



P1771 · Mazda

Throttle Position Sensor Circuit Open To Transmission Control Module

P1771 on a Mazda means the Transmission Control Module (TCM) has detected an open circuit in the throttle position signal path between the throttle position sensor and the TCM itself. The TCM expects a varying voltage that tracks throttle angle, and it sees a signal that is missing, stuck at a fixed value, or outside the expected range, so it flags the circuit as open.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	Mazda specific	Medium	Intermediate	Transmission

Symptoms you may notice

- The check engine light or transmission warning light illuminates on the dashboard
- Harsh or delayed automatic gearshifts, especially when accelerating from a stop
- The transmission may default to a fixed gear or fail-safe mode with reduced performance
- Poor fuel economy or sluggish acceleration because the TCM cannot read throttle demand
- In some cases the driver notices no symptoms besides the warning light
- Occasional engine stumble or erratic idle if the same throttle signal is shared with the engine control module

Common causes, most likely first

- 1 Broken, chafed, or corroded wiring in the throttle position signal circuit between the sensor and the TCM
- 2 Loose or contaminated connector pins at the throttle position sensor or at the TCM harness
- 3 Failed throttle position sensor with an internally open track or worn potentiometer
- 4 Open circuit inside the TCM connector or a faulty TCM driver circuit
- 5 Corrosion or water intrusion in the harness loom near the throttle body or transmission tunnel
- 6 Poor ground connection shared by the throttle position sensor and TCM causing a false open reading



How to diagnose and fix it

- 1 Scan all modules for stored and pending codes and record freeze-frame data before clearing anything
- 2 Inspect the throttle position sensor connector and TCM connector for loose pins, corrosion, or pushed-back terminals
- 3 Back-probe the throttle position signal wire at the sensor and at the TCM and compare voltages with the key on and engine off while sweeping the throttle
- 4 Perform a continuity and resistance test on the signal wire between the sensor and TCM to confirm an open circuit
- 5 Check the sensor ground and reference voltage at the throttle position sensor connector to rule out a shared ground fault
- 6 Replace the throttle position sensor if the signal is missing at the sensor but present at the TCM, or repair the harness if the open is in the wire
- 7 Clear codes, perform a throttle relearn or transmission adaptive reset if required, and road test through several shift cycles

What a P1771 open circuit really means

- A throttle position sensor that tests fine on a multimeter can still set P1771 intermittently when the signal wire flexes with engine movement, so a wiggle test of the harness is essential.
- Many technicians replace the throttle body assembly when the actual fault is a single chafed wire in the loom near the transmission bell housing, which is a common Mazda routing weak point.
- P1771 can be stored by a TCM that has lost its ground reference rather than by a true open in the signal wire, so ground circuit voltage drop testing should precede parts replacement.
- The TCM may substitute a calculated throttle value from the mass airflow sensor and keep the transmission shifting almost normally, which is why some drivers notice no symptoms at all.
- Clearing P1771 without repairing the open circuit will usually result in the code returning within a few drive cycles once the TCM completes its rationality check.

Can I keep driving with P1771?

You can usually drive the vehicle to a workshop, but expect harsh shifts or a reduced-power fail-safe mode and avoid heavy acceleration or towing until the circuit is repaired. If the transmission drops into limp mode or refuses to shift, stop driving and arrange a tow to prevent internal damage.

Tools that help

- OBD-II scan tool with manufacturer-specific Mazda software or a capable bidirectional scanner
- Digital multimeter with back-probe pins
- Wiring diagram for the specific Mazda model and year
- Terminal pick and contact cleaner for connector inspection
- Insulated test leads for continuity and voltage drop testing



Reading P1771

- P** Powertrain: engine, transmission and emissions.
- 1** Manufacturer-specific code (Mazda): its meaning depends on the make.
- 7** Transmission.
- 71** 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 · **P0700** Transmission Control System Malfunction

See it working

Watch the animated explainer [How an Automatic Transmission Works, Gear by Gear](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1771/>

