

MITSUBISHI · POWERTRAIN

P1791

OBD-II DIAGNOSTIC TROUBLE CODE (DTC)

P1791 · Mitsubishi

PCM ECT Level Signal To TCM Circuit Fault

P1791 on Mitsubishi vehicles indicates that the Powertrain Control Module (PCM) has detected a fault in the circuit that carries the Engine Coolant Temperature (ECT) level signal to the Transmission Control Module (TCM). The PCM monitors this signal path and sets the code when the voltage or message does not match expected values, which can affect how the transmission manages shift quality and torque converter lockup based on engine temperature.

SYSTEM

Powertrain

CODE TYPE

**Mitsubishi
specific**

SEVERITY

Medium

FIX DIFFICULTY

Professional

AREA

Transmission

Symptoms you may notice

- Illumination of the Check Engine Light or Service Engine Soon light, often with no other noticeable symptoms.
- Harsh or delayed shifting, especially when the engine is cold, because the TCM lacks accurate coolant temperature data.
- Torque converter clutch may engage or disengage abruptly or at the wrong time.
- Poor fuel economy or altered shift points as the TCM substitutes a default temperature value.
- In some cases, the transmission may enter limp mode or fail to shift into overdrive.
- Rough idle or unstable engine operation if the ECT signal is also used by the PCM for fuel and ignition control.

Common causes, most likely first

- 1 Damaged, chafed, or corroded wiring in the ECT signal circuit between the PCM and TCM, especially at connectors or where the harness passes near hot or moving components.
- 2 A faulty Engine Coolant Temperature (ECT) sensor that produces an erratic or out-of-range signal, even if it has not set a separate ECT code.
- 3 Poor electrical connections at the PCM or TCM connectors, including loose pins, water intrusion, or terminal fretting.
- 4 A failing Transmission Control Module (TCM) that misinterprets a valid signal or has internal circuit faults.
- 5 A failing Powertrain Control Module (PCM) that cannot correctly transmit or monitor the ECT signal to the TCM.
- 6 Aftermarket or damaged electrical accessories improperly tapped into the ECT circuit, causing voltage drops or interference.



How to diagnose and fix it

- 1 Connect a scan tool and record all stored codes, freeze-frame data, and live ECT readings to confirm the fault is present and not intermittent.
- 2 Visually inspect the ECT sensor, its connector, and the wiring harness between the PCM and TCM for obvious damage, corrosion, or loose pins.
- 3 Perform a resistance test on the ECT sensor at known temperatures and compare to Mitsubishi specifications; replace the sensor if out of range.
- 4 Back-probe the ECT signal wire at the PCM and TCM connectors and check for continuity, short to ground, or short to power while wiggling the harness.
- 5 Check powers and grounds at both the PCM and TCM to rule out a shared voltage supply issue that could mimic a signal fault.
- 6 If wiring and sensor test good, substitute a known-good TCM or PCM (depending on which end shows the signal anomaly) to isolate the faulty module.
- 7 Clear codes and perform a road test with live data monitoring to verify the repair and ensure the ECT signal reaches the TCM correctly.

When the ECT signal isn't the real culprit

- A common misdiagnosis is replacing the ECT sensor immediately, but the code often stems from a chafed wire near the transmission bell housing or a corroded connector that only acts up when hot.
- The PCM may set P1791 even when the ECT sensor itself is functioning perfectly, because the fault lies in the communication line or the TCM's interpretation of the signal.
- On some Mitsubishi models, a weak battery or poor ground can cause voltage fluctuations that the PCM logs as an ECT signal fault, so always check charging system health first.
- Aftermarket remote starters or alarm systems tapped into the coolant sensor wiring are a frequent hidden cause of this code on older Mitsubishi vehicles.
- P1791 can be stored intermittently and may not illuminate the warning light every drive cycle, so a road test with a scan tool recording live data is essential before condemning any part.

Can I keep driving with P1791?

You can usually drive the vehicle short distances to a repair shop, but avoid heavy towing or aggressive driving because the transmission may shift harshly or fail to lock the torque converter, which can lead to overheating. If the transmission enters limp mode or shifting becomes severely erratic, stop driving and have the vehicle towed.



Tools that help

- OBD-II scan tool with live data and freeze-frame capability
- Digital multimeter with back-probe pins
- Wiring diagram for the specific Mitsubishi model
- Socket set and trim removal tools for accessing PCM and TCM connectors
- Infrared thermometer or ohmmeter for ECT sensor testing

Reading P1791

P Powertrain: engine, transmission and emissions.

1 Manufacturer-specific code (Mitsubishi): its meaning depends on the make.

7 Transmission.

91 The exact fault within that area.

Often seen with

P0115 Engine Coolant Temperature Circuit Malfunction · **P0116** Engine Coolant Temperature Circuit Range/Performance · **P0117** Engine Coolant Temperature Circuit Low Input · **P0118** Engine Coolant Temperature Circuit High Input · **P0700** Transmission Control System Malfunction

See it working

Watch the animated explainer [How a Padlock Works: Pin Tumbler Lock in X-Ray](#) on Auto Veteran to see the parts involved moving.

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

