

FORD · POWERTRAIN

P1289

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1289 · Ford

Cylinder Head Temperature Sensor Signal Greater Than Self-Test Range

P1289 on Ford vehicles means the powertrain control module (PCM) has detected a cylinder head temperature (CHT) sensor signal voltage that is higher than the maximum value allowed during its self-test routine. The computer sees a signal that indicates an unrealistically cold or open circuit condition, which it cannot validate as a plausible cylinder head temperature.

SYSTEM

Powertrain

CODE TYPE

Ford specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering (injector circuits)

Symptoms you may notice

- Illuminated check engine light, often with no other noticeable symptoms
- Rough running or misfire when the engine is cold, especially in cold weather
- Poor fuel economy or rich-running condition because the PCM substitutes a default temperature
- Hard starting or extended cranking when the engine is cold
- Incorrect temperature gauge reading or no gauge movement on models with a CHT-based gauge
- Cooling fan running constantly or not at all due to faulty temperature data

Common causes, most likely first

- 1 Open or damaged CHT sensor signal circuit (broken wire, corroded connector, or loose terminal)
- 2 Faulty CHT sensor itself (internal open circuit or resistance out of specification)
- 3 Poor electrical connection at the CHT sensor or PCM connector (water intrusion, fretting corrosion)
- 4 CHT sensor installed with incorrect torque or thread damage causing poor heat transfer
- 5 PCM internal fault on the CHT input circuit (rare but possible after circuit checks pass)
- 6 Aftermarket or incorrect CHT sensor with wrong resistance curve
- 7 Harness chafing or pinched wiring near the cylinder head or intake manifold



How to diagnose and fix it

- 1 Connect a scan tool and verify P1289 is current; read CHT sensor voltage and temperature in live data to confirm the signal is out of range
- 2 Visually inspect the CHT sensor connector and wiring for corrosion, damage, or loose pins, and repair as needed
- 3 Measure resistance of the CHT sensor with a multimeter and compare to Ford specifications for the ambient temperature
- 4 Check the sensor signal circuit for an open or short to voltage using a wiring diagram and continuity tests
- 5 If the circuit and sensor check good, substitute a known-good CHT sensor and clear the code to see if it returns
- 6 Perform a wiggle test on the harness while watching live data to catch intermittent opens
- 7 If all external checks pass, diagnose the PCM input circuit or replace the PCM as a last resort

Why a cold engine sets P1289

- A CHT sensor with an open internal circuit will report an extremely cold temperature, which the PCM interprets as greater than the self-test range and sets P1289.
- Many technicians replace the CHT sensor without checking the connector, but corroded terminals at the sensor are a very common cause of this code on older Ford trucks and SUVs.
- The CHT sensor is often mistaken for a coolant temperature sensor; on Ford engines it is a separate thermistor bolted directly into the cylinder head and uses a different resistance curve.
- Intermittent P1289 codes that appear only on cold mornings often point to a failing sensor that opens when cold and works again once warmed up.
- A poor ground connection at the engine block can skew the CHT signal and set P1289 even when the sensor and wiring appear fine.

Can I keep driving with P1289?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy loads and long trips because the PCM may run the engine rich and affect cooling fan operation. If the engine runs poorly or overheats, stop driving and have it diagnosed immediately.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific Ford model
- Socket set and torque wrench for sensor replacement
- Contact cleaner and dielectric grease
- Back probe pins or breakout box for circuit testing



Reading P1289

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

Often seen with

P1288 Turbocharge Bypass Valve Short To B+ · **P1288** Accelerator Pedal Position Sensor 3 Circuit High Voltage · **P1290** CNG Fuel Pressure Too High · **P1288** Cylinder Head Temperature Sensor Out of Self-Test Range · **P1290** Cylinder Head Temperature Sensor Signal Less Than Self-Test · **P1288** Intake Manifold Short Runner Solenoid Circuit Open Or Shorted · **P1290** CNG Fuel Pressure Too High · **P1288** Switching Solenoid for Air Assisted Injection Valves Bank 2 · **P0117** Engine Coolant Temperature Circuit Low Input · **P0118** Engine Coolant Temperature Circuit High Input · **P0128** Coolant Thermostat (Coolant Temperature Below Thermostat Reg

See it working

Watch the animated explainer [How Hydraulic Brakes Work: Pedal to Caliper](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/ford-p1289/>

