

GM · POWERTRAIN

P1480

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1480 · GM

Cooling Fan 1 Control Circuit High

P1480 on a GM vehicle means the engine control module (ECM) commanded Cooling Fan 1 on, but the feedback circuit on that control wire stayed at a high voltage instead of dropping to the expected low level. The ECM interprets that high-voltage condition as an open circuit or a fan relay that is not responding, so it stores the code and may default the fan to full speed or disable it depending on the calibration.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	GM specific	Medium	Intermediate	Auxiliary emission controls

Symptoms you may notice

- Illuminated check engine light or service engine soon light, often with no other symptoms
- Cooling fan runs continuously at full speed even when the engine is cold
- Cooling fan never engages, leading to rising coolant temperature in traffic or at idle
- Air conditioning performance drops because the condenser fan is not being commanded
- Engine temperature gauge climbs above normal during extended idling or low-speed driving
- In some cases the driver notices nothing at all besides the warning light

Common causes, most likely first

- 1 Open or damaged control wire between the ECM and the Cooling Fan 1 relay, including a corroded or backed-out terminal at either end
- 2 Failed Cooling Fan 1 relay with burned contacts or an open coil
- 3 Blown fan fuse or a fusible link in the fan power circuit that feeds the relay
- 4 Seized or dragging cooling fan motor that draws excessive current and stresses the relay circuit
- 5 Corroded ground connection for the fan relay or fan motor, causing the feedback voltage to stay high
- 6 Faulty ECM driver on the fan control circuit, though this is the least common cause and should be confirmed last
- 7 Aftermarket wiring or a previous repair that left the fan control circuit incorrectly spliced or bypassed



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data for P1480, then clear the code and command Cooling Fan 1 on with a bidirectional scan tool to see whether the fan responds and whether the code resets immediately
- 2 Inspect the fan relay, fan fuse, and fusible link in the underhood fuse block, and swap the Cooling Fan 1 relay with an identical known-good relay to rule out a failed relay
- 3 Backprobe the fan control wire at the ECM and at the relay and measure voltage with the fan commanded on and off; a wire that stays high when commanded on points to an open circuit
- 4 Perform a voltage drop test on the fan power and ground circuits under load to catch corrosion or a loose ground that a simple continuity check will miss
- 5 Disconnect the fan motor and check its resistance and current draw against the GM service specification; a dragging motor can set this code without blowing a fuse
- 6 Repair or replace the open control wire, corroded terminal, or failed relay as indicated by the tests, then clear the code and verify the fan cycles correctly with the scan tool
- 7 If every circuit and component tests good, check for an ECM software calibration update or a faulty ECM driver before condemning the module

What the high-voltage reading really means

- A high-voltage reading on the fan control circuit usually means the ECM is not seeing the relay coil pull the line low, which is an open circuit far more often than a shorted one, so technicians who chase shorts waste time.
- A fan motor that is beginning to seize can set P1480 intermittently long before it blows a fuse, because the relay coil still energizes but the feedback voltage behaves abnormally under load.
- Corrosion inside the underhood fuse block at the relay terminals is a common GM failure that mimics a bad relay and will return if only the relay is replaced.
- Some GM calibrations command the fan on as a failsafe when this code sets, so a fan that runs constantly is not proof the circuit is healthy.
- P1480 can be set by a low battery or a voltage spike during jump-starting, so always check for a stored history code and verify the circuit before replacing parts.

Can I keep driving with P1480?

You can usually drive the vehicle short distances to a repair shop, but watch the coolant temperature gauge closely and avoid heavy traffic, long idles, or towing until the fan circuit is repaired. If the temperature gauge climbs into the red or the air conditioning stops cooling, pull over and shut the engine off to prevent overheating damage.



Tools that help

- Bidirectional scan tool capable of commanding the cooling fan
- Digital multimeter with backprobe pins
- Test light or load-proving jumper
- Relay puller and terminal pick set
- GM service information wiring diagram for the fan control circuit

Reading P1480

- P** Powertrain: engine, transmission and emissions.
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- 1** Manufacturer-specific code (GM): its meaning depends on the make.
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- 4** Auxiliary emission controls.
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- 80** The exact fault within that area.

Often seen with

P1481 Glow Plug Failure · **P1482** Preglow Control Module N142 · **P1481** EATX RPM pulse generator signal for misfire detection · **P1482** Catalyst Temperature Sensor Circuit Shorted Low · **P1481** Fan Secondary Low with High Fans On · **P1482** SCP (Standard Corporate Protocol) Communication Bus Malfunct · **P1481** EATX RPM Pulse Generator Signal For Misfire Detection · **P1482** Catalyst Temperature Sensor Circuit Shorted Low · **P0128** Coolant Thermostat (Coolant Temperature Below Thermostat Reg · **P0480** Cooling Fan 1 Control Circuit Malfunction · **P0481** Cooling Fan 2 Control Circuit Malfunction

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/gm-p1480/>

