

GENERIC · POWERTRAIN

P0090

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0090

Fuel Pressure Regulator 1 Control Circuit

P0090 indicates that the powertrain control module (PCM) has detected an open, short, or out-of-range condition in the electrical circuit that controls the fuel pressure regulator, which is responsible for adjusting fuel pressure to the injectors. The PCM monitors the control circuit for expected voltage or current feedback and sets this code when the signal does not match the commanded value.

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
- Difficulty starting, especially when the engine is cold or hot
- Reduced engine power or limp mode in some vehicles
- Poor fuel economy or rich/lean running conditions
- In rare cases, a no-start condition if the regulator defaults to a closed position

Common causes, most likely first

- 1 Faulty fuel pressure regulator control solenoid or its internal coil
- 2 Damaged or corroded wiring harness or connector at the regulator
- 3 Open or shorted circuit in the control wire between the PCM and regulator
- 4 Failed PCM driver for the fuel pressure regulator circuit (less common)
- 5 Poor electrical ground connection for the regulator circuit
- 6 Aftermarket or incorrect regulator installed that does not match OEM specifications



How to diagnose and fix it

- 1 Use a scan tool to command fuel pressure up and down while watching live data to confirm the regulator responds
- 2 Visually inspect the regulator connector and wiring for corrosion, chafing, or loose pins
- 3 Measure resistance of the regulator solenoid and compare to manufacturer specifications
- 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 rule out high resistance
- 6 If wiring and solenoid test good, test the PCM output with a oscilloscope or substitute a known-good PCM
- 7 Replace the faulty fuel pressure regulator or repair the wiring as needed, then clear codes and verify

Don't Replace the Regulator Before These Checks

- A loose or corroded ground for the fuel pressure regulator circuit can mimic a failed regulator and set P0090, so always verify ground integrity before condemning parts.
- Some vehicles use a fuel pressure control module that is separate from the regulator; a fault in that module can set P0090 even though the regulator itself is fine.
- P0090 can be set by a momentary glitch in the circuit, so check for stored freeze-frame data and review the repair history before replacing components.
- On certain engines, a mechanical fuel pressure regulator is vacuum-operated and has no electrical control circuit, so P0090 will not apply; confirm the system type first.
- A failing fuel pump or restricted fuel filter can cause the regulator to work outside its expected range and indirectly set P0090, so always check actual fuel pressure.

Can I keep driving with P0090?

You can usually drive the vehicle with P0090 set, but expect reduced performance and possible stalling; avoid heavy acceleration or towing until the fault is repaired, and if the engine runs poorly or stalls, stop driving and seek professional diagnosis.

Tools that help

- OBD-II scan tool with live data and bidirectional control
- Digital multimeter
- Fuel pressure gauge
- Oscilloscope (optional for waveform analysis)
- Basic hand tools and wiring repair kit



Reading P0090

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

Often seen with

P0087 Fuel Rail/System Pressure - Too Low · **P0088** Fuel Rail/System Pressure - Too High · **P0091** Fuel Pressure Regulator 1 Control Circuit Low · **P0092** Fuel Pressure Regulator 1 Control Circuit High · **P0190** Fuel Rail Pressure Sensor Circuit Malfunction

See it working

Watch the animated explainer [Turbocharger Trainer: Boost, Wastegate and Intercooler](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0090/>

