### **SECTION 7D**

# TRANSFER CASE

NOTICE: Always use the correct fastener in the proper location. When you replace a fastener, use ONLY the exact part number for that application. General Motors will call out those fasteners that require a replacement after removal. General Motors will also call out the fasteners that require thread lockers or thread sealant. UNLESS OTHERWISE SPECIFIED, do not use supplemental coatings (paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and joint clamping force, and may damage the fastener. When you install fasteners, use the correct sequence and tightening specifications. Following these instructions can help you avoid damage to parts and systems.

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#### **GENERAL DESCRIPTION**

#### Figure 1

The transfer case, located at the rear of the transmission, is responsible for transferring engine torque to the front and rear wheels on vehicles equipped with four-wheel drive. The transfer case contains an input gear, countershaft and counter gear, rear output shaft, low output gear and a front output shaft (for front drive) connected and driven by a drive chain

The transfer case gearshift control lever can be placed in four positions: 4H (direct connection with the input gear, counter gear and low output gear). "N" (by way of the reduction clutch sleeve located between the input gear and the low output gear) and "2H" (high speed to the rear wheels only). The front drive shift fork mechanism also has an auxiliary spring to ensure a smooth shift from "4H" to "2H".

#### **OPERATION**

#### Figure 2

#### Two-Wheel Drive Operation

When the transfer case gearshift control lever is placed in the "2H" position, the reduction shift fork moves the reduction clutch sleeve forward. This action

18 41 2 4 <u>11</u>	
Four-Wheel Drive Switch	7D-9
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engages the transfer case input gear with the rear output shaft. In this manner, torque applied from the transmission output shaft flows in a 1:1 ratio through the transfer case to only the rear propeller shaft (Figure 2).

#### High Speed Four-Wheel Drive Operation

When the transfer case gearshift control lever is placed in the "4H" position, the reduction shift fork moves the reduction clutch sleeve forward. This action engages the transfer case input gear with the rear output shaft. In this manner, torque applied from the transmission output shaft flows in a 1:1 ratio through the transfer case to the rear propeller shaft.

Additionally, the front drive shift fork moves the front drive clutch sleeve backward. This action engages the front drive clutch hub with the drive sprocket. Once engaged, the drive sprocket turns the drive chain and applies torque through the front output shaft to the front propeller shaft (Figure 2).

#### Low Speed Four-Wheel Drive Operation

When the transfer case gearshift control lever is placed in the "4L" position, the reduction shift fork moves the reduction clutch sleeve backward. This action engages the input gear with the low output gear—lowering the output gear ratio considerably.

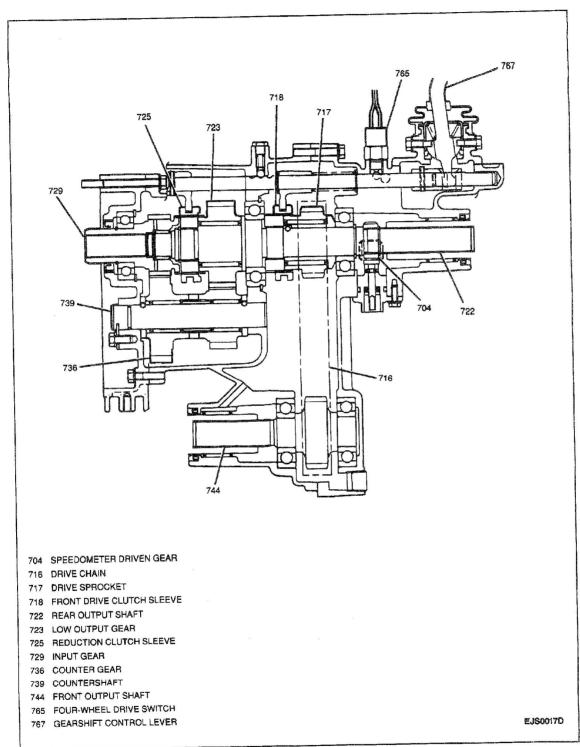


Figure 1-Transfer Case Cross Section

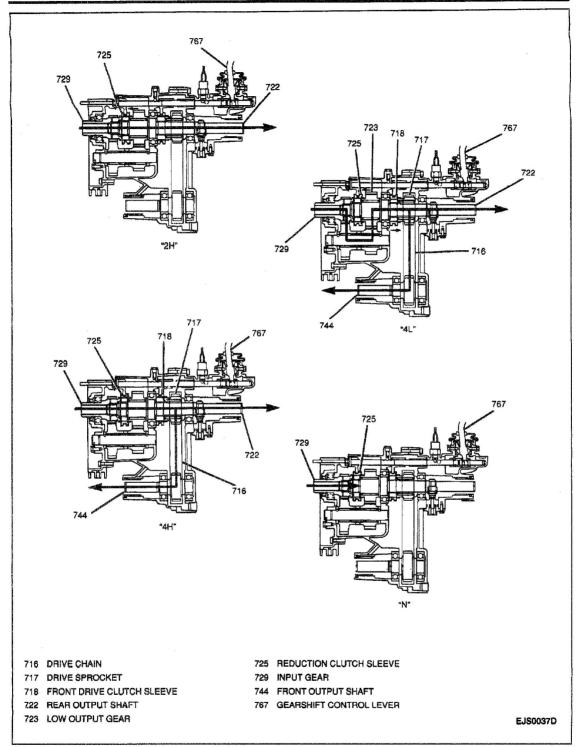


Figure 2—Transfer Case Operation

### 7D-4 TRANSFER CASE

At the same time, the front drive shift fork moves the front drive clutch sleeve backward. This action engages the front drive clutch hub with the drive sprocket. Once engaged, the drive sprocket turns the drive chain and provides torque through the front output shaft to the front propeller shaft (Figure 2).

### Neutral "N" Position

When the transfer case gearshift control lever is placed in the "N" position, the reduction shift fork moves the reduction clutch sleeve to the neutral position between the input gear and the low output gear. This action disengages the input gear from the rear output shaft and interrupts the torque flow to the front or rear output shafts (Figure 2).

#### DIAGNOSIS

#### Figure 3

Before attempting to repair the transfer case or related components for any reason other than mechanical failure, the condition and probable causes should be identified. Transfer case failures are revealed by shifting difficulties such as excessive shifting effort, gear clash, or gear grinding. When any of these conditions occur, the following inspections should be made before disassembling the transfer case.

# 1

#### Inspect

- Transfer case oil level for insufficient or incorrect oil. Refer to "Checking Transfer Case Oil Level" later in this section.
- Transfer case mounts for wear or looseness. Refer to "Torque Stopper Bushing" or "Transfer Case Rear Mount" later in this section.
- Gearshift control lever for distortion or excessive wear. Refer to "Gearshift Control Lever" later in this section.

After performing the above inspections, refer to the "Transfer Case Diagnosis Chart" for diagnosis of transfer case noise and shifting difficulties under various conditions (Figure 3).

CONDITION	INSPECT COMPONENT	FOR PROBABLE CAUSE
TRANSFER CASE NOISY IN ALL GEARSHIFT CONTROL LEVER POSITIONS	TRANSFER CASE OIL LEVEL	INSUFFICIENT OR IMPROPER LUBRICANT
	TIRES	WEAR, UNDER INFLATION OR IMPROPER SIZE
	INPUT GEAR BEARING	WEAR OR DAMAGE
	REAR OUTPUT SHAFT BEARINGS	WEAR OR DAMAGE
	TRANSFER CASE OIL LEVEL	INSUFFICIENT OR IMPROPER LUBRICANT
	REDUCTION SHIFT SHAFT	BINDING IN CENTER OR REAR CASE
	FRONT DRIVE SHIFT SHAFT	BINDING IN CENTER OR REAR CASE
	FRONT DRIVE SHIFT FORK SPRING, C-CLIP OR SHAFT STOP WASHER	WEAKNESS, DISTORTION OR MISPOSITIONED
GRINDING NOISE OR TRANSFER CASE JUMPS OUT OF "4H" OR "4L"	FRONT DRIVE CLUTCH SLEEVE	EXCESSIVE WEAR OR DAMAGE
	REDUCTION CLUTCH SLEEVE	EXCESSIVE WEAR OR DAMAGE
	DRIVE SPROCKET CLUTCHING TEETH	EXCESSIVE WEAR OR DAMAGE
	REDUCTION CLUTCH HUB	EXCESSIVE WEAR OR DAMAGE
FOUR-WHEEL DRIVE WILL NOT	MANUAL LOCKING FRONT HUBS	HUB DIALS IN "FREE" POSITION
ENGAGE	AUTOMATIC LOCKING FRONT HUBS	EXCESSIVE WEAR OR DAMAGE

Figure 3—Transfer Case Diagnosis Chart

### OIL LEAK DIAGNOSIS

#### Figure 4

Most transfer case oil leaks can be located without removing the transfer case from the vehicle. Methods most commonly used to locate leaks are the general method, the powder method, and the dye and black light method.

The transfer case components are constructed of aluminum and separated into four pieces: the front case, the center case, the rear case and the gearshift lever case. If a leak exists between any of the transfer case components, the transfer case must be removed from the vehicle for repair. Refer to SECTION 7D in the 1996 Transmission/Transaxle/Transfer Case Unit Repair Manual.

#### General Method

- 1. Verify that the leak is transfer case oil.
- 2. Thoroughly clean the suspected leak area.
- Drive the vehicle for 24 km (15 miles) or until normal operating temperatures are reached.
- 4. Park the vehicle over clean paper or cardboard.
- 5. Turn the ignition switch to the "OFF" position and wait approximately 30 minutes.
- Inspect paper for spots in relation to its position under the transfer case assembly.
- 7. Make the necessary repairs.

#### **Powder Method**

- 1. Thoroughly clean the suspected leak area with solvent.
- Apply an aerosol powder or baby powder to the suspected leak area.
- Drive the vehicle for 24 km (15 miles) or until normal operating temperatures are reached.
- 4. Turn the ignition switch to the "OFF" position.
- 5. Inspect the suspected leak area and trace the leak path through the powder to find the source.
- 6. Make the necessary repairs.

#### Dye and Black Light Method

Tools Required:

J 28428-D High Intensity Black Light J 28431-6 Fluorescent Oil Additive

- Raise and suitably support vehicle. Refer to SECTION 0A.
- Add 30 ml (1 oz.) of J 28431-6 into the transfer case oil level/filler plug.
- 3. Lower vehicle.
- Drive vehicle for 24 km (15 miles) or until normal operating temperatures are reached.
- 5. Turn the ignition switch to the "OFF" position.
- Raise and suitably support vehicle. Refer to SECTION 0A.
- 7. Using a J 28428-D, locate the source of the leak.
- 8. Make the necessary repairs.

#### TRANSFER CASE OIL LEAK REPAIR

Once the leak has been located, its cause must be determined in order to carry out the proper repair. For example, if a case component is resealed but the mating surface is damaged, resealing will not repair the leak. The damaged mating surface must be repaired or replaced. Before any repairs are attempted, however, always check for the following conditions:

# ? Important

- The transfer case does not use gaskets to seal major case components. RTV silicone sealer GM P/N 1052917, or equivalent, should be used where applicable.
- · Oil level is too high.
- · Plugged breather vent.
- Improperly torqued fasteners, dirty or damaged threads.
- · Warped flanges or mating surfaces.
- Scratches, burrs or other damage to mating surfaces.
- · Insufficient or excessive amounts of sealer.
- · Cracking or porosity of the component.
- · Improper sealant used where applicable.
- · Damaged seal bore.
- · Damaged or worn seal.
- Scratched, nicked or damaged propeller shaft surfaces.
- Loose or worn bearing causing excessive seal wear.

#### CASE POROSITY REPAIR

- 1. Drive the vehicle for 24 km (15 miles) or until normal operating temperatures are reached.
- 2. Turn the ignition switch to the "OFF" position.
- 3. Clean the leak area with solvent and air dry.

CAUTION: Epoxy cement may cause skin irritation and eye damage. Read and follow all information on the container label as provided by the manufacturer.

- 4. Mix a sufficient amount of epoxy cement GM P/N 1052533, or equivalent, following the manufacturer's recommendations.
- 5. While the transfer case is hot, apply epoxy cement with a clean, dry soldering acid brush.
- 6. Allow the epoxy to cure for three hours before starting the engine.
- Repeat the fluid leak diagnosis procedure to verify the repair.

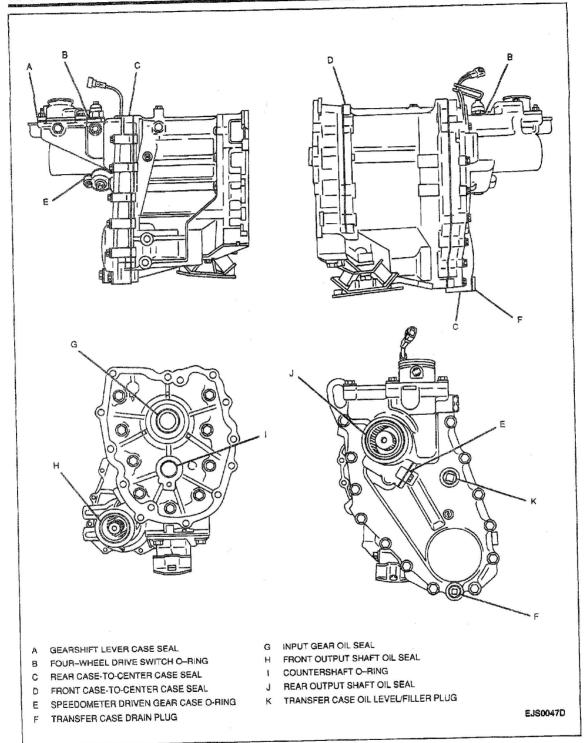


Figure 4—Possible Points of Leaks

#### **ON-VEHICLE SERVICE**

### CHECKING TRANSFER CASE OIL LEVEL

#### Figure 5

- 1. Raise and suitably support vehicle. Refer to SECTION OA.
- Remove transfer case oil level/filler plug from transfer case (Figure 5).

# [**®** Inspect

- Transfer case oil level. Oil level should be even with the bottom of the oil level/filler plug hole. If the oil level is below the bottom of the oil level/filler plug hole, adjust oil level accordingly with 75W-85 synthetic GL4 lubricant GM P/N 12346190, or equivalent, until the oil level reaches the bottom of the oil level/filler plug hole (Figure 5).
- Apply Loctite® pipe sealant GM P/N 1052080, or equivalent, to the threaded portion of the transfer case oil level/filler plug.
- 4. Install transfer case oil level/filler plug into transfer case (Figure 5).

# (Tighten

- Transfer case oil level/filler plug to 28 N·m (21 lb. ft.).
- 5. Lower vehicle.

#### CHANGING TRANSFER CASE OIL

#### Figures 5 and 6

 Raise and suitably support vehicle. Refer to SECTION 0A.

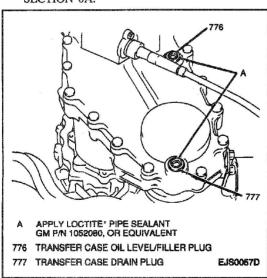


Figure 5-Transfer Case Oil Level/Filler and Drain Plugs

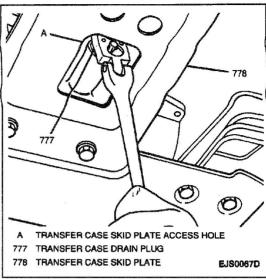


Figure 6—Removing Transfer Case Drain Plug

# ? Important

- It is not necessary to remove the transfer case skid plate in order to gain access to the transfer case drain plug. An access opening in the transfer case skid plate has been provided for wrench access as well as transfer case oil drainage (Figure 6).
- 2. Place a drain pan or suitable container underneath transfer case.
- 3. Remove transfer case oil level/filler plug from transfer case (Figure 5).
- 4. Remove transfer case drain plug from transfer case and drain transfer case oil (Figure 6).
- Apply Loctite® pipe sealant GM P/N 1052080, or equivalent, to the threaded portion of the transfer case drain plug.
- 6. Transfer case drain plug into transfer case (Figure 6).

# Tighten

- Transfer case drain plug to 28 N.m (21 lb. ft.).
- 7. Add approximately 1.7 liters (1.8 qts.) of 75W-85 synthetic GL4 lubricant GM P/N 12346190, or equivalent, into the oil level/filler plug hole. Oil level should be even with the bottom of the oil level/filler plug hole.
- Apply Loctite® pipe sealant GM P/N 1052080, or equivalent, to the threaded portion of the transfer case oil level/filler plug.
- 9. Transfer case oil level/filler plug into transfer case (Figure 5).

# হ্মি Tighten

- Transfer case oil level/filler plug to 28 N·m (21 lb. ft.).
- 10. Lower vehicle.

#### 7D-8 TRANSFER CASE

### TRANSFER CASE SKID PLATE

#### Figure 7

# Remove or Disconnect

- 1. Raise and suitably support vehicle. Refer to SECTION 0A.
- 2. Two bolts and transfer case skid plate from transfer case crossmember (Figure 7).
- 3. Four bolts and transfer case skid plate from frame rail crossmember (Figure 7).

### Inspect

 Transfer case skid plate for distortion or damage. Replace as necessary.

### → ← Install or Connect

- 1. Transfer case skid plate to frame rail crossmember; secure with four bolts (Figure 7).
- 2. Transfer case skid plate to transfer case crossmember; secure with two bolts (Figure 7).

# হ্ম Tighten

- Transfer case skid plate bolts to 54 N.m (40 lb. ft.).
- 3. Lower vehicle.

### GEARSHIFT CONTROL LEVER

#### Figures 8, 9 and 10

### Remove or Disconnect

 Two screws, two plastic retainers and rear console box from floor.

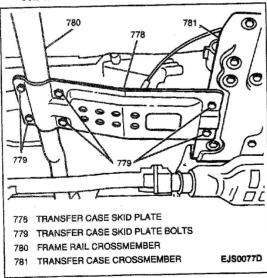


Figure 7—Transfer Case Skid Plate

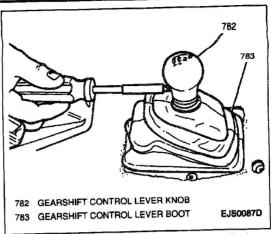


Figure 8—Removing Gearshift Control Lever Knob

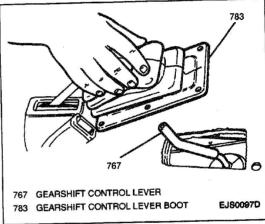


Figure 9—Removing Gearshift Control Lever Boot

- Two screws, two plastic retainers and front console box from floor.
- 3. One screw and gearshift control lever knob from gearshift control lever (Figure 8).
- Eight screws, boot cover and gearshift control lever boot from gearshift control lever (Figure 9).
- 5. One clamp and gearshift lever case boot from gear shift lever case.
- Gearshift control lever from gearshift lever case by pushing down on the gearshift control lever pivot and turning counterclockwise 90 degrees (1/4 turn) and lifting up (Figure 10).

# Inspect

- 1. Gearshift control lever for distortion or excessive wear. Replace as necessary.
- Gearshift control lever boot and gearshift lever case cover boot for tears or other damage. Replace as necessary.

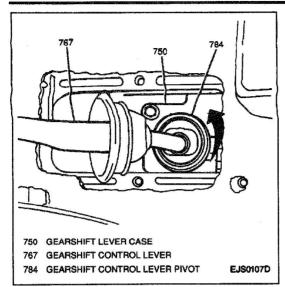


Figure 10-Removing Gearshift Control Lever

### ++ Install or Connect

- Gearshift control lever into gearshift lever case and pushing down on the shift control lever pivot and turning clockwise 90 degrees (1/4 turn) and releasing.
- Gearshift lever case boot to gearshift lever case; secure with one clamp.
- 3. Gearshift control lever boot and boot cover onto gearshift control lever; secure with eight screws (Figure 9).
- 4. Gearshift control lever knob onto gearshift control lever; secure with one screw (Figure 8).
- Front console box to floor; secure with two plastic retainers and two screws.
- 6. Rear console box to floor; secure with two plastic retainers and two screws.

#### FOUR-WHEEL DRIVE SWITCH

#### Figures 8 through 11

For four-wheel drive switch diagnosis procedures, refer to SECTION 8A.

### ←→ Remove or Disconnect

- 1. Negative (-) battery cable.
- Two screws, two plastic retainers and rear console box from floor.
- 3. Two screws, two plastic retainers and front console box from floor.
- One screw and gearshift control lever knob from gearshift control lever (Figure 8).
- 5. Eight screws, boot cover and gearshift control lever boot from gearshift control lever (Figure 9).
- One clamp and gearshift lever case boot from gear shift lever case.

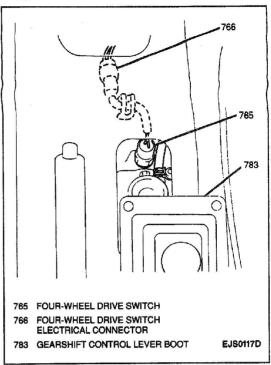


Figure 11-Four-Wheel Drive Switch

- 7. Gearshift control lever from gearshift lever case by pushing down on the gearshift control lever pivot and turning counterclockwise 90 degrees (1/4 turn) and lifting up (Figure 10).
- 8. Four-wheel drive switch electrical connector from four-wheel drive switch (Figure 11).
- 9. Four-wheel drive switch from transfer case by turning counterclockwise (Figure 11).

### Inspect

 Four-wheel drive switch O-ring for cuts or other damage. Replace as necessary.

# →+ Install or Connect

1. Four-wheel drive switch into transfer case by turning clockwise (Figure 11).

# **Q** Tighten

- Four-wheel drive switch to 19 N·m (14 lb. ft.).
- 2. Four-wheel drive switch electrical connector to four-wheel drive switch (Figure 11).
- Gearshift control lever into gearshift lever case and pushing down on the shift control lever pivot and turning clockwise 90 degrees (1/4 turn) and releasing.
- 4. Gearshift lever case boot to gearshift lever case; secure with one clamp.

#### 7D-10 TRANSFER CASE

- Gearshift control lever boot and boot cover onto gearshift control lever; secure with eight screws (Figure 9).
- Gearshift control lever knob onto gearshift control lever; secure with one screw (Figure 8).
- Front console box to floor; secure with two plastic retainers and two screws.
- 8. Rear console box to floor; secure with two plastic retainers and two screws.
- 9. Negative (-) battery cable.

### হ্মি Tighten

• Negative (-) battery cable-to-negative (-) battery terminal retainer to 15 N·m (11 lb. ft.).

# FOUR-WHEEL DRIVE "LO" SWITCH (IF EQUIPPED)

### Figure 12

For four-wheel drive low switch diagnosis procedures, refer to SECTION 8A.

### ←→ Remove or Disconnect

- 1. Negative (-) battery cable.
- Raise and suitably support vehicle. Refer to SECTION 0A.
- Four-wheel drive low switch electrical connector from four-wheel drive low switch.
- 4. Four-wheel drive low switch from transfer case by turning counterclockwise (Figure 12).

# [● Inspect

 Four-wheel drive switch O-ring for cuts or other damage. Replace as necessary.

### → + Install or Connect

1. Four-wheel drive low switch into transfer case by turning clockwise.

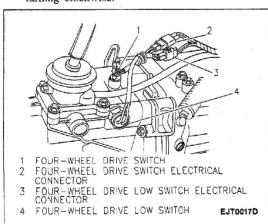


Figure 12—Four-Wheel Drive Low Switch Location (If Equipped)

# হি Tighten

- Four-wheel drive switch to 19 N-m (14 lb. ft.).
- 2. Four-wheel drive low switch electrical connector to four-wheel drive low switch (Figure 12).
- 3. Lower Vehicle.
- 4. Negative (-) battery cable.

# (1) Tighten

• Negative (-) battery cable-to-negative (-) battery terminal retainer to 15 N·m (11 lb. ft.).

#### SPEEDOMETER DRIVEN GEAR

#### Figures 13 through 16

### ←→ Remove or Disconnect

- 1. Raise and suitably support vehicle. Refer to SECTION 0A.
- Speedometer cable from speedometer driven gear case (Figure 13).

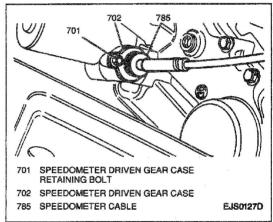


Figure 13—Speedometer Cable at Speedometer Driven Gear Case

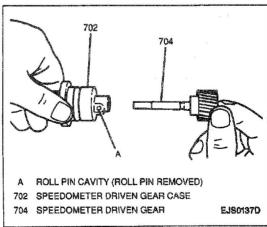


Figure 14-Removing Speedometer Driven Gear

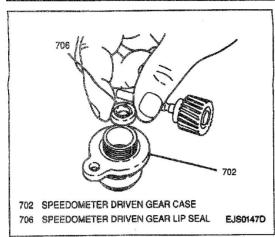


Figure 15-Removing Speedometer Driven Gear Lip Seal

- 3. Retaining bolt and speedometer driven gear case from transfer case (Figure 13).
- 4. One roll pin and speedometer driven gear from speedometer driven gear case (Figure 14).
- 5. Speedometer driven gear lip seal from speedometer driven gear case (Figure 15).



### Inspect

1. Speedometer driven gear for excessive wear or damage. Replace as necessary.



#### install or Connect

Tools Required:

- J 34833 Valve Guide Remover J 36850 Transjel® Transmission Assembly Lubricant
- 1. Apply J 36850 to the new speedometer driven gear lip seal. 2. New speedometer driven gear lip seal into the speedometer driven gear case using a J 34833 (Figure 16).
- 2. Speedometer driven gear into the speedometer driven gear case; secure with one roll pin (Figure 16).
- 3. Apply J 36850 to the speedometer driven gear case O-ring (Figure 16).
- 4. Speedometer driven gear case into transfer case; secure with retaining bolt (Figure 13).



#### Tighten

- · Speedometer driven gear case retaining bolt to 10 N·m (89 lb. in.).
- 5. Speedometer cable to speedometer driven gear case (Figure 13).
- 6. Lower vehicle.

#### Speedometer Cable

For speedometer cable service procedures, refer to SECTION 8C.

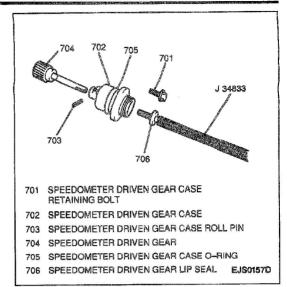


Figure 16-Installing Speedometer Driven Gear Lip Seal

#### FRONT OUTPUT SHAFT OIL SEAL

Figures 5, 6, 17 and 18



### Remove or Disconnect

Tools Required:

- J 26941 Needle Bearing Puller
- J 23907 Slide Hammer
- 1. Raise and suitably support vehicle. Refer to SECTION 0A.
- 2. Place a drain pan or suitable container underneath transfer case.
- 3. Transfer case oil level/filler plug from transfer case (Figure 5).
- 4. Transfer case drain plug from transfer case and drain transfer case oil (Figure 6).

# **Important**

- · An index mark (reference mark) should be placed on the front propeller shaft pinion flange yoke and front differential pinion flange to ensure that the front propeller shaft is installed in the same position from which it was removed. If this precaution is not observed, a driveline imbalance may result causing vibration, premature component wear or other undesirable conditions.
- 5. Place an index mark on the front propeller shaft pinion flange yoke and the front differential pinion flange.
- 6. Four bolts, four nuts and front propeller shaft from vehicle.
- 7. Front output shaft oil seal from transfer case using a J 26941 with a J 23907 (Figure 17).

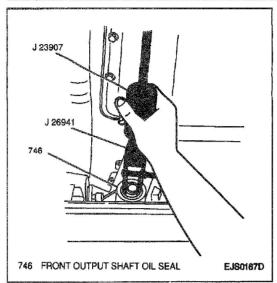


Figure 17-Removing Front Output Shaft Oil Seal

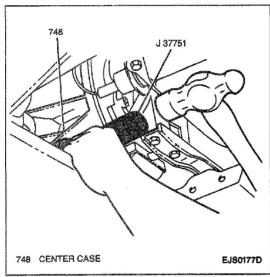


Figure 18-Installing Front Ouput Shaft Oil Seal

### Install or Connect

Tools Required:

- J 37751 Oil Seal Installer
- J 36850 Transjel® Transmission Assembly Lubricant
- 1. New front output shaft oil seal into transfer case using a J 37751 (Figure 18).
- 2. Apply J 36850 to the new front output shaft oil
- 3. Front propeller shaft into vehicle aligning reference marks made during removal; secure with four bolts and four nuts.

### 2 Tighten

- Front propeller shaft bolts and nuts to 50 N·m (37 lb. ft.).
- 4. Apply Loctite® pipe sealant GM P/N 1052080, or equivalent, to the threaded portion of the transfer case drain plug.
- 5. Transfer case drain plug into transfer case.

# Tighten

- Transfer case drain plug to 28 N·m (21 lb. ft.).
- 6. Add approximately 1.7 liters (1.8 qts.) of 75W-85 synthetic GL4 lubricant GM P/N 12346190, or equivalent, into the transfer case oil level/filler plug hole. Oil level should be even with the bottom of the oil level/filler plug hole.
- 7. Apply Loctite® pipe sealant GM P/N 1052080, or equivalent, to the threaded portion of the transfer case oil level/filler plug.
- 8. Transfer case oil level/filler plug into the transfer

# **1** Tighten

- Transfer case oil level/filler plug to 28 N·m (21 lb. ft.).
- 9. Lower vehicle.

#### REAR OUTPUT SHAFT OIL SEAL

#### Figures 19 and 20



### Remove or Disconnect

Tools Required:

J 26941 Needle Bearing Puller J 23907 Slide Hammer

1. Raise and suitably support vehicle. Refer to SECTION 0A.

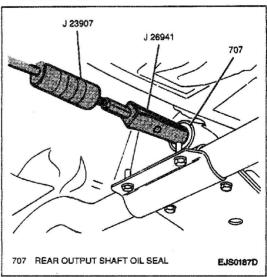


Figure 19-Removing Rear Output Shaft Oil Seal

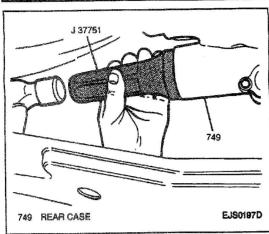


Figure 20-Installing Rear Output Shaft Oil Seal

# ? Important

- An index mark (reference mark) should be made on the rear propeller shaft pinion flange yoke and rear differential pinion flange to ensure that the rear propeller shaft is installed in the same position from which it was removed. If this precaution is not observed, a driveline imbalance may result causing vibration, premature component wear or other undesirable conditions.
- Place an index mark on the rear propeller shaft pinion flange yoke and the rear differential pinion flange.
- Four bolts, four nuts and rear propeller shaft from vehicle.
- Rear output shaft oil seal from transfer case using a J 26941 with a J 23907 (Figure 19).

# →← Install

#### Install or Connect

Tools Required:

- J 37751 Oil Seal Installer
- J 36850 Transjel® Transmission Assembly Lubricant
- 1. New rear output shaft oil seal into transfer case using a J 37751 (Figure 20).
- Apply J 36850 to the new rear output shaft oil seal lip.
- Rear propeller shaft into vehicle; secure with four bolts and four nuts.

# Tighten

 Rear propeller shaft bolts and nuts to 50 N·m (37 lb. ft.).

# Inspect

 Transfer case oil level. Refer to "Checking Transfer Case Oil Level" earlier in this section.

- Apply Loctite® pipe sealant GM P/N 1052080, or equivalent, to the threaded portion of the transfer case oil level/filler plug.
- 5. Transfer case oil level/filler plug into transfer case.

# **(1)** Tighten

- Transfer case oil level/filler plug to 28 N.m (21 lb. ft.).
- 6. Lower vehicle.

#### TORQUE STOPPER BUSHING

#### Figures 21 through 24

# Remove or Disconnect

Tool Required: J 21777-101 Side Bearing Disc

- 1. Raise and suitably support vehicle. Refer to SECTION 0A.
- 2. One bolt, speedometer cable clip and ground wire from torque stopper housing (Figure 21).
- One through bolt and nut from torque stopper bushing and torque stopper bracket.
- 4. Three bolts and torque stopper housing from transfer case crossmember.

**NOTICE:** When pressing the torque stopper bushing in or out of the torque stopper housing, the flush end of the torque stopper housing must be facing downward toward the press support (Figure 22).

5. Torque stopper bushing from torque stopper bushing housing using a J 21777-101 and a press arbor (Figure 22).

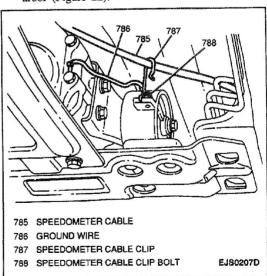


Figure 21—Speedometer Cable Clip at Torque Stopper Housing

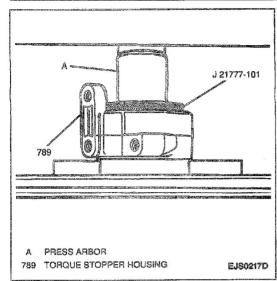


Figure 22—Removing Torque Stopper Bushing

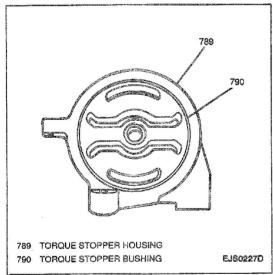


Figure 23—Torque Stopper Bushing and Housing Alignment

# 13

#### Inspect

 Torque stopper bushing for excessive wear or damage. Replace as necessary.



#### Install or Connect

Tools Required:

J 21777-101 Side Bearing Disc J 36850 Transjel® Transmission Assembly Lubricant

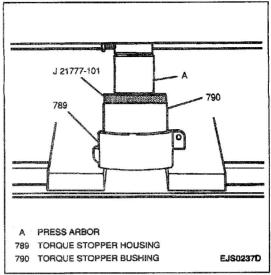


Figure 24—Installing Torque Stopper Bushing



- When installing the torque stopper bushing, align the gaps in the bushing horizontally in the torque stopper housing (Figure 23). If the torque stopper bushing is not aligned correctly in the torque stopper housing, insufficient torque absorption under high throttle conditions may result.
- 1. Torque stopper bushing into torque stopper housing using a J 21777-101 and a press arbor (Figure 24).
- 2. Torque stopper housing to transfer case crossmember; secure with three bolts.

# হ্মি Tighten

- Torque stopper mounting bolts to 50 N·m (37 lb. ft.).
- 3. One through bolt and nut to torque stopper bushing and torque stopper bracket.

# হি Tighten

- $\bullet$  Torque stopper bushing through bolt and nut to 50 N·m (37 lb. ft.).
- 4. Ground wire and speedometer cable clip to torque stopper housing; secure with one bolt (Figure 21).

# হি Tighten

- Speedometer cable clip bolt to 10 N-m (89 lb. in.).
- 5. Lower vehicle.

### TRANSFER CASE REAR MOUNT

### Figures 25 and 26

### Remove or Disconnect

- 1. Raise and suitably support vehicle. Refer to SECTION 0A.
- 2. Support transfer case and transmission assemblies with a suitable hydraulic iack.
- 3. Two bolts and separate transfer case skid plate from transfer case crossmember (Figure 25).
- 4. Three torque stopper mounting bolts from transfer case crossmember (Figure 25).
- 5. Six bolts and transfer case crossmember from undercarriage (Figure 26).
- 6. One bolt and transfer case rear mount from transfer case.

#### Inspect

· Transfer case rear mount for excessive wear or damage. Replace as necessary.

#### install or Connect

1. Transfer case rear mount to transfer case; secure with one bolt.

#### Tighten

- Transfer case rear mount bolt to 50 N.m (37 lb. ft.).
- 2. Transfer case crossmember to undercarriage; secure with six crossmember bolts (Figure 26).

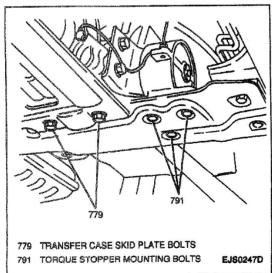


Figure 25-Torque Stopper and Transfer Case Skid Plate Bolts

### হি Tighten

- Transfer case crossmember bolts to 50 N·m (37 lb. ft.).
- 3. Three torque stopper mounting bolts to transfer case crossmember (Figure 25).

# 진 Tighten

- Torque stopper mounting bolts to 50 N·m (37 lb. ft.).
- 4. Transfer case skid plate to transfer case crossmember; secure with two bolts (Figure 25).

# Tighten

- Transfer case skid plate bolts to 54 N·m (40 lb. ft.).
- 5. Remove hydraulic transmission jack.
- 6. Lower vehicle.

#### TRANSFER CASE ASSEMBLY

Figures 5, 8, 9, 10, 11, 12, 13, 21 and 25 through 28

### Remove or Disconnect

- 1. Negative (-) battery cable.
- 2. Two screws, two plastic retainers and rear console box from floor.
- 3. Two screws, two plastic retainers and front console box from floor.
- 4. One screw and gearshift control lever knob from gearshift control lever (Figure 8).
- 5. Eight screws, boot cover and gearshift control lever boot from gearshift control lever (Figure 9).

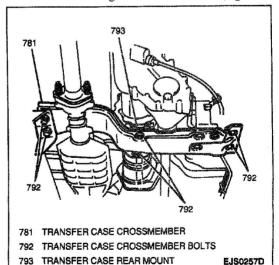


Figure 26-Transfer Case Crossmember Bolts

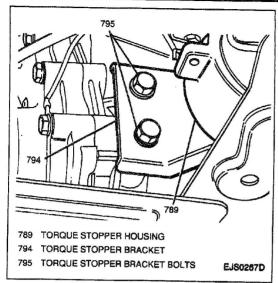


Figure 27-Torque Stopper Bracket

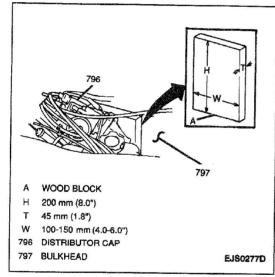


Figure 28-Wood Block Support

- One clamp and gearshift lever case boot from gearshift lever case.
- Gearshift control lever from gearshift lever case by pushing down on the gearshift control lever pivot and turning counterclockwise 90 degrees (1/4 turn) and lifting up (Figure 10).
- 8. Four-wheel drive switch electrical connector from four wheel drive switch (Figure 11).
- Four-wheel drive low switch electrical connector from four-wheel drive low switch (if quipped) (Figure 12).
- 10. Four bolts from fan shroud at radiator.
- 11. Raise and suitably support vehicle. Refer to SECTION 0A.

- 12. Two bolts and separate transfer case skid plate from transfer case crossmember (if equipped) (Figure 25).
- Place a drain pan or suitable container underneath transfer case.
- Transfer case oil level/filler plug from transfer case (Figure 5).
- 15. Transfer case drain plug from transfer case and drain transfer case oil (Figure 5).

### ? Important

- An index mark (reference mark) should be made on the front and rear propeller shaft pinion flange yokes and the front and rear differential pinion flanges to ensure that the front and rear propeller shafts are installed in the same positions from which they where removed. If this precaution is not observed, a driveline imbalance may result causing vibration, premature component wear or other undesirable conditions.
- 16. Place an index mark on the front propeller shaft pinion flange yoke and the front differential pinion flange.
- 17. Four bolts, four nuts and front propeller shaft from vehicle.
- 18. Place an index mark on the rear propeller shaft pinion flange yoke and the differential pinion flange.
- Four bolts, four nuts and rear propeller shaft from vehicle.
- Speedometer cable from speedometer driven gear case (Figure 13).
- One bolt, speedometer cable clip and ground wire from torque stopper housing (Figure 21).
- Three Way Catalytic Converter (TWC) and muffler /tail pipe assembly from vehicle. Refer to SECTION 6F.
- Support transfer case with a suitable hydraulic jack.
- 24. Two bolts from torque stopper bracket (Figure 27).
- 25. Six bolts and transfer case crossmember from undercarriage (Figure 26).
- 26. Place a wood block with the dimensions shown in Figure 28 between the distributor gear housing and the bulkhead to prevent the distributor and other components from being damaged when the transfer case is lowered.
- Lower transfer case slowly until engine contacts its support point on the wood block.
- One clamp and breather hose from gearshift lever case.
- 29. Twelve transfer case-to-transmission bolts.
- 30. Slide transfer case off transmission output shaft and slowly lower transfer case making sure there are no obstructions.

# [6] Inspect

 For disassembly and inspection procedures. Refer to SECTION 7D in the 1996 Transmission/Transaxle/Transfer Case Unit Repair Manual.

### ++ install or Connect

- Raise transfer case into position and slide onto transmission output shaft.
- 2. Twelve transfer case-to-transmission bolts.

# री Tighten

- Transfer case-to-transmission bolts to 28 N-m (21 lb. ft.).
- Breather hose to gearshift lever case; secure with one clamp.
- Raise transfer case slowly until engine is no longer in contact with the wood block between the bulkhead and the distributor gear housing (Figure 28).
- 5. Remove wood block.
- 6. Transfer case crossmember to undercarriage; secure with six bolts (Figure 26).

### হি Tighten

- Transfer case crossmember bolts to 50 N·m (37 lb. ft.).
- 7. Two bolts to torque stopper bracket (Figure 27).

### (Tighten

- Torque mount bracket bolts to 50 N.m. (37 lb. ft.).
- 8. Remove hydraulic jack from underneath transfer
- Three Way Catalytic Converter (TWC) and muffler /tail pipe assembly to vehicle. Refer to SECTION 6F.
- Speedometer cable clip and ground wire to torque stopper housing; secure with one bolt (Figure 21).

# (Tighten

- Speedometer cable clip bolt to 10 N·m (89 lb. in.)
- 11. Speedometer cable to speedometer driven gear case (Figure 13).
- Rear propeller shaft into vehicle aligning reference marks made during removal; secure with four bolts and four nuts.

# (Tighten

- Rear propeller shaft bolts and nuts to 50 N.m. (37 lb. ft.).
- Front propeller shaft into vehicle aligning reference marks made during removal; secure with four bolts and four nuts.

### Tighten

- Proof propeller shaft bolts and nuts to 50 N·m (37 lb, 5L)
- Apply Loctite® pipe sealant GM P/N 1052080, or equivalent, to the threaded portion of the transfer case drain plug.
- Transfer case drain plug into transfer case (Figure 5).



- Transfer case drain plug to 28 N.m (21 lb. ft.)
- 16. Add approximately 1.7 liters (1.8 qts.) of 75W-85 synthetic GL4 lubricant GM P/N 12346190, or equivalent, into the transfer case oil level/filler plug hole. Oil level should be even with the bottom of the oil level/filler plug.
- Apply Loctite® pipe scalant GM P/N 1052080, or equivalent, to the threaded portion of the transfer case oil level/filler plug.
- Transfer case oil level/filler plug into transfer case (Figure 5).



- Transfer case oil level/filler plug to 28 N.m. (21 lb. ft.)
- Transfer case skid plate to transfer case crossmember, secure with two bolts (if equipped) (Figure 25).



- Transfer case skid plate bolts to 54 N·m (40 lb, %).
- 20. Lower vehicle.
- 21. Four bolts to fan shroud at radiator.



- · Fan shroud bolts to 10 N.m (89 lb. in.)
- Four-wheel drive switch electrical connector to four-wheel drive switch (Figure 11).
- Four-wheel drive low switch electrical connector to four-wheel drive low switch (if equipped) (Figure 12).
- 24. Gearshift control lever into gearshift lever case and pushing down on the shift control lever pivot and turning clockwise 90 degrees (1/4 turn) and releasing.
- Gearshift lever case boot to gearshift lever case; secure with one clamp.
- Gearshift control lever boot and boot cover onto gearshift control lever; secure with eight screws (Figure 9).
- Gearshift control lever knob onto gearshift control lever; secure with one screw (Figure 8).
- Front console box to floor; secure with two plastic retainers and two screws.

### 7D-18 TRANSFER CASE

- 29. Rear console box to floor; secure with two plastic retainers and two screws.
- 30. Negative (-) battery cable.



Negative (-) battery cable-to-negative (-) battery terminal retainer to 15 N·m (11 lb. ft.)

# **SPECIFICATIONS**

FASTENER TORQUES
Transfer Case Oil Level/Filler Plug
Transfer Case Drain Plug
Transfer Case Skid Plate Bolts 54 Nm (40 lb ft)
Speciality of the first tage Vetaining Rolf
Front Propeller Shaft Bolts and Nuts.
Front Propeller Shaft Bolts and Nuts 50 N·m (37 lb. ft.)  Rear Propeller Shaft Bolts and Nuts 50 N·m (37 lb. ft.)
101400 5100001 MOURING 5008
Torque Stopper Bushing Through Bolt and Nut
Speedometer Cable Clip Bolt.
Transfer Case Rear Mount Bolt
Transfer Case Crossmember Bolts
Transfer Case-to-Transmission Bolts
10Taue Mount Bracket Bolts
Fan Shroud Bolts
FLUID CAPACITIES (Approximate)
Transfer Case Drain and Refill
Oil Recommended

### **SPECIAL TOOLS**





2 J 28431-6



3 J 34833



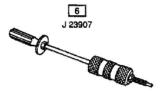
- 1 HIGH INTENSITY BLACK LIGHT
- 2 FLOURESCENT OIL ADDITIVE
- 3 VALVE GUIDE REMOVER
- 4 TRANSJEL®
- 5 NEEDLE BEARING PULLER
- 6 SLIDE HAMMER
- 7 OIL SEAL INSTALLER
- 8 SIDE BEARING DISC

4 J 36850



5 J 26941





7 J 37751



8 J 21777-101



EJS0847D

# **BLANK**