

GENERIC · POWERTRAIN

P0287

OBD-II TROUBLE CODE

P0287

Cylinder 9 Contribution/Balance

P0287 indicates that the powertrain control module (PCM) has detected an abnormal contribution from cylinder 9 to engine power output, meaning that cylinder is not producing its fair share of torque compared to the others. The PCM typically measures this by monitoring crankshaft speed fluctuations and comparing the acceleration each cylinder produces during its power stroke.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Fuel and air metering (injector circuits)

Symptoms you may notice

- Often no symptoms besides the warning light, especially at light throttle or steady cruising
- Noticeable engine misfire or rough running, particularly under load or during acceleration
- Shaking or vibration felt through the steering wheel or seat, consistent with a misfire
- Reduced engine power and sluggish acceleration
- Poor fuel economy as the PCM adds fuel to compensate for the weak cylinder
- Illumination of the check engine light, possibly flashing if the misfire is severe enough to damage the catalytic converter

Common causes, most likely first

- Faulty ignition coil or spark plug on cylinder 9
- Worn or contaminated fuel injector for cylinder 9, causing an incorrect fuel spray pattern
- Vacuum leak at the intake manifold runner or gasket serving cylinder 9
- Low compression on cylinder 9 due to worn rings, valve sealing issues, or a head gasket problem
- Mechanical valvetrain fault such as a collapsed lifter or worn camshaft lobe affecting cylinder 9
- Wiring or connector damage in the ignition coil or injector circuit for cylinder 9
- Engine mechanical issue like a broken piston ring land or damaged valve seat on cylinder 9



How to diagnose and fix it

- 1 Scan all stored codes and freeze-frame data to confirm P0287 is active and not a history code from a previous repair
- 2 Perform a visual inspection of the ignition coil, spark plug, and injector connectors for cylinder 9, looking for corrosion or damage
- 3 Swap the ignition coil and spark plug from cylinder 9 with a known-good cylinder and see if the misfire follows the component
- 4 Run a cylinder contribution or power balance test with a scan tool to verify which cylinder is weak and measure the degree of imbalance
- 5 Check fuel injector operation with a noid light or injector balance test, and inspect the injector for clogging or electrical faults
- 6 Perform a compression test and, if low, a cylinder leak-down test on cylinder 9 to rule out mechanical problems
- 7 Repair or replace the faulty component identified by the tests, clear the codes, and verify the repair with a road test and live data

Cylinder 9 misfires that fool technicians

- A P0287 can be set by a marginal ignition coil that only breaks down under load or high temperature, so a cold static test may show nothing wrong.
- Fuel injector imbalance on one cylinder often does not trigger a misfire code until the injector is severely restricted, so a contribution test is more reliable than a simple resistance check.
- A vacuum leak at the intake manifold gasket can affect only one cylinder on engines with individual runners, mimicking a faulty injector or ignition coil.
- The PCM may set P0287 without ever illuminating the check engine light if the imbalance is mild, so a scan tool is needed to catch it during routine diagnostics.
- On engines with cylinder deactivation, a stuck or failed lifter can cause a contribution code for the affected cylinder even though the ignition and fuel systems are perfect.

Can I keep driving with P0287?

You can usually drive the vehicle to a repair shop if the check engine light is steady and the engine runs smoothly, but avoid heavy acceleration or towing. If the light is flashing or the engine shakes badly, stop driving and have it towed to prevent catalytic converter damage.



Tools that help

- OBD-II scan tool with live data and cylinder contribution or power balance capability
- Compression gauge and cylinder leak-down tester
- Noid light or fuel injector balance tester
- Digital multimeter for circuit and coil testing
- Basic hand tools including spark plug socket and extensions
- Vacuum gauge for intake leak diagnosis

Reading P0287

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).
87	The exact fault within that area.

Often seen with

P0171 System Too Lean (Bank 1) · **P0286** Cylinder 9 Injector Circuit High · **P0288** Cylinder 10 Injector Circuit Low · **P0300** Random/Multiple Cylinder Misfire Detected · **P0309** Cylinder 9 Misfire Detected

See it working

Watch the animated explainer [Car Won't Start? Step-by-Step No-Start Diagnosis](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0287/>

