

FORD · POWERTRAIN

P1746

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1746 · Ford

Electronic Pressure Control Solenoid A Open Circuit

P1746 on Ford vehicles means the transmission control module (TCM) has detected an open circuit in the electronic pressure control (EPC) solenoid A circuit, so the solenoid is not receiving the electrical current it needs to regulate hydraulic pressure. The TCM commands a specific current to the solenoid and monitors the return circuit; when the measured current falls outside the expected range or the circuit shows infinite resistance, it sets this code and typically defaults the transmission to a high-pressure limp mode.

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

Symptoms you may notice

- The check engine light or transmission warning light illuminates on the dashboard.
- Harsh or delayed shifts, often described as a firm slam into gear, especially when selecting drive or reverse.
- The transmission may default to a fixed high line pressure, causing every shift to feel abrupt.
- In some cases the transmission enters limp mode and stays in a single gear or refuses to downshift.
- Often no symptoms besides the warning light, particularly if the open circuit is intermittent and the solenoid still functions under most conditions.

Common causes, most likely first

- 1 A broken, chafed, or corroded wire in the EPC solenoid A circuit between the TCM and the transmission connector.
- 2 A loose, contaminated, or water-intruded transmission range sensor or solenoid body connector.
- 3 An open winding inside the EPC solenoid itself, which fails the TCM's current-rise test.
- 4 A faulty transmission control module (TCM) driver circuit that cannot supply current to the solenoid.
- 5 Corrosion or pin fit issues at the TCM harness connector, common on older Ford trucks and SUVs exposed to road salt.
- 6 A shorted or open trace on the solenoid body assembly internal harness, especially after fluid contamination or valve body work.



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data for P1746, then clear the code and verify whether it returns immediately or only after a drive cycle.
- 2 Inspect the transmission connector and solenoid body connector for corrosion, bent pins, or fluid intrusion, and clean or repair as needed.
- 3 Measure resistance of the EPC solenoid A winding at the transmission connector and compare to the Ford service specification for the specific transmission.
- 4 Check continuity and voltage drop on the EPC solenoid A feed and ground wires from the TCM to the transmission connector while wiggling the harness to catch intermittent opens.
- 5 If the circuit tests good, command the EPC solenoid with a bidirectional scan tool and watch for current and pressure response to confirm whether the solenoid or TCM is at fault.
- 6 Replace the EPC solenoid or solenoid body assembly if the winding is open, following Ford's fluid and torque procedures.
- 7 If the TCM driver circuit is confirmed open, replace or reprogram the TCM and perform the adaptive learning/relearn procedure.

What Ford techs check before replacing the solenoid

- A P1746 is frequently caused by a chafed harness near the transmission bellhousing or exhaust heat shield rather than by the solenoid itself, so always inspect the wire routing before condemning the part.
- On many Ford transmissions the EPC solenoid shares a connector with the shift solenoids, and fluid wicking through the connector pins can create an open circuit that only appears when the transmission is hot.
- An intermittent P1746 that clears after a key cycle is often a pin fit issue at the TCM connector, not a failed solenoid, and replacing the solenoid will not fix it.
- The TCM may set P1746 as a companion code when the transmission is low on fluid or the filter is restricted, because the solenoid current rise time changes when hydraulic load is abnormal.
- Do not overlook the transmission range sensor on models where it is integrated into the solenoid body harness; a faulty sensor can interrupt the shared ground and trigger a false open-circuit code.

Can I keep driving with P1746?

You can usually drive the vehicle to a shop, but expect harsh shifts and possible limp mode, so avoid heavy throttle, towing, or highway merging until the fault is repaired. If the transmission slips or refuses to engage a gear, stop driving and have it towed to prevent internal damage.



Tools that help

- OBD-II scan tool with bidirectional control and transmission live data
- Digital multimeter with min/max recording
- Ford service information for connector pinouts and solenoid resistance specifications
- Wire terminal pick and connector cleaning kit
- Transmission fluid drain pan and fluid pump

Reading P1746

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

Often seen with

P1747 Transmission Control Unit Relay Open Short To Ground · **P1748** Transmission Control Unit Self-Check · **P1747** Electronic Pressure Control Solenoid Circuit · **P1748** Pressure Control Solenoid A · **P1747** Pressure Regulator 3 · **P1748** Pressure Regulator 5 · **P1747** Electronic Pressure Control Solenoid A Short Circuit · **P1748** EPC Malfunction · **P1747** CAN Bus Monitoring · **P1748** Transmission Control Module Self Test · **P0743** Torque Converter Clutch Circuit Electrical · **P0750** Shift Solenoid 'A' · **P0755** Shift Solenoid 'B'

See it working

Watch the animated explainer [How a Radiator Fan Relay Circuit Works](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1746/>

