

SUBARU · POWERTRAIN

P1420

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1420 · Subaru

Fuel Tank Pressure Control Solenoid High Input

P1420 on a Subaru means the engine control module (ECM) has detected an abnormally high voltage on the control circuit for the fuel tank pressure control solenoid, which is part of the evaporative emissions (EVAP) system. The ECM expects the solenoid to draw a normal current when commanded, but the high input signal indicates an open circuit, a short to voltage, or a failed solenoid coil.

SYSTEM

Powertrain

CODE TYPE

Subaru specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- A slight fuel odor may be present around the rear of the vehicle if the EVAP system cannot purge properly.
- In some cases, a rough idle or stumble after refueling due to incorrect purge flow.
- The vehicle may fail an emissions inspection because the EVAP monitor will not complete.
- Occasionally, a faint clicking or buzzing from the solenoid area may be heard when the key is turned on, indicating a stuck valve.
- No driveability issues are typical, but the engine may run slightly rich if the solenoid is stuck open.

Common causes, most likely first

- 1 Open circuit in the wiring harness between the ECM and the fuel tank pressure control solenoid, such as a broken wire or corroded connector.
- 2 Failed fuel tank pressure control solenoid (open coil or internal short).
- 3 Short to voltage on the control wire, often caused by chafed insulation rubbing against a metal body panel.
- 4 Poor electrical connection at the solenoid or ECM connector, including loose pins or water intrusion.
- 5 Faulty ECM driver for the solenoid circuit, though this is rare and should be diagnosed last.
- 6 Corroded or damaged ground connection for the solenoid circuit, if the solenoid is grounded through the chassis.
- 7 Aftermarket alarm or remote start wiring that has tapped into the EVAP circuit and caused a high resistance or short.



How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related EVAP or fuel system codes that may indicate a different root cause.
- 2 Inspect the fuel tank pressure control solenoid connector and wiring for corrosion, loose pins, or physical damage, and repair as needed.
- 3 Measure the resistance of the solenoid coil with a multimeter and compare to the manufacturer's specification; replace the solenoid if out of range.
- 4 Check for battery voltage on the control wire at the solenoid connector with the key on and engine off; if voltage is present when it should not be, trace for a short to voltage.
- 5 Perform a voltage drop test on the ground circuit and the power feed to the solenoid to identify excessive resistance.
- 6 If the wiring and solenoid test good, back-probe the ECM connector and command the solenoid on with a scan tool while monitoring voltage to rule out an ECM driver fault.
- 7 Clear the code and perform a drive cycle to verify the repair and ensure the EVAP monitor completes without resetting the code.

Common Misdiagnosis Traps for P1420

- A P1420 is often set by a simple unplugged or loose connector at the solenoid, especially after recent fuel tank or EVAP system service, so always check connector seating before condemning parts.
- The code can be triggered by a short to voltage from a nearby circuit, such as a fuel pump or rear lighting harness, that has chafed against the EVAP wiring, so inspect the entire harness route.
- Technicians sometimes replace the solenoid only to find the high input was caused by a faulty ECM driver, but this is rare and should only be considered after all wiring and component tests pass.
- A weak or failing battery or charging system can cause erratic solenoid operation and set a high input code, so always verify battery voltage and connections first.
- The fuel tank pressure control solenoid is often confused with the vent solenoid or purge solenoid; on Subaru models, the pressure control solenoid is typically located near the fuel tank and has a distinct connector, so confirm the component location before testing.

Can I keep driving with P1420?

You can generally drive the vehicle with P1420 set, but avoid refueling to the brim and monitor for fuel odors; have the fault diagnosed soon to prevent EVAP system damage and ensure the vehicle passes emissions testing.



Tools that help

- OBD-II scan tool with bidirectional control capability
- Digital multimeter (DMM)
- Wire probe set and back-probe pins
- Service manual or wiring diagram for the specific Subaru model
- Basic hand tools for connector and component access

Reading P1420

- P** Powertrain: engine, transmission and emissions.
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- 1** Manufacturer-specific code (Subaru): its meaning depends on the make.
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- 4** Auxiliary emission controls.
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- 20** The exact fault within that area.

Often seen with

P1421 Secondary Air Injection Valve Circuit Short To Ground · **P1422** Secondary Air Injection Valve Circuit Short To B+ · **P1421** Exhaust Gas Recirculation Circuit High Input · **P1422** EVAP Purge Control Solenoid Valve Circuit High Input · **P1421** Intake Air Low Pressure Switch Circuit High Voltage · **P1421** Intake Air Low Pressure Switch Circuit High Voltage · **P1421** Secondary Air System Bank 1 · **P1422** Secondary Air System Bank 2 · **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 Automatic Transmission Works, Gear by Gear](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/subaru-p1420/>

