

GENERIC · POWERTRAIN

P0001

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0001

Fuel Volume Regulator Control Circuit/Open

P0001 indicates that the powertrain control module (PCM) has detected an open circuit or excessive resistance in the control circuit for the fuel volume regulator, a solenoid that meters fuel delivery on high-pressure fuel systems. The PCM commands a specific current to the regulator and monitors the circuit for continuity, so this code means the electrical path is broken or out of specification rather than a confirmed mechanical failure of the regulator itself.

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
- Extended cranking before the engine starts or a no-start condition
- Rough idle, hesitation, or stumbling during acceleration
- Reduced engine power and poor fuel economy
- Possible stalling when coming to a stop or during deceleration

Common causes, most likely first

- 1 Broken, chafed, or corroded wiring in the fuel volume regulator control circuit
- 2 Loose or contaminated electrical connector at the regulator solenoid
- 3 Failed fuel volume regulator solenoid with an open internal coil
- 4 Blown fuse or faulty relay supplying power to the regulator circuit
- 5 Corroded or damaged pins at the PCM connector
- 6 Internal PCM driver failure, though this is less common



How to diagnose and fix it

- 1 Use an OBD-II scanner to confirm P0001 and check for related fuel system codes
- 2 Inspect the fuel volume regulator connector and wiring for damage, corrosion, or looseness
- 3 Measure the resistance of the regulator solenoid with a multimeter and compare to specification
- 4 Check for battery voltage and ground at the regulator connector with the key on
- 5 Perform a voltage drop test on the control circuit to locate excessive resistance
- 6 If the circuit tests good, substitute a known-good regulator or test the PCM driver with a noid light
- 7 Clear codes and verify the repair with a test drive and live data review

Don't condemn the regulator before checking the harness

- A loose or corroded connector at the fuel volume regulator is a frequent cause of P0001 that is often overlooked during diagnosis.
- The code can be set by a blown fuse or a faulty relay that powers the regulator circuit, so always check those before replacing the solenoid.
- A failed fuel volume regulator can sometimes cause no drivability symptoms at all, leading owners to ignore the warning until a no-start occurs.
- On some vehicles, the fuel volume regulator is part of the high-pressure fuel pump assembly, making replacement more involved than a stand-alone solenoid.
- P0001 can be misdiagnosed as a fuel pump failure when the actual problem is a broken wire in the control circuit.

Can I keep driving with P0001?

It is generally safe to drive short distances to a repair shop, but avoid heavy acceleration, towing, or long trips because the engine may enter limp mode or stall without warning. If the engine is hard to start or stalls frequently, stop driving and have the vehicle towed.

Tools that help

- OBD-II scanner with live data capability
- Digital multimeter
- Test light or noid light
- Wire repair kit with crimpers and heat shrink
- Electrical contact cleaner



Reading P0001

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

Often seen with

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 · **P0090** Fuel Pressure Regulator 1 Control Circuit

See it working

Watch the animated explainer [How Crank and Cam Position Sensors Work](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0001/>

