

P200E: CATALYST SYSTEM OVER TEMPERATURE BANK

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OVERVIEW

Severity	:	High
DIY Difficulty Level	:	Advanced
Repair Cost	:	\$200-\$2550
Can I Still Drive?	:	Yes

What Does The P200E Code Mean?

If your diesel powered, OBD-II equipped vehicle has stored a code P200E, it means that the powertrain control module (PCM) has detected an excessive degree of catalyst system temperature for engine bank one. Bank 1 is the bank of the engine that contains the number one cylinder.

The catalyst system, as it pertains to a modern clean burning diesel powered vehicle, is designed to reduce harmful exhaust emissions before they can be released into the atmosphere. Exhaust emissions consist mainly of hydrocarbons (HC), carbon monoxide (CO), nitrogen oxide (NOx), and particulate matter (soot – in diesel applications).

The catalytic converter is basically a large (fine mesh) filter that is capable of withstanding extreme temperature. Engine exhaust flows through and harmful emissions are trapped within a platinum filtration element. The extreme temperatures generated inside the catalytic converter help to burn harmful emissions elements.

The catalyst system is responsible for reduction of (basically) all the other exhaust emissions although certain applications are also equipped with a NOx trap.

Exhaust gas recirculation (EGR) systems go another step further in the reduction of NOx. Nevertheless, today's larger and more powerful diesel engines cannot meet strict federal (U.S.) emission standards with the EGR, catalytic converter, and NOx trap alone. It was for this reason

that selective catalytic reduction (SCR) systems were invented.

SCR systems inject diesel exhaust fluid (DEF) into the exhaust in front of the diesel particulate filter and/or the catalytic converter. The precisely timed DEF injection elevates the temperature of the filtration element and allows it to perform more efficiently. It makes the filtration element last longer and allows fewer harmful exhaust emissions to be released into the atmosphere.

Exhaust temperature sensors are placed before and after the catalyst to monitor its temperature and efficiency. The entire SCS 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, NO_x, and exhaust temperature sensors (as well as other inputs) to determine the appropriate time for DEF injection. Precise DEF injection is necessary to maintain exhaust temperature within acceptable parameters and optimize pollutant filtration.

If the PCM detects excessive catalyst system temperature (for engine bank one), a code P200E will be stored and a malfunction indicator lamp may be illuminated.

What Are The Symptoms Of The P200E Code?

Symptoms of a P200E trouble code may include:

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

What Are The Potential Causes Of The P200E Code?

Causes for this code may include:

- Inoperative SCR system
- Faulty SCR injector
- Incorrect or insufficient DEF fluid
- Defective exhaust temperature sensor
- Bad SCR controller or programming error
- Pre-catalyst exhaust leaks
- Installation of aftermarket or high-performance exhaust components

How Can You Fix The P200E Code?

If SCR codes are also stored, these should be addressed before attempting to diagnose the stored P200E. Pre-catalyst exhaust leaks should be repaired before attempting a diagnosis for this type of code.

You will need access to a diagnostic scanner, a digital volt/ohmmeter (DVOM), an infrared thermometer with a laser pointer, and a source of vehicle specific diagnostic information to diagnose a code P200E.

Check Technical Service Bulletin

If you can find 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, it could yield helpful diagnostic information.

Visually Inspect Of The SCR Injection System

You will want to begin your diagnosis with a visual inspection of the SCR injection system, exhaust temperature sensors, NOx sensors, and oxygen (O₂) sensor harnesses and connectors. Burnt or damaged wiring and or connectors should be repaired or replaced before proceeding.

Proceed by hooking the scanner to the vehicle diagnostic connector and retrieving all stored codes and pertinent freeze frame data. Write this information down before clearing the codes and test driving the vehicle until the PCM either enters readiness mode or the code is reset.

The code is intermittent and may be much more difficult to diagnose (at this time), if the PCM enters readiness mode. 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.

Should the code be reset, search your source of vehicle information to obtain diagnostic flow charts, connector pin out charts, connector face views, as well as component testing procedures and specifications. This information will be required to complete the next step of your diagnosis.

Use The Infrared Thermometer

Use the infrared thermometer to glean actual pre and post catalyst temperatures. Observe the scanner data stream to compare your actual findings with the information found on the scanner data display screen. Also compare exhaust temperature sensor data between engine banks. If exhaust temperature inconsistencies are detected, test the respective sensor/s using the DVOM. Sensors which do not comply with manufacturer specifications, should be considered defective.

If all sensors and circuitry appear to be functioning as intended, suspect that the catalyst element is faulty or that the SCR system has failed.

- Make sure that the DEF reservoir is filled with the appropriate fluid and the SCR system is functioning as intended

Severity Description

Any stored catalyst system codes may be precursor to a clogged exhaust system. The stored code P200E should be considered severe and addressed as quickly as possible. Catalyst damage could result if the conditions which contributed to the code being stored are not rectified in a timely manner.

Reference Sources

[P200E Catalyst System Over Temperature Bank 1](#), OBD-Codes.