

GENERIC · POWERTRAIN

P0303

OBD-II TROUBLE CODE

P0303

Cylinder 3 Misfire Detected

P0303 means the engine computer has detected a misfire on cylinder 3, which is the third cylinder in the engine's firing order. The powertrain control module monitors crankshaft speed fluctuations and flags this code when cylinder 3 fails to contribute its expected power stroke, often counting misfires over a specific number of engine cycles.

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 may be steady or flashing, with a flashing light indicating a severe misfire that can damage the catalytic converter.
- The engine may idle roughly, shake, or feel like it is stumbling, especially when cold or under light load.
- You may notice a noticeable loss of power or hesitation during acceleration, as the engine is effectively running on one fewer cylinder.
- A strong raw fuel smell from the exhaust may be present because unburned fuel is being pushed through the engine.
- Fuel economy often drops noticeably, and the vehicle may fail an emissions inspection.
- Often no symptoms besides the warning light, particularly during light-load cruising where the misfire may be intermittent.

Common causes, most likely first

- Worn or fouled spark plug on cylinder 3, which is the most common cause and often the easiest to check.
- Failed ignition coil or spark plug wire/boot dedicated to cylinder 3, leading to a weak or no-spark condition.
- Faulty fuel injector for cylinder 3, such as a clogged nozzle, internal short, or wiring issue preventing proper fuel delivery.
- Vacuum leak near cylinder 3's intake runner, such as a cracked intake manifold gasket or deteriorated vacuum hose, causing a lean misfire.
- Low compression on cylinder 3 due to worn piston rings, a burned valve, or a leaking head gasket, which is less common but more serious.
- Mechanical valvetrain fault on cylinder 3, such as a collapsed lifter or worn cam lobe, which disrupts proper air intake and exhaust flow.
- Engine control wiring or connector issue at the cylinder 3 coil or injector, including chafed wires or corroded pins.



How to diagnose and fix it

- 1 Scan all stored and pending codes with an OBD-II scanner to confirm P0303 is the only misfire code and check for related codes like P0300 or fuel trim codes.
- 2 Perform a visual inspection of cylinder 3's ignition components, checking the spark plug, coil, and boot for cracks, carbon tracking, or oil fouling.
- 3 Swap the ignition coil from cylinder 3 with a known-good cylinder and see if the misfire follows the coil, which quickly isolates a bad coil without parts cost.
- 4 Remove and inspect the spark plug from cylinder 3, checking the gap, electrode wear, and insulator color; replace if worn or fouled.
- 5 Test the fuel injector for cylinder 3 by listening for a consistent click with a stethoscope or using a noid light to verify the injector is receiving a pulse.
- 6 Run a compression test and, if low, a cylinder leak-down test on cylinder 3 to rule out mechanical faults before replacing ignition or fuel parts.
- 7 Check for vacuum leaks at the intake manifold near cylinder 3 using a smoke machine or by spraying carb cleaner around gasket surfaces while watching for idle changes.

What a misfire code does not always mean

- A P0303 code does not automatically condemn the spark plug or coil; a vacuum leak at the intake runner for cylinder 3 can lean out that cylinder and set the same code without any ignition fault.
- Technicians often overlook a failing fuel injector because it may still click audibly; a noid light only confirms the electrical pulse, not actual fuel flow, so a flow test or injector swap is sometimes necessary.
- A flashing check engine light with P0303 means the misfire is severe enough to dump raw fuel into the catalytic converter, and continuing to drive can melt the converter substrate in a short time.
- Low compression on cylinder 3 from a mechanical fault can mimic an ignition misfire, so a compression test should be performed before replacing multiple ignition parts in a row.
- Some vehicles set P0303 from a worn spark plug tube seal that allows oil to pool around the plug, causing a misfire that returns shortly after a tune-up if the seal is not replaced.

Can I keep driving with P0303?

If the check engine light is flashing, stop driving as soon as it is safe because a severe misfire can quickly overheat and destroy the catalytic converter. With a steady light and mild symptoms, you can drive cautiously to a repair shop, but avoid heavy acceleration and prolonged driving until the misfire is diagnosed.



Tools that help

- OBD-II scanner with live data and misfire counter capability
- Spark plug socket and ratchet set
- Ignition coil puller or appropriate socket for the coil retaining bolts
- Compression tester
- Noid light or fuel injector pulse tester
- Stethoscope or mechanic's listening tool for injector click testing

Reading P0303

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.
03	The exact fault within that area.

Often seen with

P0171 System Too Lean (Bank 1) · **P0300** Random/Multiple Cylinder Misfire Detected · **P0301** Cylinder 1 Misfire Detected · **P0302** Cylinder 2 Misfire Detected · **P0304** Cylinder 4 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/p0303/>

