

# **#99-04-21-005E: Transfer Case Shudder (Flush and Replace Transfer Case Fluid) - (Jul 1, 2011)**

**Subject: Transfer Case Shudder (Flush and Replace Transfer Case Fluid)**

**Models: 1999–2005 Chevrolet Astro (AWD)**

**1999–2005 GMC Safari (AWD)**

**1999–2001 Oldsmobile Bravada**

**with All-Wheel Drive (NV136) Transfer Case (RPO NP4)**

## **Condition**

Some customers may comment on a vibration (shudder) during tight turning maneuvers on dry pavement at vehicle speeds less than 8 km/h (5 mph).

## **Cause**

This condition may be caused by a slip-stick of the clutch plates in the transfer case clutch pack. On 1999 to 2002 models, the preload that is designed into the clutch pack may contribute to the condition. In addition, contamination of the fluid may interfere with the friction modifiers.

## **Correction**

Flush and replace the transfer case fluid on affected vehicles using the following procedure and the part number listed below.

Perform the following diagnosis prior to flushing and replacing the transfer case fluid in order to properly identify the shudder.

## Diagnosis

1. Verify the shudder in the vehicle. The vehicle needs to be at operating temperature (driven at least 8 km (5 mi) for proper diagnosis. After the vehicle is at operating temperature, drive in a tight circle just short of steering wheel lock, at a speed less than 8 km/h (5 mph) in order to identify the shudder.
2. Identify what rear axle type the vehicle has.
  - If the vehicle has a standard rear axle, then proceed to step 3.
  - If the vehicle has a locking rear axle, remove the front propeller shaft. Refer to the Propeller Shaft subsection in the Service Manual. Drive the vehicle as outlined in step 1.
    - If the shudder goes away, install the front propeller shaft and proceed to step 3. Refer to the Propeller Shaft subsection in the Service Manual.
    - If the shudder does not go away, the locking rear axle may be the cause. Evaluate the condition using diagnostic information in the appropriate Service Manual.
    - Install the front propeller shaft. Refer to the Propeller Shaft subsection in the Service Manual.
3. Flush the transfer case with the blue colored fluid (AUTO-TRAK II) using the procedure and part number listed below. Perform the flush procedure even if the transfer case contains the blue colored AUTO-TRAK II fluid in order to remove any possible contaminants. The AUTO-TRAK II fluid contains an improved friction modifier that should correct the slip-stick condition. Refer to the Transfer Case subsection in the Service Manual for information on draining and filling the transfer case.

## Flush Procedure

**Important:** Refer to Corporate Bulletin Number 99-04-21-001, dated April 1999, for important information on removing the transfer case drain and fill plugs.

1. Drain the transfer case fluid.
2. Refill the transfer case with 2 L (2 qts) of new fluid, P/N 12378508 (Canadian P/N 10953626).
3. After refilling the transfer case, drive the vehicle a minimum of 8 km (5 mi).
4. With the transfer case at operating temperature, drain the transfer case fluid again.
5. Refill the transfer case with new fluid.

**Important:** The vehicle may require approximately 160 km (100 miles) of driving before the condition is completely corrected.
6. If this procedure does not correct the shudder condition, please call the Technical Assistance Center for further instructions and review PIP3012D or newer.

## Parts Information

<b>Part Number</b>	<b>Description</b>	<b>Qty</b>
12378508 (Canadian P/N 10953626)	AUTO-TRAK II Transfer Case Fluid	4 (1 L) containers

## **#PIP3012F: Transfer Case Shudder On Turns In Auto Mode - keywords C0327 crow hop remanufactured SRTA - (Mar 25, 2009)**

**Subject: Transfer Case Shudder on Turns in Auto Mode**

**Models: 1999-2000 Cadillac Escalade**

**1999-2005 Chevrolet Astro**

**2002-2007 Chevrolet Avalanche**

**1999-2004 Chevrolet Blazer**

**1999-2003 Chevrolet S-10**

**1999-2007 Chevrolet Suburban, Silverado Classic, Tahoe**

**1999-2001 GMC Envoy**

**1999-2004 GMC Jimmy**

**1999-2005 GMC Safari**

**1999-2003 GMC Sonoma**

**1999 GMC Suburban**

**1999-2007 GMC Sierra Classic, Yukon, Yukon XL, Denali**

**1998-2001 Oldsmobile Bravada**

**Equipped With AWD Transfer Case 136 RPO NP4 or 4WD Transfer case  
236, 246 RPO NP8**

## Condition/Concern:

The NVG 136 All Wheel Drive (AWD) Transfer Case and the 236 and 246 NVG Selectable Transfer Cases operating in the Auto Mode may exhibit a condition of a vibration/shudder during low speed turns such as a parking lot maneuver, up to approximately 5 MPH.

### **Recommendation/Instructions:**

1. Review the latest version of TSB 99-04-21-005B. Change the Transfer Case fluid regardless of which category the vehicle falls into and even if the fluid was previously changed.
2. Drive the vehicle a minimum of 5 miles (auto mode if selectable) to obtain operating temperature. Once at operating Temperature, drive (auto mode if selectable) the vehicle into a tight turn just short of the steering wheel lock/stop at a speed of less than 5 MPH. If the shudder is present, perform the following diagnostics.
3. Remove the TCCM fuse and drive the vehicle. If the condition is still present, proceed to step 4. If the condition is no longer present, then proceed to step 5.
4. Reinstall the TCCM fuse. Swap the wheels and tires from an identically built vehicle that does not exhibit the condition. Test drive to re-evaluate. If the condition is no longer present, inspect and replace the tires as required.
5. If removing the TCCM fuse corrects the condition, inspect the TCCM for the correct PN.
  - NVG136 Inspect the TCCM for module part numbers and replace as required.
  - 98-01 Oldsmobile Bravada - should have PN 15748801 (or any superseded number)
  - 99-01 Chevrolet Astro, GMC Safari - should have PN 15748744 (or any superseded number)
  - NVG 236 Inspect the TCCM for module part number and replace as required
  - 99 - 01 Chevrolet Blazer and S10, GMC Envoy Jimmy and Sonoma- should have PN 15748800 (or any superseded number)
  - NVG 246 Inspection of the TCCM is not required.
6. 

If the condition was not eliminated by removing the TCCM fuse and/or swapping the tires, remove the encoder motor from the transfer case and test drive the vehicle again at operating temperature.

  - (NVG 246) If the shudder is eliminated measure the transfer case rear output shaft end play. If the end play is measured at 0.055 in (1.39 mm) or greater it will be necessary to replace the rear transfer case half and bearing retainer snap ring due to a worn rear bearing retaining ring groove. If the end play is measured at less than 0.55 in (1.39 mm) replace the encoder motor.
  - (ALL) If the shudder is eliminated, replace the encoder motor.
  - (ALL) If the shudder was not eliminated, reinstall the encoder motor and fuse. Verify the shudder is still present and remove the front prop shaft.

- (ALL) Drive the vehicle at operating temperature with the front prop shaft removed, if the condition is still present and the vehicle is equipped with a G80 locking differential . The axle fluid should be changed, the propshaft reinstalled, and the vehicle driven in several left and right hand circles then driven at least 50 miles under normal driving to remove any glazing from differential clutches.

7. If the above steps have not eliminated the shudder condition, the transfer case clutch pack needs re-shimmed. To perform the shimming procedure use Service Information (eSI).

Note When performing the shim selection process eSI indicates to select a shim(s) + or - .004. On a 136 Transfer Case, the shim(s) should be - 0.004 for best performance.