

# **2015 - 2017 Corvette: GM TechLink: Diagnostic Tips for Harsh Shifting Transmission Conditions**

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## **Diagnostic Tips for Harsh Shifting Transmission Conditions**

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Harsh shifting conditions and delayed garage shift engagements may be noticed on some 2017 Colorado, Canyon, Express, Savana; 2016-2017 ATS, CT6, CTS, Camaro; 2015 - 2017 Escalade, Silverado, Sierra, Yukon Denali, and Corvette models equipped with the 8L45 or 8L90 automatic transmission (RPOs M5N, M5T, M5U, M5X). (Fig. 12) The harsh shift conditions may be caused by one or more clutch fill times not completely learned in the Transmission Control Module (TCM).

**Fig. 12**

## **DTCs and Updated Calibrations**

As a starting point for diagnosing all 8L45/8L90 transmission shift conditions, check for DTCs in all modules and address the causes for setting the DTCs. Also check for any available ECM/TCM calibration updates.

Refer to the following bulletins for additional information:

- 16-NA-411 – 2015-2016 models equipped with the 6.2L engine (RPO L86) engine and the 8L90 transmission
- 16-NA-412 – 2015-2016 models equipped with the 5.3L engine (RPO L83) engine and the 8L90 transmission
- 16-NA-404 – 2017 models

## **Test Drive with GDS2**

A test drive of the vehicle should be completed in order to attempt to duplicate the concern. Use GDS2 to capture a session log of the event and bookmark when the shift concern is identified. Review the GDS2 session log to identify which shift(s) are occurring at each bookmark.

Refer to the following bulletins for additional information:

- 14-07-30-001: Information on Transmission Adaptive Functions and Correcting Low Mileage Harsh Shifts, Slips, or Flares – 2015 Corvette
- 16-NA-411, 16-NA-412 and 16-NA-019: Updating ECM/TCM Calibrations – 2015 models other than Corvette
- 16-NA-019: Information on Transmission Adaptive Functions and Correcting Low Mileage Harsh Shifts, Slips, or Flares – 2016-2017 models

These bulletins are based on the following criteria:

- 2015 models with 7,500 miles (12,000 km) or less since the vehicle in-service date, TCM calibration update or the Service Fast Learn (SFL) procedure being performed
- 2016 models with 5,000 miles (8,000 km) or less since the vehicle in-service date, TCM calibration update or the SFL procedure being performed
- 2017 models with 2,500 miles (4,000 km) or less since the vehicle in-service date, TCM calibration update or the SFL procedure being performed

Transmission, valve body or TCM replacement requires a Service Fast Learn procedure using a scan tool to be performed in order for the TCM to learn individual clutch apply pressures. If the TCM calibration has been updated, a Service Fast Learn procedure is required on vehicles with

any mileage accumulation.

### **Clutch Drive Learn Procedure**

Based on the bookmarks placed in the GDS2 session, complete the Clutch Drive Learn procedure for the suspect clutch. The Clutch Drive Learn procedure should only be performed on smooth, level roads and may take 45 minutes or more.

Completion of the Service Fast Learn procedure will reset all shift adapts and may require the entire transmission Clutch Drive Learn procedure for each clutch to be completed.

After completing the procedure, the vehicle should be allowed to cool down for eight or more hours and then test driven again to ensure the cold shift quality is acceptable.

Refer to the following bulletins for more information:

- 16-NA-361: Transmission Harsh 1-2 Shift Upon First Start Up/Shift of the Day Under Light Throttle
- 16-NA-213: Diagnostic Tips for Harsh Shifts after Mileage Accumulation without Previous Transmission Repairs and/or Calibration Updates – Transmissions built between July 1, 2015 and September 14, 2015.

### **Garage Shifts**

Refer to the following bulletins for more information:

- 16-NA-014: Delayed Engagement After Sitting With Engine Off. Torque Converter Fluid Drain Back – 2015-2016 models
- 16-NA-364: Delayed Engagement After Sitting With Engine Off, Clutch Slow to Fill – 2015-2017 models

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Online URL: <https://www.corvetteactioncenter.com/tech/knowledgebase/article.php?id=1380>