P0702: TRANSMISSION CONTROL SYSTEM ELECTRICAL

OVERVIEW

Severity	:	High
DIY Difficulty Level	:	Advanced
Repair Cost	:	**$300-$1400**
Can I Still Drive?	:	**Yes**

What Does The P0702 Code Mean?

If I encounter a malfunction indicator lamp (MIL) and a stored code P0702, it means that the powertrain control module (PCM) has detected a malfunction in the electrical portion of the transmission control system. Only vehicles equipped with an automatic transmission should exhibit this code.

Most transmission controllers (for OBD-II equipped vehicles) are integrated into the PCM but there are some manufacturers that use a stand-alone transmission control module (TCM). Regardless of with which type of system a particular vehicle is equipped, transmission related codes are stored as P-codes. There will likely be other transmission control codes stored with the P0702.

Automatic transmissions are controlled electronically in OBD-II equipped vehicles. A control module, controller area network (CAN), numerous sensors and solenoids, a powerful hydraulic pump, and a hydraulic valve body are vital to the operation of the electronically controlled transmission.

Input voltage signals from engine and transmission sensors are received by the transmission controller. Throttle angle, engine RPM, engine load percentage, and coolant temperature are among the engine sensor inputs. Helping to monitor pump pressure, transmission input speed (RPM), transmission output speed (RPM), shifter position, vehicle speed, torque converter lock-up percentage, and transmission temperature are the transmission sensor inputs.

These input signals are used by the transmission controller to map shift strategy and electronic pump pressure parameters. The electronic pressure control valve regulates pump pressure and keeps the transmission shifting efficiently. Shifting would instantly become extremely harsh, and driveline components could be damaged, if maximum pump pressure were to be applied directly to the valve body.

Up and down shifts are accomplished with electronically controlled solenoids that operate spring-loaded ball valves. These valves restrict and release high pressure fluid as desired. The torque converter clutch (TCC) solenoid controls the percentage of torque converter lock-up.

The CAN is a complex system of electrical wiring and connectors that is used to transmit data between the TCM (where applicable) and the PCM. Data (including stored codes) may also be transmitted to other controllers via the CAN. Among the information shared between controllers is transmission input and output speed (RPM), vehicle speed, and transmission temperature.

Anti lock braking systems, electronic traction control systems, and electronic stability control systems all utilize this data for comparison purposes. This code is usually only stored if other electrical transmission control codes are present.

What Are The Symptoms Of The P0702 Code?

Symptoms of a P0702 code may include:

- Erratic transmission shift patterns
- Failure of the transmission to shift at all
- Decreased fuel efficiency
- Other transmission related codes

What Are The Potential Causes Of The P0702 Code?

Potential causes for this code to set are:

- Transmission sensor failure
- Open or shorted circuits in the transmission control system
- Defective transmission controller or PCM programming error

How Can You Fix The P0702 Code?

A good starting point is always to check for technical service bulletins (TSB) for your particular vehicle. Your issue may be a known issue with a known fix put out by the manufacturer and can save you time and money during diagnosis.

A vehicle service manual (or the equivalent), a scanner, and a digital volt/ohmmeter will be helpful when diagnosing a code P0702.

I would start with a visual inspection of transmission control wiring and connectors. Next, I'd test the battery, check battery cables, and battery terminal ends.

I normally proceed by connecting the scanner to the vehicle diagnostic connector and retrieving all stored codes and freeze frame data. I write this information down and save it for later.

If the code/s immediately reset, return to your recorded freeze frame data. Begin by diagnosing the code that was stored first and diagnose/repair all other stored transmission control codes before attempting to diagnose the P0702.

Additional diagnostic notes:

- The internal transmission control electrical harness is often damaged by extremely sharp edges, porous surfaces, and excessive temperatures found inside the transmission case
- Servicing the transmission at recommended intervals can prolong longevity
- Diagnose and repair all other transmission codes before diagnosing this code

Severity Description

If, you have noticed that your transmission shifts more harshly than normal after this code is stored, it may be due to the transmission control system being placed in limp-in mode. Transmission pump pressure is dramatically increased in this mode. Limp-in mode is not meant for long-term use. If your vehicle has stored a code P0702, it should be addressed immediately.

Reference Sources

P0702 Transmission Control System Electrical, OBD-Codes.