

GENERIC · POWERTRAIN

P0445

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0445

EVAP Purge Control Valve Circuit Shorted

P0445 means the powertrain control module (PCM) has detected a short circuit in the electrical path of the evaporative emission (EVAP) purge control valve, which is the solenoid that opens to let fuel vapor from the charcoal canister be drawn into the intake. The PCM monitors the purge valve control circuit and sees voltage or current outside the expected range for the commanded state, so it flags the circuit as shorted.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Auxiliary emission controls

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms.
- A faint fuel vapor smell around the vehicle, especially after refueling or when parked.
- Rough idle or a stumble just after startup if the purge valve sticks open and allows unmetered vapor into the intake.
- Slightly higher fuel consumption because the purge strategy is disabled and vapor is not being burned.
- Failed emissions inspection due to the stored code and the disabled EVAP monitor.
- In rare cases, a no-start or hard-start condition if the valve remains open and floods the intake with vapor.

Common causes, most likely first

- 1 Purge solenoid coil internally shorted, causing excessive current draw on the control circuit.
- 2 Chafed or pinched wiring between the purge valve and the PCM shorting to ground or to battery voltage.
- 3 Corroded or damaged purge valve electrical connector allowing a short across the terminals.
- 4 Water intrusion into the purge valve connector or solenoid body causing a short.
- 5 PCM driver circuit for the purge solenoid failed in a shorted state, though this is less common.
- 6 Aftermarket or incorrectly installed purge valve with the wrong coil resistance.
- 7 Rodent damage to the purge valve wiring harness creating a short.



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to confirm P0445 is the only purge-related code and note the conditions when it set.
- 2 Visually inspect the purge valve connector and wiring for chafing, corrosion, water intrusion, or rodent damage, and repair any obvious faults.
- 3 Measure the resistance of the purge solenoid coil with a multimeter and compare it to the manufacturer's specification to check for an internal short.
- 4 Disconnect the purge valve and check for short-to-ground or short-to-voltage on the control circuit with a multimeter or test light, referring to a wiring diagram.
- 5 Command the purge valve on and off with a scan tool and listen for an audible click to verify the PCM driver and circuit operation.
- 6 If the circuit tests good but the valve does not respond, substitute a known-good purge valve and clear the code to see if it returns.
- 7 After repairs, clear the codes and run the EVAP monitor to completion to confirm the fault is resolved.

What a purge valve short really tells you

- A shorted purge valve can cause a rich condition at idle because fuel vapor is pulled into the intake when the valve is stuck open, so do not chase fuel trim codes without checking the purge circuit first.
- The PCM may set P0445 only after a specific drive cycle, so a code that clears and returns intermittently often points to a wiring issue rather than a failed valve.
- A short in the purge circuit can be caused by the valve coil shorting internally only when hot, so resistance tests done on a cold engine can pass and mislead you.
- Do not overlook the possibility that a shorted purge valve is a symptom of a failed PCM driver, especially if a replacement valve shorts immediately after installation.
- P0445 is often accompanied by P0443 or P0446 because the PCM disables the entire EVAP purge system when it detects a short, so diagnose the short first before replacing other EVAP components.

Can I keep driving with P0445?

You can usually drive with P0445 because the fault mainly affects emissions and fuel vapor recovery, but avoid long idling or heavy traffic if you smell fuel or notice rough running. Have the circuit inspected soon, since a shorted purge valve can eventually affect fuel trim and drivability.

Tools that help

- OBD-II scan tool with bidirectional control
- Digital multimeter
- Test light
- Wiring diagram for the EVAP purge circuit
- Basic hand tools for connector and harness access



Reading P0445

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

Often seen with

P0172 System Too Rich (Bank 1) · **P0443** EVAP Purge Control Valve Circuit Malfunction · **P0446** EVAP Vent Control Circuit Malfunction · **P0455** EVAP System Leak Detected (Large) · **P0456** Evaporative Emission System Leak Detected (very small leak)

See it working

Watch the animated explainer [Four-Stroke Engine Cutaway: Intake to Exhaust](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0445/>

