



P1117 · Mazda

ECT Sensor Signal Intermittent

P1117 on a Mazda indicates that the engine control module (ECM) has detected an intermittent fault in the electrical circuit of the engine coolant temperature (ECT) sensor. The ECM monitors the sensor's signal voltage and flags this code when the reading momentarily drops out or jumps erratically, rather than failing completely like a hard circuit fault would.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Mazda specific	Medium	Intermediate	Fuel and air metering

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Intermittent or erratic temperature gauge readings on the dashboard
- Poor fuel economy or rough running when the engine is cold, due to incorrect fuel enrichment
- Occasional hard starting or stalling when the engine is cold
- Cooling fan running constantly or not engaging at the correct temperature
- A slight hesitation or surge during acceleration when the ECM receives a faulty temperature signal

Common causes, most likely first

- 1 Corroded, loose, or damaged electrical connector at the ECT sensor
- 2 Chafed or broken wires in the ECT sensor circuit, often near the engine block or harness bends
- 3 Failing ECT sensor that intermittently opens or shorts internally when hot or vibrating
- 4 Poor ground connection for the ECT sensor circuit at the engine or chassis
- 5 Coolant contamination or low coolant level causing the sensor to read erratically
- 6 Faulty ECM, though this is rare and should only be suspected after all other causes are ruled out

How to diagnose and fix it

- 1 Inspect the ECT sensor connector for corrosion, tightness, and bent pins; clean or repair as needed
- 2 Perform a wiggle test on the ECT sensor harness while watching live data to catch intermittent opens
- 3 Check the ECT sensor resistance with a multimeter at various temperatures and compare to Mazda specifications
- 4 Verify the sensor's ground circuit has less than 1 ohm resistance to the engine block
- 5 Backprobe the ECT signal wire at the ECM and monitor voltage for dropouts while driving over bumps
- 6 Replace the ECT sensor if resistance testing or live data shows erratic behavior
- 7 Clear the code and perform a road test to confirm the repair, monitoring ECT live data for stability



Intermittent ECT faults that fool many technicians

- A common mistake is replacing the ECT sensor immediately, but the intermittent signal often comes from a corroded connector pin or a chafed wire that only acts up when the engine bay is hot or vibrating.
- The ECT sensor shares its ground reference with other sensors on many Mazda engines, so a poor ground can cause multiple intermittent codes and misleading live data.
- Low coolant or air pockets around the sensor can cause the sensor to read erratically, mimicking an electrical fault, especially after cooling system work.
- P1117 can set without ever turning on the check engine light if the intermittent fault is brief; some Mazda models store it as a pending code first.
- Aftermarket ECT sensors with incorrect resistance curves are a frequent cause of repeat intermittent codes even when the wiring is perfect.

Can I keep driving with P1117?

You can usually continue driving with P1117, but avoid long trips or heavy loads until it is diagnosed, because an intermittent coolant temperature signal can cause poor fuel economy, rough cold running, and cooling fan malfunctions. If the temperature gauge behaves erratically or the engine overheats, stop driving and have it inspected immediately.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Backprobe pins or piercing probes
- Wiring diagram for the specific Mazda model
- Coolant temperature sensor socket or wrench

Reading P1117

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

Often seen with

P0115 Engine Coolant Temperature Circuit Malfunction · **P0116** Engine Coolant Temperature Circuit Range/Performance · **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 [Manual Car Driving Simulator: Learn Clutch Control](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1117/>

