. If not, then there may be something wrong with the DIAFCS system, or there may be something wrong with the MAF sensor.

These codes are 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 DIAFCS to determine if it is correct at initial Key On.

The code P02E1 Diesel Intake Air Flow Control Performance is set when there is a detected performance problem within the diesel intake air flow control. It could have been set because of mechanical (physical damage to the control system itself, thereby causing an electrical fault) or electrical (DIAFCS motor 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 P02E1 Code?

Symptoms of a P02E1 trouble code may include:

- Malfunction Indicator Light On
- Possible low idle speed only
- Flashing Electronic Throttle Control symbol
- No Regeneration of the diesel particulate filter to burn off the soot build up (won't burn off soot out of the DPF catalyst) – eventual loss of power complain

What Are The Potential Causes Of The P02E1 Code?

Causes for this P02E1 code may include:

- Open in the signal circuit to the DIAFCS motor/control – possible
- Short to voltage in the signal circuit to the DIAFCS motor/control – possible
- Short to ground in the signal circuit to the DIAFCS motor/control – possible
- Failed DIAFCS motor/control – likely
- Failed PCM – unlikely

How Can You Fix The P02E1 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 DIAFCS motor/control system on your vehicle. This motor/control is usually bolted to the intake manifold 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 a mechanical code was set, use intake cleaner and a clean rag to wipe out the carbon deposits behind the throttle plate of the motor control system. Spray the cleaner onto the rag and wipe out the deposits with the rag. NEVER spray these deposits into the engine, as they can cause poor running, misfires and with enough intake cleaner, catalytic converter damage and possibly engine

damage.

If you have a scan tool, clear the diagnostic trouble codes from memory, and see if P02E1 code returns. If it does not, then the connections were most likely your problem.

If the P02E1 code does return, we will need to test the DIAFCS and its associated circuits. With the Key Off, disconnect the electrical connector at the DIAFCS motor/control. Connect a Digital Voltmeter black lead to the ground terminal at the DIAFCS motor/control wiring harness connector.

Connect the red lead of the Digital Voltmeter to the motor terminal at the DIAFCS sensor wiring harness connector. Turn Key On Engine Off. Check manufacturer's specifications; voltmeter should read 12 volts. If not, repair the power or ground wire, or replace the PCM. Check manufacturers specifications for complete test procedures on your specific vehicle if unsure.

If the prior test passed and you continue to get a P02E1, this would most likely indicate a failed DIAFCS motor/control, although a failed PCM could not be ruled out until the DIAFCS motor/control 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. If mechanical issues are the cause, the typical failure is low idle speed. If it is an electrical failure, the PCM can compensate adequately for them.

Reference Sources

P02E1: Diesel Intake Air Flow Control Performance, OBD-Codes.