

GENERIC · POWERTRAIN

**P0C46**

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

**P0C46**

## Hybrid/EV Battery Pack Coolant Temperature Sensor A Circuit Intermittent/Erratic

P0C46 indicates that the hybrid or electric vehicle battery pack coolant temperature sensor A circuit is reporting an intermittent or erratic signal to the battery energy control module. The computer detects this when the sensor voltage momentarily jumps, drops out, or fluctuates outside the expected range for the coolant temperature, often due to a poor connection or failing sensor.

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 or hybrid system warning light, often with no other noticeable symptoms.
- Intermittent reduction in hybrid system power or a forced switch to limp-home mode.
- Battery cooling fan running constantly or not running at all, leading to unusual fan noise or lack of cooling.
- Dashboard message indicating battery temperature or hybrid system fault.
- Reduced electric-only range or poor fuel economy as the system limits battery usage.
- In rare cases, the vehicle may refuse to start or enter a ready state.

### Common causes, most likely first

- 1 Loose, corroded, or damaged electrical connector at the battery coolant temperature sensor.
- 2 Chafed, broken, or intermittently shorting wiring in the sensor circuit, often near harness bends or heat sources.
- 3 Failing battery coolant temperature sensor that produces erratic resistance values when hot or vibrating.
- 4 Poor terminal tension or pin fit at the battery energy control module connector.
- 5 Coolant contamination or low coolant level causing the sensor to read air pockets intermittently.
- 6 Internal fault in the battery energy control module, though this is less common.



## How to diagnose and fix it

- 1 Inspect the sensor connector and harness for corrosion, loose pins, or chafed wires, and repair as needed.
- 2 Check coolant level and condition; top off or replace coolant if contaminated, and bleed the system to remove air pockets.
- 3 Perform a wiggle test on the sensor harness while monitoring live sensor data to reproduce the intermittent signal.
- 4 Measure the sensor resistance with a multimeter and compare to specifications, replacing the sensor if out of range or erratic when heated.
- 5 Backprobe the sensor signal circuit at the control module to verify voltage stability and check for voltage drops across connectors.
- 6 If wiring and sensor are good, test the control module connector pins and, if necessary, reprogram or replace the module.
- 7 Clear codes and perform a road test with live data to confirm the repair and ensure no intermittent signal returns.

## Intermittent faults often hide in the harness

- A common oversight is replacing the sensor without checking the harness routing near hot exhaust components or sharp edges where insulation can chafe and cause intermittent shorts.
- The code can be set by air pockets in the battery coolant loop after a coolant service, so proper bleeding is essential even if the sensor tests good.
- Some technicians miss that the sensor circuit may share a ground with other sensors; a bad ground can cause erratic readings on multiple circuits without setting separate codes.
- The battery energy control module may log this code from a single brief glitch, so always check freeze-frame data to see the conditions at the time of failure.
- Do not assume the sensor is faulty just because the code points to it; a loose connector pin can mimic a failed sensor and cost far less to fix.

## Can I keep driving with P0C46?

It is generally safe to drive with this code if the vehicle is not in limp mode and the battery temperature reading is stable, but avoid heavy acceleration or long grades that stress the battery. If the warning light flashes or the vehicle limits power, have it diagnosed promptly to prevent battery overheating.

## Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wire terminal pick and crimping tools
- Heat gun or hair dryer for sensor testing
- Vehicle service information for wiring diagrams and resistance specifications



## Reading P0C46

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

## Often seen with

**P0A0D** High Voltage System Interlock Circuit A High · **P0A1F** Battery Energy Control Module A Performance · **P0C45** Hybrid/EV Battery Pack Coolant Temperature Sensor A Circuit · **P0C47** Hybrid/EV Battery Pack Coolant Pump A Control Circuit/Open · **P0C48** Hybrid/EV Battery Pack Coolant Pump A Control Circuit Low

## 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/p0c46/>

