

GENERIC · POWERTRAIN

P0E7D

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0E7D

Auxiliary Cooling Coolant Temperature Sensor A Circuit Low

P0E7D means the powertrain control module (PCM) has detected a low-voltage signal on the auxiliary cooling coolant temperature sensor A circuit, which is used to monitor the temperature of a secondary cooling loop such as a battery, inverter, or electric motor coolant circuit. The PCM expects the sensor's signal voltage to stay within a calibrated range, and a sustained low reading indicates a short to ground, a faulty sensor, or a wiring problem rather than a normal cold condition.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Hybrid propulsion

Symptoms you may notice

- Illumination of the check engine light or service vehicle soon message with no other noticeable change in vehicle behavior.
- Reduced or disabled auxiliary cooling pump operation, which may lead to overheating of high-voltage components in electric and hybrid vehicles.
- A warning message on the dash indicating a cooling system fault or reduced power mode.
- Inconsistent cabin heating or cooling performance if the auxiliary loop shares a heat exchanger with the climate system.
- In rare cases, the vehicle may enter a limp-home mode that limits speed or power output to protect temperature-sensitive components.

Common causes, most likely first

- 1 A failed auxiliary cooling coolant temperature sensor that internally shorts to ground and pulls the signal voltage low.
- 2 A chafed or pinched sensor signal wire shorting to chassis ground along the harness routing.
- 3 Corrosion or water intrusion at the sensor connector or PCM connector causing a low-resistance path to ground.
- 4 A faulty PCM driver circuit that incorrectly reads or pulls the signal line low, though this is less common.
- 5 Coolant contamination or sludge coating the sensor tip and altering its resistance characteristics.
- 6 An aftermarket accessory or improper previous repair that tapped into the sensor circuit and introduced a ground fault.



How to diagnose and fix it

- 1 Connect a scan tool and record the freeze-frame data for P0E7D, then clear the code and verify whether it returns immediately or only after a drive cycle.
- 2 Visually inspect the auxiliary coolant temperature sensor, its connector, and the harness for chafing, corrosion, or coolant residue, repairing any obvious damage.
- 3 Measure the sensor's resistance with a multimeter and compare it to the manufacturer's temperature-resistance chart to confirm whether the sensor is internally shorted.
- 4 Back-probe the sensor signal wire at the PCM and check for a short to ground with the sensor disconnected, isolating whether the fault is in the wiring or the sensor.
- 5 If the wiring and connector are intact, replace the auxiliary cooling coolant temperature sensor and clear the code.
- 6 After any repair, run the vehicle through a complete drive cycle with the auxiliary cooling pump commanded on, monitoring live sensor data to confirm the signal stays within range.
- 7 If the code persists with a known-good sensor and verified wiring, diagnose the PCM circuit or consult a dealer-level scan tool for advanced circuit testing.

Auxiliary coolant sensor low-voltage traps

- A low signal voltage does not always mean the sensor has failed; a simple unplugged connector or a wire rubbed through on a bracket can set this code just as easily.
- On many hybrid and electric vehicles, the auxiliary cooling loop serves the high-voltage battery and power electronics, so ignoring this code can lead to costly thermal damage rather than just a warning light.
- Technicians often replace the sensor only to find the connector pins are pushed back or corroded, so always perform a pin drag test and inspect the terminals before condemning the sensor.
- This code can be set by a low coolant level or air pocket that prevents the sensor from contacting liquid, even though the circuit itself is electrically sound.
- A generic scan tool may show the auxiliary coolant temperature as a fixed low value, but manufacturer-specific live data is needed to see whether the PCM is commanding the cooling pump and what the actual sensor voltage is.

Can I keep driving with P0E7D?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy loads, long trips, or aggressive driving because the auxiliary cooling system may not be operating correctly. If the dash displays a high-voltage battery temperature warning or reduced power message, stop driving and have the vehicle towed to prevent damage to expensive components.



Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with back-probe pins
- Manufacturer service information for temperature-resistance charts and wiring diagrams
- Basic hand tools for connector and sensor removal
- Coolant refractometer or hydrometer to check auxiliary loop coolant condition

Reading P0E7D

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
E	Hybrid propulsion.
7D	The exact fault within that area.

Often seen with

P0A0D High Voltage System Interlock Circuit A High · **P0C73** Hybrid Battery Pack Cooling Pump Performance
 · **P0E7C** Auxiliary Cooling Coolant Temperature Sensor A Circuit Range · **P0E7E** Auxiliary Cooling Coolant Temperature Sensor A Circuit High · **P0E7F** Auxiliary Cooling Coolant Temperature Sensor A Circuit Inter

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/p0e7d/>

