

GENERIC · POWERTRAIN

P2C3F

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2C3F

Fan 4 Control Circuit Low

P2C3F means the powertrain control module (PCM) has detected that the control circuit for fan number four is drawing less voltage or current than expected, indicating a short to ground or an open circuit on the low side of the fan control wiring. The PCM commands the fan on and monitors the circuit, and when the feedback signal stays below the calibrated threshold it stores this code and may disable that fan output to protect the driver circuit.

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 or service vehicle soon message, often with no other symptoms besides the warning light
- One or more engine cooling fans not running when commanded, which can lead to higher coolant temperatures in traffic or at idle
- Air conditioning performance may degrade because the condenser fan is not pulling air through the condenser
- Possible overheating warning or temperature gauge climbing above normal during extended idle or low-speed driving
- A cooling fan that runs constantly or not at all depending on whether the fault is intermittent or hard
- Reduced engine power or a derate strategy on some vehicles if the PCM links fan failure to thermal protection

Common causes, most likely first

- 1 A short to ground in the fan control wire between the PCM and the fan module or relay
- 2 An open circuit or broken wire in the fan control harness, often at a connector or flex point
- 3 A failed cooling fan motor or fan control module that internally shorts the control circuit
- 4 Corroded, loose, or water-intruded electrical connectors at the fan assembly or PCM
- 5 A faulty relay or fuse in the fan power circuit that affects the feedback voltage the PCM monitors
- 6 A damaged PCM driver circuit, though this is less common than wiring or fan faults
- 7 Aftermarket or incorrect fan assemblies that do not match the OEM control strategy and feedback signal



How to diagnose and fix it

- 1 Verify the code with a scan tool and check for related fan codes and freeze-frame data to confirm the fault is present
- 2 Inspect the fan control harness and connectors for chafing, corrosion, water intrusion, and loose pins, especially near the fan shroud and PCM
- 3 Measure resistance and voltage on the fan control circuit at the fan connector with the key on and the fan commanded on, comparing to the service information specification
- 4 Test the cooling fan motor and module by applying power and ground directly or with a bidirectional scan tool to confirm the fan operates
- 5 Check the fan relay, fuse, and ground connections for the fan circuit, and verify the PCM ground is clean and tight
- 6 If the circuit and fan test good, perform a wiggle test on the harness while monitoring the fan control PID to catch an intermittent short
- 7 Replace the failed component, clear the code, and verify the fan runs when commanded and the code does not return after a road test with A/C on

Fan circuit faults that fool good technicians

- A short to ground on the fan control wire can be caused by the harness rubbing through on the fan shroud or a bracket, and the damage is often hidden under the loom tape or inside a split conduit.
- The PCM may set P2C3F even when the fan still works on high speed, because the low-side feedback is monitored separately and a partial short can skew the signal without killing the fan entirely.
- Water intrusion into the fan connector is a common cause on vehicles with undershields or splash guards missing, and the corrosion can look minor while still dropping the feedback voltage below threshold.
- A weak or failing battery or charging system can cause the PCM to misread fan feedback during cranking, so check system voltage before condemning the fan module.
- Replacing the fan motor without repairing a chafed control wire will set the code again immediately, so always ohm the control circuit before installing a new fan assembly.

Can I keep driving with P2C3F?

You can usually drive short distances with this code, but avoid heavy traffic, long idles, and high ambient temperatures because the fan may not run and the engine can overheat. If the temperature gauge climbs or the A/C stops cooling, pull over and let the engine cool before continuing.



Tools that help

- OBD-II scan tool with bidirectional fan control capability
- Digital multimeter with back-probing pins
- Wiring diagram and service information for the fan control circuit
- Test light or fused jumper wire
- Socket and ratchet set for fan shroud and connector access

Reading P2C3F

P	Powertrain: engine, transmission and emissions.
2	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
C	Hybrid propulsion.
3F	The exact fault within that area.

Often seen with

P0480 Cooling Fan 1 Control Circuit Malfunction · **P0481** Cooling Fan 2 Control Circuit Malfunction · **P0691** Fan 1 Control Circuit Low · **P2C3E** Fan 4 Control Circuit · **P2C40** Fan 4 Control Circuit High

See it working

Watch the animated explainer [How a Radiator Fan Relay Circuit Works](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p2c3f/>

