

MAZDA · POWERTRAIN

P1703

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1703 · Mazda

Brake On Off Switch Out Of Self Test Range

P1703 on Mazda vehicles means the powertrain control module (PCM) has detected that the brake on/off switch signal is outside its expected self-test range during the key-on or initial drive cycle. The PCM expects a specific voltage pattern from the brake pedal switch when the pedal is released and pressed, and this code sets when that pattern does not match the stored calibration.

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

Symptoms you may notice

- The brake warning light or check engine light may illuminate on the dashboard.
- The transmission may shift harshly or fail to engage overdrive because the PCM cannot confirm brake pedal status.
- Cruise control may become inoperative or disengage unexpectedly.
- The engine may idle poorly or stall when coming to a stop if the PCM misreads brake input.
- Often no symptoms besides the warning light, especially if the switch still functions mechanically.
- The shift interlock may not release properly, preventing the shifter from moving out of Park.

Common causes, most likely first

- A misadjusted or faulty brake on/off switch (also called the brake pedal position switch) that does not send the correct signal range.
- Worn or damaged wiring and connectors at the brake switch, including corrosion or loose pins.
- A blown fuse or poor ground connection in the brake switch circuit.
- A brake pedal that does not fully return to rest, keeping the switch partially engaged.
- An aftermarket or incorrect brake switch installed previously that does not match Mazda specifications.
- A PCM software issue or internal fault that misinterprets a valid switch signal, though this is less common.
- Contamination or debris on the switch contacts causing intermittent or out-of-range signals.



How to diagnose and fix it

- 1 Verify the brake lights operate correctly when the pedal is pressed and released, and check that the pedal returns fully.
- 2 Inspect the brake on/off switch for proper adjustment and secure mounting, then adjust or replace it if it is out of specification.
- 3 Check the switch circuit wiring and connectors for damage, corrosion, or loose pins, and repair as needed.
- 4 Test the brake switch with a multimeter to confirm it produces the expected voltage or continuity in both pedal positions.
- 5 Clear the code and perform a road test that includes several brake pedal applications to see if the code returns.
- 6 If the code persists, check for related diagnostic trouble codes in the ABS or body control modules that could affect the brake signal.
- 7 As a last step, have a Mazda dealer check for PCM software updates or perform a pinpoint test with a factory scan tool.

Brake switch adjustment often fixes P1703

- Many technicians replace the brake switch unnecessarily when the real problem is a simple adjustment or a worn pedal stop pad that prevents the switch from reaching its rest position.
- A brake switch that tests fine with a multimeter can still set P1703 if the PCM expects a specific voltage range during its self-test, so a scan tool with live data is more reliable than a basic continuity check.
- Aftermarket brake switches for Mazda vehicles sometimes have different resistance values and can trigger P1703 even though they fit and function, so use an OEM-quality part.
- This code can be set by a weak battery or low voltage during cranking, which causes the PCM to misread the brake switch signal during its initial self-test.
- P1703 is often stored alongside transmission codes because the PCM uses the brake signal for shift scheduling, so diagnosing the brake switch first can resolve multiple issues.

Can I keep driving with P1703?

You can usually drive the vehicle, but avoid relying on cruise control and be aware that transmission shifting may be affected. Have the brake switch inspected soon, especially if brake lights or shift interlock operation are inconsistent.

Tools that help

- OBD-II scan tool with live data capability
- Digital multimeter
- Test light
- Basic hand tools for trim and pedal access
- Mazda factory service information or wiring diagram



Reading P1703

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

Often seen with

P0504 Brake Switch 'A'/'B' Correlation · **P0700** Transmission Control System Malfunction · **P0715** Input/Turbine Speed Sensor Circuit Malfunction · **P0720** Output Speed Sensor Circuit Malfunction

See it working

Watch the animated explainer [How ABS Works: Anti-Lock Brakes in X-Ray](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/mazda-p1703/>

