

GENERIC · POWERTRAIN

P017C

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P017C

Cylinder Head Temperature Sensor A Circuit Low

P017C indicates that the powertrain control module (PCM) has detected a low-voltage condition on the signal circuit of cylinder head temperature sensor A. The sensor's output is below the expected range for the current engine conditions, which the PCM interprets as an abnormally low temperature reading or a circuit fault.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Generic (all makes)	Medium	Intermediate	Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms.
- The temperature gauge may read colder than normal or stay at the bottom of the scale.
- The engine may run rich or exhibit poor fuel economy because the PCM thinks the engine is cold.
- Cooling fan may run continuously or not at all, depending on the fail-safe strategy.
- In some cases, the engine may be hard to start or idle poorly when cold.
- A noticeable decrease in heater performance if the sensor is used for HVAC control.

Common causes, most likely first

- 1 A faulty cylinder head temperature sensor with an internal short to ground or low resistance.
- 2 Damaged wiring in the sensor signal circuit, such as a chafed wire shorting to ground.
- 3 Corroded or loose electrical connector at the sensor or PCM.
- 4 High resistance in the sensor ground circuit, causing a low signal voltage.
- 5 A PCM internal fault biasing the signal circuit low (rare).
- 6 Aftermarket or incorrect sensor installed that does not match the vehicle's calibration.



How to diagnose and fix it

- 1 Scan all modules for stored codes and freeze-frame data to confirm P017C is the primary fault and not a secondary effect.
- 2 Visually inspect the sensor connector and wiring for damage, corrosion, or loose pins, and repair as needed.
- 3 Measure the sensor's resistance with a multimeter and compare it to the manufacturer's temperature-resistance chart; replace the sensor if out of specification.
- 4 Check the signal circuit for a short to ground by disconnecting the sensor and PCM and measuring resistance from the signal wire to ground; repair any short.
- 5 Verify the ground circuit integrity by measuring voltage drop from the sensor ground pin to battery negative while the circuit is loaded; clean or repair grounds as necessary.
- 6 If all external circuits and the sensor test good, substitute a known-good sensor or use a signal generator to simulate the correct voltage and see if the code clears; replace the PCM only if the fault persists.
- 7 Clear codes and perform a road test with live data monitoring to confirm the repair and ensure no pending codes return.

Cylinder head sensor low voltage traps

- A low-voltage code often results from a short to ground in the signal wire rather than a failed sensor, so always check the harness before replacing parts.
- The cylinder head temperature sensor may share a ground with other sensors, and a bad ground can cause multiple low-voltage codes that mislead diagnosis.
- Some vehicles use the cylinder head temperature sensor for cooling fan control, so a low reading can cause the fan to run constantly and mask the original complaint.
- After a coolant leak or engine work, trapped air can cause the sensor to read low even when the circuit is electrically perfect, so verify coolant level and bleed the system.
- A low-voltage code can be set by a sensor that is unplugged or has a broken connector, which is often overlooked during visual inspection.

Can I keep driving with P017C?

You can usually drive with P017C, but avoid sustained high-speed or heavy-load operation because the PCM may run the engine rich or miscontrol cooling fans. If the temperature gauge behaves erratically or the engine overheats, stop and diagnose immediately.



Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific vehicle
- Temperature-resistance chart for the sensor
- Socket set and basic hand tools
- Heat gun or temperature probe for testing the sensor

Reading P017C

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.
7C	The exact fault within that area.

Often seen with

P0115 Engine Coolant Temperature Circuit Malfunction · **P0117** Engine Coolant Temperature Circuit Low Input · **P0118** Engine Coolant Temperature Circuit High Input · **P017D** Cylinder Head Temperature Sensor A Circuit High · **P017E** Cylinder Head Temperature Sensor A Circuit Intermittent/Erra

See it working

Watch the animated explainer [How the PCV System Works: Crankcase Ventilation](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/p017c/>

