

GENERIC · POWERTRAIN

P0377

OBD-II TROUBLE CODE

P0377

Timing Reference High Resolution Signal 'B' Too Few Pulses

P0377 means the engine control module (ECM) is receiving too few pulses from the high-resolution timing reference signal 'B', which is usually a fine-toothed crank or cam sensor wheel used for precise injection and ignition timing. The ECM compares expected pulse counts against what it actually sees and sets this code when the signal drops out or is intermittently missing.

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

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or misfire at low engine speeds
- Hard starting or a crank-no-start condition in severe cases
- Reduced engine power or limp-home mode
- Poor fuel economy or increased emissions
- Intermittent stalling when the signal drops out momentarily

Common causes, most likely first

- 1 Damaged or contaminated timing reference wheel (missing teeth, debris, or corrosion)
- 2 Faulty crankshaft or camshaft position sensor for signal 'B'
- 3 Wiring harness damage such as chafed wires, corroded connectors, or poor grounds
- 4 Excessive air gap between the sensor and the reluctor wheel
- 5 Mechanical timing chain or belt wear causing the signal to drift or skip
- 6 ECM internal fault or software issue (rare but possible)



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes, then record freeze-frame data to see when the fault occurs
- 2 Inspect the sensor and reluctor wheel visually for damage, debris, or missing teeth
- 3 Check the sensor air gap with a feeler gauge and compare to specification
- 4 Perform a wiggle test on the sensor wiring and connectors while monitoring live pulse count data
- 5 Measure sensor resistance and compare to the manufacturer's specification
- 6 Use an oscilloscope to verify the signal waveform for missing or distorted pulses
- 7 If the signal is clean at the sensor but not at the ECM, repair the harness; if the signal is bad at the sensor, replace the sensor or reluctor wheel

What the pulse count really tells you

- A dirty or magnetized reluctor wheel often mimics a failed sensor, so clean the wheel before condemning the sensor.
- Intermittent faults frequently come from a loose connector or a wire rubbed through near a sharp bracket, not from the sensor itself.
- Some engines use the same signal for both cam and crank reference, so a fault in one circuit can set codes for the other.
- A stretched timing chain can cause the pulse count to drift without any sensor fault, so always verify mechanical timing.
- The ECM may set P0377 only after a certain number of missed pulses, meaning the fault can be present but not yet stored as a hard code.

Can I keep driving with P0377?

You can usually drive short distances to a repair shop if the engine runs smoothly, but avoid heavy acceleration or long trips because a sudden loss of timing signal can cause stalling or a no-start. If the engine is misfiring or stalling, stop driving and have it towed.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter
- Oscilloscope
- Feeler gauge set
- Basic hand tools and socket set



Reading P0377

- 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.
- 77** The exact fault within that area.

Often seen with

P0335 Crankshaft Position Sensor A Circuit Malfunction · **P0336** Crankshaft Position Sensor A Circuit Range/Performance · **P0340** Camshaft Position Sensor A Circuit Malfunction (Bank 1) · **P0341** Camshaft Position Sensor A Circuit Range/Performance · **P0376** Timing Reference High Resolution Signal 'B' Too Many Pulses

See it working

Watch the animated explainer [Master the Four-Stroke Engine Cycle](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0377/>

