

GENERIC · POWERTRAIN

P00F1

OBD-II TROUBLE CODE

P00F1

Intake Air Temperature Sensor 3 Circuit Intermittent/Erratic Bank 2

P00F1 indicates that the powertrain control module (PCM) has detected an intermittent or erratic signal from the intake air temperature (IAT) sensor 3 on bank 2. The computer expects a steady voltage or resistance value that changes smoothly with temperature, but the signal is dropping out or jumping erratically, so the PCM cannot trust the reading.

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

- Often no symptoms besides the warning light, especially if the fault is brief and the PCM substitutes a default value.
- A momentary stumble or hesitation when the engine is cold, because the PCM may briefly use an incorrect air temperature for fuel calculation.
- Poor fuel economy or slightly rough idle if the erratic signal persists and the PCM keeps adjusting fuel delivery based on bad data.
- In rare cases, a no-start or hard-start condition when the sensor signal is completely lost during cranking.
- Intermittent operation of the intake air temperature display on the dashboard, if the vehicle is equipped with one.
- A stored freeze-frame showing the fault occurred under specific temperature or vibration conditions, which can help pinpoint a wiring issue.

Common causes, most likely first

- A loose, corroded, or damaged electrical connector at the IAT sensor 3, allowing the signal to intermittently drop out.
- Chafed, pinched, or broken wires in the sensor circuit, often near a bend or where the harness passes through a tight space.
- A failing IAT sensor 3 that has an internal intermittent connection, especially when exposed to heat cycles or vibration.
- Poor terminal tension at the PCM connector, causing an erratic connection that mimics a sensor fault.
- Water intrusion or contamination in the sensor connector or wiring, leading to intermittent shorting or high resistance.
- A faulty ground connection shared by the sensor circuit, which can cause voltage fluctuations that the PCM interprets as an erratic signal.



How to diagnose and fix it

- 1 Inspect the IAT sensor 3 connector and wiring for looseness, corrosion, or damage, and clean or repair as needed.
- 2 Wiggle-test the harness while watching live data for the IAT sensor 3 to reproduce the intermittent signal and locate the fault.
- 3 Measure the resistance of the IAT sensor 3 at known temperatures and compare to the manufacturer's specification to check for an internal fault.
- 4 Check for continuity and short-to-ground or short-to-power on each wire in the sensor circuit, including the ground circuit.
- 5 Inspect the PCM connector terminals for tightness and corrosion, and repair any damaged pins or terminals.
- 6 If the wiring and connector are good, replace the IAT sensor 3 with a quality part and clear the code to verify the repair.
- 7 After repairs, road-test the vehicle and monitor live data to confirm the signal is stable and the code does not return.

Intermittent IAT faults often hide in the harness

- A common mistake is replacing the IAT sensor 3 immediately, but the intermittent nature of this code frequently points to a wiring or connector problem that a new sensor will not fix.
- The fault may only appear under specific conditions such as vibration, temperature extremes, or engine movement, so a wiggle test while watching live data is more effective than a static resistance check.
- Bank 2 IAT sensor 3 is often located in the intake air duct or manifold after the throttle body, and on some vehicles it is integrated into a mass airflow sensor or manifold absolute pressure sensor, making diagnosis more involved.
- A poor ground for the sensor circuit can cause the PCM to see erratic voltage without any visible damage to the sensor or its positive wiring, so always verify ground integrity.
- This code does not always mean the sensor is bad; it can be set by a loose connector that only loses contact during hard acceleration or over bumps, so a thorough visual and wiggle inspection is essential.

Can I keep driving with P00F1?

The vehicle is generally safe to drive with this code because the PCM substitutes a default intake air temperature and the engine will run, but you should avoid heavy acceleration or towing until the fault is repaired, as the erratic signal can cause brief driveability issues and increased emissions.



Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wire piercing probes or back-probe kit
- Contact cleaner and dielectric grease
- Terminal pick and crimping tools

Reading P00F1

- P** Powertrain: engine, transmission and emissions.
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- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
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- 0** Fuel and air metering and auxiliary emission controls.
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- F1** The exact fault within that area.

Often seen with

P00F0 Intake Air Temperature Sensor 3 Circuit High Bank 2 · **P00F2** Humidity Sensor Circuit/Open · **P0111** Intake Air Temperature Circuit Range/Performance · **P0112** Intake Air Temperature Circuit Low Input · **P0113** Intake Air Temperature Circuit High Input

See it working

Watch the animated explainer [Manual Car Driving Simulator: Learn Clutch Control](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p00f1/>

