

GENERIC · POWERTRAIN

P0997

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0997

Shift Solenoid 'F' Control Circuit Range/Performance

P0997 indicates that the powertrain control module (PCM) has detected an abnormal range or performance in the control circuit for shift solenoid 'F', which is responsible for controlling a specific gear shift in the automatic transmission. The PCM monitors the solenoid's electrical circuit and compares the commanded state to the actual feedback; when the circuit's voltage or current falls outside the expected range for the given conditions, it sets this code.

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

Symptoms you may notice

- Illumination of the check engine light (malfunction indicator lamp) on the dashboard.
- Harsh or delayed gear shifts, particularly when shifting into or out of the gear controlled by solenoid 'F'.
- Transmission may enter limp mode, limiting vehicle speed and available gears.
- Slipping or flaring during shifts, where engine speed rises without corresponding vehicle acceleration.
- Often no symptoms besides the warning light, especially if the fault is intermittent.

Common causes, most likely first

- 1 Faulty shift solenoid 'F' itself, such as a stuck valve or degraded internal coil.
- 2 Damaged or corroded wiring and connectors in the solenoid control circuit, including open or short circuits.
- 3 Transmission fluid contamination or low fluid level, causing solenoid performance issues.
- 4 Valve body wear or sticking valves that affect solenoid 'F' operation.
- 5 PCM internal fault or software issue incorrectly interpreting solenoid feedback.
- 6 Poor electrical ground connection for the transmission or PCM.



How to diagnose and fix it

- 1 Check transmission fluid level and condition; top off or replace fluid if contaminated.
- 2 Inspect the solenoid 'F' electrical connector and wiring for damage, corrosion, or loose pins; repair as needed.
- 3 Measure resistance of shift solenoid 'F' and compare to manufacturer specifications; replace if out of range.
- 4 Test the control circuit for continuity and shorts to ground or power using a multimeter; repair wiring faults.
- 5 Perform a voltage drop test on the solenoid circuit under load to identify high resistance connections.
- 6 If electrical tests pass, remove the transmission pan and inspect the solenoid 'F' for physical damage or sticking; replace if necessary.
- 7 After repairs, clear the code and perform a road test to verify the transmission shifts correctly and the code does not return.

Don't overlook the simple checks first

- A low or dirty transmission fluid condition can mimic a failed solenoid 'F', so always verify fluid level and quality before condemning the solenoid.
Intermittent wiring faults often set P0997 without any drivability symptoms, so a wiggle test of the harness while monitoring live data can reveal the issue.
- Some vehicles use a single solenoid for multiple functions; a fault in solenoid 'F' may also trigger related codes for other solenoids or shift ranges.
- The PCM may set P0997 as a result of a mechanical transmission problem, such as a stuck valve, even when the solenoid itself tests good electrically.
Always check for technical service bulletins (TSBs) for the specific vehicle, as some manufacturers have known issues with solenoid 'F' circuits or PCM calibration.

Can I keep driving with P0997?

It is generally safe to drive with P0997 if the transmission shifts normally, but avoid aggressive acceleration or heavy loads until the fault is diagnosed. If the transmission enters limp mode or shifts harshly, seek professional diagnosis promptly to prevent further damage.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Transmission fluid level gauge
- Socket and wrench set
- Wire repair kit



Reading P0997

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

Often seen with

P0700 Transmission Control System Malfunction · **P0750** Shift Solenoid 'A' · **P0760** Shift Solenoid 'C' · **P0996** Transmission Fluid Pressure Sensor/Switch 'F' Circuit Interm · **P0998** Shift Solenoid 'F' Control Circuit Low

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/p0997/>

