

GENERIC · POWERTRAIN

P017E

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P017E

Cylinder Head Temperature Sensor A Circuit Intermittent/Erratic

P017E means the engine computer has detected an intermittent or erratic signal from the cylinder head temperature (CHT) sensor on circuit A, which is the primary temperature-sensing circuit for that sensor. The computer expects a steady, plausible voltage from the sensor, and it has seen the signal jump, drop out, or behave in a way that does not match engine operating conditions.

SYSTEM

Powertrain

CODE TYPE

Generic (all makes)

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- A temperature gauge that fluctuates or reads colder or hotter than normal
- Poor fuel economy or rough running when the engine is cold, because the computer is using a default temperature value
- Intermittent stalling or a no-start condition in extreme cases where the signal drops out completely
- Cooling fan running constantly or not at all, since fan operation often depends on cylinder head temperature
- A stored freeze-frame showing an implausible cylinder head temperature at the moment the fault set

Common causes, most likely first

- 1 A failing cylinder head temperature sensor that has an internal intermittent connection
- 2 Corroded, loose, or chafed wiring or connector pins in the sensor circuit
- 3 A poor ground connection shared by the sensor or the engine computer
- 4 Heat damage to the sensor pigtail or harness near the cylinder head
- 5 A faulty engine computer, which is rare but possible after all circuit checks pass
- 6 Coolant or oil contamination reaching the sensor connector and altering resistance



How to diagnose and fix it

- 1 Scan all modules and record freeze-frame data to confirm when and how the CHT signal became erratic
- 2 Inspect the sensor connector and harness for corrosion, looseness, chafing, or heat damage, and repair as needed
- 3 Measure the sensor resistance cold and hot and compare it to the manufacturer's temperature-resistance chart
- 4 Back-probe the signal wire at the computer while wiggling the harness to catch an intermittent open or short
- 5 Check the sensor ground circuit for excessive voltage drop under load
- 6 Replace the cylinder head temperature sensor if resistance testing or wiggle testing proves it is faulty
- 7 Clear the code and run a road test with live data to confirm the signal stays steady and the code does not return

Why an erratic CHT signal fools diagnosis

- A sensor that tests perfectly on a cold engine can still be the culprit, because the intermittent fault often appears only after heat soak or vibration, so testing must include a hot engine and a wiggle test.
- Technicians sometimes replace the sensor only to find the real problem is a chafed signal wire inside the harness loom near the cylinder head, where heat and movement break the conductor internally.
- P017E does not always mean the sensor is bad; a poor ground shared with other engine sensors can corrupt the CHT reading and set this code alongside unrelated sensor codes.
- The engine computer may substitute a default cylinder head temperature when the signal is erratic, which can mask driveability symptoms and make the fault seem harmless until emissions or cold-start behavior is affected.
- A cooling system that runs low or has air pockets can cause the cylinder head temperature to swing faster than the sensor can track, and the computer may interpret that as an erratic signal.

Can I keep driving with P017E?

You can usually drive with P017E, but avoid long trips or heavy loads until it is diagnosed, because an erratic temperature signal can affect cooling fan operation and cold-start fueling. If the engine overheats or the temperature gauge behaves erratically, stop and have the vehicle checked promptly.

Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with resistance and voltage-drop functions
- Back-probe kit or pin probes for testing connectors without damage
- Manufacturer's temperature-resistance chart for the CHT sensor
- Wiring diagram for the CHT sensor circuit
- Heat gun and infrared thermometer for hot-engine testing



Reading P017E

- P** Powertrain: engine, transmission and emissions.
- 0** Generic (SAE) code: it means the same thing on every OBD-II vehicle.
- 1** Fuel and air metering.
- 7E** The exact fault within that area.

Often seen with

P0117 Engine Coolant Temperature Circuit Low Input · **P0118** Engine Coolant Temperature Circuit High Input · **P0128** Coolant Thermostat (Coolant Temperature Below Thermostat Reg · **P017D** Cylinder Head Temperature Sensor A Circuit High · **P017F** EVAP System Leak Detection Pump Module Air Filter Restricted

See it working

Watch the animated explainer [How Variable Valve Timing Works: Cam Phaser and VVT Solenoid](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p017e/>

