

GENERIC · POWERTRAIN

P07EA

OBD-II TROUBLE CODE

P07EA

Transmission Range Control A Circuit Low

P07EA indicates that the transmission control module (TCM) has detected an abnormally low voltage or current on the electrical circuit for Transmission Range Control A, which is typically the signal path from the transmission range sensor or the control circuit for a shift actuator. The TCM sets this code when the circuit voltage falls below the manufacturer's specified threshold, indicating a short to ground, an open circuit, or a faulty component.

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

Symptoms you may notice

- Illumination of the check engine light or transmission warning light, often with no other noticeable symptoms
- Harsh or delayed gear engagements, especially when shifting from Park or Neutral into Drive or Reverse
- Transmission stuck in a single gear or failing to shift through the normal sequence
- Inability to select certain ranges, or the gear indicator displaying the wrong range
- Limp-home mode activation with reduced engine power or limited speed
- Occasional no-start condition if the range sensor misreports the Park or Neutral position

Common causes, most likely first

- 1 Damaged, corroded, or disconnected wiring or connector at the transmission range sensor or actuator
- 2 Faulty transmission range sensor (also called neutral safety switch or TRS) internally shorted to ground
- 3 Failed transmission control module (TCM) driver circuit for the range control solenoid or actuator
- 4 Short to ground in the harness between the TCM and the transmission range sensor or actuator
- 5 Poor ground connection at the transmission case or chassis, causing reference voltage to drop
- 6 Internal failure of the range control actuator or solenoid, such as a shorted coil
- 7 Water intrusion or fluid contamination in the connector or sensor, leading to low signal voltage



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes, and record freeze-frame data to understand when the fault occurs
- 2 Inspect the transmission range sensor connector and harness for corrosion, chafing, or loose pins, and repair as needed
- 3 Measure resistance and voltage on the range control circuit at the sensor and at the TCM, comparing to manufacturer specifications
- 4 Perform a wiggle test on the harness while monitoring live data to identify intermittent opens or shorts
- 5 Check and clean all ground points related to the transmission and TCM, then retest
- 6 If the circuit tests good, substitute a known-good range sensor or actuator and clear the code to see if it returns
- 7 If the fault persists after all external checks, follow the manufacturer's diagnostic flow for internal TCM testing or replacement

Range sensor wiring faults mimic internal failures

- A low-voltage code on a range control circuit is more often caused by a chafed wire or corroded connector than by a failed transmission internally, so always inspect the harness before condemning hard parts.
- Some vehicles use a range control actuator that is part of the valve body; a shorted solenoid coil can pull the entire circuit low and set this code without any mechanical shifting problem.
- The TCM may set P07EA intermittently if the battery voltage is low during cranking, so check charging system health before chasing transmission wiring.
- A misadjusted or loose transmission range sensor can produce a low signal on one circuit while other range circuits read normally, leading to confusing live data.
- After repairs, the TCM may require a relearn or adaptation reset for the range sensor before the code will clear permanently.

Can I keep driving with P07EA?

If the vehicle drives normally and the only symptom is the warning light, you can drive cautiously to a repair shop, but avoid heavy loads or aggressive acceleration. If the transmission is in limp mode, shifts harshly, or refuses to engage a gear, stop driving and have it towed to prevent further damage.

Tools that help

- OBD-II scan tool with live data and bidirectional control capability
- Digital multimeter with back-probing pins
- Wiring diagram and manufacturer service information
- Socket set and trim removal tools for accessing the transmission range sensor
- Contact cleaner and dielectric grease for connector repair



Reading P07EA

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

Often seen with

P0705 Transmission Range Sensor Circuit Malfunction · **P0706** Transmission Range Sensor Circuit Range/Performance · **P07E8** Transmission Range Control A Circuit/Open · **P07E9** Transmission Range Control A Circuit Performance · **P07EB** Transmission Range Control A 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/p07ea/>

