

GENERIC · POWERTRAIN

P2D40

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2D40

Hybrid/EV Battery Cooling System C Performance

P2D40 indicates that the hybrid or electric vehicle battery cooling system is not performing as expected, specifically in the circuit or component designated as 'C'. The powertrain control module monitors battery temperature and cooling system operation, and it sets this code when the cooling performance falls outside the expected range during normal operation.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light or hybrid system warning light
- Reduced electric-only driving range or power output
- Battery temperature warning message on the dashboard
- Cooling fan running continuously or not at all
- Often no symptoms besides the warning light
- Possible reduced charging rate or forced engine operation

Common causes, most likely first

- 1 Low coolant level or air trapped in the battery cooling circuit
- 2 Faulty battery cooling fan or blower motor
- 3 Restricted or blocked cooling ducts or vents
- 4 Failed coolant pump for the battery loop
- 5 Defective battery temperature sensor
- 6 Damaged wiring or connector at the cooling system component
- 7 Internal fault in the battery cooling system control module



How to diagnose and fix it

- 1 Verify coolant level and inspect for leaks in the battery cooling system
- 2 Check cooling fan operation and listen for unusual noises
- 3 Inspect cooling ducts and vents for obstructions or debris
- 4 Test the battery coolant pump for proper operation and current draw
- 5 Measure resistance of the battery temperature sensor and compare to specifications
- 6 Inspect wiring and connectors at the cooling system components for corrosion or damage
- 7 Perform a battery cooling system bleed procedure if air is suspected in the circuit

Battery cooling faults you might overlook

- A low coolant level in the battery loop often sets this code without any visible leak, as small seepage can go unnoticed over time.
- The cooling fan may test fine at idle but fail to ramp up under load, so a road test with live data is more revealing than a static check.
- Air pockets in the cooling circuit after a repair can mimic a failed pump, so proper bleeding is critical before replacing parts.
- This code can be set by a weak 12-volt auxiliary battery causing low voltage to the cooling control module, so always check system voltage first.
- Some vehicles use a shared coolant loop for the battery and power electronics, so a fault in the electronics cooling side can trigger this code.

Can I keep driving with P2D40?

You can usually drive the vehicle, but avoid aggressive acceleration and long trips until the fault is repaired, as continued operation with a compromised battery cooling system may lead to reduced performance or battery damage.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Coolant refractometer or hydrometer
- Infrared thermometer
- Vacuum coolant refill tool



Reading P2D40

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

Often seen with

P0A93 Inverter A Cooling System Performance · **P0A94** DC/DC Converter A Performance · **P0A95** High Voltage Fuse A · **P2D41** A/C Compressor Motor Voltage B Performance · **P2D42** A/C Compressor Motor Voltage B Low

See it working

Watch the animated explainer [How Regenerative Braking Works in Electric Cars](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2d40/>

