

P2301: IGNITION COIL A PRIMARY CONTROL CIRCUIT HIGH

OVERVIEW

Severity	:	<div>High</div>
DIY Difficulty Level	:	<div>Intermediate</div>
Repair Cost	:	\$150-\$300
Can I Still Drive?	:	No

What Does The P2301 Code Mean?

If your vehicle has stored a code P2301, accompanied by a malfunction indicator lamp (MIL), it means that the powertrain control module (PCM) has detected a high voltage condition in the primary control circuit of the ignition coil designated with the letter A. Refer to a manufacturer specific guide to determine which is the "A" circuit for your particular application.

Primary circuits of the ignition coil are the wires which supply battery voltage to the coil. Voltage is delivered through fuses, relays, and various other sources. The high-energy ignition boot, spark plug boot, or spark plug wire is NOT considered a primary circuit.

Typically, the ignition coil is supplied with battery voltage and ground. When the ground signal is interrupted (momentarily), the ignition coil emits a high voltage spark which also fires the spark plug. Spark plug operation is a necessary component in the internal combustion engine. If primary voltage to the ignition coil is excessive, high-energy voltage emission will not occur and the engine cylinder will not produce horsepower.

What Are The Symptoms Of The P2301 Code?

Symptoms of a P2301 trouble code may include:

- Engine misfire

- Diminished engine performance
- Reduced fuel efficiency
- Other related codes
- Fuel injector operation for the affected cylinder may be disabled by the PCM

What Are The Potential Causes Of The P2301 Code?

Causes for this code may include:

- Bad relay or blown fuse (fusible link)
- PCM failure
- Open or shorted wiring or wiring connectors (wildlife damage)
- Defective ignition coil
- Faulty camshaft or crankshaft sensor or wiring

How Can You Fix The P2301 Code?

You will need a diagnostic scanner, a digital volt/ohmmeter (DVOM), and a source of reliable vehicle information in order to accurately diagnose a code P2301.

You may save yourself time and trouble by searching for technical service bulletins (TSB) that replicate the code stored, vehicle (year, make, model, and engine), and symptoms exhibited. This information may be found in your vehicle information source. If you find the right TSB, it could yield a speedy solution to your diagnosis.

Step 1

After you connect the scanner to the vehicle diagnostic port and retrieve all stored codes and pertinent freeze frame data, write the information down (in case the code proves to be an intermittent one). After that, clear the codes and test drive the vehicle until one of two things happens; the code is restored or the PCM enters readiness mode.

The code may be more difficult to diagnose if the PCM enters readiness mode at this point, because the code is intermittent. The condition which caused the P2301 to be stored may need to worsen before an accurate diagnosis can be made. If the code is restored, continue with the diagnosis.

Step 2

You may obtain connector face views, connector pinout charts, component locator charts, wiring diagrams, and diagnostic flow charts (pertaining to the code and vehicle in question) using your source of vehicle information.

Perform a visual inspection of related wiring and connectors. Repair or replace wiring that has been

cut, burned, or damaged. Wiring on top of the engine is often damaged by wildlife attempting to stay warm in cold climates.

Step 3

Use the DVOM to test voltage and ground circuits at the ignition coil in question. If no voltage is detected, check the system relay and related fuses. Replace defective relays and/or blown (or otherwise defective) fuses as required.

Step 4

If voltage and ground are detected at the coil, test the corresponding ground circuit at the PCM connector with the engine running. If ground pulse is detected there, suspect an open circuit between the coil in question and the PCM. If no ground pulse is discovered there, suspect a defective PCM, or a programming error.

Additional note:

- The P2301 is frequently stored due to wiring damage caused by wildlife animals

Severity Description

When a P2301 is stored, the cause should be diagnosed as soon as possible. Symptoms which likely accompany these codes will usually demand immediate attention.

Reference Sources

[Diagnostic Trouble Code \(DTC\) Charts and Descriptions for P2301](#) - Page 147.