

GENERIC · POWERTRAIN

P046A

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P046A

Catalyst Temperature Sensor 1/2 Correlation Bank 1

P046A is a generic powertrain code indicating that the engine control module (ECM) has detected a correlation error between the two catalyst temperature sensors on bank 1. The ECM compares the temperature readings from sensor 1 (upstream) and sensor 2 (downstream) and finds they do not follow the expected relationship during normal operation, which typically means one sensor is reporting a value that is inconsistent with the other.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- A slight decrease in fuel economy if the ECM enters a default mode for catalyst protection.
- In rare cases, a rough idle or hesitation if the faulty sensor also affects fuel trim calculations.
- Intermittent warning light that may clear and reset after several drive cycles.
- No drivability issues at all, as the fault is primarily a monitoring discrepancy.

Common causes, most likely first

- 1 A faulty catalyst temperature sensor (either sensor 1 or sensor 2) sending inaccurate data.
- 2 Damaged or corroded wiring or connector at one of the sensors, causing high resistance or intermittent signal.
- 3 An exhaust leak before or between the sensors, allowing outside air to affect temperature readings.
- 4 A failing catalytic converter that is not reaching or maintaining the expected temperature profile.
- 5 A software issue or outdated calibration in the ECM that misinterprets sensor signals.
- 6 Extreme operating conditions (e.g., prolonged idling or heavy load) that temporarily skew sensor readings, though this usually sets a pending code first.



How to diagnose and fix it

- 1 Use a scan tool to retrieve all stored codes and freeze-frame data, then clear codes and test-drive to see if P046A returns.
- 2 Visually inspect both catalyst temperature sensors and their wiring for damage, corrosion, or loose connections.
- 3 Check for exhaust leaks around the sensors and the catalytic converter using a smoke test or by listening for hissing.
- 4 Compare live data from sensor 1 and sensor 2 with the engine at operating temperature; a large discrepancy points to a faulty sensor.
- 5 Perform a resistance and voltage check on each sensor according to the manufacturer's specifications to identify an out-of-range sensor.
- 6 If sensors and wiring are good, test the catalytic converter's efficiency with a backpressure test or temperature gun to rule out a failing converter.
- 7 Replace the faulty sensor or repair wiring as needed, then clear codes and verify the repair with a test drive.

When sensor correlation misleads diagnosis

- A common mistake is replacing the catalytic converter first, but the code often stems from a degraded temperature sensor that is easier and cheaper to replace.
- The ECM may set P046A even when both sensors are functioning, if an exhaust leak introduces air that cools one sensor disproportionately.
- On some vehicles, a weak battery or charging system issue can cause voltage drops that affect sensor signals and trigger correlation codes.
- After replacing a sensor, the ECM may need a relearn procedure or several drive cycles before the code clears permanently.
- P046A can be set by a faulty thermostat or cooling system issue that prevents the engine from reaching normal operating temperature, affecting catalyst temperature.

Can I keep driving with P046A?

It is generally safe to continue driving with P046A, as the fault is primarily a monitoring issue and does not usually cause immediate drivability problems. However, avoid prolonged heavy loads or aggressive driving until the cause is diagnosed, because a failing catalytic converter or sensor could worsen and lead to more serious damage.



Tools that help

- OBD-II scan tool with live data capability
- Infrared thermometer or temperature gun
- Digital multimeter
- Smoke machine for exhaust leak detection
- Basic hand tools (wrenches, sockets, screwdrivers)

Reading P046A

P	Powertrain: engine, transmission and emissions.
0	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
4	Auxiliary emission controls.
6A	The exact fault within that area.

Often seen with

P0420 Catalyst System Efficiency Below Threshold (Bank 1) · **P0430** Catalyst System Efficiency Below Threshold (Bank 2) · **P046B** Catalyst Temperature Sensor 1/2 Correlation Bank 2 · **P046C** EGR Sensor A Circuit Range/Performance · **P046D** EGR Sensor A Circuit Intermittent/Erratic

See it working

Watch the animated explainer [How Drive-by-Wire Works: Electronic Throttle Body](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p046a/>

