

GENERIC · POWERTRAIN

P0538

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0538

A/C Evaporator Temperature Sensor Circuit High

P0538 means the air conditioning (A/C) control module has detected an abnormally high voltage on the evaporator temperature sensor circuit, which usually indicates an open circuit or a sensor that has failed high. The computer expects a voltage within a specific range that corresponds to the evaporator core temperature, and a reading above that range triggers this code.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Vehicle speed, idle control and auxiliary inputs

Symptoms you may notice

- The A/C may blow warm air or fail to cool the cabin properly.
- The A/C compressor clutch may not engage at all.
- The blower motor may run, but the air is not chilled.
- Often no symptoms besides the warning light, especially if the system defaults to a fixed setting.
- In some vehicles, the A/C control panel may flash or show a fault indicator.
- The cooling fan may run continuously or not at all, depending on the fail-safe strategy.

Common causes, most likely first

- 1 An open or damaged wire in the evaporator temperature sensor circuit, often due to chafing or a broken connector.
- 2 A failed evaporator temperature sensor that reads higher resistance than it should.
- 3 Corroded or loose electrical connectors at the sensor or the A/C control module.
- 4 A faulty A/C control module that misinterprets the sensor signal.
- 5 High resistance in the ground circuit for the sensor.
- 6 Aftermarket or incorrect sensor installed previously.
- 7 Physical damage to the sensor or its wiring from debris or service work.



How to diagnose and fix it

- 1 Scan all modules for codes and record freeze-frame data to confirm the fault conditions.
- 2 Visually inspect the evaporator temperature sensor and its wiring for obvious damage, corrosion, or loose connections.
- 3 Disconnect the sensor and measure its resistance; compare to the manufacturer's temperature-resistance chart.
- 4 Check the sensor signal voltage at the control module connector with the sensor connected and the key on.
- 5 Perform a wiggle test on the harness while watching live data to catch intermittent opens.
- 6 Repair or replace the faulty wiring, connector, or sensor as needed.
- 7 Clear the codes and verify the repair with a test drive and live data monitoring.

What a high evaporator sensor reading really means

- A high voltage on the signal circuit almost always points to an open circuit rather than a shorted sensor, so inspect the wiring before condemning the sensor.
Some vehicles use a thermistor whose resistance drops as temperature rises; an open sensor will read as extremely cold or extremely hot depending on the module's pull-up resistor configuration.
- The A/C control module may substitute a default evaporator temperature value when the sensor fails, allowing the compressor to run but with reduced performance or possible evaporator icing.
- A poor ground at the sensor can cause a high voltage reading that mimics an open circuit, so always check ground integrity.
After replacing the sensor, some vehicles require a calibration or learn procedure for the A/C system to recognize the new sensor.

Can I keep driving with P0538?

You can usually drive the vehicle safely with this code, but the A/C may not function or may perform poorly. Avoid using the A/C until repaired, as continued operation with a faulty sensor could lead to evaporator icing or compressor damage in some systems.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wire piercing probes or back-probe kit
- Service manual with wiring diagrams and resistance charts
- Trim removal tools for accessing the evaporator sensor



Reading P0538

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 5** Vehicle speed, idle control and auxiliary inputs.
- 38** The exact fault within that area.

Often seen with

P0532 A/C Refrigerant Pressure Sensor 'A' Circuit Low · **P0536** A/C Evaporator Temperature Sensor Circuit Range/Performance · **P0537** A/C Evaporator Temperature Sensor Circuit Low · **P0539** A/C Evaporator Temperature Sensor Circuit Intermittent · **P0645** A/C Clutch Relay Control Circuit

See it working

Watch the animated explainer [Inline-Four Engine X-Ray: Firing Order 1-3-4-2](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0538/>

