

GENERIC · POWERTRAIN

P07EC

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P07EC

Transmission Range Multi-Function Select Circuit

P07EC indicates that the transmission control module has detected an implausible or missing signal from the multi-function select circuit, which typically includes the range sensor or switch that tells the computer which gear position the driver has selected. The computer sets this code when the voltage or resistance pattern from that circuit does not match any valid range, such as Park, Reverse, Neutral, or Drive.

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 illuminated on the dashboard.
- The gear position indicator on the instrument cluster may flash, show the wrong range, or fail to display the selected gear.
- The vehicle may start in the wrong gear, refuse to start in Park or Neutral, or fail to engage reverse.
- Transmission may default to a limp mode with harsh shifting or limited to a single forward gear.
- Often no symptoms besides the warning light, especially if the fault is intermittent.

Common causes, most likely first

- Faulty transmission range sensor or multi-function switch, also called a neutral safety switch or park/neutral position switch.
- Damaged, corroded, or loose wiring or connector at the transmission range sensor or switch.
- Misadjusted or misaligned range sensor or selector cable, causing the sensor to read outside valid ranges.
- Internal failure in the transmission control module or a poor ground connection affecting the sensor reference voltage.
- Contamination or mechanical wear inside the range switch assembly, such as metal debris or worn contacts.
- Aftermarket or improperly installed remote start or alarm system interfering with the range signal circuit.



How to diagnose and fix it

- 1 Connect a scan tool and read all transmission control module codes and live data to confirm the range sensor signal is erratic or out of range.
- 2 Inspect the range sensor connector and wiring for corrosion, chafing, or loose pins, and repair any damaged sections.
- 3 Check the sensor alignment and selector cable adjustment according to the manufacturer's procedure, then recheck the live data.
- 4 Backprobe the range sensor connector and measure resistance or voltage across the switch in each gear position to compare with specifications.
- 5 If the sensor fails the electrical test, replace the transmission range sensor or multi-function switch and clear the code.
- 6 Verify good ground and reference voltage at the sensor; repair any wiring faults to the transmission control module.
- 7 After repair, clear the code and perform a road test through all gear ranges to confirm the code does not return.

Range sensor faults that mimic other problems

- A misadjusted selector cable can set P07EC even when the range sensor itself is perfectly functional, so always check cable adjustment before replacing parts.
- Intermittent P07EC codes often appear only in cold weather or after driving over rough roads, pointing to a wiring harness issue rather than a failed sensor.
- Some vehicles use a single multi-function switch that also controls reverse lights and starter enable, so a failure can cause no-crank or no-reverse-light symptoms alongside the code.
- A weak or failing battery or charging system can cause low voltage to the range sensor circuit and set this code without any sensor fault.
- Aftermarket remote start systems that tap into the range signal circuit are a common cause of P07EC on otherwise healthy vehicles.

Can I keep driving with P07EC?

If the vehicle drives and shifts normally, you can drive cautiously to a repair shop, but avoid relying on the gear indicator and be prepared for a possible limp mode. If the transmission is stuck in one gear, refuses to engage reverse, or the engine will not start in Park or Neutral, stop driving and have the vehicle towed.



Tools that help

- OBD-II scan tool with transmission control module live data capability
- Digital multimeter for resistance and voltage measurements
- Vehicle-specific service information for range sensor adjustment and wiring diagrams
- Basic hand tools including socket set and trim removal tools
- Jack and jack stands or ramps for under-vehicle access

Reading P07EC

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
7	Transmission.
EC	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 · **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/p07ec/>

