

GENERIC · POWERTRAIN

P2C3E

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P2C3E

Fan 4 Control Circuit

P2C3E indicates that the powertrain control module (PCM) has detected an abnormal condition on the control circuit for fan number four, which is typically an auxiliary or condenser cooling fan on vehicles with multiple fan assemblies. The PCM monitors the circuit for expected voltage or current and sets this code when the signal falls outside the programmed range, pointing to an open, short, or component fault rather than a confirmed fan failure.

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 with no other obvious change in vehicle behavior
- One or more cooling fans may fail to run when the engine is hot or when the air conditioning is switched on
- Engine coolant temperature may rise above normal in traffic or during extended idling if the affected fan is the primary cooling fan
- Air conditioning performance may degrade because the condenser fan is not pulling air through the condenser
- In some vehicles, the PCM may command the remaining fans to run at higher speeds, making them sound louder than usual
- A cooling fan may run continuously even with the engine off or cold, indicating a shorted control circuit

Common causes, most likely first

- 1 Damaged, corroded, or disconnected wiring or connector at the fan motor or fan control module
- 2 Failed cooling fan motor with an open or shorted internal winding
- 3 Faulty fan control module or relay that no longer switches the ground or power path correctly
- 4 Blown fuse or fusible link in the fan power circuit
- 5 PCM internal driver fault on the fan control output, often after water intrusion or overheating
- 6 Poor ground connection at the fan motor, chassis, or PCM, causing intermittent circuit resistance
- 7 Aftermarket fan or wiring repairs with incorrect resistance or routing that confuse the PCM's circuit monitoring



How to diagnose and fix it

- 1 Inspect the fan connector and wiring harness for corrosion, chafing, or loose pins, and repair any damage found
- 2 Check the fan power fuse and relay, and test the relay by swapping it with an identical known-good relay
- 3 Command the fan on with a scan tool and verify whether the fan runs; if it does not, measure voltage and ground at the fan connector
- 4 Measure resistance across the fan motor terminals and compare with the manufacturer's specification to rule out an open or shorted motor
- 5 Back-probe the control circuit at the PCM and check for the expected voltage or duty cycle when the fan is commanded on
- 6 If the control circuit is intact but the PCM does not command the fan, test the PCM output driver or replace the PCM after confirming all other causes
- 7 Clear the code and perform a road test with the scan tool monitoring fan command and coolant temperature to confirm the repair

Fan circuit checks that prevent misdiagnosis

- A P2C3E can be set by a fan that still spins freely by hand but has a worn brush or bearing that draws excessive current only when hot, so a simple visual check is not enough.
- Many technicians replace the fan motor when the real fault is a corroded ground wire behind the fan shroud, which is a common corrosion point on vehicles driven in salt-belt regions.
- The PCM may set this code intermittently if the fan connector is loose but makes contact at idle, so always wiggle-test the harness while watching live data.
- On vehicles with pulse-width-modulated fan control, a fan that runs at full speed constantly can indicate a shorted control wire rather than a failed fan motor.
- A weak battery or charging system fault can cause the PCM to misreport fan circuit codes because voltage spikes confuse the driver's current monitoring, so check battery health first.

Can I keep driving with P2C3E?

You can usually drive the vehicle short distances at moderate speed with the air conditioning off, but avoid heavy traffic, long idling, or hot ambient conditions because the affected fan may not cool the engine or condenser. If the coolant temperature gauge climbs above normal, pull over and stop the engine to prevent overheating damage.



Tools that help

- OBD-II scan tool with bidirectional fan control capability
- Digital multimeter with back-probe pins
- Test light or fused jumper wire
- Relay puller and known-good relay
- Wiring diagram for the fan control circuit
- Infrared thermometer to verify coolant and condenser temperatures

Reading P2C3E

P	Powertrain: engine, transmission and emissions.
2	Generic (SAE) code: it means the same thing on every OBD-II vehicle.
C	Hybrid propulsion.
3E	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 · **P2C3D** Cylinder Head Temperature Sensor A/B Correlation · **P2C3F** Fan 4 Control Circuit Low

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/p2c3e/>

