

GENERIC · POWERTRAIN

P0296

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0296

Cylinder 12 Contribution/Balance

P0296 is a generic OBD-II code indicating that cylinder number 12 is not contributing its fair share of power compared to the other cylinders, as detected by the engine control module (ECM) monitoring crankshaft speed variations. The ECM sets this code when the misfire or imbalance for cylinder 12 exceeds a calibrated threshold, which can be caused by ignition, fuel, compression, or mechanical faults specific to that cylinder.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

High

FIX DIFFICULTY

Professional

AREA

Fuel and air metering (injector circuits)

Symptoms you may notice

- Illuminated check engine light, often steady but may flash if the misfire is severe
- Noticeable engine vibration or shaking, especially at idle or under light load
- Rough running or hesitation during acceleration
- Reduced power and poor fuel economy
- Often no symptoms besides the warning light, particularly if the imbalance is mild
- Possible flashing check engine light accompanied by a strong raw fuel smell from the exhaust

Common causes, most likely first

- 1 Faulty ignition coil, spark plug, or spark plug wire dedicated to cylinder 12
- 2 Clogged or failing fuel injector for cylinder 12, causing lean or rich imbalance
- 3 Low compression in cylinder 12 due to worn rings, valve issues, or head gasket leak
- 4 Vacuum leak affecting the intake runner for cylinder 12
- 5 Mechanical valvetrain fault such as a collapsed lifter or worn cam lobe on cylinder 12
- 6 Wiring or connector damage to the cylinder 12 injector or coil circuit
- 7 Engine control module (ECM) software or internal fault misreporting the imbalance



How to diagnose and fix it

- 1 Perform a visual inspection of the cylinder 12 ignition components and wiring for damage or corrosion
- 2 Swap the ignition coil and spark plug from cylinder 12 with a known-good cylinder to see if the misfire moves
- 3 Use a scan tool to check misfire counters and fuel trim data for cylinder 12 under various operating conditions
- 4 Run a compression test and, if low, a cylinder leak-down test on cylinder 12 to assess mechanical health
- 5 Test the fuel injector for cylinder 12 with a noid light or injector balance test, and check for clogging
- 6 Inspect intake manifold gaskets and vacuum lines near cylinder 12 for leaks using a smoke machine
- 7 If all external components test good, perform a relative compression test or cranking compression test to confirm internal engine condition

Cylinder 12 imbalance is not always a misfire

- A P0296 can be set by a subtle fuel injector imbalance that does not trigger a traditional misfire code, so injector flow testing is often more revealing than ignition checks.
- On engines with active fuel management or cylinder deactivation, a stuck lifter or solenoid can cause cylinder 12 to drop out without any ignition or fuel fault.
- Technicians sometimes replace all coils and plugs only to find a vacuum leak at the intake runner for cylinder 12, so smoke testing is a cheap and decisive step.
- The ECM may misreport cylinder 12 if the crankshaft position sensor signal is erratic, so check for cam/crank correlation codes before condemning engine internals.
- A flashing check engine light with P0296 means the misfire is severe enough to damage the catalytic converter, so driving should be limited until repaired.

Can I keep driving with P0296?

If the check engine light is flashing, stop driving and have the vehicle towed to avoid catalytic converter damage and safety risk. If the light is steady and the engine runs smoothly, you may drive cautiously to a repair shop, but avoid heavy acceleration or towing.

Tools that help

- OBD-II scan tool with live misfire and fuel trim data
- Compression gauge and cylinder leak-down tester
- Noid light or injector balance tester
- Smoke machine for vacuum leak detection
- Digital multimeter for circuit testing
- Mechanic's stethoscope for locating mechanical noises



Reading P0296

- 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).
- 96** 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 Rotary Engine Works: Wankel in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0296/>

