

GENERIC · POWERTRAIN

P2C39

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2C39

Cylinder Head Temperature Sensor B Range/Performance

P2C39 indicates that the powertrain control module has detected an out-of-range or erratic signal from the cylinder head temperature sensor B circuit, which is a second temperature sensor often used to monitor head temperature independently of the main coolant sensor. The computer compares this signal against expected values and other temperature inputs, and it sets the code when the voltage or resistance falls outside the calibrated range for a specified time.

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, often with no other noticeable symptoms
- Rough running or poor fuel economy if the sensor signal is skewed and affects fuel delivery
- Incorrect temperature gauge reading or a temperature warning light on the dashboard
- Hard starting or stalling when the engine is cold, especially in low ambient temperatures
- Reduced engine power or limp mode if the fault triggers protective strategies
- Cooling fan running continuously or not engaging at the proper temperature

Common causes, most likely first

- 1 Faulty cylinder head temperature sensor B, such as an open or shorted internal element
- 2 Damaged or corroded wiring harness and connector at the sensor, including chafed wires or pushed-back pins
- 3 Poor electrical connection due to water intrusion or loose terminals in the sensor circuit
- 4 Engine overheating or low coolant level causing the sensor to read outside its normal range
- 5 Failed thermostat or cooling system issue that keeps the engine from reaching or maintaining proper temperature
- 6 Powertrain control module software calibration issue or internal fault in the temperature input circuit



How to diagnose and fix it

- 1 Verify the coolant level and check for any signs of engine overheating before testing electrical components
- 2 Inspect the sensor connector and wiring for corrosion, loose pins, or physical damage, and repair as needed
- 3 Measure the sensor resistance with a multimeter and compare it to the manufacturer's temperature-resistance chart
- 4 Back-probe the sensor signal circuit at the powertrain control module and compare the voltage to the sensor's actual output
- 5 Check for continuity and short-to-ground or short-to-voltage on the signal and ground circuits
- 6 Replace the cylinder head temperature sensor B if it fails the resistance or voltage tests
- 7 Clear the diagnostic trouble codes and perform a road test to confirm the repair and ensure the code does not return

Before you replace the cylinder head sensor

- A low coolant level or trapped air pocket can cause the cylinder head temperature sensor to read abnormally high, setting this code even though the sensor itself is fine.
- Corroded terminals inside the sensor connector often mimic a failed sensor, so always perform a wiggle test and visual inspection before condemning the part.
- On some vehicles, a faulty thermostat that sticks open can keep the engine too cool and trigger a range or performance code for the head temperature sensor.
- The cylinder head temperature sensor B is sometimes a second sensor used for cylinder head protection, and its signal may not directly affect the dashboard gauge, so drivers may not notice any drivability issue.
- After replacing the sensor, some vehicles require a relearn or adaptation reset for the new sensor to be recognized properly, so check the service information before clearing codes.

Can I keep driving with P2C39?

It is generally safe to drive with this code as long as the engine temperature gauge reads normally and there are no signs of overheating, but avoid heavy loads or long trips until the fault is repaired. If the temperature gauge climbs into the red or you notice coolant loss, stop driving and address the cooling system immediately.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Temperature-resistance chart for the specific vehicle
- Socket set and wire terminal tools
- Infrared thermometer



Reading P2C39

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

Often seen with

P0115 Engine Coolant Temperature Circuit Malfunction · **P0116** Engine Coolant Temperature Circuit Range/Performance · **P0117** Engine Coolant Temperature Circuit Low Input · **P2C38** Cylinder Head Temperature Sensor B Circuit · **P2C3A** Cylinder Head Temperature Sensor B Circuit Low

See it working

Watch the animated explainer [How a Rotary Engine Works: Wankel in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2c39/>

