



P1151 · Ford

Lack of Upstream Heated Oxygen Sensor Switch Sensor Indicates Lean Bank 2

P1151 on a Ford means the powertrain control module (PCM) has detected that the upstream heated oxygen sensor (HO2S) on bank 2 is stuck indicating a lean condition and is not switching rich-to-lean as it should. The PCM monitors the sensor's voltage and expects it to oscillate rapidly around 0.45 volts; when it stays low for too long, this code is set.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Ford specific	Medium	Intermediate	Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- A slight decrease in fuel economy as the PCM adds fuel trying to correct the perceived lean condition.
- Occasional rough idle or hesitation during acceleration, especially when the engine is cold.
- A faint rotten-egg or fuel odor from the exhaust if the engine is running rich from over-fueling.
- In some cases, the engine may run poorly or stall, but this is less common.
- No drivability symptoms at all in many instances, with the code being the only indicator.

Common causes, most likely first

- 1 A failed upstream heated oxygen sensor on bank 2 that is stuck lean or slow to respond.
- 2 A vacuum leak on bank 2, such as a leaking intake manifold gasket, vacuum hose, or PCV hose.
- 3 A dirty or failing mass air flow (MAF) sensor that is under-reporting airflow, causing a lean condition.
- 4 A weak or failing fuel pump or clogged fuel filter, reducing fuel delivery to bank 2.
- 5 Leaking fuel injector O-rings or a faulty injector on bank 2 causing an imbalance.
- 6 An exhaust leak before the oxygen sensor on bank 2, allowing outside air to be drawn in and read as lean.
- 7 A wiring issue in the oxygen sensor circuit, such as a chafed wire, corroded connector, or poor ground.



How to diagnose and fix it

- 1 Inspect the bank 2 upstream oxygen sensor wiring and connector for damage, corrosion, or loose pins.
- 2 Check for vacuum leaks on bank 2 using a smoke machine or carburetor cleaner while monitoring fuel trims.
- 3 Test the bank 2 upstream oxygen sensor response with a scan tool by observing its voltage switching; a good sensor should oscillate rapidly between 0.1 and 0.9 volts.
- 4 Verify fuel pressure and volume to rule out a weak fuel pump or clogged filter.
- 5 Clean the MAF sensor with a dedicated cleaner and recheck fuel trims.
- 6 Perform a propane enrichment test at the intake to confirm whether the lean condition is real or a sensor error.
- 7 Replace the bank 2 upstream oxygen sensor if it is slow or unresponsive, then clear the code and verify the repair with a test drive.

Don't replace the sensor before checking these

- A vacuum leak or exhaust leak can cause a lean reading on bank 2, so always rule those out before condemning the oxygen sensor.
The code can be set by a lazy sensor that still switches but too slowly, which may not trigger a heater circuit code.
- Fuel trim data is your best friend: if long-term fuel trim on bank 2 is high positive, the engine is truly lean; if not, the sensor is likely lying.
- On some Ford engines, a failing intake manifold gasket or cracked vacuum line on the bank 2 side is a common culprit that is often overlooked.
Replacing the sensor without addressing the root cause will lead to the code returning quickly if a lean condition exists.

Can I keep driving with P1151?

You can usually continue driving with this code, but avoid heavy acceleration or towing until it is diagnosed, as prolonged driving with a lean condition can damage the catalytic converter or cause engine damage. Have the vehicle inspected promptly to prevent worsening fuel economy and potential emissions failure.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Vacuum gauge
- Smoke machine
- Fuel pressure gauge
- Basic hand tools



Reading P1151

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Ford): its meaning depends on the make.
- 1** Fuel and air metering.
- 51** The exact fault within that area.

Often seen with

P1131 Bank 2 Sensor 1 Resistance Too High · **P1131** Front Oxygen Sensor Circuit Malfunction Short Circuit · **P1131** HO2S Bank 1 Sensor 1 Signal Below 0.45v AF Ratio Too Lean · **P1131** HO2S Circuit Low Variance Bank 1 Sensor 2 · **P1131** Lack of Upstream Heated Oxygen Sensor Switch Sensor Indicate · **P1131** HO2S Circuit Low Variance Bank 1 Sensor 2 · **P0133** O2 Sensor Circuit Slow Response (Bank 1 Sensor 1) · **P0153** O2 Sensor Circuit Slow Response (Bank 2 Sensor 1) · **P0171** System Too Lean (Bank 1) · **P0174** System Too Lean (Bank 2)

See it working

Watch the animated explainer [How a Knock Sensor Works: Spark Timing and Octane](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1151/>

