

VOLKSWAGEN · POWERTRAIN

P1797

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1797 · Volkswagen

Vehicle Speed Signal Short To B+

P1797 on Volkswagen vehicles means the transmission control module (TCM) has detected a short to battery voltage on the vehicle speed signal circuit, which it uses to calculate shift points and torque converter lockup. The TCM expects a fluctuating voltage signal from the speed sensor but instead sees a constant high voltage, so it flags the circuit as shorted to B+.

SYSTEM

Powertrain

CODE TYPE

**Volkswagen
specific**

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Transmission

Symptoms you may notice

- The transmission may enter limp mode and stay in a single gear, often third or fourth, until the ignition is cycled.
- The speedometer may read zero or fluctuate erratically while the car is moving.
- Harsh or delayed gear shifts, especially when coming to a stop or accelerating from a standstill.
- The cruise control may stop working because it relies on the vehicle speed signal.
- Often no symptoms besides the warning light, particularly if the short is intermittent and the TCM can still infer speed from other inputs.
- The ABS (anti-lock braking system) or ESP (electronic stability program) warning light may illuminate if the speed signal is shared with those systems.

Common causes, most likely first

- 1 A chafed or pinched wire in the vehicle speed sensor harness shorting to a nearby battery-positive wire, often near the transmission or firewall.
- 2 A failed vehicle speed sensor that internally shorts the signal line to its power feed.
- 3 Corrosion or water intrusion in the speed sensor connector or TCM connector causing a conductive path to battery voltage.
- 4 A short inside the transmission control module itself, though this is less common than harness faults.
- 5 Aftermarket accessories or poor previous repairs that tapped into the speed signal wire and left it exposed to voltage.
- 6 A faulty ignition switch or relay that backfeeds voltage onto the speed signal circuit when it should be off.



How to diagnose and fix it

- 1 Scan all modules for fault codes and record freeze-frame data to confirm P1797 is current and not a stored historical code.
- 2 Inspect the vehicle speed sensor harness and connector for chafing, corrosion, or signs of contact with battery-positive wiring, repairing any damage found.
- 3 Disconnect the speed sensor and the TCM, then measure resistance from the signal wire to battery positive with the key off; any continuity indicates a short that must be traced.
- 4 Check the speed sensor output with an oscilloscope or a multimeter set to AC volts while spinning the wheels, comparing the waveform to the manufacturer's specification.
- 5 Substitute a known-good speed sensor only after the wiring has been proven good, then clear codes and road-test to see if P1797 returns.
- 6 If the harness and sensor are good, check for voltage backfeeding on the signal circuit from other modules by isolating each module in turn.
- 7 As a last step, test or replace the TCM only after confirming no external short exists, since a misdiagnosed TCM replacement is costly and ineffective.

Speed signal shorts that fool good technicians

- A common oversight is replacing the speed sensor first because it is easy to reach, but a short to B+ is almost always in the harness, so the new sensor does not fix the code.
- The vehicle speed signal on many Volkswagens is shared with the radio, cruise control, and navigation, so an aftermarket stereo install that tapped the wrong wire can set P1797 without any transmission complaint.
- Water ingress into the plenum or cowl area can corrode the TCM connector pins and create a partial short to battery voltage that only appears in damp weather, so a dry-weather diagnosis may miss it.
- A failing alternator with excessive ripple can induce voltage on the speed signal wire, and the TCM may interpret that as a short to B+ even though the wire itself is intact.
- P1797 does not always mean the speed signal is dead; the TCM can still calculate speed from wheel speed sensors on some models, so the car may drive normally while the code is stored.

Can I keep driving with P1797?

You can usually drive the car to a workshop, but expect the transmission to stay in limp mode and avoid highway speeds or heavy loads until the fault is repaired. If the speedometer has failed and the transmission is stuck in one gear, keep the trip short and avoid situations that require quick acceleration.



Tools that help

- OBD-II scan tool with Volkswagen-specific software
- Digital multimeter with continuity and voltage measurement
- Oscilloscope for viewing the speed sensor waveform
- Wiring diagram for the specific Volkswagen model and year
- Jack and jack stands or a lift to access the speed sensor and harness
- Electrical contact cleaner and terminal pick tools

Reading P1797

P	Powertrain: engine, transmission and emissions.
1	Manufacturer-specific code (Volkswagen): its meaning depends on the make.
7	Transmission.
97	The exact fault within that area.

Often seen with

P1793 Output Speed Sensor 2 Circuit No Signal · **P1793** Intake Air Volume Circuit · **P1793** Intake Air Volume Circuit · **P1793** Ignition Supply Malfunction · **P1793** Automatic Transmission System Malfunction · **P1793** Transmission Control Module Stack Overrun · **P0500** Vehicle Speed Sensor Malfunction · **P0501** Vehicle Speed Sensor Range/Performance · **P0715** Input/Turbine Speed Sensor Circuit Malfunction · **P0720** Output Speed Sensor Circuit Malfunction

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/volkswagen-p1797/>

