

GENERIC · POWERTRAIN

P0087

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0087

Fuel Rail/System Pressure - Too Low

P0087 means the engine computer commanded a certain fuel pressure in the high-pressure rail, and the pressure sensor reported a value below the expected threshold for the current operating conditions. The engine is not getting the fuel pressure it needs, which can cause lean running, misfires, or a no-start depending on how far the pressure has fallen.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

High

FIX DIFFICULTY

Professional

AREA

Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Often no symptoms besides the warning light, especially if the pressure drop is brief or only occurs under light load
- Extended cranking or a no-start condition when rail pressure cannot build during startup
- Loss of power, hesitation, or stumbling under acceleration as the engine runs lean
- Rough idle, misfires, or shaking that worsens when fuel demand increases
- Reduced fuel economy or a strong raw-fuel smell if the engine is being over-fuelled to compensate
- Limp mode or reduced engine power if the computer limits torque to protect the fuel system

Common causes, most likely first

- 1 A weak or failing high-pressure fuel pump that cannot build or hold rail pressure
- 2 A restricted fuel filter or clogged in-tank pickup screen starving the high-pressure pump
- 3 A leaking or stuck-open fuel pressure regulator or rail pressure control valve bleeding pressure away
- 4 A faulty fuel rail pressure sensor sending a low reading even when actual pressure is correct
- 5 Low fuel level or a failing low-pressure in-tank pump that cannot supply the high-pressure pump adequately
- 6 Air being drawn into the fuel system through a cracked line, loose fitting, or damaged seal
- 7 Wiring or connector problems at the rail pressure sensor or pressure control valve causing a false low signal



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to see the engine speed, load, and commanded versus actual rail pressure when the code set
- 2 Check fuel level and inspect the low-pressure fuel supply, including filter restriction and in-tank pump delivery, before condemning high-pressure components
- 3 Compare commanded rail pressure to actual rail pressure with a scan tool during cranking and under load to confirm the fault is real
- 4 Inspect the rail pressure sensor and control valve connectors and wiring for corrosion, chafing, or loose pins
- 5 Perform a fuel pressure leak-down test on the high-pressure side to check for internal leakage at the pump, regulator, or injectors
- 6 Test the high-pressure fuel pump output and the pressure control valve operation according to the manufacturer's procedure
- 7 Replace the confirmed faulty component and clear the code, then verify rail pressure tracks the commanded value through a road test

What a low rail pressure code really tells you

- A P0087 can be set by a failing low-pressure in-tank pump or a clogged filter just as easily as by the high-pressure pump, so always verify supply pressure first
- A rail pressure sensor that reads low when pressure is actually correct will set this code and send the computer chasing a fuel delivery problem that does not exist
- Air ingress on the suction side of the high-pressure pump can cause low rail pressure without any visible external fuel leak
- On many common-rail diesel engines this code appears alongside misfire or fuel volume codes, and the root cause is often a worn pressure control valve rather than the pump itself
- Clearing the code without checking freeze-frame data often leads to a comeback because the fault may only occur under a specific load or temperature condition

Can I keep driving with P0087?

Low fuel rail pressure can cause lean running, misfires, and a sudden loss of power, so avoid hard acceleration and heavy loads until it is diagnosed. If the engine cranks but will not start or repeatedly stalls, stop driving and have it towed to prevent damage.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Fuel pressure gauge set for low-pressure and high-pressure testing
- Digital multimeter for sensor and wiring checks
- Manufacturer service information for pressure specifications and test procedures
- Basic hand tools and fuel line disconnect tools



Reading P0087

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

Often seen with

P0088 Fuel Rail/System Pressure - Too High · **P0090** Fuel Pressure Regulator 1 Control Circuit · **P0191** Fuel Rail Pressure Sensor Circuit Range/Performance · **P0192** Fuel Rail Pressure Sensor Circuit Low Input · **P0300** Random/Multiple Cylinder Misfire Detected

See it working

Watch the animated explainer [How a Supercharger Works: Roots Blower in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0087/>

