



P1501 · Ford

Programmable Speedometer & Odometer Module Vehicle Speed Sensor Intermittent Circuit Failure

P1501 on Ford vehicles means the Programmable Speedometer & Odometer Module (PSOM) has detected an intermittent failure in the Vehicle Speed Sensor (VSS) circuit. The module receives a signal that drops out or becomes erratic, so it cannot reliably calculate vehicle speed for the speedometer, odometer, and related control functions.

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

Symptoms you may notice

- The speedometer needle may jump, drop to zero, or read incorrectly while driving.
- The odometer may stop accumulating mileage or advance erratically.
- The anti-lock brake system (ABS) warning light may illuminate because wheel speed data is shared.
- The transmission may shift harshly or at the wrong points due to missing speed input.
- Cruise control may disengage or fail to engage.
- Often no symptoms besides the warning light, especially if the intermittent fault has not recurred recently.

Common causes, most likely first

- 1 Damaged or corroded wiring and connectors between the VSS and the PSOM, especially at the sensor pigtail and module harness.
- 2 A failing VSS itself, such as a cracked reluctor ring or internal sensor fault that causes an intermittent signal.
- 3 Loose or poor ground connection for the PSOM or VSS circuit, leading to voltage drops under vibration.
- 4 Water intrusion or debris in the VSS connector or module connector causing intermittent contact.
- 5 A faulty PSOM internal circuit that intermittently loses the VSS input.
- 6 Aftermarket electronic accessories improperly tapped into the VSS signal wire, introducing noise or loading.
- 7 A damaged tone ring or reluctor on the transmission output shaft or differential, causing a dropout at certain speeds.



How to diagnose and fix it

- 1 Inspect the VSS and its connector for corrosion, loose pins, or damaged wiring; clean and repair as needed.
- 2 Check the VSS signal with a scan tool or oscilloscope while wiggling the harness and driving over bumps to reproduce the intermittent fault.
- 3 Verify the PSOM ground and power feeds with a multimeter under load, repairing any high-resistance connections.
- 4 Measure the VSS resistance and compare to specification, replacing the sensor if it is out of range or intermittent when tapped.
- 5 Inspect the tone ring or reluctor for cracks, missing teeth, or debris, and replace if damaged.
- 6 If wiring and sensor are good, substitute a known-good PSOM or perform pinpoint tests per Ford service information to confirm module failure.
- 7 Clear the code and road-test under the conditions that originally set it, then recheck for pending or stored codes.

Intermittent VSS faults often hide in the harness

- A common miss is replacing the VSS without checking the pigtail connector, where broken strands inside the insulation cause intermittent opens only under vibration.
- The PSOM shares VSS data with the powertrain control module (PCM) and ABS, so a P1501 may appear alongside ABS or transmission codes even though the root cause is a single bad connection.
- Aftermarket stereos, alarms, or remote starters tapped into the VSS wire can load the signal and set P1501 without any factory component being faulty.
- A weak battery or charging system can cause the PSOM to log intermittent VSS codes because low voltage disrupts the module's signal processing.
- The code does not always mean the VSS is bad; a poor ground at the PSOM can mimic a sensor failure and is often overlooked during diagnosis.

Can I keep driving with P1501?

You can usually drive with P1501, but avoid relying on the speedometer or odometer and be prepared for harsh transmission shifts or disabled cruise control. Have the circuit inspected soon, especially if the ABS light is also on, because speed data affects braking and stability systems.

Tools that help

- OBD-II scan tool with live data and pending code capability
- Digital multimeter with back-probing pins
- Oscilloscope for viewing the VSS waveform
- Wire terminal pick and connector repair kit
- Ford service information or wiring diagrams for PSOM and VSS circuits



Reading P1501

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Ford): its meaning depends on the make.
- 5** Vehicle speed, idle control and auxiliary inputs.
- 01** 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 [How Crank and Cam Position Sensors Work](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1501/>

