

GENERIC · POWERTRAIN

P0709

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

## P0709

# Transmission Range Sensor Circuit Intermittent

P0709 indicates that the transmission range sensor, which tells the powertrain control module which gear the shift lever is in, has produced an intermittent signal. The computer sets this code when the sensor's output momentarily drops out or becomes erratic, even though the circuit is not completely open or shorted.

| 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 illuminates on the dashboard.
- The gear indicator on the instrument cluster may flicker or show the wrong position.
- The engine may crank but not start because the computer does not recognize Park or Neutral.
- Harsh or delayed shifting as the transmission controller loses the true gear position.
- In some cases, the vehicle may enter limp mode or default to a single gear.
- Often no symptoms besides the warning light, especially if the intermittent fault is brief.

## Common causes, most likely first

- Worn or contaminated transmission range sensor internal contacts causing an intermittent signal.
- Loose, corroded, or damaged electrical connector at the sensor or transmission harness.
- Chafed or broken wires in the sensor circuit that intermittently short or open.
- Poor ground connection for the sensor or powertrain control module.
- Misadjusted sensor linkage or mounting, causing the sensor to sit between detents.
- Faulty powertrain control module, though this is rare and should be diagnosed last.

## How to diagnose and fix it

- Scan all modules for stored and pending codes, and record freeze-frame data to see when the fault occurred.
- Inspect the transmission range sensor connector and wiring for corrosion, looseness, or chafing, and repair as needed.
- Check the sensor's ground circuit and ensure the mounting bolts are clean and tight.
- Use a scan tool to monitor the range sensor input while wiggling the harness and moving the shift lever through all positions.
- Adjust or replace the transmission range sensor if the signal is erratic during the wiggle test.
- Clear the codes and perform a road test to confirm the repair, then recheck for any returning codes.



## Intermittent faults hide in plain sight

- A range sensor can test perfectly when the transmission is cold, so always perform the wiggle test and monitor live data while the engine is at operating temperature.
- The sensor often shares a ground with other transmission solenoids, so a bad ground can set P0709 along with other codes that seem unrelated.
- After replacing the sensor, some vehicles require a relearn procedure for the transmission control module, and skipping it can cause harsh shifting that mimics a faulty sensor.
- A loose shifter cable or worn bushing can cause the sensor to report an intermittent signal even when the sensor itself is good, so check the linkage before condemning the part.
- P0709 can be set by a momentary voltage drop during engine cranking, so check battery and charging system health if the code appears only after startup.

## Can I keep driving with P0709?

You can usually drive the vehicle short distances to a repair shop, but avoid sustained highway speeds or heavy loads because the transmission may shift unpredictably or enter limp mode. If the vehicle fails to start or shifts harshly, stop driving and have it towed.

## Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wire terminal pick and electrical contact cleaner
- Vehicle service information for sensor location and adjustment specs
- Basic hand tools (socket set, screwdrivers, pliers)

## Reading P0709

|           |                                                                      |
|-----------|----------------------------------------------------------------------|
| <b>P</b>  | Powertrain: engine, transmission and emissions.                      |
| <b>0</b>  | Generic (SAE) code: it means the same thing on every OBD-II vehicle. |
| <b>7</b>  | Transmission.                                                        |
| <b>09</b> | The exact fault within that area.                                    |

## Often seen with

**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 · **P0710** Transmission Fluid Temperature Sensor Circuit Malfunction



### 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/p0709/>

