

GENERIC · POWERTRAIN

P0191

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0191

Fuel Rail Pressure Sensor Circuit Range/Performance

P0191 means the powertrain control module (PCM) has detected that the fuel rail pressure sensor signal is outside the expected range for the current operating conditions, or that it is not responding quickly or accurately enough to changes in fuel pressure. The PCM compares the sensor's voltage to a predicted value based on engine speed, load, and fuel pump commands, and it sets this code when the two disagree beyond a calibrated threshold.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Intermittent or sustained rough idle, especially when the engine is cold or under load
- Hesitation, stumble, or a brief loss of power during acceleration
- Reduced fuel economy or a rich/lean exhaust smell
- Hard starting or extended crank time, particularly after the vehicle has sat
- In rare cases, the engine may enter limp mode or stall when coming to a stop

Common causes, most likely first

- 1 Faulty fuel rail pressure sensor or a sensor that is skewed or slow to respond
- 2 Wiring damage (chafed, corroded, or loose pins) in the sensor circuit, including the reference voltage or ground
- 3 Contaminated or restricted fuel filter, or a weak fuel pump that cannot maintain commanded pressure
- 4 Leaking or sticking fuel injector causing actual rail pressure to deviate from the commanded value
- 5 A failing fuel pressure regulator or a mechanical issue in the high-pressure fuel pump (on direct-injection engines)
- 6 PCM software calibration issue or a rare internal PCM driver fault
- 7 Low fuel level or air in the fuel system after recent service, causing temporary pressure fluctuations



How to diagnose and fix it

- 1 Connect a scan tool and record freeze-frame data and live fuel rail pressure sensor voltage to see when the code sets
- 2 Visually inspect the sensor connector and the wiring harness for corrosion, chafing, or loose pins, and perform a wiggle test while watching live data
- 3 Check fuel pressure with a mechanical gauge at the rail and compare it to the sensor's reading to verify sensor accuracy
- 4 Test the sensor's reference voltage and ground circuits with a multimeter to rule out wiring faults before replacing the sensor
- 5 Replace the fuel filter and verify that the fuel pump delivers the specified volume and pressure under load
- 6 If pressure is correct but the sensor signal is erratic, replace the fuel rail pressure sensor and clear the code
- 7 After repairs, clear codes and perform a road test with live data monitoring to confirm the sensor tracks commanded pressure smoothly

Why the sensor is often not the culprit

- A skewed or lazy fuel rail pressure sensor is a common cause, but a restricted fuel filter or a weak pump can produce the same out-of-range signal and fool a parts-swapping diagnosis.
- On direct-injection engines, the high-pressure fuel pump is mechanically driven and can wear internally, causing pressure deviations that set P0191 without any sensor fault at all.
- Intermittent wiring faults at the sensor connector often set P0191 only on rough roads or after engine vibration, so a static meter test can pass while the code still returns.
- A leaking injector can drop rail pressure faster than the pump can compensate, and the PCM may interpret the resulting sensor signal as a range or performance fault.
- Some vehicles require a fuel pressure sensor relearn or PCM calibration update after sensor replacement, and skipping that step can cause the code to reset immediately.

Can I keep driving with P0191?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy acceleration, towing, or long trips because a failing fuel pressure sensor or pump can cause stalling or leave you stranded. If the engine runs rough, stalls, or enters limp mode, stop driving and arrange a tow.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter for circuit and sensor testing
- Fuel pressure test gauge kit
- Basic hand tools (socket set, screwdrivers, trim removal tools)
- Wiring diagram or service information for the specific vehicle



Reading P0191

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

Often seen with

P0087 Fuel Rail/System Pressure - Too Low · **P0088** Fuel Rail/System Pressure - Too High · **P0190** Fuel Rail Pressure Sensor Circuit Malfunction · **P0192** Fuel Rail Pressure Sensor Circuit Low Input · **P0193** Fuel Rail Pressure Sensor Circuit High Input

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/p0191/>

