P2210: NOX SENSOR HEATER SENSE CIRCUIT LOW BANK 1

OVERVIEW

Severity	:	Medium
DIY Difficulty Level	:	Intermediate
Repair Cost	:	**$450-$750**
Can I Still Drive?	:	**Yes**

What Does The P2210 Code Mean?

NOx (Oxides of Nitrogen) sensors are primarily used for the emission systems in diesel engines. Their primary use is to detect NOx levels coming out of the exhaust after burning in the combustion chamber.

The system then recycles these using different methods. Given the harsh environment of these sensors, they are composed of a combination of ceramic and a certain type of zirconia.

One of the downfalls of emitting NOx into the atmosphere is that it may cause smog and/or acid rain at times. Failure to sufficiently monitor and adjust NOx levels would result in a significant effect to the atmosphere around us and the air we breathe. The ECM (Engine control module) continuously monitors the NOx sensors to ensure acceptable emissions levels in your vehicle's exhaust.

The engine control module (ECM) is able to calculate the Nitric Oxide and Nitrogen Dioxide gases (NOx) by using the data gained from the upstream and downstream oxygen sensors of the vehicle combined with the NOx sensor readings.

The ECM does this to regulate the NOx levels coming out of your tailpipe for environmental emission reasons. The Bank 1 referred in this trouble code is the engine bank that contains the #1 cylinder.

P2210 is the code described as “NOx Sensor Heater Sense Circuit Low Bank 1”. This code appears when the ECM has detected an issue with the level of output from this sense circuit. The levels of readings from the said circuit are just too low for the desired specifications.

Diesel engines especially produce a significant amount of heat so make sure to always let the system cool before working on any exhaust system components.

What Are The Symptoms Of The P2210 Code?

Symptoms of a P2210 diagnostic code may include:

- Intermittent stalling
- The engine fails to start when warm
- Decreased performance of the engine
- When accelerating, there may be a hissing and/or hesitation
- The engine might run lean or rich on bank #1 exclusively

What Are The Potential Causes Of The P2210 Code?

Causes for this P2210 NOx sensor code may include:

- Catalytic converter is malfunctioning
- Incorrect fuel mixture
- The coolant temperature sensor is faulty
- The manifold air pressure sensor is broken
- There are problems with the mass air inflow sensor
- The fuel injection part is defective
- The fuel pressure regulator is broken
- There were ignition misfires
- There are leaks from the exhaust manifold, flex hose, down pipe, or some other exhaust component
- Broken oxygen sensors

How Can You Fix The P2210 Code?

The first step in the troubleshooting process for any malfunction is to research the Technical Service Bulletins (TSB) for known issues with the specific vehicle.

Advanced diagnostic steps become very vehicle specific and may require the appropriate advanced equipment and knowledge to perform accurately. We include basic steps below but refer to a vehicle year/make/model/powertrain specific repair guide for specific steps for your vehicle.

Basic Step #1

First step should always be to clear the codes and re-scan the vehicle. If none of the DTCs (Diagnostic trouble code) are coming on as active right away, take the vehicle for a lengthy multi-stop test drive to see if they re-appear. If only one of the codes are reactivated by the ECM (engine control module), continue the diagnostic for that specific one.

Basic Step #2

Next, you should check the exhaust for any leakages. Black soot around cracks and/or gaskets of the system is a good sign of a leak. This should be addressed accordingly, most times, an exhaust gasket is fairly simple to replace. A fully sealed exhaust is integral to the sensors involved in your exhaust system.

Basic Step #3

Through an infrared temperature gun, you can monitor the exhaust's temperature before and after the catalytic converter. You then will need to compare the results to the specifications of the manufacturer, so refer to the specific service manual for this.

Basic Step #4

If the catalytic converter temperature is in accordance with the specifications, turn your focus to the electrical system involved with these sensors. Start with the bank 1 NOx sensor's harness and connector. A lot of times, these harnesses tend to crack and fail due to the close proximity to extreme temperatures of the exhaust.

Repair any damaged wires by soldering the connections and heat shrinking them. Also inspect the oxygen sensors involved in the bank 1 to ensure they are not damaged, which can potentially alter the NOx readings downstream. Repair any connector not making sufficient connections or not locking properly.

This article is strictly for information purposes only and the technical data and service bulletins for your specific vehicle should always take precedence.

Severity Description

If the trouble codes are ignored and that there weren't any action made to repair it could lead to catalytic converter failure. If the symptoms and causes of these trouble codes are left unattended, it could lead to further complications for your car such as consistent stalling and reduced fuel economy.

If you notice any of the potential symptoms in the list below, it is highly recommended to have it

checked by a professional.

Reference Sources

P2210 NOx Sensor Heater Sense Circuit Low Bank 1, OBD-Codes.