

GENERIC · POWERTRAIN

P225D

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

## P225D

# NOx Sensor Performance - Signal Biased/Stuck Low (Bank 1 Sensor 1)

P225D means the engine computer has detected that the upstream nitrogen oxide (NOx) sensor on bank 1 is reporting a signal that is biased low or stuck at a low value, rather than responding normally to changing exhaust conditions. The computer compares the sensor's output against expected values and flags the code when the signal remains below the plausible range for too long.

| SYSTEM     | CODE TYPE           | SEVERITY | FIX DIFFICULTY | AREA                                      |
|------------|---------------------|----------|----------------|-------------------------------------------|
| Powertrain | Generic (all makes) | Medium   | Professional   | Fuel and air metering (injector circuits) |

## Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Reduced fuel economy or slightly rougher running in some cases
- Possible limp mode or reduced engine power if the fault escalates
- Failed emissions test due to increased nitrogen oxide (NOx) output
- In rare cases, a sulfur or ammonia smell from the exhaust

## Common causes, most likely first

- 1 Faulty NOx sensor itself, especially contamination or sensor element degradation
- 2 Wiring damage or poor connection at the NOx sensor connector or harness
- 3 Exhaust leaks upstream of the sensor introducing false air
- 4 Defective NOx sensor control module (if separate from the sensor)
- 5 Software calibration issue in the engine control module (ECM) requiring update
- 6 Contaminated fuel or incorrect fuel quality affecting sensor readings
- 7 Internal ECM driver circuit fault for the NOx sensor heater or signal



## How to diagnose and fix it

- 1 Perform a visual inspection of the NOx sensor, its wiring, and connector for damage or corrosion
- 2 Check for exhaust leaks between the turbocharger and the sensor location
- 3 Use a scan tool to monitor live NOx sensor data and compare with expected values
- 4 Verify sensor heater resistance and supply voltage according to manufacturer specifications
- 5 Check for technical service bulletins (TSBs) or software updates for the ECM
- 6 Replace the NOx sensor if diagnostics confirm it is biased low or stuck
- 7 Clear codes and perform a road test to verify the repair

## What most technicians overlook with P225D

- A biased-low NOx sensor can be caused by a lazy sensor that still reports plausible values under steady cruise, so live data during acceleration and deceleration is more revealing than a static check.
- Exhaust leaks upstream of the sensor are a common cause that is often missed because the leak may be small and not produce audible noise.
- The NOx sensor's signal can be skewed by contamination from engine oil or coolant entering the exhaust stream, so check for internal engine leaks before replacing the sensor.
- Some vehicles require a relearn or adaptation reset after NOx sensor replacement, and skipping this step can cause the code to return.
- P225D can be set by a faulty NOx sensor control module even when the sensor itself is good, so module testing is essential on systems with a separate controller.

## Can I keep driving with P225D?

You can usually continue driving with P225D, but avoid long periods of idling or heavy load until it is repaired, as the fault may increase emissions and could lead to more serious system damage over time. Have the vehicle diagnosed promptly to prevent secondary issues.

## Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Exhaust leak detector or smoke machine
- Manufacturer-specific diagnostic software
- Socket set and wrench set



## Reading P225D

- P** Powertrain: engine, transmission and emissions.
- 2** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 2** Fuel and air metering (injector circuits).
- 5D** The exact fault within that area.

## Often seen with

**P2201** NOx Sensor Circuit Range/Performance (Bank 1 Sensor 1) · **P225C** NOx Sensor Performance - Signal Biased/Stuck High (Bank 1 Se · **P225E** NOx Sensor Performance - Signal Biased/Stuck High (Bank 1 Se · **P229E** NOx Sensor Circuit (Bank 1 Sensor 2) · **P229F** NOx Sensor Circuit Range/Performance Bank 1 Sensor 2

## See it working

Watch the animated explainer [How a Jet Engine Works: Two-Spool Turbofan](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p225d/>

