

GENERIC · POWERTRAIN

**P04EB**

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

## P04EB

# EVAP System Small Leak Detected - Fresh Air Side

P04EB indicates that the engine computer has detected a small leak in the evaporative emission control (EVAP) system on the fresh air side, which is the portion of the system that draws outside air in for purging. The computer runs a diagnostic test that pressurizes or evacuates the system and monitors how quickly pressure changes; a small leak causes a slower-than-expected change that falls within a specific small-leak threshold.

SYSTEM

**Powertrain**

CODE TYPE

**Generic (all makes)**

SEVERITY

**Low**

FIX DIFFICULTY

**Intermediate**

AREA

**Auxiliary emission controls**

## Symptoms you may notice

- Illumination of the check engine light, often with no other symptoms
- A faint fuel odor around the vehicle, especially after refueling
- Slightly increased fuel consumption due to lost fuel vapor
- In rare cases, a hissing sound from the engine bay or near the fuel tank
- No drivability issues in most cases, as the fault does not affect engine performance

## Common causes, most likely first

- 1 A loose, damaged, or missing fuel filler cap
- 2 Cracked or deteriorated EVAP hoses on the fresh air side, such as the vent hose or air filter box line
- 3 A faulty or stuck-open EVAP canister vent valve (also called the vent solenoid)
- 4 A leaking or damaged EVAP canister due to cracks or saturation
- 5 A corroded or leaking fuel tank pressure sensor seal or grommet
- 6 A small crack in the fuel tank or a leaking fuel tank seal
- 7 A damaged fresh air inlet filter or its housing



## How to diagnose and fix it

- 1 Inspect the fuel filler cap for tightness, cracks, or a damaged seal, and replace it if suspect.
- 2 Perform a visual inspection of all EVAP hoses and lines on the fresh air side for cracks, loose connections, or damage.
- 3 Use a scan tool to command the EVAP vent valve closed and monitor the fuel tank pressure sensor for a leak-down; this helps isolate the leak.
- 4 Perform a smoke test by introducing smoke into the EVAP system and looking for escaping smoke at the fresh air side components.
- 5 Test the EVAP canister vent valve for proper operation and replace it if it fails to seal or open correctly.
- 6 Inspect the EVAP canister for cracks or saturation, and replace it if damaged.
- 7 Check the fuel tank pressure sensor and its seal for leaks, and replace if necessary.

## Fresh Air Side Leak Traps You Should Not Miss

- A small leak on the fresh air side often originates from the vent valve or its filter, which are frequently overlooked because they are not under pressure during normal operation.
- The fuel filler cap is a common culprit, but a cap that looks fine may still leak; always test with a cap tester or replace with a known-good cap before deeper diagnosis.
- A smoke test is the most reliable way to find small leaks, but smoke can escape from the fresh air side only when the vent valve is commanded closed; ensure the scan tool commands the valve correctly.
- A leak in the fresh air side can be caused by a missing or damaged air filter box gasket, which is often misdiagnosed as a canister issue.
- Do not replace the EVAP canister or purge valve without testing; a small leak on the fresh air side rarely involves the purge valve, which is on the tank side.

## Can I keep driving with P04EB?

You can continue driving with this code, as it does not affect engine performance or safety, but have it diagnosed soon to prevent fuel vapor loss and to ensure the vehicle passes emissions testing. Avoid topping off the fuel tank excessively, as this can worsen the leak.

## Tools that help

- OBD-II scan tool with bidirectional control
- Smoke machine
- Fuel cap tester
- Hand tools (screwdrivers, pliers, socket set)
- Flashlight and mirror for visual inspection



### Reading P04EB

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

### Often seen with

**P0455** EVAP System Leak Detected (Large) · **P0456** Evaporative Emission System Leak Detected (very small leak) · **P0457** Evaporative Emission System Leak Detected (fuel cap loose/of · **P04EA** EVAP System Small Leak Detected - Fuel Tank Side · **P04EC** EVAP System Large Leak Detected - Fuel Tank Side

### See it working

Watch the animated explainer [How the EVAP System Works: Fuel Vapour and Leak Test](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p04eb/>

