

GENERIC · POWERTRAIN

P077B

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P077B

Output Shaft Speed Sensor Circuit Direction Error

P077B indicates that the transmission control module has detected an implausible direction of rotation from the output shaft speed sensor circuit, meaning the signal suggests the shaft is turning the wrong way or inconsistent with other speed inputs. The computer compares the output shaft speed sensor signal against expected values from the input shaft and wheel speed sensors to flag this error.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Transmission

Symptoms you may notice

- Illumination of the check engine light or transmission warning light, often with no other noticeable symptoms.
- Harsh or erratic shifting, including delayed engagement or slipping between gears.
- The transmission may enter limp mode, limiting vehicle speed and gear selection.
- Inaccurate or fluctuating speedometer readings, if the output shaft speed sensor also feeds the speedometer.
- Unexpected downshifts or upshifts without driver input.
- In some cases, the vehicle may refuse to shift out of a particular gear or may stall when coming to a stop.

Common causes, most likely first

- 1 Faulty output shaft speed sensor, such as internal damage or contamination.
- 2 Damaged or corroded wiring or connector at the output shaft speed sensor.
- 3 Metal debris or shavings on the sensor tip, interfering with the magnetic signal.
- 4 Improper sensor installation or air gap, such as after a transmission repair.
- 5 Internal transmission mechanical issues, such as a damaged tone ring or output shaft.
- 6 Transmission control module software error or internal fault.
- 7 Electrical interference from other components or poor grounds affecting the signal.



How to diagnose and fix it

- 1 Inspect the output shaft speed sensor and its connector for physical damage, corrosion, or debris, and clean or replace as needed.
- 2 Check the sensor's resistance and signal output with a multimeter or oscilloscope, comparing to manufacturer specifications.
- 3 Verify the sensor air gap and mounting condition, ensuring it is properly seated and free of metal particles.
- 4 Inspect the wiring harness for chafing, shorts, or opens between the sensor and the transmission control module.
- 5 Check for stored codes in other modules, such as the anti-lock brake system or engine control module, to identify related faults.
- 6 If the sensor and wiring are good, perform a transmission fluid service and inspect for internal damage or debris.
- 7 Reprogram or replace the transmission control module if all other checks pass and the fault persists.

Don't overlook the tone ring and debris

- A common oversight is ignoring metal debris on the sensor tip, which can mimic a failed sensor and cause a direction error without any sensor fault.
- The code can be set by a damaged or improperly installed tone ring on the output shaft, which is often missed during visual inspections.
- In some vehicles, the output shaft speed sensor signal is used by multiple systems, so a fault can cause misleading symptoms in the speedometer or cruise control.
- After transmission repairs, the sensor may be reinstalled with an incorrect air gap or misaligned, triggering this code even with new parts.
- Electrical interference from aftermarket accessories or poor grounds can corrupt the signal and set P077B without any physical sensor problem.

Can I keep driving with P077B?

It is generally safe to drive with this code if the transmission shifts normally, but avoid aggressive acceleration or towing until diagnosed. If the transmission enters limp mode or shifts harshly, seek professional service promptly to prevent further damage.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Oscilloscope for signal analysis
- Socket set and wrenches for sensor removal
- Transmission fluid service kit
- Manufacturer service information for specifications



Reading P077B

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 7** Transmission.
- 7B** The exact fault within that area.

Often seen with

P0715 Input/Turbine Speed Sensor Circuit Malfunction · **P0720** Output Speed Sensor Circuit Malfunction · **P0730** Incorrect Gear Ratio · **P077A** Output Shaft Speed Sensor Circuit Loss of Direction Signal · **P077C** Output Shaft Speed Sensor Circuit Low

See it working

Watch the animated explainer [How an Automatic Transmission Works, Gear by Gear](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p077b/>

