P200C: DIESEL PARTICULATE FILTER OVER TEMPERATURE BANK 1

OVERVIEW

Severity	:	High
DIY Difficulty Level	:	Advanced
Repair Cost	:	**$200-$2550**
Can I Still Drive?	:	**Yes** (Short-term only)

What Does The P200C Code Mean?

If your diesel powered, OBD-II equipped vehicle has stored a code P200C, it means that the powertrain control module (PCM) has detected an excessive degree of diesel particulate filter temperature for engine bank one. Bank 1 is the bank of the engine that contains the number one cylinder.

The diesel particulate filter, 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 diesel particulate filter 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 diesel particulate filter help to burn harmful emissions elements.

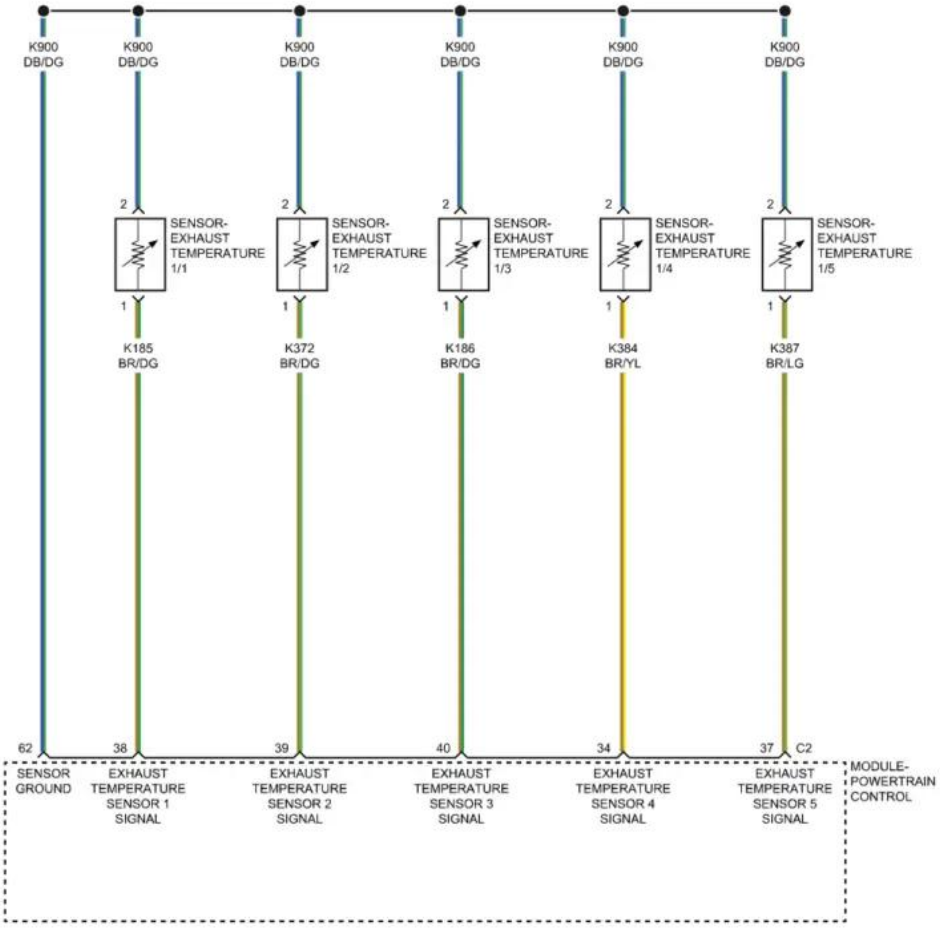
The primary responsibility of the diesel particulate filter is the reduction of soot from diesel engine exhaust. If you have noticed that modern diesel engines run cleaner and with less black smoke than diesels from a few decades ago; it is due to the implementation of the diesel particulate filter in the exhaust system.

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, diesel particulate filter, 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 diesel particulate filter 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, NOx, 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 diesel particulate filter temperature (for engine bank one), a code P200C will be stored and a malfunction indicator lamp may be illuminated.



P200C wiring diagram

What Are The Symptoms Of The P200C Code?

Symptoms of a P200C 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 P200C 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 P200C Code?

If SCR codes are also stored, these should be addressed before attempting to diagnose the stored P200C. Pre-catalyst exhaust leaks should be repaired before attempting a diagnosis for this type of code.

Tools required

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 P200C.

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.

Step-by-step guide

You will want to begin your diagnosis with a visual inspection of the SCR injection system, exhaust temperature sensors, NOx sensors, and oxygen (02) 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 to glean actual pre and post diesel particulate filter 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 diesel particulate filter is faulty or that the SCR system has failed.

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

Severity Description

Any stored diesel particulate filter codes may be precursor to a clogged exhaust system. The stored code P200C 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

P200C Diesel Particulate Filter Over Temperature Bank 1, OBD-Codes.