

GENERIC · POWERTRAIN

P0457

OBD-II TROUBLE CODE

P0457

Evaporative Emission System Leak Detected (fuel cap loose/off)

P0457 means the engine computer has run its evaporative emission (EVAP) system self-test and detected a leak large enough to escape through a loose or missing fuel cap. The computer uses a pressure sensor or a fuel-tank pressure switch to watch for the system holding pressure or vacuum, and when the expected seal is not there it flags this code.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Low

FIX DIFFICULTY

DIY

AREA

Auxiliary emission controls

Symptoms you may notice

- The check engine light is on, and often there are no other symptoms at all.
- A strong gasoline odor around the rear or side of the vehicle after refueling.
- The fuel cap may be visibly loose, cross-threaded, or missing entirely.
- The check engine light may come and go after a fill-up if the cap was not tightened.
- On some vehicles a message such as 'Check Fuel Cap' appears in the driver information display.
- A slight hesitation or rough idle only if the leak is large enough to upset fuel tank pressure control.

Common causes, most likely first

- 1 Fuel cap left loose, cross-threaded, or missing after a recent refueling.
- 2 A worn or damaged fuel cap seal that no longer holds pressure.
- 3 A cracked or disconnected EVAP hose at the fuel tank or filler neck.
- 4 A faulty fuel tank pressure sensor giving a false leak reading.
- 5 A stuck-open or leaking EVAP purge or vent solenoid.
- 6 A damaged filler neck or fuel tank seal from rust or impact.
- 7 A leaking EVAP canister or canister purge line under the vehicle.



How to diagnose and fix it

- 1 Check that the fuel cap is present and tighten it until it clicks several times, then clear the code and drive a full drive cycle to see if it returns.
- 2 Inspect the fuel cap seal for cracks, hardening, or debris and replace the cap if the seal is not pliable and clean.
- 3 Visually inspect all EVAP hoses and connections at the fuel tank, filler neck, and canister for cracks, looseness, or rodent damage.
- 4 Use a scan tool to read EVAP system pressure and fuel tank pressure sensor data while performing the manufacturer's EVAP monitor test.
- 5 Perform a smoke test on the EVAP system to pinpoint the exact leak location, watching for smoke at the cap, filler neck, and canister.
- 6 Test the purge and vent solenoids for proper operation and sealing, replacing any that fail to hold pressure or vacuum.
- 7 If no external leak is found, check the fuel tank pressure sensor signal against a known good value and replace it if it is out of range.

What a loose cap code really tells you

- A P0457 is often set by a cap that was tightened only one click, so the seal never fully seated even though the cap felt tight to the driver.
- Aftermarket fuel caps with poor-fitting seals are a common repeat cause, and a genuine cap that matches the filler neck is the reliable fix.
- The EVAP monitor only runs under specific conditions such as a cold start and a fuel level between about one-quarter and three-quarters, so the code may take several days to return after a repair.
- A leaking purge solenoid can mimic a loose cap because it lets fuel vapor escape into the intake when the engine is off, so do not stop at the cap.
- A P0457 does not always mean a large leak; a small seal fault at the cap can trigger it while a smoke test shows only a faint wisp.

Can I keep driving with P0457?

It is safe to keep driving with P0457 because the fault affects only the evaporative emission system and does not change how the engine runs. Tighten or replace the fuel cap soon and avoid topping off the tank past the first click, which can force liquid fuel into the EVAP canister and create a real leak.



Tools that help

- OBD-II scan tool with live EVAP data
- Fuel cap wrench or suitable cap removal tool
- Smoke machine for EVAP leak testing
- Hand vacuum pump with gauge
- Flashlight and inspection mirror

Reading P0457

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

Often seen with

P0440 Evaporative Emission Control System Malfunction · **P0441** EVAP System Incorrect Purge Flow · **P0442** EVAP System Leak Detected (Small) · **P0455** EVAP System Leak Detected (Large) · **P0456** Evaporative Emission System Leak Detected (very small leak)

See it working

Watch the animated explainer [How an Oxygen Sensor Works: Live 3D Cutaway](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0457/>

