

GENERIC · POWERTRAIN

P0389

OBD-II TROUBLE CODE

P0389

Crankshaft Position Sensor 'B' Circuit Intermittent

P0389 means the engine computer has detected an intermittent fault in the 'B' crankshaft position sensor circuit, which is the signal path that tells the powertrain control module how fast the crankshaft is turning and where each piston sits. The computer logs this code when the signal from that circuit drops out or becomes erratic for a brief moment rather than failing completely, so the fault is captured as intermittent rather than a hard no-start condition.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Ignition system and misfire

Symptoms you may notice

- The check engine light or service engine soon light is illuminated, often with no other noticeable change in how the vehicle runs.
- The engine may stumble, misfire, or hesitate briefly at idle or under light acceleration when the signal cuts out.
- An occasional stall at a stoplight or during low-speed manoeuvring, after which the engine may restart normally.
- A momentary tachometer needle drop or flicker because the instrument cluster often derives engine speed from the same crankshaft signal.
- Rough running or a brief loss of power that clears on its own, especially over bumps or in wet weather.
- In some cases the engine cranks but does not start until the intermittent connection happens to make contact again.



Common causes, most likely first

- 1 A damaged, chafed, or internally broken wire in the crankshaft position sensor 'B' circuit, often where the harness bends near the sensor or passes close to a hot or moving component.
- 2 A loose, corroded, or water-intruded electrical connector at the sensor or at the powertrain control module, causing the signal to drop out intermittently.
- 3 A failing crankshaft position sensor 'B' itself, where the internal coil or hall-effect element becomes temperature-sensitive or vibration-sensitive.
- 4 Excessive air gap or a damaged reluctor wheel, tone ring, or target wheel that the sensor reads, causing a weak or missing pulse at certain crank positions.
- 5 Metal debris, clutch dust, or oil contamination built up on the sensor tip or reluctor wheel, disturbing the magnetic field the sensor relies on.
- 6 Electrical interference or a poor ground shared with the ignition system, which can corrupt the crankshaft signal without any physical damage to the sensor circuit.
- 7 A failing powertrain control module input circuit, which is rare but possible when all wiring and sensor checks pass.

How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data for P0389, then clear the code and test-drive to confirm whether it returns as intermittent or becomes a hard fault.
- 2 Visually inspect the crankshaft position sensor 'B' connector and the full wiring run for chafing, heat damage, oil intrusion, or loose pins, wiggling the harness while watching live data.
- 3 Check the sensor air gap and inspect the reluctor wheel through the sensor hole for cracks, missing teeth, or heavy metal debris, cleaning the sensor tip as needed.
- 4 Measure the sensor circuit with a multimeter or oscilloscope, checking reference voltage, ground integrity, and signal waveform while cranking and while running.
- 5 Perform a voltage drop test on the sensor ground and signal return circuits to rule out a high-resistance connection that only shows up under vibration or heat.
- 6 Replace the crankshaft position sensor 'B' only after the wiring and reluctor wheel have been ruled out, then clear codes and verify the repair over several drive cycles.
- 7 If the fault persists with a known-good sensor and verified wiring, test the powertrain control module input circuit and inspect the module connectors for corrosion before condemning the module.



Why an intermittent crank signal fools so many

- A P0389 is often set by a wiring problem rather than a failed sensor, so replacing the sensor first is the most common misdiagnosis and frequently does not fix the code.
- Because the fault is intermittent, the sensor can pass every resistance and waveform test in the bay and still drop out on a bumpy road or after heat soak, so a road test with a scope or live data recorder is essential.
- On vehicles with both 'A' and 'B' crankshaft position sensors, the 'B' sensor may be a secondary or backup signal, and a P0389 can appear with no drivability complaint at all until the primary sensor also falters.
- A weak battery or failing starter can cause cranking voltage to sag low enough that the crankshaft signal becomes erratic, setting P0389 without any fault in the sensor circuit itself.
- Aftermarket sensors and poor-quality replacement connectors are a known source of repeat intermittent crank codes, so fitting a quality part and sealing the connector properly matters as much as the diagnosis.

Can I keep driving with P0389?

You can usually drive short distances to a repair shop while the fault is intermittent, but avoid long trips, heavy load, or high-speed driving because a sudden complete loss of the crank signal can stall the engine without warning. If the engine has already stalled or cranked without starting, stop driving and have the vehicle towed rather than risking a stall in traffic.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with min/max recording
- Oscilloscope or graphing multimeter for viewing the crank signal waveform
- Feeler gauges for checking sensor air gap
- Wire-piercing probes and a test light for circuit integrity checks
- Basic hand tools and a mirror or borescope for inspecting the reluctor wheel

Reading P0389

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.
89	The exact fault within that area.



Often seen with

P0335 Crankshaft Position Sensor A Circuit Malfunction · **P0336** Crankshaft Position Sensor A Circuit Range/Performance · **P0385** Crankshaft Position Sensor 'B' Circuit · **P0386** Crankshaft Position Sensor 'B' Circuit Range/Performance · **P0387** Crankshaft Position Sensor 'B' Circuit Low

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/p0389/>

