

GENERIC · POWERTRAIN

P2C40

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2C40

Fan 4 Control Circuit High

P2C40 indicates that the powertrain control module (PCM) has detected an abnormally high voltage on the control circuit for Fan 4, which is typically an auxiliary electric cooling fan used for additional airflow through the condenser or radiator. The PCM commands the fan on by providing a ground path, so a high-voltage reading on the control circuit usually means the circuit is open, shorted to voltage, or the fan driver inside the module has failed.

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 no symptoms besides the warning light, especially if the fan is not needed for current driving conditions
- The auxiliary fan may not run at all when commanded, leading to reduced cooling performance
- Possible engine overheating or air conditioning performance degradation under high load or hot ambient temperatures
- In some vehicles, the fan may run continuously at full speed due to a default strategy
- A stored code may be accompanied by other fan control circuit codes if multiple fans share a control module

Common causes, most likely first

- 1 Open circuit in the fan control wire between the PCM and the fan motor or relay
- 2 Short to voltage on the fan control circuit, often from chafed wiring near hot or moving components
- 3 Failed fan motor or fan control module, causing an open or high-resistance path
- 4 Corroded or damaged connector terminals at the fan, relay, or PCM
- 5 Blown fuse or fusible link that supplies power to the fan circuit, though this typically sets a low-voltage code
- 6 Internal failure of the PCM driver for that specific fan output
- 7 Aftermarket accessories or improper wiring repairs that have disturbed the fan control circuit



How to diagnose and fix it

- 1 Verify the code with a scan tool and check for any related fan or cooling system codes before proceeding
- 2 Inspect the fan control circuit wiring and connectors for obvious damage, corrosion, or loose pins
- 3 Measure resistance on the control wire from the PCM to the fan module to check for an open circuit
- 4 With the circuit disconnected, check for voltage on the control wire to rule out a short to power
- 5 Command the fan on with a scan tool and observe whether the fan runs and whether the control circuit voltage changes as expected
- 6 If the circuit tests good, substitute a known-good fan motor or control module to see if the code clears
- 7 If all external components and wiring are verified, diagnose the PCM output driver or replace the PCM as a last resort

Fan 4 circuit high is not always a fan failure

- A high-voltage code on a fan control circuit often means the PCM is not seeing the expected ground path, which can be caused by a simple open wire rather than a failed fan motor.
Technicians sometimes replace the fan motor only to find the code returns because the control wire is chafed where it passes through the fan shroud or near the radiator support.
- On vehicles with multiple fans, Fan 4 may be a small auxiliary fan that only runs with the air conditioning, so the driver may never notice a problem until the code sets.
- A short to voltage on the control circuit can be intermittent and may only set the code when the harness moves, such as during hard acceleration or over bumps.
The PCM may set this code if the fan control circuit is disconnected while the key is on, so always clear codes and recheck after any wiring repairs before condemning the module.

Can I keep driving with P2C40?

You can usually drive the vehicle with this code, but avoid heavy loads, towing, or extended idling in hot weather because the auxiliary fan may not operate and could lead to overheating or reduced air conditioning performance. If the temperature gauge rises above normal, stop and let the engine cool.

Tools that help

- OBD-II scan tool with bidirectional control capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Back probe pins or breakout leads
- Basic hand tools for connector and component access



Reading P2C40

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- C** Hybrid propulsion.
- 40** 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 · **P2C3F** Fan 4 Control Circuit Low · **P2C41** Fan 3 Performance/Stuck Off

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/p2c40/>

