

GENERIC · POWERTRAIN

P097D

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P097D

Shift Solenoid D Control Circuit/Open

P097D indicates that the transmission control module (TCM) has detected an open circuit or abnormal voltage in the control circuit for shift solenoid D, which is one of the solenoids that manages gear shifts inside the transmission. The TCM commands the solenoid to change states, but the electrical feedback does not match the expected value, so it sets this code and may place the transmission in a default or limp mode.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Transmission

Symptoms you may notice

- The check engine light or transmission warning light illuminates on the dashboard.
- The transmission may shift harshly, flare between gears, or slip when accelerating.
- The vehicle may enter limp mode, limiting speed and gear selection to a single gear.
- Delayed or erratic engagement when shifting from park to drive or reverse.
- Often no symptoms besides the warning light, especially if the fault is intermittent.

Common causes, most likely first

- 1 A damaged or disconnected wiring harness or connector at the shift solenoid D, often due to chafing, corrosion, or heat exposure.
- 2 A failed shift solenoid D, where the internal coil is open or shorted, preventing proper circuit continuity.
- 3 A faulty transmission control module (TCM) or a poor ground connection affecting the solenoid control circuit.
- 4 Debris or contaminated transmission fluid clogging the solenoid valve, causing electrical feedback anomalies.
- 5 A broken or corroded pin in the transmission pass-through connector or internal wiring harness.
- 6 Low or degraded transmission fluid leading to solenoid malfunction and circuit irregularities.



How to diagnose and fix it

- 1 Check the transmission fluid level and condition; top off or replace fluid if it is low or burnt, as this is the cheapest first step.
- 2 Inspect the wiring harness and connectors at the shift solenoid D for damage, corrosion, or loose pins, and repair as needed.
- 3 Measure the resistance of shift solenoid D with a multimeter and compare it to the manufacturer's specification to confirm if the solenoid is open or shorted.
- 4 Test the control circuit from the TCM to the solenoid for continuity and short-to-ground or short-to-power faults using a wiring diagram.
- 5 If the solenoid is faulty, replace it, which may require dropping the transmission pan or valve body depending on the design.
- 6 Clear the code and perform a relearn or adaptation drive cycle to verify the repair and ensure the transmission shifts correctly.
- 7 If all electrical checks pass, diagnose the TCM for internal faults or software issues before replacement.

Don't overlook the wiring harness first

- A common mistake is replacing the shift solenoid D immediately, but the fault is frequently in the external wiring harness or connector, especially near heat sources or where the harness flexes.
- The code can be set by a momentary glitch in the circuit, so an intermittent open may not appear during a simple resistance check; a wiggle test while monitoring live data is often needed.
- Contaminated transmission fluid can cause the solenoid to stick mechanically, which may set an electrical code even though the solenoid coil tests good.
- Some vehicles use a single solenoid for multiple functions, so a failure may affect more than one gear and mimic other transmission codes.
- A weak battery or charging system can cause voltage spikes that trigger this code, so always verify battery and ground integrity before condemning the solenoid.

Can I keep driving with P097D?

If the transmission is in limp mode or shifting erratically, avoid highway driving and seek service soon to prevent further damage. If the only symptom is the warning light and the vehicle drives normally, you can drive cautiously to a repair shop, but do not tow heavy loads or drive aggressively.



Tools that help

- OBD-II scanner with live data and transmission capabilities
- Digital multimeter
- Wiring diagram for the specific vehicle
- Transmission fluid level gauge and fluid pump
- Socket set and trim removal tools
- Jack and jack stands or a lift

Reading P097D

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

Often seen with

P0700 Transmission Control System Malfunction · **P097B** Shift Solenoid B Control Circuit/Open · **P097C** Shift Solenoid C Control Circuit/Open · **P097E** Shift Solenoid E Control Circuit/Open · **P097F** Shift Solenoid F Control Circuit/Open

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/p097d/>

