

GENERIC · POWERTRAIN

P0429

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0429

Catalyst Heater Control Circuit (Bank 1)

P0429 indicates that the powertrain control module (PCM) has detected a fault in the electrical circuit that controls the heater element for the bank 1 catalytic converter. The PCM monitors the heater circuit for expected voltage or current changes when the heater is commanded on, and this code sets when the circuit does not respond as designed. This is an electrical circuit fault, not a direct measurement of catalyst efficiency.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Auxiliary emission controls

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- Extended catalyst warm-up time during cold starts, which may temporarily increase emissions.
- In some vehicles, a slight rough idle or hesitation immediately after a cold start while the catalyst is not yet at operating temperature.
- Possible reduced fuel economy if the PCM alters fuel control strategy to compensate for the slow catalyst warm-up.
- In rare cases, the vehicle may enter a limp-home mode if the fault is severe enough to affect emissions compliance.
- No driver-perceptible change in performance in the majority of cases.

Common causes, most likely first

- Failed catalytic converter heater element (open circuit or shorted).
- Damaged or corroded wiring or connector at the heater circuit.
- Blown fuse or faulty relay supplying power to the heater circuit.
- PCM internal driver failure for the heater control circuit.
- Poor ground connection for the heater circuit.
- Aftermarket or incorrect catalytic converter installation with incompatible heater resistance.



How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related codes in other systems.
- 2 Inspect the heater circuit fuse and relay, replacing them if blown or faulty.
- 3 Disconnect the heater connector and measure resistance across the heater element; compare to manufacturer specification.
- 4 Check for voltage and ground at the heater connector with the key on and the heater commanded on.
- 5 Inspect wiring harness for chafing, corrosion, or loose pins between the PCM and the heater.
- 6 If the circuit tests good, suspect the PCM and perform pinpoint tests according to the service manual.
- 7 Replace the catalytic converter assembly if the heater element is integrated and found defective.

Heater circuit faults often misdiagnosed

- A P0429 code does not necessarily mean the catalytic converter itself has failed; the heater element is a separate component that can fail independently.
- Many technicians replace the catalytic converter unnecessarily when the actual fault is a corroded connector or a blown fuse in the heater circuit.
- The heater circuit is only active during cold starts, so a fault may not be present during a warm engine diagnostic; always perform tests from a cold start.
- Some vehicles use a pulse-width modulated signal to control the heater, and a standard test light may not provide a reliable indication of circuit operation.
- Aftermarket catalytic converters sometimes have heater elements with different resistance values, which can trigger this code even when the part is new.

Can I keep driving with P0429?

You can generally continue driving with this code, but avoid extended idling and cold-start short trips until repaired, as the catalyst may not reach operating temperature efficiently. Have the vehicle diagnosed soon to prevent potential emissions test failure and to rule out a more serious electrical issue.

Tools that help

- OBD-II scan tool
- Digital multimeter
- Vehicle service manual with wiring diagrams
- Basic hand tools (socket set, screwdrivers)
- Fuse puller and test light



Reading P0429

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

Often seen with

P0420 Catalyst System Efficiency Below Threshold (Bank 1) · **P0425** Catalyst Temperature Sensor (Bank 1) · **P0426** Catalyst Temperature Sensor Range/Performance (Bank 1) · **P0427** Catalyst Temperature Sensor Low (Bank 1) · **P0430** Catalyst System Efficiency Below Threshold (Bank 2)

See it working

Watch the animated explainer [How Variable Valve Timing Works: Cam Phaser and VVT Solenoid](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0429/>

