

GENERIC · POWERTRAIN

P0945

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0945

Hydraulic Pump Relay Circuit/Open

P0945 indicates that the powertrain control module (PCM) has detected an open circuit in the hydraulic pump relay control circuit. This relay supplies power to the hydraulic pump, which is used in systems such as electronic power steering or active suspension, so the PCM sees no voltage or current where it expects to find the relay coil or its feedback signal.

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

Symptoms you may notice

- Illumination of the check engine light or service vehicle soon message
- Often no symptoms besides the warning light if the hydraulic system is not currently needed
- Reduced or absent power steering assist, making the steering wheel hard to turn
- A hydraulic pump that does not run when commanded, leading to stiff suspension or loss of ride control
- Intermittent operation of the hydraulic system, with the fault appearing only in certain conditions
- A clicking or chattering relay that does not consistently engage the pump

Common causes, most likely first

- 1 Failed hydraulic pump relay, with burned contacts or an open coil
- 2 Open or damaged wiring in the relay control circuit, including broken wires or corroded connectors
- 3 Blown fuse or missing power feed to the relay, though this often sets additional codes
- 4 Poor ground connection at the relay or at the hydraulic pump motor
- 5 Faulty powertrain control module driver circuit, though this is less common
- 6 Corrosion or water intrusion in the relay socket or connector, causing high resistance

How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related codes in other modules before proceeding
- 2 Inspect the hydraulic pump relay, its socket, and associated fuses for obvious damage or corrosion
- 3 Test the relay coil and contacts with a multimeter, or swap it with a known-good relay of the same type
- 4 Check for battery power at the relay terminals with the key on and during a commanded activation
- 5 Perform a voltage drop test on the ground circuit and the power feed to the relay
- 6 Inspect the wiring harness between the PCM and the relay for chafing, breaks, or loose pins
- 7 If all external circuits test good, test the PCM driver output with a test light or oscilloscope before condemning the PCM



Relay failures often mimic pump failures

- A failed relay can cause the same symptoms as a failed hydraulic pump, so always test the relay and its control circuit before replacing the pump.
- The PCM may set P0945 only when the hydraulic system is commanded on, so the code might not appear during a short test drive.
- Corroded relay sockets are a frequent cause on vehicles that see road salt or live in humid climates, and the corrosion can be hidden inside the connector.
- A weak battery or charging system fault can cause the PCM to misreport relay circuit codes, so check system voltage first.
- Some vehicles use a solid-state relay integrated into the pump assembly, and an open circuit inside that module will set P0945 even though the external wiring is perfect.

Can I keep driving with P0945?

If the steering assist or suspension function is noticeably affected, limit driving to low speeds and avoid heavy steering loads until repaired. If the only symptom is the warning light and the vehicle drives normally, you can drive cautiously to a repair shop, but do not ignore the code because the hydraulic system may fail without warning.

Tools that help

- OBD-II scan tool
- Digital multimeter
- Test light
- Relay puller or small screwdriver
- Wiring diagram for the specific vehicle
- Oscilloscope (optional for PCM driver testing)

Reading P0945

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



Often seen with

P0944 Hydraulic Pressure Unit Loss of Pressure · **P0946** Hydraulic Pump Relay Circuit Range/Performance · **P0947** Hydraulic Pump Relay Circuit Low · **P0948** Hydraulic Pump Relay Circuit High · **P0949** Auto Shift Manual Adaptive Learning Not Complete

See it working

Watch the animated explainer [Car Relay Test Bench: Test 4-Pin and 5-Pin Relays](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0945/>

