



P1747 · Mazda

Electronic Pressure Control Solenoid Circuit

P1747 on Mazda vehicles means the transmission control module (TCM) has detected an electrical fault in the circuit for the electronic pressure control (EPC) solenoid inside the automatic transmission. The TCM monitors the solenoid's current draw and expected response, and when the signal falls outside the programmed limits it commands a failsafe mode and stores this code. The EPC solenoid regulates hydraulic line pressure, so a circuit fault can affect shift quality and torque converter clutch operation.

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

Symptoms you may notice

- Illumination of the check engine light or transmission warning light, often with no other symptoms besides the warning light
- Harsh or delayed upshifts and downshifts as the transmission defaults to a higher line pressure failsafe strategy
- The transmission may stick in a single gear or refuse to engage overdrive, leaving the engine revving high at highway speed
- A noticeable clunk or jolt when selecting Drive or Reverse from a stop
- Reduced fuel economy and elevated engine rpm during steady cruising
- In some cases the vehicle may enter limp mode and limit road speed

Common causes, most likely first

- 1 Damaged, chafed, or corroded wiring in the EPC solenoid circuit between the TCM and the transmission connector
- 2 Failed electronic pressure control solenoid itself, with an open or shorted internal coil
- 3 Contaminated transmission fluid or a clogged solenoid screen causing the solenoid to draw abnormal current
- 4 Loose or corroded pins at the transmission range sensor or main transmission connector
- 5 Internal transmission harness damage from heat, fluid exposure, or previous repair work
- 6 A faulty TCM driver circuit that cannot supply or monitor the solenoid correctly
- 7 Low or degraded transmission fluid level causing the solenoid to operate outside its expected electrical load



How to diagnose and fix it

- 1 Check the transmission fluid level and condition first, looking for dark or burnt fluid and any signs of contamination
- 2 Inspect the main transmission connector and the EPC solenoid connector for corrosion, loose pins, or pushed-back terminals
- 3 Measure the resistance of the EPC solenoid at the transmission connector and compare it to the Mazda specification for the vehicle
- 4 Perform a voltage drop test on the power and ground sides of the EPC circuit while the circuit is loaded
- 5 Inspect the transmission wiring harness for chafing, heat damage, or fluid intrusion along its routing
- 6 If the circuit tests good, remove the transmission pan and test the solenoid directly, replacing it if resistance or operation is out of spec
- 7 Clear the code and perform a road test with a scan tool watching EPC solenoid current and line pressure data to confirm the repair

What Mazda technicians check before replacing the EPC solenoid

- A dirty or restricted transmission filter can cause the EPC solenoid to draw abnormal current and set P1747 even though the solenoid itself is healthy, so fluid and filter condition must be checked first.
- The EPC solenoid shares a power feed or ground path with other transmission solenoids on many Mazda units, so a single chafed wire can set multiple solenoid circuit codes at once and mislead you into replacing good parts.
- After replacing the EPC solenoid or repairing the circuit, the TCM may need a relearn or adaptive shift reset before shift quality returns to normal, and skipping this step makes a correct repair feel like a failure.
- P1747 can be stored intermittently by a connector that only loses contact when the transmission is hot or when the vehicle hits a bump, so a wiggle test of the harness while watching live solenoid current data often exposes the real fault.
- A failing transmission control module is the least common cause, yet it is frequently replaced first; confirm the solenoid coil and every inch of wiring before condemning the TCM.

Can I keep driving with P1747?

You can usually drive the vehicle to a repair shop, but expect harsh shifts and possible limp mode, so avoid heavy acceleration, towing, and long highway trips until the fault is repaired. If the transmission slips badly or refuses to engage a gear, stop driving and arrange a tow to prevent internal damage.



Tools that help

- OBD-II scan tool with Mazda transmission live data capability
- Digital multimeter with resistance and voltage drop functions
- Transmission fluid level dipstick or scan tool fluid temperature readout
- Socket and wrench set for pan and solenoid removal
- Wiring diagram for the specific Mazda model and transmission
- Transmission fluid drain pan and replacement fluid

Reading P1747

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

Often seen with

P1746 Transmission Control Unit Relay Malfunction · **P1746** Electronic Pressure Control Solenoid Circuit Open · **P1746** Pressure Regulator 2 · **P1746** Electronic Pressure Control Solenoid A Open Circuit · **P1746** Transmission Control Module Output Stage · **P0700** Transmission Control System Malfunction · **P0715** Input/Turbine Speed Sensor Circuit Malfunction · **P0740** Torque Converter Clutch Circuit Malfunction · **P0741** Torque Converter Clutch Circuit Performance or Stuck Off

See it working

Watch the animated explainer [How Push-Button Start Works: Keyless Ignition](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1747/>

