



Service Bulletin

INFORMATION

Subject: Information on Transmission Adaptive Functions and Correcting Low Mileage Harsh Shifts

Models: 2015 Cadillac Escalade, Escalade ESV
2015 Chevrolet Corvette, Silverado
2015 GMC Sierra, Yukon, Yukon XL
Equipped with 8L90 Automatic Transmission (RPO M5U)

Attention: This Bulletin also applies to any of the above models that may be Export vehicles.

This Bulletin has been revised to update the applicable information below. Please discard Corporate Bulletin Number 14-07-30-001E.

Some customers may comment on low mileage vehicles equipped with the 8L90 automatic transmission with shifts that feel too firm (harsh), slips or flares. Customers should be advised that the transmission makes use of an adaptive function that will help to refine the shift feel and improve shift quality while driving. Clearing the shift adapts without performing a Service Fast Learn should not be considered a repair procedure as the transmission will simply relearn the previous settings.

Correction

The following should be used to determine what steps should be followed within this document. The 8-Speed transmission utilizes a total of 5 clutches to obtain all the ratios. Utilize the chart within this document to determine which clutch may require additional adaptive learning.

- If a transmission assembly, valve body, torque converter, TCM, or any repair regarding shift quality was required, reset the adapts using Service Fast Learn. Evaluate the shifts and further learn pressures and volumes if required.
- If a customer has a specific shift concern, the Service Fast Learn should be skipped. Complete the driving learn procedure to further learn pressures and volumes for the complaint shift.

Transmission Adaptive Functions

The Hydra-Matic® 8-Speed RWD transmission utilizes a line pressure control system during upshifts to compensate for new transmission build variation as well as the normal wear of transmission components. The variation experience on a new and normal wear of the apply components within the transmission over time can cause shift time (the time required to apply a clutch) to be longer or shorter than desired.

In order to compensate for these changes, the transmission control module (TCM) adjusts the pressure commands to the various pressure control (PC) solenoids to maintain the originally calibrated shift timing. The automatic adjusting process is referred to as “adaptive learning” and it is used to ensure consistent shift feel plus increase transmission durability.

The TCM monitors the A/T input speed sensor (ISS) and the A/T output speed sensor (OSS) during commanded shifts to determine if a shift is occurring too fast (harsh) or too slow (soft) and adjusts the corresponding PC solenoid signal to maintain the set shift feel. The purpose of the adapt function is to automatically compensate the shift quality for the various vehicle shift control systems. The adapt function is a continuous process that will help to maintain optimal shift quality throughout the life of the vehicle.

How to Adapt Your Transmission

Transmission adapts can be reset and relearned on most vehicles through GDS 2 by using the Transmission Service Fast Learn procedure. This procedure is completed in the service stall and no vehicle driving is required.

To complete the Transmission Service Fast Learn procedure, enter GDS 2 Diagnosis and navigate to:

- Module diagnostics
- Transmission Control Module
- Configuration / Reset Function
- Transmission Service Fast Learn

Transmission Service Fast Learn is the recommended method to reset and relearn the adapts. This procedure is available on all trucks and SUVs and on Corvettes built on September 29, 2014 and later. For Corvettes built before September 29, 2014 the Transmission Service Fast Learn will be available if the TCM calibration is updated to the latest available on TISWeb.

When the Service Fast Learn is complete, perform a test drive and note any soft or harsh shifts.

To improve these complaint shifts, locate the clutches that need to be learned in the following table below, and perform the required learning procedure for each clutch listed below the chart. Execute the steps below with the vehicle warmed up on a smooth level road. The driver may observe a brief pulse behavior or firm shift feel while the transmission is optimizing the clutch learn characteristics.

Note: The transmission fluid temperature must be between 35°C (96°F) and 95°C (203°F). Drive vehicle under normal conditions until this temperature range is achieved. If temperature is outside this range the clutches will not be learned.

| To Correct The Shift Feel | Learn These Clutches | |
|---------------------------|---|------------------|
| | Applying Clutch | Releasing Clutch |
| 1-2 | C4 | C3 |
| 2-3 | C3 | C1 |
| 3-4 | C5 | C3 |
| 4-5 | C3 | C4 |
| 5-6 | C4 | C2 |
| 6-7 | C1 | C4 |
| 7-8 | C4 | C3 |
| 3-1 | C1 | C4 |
| 2-1 | C3 | C4 |
| N-D | C3 – Perform garage shift adaptive learning | |
| N-R | C5 – Perform garage shift adaptive learning | |
| Power Downshifts | Just perform the shifts and they will adapt | |

Note: If the harsh shift is noted when the vehicle is coming to a stop and shifting into 1st gear, this downshift is most likely a 3-1 shift.

Note: This sequence is MY 2015 specific and varies from MY 2016. The following adaptive learning procedure was developed to further learn clutch pressures and volumes required for specific shifts. To expedite the learning process, it is recommended to utilize a road with minimal traffic volume that has as smooth and level surface as possible.

To Learn C1 (For 6-7 or 3-1 Shift)

1. Pressure & Volume Learns:

Note: It is recommended to utilize a road with a speed limit between of 30-45 mph (48-72 km/h) for this procedure.

Shift the transmission into 6th gear with the PRNDM in the M position. Obtain an engine speed between 1000 and 1600 rpm. Maintain this condition for a total of about 5 miles (8 km). Cruise control may be used and has been found to result in faster learning of the clutch values

To Learn C2 (For 6-5 Shift)

1. Pressure Learn:

Note: : It is recommended to utilize a road with a speed limit 40-45 mph (64-72 km/h) for this procedure.

- Perform **15** normal mode 6-5 coast down shifts (zero/light brake) to learn the C2 Return Spring pressure.

2. Volume Learns:

- Shift the transmission into 8th gear with the PRNDM in the M position. Obtain an engine speed between 1000 and 1750 rpm. Maintain this condition for a total of about 5 miles (8 km). Cruise control may be used and has been found to result in faster learning of the clutch values

To Learn C3 (For 2-3, 4-5, or N-D Shift)

1. Pressure Learns:

- Perform **15** normal mode 8-7 coast down shifts (zero/light brake) to learn the C3 Return Spring.

2. Volume Learns

Note: It is recommended to utilize a road within a Business Park or similar area, where it is safe to drive at very slow speeds of approximately 5-25 mph (8-40 km/h).

- Shift the transmission into 4th gear with the PRNDM in the M position. Start a slow acceleration at about 1,100 rpm and maintain the slow acceleration until you reach about 1,500 rpm. Once you reach 1,500 rpm, go back down to 1,100 rpm and repeat the slow acceleration up to 1,500 rpm. Repeat this 15 times.

Important: If rpm's drop below 1,100 rpm vehicle will downshift into M3 and pause learning process. If this occurs please accelerate and tap back into M4 and start counting from where you left off. Additionally while watching the tachometer and applying a constant throttle. You'll see tachometer rpm's increase rapidly and then once adapt process starts rpm ramp rate will decrease and you'll feel the vehicle having a tie-up type feel.

To Learn C4 (For 1-2, 5-6, or 7-8 Shift)

1. Pressure & Volume Learns:

- Shift the transmission into 7th gear with the PRNDM in the M position. Obtain an engine speed between 1000 and 1750 rpm. Maintain this condition for a total of about 5 miles (8 km). Cruise control may be used and has been found to result in faster learning of the clutch values

To Learn C5 (For 3-4 or N-R Shift)

1. Pressure & Volume Learns:

Note: It is recommended to utilize a road within a Business Park or similar area, where it is safe to drive at very slow speeds of approximately 5-25 mph (8-40 km/h).

- Shift the transmission into 3rd gear with the PRNDM in the M position. Start a slow acceleration at about 1000 rpm and maintain the slow acceleration until you reach about 2500 rpm. Once you reach 2500 rpm, go back down to 1000 rpm and repeat the slow acceleration up to 2500 rpm. Repeat this 15 times.

Important: While watching the tachometer and applying a constant throttle. You'll see tachometer rpm's increase rapidly and then once adapt process starts rpm ramp rate will decrease and you'll feel the vehicle having a tie-up type feel.

Power Downshift Adaptive Learning:

Starting with the vehicle operation in 8th gear, slowly apply pressure to the accelerator pedal until downshift occurs. Repeat as necessary in each gear (8, 7, 6, 5, 4, 3 and 2).

- This procedure will learn the off-going clutch adapts for desired power downshift control.

Garage Shift Adaptive Learning (For N-D or N-R Shift)

N-D – Perform C3 learn above and in addition perform several N-D shifts within the complaint temperature as described by the customer.

N-R - Perform C5 learn above and in addition perform several N-R shifts within the complaint temperature as described by the customer.

Warranty Information

For vehicles repaired under the Powertrain coverage, use the following labor operation. Reference the Applicable Warranties section of Investigate Vehicle History (IVH) for coverage information.

| Labor Operation | Description | Labor Time |
|-----------------|---------------------------------|-----------------------|
| 8480318* | Transmission Service Fast Learn | Use Actual Clock Time |

*This is a unique Labor Operation for Bulletin use only. It will not be published in the Labor Time Guide.

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