



P1770 · Ford

Clutch Solenoid Circuit Malfunction

P1770 on Ford vehicles indicates that the powertrain control module (PCM) has detected an electrical fault in the clutch solenoid circuit, which controls a solenoid used in certain automatic transmissions or clutch actuation systems. The PCM monitors the circuit for expected voltage or current and sets this code when the signal falls outside the normal range, often due to an open, short, or excessive resistance.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Ford specific	Medium	Intermediate	Transmission

Symptoms you may notice

- Illumination of the check engine light or transmission warning light
- Harsh or delayed gear engagement, especially when shifting into drive or reverse
- Transmission may enter limp mode or fail to shift properly
- Slipping or shuddering during acceleration
- Often no symptoms besides the warning light, especially if the fault is intermittent

Common causes, most likely first

- 1 Faulty clutch solenoid (open or shorted coil)
- 2 Damaged or corroded wiring harness or connector at the solenoid
- 3 Poor ground connection for the solenoid circuit
- 4 Transmission fluid contamination or low fluid level affecting solenoid operation
- 5 Failed powertrain control module (PCM) driver circuit (rare)

How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related transmission codes
- 2 Inspect the clutch solenoid connector and wiring for damage, corrosion, or loose pins
- 3 Measure the resistance of the clutch solenoid with a multimeter and compare to factory specification
- 4 Check the solenoid circuit for shorts to ground or power using a wiring diagram
- 5 Test the solenoid by applying 12 volts directly to confirm it clicks and operates
- 6 Replace the clutch solenoid if it fails electrical testing
- 7 Clear the code and perform a road test to confirm the repair



Don't overlook the wiring harness

- A common cause of P1770 that is often missed is a chafed wire in the harness near the transmission, which can short intermittently as the engine moves.
- The code does not always mean the solenoid itself is bad; a poor ground or a faulty PCM driver can set the same code, so always test the circuit before replacing parts.
- On some Ford models, the clutch solenoid is part of the valve body, and replacing it requires removing the transmission pan, which can be a labor-intensive job.
- Transmission fluid that is contaminated or low can cause solenoid performance issues that mimic an electrical fault, so check fluid condition and level first.
- Intermittent P1770 codes can be caused by a loose connector that only loses contact during certain driving conditions, such as going over bumps.

Can I keep driving with P1770?

If the vehicle is shifting poorly or has entered limp mode, avoid driving at high speeds or under heavy load and seek repair promptly. If the only symptom is a warning light and the transmission feels normal, you can drive cautiously to a repair shop, but prolonged driving with a faulty solenoid may cause further transmission damage.

Tools that help

- OBD-II scan tool
- Digital multimeter
- Wiring diagram for the specific Ford model
- Socket set and trim removal tools
- Transmission fluid level checker

Reading P1770

P	Powertrain: engine, transmission and emissions.
1	Manufacturer-specific code (Ford): its meaning depends on the make.
7	Transmission.
70	The exact fault within that area.

Often seen with

P1771 Load Signal Stuck Off · **P1772** Load Signal Stuck On · **P1771** Throttle Position Sensor Circuit Open To Transmission Contro · **P1772** Throttle Position Sensor Circuit Shorted To Transmission Con · **P0700** Transmission Control System Malfunction · **P0740** Torque Converter Clutch Circuit Malfunction · **P0750** Shift Solenoid 'A'



See it working

Watch the animated explainer [Manual Car Driving Simulator: Learn Clutch Control](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1770/>

