

FORD · POWERTRAIN

P1190

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1190 · Ford

Calibration Resistor Out Of Range

P1190 on Ford vehicles indicates the powertrain control module (PCM) has detected that the calibration resistor circuit is out of its expected range. This resistor is a fixed-value component that tells the PCM the exact calibration or fuel composition strategy for the vehicle, and when its signal falls outside the programmed limits, the PCM sets this code and may default to a backup strategy.

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 (malfunction indicator lamp) with no other obvious driving issues.
- Rough idle or slightly unstable engine operation as the PCM reverts to a default calibration.
- Poor fuel economy or altered shift quality if the PCM enters a limp-home mode.
- Intermittent hesitation or stumble during acceleration.
- Often no symptoms besides the warning light, especially if the resistor value is only marginally out of range.

Common causes, most likely first

- 1 Corroded, loose, or damaged calibration resistor connector or terminals.
- 2 Calibration resistor itself failing or drifting in value due to age or heat.
- 3 Open or shorted wiring between the calibration resistor and the PCM.
- 4 Water intrusion or contamination in the resistor housing or harness.
- 5 PCM internal fault misreading the resistor signal (rare but possible).
- 6 Aftermarket or incorrect resistor installed during previous repairs.
- 7 Harness chafing or pinched wires near the resistor location.



How to diagnose and fix it

- 1 Inspect the calibration resistor and its connector for corrosion, tightness, and physical damage; clean or repair as needed.
- 2 Measure the resistance of the calibration resistor with a digital multimeter and compare to the Ford specification for the vehicle.
- 3 Check the wiring harness between the resistor and PCM for continuity, shorts to ground, and shorts to power.
- 4 Verify the PCM connector pins are clean and secure, and perform a wiggle test while monitoring the resistor signal.
- 5 If the resistor is out of specification, replace it with the correct Ford-approved part.
- 6 Clear the diagnostic trouble codes and road-test the vehicle to confirm the code does not return.
- 7 If all external checks pass, diagnose the PCM for internal faults before replacement.

Calibration resistor faults often misdiagnosed

- A common mistake is replacing the PCM when the actual problem is a simple corroded connector at the calibration resistor, which costs far less to fix.
- The calibration resistor value is often specific to the vehicle's calibration code and fuel type, so installing a generic resistor can set P1190 even if the original was fine.
- Intermittent P1190 codes can be caused by vibration or temperature changes affecting a marginal resistor or poor connection, so always wiggle-test the harness.
- Some Ford models use the calibration resistor to identify the fuel octane or flex-fuel content, and a fault can cause the PCM to default to a conservative spark and fuel strategy.
- P1190 can be stored alongside misfire or fuel trim codes if the PCM's default strategy affects combustion, so address the resistor fault first before chasing other codes.

Can I keep driving with P1190?

The vehicle is generally safe to drive with P1190 because the PCM defaults to a backup calibration, but you may experience reduced performance or fuel economy. Avoid heavy loads or aggressive driving until the fault is repaired, and address the code promptly to prevent secondary issues.

Tools that help

- Digital multimeter (DMM)
- Ford service information or wiring diagrams
- Basic hand tools (screwdrivers, socket set)
- Contact cleaner and dielectric grease
- OBD-II scan tool



Reading P1190

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

Often seen with

P1191 TP Controlled Circuit · **P1191** O2 Sensor Heater Circuit Open, Hardware Fault · **P1192** O2 Sensor Heater Circuit Shorted · **P1191** Intake Air Duct Leak · **P1192** Inlet Air Temp Circuit Low · **P1191** Key Line Voltage · **P1192** Voltage External · **P1191** Intake Air Duct Air Leak · **P1192** Inlet Air Temp Circuit Low · **P1191** Pre-Catalyst Fuel Trim System Bank 2 · **P1192** Post-Catalyst Fuel Trim System Bank 1 · **P0171** System Too Lean (Bank 1) · **P0172** System Too Rich (Bank 1) · **P0300** Random/Multiple Cylinder Misfire Detected

See it working

Watch the animated explainer [How a Rotary Engine Works: Wankel in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1190/>

