P0742: TORQUE CONVERTER CLUTCH CIRCUIT STUCK ON

OVERVIEW

Severity	:	High
DIY Difficulty Level	:	Intermediate
Repair Cost	:	**$100-$400**
Can I Still Drive?	:	No

What Does The P0742 Code Mean?

Modern vehicles equipped with automatic transmissions / transaxles use a torque converter between the engine and transmission to increase the engine torque output and drive the rear wheels.

The engine and transmission are actually connected by a fluid coupling mechanism inside of the torque converter which is what multiplies the torque until the speeds equalize and create a “stall” speed where the difference in actual engine RPM and transmission input RPM is around 90% efficient.

Torque converter clutch (TCC) solenoids commanded by the Powertrain control module/Engine control module (PCM/ECM) or the Transmission control module (TCM) to direct hydraulic fluid and engage the torque converter clutch to create a solid coupling and increase efficiency.

The transmission control module has detected a fault with the circuit that operates the torque converter clutch solenoid.

Note: This code is similar to codes P0740, P0741, P0743, P0744, P2769, and P2770.

There may be other diagnostic trouble codes associated with the transmission control module that can only be accessed by using an advanced scan tool. If any additional transmission related DTC’s

appear in addition to the P0742, an electrical failure is likely.

What Are The Symptoms Of The P0742 Code?

Symptoms of a P0742 trouble code may include:

- Stuck On Indicator Lamp (MIL) illuminated (a.k.a. Check Engine Light)
- If the torque converter clutch is actually stuck on, the engine may stall at idle. This is a common problem for certain model GM vehicles, while driving at highway speeds and then coming to a stop the engine dies from the torque converter clutch being stuck on. Usually the engine will restart and resume normal operation.

What Are The Potential Causes Of The P0742 Code?

Causes of this DTC may include:

- Wiring harness to transmission, damaged, pinched or shorted to power
- Torque converter clutch (TCC) solenoid failure
- Transmission control module (TCM)

How Can You Fix The P0742 Code?

Wiring Harness

Check transmission wiring harness for damage or loose connections. Use a factory wiring diagram to locate the appropriate power source and all connection points between circuits. The transmission may be powered by a fuse or relay and triggered by the TCM.

Test the wiring for the control circuit between the TCM and the wiring harness connector at the transmission case using the DVOM set to volts scale – it may be necessary to remove the pin from each side of the harness connector to isolate it from the harness while it is still plugged into the TCM and transmission case.

With the positive lead on either end of the wiring and the negative lead to a known good ground, check for the presence of battery voltage with the key on/engine off. If voltage is present, suspect a short to power and determine the source of the short circuit in the wire harness assembly.

Torque Converter Clutch (TCC) Solenoid

Check the resistance in the TCC solenoid and internal transmission wiring at the transmission case after removing the transmission harness plug (if applicable, some makes/models use a TCM bolted directly to the transmission case). Some makes/models use a transmission wire harness with the TCC solenoid and internal harness as a single unit.

The DVOM should be set to ohms scale with the positive lead and negative lead on the pins for the TCC power and control circuit. Resistance should be within manufacturers specifications, if it is very low it may be necessary to remove the transmission oil pan to inspect the or replace solenoid inside the transmission.

Transmission Control Module (TCM)

Since the torque converter clutch is only activated during certain driving conditions, it will be necessary to monitor the TCM with an advanced scan tool to determine if the TCM is commanding the TCC solenoid and what the actual feedback reading is at the TCM. The TCC solenoid is normally controlled by a duty cycle to engage a more comfortable torque converter cluch engagement.

To test if the TCM is actually sending the signal, a graphing multimeter set to duty cycle or a digital storage oscilloscope will be required as well. The positive lead is probed into the wiring harness plugged into the TCM and the negative lead to a known good ground. The duty cycle shold be the same as being commanded by the TCM in the advanced scan tool reading. If the cycle stays at 0% or 100% depending on the circuit being used, re-check connections and if all wiring / solenoid is OK, the TCM may be at fault.

Reference Sources

P0742 Torque Converter Clutch Circuit Stuck On, OBD-Codes.