

P204F: REDUCTANT SYSTEM PERFORMANCE BANK 1

OVERVIEW

Severity	:	<div>High</div>
DIY Difficulty Level	:	<div>Advanced</div>
Repair Cost	:	\$100-\$1750
Can I Still Drive?	:	Yes

What Does The P204F Code Mean?

When a code P204F is stored, it means that the powertrain control module (PCM) has detected a malfunction in the reductant portion of the selective catalyst reduction (SCR) system. Bank 1 denotes the bank of the engine that contains the number one cylinder.

The catalyst system is responsible for the reduction of harmful exhaust emissions. Today's clean-burning diesel engines require more than mere particulate filtration. It was for this reason that SCR systems were invented.

Modern SCR systems inject a reductant compound or a diesel exhaust fluid (DEF) into the exhaust in front of the diesel particulate filter, NOx trap, and/or the catalytic converter via the reductant injection valve (solenoid). The precisely timed DEF injection elevates the temperature of the filtration element and allows it to perform more efficiently. It enhances filtration element longevity and allows fewer harmful exhaust emissions to be released into the atmosphere. The entire SCR system is monitored and controlled by either the PCM or a stand-alone controller (which interacts with the PCM).

Either way, the controller monitors the O2, NOx, and exhaust temperature sensors (as well as other inputs) to determine the appropriate time for DEF (reductant) injection. Precise DEF injection is necessary to maintain exhaust temperature within acceptable parameters and optimize pollutant filtration.

The reductant/regeneration supply pump is used to pressurize the DEF in the liquid reductant system for use, when required. Supply pump voltage is monitored by the PCM for consistent fluctuation and load percentage. The PCM also monitors one or more pressure sensors in the reductant supply system to determine if there is a leak in the system.

If the PCM detects that the reductant system for engine bank one is not performing as intended, a code P204F will be stored and a malfunction indicator lamp (MIL) may be illuminated. Multiple ignition cycles (with a failure) may be required for MIL illumination.

What Are The Symptoms Of The P204F Code?

Symptoms of a P204F trouble code may include:

- Reduction in fuel efficiency
- Excessive black smoke from vehicle exhaust
- Diminished engine performance
- Other SCR related codes

What Are The Potential Causes Of The P204F Code?

Causes for this code may include:

- Defective reductant pressure sensor
- Faulty reductant system injector
- Incorrect or otherwise inadequate DEF
- Open or shorted circuits in the reductant system
- Bad SCR controller/PCM or programming error

How Can You Fix The P204F Code?

A diagnostic scanner, a digital volt/ohmmeter (DVOM), and a source of vehicle specific diagnostic information will be required to diagnose a code P204F.

You may use your source of vehicle information to locate a technical service bulletin (TSB) that matches the vehicle year, make, and model; as well as the engine size, code/s stored, and symptoms exhibited. If you find one, it could yield helpful diagnostic information.

Use the scanner (connected to the vehicle diagnostic connector) to retrieve all stored codes and pertinent freeze frame data. It is a good idea to write this information down before clearing the codes then test-drive the vehicle until the PCM either enters readiness mode or the code is reset.

If the PCM enters readiness mode at this time, the code is intermittent and may be much more difficult to diagnose. If this is the case, the conditions which contributed to the code being stored may need to worsen before an accurate diagnosis can be made.

If the code is immediately reset, the next step of your diagnosis will require that you search your vehicle information source for diagnostic flow-charts, connector pin-out charts, connector face views, and component testing procedures/specifications.

Step 1

Use the DVOM to test the reductant pressure sensor according to manufacturer specifications. Components which do not test within maximum allowable parameters should be considered defective.

Step 2

If actual reductant system pressure is within specifications, the code P204F persists, and the sensors are in working order, use the DVOM to test input and output signal circuits between SCR system sensors and the PCM/SCR controller. Disconnect all controllers prior to using the DVOM for testing.

- Reductant system performance codes are frequently attributed to low or incorrect DEF

Severity Description

A stored code P204F should be considered severe and addressed as quickly as possible. The SCR system could be disabled because of it. Catalyst damage may result if the conditions which contributed to the code being stored are not rectified in a timely manner.

Reference Sources

[P204F Reductant System Performance Bank 1](#), OBD-Codes.