

GENERIC · POWERTRAIN

P007E

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P007E

Charge Air Cooler Temperature Sensor Circuit Intermittent/Erratic Bank 1

P007E indicates that the powertrain control module (PCM) has detected an intermittent or erratic signal from the charge air cooler temperature (CACT) sensor on bank 1. The sensor monitors the temperature of the compressed air after it passes through the intercooler, and the PCM expects a stable, plausible voltage within a specific range; an erratic signal means the voltage is jumping unpredictably or dropping out momentarily.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Low

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- Intermittent loss of power or hesitation during acceleration, especially under boost.
- Rough idle or stumbling after a cold start in some cases.
- Decreased fuel economy due to the PCM substituting a default temperature value.
- In rare instances, the engine may enter limp mode if the signal is erratic enough to be deemed unreliable.

Common causes, most likely first

- 1 Faulty charge air cooler temperature sensor with an internal intermittent connection.
- 2 Damaged or chafed wiring in the sensor circuit, often near hot or moving components.
- 3 Corroded or loose electrical connector at the sensor or PCM.
- 4 Poor ground connection for the sensor circuit.
- 5 Intake system leaks or restrictions that cause rapid temperature fluctuations.
- 6 PCM software issue or internal fault, though this is less common.



How to diagnose and fix it

- 1 Inspect the CACT sensor connector and wiring for obvious damage, corrosion, or loose pins; repair as needed.
- 2 Perform a wiggle test on the sensor harness while monitoring live data to identify intermittent opens or shorts.
- 3 Check the sensor's resistance or voltage output against the manufacturer's specification and replace if out of range.
- 4 Verify the integrity of the sensor ground circuit and clean or tighten grounds as necessary.
- 5 Inspect the charge air cooler and associated piping for leaks or blockages that could cause erratic temperature readings.
- 6 Clear the diagnostic trouble codes (DTCs) and test-drive the vehicle to confirm the repair; if the code returns, re-evaluate the circuit.

Intermittent CACT Sensor Faults Often Misdiagnosed

- A common oversight is replacing the sensor without checking the wiring harness, which is frequently the real culprit behind intermittent signals.
- The CACT sensor shares its reference voltage and ground with other sensors in some designs, so a fault elsewhere can mimic a CACT issue.
- Temperature fluctuations from a failing thermostat or cooling fan can cause the CACT signal to appear erratic, leading to misdiagnosis.
- On some vehicles, the CACT sensor is integrated into the mass airflow (MAF) sensor, so a MAF replacement may be necessary instead of a separate sensor.
- Intermittent codes often set only under specific conditions like vibration or heat soak, so replicating the exact conditions is key to confirming the fault.

Can I keep driving with P007E?

The vehicle is generally safe to drive with this code because it rarely causes immediate drivability issues, but avoid sustained heavy acceleration or towing until the fault is repaired to prevent potential engine damage from incorrect temperature readings.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Basic hand tools for connector and sensor access



Reading P007E

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 0** Fuel and air metering and auxiliary emission controls.
- 7E** The exact fault within that area.

Often seen with

P007B Charge Air Cooler Temperature Sensor Circuit Range/Performance · **P007C** Charge Air Cooler Temperature Sensor Circuit Low Bank 1 · **P007D** Charge Air Cooler Temperature Sensor Circuit High Bank 1 · **P00B4** Radiator Coolant Temperature Sensor Circuit High · **P0111** Intake Air Temperature Circuit Range/Performance

See it working

Watch the animated explainer [Turbocharger Trainer: Boost, Wastegate and Intercooler](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p007e/>

