

GENERIC · POWERTRAIN

P0316

OBD-II TROUBLE CODE

P0316

Misfire Detected on Startup (First 1000 Revolutions)

P0316 is a generic OBD-II code that indicates the engine control module (ECM) detected a misfire during the first 1000 engine revolutions after startup. The ECM monitors crankshaft speed fluctuations to identify which cylinder is not firing correctly, and this code specifically flags that the misfire occurred immediately after the engine started.

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

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Rough idle or shaking immediately after starting the engine
- Engine may stall shortly after startup
- Hesitation or lack of power during initial acceleration
- Flashing check engine light if the misfire is severe enough to damage the catalytic converter

Common causes, most likely first

- 1 Worn or fouled spark plugs
- 2 Faulty ignition coils or spark plug wires
- 3 Vacuum leaks causing a lean condition at startup
- 4 Dirty or failing fuel injectors
- 5 Low fuel pressure or a weak fuel pump
- 6 Engine mechanical issues such as low compression or valve problems
- 7 Contaminated fuel or incorrect fuel octane

How to diagnose and fix it

- 1 Scan all stored codes and freeze-frame data to identify which cylinder(s) are misfiring and under what conditions
- 2 Inspect spark plugs for wear, fouling, or incorrect gap and replace if necessary
- 3 Test ignition coils and spark plug wires with a spark tester or multimeter; swap coils to see if the misfire moves
- 4 Perform a vacuum leak test using a smoke machine or carburetor cleaner to check for intake leaks
- 5 Check fuel pressure with a gauge and inspect fuel injectors for clogs or poor spray patterns
- 6 Conduct a compression test and cylinder leak-down test to rule out mechanical faults
- 7 Repair the identified root cause, clear codes, and verify the misfire is resolved with a test drive



Startup Misfire Myths and Real Causes

- A P0316 code often appears alongside other misfire codes like P0300 or P030X, so always address those first as they pinpoint the affected cylinder.
- Many technicians replace the crankshaft position sensor unnecessarily; the sensor is rarely the cause unless other codes like P0335 are present.
- A weak battery or poor ground connection can cause a startup misfire by disrupting the ignition system during cranking, so check battery voltage and grounds before diving into complex diagnostics.
- Cold-start misfires are frequently caused by carbon buildup on intake valves, especially in direct-injection engines, which may not trigger a misfire once the engine warms up.
- The code does not always mean a severe mechanical problem; sometimes a simple tune-up with new spark plugs resolves it, but ignoring it can lead to catalytic converter damage.

Can I keep driving with P0316?

It is generally safe to drive the vehicle short distances to a repair shop, but avoid heavy acceleration or prolonged driving, especially if the check engine light is flashing, as this indicates a risk of catalytic converter damage.

Tools that help

- OBD-II scanner with live data and freeze-frame capability
- Spark tester
- Multimeter
- Fuel pressure gauge
- Compression tester
- Vacuum gauge or smoke machine

Reading P0316

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.
16	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 **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/p0316/>

