

GENERIC · POWERTRAIN

P0290

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0290

Cylinder 10 Contribution/Balance

P0290 is a generic OBD-II code that indicates the engine computer has detected a problem with cylinder 10's contribution to engine power, meaning that cylinder is not producing its fair share of torque compared to the others. The powertrain control module (PCM) monitors crankshaft speed fluctuations and flags this code when cylinder 10's balance value falls outside the acceptable range.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering (injector circuits)

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- A noticeable misfire or rough running condition, especially under load or at idle
- Reduced engine power and poor acceleration
- Shaking or vibration felt through the steering wheel or seat
- Poor fuel economy due to incomplete combustion in cylinder 10
- In some cases, the engine may enter limp mode to protect the catalytic converter

Common causes, most likely first

- 1 Faulty ignition coil or spark plug specific to cylinder 10
- 2 Clogged or malfunctioning fuel injector for cylinder 10
- 3 Vacuum leak affecting the intake runner for cylinder 10
- 4 Low compression in cylinder 10 due to worn rings, valves, or head gasket
- 5 Wiring or connector issue at the cylinder 10 injector or coil
- 6 Mechanical valvetrain problem such as a collapsed lifter or worn cam lobe
- 7 Engine control module (ECM) software calibration issue or internal fault



How to diagnose and fix it

- 1 Perform a visual inspection of the cylinder 10 ignition coil, spark plug, and injector connectors for damage or corrosion
- 2 Swap the ignition coil and spark plug from cylinder 10 with a known-good cylinder to see if the misfire moves
- 3 Use a scan tool to check for pending or stored misfire codes and review freeze-frame data
- 4 Run a compression test and a cylinder leak-down test on cylinder 10 to rule out mechanical issues
- 5 Test the fuel injector for cylinder 10 with a noid light or injector balance test
- 6 Check for vacuum leaks at the intake manifold gasket and runner for cylinder 10
- 7 If all else fails, reprogram the ECM or replace it if a software or hardware fault is confirmed

Cylinder 10 balance faults often misdiagnosed

- A P0290 code can be set by a faulty crankshaft position sensor or reluctor wheel, causing the PCM to misinterpret cylinder contribution even when the engine is mechanically sound.
- Many technicians replace the ignition coil and spark plug first, but a leaking intake manifold gasket at cylinder 10 can cause a lean misfire that mimics an ignition fault.
- On engines with active fuel management or cylinder deactivation, a stuck lifter or collapsed solenoid for cylinder 10 can set this code without any ignition or fuel system issue.
- The code does not always mean the cylinder is dead; a partially clogged injector or a weak coil can cause a subtle imbalance that only shows up under specific load conditions.
- Always check for technical service bulletins (TSBs) for the specific vehicle, as some manufacturers have known issues with cylinder 10 misfire due to software calibration.

Can I keep driving with P0290?

It is generally safe to drive short distances to a repair shop, but avoid heavy acceleration or towing, as continued driving with a misfire can damage the catalytic converter and worsen engine performance.

Tools that help

- OBD-II scan tool with live data and misfire counters
- Compression tester
- Spark tester
- Noid light or injector balance tester
- Vacuum gauge
- Digital multimeter



Reading P0290

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

Often seen with

P0300 Random/Multiple Cylinder Misfire Detected · **P0301** Cylinder 1 Misfire Detected · **P0302** Cylinder 2 Misfire Detected · **P0303** Cylinder 3 Misfire Detected · **P0304** Cylinder 4 Misfire Detected

See it working

Watch the animated explainer [How a MAP Sensor Works: Engine Vacuum and Load](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0290/>

