

GENERIC · POWERTRAIN

P0307

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0307

Cylinder 7 Misfire Detected

P0307 means the engine computer has detected a misfire on cylinder number 7, typically by monitoring crankshaft speed fluctuations that occur when that cylinder fails to produce its share of power. The computer sets this code when the misfire count exceeds a threshold that can damage the catalytic converter, and it may flash the check engine light if the misfire is severe.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	High	Intermediate	Ignition system and misfire

Symptoms you may notice

- The check engine light is illuminated, and it may flash if the misfire is severe enough to threaten the catalytic converter.
- The engine runs rough, shakes, or vibrates noticeably, especially at idle or during acceleration.
- A noticeable loss of power and sluggish acceleration because one cylinder is not contributing.
- Poor fuel economy as the computer adds fuel trying to compensate for the misfire.
- A strong raw fuel smell from the exhaust if unburned fuel is passing through the engine.
- Often no symptoms besides the warning light when the misfire is intermittent or only occurs under specific conditions.

Common causes, most likely first

- A worn or fouled spark plug on cylinder 7, which is the most common cause of a single-cylinder misfire.
- A failed ignition coil or spark plug wire/boot dedicated to cylinder 7.
- A clogged or leaking fuel injector on cylinder 7, causing an incorrect air-fuel mixture.
- A vacuum leak near cylinder 7, such as a leaking intake manifold gasket or cracked vacuum hose.
- Low engine compression on cylinder 7 due to worn rings, a burned valve, or a faulty head gasket.
- A mechanical valvetrain issue on cylinder 7, such as a collapsed lifter or worn camshaft lobe.
- A wiring fault or poor connection at the cylinder 7 ignition coil or injector connector.



How to diagnose and fix it

- 1 Scan all stored and pending codes, and check for related codes such as P0300 or P0171 that may indicate a broader issue.
- 2 Inspect the spark plug on cylinder 7 for wear, fouling, or incorrect gap, and replace it if suspect.
- 3 Swap the ignition coil on cylinder 7 with a known-good coil from another cylinder to see if the misfire moves.
- 4 Perform a cylinder balance test or use a scan tool to monitor misfire counts per cylinder to confirm the fault is isolated to cylinder 7.
- 5 Check fuel injector operation on cylinder 7 by listening for clicking, testing resistance, or performing an injector balance test.
- 6 Run a compression test and, if low, a leak-down test on cylinder 7 to rule out mechanical problems.
- 7 Inspect the wiring and connectors for the cylinder 7 ignition coil and injector for corrosion, chafing, or loose pins.

What a P0307 misfire really tells you

- A flashing check engine light with P0307 means the misfire is severe enough to dump raw fuel into the catalytic converter, which can melt the substrate within minutes of driving.
- Many technicians replace the ignition coil on cylinder 7 without first swapping it to another cylinder, missing the chance to confirm whether the coil is actually at fault.
- A vacuum leak at the intake manifold near cylinder 7 can cause a lean misfire that mimics a bad injector, so a smoke test is often more revealing than parts swapping.
- Low compression on cylinder 7 from a worn piston ring or valve seat will set a misfire code that no amount of ignition or fuel repair will fix, so a compression test should follow failed ignition checks.
- The misfire counter can be triggered by a loose crankshaft position sensor or a damaged reluctor wheel, so always check for crankshaft sensor codes before condemning engine internals.

Can I keep driving with P0307?

If the check engine light is flashing, stop driving as soon as it is safe because raw fuel can destroy the catalytic converter and cause a fire hazard. If the light is steady, you can drive cautiously to a repair shop, but avoid heavy acceleration and towing until the misfire is fixed.

Tools that help

- OBD-II scan tool with live data and misfire counter capability
- Spark plug socket and ratchet
- Ignition coil puller or socket set
- Compression gauge
- Fuel injector test light or noid light
- Vacuum gauge or smoke machine



Reading P0307

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 3** Ignition system and misfire.
- 07** The exact fault within that area.

Often seen with

P0171 System Too Lean (Bank 1) · **P0174** System Too Lean (Bank 2) · **P0300** Random/Multiple Cylinder Misfire Detected · **P0301** Cylinder 1 Misfire Detected · **P0308** Cylinder 8 Misfire Detected

See it working

Watch the animated explainer [Four-Stroke Engine Cutaway: Intake to Exhaust](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0307/>

