

MAZDA · POWERTRAIN

P1791

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1791 · Mazda

TP Electric Circuit

P1791 on Mazda vehicles indicates that the powertrain control module (PCM) has detected an electrical fault in the throttle position (TP) sensor circuit, which may involve an open, short, or abnormal voltage signal. The PCM monitors the TP sensor signal and sets this code when the voltage falls outside the expected range or is inconsistent with other load signals.

SYSTEM

Powertrain

CODE TYPE

Mazda specific

SEVERITY

Medium

FIX DIFFICULTY

Intermediate

AREA

Transmission

Symptoms you may notice

- Illumination of the check engine light, often with no other noticeable symptoms
- Hesitation or stumble during acceleration
- Erratic or surging engine speed while driving
- Reduced engine power or limp mode
- Poor fuel economy or increased emissions
- In rare cases, the engine may stall or fail to start

Common causes, most likely first

- 1 Faulty throttle position sensor
- 2 Damaged or corroded wiring or connector at the TP sensor
- 3 Open or short circuit in the TP sensor signal circuit
- 4 Poor ground connection for the TP sensor
- 5 PCM internal fault (less common)
- 6 Contamination or mechanical wear inside the throttle body affecting sensor operation

How to diagnose and fix it

- 1 Inspect the TP sensor connector and wiring for corrosion, damage, or loose pins
- 2 Check the TP sensor reference voltage and ground circuits with a multimeter
- 3 Measure the TP sensor signal voltage while slowly opening the throttle to check for smooth operation
- 4 Compare TP sensor readings with a scan tool to verify consistency with pedal position
- 5 Repair or replace damaged wiring or connectors as needed
- 6 Replace the throttle position sensor if it fails electrical testing
- 7 Clear the code and perform a road test to confirm the repair



TP Sensor Circuit Checks Before Replacement

- A sticking or carbon-fouled throttle body can cause the TP sensor to report implausible values, setting P1791 even when the sensor itself is good.
- Intermittent wiring faults often appear only when the engine is hot or vibrating, so wiggle-test the harness while watching live data.
- Some Mazda models use a drive-by-wire system where the TP sensor is integrated into the throttle body, making replacement more costly than a standalone sensor.
- A weak battery or poor charging system voltage can cause false TP sensor codes, so always verify battery and ground integrity first.
- P1791 can be set by a faulty accelerator pedal position sensor on some models, as the PCM cross-checks both signals.

Can I keep driving with P1791?

You can usually drive the vehicle with P1791, but expect reduced performance and possible limp mode; avoid aggressive acceleration and have the fault diagnosed promptly to prevent stalling or further damage.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Wiring diagram for the specific Mazda model
- Socket set and screwdrivers
- Contact cleaner and dielectric grease

Reading P1791

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

Often seen with

P0120 Throttle Position Sensor A Circuit Malfunction · **P0121** Throttle Position Sensor A Circuit Range/Performance · **P0122** Throttle Position Sensor A Circuit Low Input · **P0123** Throttle Position Sensor A Circuit High Input · **P2135** Throttle/Pedal Position Sensor A/B Voltage Correlation



See it working

Watch the animated explainer [How Airbags Work: A 50 km/h Crash in Slow Motion](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1791/>

