

GENERIC · POWERTRAIN

P0281

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0281

Cylinder 7 Contribution/Balance

P0281 indicates that the engine computer has detected a problem with cylinder 7's contribution to engine power, meaning that cylinder is not producing its fair share of torque compared to the others. The powertrain control module monitors crankshaft speed fluctuations and flags this code when cylinder 7'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

- Often no symptoms besides the warning light, especially during light-throttle cruising
- A noticeable engine misfire or shaking that may be more pronounced at idle or under load
- Rough running or hesitation during acceleration
- Reduced fuel economy and power output
- A flashing check engine light in severe cases, indicating a misfire that could damage the catalytic converter
- Possible vibration felt through the steering wheel or seat

Common causes, most likely first

- 1 Worn or fouled spark plug in cylinder 7
- 2 Faulty ignition coil or spark plug wire for cylinder 7
- 3 Leaking or clogged fuel injector on cylinder 7
- 4 Vacuum leak affecting cylinder 7's intake path
- 5 Low compression due to worn piston rings, valves, or head gasket issues
- 6 Mechanical valvetrain problem such as a collapsed lifter or worn cam lobe
- 7 Wiring or connector issue to the cylinder 7 injector or coil

How to diagnose and fix it

- 1 Perform a visual inspection of the cylinder 7 ignition components and wiring for damage or corrosion
- 2 Swap the ignition coil from cylinder 7 with a known-good cylinder and see if the misfire moves
- 3 Inspect and replace the spark plug in cylinder 7, checking for wear or fouling
- 4 Test the fuel injector for cylinder 7 for proper resistance and pulse signal
- 5 Run a compression test and a cylinder leak-down test to check for mechanical issues
- 6 Check for vacuum leaks using a smoke machine or carburetor cleaner around the intake manifold
- 7 If the misfire persists, perform a crankshaft position variation relearn or inspect the reluctor wheel



Cylinder 7 Contribution Code Traps

- A P0281 can be set by a faulty crankshaft position sensor or a damaged reluctor wheel even when cylinder 7 is mechanically sound, so always verify the signal before replacing parts.
- The code often appears after a recent repair that disturbed the ignition or fuel system, such as a spark plug change or intake manifold work, so check for loose connectors or pinched wires.
- On engines with active fuel management or cylinder deactivation, a P0281 may be triggered by a stuck lifter or solenoid rather than a traditional ignition or fuel issue.
- A dirty mass airflow sensor or a failing upstream oxygen sensor can skew fuel trims and cause a single-cylinder contribution code, so check fuel trims before condemning cylinder 7.
- Do not overlook a weak battery or poor ground connection, as low voltage can cause erratic injector or coil operation that mimics a cylinder 7 fault.

Can I keep driving with P0281?

It is generally safe to drive with P0281 if the check engine light is steady and the engine runs smoothly, but avoid heavy acceleration or towing until the fault is repaired. If the light flashes or the engine shakes violently, stop driving to prevent catalytic converter damage.

Tools that help

- OBD-II scan tool with live data and misfire counters
- Spark plug socket and wrench
- Ignition coil tester or multimeter
- Compression gauge
- Fuel injector tester or noid light
- Vacuum gauge or smoke machine

Reading P0281

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).
81	The exact fault within that area.

Often seen with

P0171 System Too Lean (Bank 1) · **P0174** System Too Lean (Bank 2) · **P0207** Injector Circuit/Open - Cylinder 7 · **P0307** Cylinder 7 Misfire Detected · **P0357** Ignition Coil 'G' Primary/Secondary Circuit



See it working

Watch the animated explainer [How the PCV System Works: Crankcase Ventilation](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0281/>

