

GENERIC · POWERTRAIN

P01EF

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P01EF

Engine Coolant Heater B Control Circuit Performance

P01EF means the powertrain control module (PCM) has detected a performance fault in the control circuit for engine coolant heater B, which is an electric heating element used to warm the engine coolant for faster cabin heat and reduced cold-start emissions. The PCM commands the heater on and monitors the circuit response, and it sets this code when the circuit does not behave as expected, such as when current flow or voltage feedback does not match the command.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Low

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Prolonged engine warm-up and delayed cabin heat in cold weather
- Coolant heater may not activate even when commanded by the PCM
- Possible battery drain or blown fuse if the heater circuit has a short
- In some vehicles, a message on the driver information display about the engine heater or emissions system

Common causes, most likely first

- 1 Faulty engine coolant heater element (open or shorted internal winding)
- 2 Damaged or corroded wiring and connectors between the PCM and the coolant heater
- 3 Blown fuse or faulty relay in the coolant heater power circuit
- 4 Poor ground connection for the coolant heater circuit
- 5 PCM software calibration issue or internal driver fault
- 6 Aftermarket accessories or remote start systems improperly wired into the heater circuit



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes, and record freeze-frame data to understand when the fault occurs
- 2 Inspect the coolant heater fuse, relay, and wiring for obvious damage, corrosion, or loose connections
- 3 Measure resistance of the coolant heater element and compare to the manufacturer's specification
- 4 Check for voltage and ground at the heater connector while commanding the heater on with a scan tool
- 5 Perform a voltage drop test on the power and ground circuits to rule out high resistance
- 6 Verify PCM software is up to date and reflash if a known calibration update applies
- 7 If all circuits test good, substitute a known-good heater element or PCM as a final step

What the coolant heater code really means

- A P01EF can be set by a coolant heater that still works but draws slightly out-of-spec current, so resistance testing is more reliable than a simple power check.
- Many vehicles use the coolant heater only below a certain ambient temperature, so the code may not reappear during warm-weather testing and can be missed.
- A weak or failing battery can cause the PCM to disable the coolant heater and set this code, so always check battery health before condemning the heater.
- Aftermarket block heaters or remote start wiring tapped into the coolant heater circuit are a common cause of repeat P01EF codes.
- The code does not always mean the heater element is bad; a chafed wire or corroded ground can produce the same performance fault.

Can I keep driving with P01EF?

The vehicle remains safe to drive because the coolant heater only affects cold-start warmth and emissions, but you should avoid extended idling in cold weather and have the circuit inspected soon to prevent a no-start condition if the heater shorts and drains the battery.

Tools that help

- OBD-II scan tool with bidirectional control capability
- Digital multimeter
- Test light
- Fuse puller and relay tester
- Vehicle-specific service information for circuit diagrams and resistance specifications



Reading P01EF

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
1	Fuel and air metering.
EF	The exact fault within that area.

Often seen with

P01E8 Engine Coolant Heater A Control Circuit/Open · **P01E9** Engine Coolant Heater A Control Circuit Low · **P01EA** Engine Coolant Heater A Control Circuit High · **P01EB** Engine Coolant Heater A Control Circuit Performance · **P01EC** Engine Coolant Heater B Control Circuit/Open

See it working

Watch the animated explainer [Engine Cooling System Trainer: How Engines Stay Cool](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p01ef/>

