

GENERIC · POWERTRAIN

P0707

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0707

Transmission Range Sensor Circuit Low

P0707 means the transmission range sensor, also called the park/neutral position switch, is reporting a voltage on its signal circuit that is lower than the manufacturer expects for the gear the shifter is in. The transmission control module (TCM) compares that signal against the range it commands and stores the code when the low voltage persists beyond a calibrated time.

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

Symptoms you may notice

- The check engine light or transmission warning light is on, and often there are no other symptoms besides the warning light.
- The engine may crank but not start in Park or Neutral because the TCM cannot confirm the selector position.
- The gear indicator on the dash may be blank, flashing, or show the wrong range.
- Harsh or delayed shifts, or the transmission may default to a limp-home gear.
- The reverse lamps may fail to come on, or may stay on in other ranges.
- In some vehicles the starter will not engage at all until the shifter is wiggled or moved.

Common causes, most likely first

- A faulty transmission range sensor with worn or contaminated internal contacts.
- A chafed, corroded, or disconnected wire in the sensor signal circuit, especially at the connector or where the harness flexes near the shifter.
- A poor ground or reference voltage feed at the sensor connector, which drags the signal low.
- Water or oil intrusion into the sensor connector causing a partial short to ground.
- A misadjusted sensor or shifter cable that puts the sensor between detents so the signal falls out of range.
- A short to ground in the signal wire between the sensor and the TCM.
- Less commonly, an internal TCM fault that misreads a correct sensor signal.



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data, then verify the range sensor voltage in live data while moving the shifter through every position.
- 2 Inspect the sensor connector and harness for corrosion, chafing, and pushed-back pins, and check that the sensor is securely mounted and correctly adjusted.
- 3 Measure reference voltage and ground at the sensor connector with the key on, then check the signal wire for a short to ground with the sensor disconnected.
- 4 Back-probe the signal circuit at the TCM and compare it with the reading at the sensor to isolate a harness fault from a sensor fault.
- 5 Check shifter cable adjustment and the sensor alignment marks so the sensor sits correctly in each detent.
- 6 Replace the transmission range sensor if the wiring and adjustment check out, then clear the code and confirm the live data tracks every gear position.
- 7 Road test through all ranges and recheck for pending codes, since a repaired circuit can still set the code if the sensor sweep is erratic.

Why this code is often a wiring fault

- A low signal code frequently comes from a corroded connector or a chafed wire rather than a failed sensor, so resistance and voltage-drop tests at the connector save unnecessary sensor replacements.
- The range sensor shares its ground or reference with other circuits on many vehicles, so a fault in an unrelated component on that circuit can pull the signal low and set P0707.
- A shifter cable that is slightly out of adjustment can place the sensor between detents, producing a low signal that looks exactly like an internal sensor failure.
- P0707 does not always mean the transmission is damaged; the TCM may simply be unable to confirm selector position, and the transmission itself can be mechanically sound.
- Aftermarket sensors and remanufactured units sometimes have contact wipers that do not match the original sweep, so verify live data through every range after any replacement.

Can I keep driving with P0707?

You can usually drive to a shop if the vehicle starts and shifts normally, but avoid long trips and do not rely on the reverse lamps or the starter safety circuit. If the transmission is in limp mode or will not start in Park or Neutral, stop driving and have it diagnosed.



Tools that help

- OBD-II scan tool with live data and transmission module access
- Digital multimeter with back-probe pins
- Wiring diagram for the range sensor circuit
- Jack and jack stands or ramps for under-vehicle connector access
- Contact cleaner and dielectric grease
- Basic hand tools for sensor and shifter cable adjustment

Reading P0707

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

Often seen with

P0700 Transmission Control System Malfunction · **P0705** Transmission Range Sensor Circuit Malfunction · **P0706** Transmission Range Sensor Circuit Range/Performance · **P0708** Transmission Range Sensor Circuit High · **P0850** Park/Neutral Switch Input Circuit

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/p0707/>

