

GENERIC · POWERTRAIN

P0004

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0004

Fuel Volume Regulator Control Circuit High

P0004 indicates that the powertrain control module (PCM) has detected an abnormally high voltage on the fuel volume regulator control circuit, which typically points to an open circuit, a short to voltage, or a failed regulator solenoid. The PCM commands a duty cycle to the fuel volume regulator to manage fuel pressure, and when the feedback voltage exceeds the expected range, it sets this code and may default to a fixed pressure strategy.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or stumbling during acceleration due to incorrect fuel pressure
- Reduced engine power or limp mode as the PCM limits fuel delivery
- Hard starting or extended cranking, especially when cold
- Poor fuel economy or black smoke from the exhaust if the regulator sticks open
- Intermittent stalling or hesitation under load

Common causes, most likely first

- 1 Open circuit or high resistance in the fuel volume regulator control wire, such as a broken wire or corroded connector
- 2 Short to voltage on the control circuit, often from chafed wiring rubbing against a metal surface
- 3 Failed fuel volume regulator solenoid, where the internal coil opens or shorts
- 4 Faulty powertrain control module (PCM) driver circuit, though this is less common
- 5 Poor electrical connection at the regulator or PCM harness, including loose pins or water intrusion
- 6 Aftermarket electrical accessories improperly tapped into the circuit causing voltage interference



How to diagnose and fix it

- 1 Perform a visual inspection of the fuel volume regulator connector and wiring for damage, corrosion, or loose pins
- 2 Use a scan tool to command the regulator and observe the control circuit voltage and duty cycle for abnormalities
- 3 Disconnect the regulator and measure resistance across its terminals; compare to manufacturer specifications
- 4 Check for continuity and short to voltage on the control wire between the regulator and PCM using a multimeter
- 5 Inspect the PCM connector for corrosion or backed-out pins and repair as needed
- 6 If the circuit tests good, substitute a known-good regulator and clear the code to see if it returns
- 7 Verify repair by clearing codes, performing a road test, and confirming the monitor runs without resetting the code

Don't overlook the wiring harness

- A common misdiagnosis is replacing the fuel volume regulator when the real fault is a chafed wire hidden inside a loom, so always perform a thorough circuit test before condemning the part.
- This code can be set by a weak battery or charging system issue that causes voltage spikes, so check the vehicle's electrical baseline before diving into the regulator circuit.
- On some vehicles, the fuel volume regulator is integrated into the high-pressure fuel pump, and a failing pump can mimic a circuit fault, so review service information for the specific architecture.
- Intermittent P0004 codes often occur only when the engine is hot or after hitting a bump, indicating a heat-related or vibration-induced wiring fault that requires wiggle testing.
- The PCM may default to a fixed fuel pressure strategy when this code is active, masking driveability symptoms but reducing fuel efficiency, so don't assume the vehicle is safe to drive indefinitely.

Can I keep driving with P0004?

You can usually drive the vehicle to a repair shop, but avoid heavy acceleration, towing, or long trips because the PCM may limit fuel pressure and cause poor performance or stalling. If the engine runs rough or enters limp mode, have it towed to prevent safety risks.

Tools that help

- OBD-II scan tool with live data and bidirectional control
- Digital multimeter with voltage and resistance measurement
- Wiring diagram and service information for the specific vehicle
- Basic hand tools for connector and harness inspection
- Test light or jumper wires for circuit testing



Reading P0004

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 0** Fuel and air metering and auxiliary emission controls.
- 04** The exact fault within that area.

Often seen with

P0001 Fuel Volume Regulator Control Circuit/Open · **P0002** Fuel Volume Regulator Control Circuit Range/Performance · **P0003** Fuel Volume Regulator Control Circuit Low · **P0087** Fuel Rail/System Pressure - Too Low · **P0088** Fuel Rail/System Pressure - Too High

See it working

Watch the animated explainer [How a Jet Engine Works: Two-Spool Turbofan](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0004/>

