

BMW · POWERTRAIN

P1770

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1770 · BMW

CAN Torque Interface

P1770 on BMW vehicles indicates that the engine control module (ECM) or transmission control module (TCM) has detected a fault in the controller area network (CAN) torque interface, which is the high-speed data link used to exchange torque requests and status between the engine and transmission. The computer sets this code when the expected torque signal is missing, implausible, or corrupted, often due to a communication breakdown or a faulty module.

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

Symptoms you may notice

- Illumination of the check engine light or transmission warning light, often with no other noticeable symptoms.
- Harsh or delayed transmission shifts, especially during acceleration or deceleration.
- Reduced engine power or limp mode, limiting vehicle speed.
- Transmission may fail to engage a gear or may slip unexpectedly.
- In some cases, the engine may stall or hesitate when coming to a stop.
- The iDrive or instrument cluster may display a transmission fault message.

Common causes, most likely first

- 1 Faulty or degraded CAN bus wiring between the engine and transmission control modules, including chafed, corroded, or loose connections.
- 2 Software or calibration issues in the ECM or TCM that disrupt torque signal processing.
- 3 A failing transmission control module (TCM) or engine control module (ECM) that cannot reliably transmit or receive torque data.
- 4 Low battery voltage or poor grounds causing intermittent CAN communication errors.
- 5 Aftermarket electronic devices or improper wiring repairs that introduce interference on the CAN bus.
- 6 Internal faults in the transmission mechatronic unit that affect torque interface signals.



How to diagnose and fix it

- 1 Perform a full scan of all modules to retrieve stored and pending fault codes, and record freeze-frame data for P1770.
- 2 Inspect the CAN bus wiring and connectors between the ECM and TCM for damage, corrosion, or loose pins; repair as needed.
- 3 Check battery voltage and ground connections, ensuring stable power supply to both control modules.
- 4 Verify software versions and update the ECM and TCM with the latest manufacturer-approved calibrations if applicable.
- 5 Use a digital multimeter or oscilloscope to measure CAN bus signal integrity and resistance, looking for shorts or opens.
- 6 If wiring and power are good, substitute known-good ECM or TCM (if possible) to isolate the faulty module, then replace and program as required.
- 7 Clear codes and perform a road test to confirm the repair, monitoring live torque data to ensure proper communication.

Before you replace the transmission control module

- A weak or failing battery is a common culprit for P1770 on BMWs because low voltage can cause the CAN bus to drop messages, so always load-test the battery before condemning a module.
- Corroded or loose ground points, especially those shared by the ECM and TCM, often mimic a failed module and are easily overlooked during diagnosis.
- Aftermarket alarm systems or poorly installed accessories tapped into the CAN bus can introduce noise that corrupts torque signals, setting P1770 intermittently.
- The code can be set by a software glitch in the TCM that is fixed by a simple reflash, so check for technical service bulletins before replacing hardware.
- P1770 does not always mean the transmission is mechanically damaged; it is strictly a communication fault, and many cases are resolved with wiring repairs or software updates.

Can I keep driving with P1770?

You can usually drive the vehicle to a workshop, but avoid aggressive acceleration or heavy loads because the transmission may enter limp mode or shift harshly. If the vehicle feels unsafe or refuses to shift, stop driving and arrange a tow.



Tools that help

- BMW-specific diagnostic scan tool (e.g., ISTA or equivalent)
- Digital multimeter with CAN bus testing capability
- Oscilloscope for signal analysis
- Wiring diagram and connector pinout references
- Battery load tester
- Module programming device (if software update is required)

Reading P1770

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

Often seen with

P0700 Transmission Control System Malfunction · **P0715** Input/Turbine Speed Sensor Circuit Malfunction · **P0720** Output Speed Sensor Circuit Malfunction · **U0100** Lost Communication With ECM/PCM A · **U0101** Lost Communication with TCM

See it working

Watch the animated explainer [How a MAF Sensor Works: Hot-Wire Airflow Explained](#) on Auto Veteran to see the parts involved moving.

Full guide, related articles and animations: <https://www.autoveteran.tech/dtc-codes/bmw-p1770/>

