

GENERIC · POWERTRAIN

P0071

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P0071

Ambient Air Temperature Sensor Range/Performance

P0071 means the powertrain control module (PCM) has detected that the ambient air temperature (AAT) sensor signal is outside the expected range or is not changing in a plausible way compared to other temperature sensors at startup. The PCM monitors the AAT sensor circuit and cross-checks its reading against the intake air temperature and engine coolant temperature sensors to determine if the signal is stuck, erratic, or out of range.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Low	Intermediate	Fuel and air metering and auxiliary emission controls

Symptoms you may notice

- Often no symptoms besides the warning light, because the AAT sensor mainly affects climate control and minor fuel calculations.
- Outside temperature display on the dashboard shows dashes or a fixed incorrect value.
- Automatic climate control may blow air at the wrong temperature or fail to switch to recirculation mode correctly.
- Remote start or heated mirror functions may be inhibited on some vehicles that rely on AAT for those features.
- In rare cases, a slight decrease in fuel economy or driveability due to incorrect air density calculation.
- Cold start fast idle may be slightly off, though this is more commonly associated with the intake air temperature sensor.

Common causes, most likely first

- Faulty ambient air temperature sensor itself, often due to corrosion or water intrusion at the sensor connector.
- Damaged or corroded wiring harness between the sensor and the PCM, especially in the front bumper area where the sensor is typically mounted.
- Open or short circuit in the sensor signal or ground circuit, sometimes caused by rodent damage or chafing.
- Poor electrical connection at the sensor or PCM connector, often from vibration or moisture.
- PCM internal fault, which is rare but possible after all other causes are ruled out.
- Aftermarket accessories or modifications that tap into the sensor circuit, causing signal interference.



How to diagnose and fix it

- 1 Use an OBD-II scan tool to read the ambient air temperature sensor value and compare it to the actual outside temperature; a stuck or implausible reading confirms the fault.
- 2 Visually inspect the sensor and its connector for corrosion, water intrusion, or physical damage, and clean or replace the connector if needed.
- 3 Check the sensor's resistance with a multimeter and compare it to the manufacturer's temperature-resistance chart to verify sensor function.
- 4 Perform a voltage drop test on the signal and ground circuits to identify high resistance or open circuits, repairing any damaged wires.
- 5 If the sensor and wiring are good, check for continuity between the sensor connector and the PCM to rule out an open circuit.
- 6 Replace the ambient air temperature sensor if it fails the resistance test, then clear the code and verify the reading updates correctly.
- 7 If the code persists after all checks, diagnose the PCM or its programming, consulting a factory service manual for specific pinout and voltage specifications.

Before you replace the ambient sensor

- A common misdiagnosis is replacing the ambient air temperature sensor when the real problem is a corroded connector or chafed wire in the front bumper area, which is exposed to road debris and moisture.
- The PCM often cross-checks the AAT sensor against the intake air temperature sensor at startup; if the intake air temperature sensor is faulty, it can cause a false P0071 code.
- Some vehicles use the AAT sensor for climate control and remote start logic, so a faulty sensor may cause those features to act up even if the engine runs fine.
- The AAT sensor circuit may share a ground or reference voltage with other sensors, so a fault in a related circuit can trigger P0071 along with other codes.
- After replacing the sensor, the PCM may need to see a plausible temperature change over time before it will clear the code, so a test drive in varying ambient conditions is necessary.

Can I keep driving with P0071?

The vehicle is safe to drive with P0071 because the ambient air temperature sensor does not affect engine operation or safety systems. You may notice incorrect outside temperature readings or climate control quirks, but you can continue driving until it is convenient to have the fault diagnosed and repaired.



Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Factory service manual or wiring diagram for the specific vehicle
- Socket set and trim removal tools for accessing the sensor
- Contact cleaner and dielectric grease

Reading P0071

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 0** Fuel and air metering and auxiliary emission controls.
- 71** The exact fault within that area.

Often seen with

P0070 Ambient Air Temperature Sensor Circuit · **P0072** Ambient Air Temperature Sensor Circuit Low · **P0073** Ambient Air Temperature Sensor Circuit High · **P0111** Intake Air Temperature Circuit Range/Performance · **P0113** Intake Air Temperature Circuit High Input

See it working

Watch the animated explainer [How Coil-on-Plug Ignition Works: Coil and Spark Plug](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p0071/>

