

GENERIC · POWERTRAIN

P077A

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P077A

Output Shaft Speed Sensor Circuit Loss of Direction Signal

P077A means the transmission control module (TCM) is receiving a valid output shaft speed signal but has lost the direction-of-rotation information that the sensor normally provides. The computer compares the output shaft speed sensor's directional signal with other speed inputs, and when the direction bit is missing or implausible, it flags this code.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Transmission

Symptoms you may notice

- Illumination of the check engine light or transmission warning light, often with no other symptoms
- Harsh or delayed transmission shifts as the TCM defaults to a fail-safe strategy
- The transmission may stay in a single gear or refuse to downshift during deceleration
- Speedometer or odometer inaccuracy if the output shaft signal is shared with the instrument cluster
- Intermittent limp mode that clears after a key cycle and returns under similar driving conditions

Common causes, most likely first

- 1 Faulty output shaft speed sensor that still reports speed but no longer produces a reliable direction signal
- 2 Damaged or chafed wiring between the sensor and the TCM, especially at connectors or near heat sources
- 3 Corroded or loose sensor connector pins causing an intermittent direction signal
- 4 Metal debris or a damaged tone ring on the output shaft interfering with the sensor's directional pickup
- 5 Internal TCM fault in the direction-signal processing circuit
- 6 Low or contaminated transmission fluid affecting sensor operation on some designs
- 7 Aftermarket or incorrect sensor installed that lacks the direction-signal capability of the original



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to confirm P077A is the primary code and not a side effect of another fault
- 2 Inspect the output shaft speed sensor connector and wiring for corrosion, chafing, or loose pins, and repair as needed
- 3 Check transmission fluid level and condition, and service the fluid if it is contaminated or low
- 4 Remove the sensor and inspect the tip and tone ring for metal shavings or physical damage
- 5 Test the sensor signal with a scope or manufacturer-approved procedure to verify the direction signal is present
- 6 Replace the output shaft speed sensor if it fails the signal test, then clear codes and verify the repair on a road test
- 7 If the sensor and wiring test good, diagnose the TCM circuit or reprogram or replace the TCM as the final step

Why the direction bit disappears before the speed signal

- Many technicians replace the output shaft speed sensor immediately, but a chafed wire near the connector is just as common and far cheaper to fix.
- The sensor can produce a perfectly good speed reading on a scan tool while the direction signal is already failing, so a live data check alone will not confirm a bad sensor.
- Metal debris on the sensor tip often comes from a failing bearing or gearset, so cleaning the sensor without finding the source guarantees the code returns.
- On some vehicles the direction signal is derived from two sensing elements inside one housing, meaning a single internal failure kills direction while speed still works.
- A weak battery or charging system fault can cause the TCM to log this code intermittently, so check system voltage before condemning transmission parts.

Can I keep driving with P077A?

You can usually drive the vehicle to a shop, but expect harsh shifts or limp mode and avoid heavy towing or aggressive acceleration until the fault is repaired. If the transmission drops into a single gear or refuses to shift, stop driving and have it towed to prevent further damage.

Tools that help

- OBD-II scan tool with live transmission data
- Digital multimeter
- Oscilloscope for sensor signal testing
- Wire terminal pick and connector cleaning tools
- Vehicle-specific service information for sensor location and testing



Reading P077A

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

Often seen with

P0715 Input/Turbine Speed Sensor Circuit Malfunction · **P0720** Output Speed Sensor Circuit Malfunction · **P0721** Output Speed Sensor Range/Performance · **P0730** Incorrect Gear Ratio · **P077B** Output Shaft Speed Sensor Circuit Direction Error

See it working

Watch the animated explainer [How a Catalytic Converter Works: 3D Cutaway](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p077a/>

