

FORD · POWERTRAIN

P1766

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1766 · Ford

Shift Solenoid D Performance

P1766 on Ford vehicles indicates that the powertrain control module (PCM) has detected a performance problem with shift solenoid D, which controls fluid pressure for a specific gear change in the automatic transmission. The PCM monitors the solenoid's electrical circuit and the resulting hydraulic response, and it sets this code when the commanded shift does not occur within the expected time or when the solenoid's current draw falls outside the normal range.

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

Symptoms you may notice

- The check engine light or transmission warning light illuminates on the dashboard.
- Harsh or delayed shifts, especially when the transmission attempts to engage the gear controlled by solenoid D.
- The transmission may slip or fail to engage certain gears, causing the engine to rev without corresponding vehicle speed.
- The PCM may place the transmission in limp mode, limiting operation to a single gear or a reduced set of gears.
- In some cases, no drivability symptoms are noticed besides the warning light, particularly if the fault is intermittent.

Common causes, most likely first

- 1 Faulty shift solenoid D, often due to internal coil failure or contamination blocking the solenoid valve.
- 2 Damaged or corroded wiring and connectors in the solenoid D circuit, including chafed harnesses near the transmission.
- 3 Low or contaminated transmission fluid, which can cause solenoid performance issues and hydraulic pressure problems.
- 4 Valve body wear or sticking valves that prevent the solenoid from controlling fluid pressure correctly.
- 5 A failing PCM or transmission control module (TCM) that misinterprets solenoid feedback, though this is less common.
- 6 Internal transmission mechanical damage, such as a worn clutch pack or band, that affects the shift controlled by solenoid D.



How to diagnose and fix it

- 1 Check the transmission fluid level and condition; top off or replace fluid if it is low or contaminated.
- 2 Inspect the wiring harness and connectors at the transmission 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 identify an open or shorted coil.
- 4 Perform a voltage drop test on the solenoid D circuit under load to detect excessive resistance in the wiring or connectors.
- 5 Use a scan tool to command solenoid D on and off while monitoring transmission data to verify electrical and hydraulic response.
- 6 If electrical checks pass, remove the transmission pan and inspect the solenoid and valve body for debris or sticking valves; replace the solenoid if faulty.
- 7 After repairs, clear the codes and perform a relearn or adaptation drive cycle to confirm the fix and ensure the code does not return.

Common Misdiagnosis Traps for P1766

- A contaminated transmission fluid often causes solenoid performance codes without the solenoid itself being defective, so a fluid service can resolve the issue before any parts are replaced.
- The wiring harness near the transmission is prone to chafing and heat damage, and a visual inspection alone may miss internal wire breaks that only appear under vibration or temperature changes.
- Some technicians replace the solenoid D without checking the valve body, but a worn valve body can prevent a new solenoid from functioning correctly and lead to a repeat code.
- P1766 can be set by a mechanical fault inside the transmission, such as a worn clutch pack, which mimics an electrical solenoid failure and requires transmission removal to diagnose properly.
- Intermittent P1766 codes that appear only under specific driving conditions often point to a marginal electrical connection rather than a failed solenoid, so wiggle tests and live data monitoring are essential.

Can I keep driving with P1766?

You can drive the vehicle cautiously if the transmission still shifts and the code is intermittent, but avoid heavy acceleration or towing because a failing solenoid can cause harsh engagements or sudden loss of gear. If the transmission enters limp mode or slips severely, stop driving and have the vehicle towed to prevent further damage.



Tools that help

- OBD-II scan tool with transmission diagnostic capability
- Digital multimeter
- Transmission fluid level dipstick or scan tool for fluid temperature
- Wire piercing probes and jumper wires
- Transmission pan gasket and fluid for service
- Factory service information for solenoid resistance specifications and torque values

Reading P1766

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

Often seen with

P1765 Hydraulic Pressure Sensor 2 Adaptation At Limit · **P1767** Throttle Angle Signal Stuck On · **P1765** Linear Shift Solenoid Circuit Fault · **P1765** Transmission 3-2 Timing Solenoid Valve · **P1767** Torque Converter Clutch Solenoid Circuit · **P1765** Trans 12 Volt Supply Relay Control Circuit Open Or Shorted · **P1767** Torque Converter Clutch Circuit Malfunction · **P1765** Trans 12 Volt Supply Relay Control Circuit Open Or Shorted · **P1765** CAN Throttle Valve · **P0750** Shift Solenoid 'A' · **P0755** Shift Solenoid 'B' · **P0760** Shift Solenoid 'C'

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/ford-p1766/>

