

GENERIC · POWERTRAIN

P00A1

OBD-II TROUBLE CODE

P00A1

Charge Air Cooler Temperature Sensor Circuit Range/Performance Bank 2

P00A1 indicates that the powertrain control module (PCM) has detected an out-of-range or performance fault in the charge air cooler temperature sensor circuit for bank 2 of the engine. The sensor monitors the temperature of the compressed intake air after it passes through the charge air cooler, and the PCM compares that signal against expected values under current operating conditions to flag this code.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- Reduced engine power or limp mode under heavy load or during acceleration.
- Poor fuel economy or increased turbo lag due to incorrect temperature readings affecting fuel and boost control.
- Intermittent rough running or hesitation when the engine is cold or under boost.
- In rare cases, the engine cooling fan may run continuously because the PCM misinterprets the charge air temperature.

Common causes, most likely first

- 1 Faulty charge air cooler temperature sensor on bank 2.
- 2 Damaged or corroded wiring harness or connector at the sensor.
- 3 Open or short circuit in the sensor signal or ground circuit.
- 4 Intake air leaks or restrictions after the charge air cooler affecting temperature readings.
- 5 Failed charge air cooler (leaking or internally restricted) causing abnormal temperature performance.
- 6 PCM software calibration issue or internal PCM fault (less common).

How to diagnose and fix it

- 1 Perform a visual inspection of the bank 2 charge air cooler temperature sensor, its connector, and wiring for damage, corrosion, or loose pins.
- 2 Use a scan tool to read live data from the bank 2 charge air cooler temperature sensor and compare it to ambient and intake air temperature sensors after a cold soak.
- 3 Check the sensor's resistance or voltage output against the manufacturer's specification using a multimeter, and replace the sensor if it is out of range.
- 4 Perform a voltage drop test on the sensor signal and ground circuits to rule out excessive resistance in the wiring.
- 5 Inspect the charge air cooler and associated piping for leaks, restrictions, or internal damage that could affect temperature performance.
- 6 If all electrical and mechanical checks pass, verify the PCM has the latest calibration and reflash if necessary, or diagnose for an internal PCM fault.

Charge air cooler sensor diagnostics you should not skip

- A charge air cooler temperature sensor that reads plausibly but incorrectly can cause this code without setting a circuit fault, so live data comparison against ambient temperature after a cold soak is critical.
- Many technicians replace the sensor only to find the real problem is a restricted or leaking charge air cooler that skews temperature performance under load.
- Corrosion inside the sensor connector is a frequent cause that can mimic a failed sensor, so always inspect the terminals before condemning the part.
- This code can be set by a PCM calibration issue on some vehicles, so checking for technical service bulletins before replacing hardware is a smart step.
- Bank 2 refers to the side of the engine opposite bank 1, and on V-configuration engines the bank 2 charge air cooler may be harder to access, leading to misdiagnosis if the wrong sensor is checked.

Can I keep driving with P00A1?

You can usually continue driving with this code, but avoid heavy acceleration or sustained high-load conditions because incorrect charge air temperature readings can affect fuel delivery and boost control. If the engine enters limp mode or you notice severe power loss, have the vehicle diagnosed promptly.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Hand tools for connector and sensor removal
- Manufacturer service information for wiring diagrams and specifications
- Smoke machine or pressure tester for intake leak detection



Reading P00A1

- 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.
- A1** The exact fault within that area.

Often seen with

P007B Charge Air Cooler Temperature Sensor Circuit Range/Performan · **P007C** Charge Air Cooler Temperature Sensor Circuit Low Bank 1 · **P00A0** Charge Air Cooler Temperature Sensor Circuit Bank 2 · **P00A2** Charge Air Cooler Temperature Sensor Circuit Low Bank 2 · **P00A3** Charge Air Cooler Temperature Sensor Circuit High Bank 2

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/p00a1/>

