

GENERIC · POWERTRAIN

P07F0

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P07F0

Transmission Range Multi-Function Select Circuit High

P07F0 indicates that the transmission control module (TCM) has detected an abnormally high voltage on the multi-function select circuit, which is the wiring that carries the driver's gear selection signal from the range switch to the TCM. The circuit is expected to operate within a specific voltage window, and a high reading tells the TCM that the signal line is likely shorted to power or that the range switch has failed.

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 flash, show the wrong range, or fail to display the selected gear.
- The transmission may default to a limp mode, staying in one gear or refusing to shift normally.
- The engine may crank but not start if the TCM cannot confirm the selector is in Park or Neutral.
- Some vehicles may exhibit harsh or delayed engagements when moving the selector from Park to Drive or Reverse.
- Often no symptoms besides the warning light, especially if the fault is intermittent and the TCM has not yet entered a protective strategy.

Common causes, most likely first

- A short to voltage on the multi-function select circuit wiring, often from chafed insulation against a power wire or a pinched harness.
- A failed transmission range switch (also called the multi-function switch or neutral safety switch) that internally shorts the signal circuit to power.
- Corroded, bent, or pushed-back pins at the range switch connector or the TCM connector, creating an intermittent high-voltage condition.
- Water intrusion into the range switch connector or the TCM connector, leading to corrosion and voltage leakage.
- A faulty TCM that misinterprets a normal signal as high, though this is less common than wiring or switch faults.
- Aftermarket accessories or remote start wiring improperly tied into the range signal circuit, feeding voltage where it does not belong.



How to diagnose and fix it

- 1 Connect a scan tool and record all transmission and body codes, then clear P07F0 and verify whether it returns immediately or only after cycling the selector through all ranges.
- 2 Inspect the range switch connector and TCM connector for corrosion, water intrusion, bent pins, or loose terminals, and repair any damaged terminals before replacing parts.
- 3 Backprobe the multi-function select circuit at the TCM with a digital multimeter and compare the voltage in each selector position against the manufacturer's specification to confirm the high reading.
- 4 Disconnect the range switch and check for voltage on the signal circuit with the key on; if voltage is present with the switch disconnected, repair the short to power in the harness.
- 5 Check the range switch with an ohmmeter or by monitoring live data while moving the selector slowly through each detent, looking for a position that produces an open or high-voltage signal.
- 6 If the switch fails the resistance or live-data test, replace the range switch and perform any required calibration or relearn procedure with the scan tool.
- 7 After repairs, clear codes, road test through all gear ranges, and verify that P07F0 does not return and that the gear indicator and shift quality are normal.

What the range switch test really shows

- A high-voltage reading on this circuit is frequently caused by a short to power in the harness rather than by the range switch itself, so disconnecting the switch and rechecking voltage is the quickest way to separate a switch fault from a wiring fault.
- The multi-function select circuit often shares a connector with reverse lamps, park-neutral signals, and backup camera triggers, so a single corroded pin can set P07F0 along with unrelated body or lighting codes.
- Intermittent P07F0 codes that appear only in wet weather usually point to water intrusion at the range switch connector or a harness rub-through near the transmission, not to a failing TCM.
- A TCM that has logged P07F0 may refuse to crank or may command a default gear, so technicians who replace the TCM without fixing the underlying high-voltage signal will see the code return immediately.
- Aftermarket remote start or alarm installations that tap into the range signal wire are a commonly missed cause of a persistent high-voltage code on this circuit.

Can I keep driving with P07F0?

The vehicle may enter a limp mode or refuse to start if the TCM cannot confirm the selector position, so avoid long trips and do not drive if the gear indicator is flashing or the transmission will not shift normally. If the only symptom is the warning light and the vehicle drives and shifts correctly, you can drive cautiously to a repair shop, but have it inspected promptly.



Tools that help

- OBD-II scan tool with live transmission data capability
- Digital multimeter with backprobe pins
- Wire repair kit with crimp connectors and heat-shrink tubing
- Manufacturer service information for connector pinouts and voltage specifications
- Basic hand tools for removing interior and underhood trim to access the range switch and TCM

Reading P07F0

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
7	Transmission.
F0	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 · **P0709** Transmission Range Sensor Circuit Intermittent

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/p07f0/>

