



Technical Service Information

4L60-E

TCC STUCK ON SENSATION

COMPLAINT: A 2008 Chevy 1500 using a 5.3L 4L60-E drivetrain comes in with a customer complaint of a shudder on a downshift. A P0123 TP Sensor 1 signal short to voltage code stored in history was obtained during preliminary diagnostics. The vehicle was then road tested. During a low coast below 20 mph the vehicle would produce a TCC stuck on sensation accompanied by a slight drop in RPM and a droning type noise. When the accelerator was depressed slightly, engine rpm would rise slightly as if the converter clutch was not applied. The TCC applied sensation would go away at times on a 3-2 or a 2-1 downshift. If the vehicle was held at a steady speed of 20 mph, the TCC stuck on sensation was very noticeable. The TPS code was erased but would return after being driven but only in history.

With certain maneuvers such as getting in and out of the throttle during turns, a clunk was both felt and heard. Most of these symptoms were not present when the selector lever was moved to the D3 position. Monitoring TCC command and slip in a scan tool while in the D4 position, data indicated that the converter clutch was not being applied. A throttle hesitation during aggressive accelerations from below 15 mph was also observed.

CAUSE: It was determined that the clunk noise which was both felt and heard was due to a completely broken left motor mount (Figures 1 and 2 - *the right one was not broken but needed to be replaced also*). The hesitation during aggressive throttle openings from a low coast as well as the sensation of the converter clutch being applied was blamed on TPS code P0123.

CORRECTION: Before the P0123 was addressed, new motor mounts were installed. Surprisingly, the sensation of the converter clutch being applied was no longer present. The hesitation during aggressive throttle openings from a low coast remained and was not resolved even after replacing the APP sensor which eliminated the P0123 code.

Upon further investigation, it was discovered that the throttle hesitation is purposely programmed. According to GM, the throttle blade is programmed to open slowly for up to 0.7 seconds so as to help minimize drive-line lash and clunking. This information was obtained by GM paper PIP4112P entitled "Normal Characteristic - Sag Or Hesitation On Acceleration" dated Jun 26, 2014.

RELATED TECH: From the 2014 ATSG Seminar:

Before or after overhaul, 2006 and up Dodge Charger, Police applications, equipped with the Nag 1 transmission and the Hemi engine, may have a complaint of a driveline vibration or a shuddering feeling coming to a stop. The driver of the vehicle notices that when they depress the "Autostick" enable switch and cancel Fifth gear or drive it in Autostick mode, the complaint goes away. The cause may be, that the engine mounts are faulty causing the Partial Electronic Modulated Converter Clutch application to be transferred thru the bad engine mounts creating a vibration when coming to a stop. The reason that the vibration goes away when using the Autostick function is in this mode the EMCC strategy is delayed and partial EMCC is not provided when coming to a stop, as it is in the Drive position.

From the 2015 ATSG Seminar:

A Honda has a complaint of a shudder with light throttle at approximately 45 to 55 mph. The customer has informed the technician, the shudder seems to occur whenever the "ECO" Lamp is on. One cause may be a fault with the Active Control Engine Mount (ACM) System.

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Figure 1



Figure 2