

FORD · POWERTRAIN

P1194

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1194 · Ford

ECU A/D Converter

P1194 on Ford vehicles indicates that the engine control unit (ECU) has detected a fault within its internal analog-to-digital (A/D) converter, which is responsible for translating analog sensor voltages into digital values the computer can process. This is a self-diagnostic code, meaning the ECU's own monitoring circuitry has flagged an error in its conversion hardware or reference voltage.

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

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- Rough idle or poor engine performance due to inaccurate sensor readings.
- Hesitation or stumble during acceleration as the ECU misinterprets sensor inputs.
- Poor fuel economy or increased emissions from incorrect air/fuel ratio calculations.
- Intermittent stalling or difficulty starting in severe cases.
- Other sensor-related codes may be stored simultaneously if the A/D converter corrupts multiple signals.

Common causes, most likely first

- 1 Internal failure of the ECU's A/D converter circuit, often due to age or heat damage.
- 2 Poor electrical connections or corrosion at the ECU harness connectors.
- 3 Voltage supply issues to the ECU, such as a weak battery or faulty charging system.
- 4 Ground problems for the ECU, including loose or corroded ground straps.
- 5 Electrical interference or short circuits in sensor wiring that stress the A/D converter.
- 6 Software corruption or firmware glitch in the ECU requiring reflash or replacement.

How to diagnose and fix it

- 1 Perform a thorough visual inspection of the ECU connectors and wiring for corrosion, loose pins, or damage.
- 2 Check battery voltage and charging system output to ensure stable power supply to the ECU.
- 3 Verify all ECU ground connections are clean and tight, including engine and chassis grounds.
- 4 Use a scan tool to clear the code and test-drive; if it returns immediately, proceed with further diagnostics.
- 5 Measure reference voltage at the ECU and compare to specifications to rule out power supply faults.
- 6 If all external checks pass, substitute a known-good ECU or send the unit for professional testing and repair.
- 7 After repair or replacement, perform a relearn or programming procedure as required for the vehicle.



When the ECU itself is the culprit

- A P1194 code is often misdiagnosed as a sensor failure because the A/D converter affects multiple sensors, leading to unrelated codes that distract from the root cause.
- Voltage spikes from a failing alternator or a jump-start can damage the A/D converter, so always check charging system health before condemning the ECU.
- Some Ford models may store P1194 as a pending code without illuminating the check engine light, and it may only appear during specific driving conditions.
- Corroded ECU connectors are a common hidden cause, especially in vehicles exposed to moisture or road salt, and can mimic an internal ECU failure.
- Replacing the ECU without addressing underlying wiring or power issues often leads to repeat failures, so thorough circuit testing is essential.

Can I keep driving with P1194?

If the check engine light is on but the vehicle runs normally, you can drive short distances to a repair shop, but avoid heavy acceleration or towing. If performance issues or stalling occur, stop driving and have the vehicle towed to prevent unsafe situations.

Tools that help

- OBD-II scan tool with Ford-specific software
- Digital multimeter for voltage and resistance checks
- Wiring diagram and service information for the specific Ford model
- Socket set and trim tools for accessing the ECU
- ECU programming or reflash tool if replacement is required

Reading P1194

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

Often seen with

P1195 EGR Boost Sensor Circuit · **P1195** EGR Boost Or Pressure Sensor Circuit Fault · **P1195** O2 Sensor Heater Circuit Low Resistance Fault 1 · **P1195** O2 Sensor 1/1 (Bank 1 Sensor 1) Slow During Catalyst Monitor · **P1195** SCP HBCC Failed To Initialize · **P1195** O2 Sensor 1/1 (Bank 1 Sensor 1) Slow During Catalyst Monitor · **P0600** Serial Communication Link Malfunction · **P0601** Internal Control Module Memory Checksum Error · **P0602** Control Module Programming Error · **P0606** PCM Processor Fault



See it working

Watch the animated explainer [How Push-Button Start Works: Keyless Ignition](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1194/>

