EGR Insufficient Flow Detected

EGR Valve System Operation

The EGR (exhaust gas recirculation) valve is an emission control device designed to control the exhaust emissions of your vehicle. The EGR system cools the combustion chamber by mixing the incoming fresh air to the engine with the inert air from the exhaust stream. When the inert air mixes with the fresh air, the air/fuel mixture will become slightly on the rich side. This rich mixture is what cools the combustion process.

The EGR valve could be considered a gate which opens and allows the flow of this exhaust gas. As the valve allows the movement of the extremely hot exhaust gas to the much cooler intake air side of the system, any air which may contain too many carbon molecules will harden and cause a blockage in the EGR air stream flow. This blockage is what sets this trouble code.

The trouble code could also be set by a stuck or inoperative EGR valve. If the computer commands the EGR valve to open but it does not, the computer, in some cases, has no way to determine if the command actually occurred. The computer did not detect a change in the system using the outlined test methods listed below. Only your testing can determine the true fault cause.

Common On-Board EGR Flow Test Methods

- **Differential Pressure Test**: The computer monitors an EGR pressure sensor, or DPFE sensor, and looks for a pressure change in the EGR system when the EGR valve opens.

- **MAP Sensor**: The computer utilizes the MAP (manifold absolute pressure) sensor input for EGR system testing. When the EGR valve opens, the engine vacuum should drop slightly. If the valve opens and the sensor input does not change, the computer will flag the EGR system as faulty.

- **EGR Temperature Sensor**: The computer monitors the EGR temperature sensor for a change when the EGR valve opens. With the movement of exhaust gas, the temperature in the system should rise quickly indicating the flow of exhaust gas.

- **Fuel Trim Analysis**: The computer monitors the fuel trim values for a change when the EGR valve opens. A sudden change is expected during the monitored EGR test as exhaust gas alters the air/fuel ratio.

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Common Problems That Trigger the EGR Insufficient Flow Trouble Code

- Failed EGR valve
- Faulty EGR pressure sensor
- Failed vacuum source from the engine. Carbon blocking the vacuum source passage or the vacuum hose is damaged.
- Failed vacuum switch valve (VSV)
- Failed vacuum solenoid
- Failed EGR vacuum modulator valve
- Blocked EGR passages in the engine
- Failed EGR temperature sensor
- Clogged catalytic converter

Choose your vehicle make from the list below to see a comprehensive list of vehicle specific trouble code fault causes.

Acura        Mazda
Audi         Mercedes Benz
Chrysler/Jeep Mitsubishi
Ford         Saturn
General Motors Suzuki
Honda        Toyota
Hyundai      Volkswagen
Isuzu