



P1150 · Ford

Lack of Upstream Heated Oxygen Sensor Switch Adaptive Fuel Limit Bank 2

P1150 on Ford vehicles indicates that the powertrain control module has detected that the upstream heated oxygen sensor on bank 2 is not switching as expected, and the adaptive fuel trim has reached its limit while trying to compensate. The engine computer can no longer adjust the air-fuel mixture enough to satisfy the sensor, which points to a sensor that is lazy or stuck, a wiring problem, or an underlying fuel or vacuum issue on that bank.

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 computer struggles to maintain the correct mixture.
- Rough idle or hesitation during acceleration, especially when the engine is cold.
- Occasional engine misfire or surging under light throttle.
- Failed emissions test due to increased tailpipe emissions.
- In rare cases, a sulfur or rotten egg smell from the exhaust if the mixture stays rich.

Common causes, most likely first

- 1 A worn or contaminated upstream heated oxygen sensor on bank 2 that responds sluggishly.
- 2 A vacuum leak on bank 2, such as a leaking intake manifold gasket or cracked vacuum hose, causing a lean condition.
- 3 A faulty fuel injector on bank 2 that is clogged or leaking, skewing the air-fuel ratio.
- 4 Exhaust leaks before the oxygen sensor on bank 2, allowing outside air to affect the reading.
- 5 Wiring damage or corrosion in the oxygen sensor circuit, including the heater circuit, causing intermittent signals.
- 6 A failing mass airflow sensor that is not reporting airflow accurately, though this usually affects both banks.
- 7 Low fuel pressure or a weak fuel pump that cannot deliver enough volume under load.



How to diagnose and fix it

- 1 Scan all stored codes and freeze-frame data to confirm P1150 is the primary fault and not a secondary code.
- 2 Inspect the bank 2 upstream oxygen sensor wiring and connector for damage, corrosion, or loose pins, and repair as needed.
- 3 Check for vacuum leaks on bank 2 using a smoke machine or carburetor cleaner while watching fuel trim values.
- 4 Test the bank 2 upstream oxygen sensor response with a scan tool or oscilloscope to see if it switches rapidly between rich and lean.
- 5 Verify fuel pressure and injector operation on bank 2, including a injector balance test if equipment allows.
- 6 Replace the bank 2 upstream heated oxygen sensor if it fails the response test, using the correct Ford-recommended part.
- 7 Clear codes and perform a road test to confirm the adaptive fuel trims return to normal and the code does not reset.

When the sensor is not the real culprit

- A vacuum leak on bank 2 can mimic a lazy oxygen sensor perfectly, so always check fuel trims and intake integrity before condemning the sensor.
- The adaptive fuel limit can be reached because of a failing fuel injector that is dripping or clogged, which is often overlooked when the sensor code is the only one stored.
- Exhaust leaks upstream of the sensor pull in outside oxygen and cause the sensor to report a false lean condition, leading to unnecessary sensor replacement.
- Ford's oxygen sensor heater circuit is monitored separately, but a weak heater can cause the sensor to cool at idle and set P1150 without a heater code.
- After replacing the sensor, the adaptive fuel trims must be reset with a scan tool, or the code may return until the computer relearns the mixture.

Can I keep driving with P1150?

You can usually drive the vehicle with P1150 set, but avoid heavy acceleration and towing until it is diagnosed, because the engine may run poorly and fuel economy will suffer. Prolonged driving with a rich or lean condition can damage the catalytic converter, so schedule a diagnostic soon.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter for testing sensor and heater circuits
- Vacuum smoke machine for intake leak detection
- Fuel pressure gauge
- Oscilloscope for observing oxygen sensor waveform
- Basic hand tools and oxygen sensor socket



Reading P1150

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

Often seen with

P1131 Bank 2 Sensor 1 Resistance Too High · **P1151** Bank 1 Long Term Fuel Trim Range 1 Lower Lean Limit Exceeded · **P1131** Front Oxygen Sensor Circuit Malfunction Short Circuit · **P1151** Rear Oxygen Sensor Heater Circuit High Input · **P1131** HO2S Bank 1 Sensor 1 Signal Below 0.45v AF Ratio Too Lean · **P1151** HO2S Bank 2 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 · **P1151** Lack of Upstream Heated Oxygen Sensor Switch Sensor Indicate · **P1131** HO2S Circuit Low Variance Bank 1 Sensor 2 · **P1151** O2 Sensor Heater Circuit Signal Intermittent Bank 2 Sensor 1 · **P0135** O2 Sensor Heater Circuit Malfunction (Bank 1 Sensor 1) · **P0171** System Too Lean (Bank 1) · **P0174** System Too Lean (Bank 2)

See it working

Watch the animated explainer [Four-Stroke Engine Notebook: The Otto Cycle Explained](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1150/>

