

GENERIC · POWERTRAIN

P0002

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0002

Fuel Volume Regulator Control Circuit Range/Performance

P0002 indicates that the powertrain control module (PCM) has detected an out-of-range or performance fault in the fuel volume regulator control circuit, which typically controls a solenoid on the high-pressure fuel pump to manage fuel delivery. The PCM compares the commanded regulator position or current against expected values and sets the code when the actual circuit response falls outside the calibrated window for a specified time.

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 intermittent stalling, especially when the engine is cold
- Reduced engine power or limp mode under acceleration
- Poor fuel economy or a rich/lean fuel smell from the exhaust
- Hard starting or extended cranking before the engine fires
- Hesitation or surging during light-throttle cruising

Common causes, most likely first

- 1 Faulty fuel volume regulator solenoid or its internal coil
- 2 Damaged, chafed, or corroded wiring in the regulator control circuit
- 3 Loose or corroded electrical connector at the regulator or PCM
- 4 High-pressure fuel pump mechanical wear causing abnormal regulator response
- 5 Restricted fuel filter or low fuel pressure affecting regulator performance
- 6 PCM software calibration issue or internal driver fault (less common)



How to diagnose and fix it

- 1 Connect a scan tool and record freeze-frame data and live fuel pressure parameters to confirm the fault conditions
- 2 Inspect the fuel volume regulator connector and wiring for damage, corrosion, or loose pins, and repair as needed
- 3 Measure the resistance of the regulator solenoid and compare it to the manufacturer's specification
- 4 Check fuel pressure and volume at the rail or high-pressure pump outlet to rule out a supply-side restriction
- 5 Perform a voltage drop test on the control circuit while commanding the regulator with the scan tool
- 6 If electrical and fuel supply checks pass, replace the fuel volume regulator or high-pressure pump assembly as directed by service information
- 7 Clear the code and verify the repair with a road test under the original fault conditions

What the fuel volume regulator code hides

- A weak or failing high-pressure fuel pump can set P0002 without any visible wiring damage, because the regulator cannot achieve the commanded position against worn pump internals.
- Many technicians replace the regulator only to find the real problem is a restricted fuel filter or a failing in-tank lift pump that starves the high-pressure side.
- Intermittent connector fretting at the regulator is a common cause that does not show up during a simple resistance check and requires a wiggle test with live data.
- P0002 can be set by a PCM calibration that is overly sensitive to minor regulator response deviations, so check for applicable software updates before parts replacement.
- A dirty or contaminated fuel system can cause the regulator spool valve to stick, mimicking an electrical fault and leading to unnecessary circuit repairs.

Can I keep driving with P0002?

The vehicle is usually safe to drive short distances to a repair shop, but avoid heavy acceleration, towing, or sustained high-speed driving because a fuel delivery fault can cause stalling or leave you stranded. If the engine enters limp mode or stalls repeatedly, stop driving and arrange a tow.

Tools that help

- OBD-II scan tool with live data and bidirectional control
- Digital multimeter with min/max and duty-cycle functions
- Fuel pressure gauge set for high-pressure systems
- Wiring diagram and service information for the specific vehicle
- Basic hand tools and terminal pick set



Reading P0002

- 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.
- 02** The exact fault within that area.

Often seen with

P0001 Fuel Volume Regulator Control Circuit/Open · **P0003** Fuel Volume Regulator Control Circuit Low · **P0087** Fuel Rail/System Pressure - Too Low · **P0088** Fuel Rail/System Pressure - Too High · **P0090** Fuel Pressure Regulator 1 Control Circuit

See it working

Watch the animated explainer [How Coil-on-Plug Ignition Works: Coil and Spark Plug](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0002/>

