



# Service Bulletin

Bulletin No.: 22-NA-015

Date: September, 2023

## INFORMATION

**Subject:** Diagnostic Tips on GDS Graphing after Road-Test, for Shake and/or Shudder During Steady and/or Light Throttle Acceleration Between 25 and 50 MPH (40 and 80 KM/H) at Steady Speed, and Deceleration at approximately 15 MPH (24 KM/H).

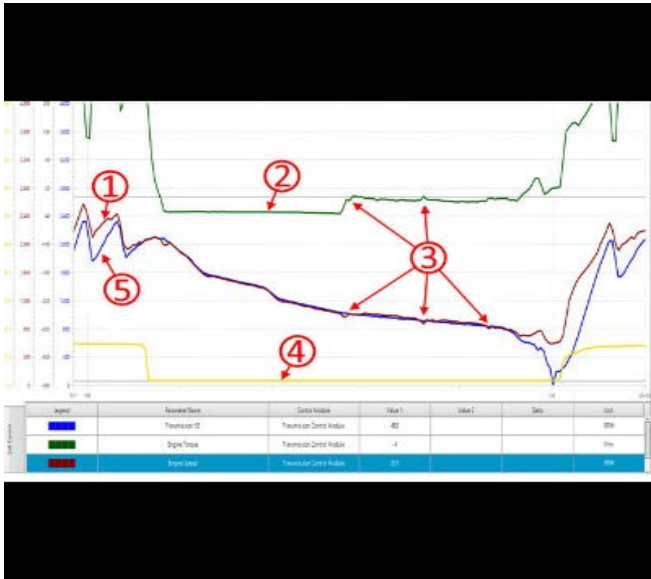
| Brand:    | Model:   | Model Year: |      | VIN: |    | Engine:  | Transmission:                |
|-----------|--|-------------|------|------|----|----------|------------------------------|
|           |  | from        | to   | from | to |          |                              |
| Cadillac  | Escalade Models                                    | 2021        | 2024 |      |    |          |                              |
| Chevrolet | Silverado 1500                                     | 2020        | 2021 |      |    | L84, L87 | MQB, MQC, MHS, MHO, MHT, MI2 |
|           | Silverado 1500 LTD (RPO J21, VIN Digit 5 = W / Y)  | 2022        | 2022 |      |    |          |                              |
|           | Silverado 1500 New (RPO J22, VIN Digit 5 = A / D)  |             |      |      |    |          |                              |
|           | Silverado 1500                                     | 2023        | 2024 |      |    |          |                              |
|           | Suburban   | 2021        |      |      |    |          |                              |
|           | Tahoe  |             |      |      |    |          |                              |
| GMC       | Sierra 1500  | 2020        | 2021 |      |    |          |                              |
|           | Sierra 1500 Limited (RPO J21, VIN Digit 5 = 8 / 9) | 2022        | 2022 |      |    |          |                              |
|           | Sierra 1500 New (RPO J22, VIN Digit 5 = H / U)     |             |      |      |    |          |                              |
|           | Sierra 1500  | 2023        | 2024 |      |    |          |                              |
|           | Yukon Models                                       | 2021        |      |      |    |          |                              |

|                                   |   |
|-----------------------------------|---|
| <b>Involved Region or Country</b> | North America, Australia, New Zealand, Europe, Uzbekistan, Middle East, Israel, Argentina (Mercosur), Brazil (Mercosur), Bolivia (West), Chile (West), Colombia (West), Ecuador (West), Paraguay (West), Peru (West), Uruguay (West)  |
| <b>Condition</b>                  | Some customers may comment of a shudder, shake, vibration from approximately 25 – 50 mph (40-80 km/h) while under steady to lightly accelerating throttle.  |
| <b>Cause</b>                      | This condition may be caused by various transmission and engine concerns. See the Diagnostic Tips below.<br>– Check for Transmission and Engine related DTC's. Resolve any DTC's before and reevaluate the vehicle before proceeding.   |
| <b>Correction</b>                 | Diagnostic Tips Test Drive<br>The customer's vehicle should be test driven in an effort to duplicate the condition. Details of vehicle speed, driving conditions and throttle input may need to be discussed with the customer. Some normal shudder, shake, vibration or growl can be expected in low speed, light throttle applications as the vehicle may be going in and out for Dynamic Fuel Management (DFM). DFM can be turned off for a test drive by shifting the transmission into Manual Range "L9". Driving a like vehicle under the same conditions may help determine if the vehicle is operating like other vehicles and should be considered characteristic of design. |

**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.

**Diagnostic Tips Engine Performance**

⇒ Diagnostic Tip Related Shudder: 21-NA-207



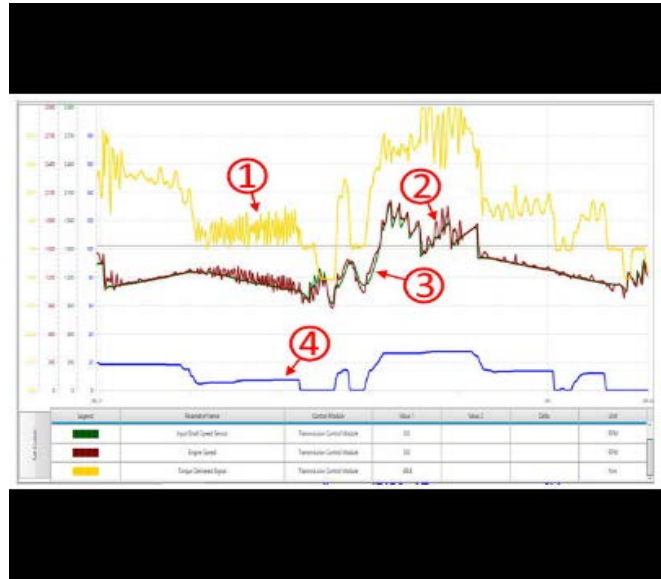
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1. Engine Speed
2. Engine Torque
3. Vibration Felt after Engine Refuel, Should be in Reduced Firing Fraction
4. Pedal
5. Transmission Input Shaft Speed (ISS)

**Diagnostic Tip Closed Throttle Shudder – TSB**  
 21-NA-207: 2021 Silverado Sierra 5.3 (L84) 10 Speed (MQB) only.

The condition is only present at 0% throttle during a coast event at approximately 15 mph (24 km/h). Note the engine RPM and torque oscillations at engine refuel points.

**Diagnostic Tip Engine Related Shudder – 22-NA-080 Camshaft Actuator**



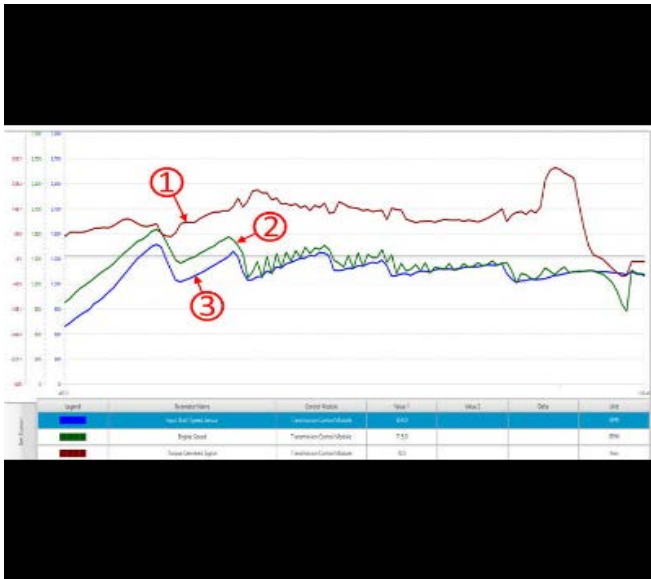
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1. Torque
2. Engine Speed
3. Transmission ISS
4. Pedal

Record a GDS session log and monitor engine speed, transmission input speed and engine torque. If engine torque is larger than +/- 25 Nm while no gear shift is active, and throttle is relatively constant the issue most likely lies within the engine.

Observe the large variation in engine torque while engine speed and Transmission ISS follow each other more closely. Although this feels like shudder to the customer it is most likely an engine related concern.

**Diagnostic Tips TCC Solenoid – Valve Body**

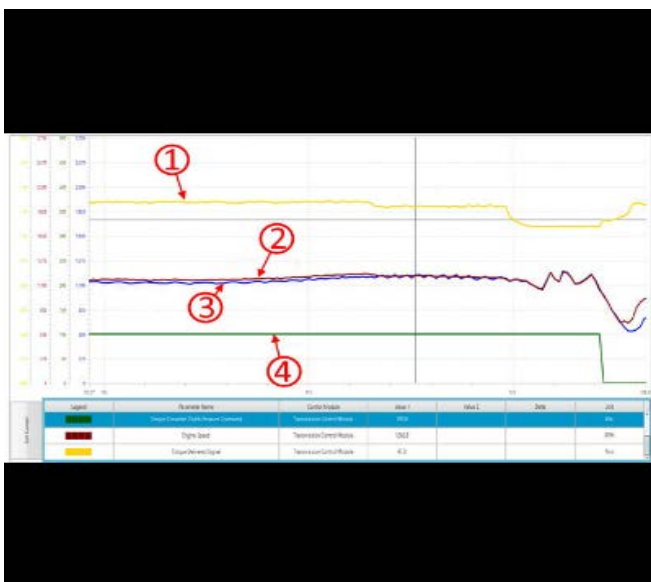


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1. Torque
2. Engine Speed
3. Transmission ISS
  - The shudder condition is present both in Drive “D” or Manual “L9”.
  - Typically occurs at less than 15,000 miles (24,000 km)
  - Transmission ISS follows engine speed
  - Relatively consistent engine torque. <+/- 25 Nm

Engine torque remains relatively flat while engine speed rises and falls. The valve body should be replaced.

**Diagnostic Tip TCC Solenoid (Drift) – Valve Body**



5975005

1. Torque
2. Engine Speed

3. Transmission ISS
4. TCC Pressure
  - Shudder condition is present in Drive “D” but NOT present in Manual “L9”
  - Throttle would typically be less than 10% and engine torque less than 100 Nm
  - TCC slip speed will be 0 or near 0
  - TCC pressure command will remain at 100 kPa

The valve body should be replaced.

**Diagnostic Tip TCC Shudder – Torque Converter**

**Note:** This data should only be collected when driving the vehicle in manual 9th gear so dynamic fuel management is disabled.



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**Note:** A slight vibration that can only be felt when dynamic fuel management is active should be deemed normal characteristic and engine and transmission components should not be replaced.

1. Torque
2. Engine Speed
3. Transmission ISS
4. Pedal
  - TCC pressure control is steady
  - TCC slip is elevated
  - Engine RPM will increase at the shudder point while Transmission ISS remains steady
  - Engine torque remains relatively steady during the shudder event
  - Throttle angle remains steady during the shudder event

The torque converter should be replaced.

**Note:** Warranty claim reviews indicate that when the torque converter is replaced for shudder that vehicle often returns for additional engine or transmission repairs. In most cases the torque converter is not the cause of the shudder.

### Diagnostic Tip Engine Related Shudder - Fuel Injectors



6124137

1. Torque
2. Engine Speed
3. Transmission ISS
4. TPS
  - Engine RPM is erratic
  - Throttle is fairly steady/constant
  - Magnitude of RPM and TPS signal is relatively small
  - Engine RPM will not be in sinewave pattern. The issue is possibly related to one or more fuel injector.

|                 |   |
|-----------------|---|
| <b>Version</b>  | 5   |
| <b>Modified</b> | <p>Released January 27, 2022</p> <p>Revised March 21, 2022 - Revised Subject, Added Additional Countries, Change Turbine Speed to Transmission Input Shaft Speed.</p> <p>Revised July 21, 2022 - Added Two Notes to the Diagnostic Tip TCC Shudder – Torque Converter section and Removed PIP5794 and Added 22-NA-080, added Important Statement and Added Fuel Injection section.</p> <p>Revised January 26, 2023 - Added 2023 to Model Year and Added M12, MHO and MHT to Transmission RPO section.</p> <p>Revised September 20, 2023 - Added 2024 to Model Year.</p> |

