P202A: REDUCTANT TANK HEATER CONTROL CIRCUIT/OPEN

OVERVIEW

Severity	:	High
DIY Difficulty Level	:	Advanced
Repair Cost	:	**$100-$1100**
Can I Still Drive?	:	**Yes**

What Does The P202A Code Mean?

This diagnostic trouble code (DTC) is a generic powertrain code and applies to many OBD-II vehicles (1996-newer). That may include but is not limited to vehicles from Volkswagen, Mercedes-Benz, Dodge, Audi, etc. Although generic, the exact repair steps may vary depending on year, make, model and powertrain configuration.

A stored code P202A means that the powertrain control module (PCM) has detected no voltage in the control circuit for the reductant tank heater.

The catalyst system is responsible for reduction of (basically) all 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, diesel particulate filter/catalytic converter, and NOx trap alone. It was for this reason that selective catalytic reduction (SCR) systems were invented.

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.

Reductant tank heaters are used to prevent diesel exhaust fluid from freezing during extreme cold temperatures. These heaters are typically located in or around the DEF reservoir.

If the PCM detects no voltage on the reductant tank heater control circuit, a code P202A 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 P202A Code?

Symptoms of a P202A 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 P202A Code?

Causes for this code may include:

- Bad reductant tank heater element
- Open or shorted circuits in the reductant tank heater control
- Bad SCR controller/PCM or programming error

How Can You Fix The P202A Code?

A diagnostic scanner, a digital volt/ohmmeter (DVOM), and a source of vehicle specific diagnostic information will be required to diagnose a code P202A.

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 tank heater element according to manufacturer specifications. Heaters are typically of the blanket or pin variety. Heater elements which do not test within maximum allowable parameters should be considered defective.

Step 2

Use your source of vehicle diagnostic information and the DVOM to test reductant heater circuit voltage (usually battery voltage) with the system activated. If current conditions won't permit activation, use the scanner to manually activate the heater.

Step 3

If the reductant tank heater is functional, use the DVOM to test input and output signal circuits from the fuse panel, PCM, and ignition switch. Disconnect all controllers prior to using the DVOM for testing.

- Reductant tank heater systems are used exclusively in diesel powered vehicles and in colder climates

Severity Description

A stored code P202A should be considered severe and addressed as quickly as possible. The SCR system could be disabled because of it. Catalyst damage could result if the conditions which contributed to the code being stored are not rectified in a timely fashion.

Reference Sources

P202A Reductant Tank Heater Control Circuit/Open, OBD-Codes.