



# Service Bulletin

Bulletin No.: 23-NA-072

Date: April, 2023

## TECHNICAL

**Subject: Shudders or Shakes at Low Speeds**

| Brand:    | Model:   | Model Year: |      | VIN: |    | Engine: | Transmission: |
|-----------|----------|-------------|------|------|----|---------|---------------|
|           |          | from        | to   | from | to |         |               |
| Buick     | Enclave  | 2019        | 2023 |      |    | LFY     | M3W           |
| Cadillac  | XT5      | 2020        |      |      |    | LGX     | M3W           |
|           | XT6      |             |      |      |    |         |               |
| Chevrolet | Blazer   | 2019        |      |      |    | LGX     | M3V           |
|           | Traverse |             |      |      |    | LFY     | M3V           |
| GMC       | Acadia   | 2020        | LGX  | M3W  |    |         |               |

|                                   |   |
|-----------------------------------|---|
| <b>Involved Region or Country</b> | United States, Canada, Mexico, Europe, Kazakhstan, Uzbekistan, Russia, Middle East, Israel, Palestine, Chile (West), Paraguay (West), Uruguay (West), Venezuela (West), Other Central America, China - SGM, Taiwan, Thailand (ASEAN), Singapore, Philippines, Australia/New Zealand, Other Africa |
| <b>Condition</b>                  | Some customers may comment on shudders or shakes at low speeds.   |
| <b>Cause</b>                      | This condition may be caused by possible torque converter clutch (TCC) shudder on shift and/or poor control.  |
| <b>Correction</b>                 | Transmission fluid may be contaminated and/or torque converter damaged. Follow diagnostics below to determine condition status or repair.   |

### Diagnostic Tips

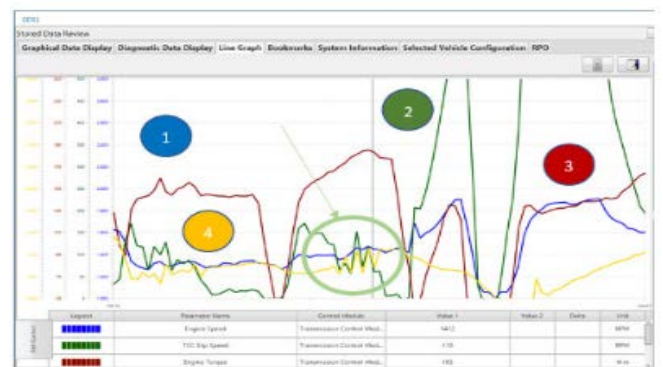
**TCC Shudder: (Typically seen on 4th-5th Upshift as ISS Oscillation)**

**Important: Service agents must comply with all International, Federal, State, Provincial, and/or Local laws applicable to the activities it performs under this bulletin, including but not limited to handling, deploying, preparing, classifying, packaging, marking, labeling, and shipping dangerous goods. In the event of a conflict between the procedures set forth in this bulletin and the laws that apply to your dealership, you must follow those applicable laws.**

Record GDS2 Session Log and look for ISS oscillation when driveline disturbance occurs.

Diagnose by performing launch from 0 mph speed at 15-20% pedal up to 30 mph.

Condition present when TCC Slip less than 150rpm maximum.



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Line Graph Set-up



| Parameters Minimum and Maximum Values |        |        |  |
|---------------------------------------|--------|--------|--|
| Parameter Name                        | Min    | Max    |  |
| Engine Speed                          | 1000.0 | 3000.0 |  |
| TCC Slip Speed                        | 0.0    | 300.0  |  |
| Engine Torque                         | 50.0   | 210.0  |  |
| Transmission ISS                      | 1000.0 | 3000.0 |  |

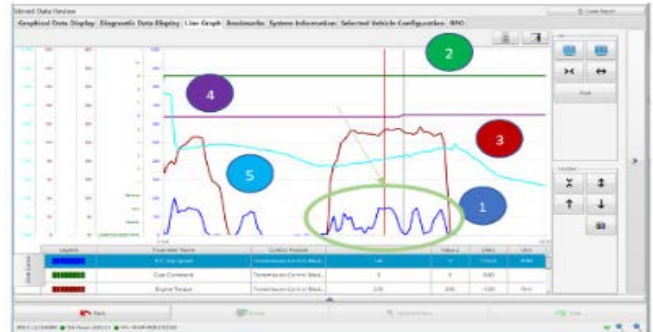


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1. Engine Speed
2. TCC Slip Speed
3. Engine Torque
4. ISS (Turbine Speed) will show oscillation

| TCC        | Shudder  | ISS (Peak-Peak)     | Action                            |
|------------|--|---------------------|-----------------------------------|
|            | Comment  | Normal              | <50 rpm                           |
| Do Nothing | Not a Torque Converter/ATF Issue   | >50 rpm<br><200 rpm | Proceed with ATF Drain and Refill |
|            | Degraded   |                     |                                   |
| ATF        | Degradation has occurred. Check Fluid Condition (Instructions below "Fluid Condition Check") | >200 rpm            | Replace Torque Converter          |
|            | Damaged  |                     |                                   |
|            | Hardware damage has likely occurred.   |                     |                                   |

Poor TCC Control: (Typically seen in higher gear 8th-9th) Steady-State Torque (50-70kph)



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Line Graph Set-up



| Parameters Minimum and Maximum Values |        |        |  |
|---------------------------------------|--------|--------|--|
| Parameter Name                        | Min    | Max    |  |
| TCC Slip Speed                        | 0.0    | 1000.0 |  |
| Engine Torque                         | 50.0   | 400.0  |  |
| Transmission Fluid Temperature        | -0.0   | 200.0  |  |
| Transmission ISS                      | 1000.0 | 3000.0 |  |



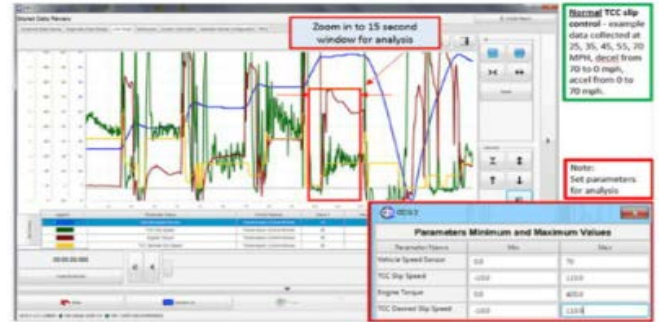
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1. TCC Slip
2. Gear
3. Engine Torque
4. ATF Temp
5. ISS

Perform TCC slip control test within this procedure. Compare service tool collected data results to normal, degraded, and damaged operation.

| TCC SLIP           | CONTROL TEST RESULT | TCC RPM Slip Peak to Peak, at Steady Throttle | ACTION   |
|--------------------|---------------------|---|--|
| Figure 2<br>Normal | Below 20 RPM        |   | Do nothing   |
| Figure 3           | Degraded            | Near 60 RPM - repeating                       | ATF Degradation has occurred. Check Fluid Condition (Instructions below "Fluid Condition Check") |
| Figure 4           | Damaged             | Near 100 RPM- erratic                         | Hardware damage has likely occurred. Replace Torque Converter                                    |

Figure 1 Parameter Minimum and Maximum Values

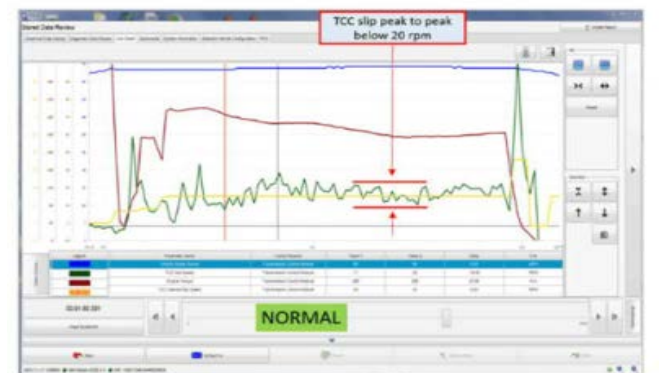


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**TCC Slip Control Test**

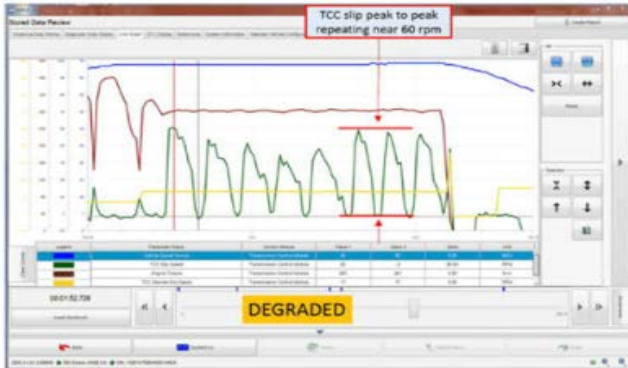
- Utilize TIS2Web / GDS2 / MDI service tool
- Select module diagnostics – TCM
- Select TCC data for session log / data collection
- Collect data between 89 and 113 km/h (30 and 50 mph) steady state / steady throttle with minimum 15 seconds.
- For line graph evaluation, set parameter minimum and maximum to values stated for comparison: See Figure 1
- Evaluate collected data with line graphs and compare data to each figure below:
  - Normal State: See Figure 2
  - Degraded State: See Figure 3
  - Damaged State: See Figure 4

Figure 2 Parameter Normal Test Result



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## Figure 3 Parameter Degraded Test Result



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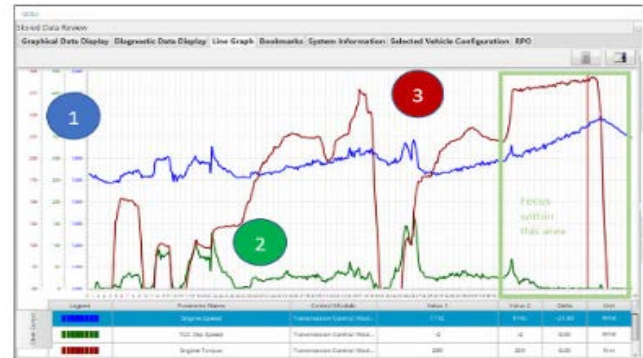
## Figure 4 Parameter Damaged Test Result



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## Fluid Condition Check

**Important:** If either shudder condition or slip control observed to be normal than do not proceed with ATF Inspection/Change or Torque Converter Replacement.



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- The fluid should be red or brown.
- The fluid should be transparent so that objects or writing can be seen through it. Sample #1 is an example of acceptable fluid. Sample #2 is an example of very dark fluid. Sample #3 is an example of black fluid. Samples 1, 2, or 3 would be acceptable to perform the fluid drain and fill if sample does not also have one of the following three conditions.
- In addition to checking the fluid color and transparency, the fluid should be checked for an odor of burnt fluid. If the fluid is very dark (Sample #2), black (Sample #3), and has a burnt odor it would indicate clutch damage has occurred internally in the transmission and it would need to be removed from the vehicle and investigated.
- Fluid that is cloudy or milky or appears to be contaminated with water indicates engine coolant or water contamination. Refer to the last version of Service Bulletin 08-07-30-035 for testing and, if confirmed, find the source of the coolant/water and repair. Then follow service manual instructions "engine coolant/water in transmission" to repair the transmission.
- Inspect the fluid for excessive metal particles or other debris:
  - A small amount of "friction" material is a "normal" condition.
  - A small amount of "metal" from the manufacturing process is a "normal" condition. This is observed as fine silver streaks floating in the fluid.
  - If large pieces and/or metal pieces are noted in the fluid, or the fluid when rubbed between fingers feels gritty/sandy, it would indicate hardware damage has occurred internally in the transmission and it would need to be removed from the vehicle and investigated.

### Other Known Normal Operation Conditions

**High Torque Locked Condition** — If complaint exists at engine torques >287Nm, where the measured TCC Slip is ~0rpm, then this is operating as designed. In order to protect the clutch, we must lock it up at these higher engine torques. Commanding TCC Locked should provide same performance as this condition.

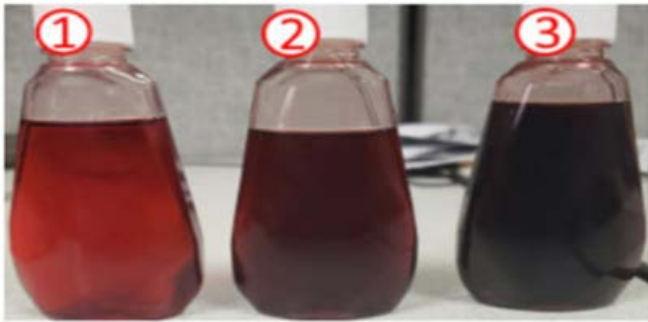


| Parameters Minimum and Maximum Values |        |        |     |
|---------------------------------------|--------|--------|-----|
| Parameter Name                        | Min    | Max    | Min |
| Engine Speed                          | 1000.0 | 2000.0 |     |
| TCC Slip Speed                        | 0.0    | 300.0  |     |
| Engine Torque                         | 90.0   | 350.0  |     |



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### Line Graph Set-up



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1. Engine Speed
2. TCC Slip
3. Engine Torque

**AFM Low Torque Operation** — If vehicle is an LGX engine and complaint exists at engine torques <100Nm, it could be an AFM complaint. If placing vehicle in M8 turns off complaint than vehicle is likely operating as designed.

Please proceed with #PIP5601A: Vehicle Vibration Diagnosis and TAC Requests for Assistance With Vibration Related Complaints.

### Correction

If confirmed to be a TCC shudder and/or Poor TCC Control **DEGRADED CONDITION** while monitoring performance using scan tool and the fluid condition does not show clutch or hardware damage or water/coolant contamination, please drain and refill the transmission using DEXRON VI fluid as per SI instructions.

**Note:** A minimum of 200 miles (322 km) needs to be driven after the drain and fill to confirm the repair.

If confirmed to be a TCC shudder and/or Poor TCC Control **DAMAGED CONDITION** while monitoring performance using scan tool and the fluid condition does not show clutch or hardware damage or water/coolant contamination, please replace torque converter per SI instructions.

## 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                         |
|--|--|------------------------------------|
| *8480708   | Transmission Fluid Drain and Fill to Correct Shudder | 1.1 hr                             |
| 8464810  | Torque Converter Replacement                         | Use Published Labor Operation Time |
| *This is a unique Labor Operation for Bulletin use only. |  |                                    |

|          |                         |
|----------|-------------------------|
| Version  | 1                       |
| Modified | Released April 14, 2023 |

