

GENERIC · POWERTRAIN

P0E78

OBD-II TROUBLE CODE

P0E78

Coolant Bypass Valve B Control Circuit Low

P0E78 indicates that the powertrain control module (PCM) has detected an abnormally low voltage on the control circuit for the coolant bypass valve B, which is used to manage coolant flow for faster engine warm-up and improved thermal efficiency. The PCM commands the valve to a specific position and monitors the circuit for expected voltage; a low reading means the circuit is shorted to ground, the valve actuator has failed, or the wiring is damaged.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Prolonged engine warm-up time or the temperature gauge rising more slowly than usual
- Reduced fuel economy or slightly rough running during cold starts
- In some cases, the engine may enter a limited-power mode or set related codes
- A faint clicking or buzzing from the valve area if the actuator is trying to move but is shorted

Common causes, most likely first

- 1 Failed coolant bypass valve B actuator (internal short to ground)
- 2 Damaged or chafed wiring in the control circuit, shorting to ground
- 3 Corroded or loose electrical connector at the valve
- 4 PCM driver circuit fault (less common)
- 5 Coolant contamination or debris causing the valve to seize and overheat the actuator
- 6 Aftermarket or incorrect valve replacement with incompatible electrical characteristics



How to diagnose and fix it

- 1 Use a scan tool to verify the code and check for any related pending or history codes
- 2 Visually inspect the valve connector and wiring for corrosion, chafing, or loose pins
- 3 Disconnect the valve and measure resistance across the actuator terminals; compare to manufacturer specification
- 4 Check for short to ground on the control wire from the valve to the PCM using a multimeter
- 5 If wiring and connector are good, command the valve with a scan tool and observe voltage or operation
- 6 Replace the coolant bypass valve if it fails electrical or functional tests
- 7 Clear codes and perform a road test to confirm the repair and ensure the monitor runs

Don't overlook the connector before replacing the valve

- A common misdiagnosis is replacing the valve when the real problem is a chafed wire hidden behind the engine block or near a heat source.
- The coolant bypass valve often fails due to coolant intrusion into the actuator, which may not be obvious until the connector is removed and inspected for green or white corrosion.
- This code can be set by a low battery or charging system issue that causes a momentary voltage drop, so always check battery health and ground connections first.
- Some vehicles use the same valve for both bypass and cabin heater control, so a failure may also affect heater performance, but that is not always present.
- After replacing the valve, a relearn or calibration procedure may be required on some models to avoid a repeat code.

Can I keep driving with P0E78?

You can generally drive the vehicle with this code, but avoid extended idling and heavy loads until repaired, as the engine may run less efficiently and warm-up will be slower. If the engine overheats or enters limp mode, stop driving and seek service immediately.

Tools that help

- OBD-II scan tool with live data and bidirectional control
- Digital multimeter
- Wire probe set and electrical contact cleaner
- Socket and ratchet set
- Vehicle service information for wiring diagrams and resistance specifications



Reading P0E78

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

Often seen with

P0128 Coolant Thermostat (Coolant Temperature Below Thermostat Reg · **P0597** Thermostat Heater Control Circuit/Open · **P0E77** Coolant Bypass Valve B Control Circuit/Open · **P0E79** Coolant Bypass Valve B Control Circuit High · **P0E7A** Coolant Bypass Valve B Performance

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/p0e78/>

