

P049A: EXHAUST GAS RECIRCULATION B FLOW

OVERVIEW

Severity	:	High
DIY Difficulty Level	:	Advanced
Repair Cost	:	\$250-\$450
Can I Still Drive?	:	Yes (Short-term only)

What Does The P049A Code Mean?

A stored code P049A means that the powertrain control module (PCM) has detected a malfunction in the exhaust gas recirculation (EGR) system "B" flow for a particular step-down setting. The designation "B" refers to a certain position of the step-down EGR valve. Either an electrical problem or a mechanical problem may cause a code P049A to be stored.

Excessive or insufficient EGR flow may result in a stored code P049A.

The step-down EGR valve system is critical in the reduction of nitrous oxide (NOx) particles that are released into the atmosphere as a result of internal combustion and diesel engine operation. NOx has been proven to be a contributing factor in ozone depletion from exhaust emissions. NOx emissions are regulated by federal mandate in North America.

The step-down EGR system is designed to deliver a portion of spent exhaust gases back to the intake manifold, in measured increments. Once exhaust gases are re-circulated back to the intake manifold, they are burned a second time.

EGR system flow is monitored using one of several diverse methods, including:

- The differential pressure feedback EGR (DPFE) sensor is positioned in or near the tube which connects the EGR valve and the exhaust manifold. When the EGR valve is opened, pressure in

the EGR tube and DPFE sensor is increased. DPFE sensor voltage reflects the change accordingly

- The manifold absolute pressure (MAP) sensor is used to monitor EGR flow in other vehicle applications. In this type of system, when the PCM commands the step-down EGR opened to a particular stage, a proportionate change in MAP sensor voltage is also expected
- Some vehicles use the manifold air temperature (MAT) sensor to monitor EGR flow. When the EGR is opened to the desired amount (and hot exhaust gases are allowed to flow into the intake manifold), an appropriate variation in MAT sensor voltage is expected

A code P049A will be stored and a malfunction indicator lamp (MIL) may be illuminated if the PCM fails to see the desired degree of change from the respective "B" EGR flow monitoring sensor system. In some vehicle applications, multiple ignition cycles (with a failure) are required for MIL illumination.

What Are The Symptoms Of The P049A Code?

Symptoms of a P049A trouble code may include:

- Decreased engine performance
- Excessive rich or lean exhaust
- Delayed engine start-up (especially when cold)
- Diminished fuel efficiency

What Are The Potential Causes Of The P049A Code?

Causes for this P049A engine code may include:

- Defective EGR valve
- Carbon clogged EGR passage/s
- Collapsed or cracked DPFE hoses
- Faulty DPFE, MAP, or MAT Sensor
- Open or shorted circuits to the EGR valve or related sensors

How Can You Fix The P049A Code?

Begin your diagnosis by locating the vehicle diagnostic connector and retrieving all stored codes with the scanner. Record this information in case you need it as the diagnosis unfolds. Now, test-drive the vehicle to see if the code is immediately reset.

You may discover a solution to your EGR system problems by searching vehicle technical service bulletins (TSB) for entries which match the vehicle, codes stored, and symptoms exhibited. TSB

entries are derived from thousands of repair specialists and may contain very helpful diagnostic hints.

You will need to gain access to a diagnostic scanner, a digital volt/ohmmeter (DVOM), and a reliable vehicle information source if the P049A is stored right after clearing the codes.

A visual inspection of the EGR valve and all related wiring and connectors is in order next. Focus on wiring harnesses which are routed near hot exhaust manifolds and the jagged edges often associated with exhaust shields.

To prevent controller damage, disconnect all related control modules from the circuit before testing resistance/continuity with the DVOM.

Utilize the scanner to manually activate the EGR system. Most EGR systems require a certain rate of speed before automatic activation will occur. Using wiring diagrams and connector pin out charts, located in your vehicle information source, test each individual EGR valve connector circuit (with the DVOM). Circuits which do not conform to manufacturer's specifications will need to be followed back to the source (usually the PCM connector) and retested. If the output signal from the PCM is not detected, suspect a defective PCM or PCM programming error. Repair or replace open/shorted circuits as required.

Use the DVOM to test the actual EGR valve and related sensors if all circuits are in compliance with manufacturer's specifications. Your vehicle information source will once again yield information for testing these parts. If the step-down EGR valve and/or any related sensors do not align with manufacturer's specifications, they should be replaced.

Note: This code should be exhibited only in vehicles equipped with step-down EGR valve systems

Severity Description

Overall engine performance and fuel efficiency may be adversely affected by the conditions which contribute to a code P049A. It should be categorized as severe.

Reference Sources

[P049A Exhaust Gas Recirculation B Flow](#), OBD-Codes.