

GM · POWERTRAIN

P1851

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1851 · GM

Brake Band Apply Solenoid Performance

P1851 on GM vehicles indicates that the transmission control module (TCM) has detected a performance fault with the brake band apply solenoid circuit inside the automatic transmission. The TCM commands the solenoid to apply the brake band for specific gear ranges, and it monitors the electrical current and hydraulic response to verify the band engages as expected. When the actual response does not match the commanded state, the TCM stores this code and may illuminate the check engine light or transmission warning lamp.

SYSTEM	CODE TYPE	SEVERITY	FIX DIFFICULTY	AREA
Powertrain	GM specific	Medium	Professional	Transmission

Symptoms you may notice

- Check engine light or transmission warning light illuminated on the dashboard.
- Harsh or delayed shifts, especially when engaging reverse or low gear ranges.
- Transmission may slip or fail to engage a specific gear, often second or fourth depending on the design.
- The vehicle may enter limp mode, limiting speed and gear selection to protect the transmission.
- Often no symptoms besides the warning light, particularly if the fault is intermittent.
- Unusual noise or vibration from the transmission during band apply, such as a clunk or shudder.

Common causes, most likely first

- Faulty brake band apply solenoid, such as a stuck valve or burned coil, causing incorrect hydraulic apply.
- Damaged or corroded wiring harness or connector at the solenoid or TCM, leading to intermittent electrical signals.
- Low or contaminated transmission fluid, which can affect solenoid performance and band apply pressure.
- Worn or broken brake band or servo piston, preventing proper band apply even when the solenoid functions.
- Failed transmission control module (TCM) driver circuit for the solenoid, though this is less common.
- Internal transmission hydraulic leak or blocked passage reducing apply pressure to the band.
- Incorrect transmission fluid level or type, causing solenoid and band apply performance issues.



How to diagnose and fix it

- 1 Check transmission fluid level and condition; top off or replace fluid if contaminated or low.
- 2 Inspect the solenoid wiring harness and connectors for damage, corrosion, or loose pins; repair as needed.
- 3 Use a scan tool to command the brake band apply solenoid on and off while monitoring current and listening for band apply; compare to specifications.
- 4 Measure solenoid resistance and compare to factory specification; replace solenoid if out of range or stuck.
- 5 Perform a transmission pressure test to verify hydraulic pressure at the band apply circuit; diagnose internal leaks or worn band if pressure is low.
- 6 Remove the transmission pan to inspect the solenoid, valve body, and band servo for debris or damage; replace faulty components.
- 7 After repairs, clear codes and perform a relearn or adaptation drive cycle to verify the fix and ensure the code does not return.

Brake Band Solenoid Faults Often Misdiagnosed

- A P1851 code can be set by a simple low fluid level or a clogged filter, so always verify fluid condition before condemning the solenoid.
- Intermittent wiring faults at the transmission connector are a common cause that many technicians overlook when the solenoid tests good on the bench.
- The brake band apply solenoid is often confused with the shift solenoids; however, it specifically controls band apply for engine braking and certain gear ranges, so symptoms may only appear in specific driving conditions.
- A worn brake band or servo piston can mimic a faulty solenoid, so a pressure test and visual inspection are essential before replacing electrical parts.
- After replacing the solenoid or valve body, a transmission adaptive relearn is required; skipping this step can cause harsh shifts and a repeat code.

Can I keep driving with P1851?

You can drive the vehicle short distances to a repair shop, but avoid heavy acceleration, towing, or highway speeds because the transmission may slip or enter limp mode unexpectedly. If the transmission is slipping severely or the vehicle is in limp mode, stop driving and arrange a tow to prevent further damage.

Tools that help

- OBD-II scan tool with bidirectional control and transmission data capabilities
- Digital multimeter for measuring solenoid resistance and circuit continuity
- Transmission pressure gauge set for hydraulic testing
- Factory service information for wiring diagrams and solenoid specifications
- Basic hand tools including socket set, Torx bits, and trim removal tools
- Fluid pump or funnel for transmission fluid service



Reading P1851

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

Often seen with

P1850 CAN Bus Missing Message From Engine Control · **P1852** CAN Bus Unplausible Message From Engine Control · **P1860** Kick Down Switch Error Message From Engine Control · **P1850** Brake Band Apply Solenoid Circuit · **P1852** Brake Band Apply Solenoid Low Voltage · **P1860** TCC PWM Solenoid Circuit Electrical · **P1850** Transmission Transfer Case Contact Plate B Circuit Failure · **P0750** Shift Solenoid 'A' · **P0755** Shift Solenoid 'B'

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/gm-p1851/>

