



P1114 · Mazda

Intake Air Temperature Sensor Circuit Low Input

P1114 on Mazda vehicles means the powertrain control module (PCM) has detected an abnormally low voltage signal from the intake air temperature (IAT) sensor circuit, typically below 0.2 volts. The PCM interprets this low input as an extremely hot intake air charge, which can distort fuel delivery and ignition timing calculations.

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

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Rough idle or stumbling shortly after a cold start
- Poor fuel economy or rich-running exhaust smell
- Hesitation or flat spots during light acceleration
- Hard starting in cold ambient temperatures
- In rare cases, a no-start condition if the PCM severely mis-fuels

Common causes, most likely first

- 1 Intake air temperature sensor internally shorted to ground
- 2 Chafed or pinched signal wire between the IAT sensor and PCM shorting to chassis ground
- 3 Corroded or water-intruded connector at the IAT sensor or PCM
- 4 Failed PCM driver circuit for the IAT input (rare but documented on older Mazdas)
- 5 Aftermarket intake or filter installation that damaged the sensor wiring
- 6 Rodent damage to the sensor harness causing a short to ground



How to diagnose and fix it

- 1 Connect a scan tool and read live IAT data in degrees; compare it to ambient temperature after a cold soak to confirm the low reading
- 2 Visually inspect the IAT sensor connector and harness for corrosion, moisture, or chafing, and repair any damaged terminals
- 3 Backprobe the IAT signal wire at the sensor and measure voltage with the key on; a reading near 0 volts confirms a short
- 4 Disconnect the sensor and recheck the signal voltage at the harness side; if it rises to about 5 volts, the sensor is shorted internally
- 5 Measure resistance across the IAT sensor terminals and compare to the Mazda temperature-resistance chart for the specific model
- 6 If the harness and sensor test good, check continuity from the signal wire to ground with the PCM disconnected to rule out a short in the loom
- 7 Replace the IAT sensor only after electrical tests confirm it is the source, then clear the code and verify live data reads correctly

Why P1114 is often a wiring fault

- A low input code almost always means the signal wire is shorted to ground, not that the sensor has failed open, so resistance testing the sensor alone can send you down the wrong path.
- On several Mazda engines the IAT sensor is integrated into the mass airflow sensor housing, so technicians replace the entire MAF assembly when only a chafed wire near the connector is at fault.
- Intake air temperature readings that sit pegged at maximum hot values while the engine is cold are the giveaway; compare the IAT and ambient temperature on a cold soak before touching any parts.
- Aftermarket intakes and cone filters frequently rub through the IAT pigtail, and the resulting short may only appear when the engine moves under load, so wiggle-test the harness while watching live data.
- A P1114 can be stored intermittently by water intrusion into the connector after engine washing or heavy rain, and the code may not return once the connector is dried and dielectric grease is applied.

Can I keep driving with P1114?

The vehicle is generally safe to drive with P1114 because the PCM substitutes a default intake air temperature value, but avoid heavy throttle and towing until the fault is repaired since fuel mixture accuracy is reduced. If the engine runs rough or stalls, park it and diagnose the circuit before continuing.



Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter with backprobe pins
- Mazda service information or wiring diagram for the specific model
- Contact cleaner and dielectric grease
- Heat-shrink tubing and electrical tape for harness repair

Reading P1114

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

Often seen with

P1115 Oxygen Sensor Heater Circuit Short To Ground Bank 1 Sensor 1 · **P1115** Engine Torque Control Cut Signal Circuit High Input · **P1115** H02S12 Heater Circuit Low Voltage · **P1115** Engine Coolant Temperature Sensor Intermittent · **P1115** Intake Air Temperature B (IAT2) Circuit High Input · **P1115** Engine Coolant Temperature (ECT) Sensor Circuit Intermittent · **P1115** Coolant Temperature Sensor Plausibility · **P0102** Mass/Volume Air Flow Circuit Low Input · **P0103** Mass/Volume Air Flow Circuit High Input · **P0112** Intake Air Temperature Circuit Low Input · **P0113** Intake Air Temperature Circuit High Input

See it working

Watch the animated explainer [Fuel Trims Explained: Short-Term and Long-Term](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1114/>

