

GENERIC · POWERTRAIN

P0387

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0387

Crankshaft Position Sensor 'B' Circuit Low

P0387 indicates that the engine control module (ECM) has detected a low voltage condition on the crankshaft position sensor 'B' circuit, which is a secondary crank sensor signal used for precise engine speed and position measurement. The ECM compares the signal voltage to an expected range and sets this code when the circuit stays below the low threshold for a calibrated time, typically indicating a short to ground, a faulty sensor, or a wiring issue.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Ignition system and misfire

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Intermittent or complete engine stall, especially when the engine is cold or under load
- Difficulty starting or a no-start condition because the ECM cannot reliably determine crankshaft position
- Rough running or misfiring due to inaccurate ignition and fuel timing
- Reduced engine performance or limp mode in some vehicles
- A tachometer that reads erratically or drops to zero while driving

Common causes, most likely first

- 1 Faulty crankshaft position sensor 'B' (internal short or open circuit)
- 2 Damaged or chafed wiring in the sensor 'B' circuit, causing a short to ground
- 3 Corroded, loose, or disconnected electrical connector at the sensor or ECM
- 4 Metal debris or foreign material on the sensor tip or reluctor wheel, disrupting the signal
- 5 Failed ECM driver circuit for the sensor 'B' input (rare but possible)
- 6 Aftermarket or incorrect sensor installed that does not meet OEM specifications



How to diagnose and fix it

- 1 Perform a visual inspection of the sensor 'B' and its wiring for obvious damage, corrosion, or loose connections
- 2 Use a scan tool to check for other stored codes and view live data for crankshaft position signal voltage and engine RPM
- 3 Measure the sensor 'B' circuit voltage with a digital multimeter (DMM) at the sensor connector and compare to specifications
- 4 Check the sensor 'B' resistance (if applicable) and compare to the manufacturer's expected range
- 5 Inspect the reluctor wheel for missing teeth, cracks, or excessive debris and clean if necessary
- 6 Perform a wiggle test on the wiring harness while monitoring sensor voltage to detect intermittent faults
- 7 If all electrical checks pass, replace the crankshaft position sensor 'B' with a quality OEM or equivalent part and clear the code

Crankshaft Sensor B Circuit Low: Hidden Causes

- A low voltage on the sensor 'B' circuit often results from a short to ground in the wiring harness, which can be caused by rubbing against a sharp metal edge or heat damage, so a thorough harness inspection is critical before replacing the sensor.
- Some vehicles use the 'B' crankshaft sensor as a backup for the primary sensor; a failure may not cause immediate drivability issues but can set the code and affect OBD-II monitor readiness.
- Metal debris on the sensor tip is a commonly overlooked cause, especially after engine work or off-road driving, and can mimic a failed sensor by disrupting the magnetic signal.
- The ECM may set P0387 even if the sensor itself is good, due to a poor ground connection at the engine block or chassis, which raises the reference voltage and causes a low signal reading.
- Aftermarket sensors with incorrect resistance or output can trigger this code intermittently; always verify part compatibility and consider OEM parts for critical sensors.

Can I keep driving with P0387?

It is generally safe to drive with P0387 if the engine runs normally, but avoid aggressive driving or heavy loads because an intermittent sensor signal can cause sudden stalling. If the engine stalls, misfires, or fails to start, stop driving and seek professional diagnosis to prevent safety risks.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter (DMM)
- Oscilloscope (optional for waveform analysis)
- Basic hand tools (socket set, screwdrivers, wire crimpers)
- Feeler gauge or non-magnetic feeler gauge for air gap adjustment (if applicable)
- Manufacturer service information for wiring diagrams and specifications



Reading P0387

- 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.
- 87** 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 · **P0388** Crankshaft Position Sensor 'B' Circuit High

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/p0387/>

