

FORD · POWERTRAIN

P1224

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1224 · Ford

Throttle Position Sensor B Out of Self-Test Range

P1224 on Ford vehicles means the powertrain control module (PCM) ran its throttle position sensor self-test and found the signal from sensor B outside the expected range for the current operating conditions. The PCM compares the sensor B voltage against a calibrated window during key-on and closed-throttle checks, and this code sets when that voltage is too high or too low.

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

Symptoms you may notice

- Illumination of the check engine light, often with no other symptoms besides the warning light
- Hesitation or stumble when accelerating from a stop
- Reduced engine power or limp mode in some Ford models
- Poor fuel economy or erratic idle quality
- Automatic transmission shifting harshly or at the wrong time

Common causes, most likely first

- 1 Throttle position sensor B (often the second track inside the throttle body) internally worn or failed
- 2 Dirty or carbon-fouled throttle body preventing the sensor from reaching its expected self-test position
- 3 Damaged or chafed wiring between the throttle position sensor and the PCM
- 4 Corroded or loose connector pins at the throttle body harness
- 5 PCM software calibration issue requiring a reflash on certain Ford models
- 6 Sticking throttle plate or linkage that does not return fully during the self-test



How to diagnose and fix it

- 1 Connect a scan tool and read live throttle position sensor B voltage at key-on and closed throttle to confirm the out-of-range condition
- 2 Inspect the throttle body and sensor B connector for corrosion, loose pins, or chafed wiring, and repair as needed
- 3 Clean the throttle body bore and throttle plate with approved cleaner, then re-run the self-test
- 4 Check the sensor B reference voltage and ground circuits with a multimeter to rule out wiring faults
- 5 If voltage remains out of range, replace the throttle position sensor or throttle body assembly as required by the Ford design
- 6 Perform a throttle body relearn or PCM adaptive reset with a capable scan tool after repair
- 7 Verify the repair by clearing the code and completing a drive cycle to confirm the self-test passes

Why P1224 Often Isn't the Sensor

- A dirty throttle body is the most common cause of P1224 on Ford vehicles because carbon buildup prevents the plate from reaching the closed position the self-test expects.
- Many technicians replace the throttle position sensor only to find the code returns because the PCM calibration needs updating on certain Ford models.
- P1224 can set intermittently from a loose throttle body connector that passes a static wiggle test but fails under engine vibration.
- This code does not always mean sensor B has failed; a weak ground or reference voltage shared with other sensors can pull the signal out of range.
- After any throttle body service, a relearn procedure is mandatory on most Ford vehicles or the self-test will continue to fail.

Can I keep driving with P1224?

You can usually drive the vehicle to a repair shop, but avoid hard acceleration and towing until the fault is repaired. If the vehicle enters limp mode or the throttle response becomes erratic, stop driving and arrange a tow.

Tools that help

- OBD-II scan tool with live data and throttle relearn capability
- Digital multimeter
- Throttle body cleaner and soft brush
- Basic socket and wrench set
- Wiring diagram for the specific Ford model



Reading P1224

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

Often seen with

P1225 Cylinder 1 Injector Circuit Short To Ground · **P1225** Fuel Injector 1 Circuit Low Voltage · **P1225** Injector Circuit Cylinder 2 Intermittent · **P1225** Injector Circuit Cylinder 2 Intermittent · **P0121** Throttle Position Sensor A Circuit Range/Performance · **P0122** Throttle Position Sensor A Circuit Low Input · **P0123** Throttle Position Sensor A Circuit High Input · **P2135** Throttle/Pedal Position Sensor A/B Voltage Correlation

See it working

Watch the animated explainer [Helicopter Simulator: Take Off, Hover and Land](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1224/>

