

GENERIC · POWERTRAIN

P01EA

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P01EA

Engine Coolant Heater A Control Circuit High

P01EA indicates that the engine control module (ECM) has detected a high-voltage condition on the control circuit for the engine coolant heater, which is typically a grid heater or block heater used to warm coolant for faster cabin heat and reduced emissions. The ECM commands the heater on and monitors the circuit; a high voltage reading means the circuit is open, shorted to voltage, or the heater element has failed, preventing current flow as expected.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Low	Intermediate	Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- The engine coolant heater may not activate, leading to longer warm-up times in cold weather.
- Reduced cabin heat during the first few minutes of operation in low temperatures.
- Possible hard starting or rough idle in extreme cold if the heater is needed for combustion chamber warming.
- In some vehicles, a message on the driver information center indicating a heater fault or reduced engine performance.

Common causes, most likely first

- 1 Open heater element (burned out) in the engine coolant heater.
- 2 Damaged or disconnected wiring or connector at the heater or ECM.
- 3 Blown fuse or faulty relay in the heater control circuit.
- 4 High resistance in the ground circuit for the heater.
- 5 Faulty engine coolant heater control module, if equipped separately.
- 6 Internal ECM driver failure (rare but possible).



How to diagnose and fix it

- 1 Check the fuse and relay for the engine coolant heater circuit and replace if blown or faulty.
- 2 Inspect the heater connector and wiring for corrosion, damage, or loose pins; repair as needed.
- 3 Measure resistance of the heater element with a multimeter and compare to specification; replace heater if open.
- 4 Test the control circuit for voltage and ground signals at the heater connector with the key on and heater commanded on.
- 5 Check the ground circuit for excessive resistance using a voltage drop test.
- 6 If all external components test good, diagnose the ECM control signal and replace ECM only if confirmed faulty.

Don't overlook the simple circuit checks

- A common mistake is replacing the heater element without first checking the fuse and relay, which are frequent failure points.
- The code can set intermittently due to a loose connector that only loses contact when cold or vibrating.
- Some vehicles use a coolant heater only for emissions reduction during cold starts, so the driver may never notice a performance issue.
- The ECM may set this code if the heater circuit is open, but a short to voltage can also cause a high reading, so inspect for chafed wires.
- Always verify the ground circuit; a poor ground can mimic a faulty heater element and lead to unnecessary parts replacement.

Can I keep driving with P01EA?

The vehicle is safe to drive under most conditions because the coolant heater is an auxiliary system, but you may experience longer warm-up times and reduced cabin heat in cold weather. Avoid extended idling in freezing temperatures and have the circuit inspected soon to prevent potential battery drain or starting issues.

Tools that help

- OBD-II scan tool
- Digital multimeter
- Test light
- Wire repair kit
- Factory service information for circuit specifications



Reading P01EA

- 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.
- EA** The exact fault within that area.

Often seen with

P01E9 Engine Coolant Heater A Control Circuit Low · **P01EB** Engine Coolant Heater A Control Circuit Performance · **P01EC** Engine Coolant Heater B Control Circuit/Open · **P2600** Coolant Pump Control Circuit/Open · **P2601** Coolant Pump Control Circuit Range/Performance

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/p01ea/>

