

P2296: FUEL PRESSURE REGULATOR 2 CONTROL CIRCUIT HIGH

OVERVIEW

Severity	:	High
DIY Difficulty Level	:	Intermediate
Repair Cost	:	\$200-\$300
Can I Still Drive?	:	Yes

What Does The P2296 Code Mean?

In my experience with diagnosing a code P2296, it has meant that the powertrain control module (PCM) has detected a high voltage signal from the control circuit of the electronic fuel pressure regulator designated with a 2. Systems which have multiple electronic fuel pressure regulators use a numerical designation. It may refer to a certain engine bank but not always.

The PCM typically controls the electronic fuel pressure regulator. Battery voltage and ground signals are used to control a servo motor (in the fuel pressure regulator) which positions a valve so that the desired level of fuel pressure may be achieved for any given situation.

In order to adjust fuel pressure regulator voltage, when necessary, the PCM monitors the fuel pressure sensor which is located in the fuel injector rail. When voltage is increased at the electronic fuel pressure regulator servo motor, a valve is opened and fuel pressure is increased. Decreased voltage at the servo causes the valve to close and fuel pressure decreases.

The fuel pressure regulator and fuel pressure sensor are most frequently integrated into a single housing (with one electrical connector) but may be separate components.

If actual fuel pressure regulator control circuit voltage is less than an expected degree, as computed by the PCM, a P2296 will be stored and a malfunction indicator lamp (MIL) may be illuminated.

Related fuel pressure regulator engine codes:

- [P2293](#) Fuel Pressure Regulator 2 Performance
- [P2294](#) Fuel Pressure Regulator 2 Control Circuit
- [P2295](#) Fuel Pressure Regulator 2 Control Circuit Low

What Are The Symptoms Of The P2296 Code?

Symptoms of a P2296 code may include:

- Engine misfire codes and idle control codes may also accompany a P2296
- Diminished fuel efficiency
- Delayed startup when the engine is cool
- Black smoke from the exhaust system

What Are The Potential Causes Of The P2296 Code?

Potential causes for this code to set are:

- Faulty fuel pressure sensor
- Defective fuel pressure regulator
- Shorted or open wiring and/or connectors in the fuel pressure regulator control circuit
- Bad PCM or a PCM programming error

How Can You Fix The P2296 Code?

Diagnosing a code P2296 will require access to a diagnostic scanner, a digital volt/ohmmeter (DVOM), a suitable fuel pressure gauge, and a reliable vehicle information source (such as All Data DIY).

NOTE: Extreme caution must be exercised when using a manual fuel pressure gauge. High pressure fuel contacting hot surfaces or open spark could ignite and cause a fire.

Step 1

A visual inspection of system wiring and connectors, with a focus on harnesses and connectors on top of the engine, has been fruitful for me in the past. It seems that the warm upper engine area is popular with varmints, especially in cold climates. Unfortunately, pests often gnaw system wiring and connectors repeatedly.

Step 2

Next, I would connect the scanner to the vehicle diagnostic port and retrieve stored codes and freeze frame data. Writing this information down may prove helpful if the diagnostic process drags

on. Clear the codes and test-drive the vehicle if the engine will start.

Step 3

Check for the correct degree of voltage and a battery ground at the fuel pressure regulator, if the code is reset. If no voltage is found at the fuel pressure regulator connector, test power supply relays and fuses by following the appropriate wiring diagram from the vehicle information source. If no ground is present, the wiring diagram can help you to find the location of the fuel pressure regulator control system ground/s and make sure they are secure.

Suitable voltage and ground circuits, discovered at the fuel pressure control regulator connector, would prompt me to obtain fuel pressure specifications from the vehicle information source and test fuel system pressure using the fuel pressure gauge. Remember to follow manufacturer's recommendations for using the fuel pressure gauge.

Step 4

Monitor manual fuel pressure with the fuel gauge while using the scanner to observe fuel system data. A defective fuel pressure sensor may be at the root of your problems if the level of fuel pressure reflected on the scanner does not coincide with actual fuel pressure. Variations in fuel pressure regulator control voltage should reflect fluctuations in actual fuel rail pressure. If not, suspect that either the fuel pressure regulator is defective, there is an open or shorted circuit in one of the fuel pressure regulator control circuits, or that the PCM is bad.

Step 5

In order to test the electronic fuel pressure regulator and the individual fuel pressure regulator control circuits, use the DVOM and follow manufacturer's recommendations. Disconnect controllers from the circuit before testing circuit resistance and continuity with the DVOM.

Additional diagnostic notes:

- Fuel rail and related components are under high pressure. Use caution when removing the fuel pressure sensor or fuel pressure regulator
- Fuel pressure testing should be done with the ignition switch in the key on engine off (KOEO) position

Severity Description

Since excessive fuel pressure may cause internal engine and catalytic converter damage and lead to various drivability issues, a code P2296 should be categorized as severe.

Reference Sources

[P2296 Fuel Pressure Regulator 2 Control Circuit High](#), OBD-Codes.