

SUBARU · POWERTRAIN

P1540

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1540 · Subaru

## Vehicle Speed Sensor Malfunction

P1540 on a Subaru means the engine control module (ECM) has detected an implausible or missing signal from the vehicle speed sensor circuit. The ECM compares vehicle speed data from the speed sensor against other inputs such as engine speed and throttle position, and when the expected relationship is not seen, it stores this code and illuminates the check engine light.

| SYSTEM     | CODE TYPE       | SEVERITY | FIX DIFFICULTY | AREA                                             |
|------------|-----------------|----------|----------------|--------------------------------------------------|
| Powertrain | Subaru specific | Medium   | Intermediate   | Vehicle speed, idle control and auxiliary inputs |

### Symptoms you may notice

- Check engine light illuminated on the dashboard
- Speedometer needle may fluctuate, drop to zero, or read incorrectly
- Transmission may shift erratically or stay in a single gear (limp mode)
- Cruise control may be inoperative or disengage unexpectedly
- Anti-lock braking system (ABS) warning light may also illuminate
- Often no symptoms besides the warning light, especially if the fault is intermittent

### Common causes, most likely first

- 1 Faulty vehicle speed sensor (VSS) or damaged sensor wiring/connector
- 2 Dirty or damaged sensor reluctor ring or tone wheel
- 3 Wiring harness damage (open, short, or chafed wires) between the sensor and ECM
- 4 Poor electrical connection at the ECM or sensor connector
- 5 Failed or failing ECM (less common)
- 6 Aftermarket modifications or incorrect tire size affecting speed signal
- 7 Internal transmission issue affecting the speed sensor signal (on models where the sensor is transmission-mounted)



## How to diagnose and fix it

- 1 Scan all modules for stored codes and freeze-frame data to confirm P1540 is the primary fault
- 2 Visually inspect the speed sensor, its connector, and wiring for damage, corrosion, or looseness
- 3 Check tire size and condition for any mismatch that could affect speed readings
- 4 Measure sensor resistance and compare to factory specifications; replace if out of range
- 5 Perform a voltage drop test on the sensor circuit while wiggling the harness to check for intermittent opens
- 6 Inspect the reluctor ring or tone wheel for debris, cracks, or missing teeth
- 7 If all else checks out, test the ECM signal output and wiring continuity to rule out an internal ECM fault

## Speed sensor faults that fool technicians

- A common misdiagnosis is replacing the speed sensor when the real problem is a chafed wire in the harness near the transmission or firewall, so always perform a wiggle test and continuity check before condemning the sensor.
- On some Subaru models, the vehicle speed sensor signal is shared with the ABS and cruise control systems, so a fault in the ABS wheel speed sensor circuit can set P1540 even though the transmission-mounted sensor is fine.
- Aftermarket wheels or tires with a different overall diameter can cause the ECM to see an implausible speed signal and set P1540, so verify the vehicle has the correct tire size before diving into electrical diagnostics.
- A weak or failing battery or poor ground connection can cause intermittent speed sensor codes, so check battery health and ground straps as part of a thorough diagnosis.

The speed sensor reluctor ring can accumulate metallic debris from normal wear, causing a dropout in the signal that sets P1540 without any visible sensor damage.

## Can I keep driving with P1540?

You can usually drive with P1540 set, but be aware that the transmission may shift erratically and the speedometer may be inaccurate, which affects cruise control and ABS operation. Avoid sustained high-speed driving or heavy towing until the fault is repaired, and have the vehicle diagnosed promptly to prevent secondary issues.

## Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Jack and jack stands or ramps
- Wire piercing probes and jumper wires
- Factory service information for wiring diagrams and resistance specifications



## Reading P1540

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Subaru): its meaning depends on the make.
- 5** Vehicle speed, idle control and auxiliary inputs.
- 40** The exact fault within that area.

## Often seen with

**C0035** Left Front Wheel Speed Sensor Circuit Range/Performance · **P0500** Vehicle Speed Sensor Malfunction  
 · **P0501** Vehicle Speed Sensor Range/Performance · **P0720** Output Speed Sensor Circuit Malfunction · **P0721**  
 Output Speed Sensor Range/Performance

## See it working

Watch the animated explainer [Fuel Trims Explained: Short-Term and Long-Term](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/subaru-p1540/>

