

FORD · POWERTRAIN

P1745

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1745 · Ford

Transmission system problems

P1745 is a Ford-specific transmission code that the powertrain control module (PCM) sets when it detects a general fault in the transmission control system, often related to the transmission range sensor or internal wiring. The PCM monitors circuit continuity and signal plausibility, and when the expected voltage or resistance falls outside the programmed window, it logs P1745 and may illuminate the malfunction indicator lamp (MIL).

SYSTEM

Powertrain

CODE TYPE

Ford specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Transmission

Symptoms you may notice

- Illumination of the malfunction indicator lamp (MIL) on the instrument cluster
- Often no symptoms besides the warning light, especially if the fault is intermittent
- Harsh or delayed shifting, or the transmission may default to a limp-home mode
- Erratic or missing gear engagement, or the selector indicator may not match the actual gear
- Transmission may slip or fail to downshift when accelerating
- In some cases, the vehicle may not start if the range sensor signal is implausible

Common causes, most likely first

- 1 Faulty transmission range sensor (TRS) or its internal circuitry
- 2 Damaged, chafed, or corroded wiring in the transmission harness or connector
- 3 Loose or contaminated electrical connector at the transmission or PCM
- 4 Internal transmission fault such as a failed solenoid pack or valve body issue affecting range signal
- 5 PCM software calibration issue or internal PCM fault (less common)
- 6 Poor ground connection for the transmission or PCM circuit



How to diagnose and fix it

- 1 Connect a scan tool and retrieve all stored codes, freeze-frame data, and transmission live data to confirm P1745 and check for related codes.
- 2 Visually inspect the transmission range sensor connector and wiring harness for damage, corrosion, or loose pins; clean and reseat as needed.
- 3 Measure resistance and voltage on the TRS circuit according to Ford service information and compare to specifications.
- 4 Check the transmission fluid level and condition; low or degraded fluid can cause erratic sensor signals.
- 5 Perform a wiggle test on the harness while monitoring TRS signal on the scan tool to identify intermittent wiring faults.
- 6 If the TRS is faulty, replace it and clear the codes; verify the selector lever alignment and adjust if necessary.
- 7 If the fault persists, check the PCM for software updates or internal faults, and inspect internal transmission components as needed.

Before you replace the transmission range sensor

- A loose or corroded connector at the transmission range sensor is a frequent cause of P1745 on Ford vehicles, so always inspect and clean the connector before condemning the sensor.
- The code can be set by a low battery or charging system issue that causes voltage spikes, so verify battery and charging system health first.
- P1745 does not always indicate a hard transmission failure; intermittent faults often clear after correcting wiring issues, so avoid unnecessary rebuilds.
- On some Ford models, the range sensor is integrated into the transmission and requires special tools for replacement, making DIY diagnosis risky.
- After repairs, a relearn or adaptive shift strategy reset may be required to restore proper shift feel and prevent false re-setting of the code.

Can I keep driving with P1745?

If the vehicle drives normally and the light is steady, you can drive cautiously to a repair shop, but avoid heavy acceleration or towing. If the transmission is in limp mode or shifting erratically, stop driving and seek professional diagnosis to prevent further damage.

Tools that help

- OBD-II scan tool with live data and transmission capabilities
- Digital multimeter
- Ford service information or wiring diagrams
- Basic hand tools (socket set, screwdrivers, pliers)
- Contact cleaner and dielectric grease



Reading P1745

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

Often seen with

P1705 Direct Clutch Speed Circuit Fault · **P1705** TCM ECT Sensor Circuit Fault · **P1705** 2-4 Brake Pressure Solenoid Valve Solenoid D Circuit · **P1705** Throttle Position Sensor Circuit AT · **P1705** Starter Lock-Out Backup Lamp Switch S161 · **P1705** Transmission Range Sensor Out Of Self Test Range · **P1705** TCM A/T Gear Position Switch Circuit Shorted · **P1705** P/N Signal Output Circuit · **P1705** Manual Lever Position Sensor Out of Self-Test Range · **P0705** Transmission Range Sensor Circuit Malfunction · **P0706** Transmission Range Sensor Circuit Range/Performance · **P0707** Transmission Range Sensor Circuit Low · **P0708** Transmission Range Sensor Circuit High

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/ford-p1745/>

