

TRANSFER CASE - NV241 GENII

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TRANSFER CASE - NV241 GENII

DESCRIPTION

The NV241 GENII transfer case is a part-time transfer case with a low-range gear system. It provides three operating ranges plus a NEUTRAL position. The low range position provides a gear reduction ratio of 2.72:1 for increased low speed torque capability.

The gear cases and extension are all of aluminum (Fig. 1). Drive sprockets and an interconnecting drive chain are used to transmit engine torque to the front/rear propeller shafts. The mainshaft, input gear and front output shaft are supported by ball and needle bearings.

IDENTIFICATION

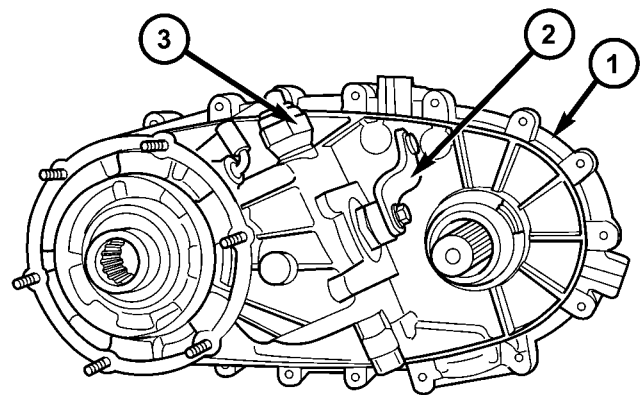
An identification tag (Fig. 2) is attached to the rear case of every transfer case. The tag provides the transfer case model number, assembly number, serial number, and low range ratio.

The transfer case serial number also represents the date of build.

OPERATION

OPERATING RANGE

- Transfer case operating ranges are:
- 2H (2-wheel drive)



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Fig. 1 Transfer Case - Front View

- 1 - TRANSFER CASE
- 2 - MANUAL LEVER
- 3 - POSITION SENSOR

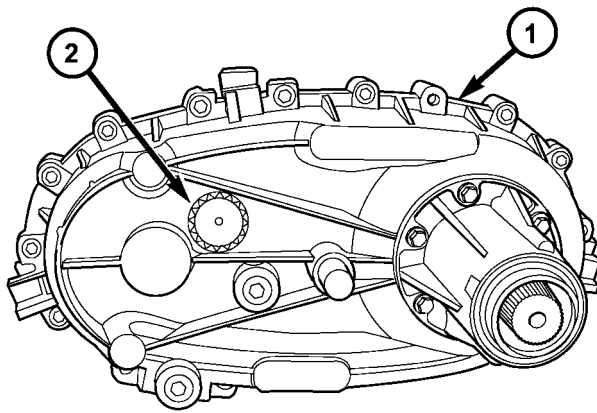
- 4H (4-wheel drive)
- 4LO (4-wheel drive low range)

The 2H range is for use on any road surface at any time.

The 4H and 4LO ranges are for off road use only. They are not for use on hard surface roads. The only exception being when the road surface is covered by ice and snow.

The low range reduction gear system is operative in 4LO range only. This range is for extra pulling

TRANSFER CASE - NV241 GENII (Continued)



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Fig. 2 Transfer Case - Rear View

- 1 - TRANSFER CASE
- 2 - IDENTIFICATION TAG

power in off road situations. Low range reduction ratio is 2.72:1.

SHIFT MECHANISM

The transfer case is operated by an adjustable floor mounted shift linkage. The transfer case shift lever is directly attached to the shift sector. The sector

operates the range and mode forks within the transfer case.

A straight line shift pattern is used with a NEUTRAL detent. Lever range positions are imprinted in the shift knob.

SHIFTING

The transfer case can be shifted between the 2H and 4H operating ranges while the vehicle is in motion. The vehicle must have the transmission placed in NEUTRAL, or the clutch depressed in the case of a manual transmission, and be moving less than 2-3 MPH when shifting into and out of the 4L operating range.

DIAGNOSIS AND TESTING - TRANSFER CASE - NV241 GENII

Before beginning repair on a suspected transfer case malfunction, check all other driveline components beforehand.

The actual cause of a problem may be related to such items as: front hubs, axles, propeller shafts, wheels and tires, transmission, or clutch instead. If all other driveline components are in good condition and operating properly, refer to the Diagnosis Chart for further information.

DIAGNOSIS CHART

Condition	Possible Cause	Correction
Transfer Case difficult to shift or will not shift into desired range.	1) Vehicle speed too great to permit shifting. 2) If vehicle was operated for an extended period in 4H on a dry paved surface, the driveline torque load may be causing a bind. 3) Transfer case external shift linkage binding. 4) Insufficient or incorrect lubricant. 5) Internal components binding, worn, or damaged.	1) Stop vehicle and shift into desired range. Or, reduce speed to below 3-4 km/h (2-3 mph) before attempting the shift. 2) Stop vehicle and shift the transmission into neutral. Shift the transfer case to 2H and operate vehicle in 2H on dry paved surfaces. 3) Lubricate, repair, or replace linkage bushings, or tighten loose components as necessary. 4) Drain and refill to edge of fill hole with Mopar® ATF +4, Automatic Transmission fluid. 5) Disassemble the transfer case and replace worn or damaged components as necessary.
Transfer Case noisy in all operating ranges.	1) Insufficient or incorrect lubricant.	1) Drain and refill to edge of fill hole with Mopar® ATF +4, Automatic Transmission fluid.

TRANSFER CASE - NV241 GENII (Continued)

Condition	Possible Cause	Correction
Noisy in, or jumps out of, four wheel drive low range.	1) Transfer case not completely engaged in 4L position. 2) Shift linkage out of adjustment. 3) Shift linkage loose or binding. 4) Range fork damaged, inserts worn, or fork is binding on the shift rail. 5) Low range gear worn or damaged.	1) With the transmission in NEUTRAL, or the clutch depressed in the case of a manual transmission and the vehicle moving under 3-4 km/h (2-3 mph), shift the transfer case to NEUTRAL and then shift into the 4L position. 2) Adjust linkage. 3) Tighten, lubricate, or repair linkage as necessary. 4) Disassemble unit and repair as necessary. 5) Disassemble unit and repair as necessary.
Lubricant leaking from output shaft seal or vent.	1) Transfer case overfilled. 2) Vent closed or restricted. 3) Output shaft seals damaged or installed incorrectly.	1) Drain lubricant to the correct level. 2) Clear or replace vent as necessary. 3) Replace seal as necessary. Check to ensure that another component, the propeller shaft slip yoke for example, is not causing damage to seal.
Abnormal tire wear.	1) Extended operation on hard, dry surfaces in the 4H position.	1) Operate vehicle in the 2H position on hard, dry surfaces.

REMOVAL

- (1) Raise and support vehicle.
- (2) Remove skid plate, if equipped. (Refer to 13 - FRAMES & BUMPERS/FRAME/TRANSFER CASE SKID PLATE - REMOVAL)
- (3) Position drain oil container under transfer case.
- (4) Remove transfer case drain plug and drain lubricant into container.
- (5) Disconnect vent hose and transfer case position sensor connector.
- (6) Disconnect shift rod from grommet in transfer case shift lever, or from floor shift arm whichever provides easy access. Use channel lock style pliers to press rod out of lever grommet.
- (7) Support transmission with jack stand.
- (8) Mark front and rear propeller shafts for assembly reference.

- (9) Remove front and rear propeller shafts. (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - REMOVAL)
- (10) Support transfer case with suitable jack. Secure transfer case to jack with safety chains.
- (11) Remove nuts attaching transfer case to transmission.
- (12) Move transfer case assembly rearward until free of transmission output shaft.
- (13) Lower jack and move transfer case from under vehicle.

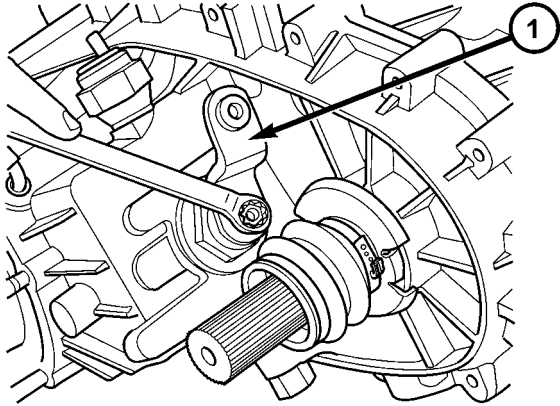
DISASSEMBLY

Position transfer case in a shallow drain pan. Remove drain plug and drain any remaining lubricant remaining in case.

TRANSFER CASE - NV241 GENII (Continued)

SHIFT LEVER AND FRONT OUTPUT SHAFT SEAL

- (1) Shift transfer case into NEUTRAL.
- (2) Remove nut that retains the shift lever to sector shaft. Then remove shift lever from shaft (Fig. 3).



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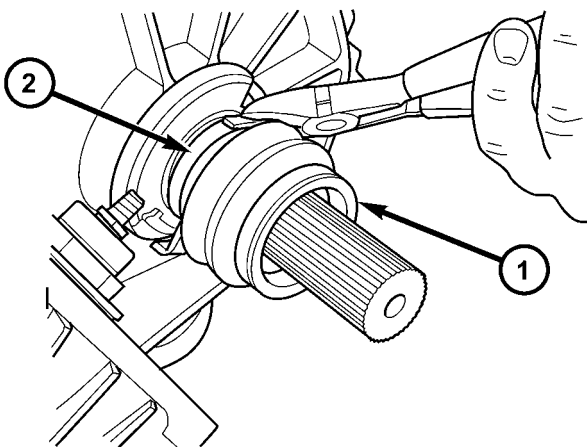
Fig. 3 Remove Range Lever Nut

- 1 - RANGE LEVER

- (3) Remove the front propeller shaft seal boot retaining clamp (Fig. 4).

- (4) Remove the front propeller shaft seal boot (Fig. 5).

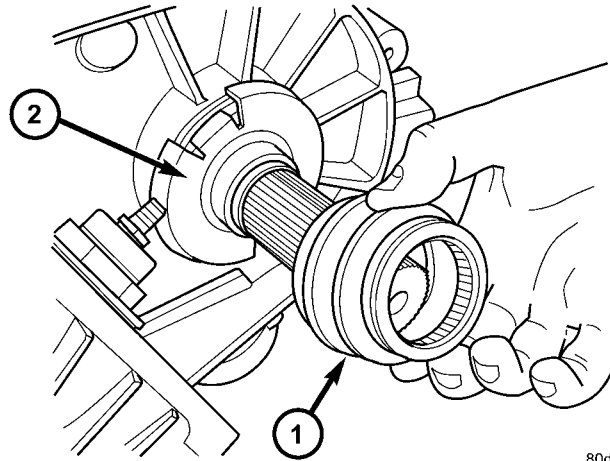
- (5) Remove the front output shaft seal slinger by bending (Fig. 6) the slinger ears away from the transfer case.



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Fig. 4 Remove Boot Clamp

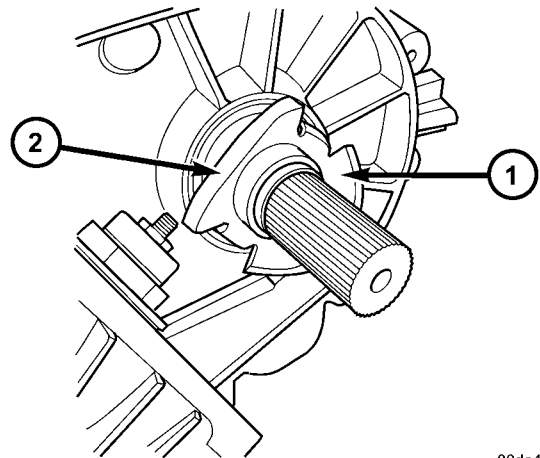
- 1 - SEAL BOOT
- 2 - BOOT CLAMP



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Fig. 5 Remove Seal Boot

- 1 - SEAL BOOT
- 2 - SEAL SLINGER



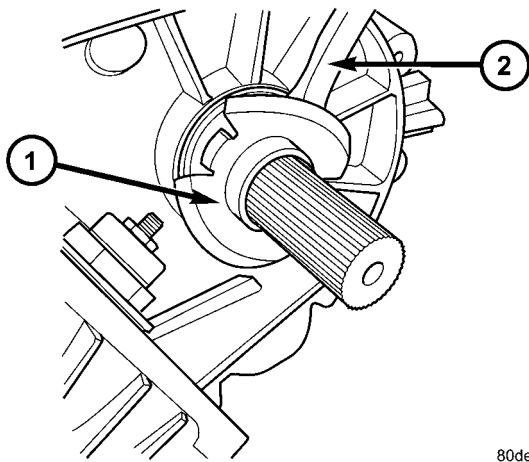
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Fig. 6 Bend Slinger Ears

- 1 - SLINGER
- 2 - BEND UPWARD

TRANSFER CASE - NV241 GENII (Continued)

(6) Using a suitable pry tool (Fig. 7), remove the slinger from the output shaft using care not to damage the shaft.



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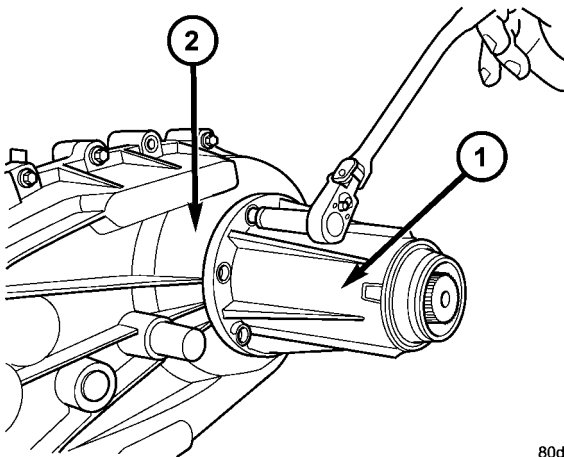
Fig. 7 Remove Slinger From Shaft

- 1 - SLINGER
- 2 - PRY TOOL

(7) Using a screw and a slide hammer, remove the front output shaft seal.

REAR EXTENSION

(1) Remove rear extension bolts (Fig. 8).

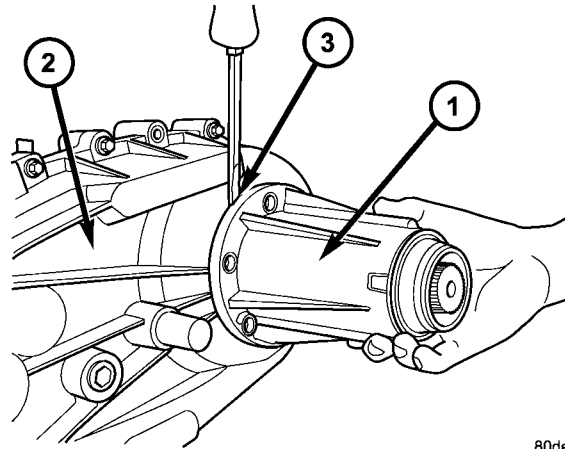


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Fig. 8 Remove Rear Extension Bolts

- 1 - EXTENSION HOUSING
- 2 - TRANSFER CASE

(2) Remove rear extension housing (Fig. 9). Tap extension once or twice with a plastic mallet to break sealer bead and loosen it.

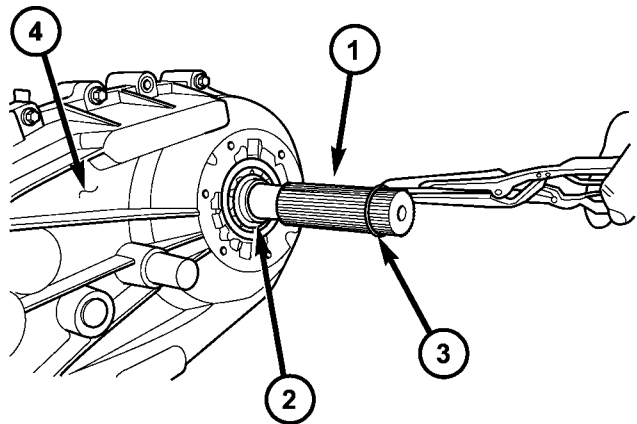


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Fig. 9 Remove Rear Extension

- 1 - EXTENSION HOUSING
- 2 - TRANSFER CASE
- 3 - PRY SLOT

(3) Remove output bearing retaining ring with heavy duty snap-ring pliers (Fig. 10).



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Fig. 10 Remove Output Shaft Retaining Ring

- 1 - REAR OUTPUT SHAFT
- 2 - OUTPUT SHAFT BEARING
- 3 - RETAINING RING
- 4 - TRANSFER CASE

TRANSFER CASE - NV241 GENII (Continued)

OIL PUMP AND REAR CASE

(1) Remove rear case-to-front case bolts (Fig. 11).

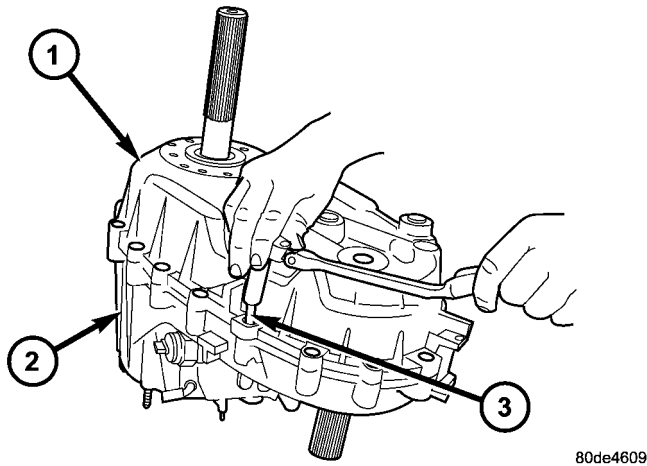


Fig. 11 Remove Case Bolts

- 1 - REAR CASE
- 2 - FRONT CASE
- 3 - BOLT

(2) Loosen rear case with pry tool to break sealer bead. Insert tool in slot at each end of case (Fig. 12).

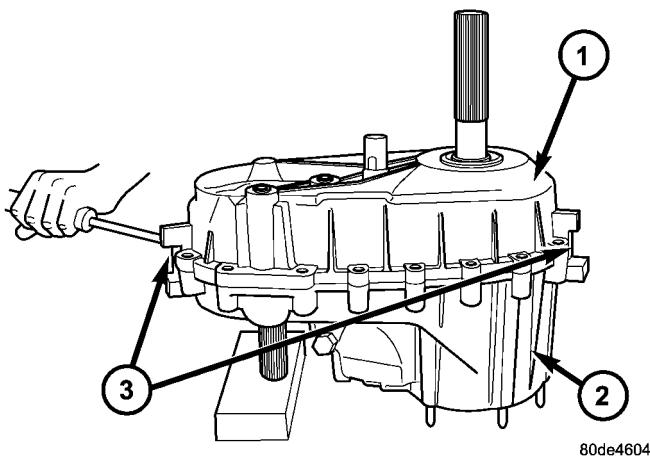


Fig. 12 Loosen Case Halves

- 1 - REAR CASE
- 2 - FRONT CASE
- 3 - PRY SLOTS

(3) Unseat rear case from alignment dowels.

(4) Remove rear case and oil pump assembly from front case (Fig. 13).

CAUTION: Do not remove the bolts holding the oil pump cover to the rear case half. The oil pump cover is aligned to the rear output shaft bearing inner race and will become mis-aligned if the bolts are loosened. If the transfer case failure has generated any debris which may have become trapped in the oil pump, the rear case and oil pump assembly **MUST** be replaced.

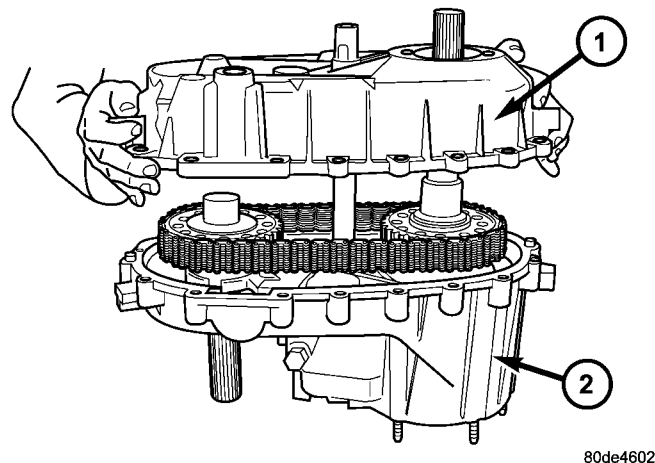


Fig. 13 Remove Rear Case

- 1 - REAR CASE
- 2 - FRONT CASE

FRONT OUTPUT SHAFT AND DRIVE CHAIN

(1) Remove shift rail cup and spring (Fig. 14).

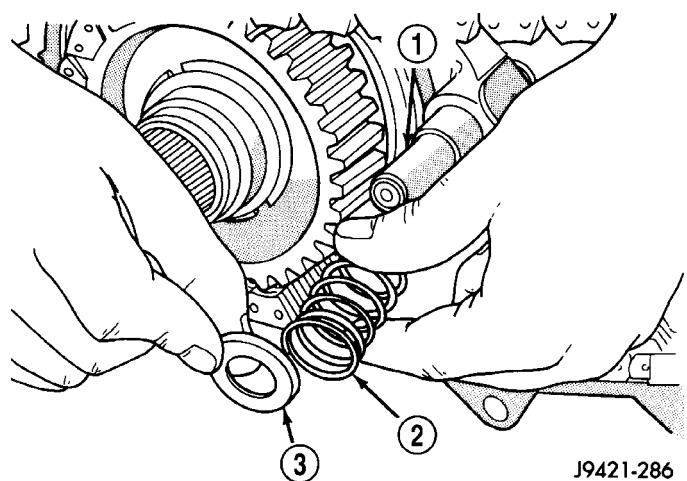
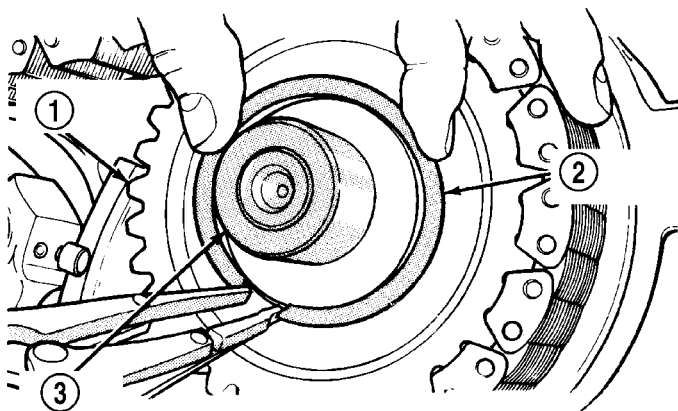


Fig. 14 Shift Rail Cup And Spring Removal

- 1 - SHIFT RAIL
- 2 - SPRING
- 3 - CUP

TRANSFER CASE - NV241 GENII (Continued)

(2) Remove front sprocket retaining ring (Fig. 15).



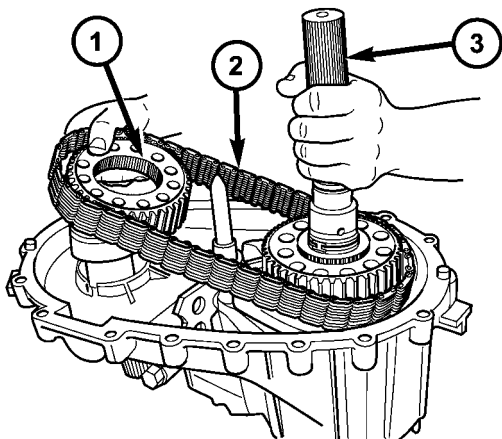
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Fig. 15 Removing Front Sprocket Retaining Ring

- 1 - FRONT SPROCKET
- 2 - RETAINING RING
- 3 - FRONT OUTPUT SHAFT

(3) Pull mainshaft, front sprocket and chain outward about 25.4 mm (1-inch) simultaneously (Fig. 16).

(4) Remove chain from mainshaft drive sprocket and remove front sprocket and chain as assembly.



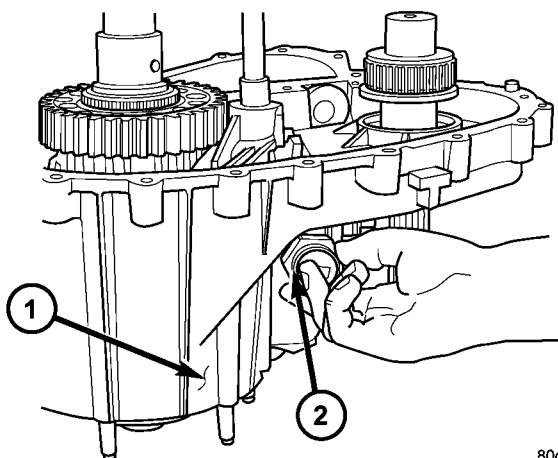
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Fig. 16 Remove Front Sprocket and Drive Chain

- 1 - FRONT DRIVE SPROCKET
- 2 - DRIVE CHAIN
- 3 - MAINSHAFT

SHIFT FORKS AND MAINSHAFT

(1) Remove the transfer case position sensor (Fig. 17).

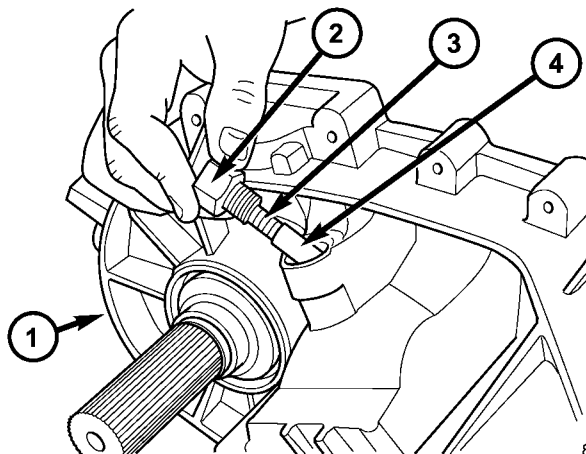


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Fig. 17 Remove Position Sensor

- 1 - FRONT CASE
- 2 - POSITION SENSOR

(2) Loosen detent plug.
 (3) Remove detent plug, spring, and plunger (Fig. 18). Note that the plug has an O-ring seal. Remove and discard this seal.



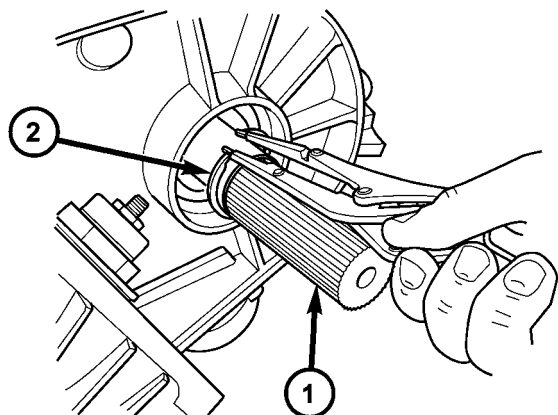
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Fig. 18 Remove Detent Plug, Spring, and Plunger

- 1 - FRONT CASE
- 2 - DETENT PLUG
- 3 - DETENT SPRING
- 4 - DETENT PLUNGER

TRANSFER CASE - NV241 GENII (Continued)

(4) Remove the front output shaft snap-ring (Fig. 19).

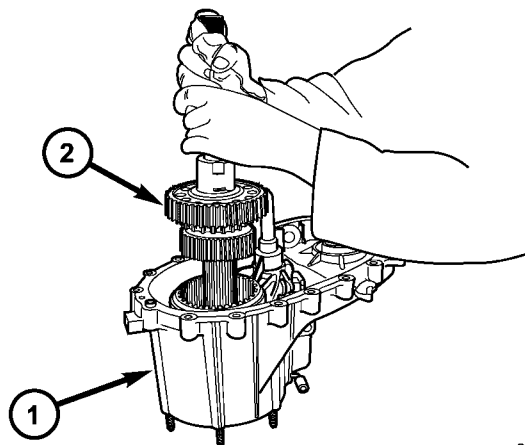


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Fig. 19 Remove Front Output Shaft Snap-ring

1 - FRONT OUTPUT SHAFT
2 - SNAP-RING

(6) Pull mainshaft assembly out of input gear, mode sleeve, and case (Fig. 21).

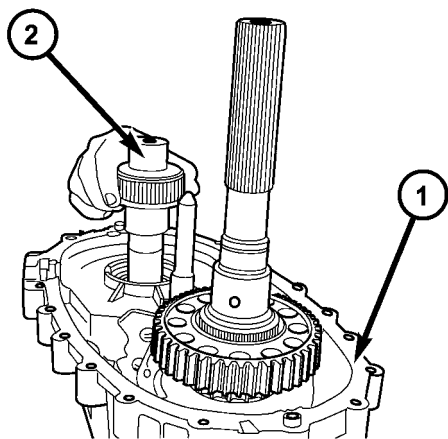


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Fig. 21 Remove Mainshaft

1 - FRONT CASE
2 - MAINSHAFT

(5) Remove front output shaft from bearing in case (Fig. 20).

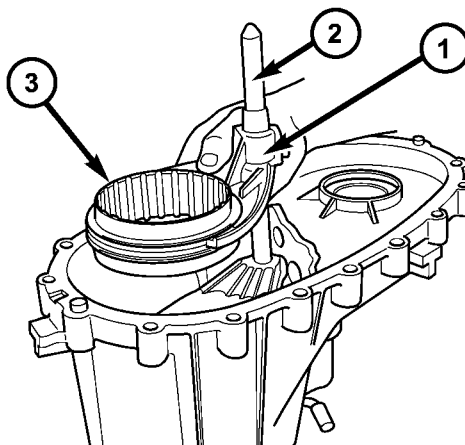


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Fig. 20 Remove Front Output Shaft

1 - FRONT CASE
2 - FRONT OUTPUT SHAFT

(7) Remove mode fork, mode sleeve, and shift rail as assembly (Fig. 22). Note which way the sleeve fits in the fork (long side of sleeve goes to front).



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Fig. 22 Remove Mode Fork and Shift Rail

1 - MODE FORK
2 - SHIFT RAIL
3 - MODE SLEEVE

TRANSFER CASE - NV241 GENII (Continued)

- (8) Remove range fork retaining ring.
- (9) Remove range fork and hub as an assembly (Fig. 23). Note fork position for installation reference.
- (10) Remove the shift sector support (Fig. 24).
- (11) Remove shift sector (Fig. 25).

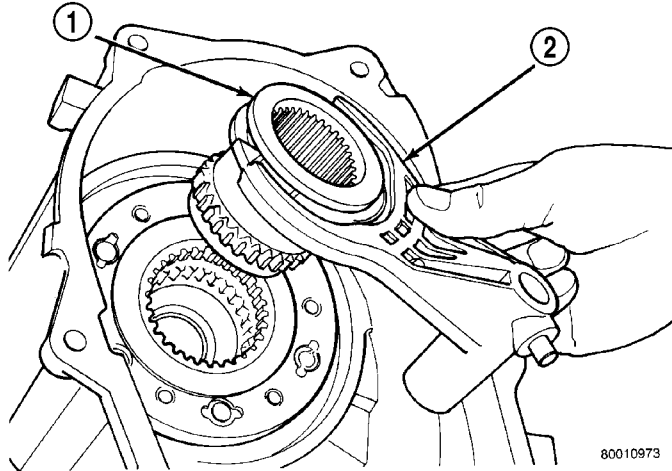


Fig. 23 Range Fork And Hub Removal

- 1 - RANGE HUB
- 2 - RANGE FORK

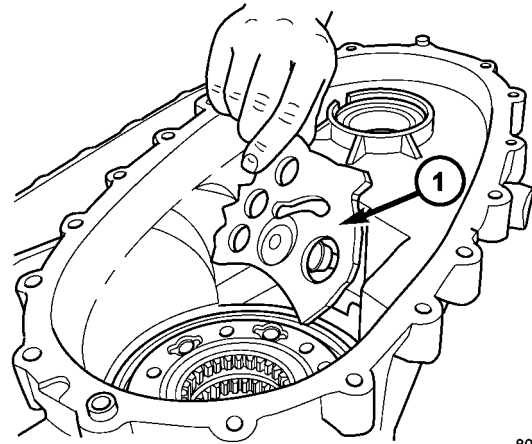


Fig. 25 Remove Shift Sector

- 1 - SHIFT SECTOR

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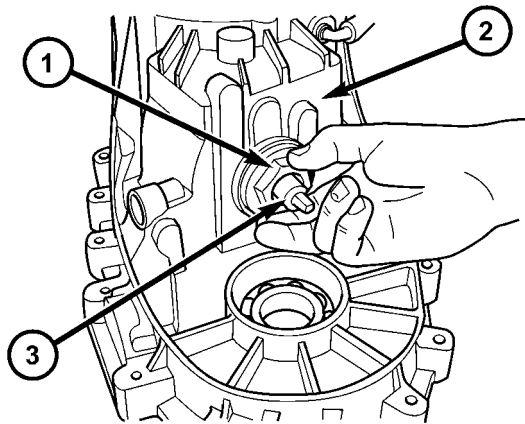


Fig. 24 Remove Sector Support

- 1 - SECTOR SUPPORT
- 2 - FRONT CASE
- 3 - SECTOR SHAFT

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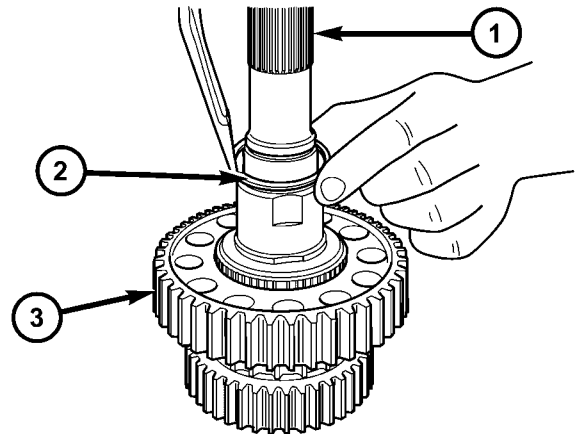


Fig. 26 Remove The Drive Sprocket Retaining Ring

- 1 - OUTPUT SHAFT
- 2 - RETAINING RING
- 3 - DRIVE SPROCKET

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MAINSHAFT

- (1) Remove the drive sprocket retaining ring (Fig. 26) from the output shaft.
- (2) Remove the drive sprocket thrust washer (Fig. 27) from the output shaft.

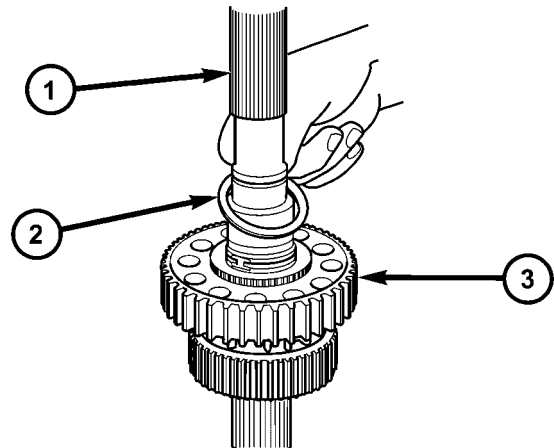


Fig. 27 Remove Drive Sprocket Thrust Washer

- 1 - OUTPUT SHAFT
- 2 - THRUST WASHER
- 3 - DRIVE SPROCKET

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TRANSFER CASE - NV241 GENII (Continued)

(3) Remove drive sprocket (Fig. 28) from the output shaft.

(4) Remove the clutch gear (Fig. 29) and hub (Fig. 30) from the output shaft.

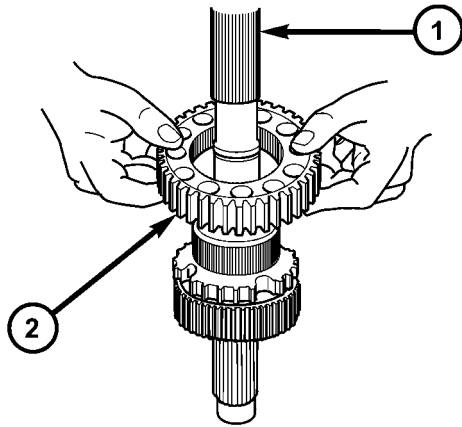


Fig. 28 Remove Drive Sprocket

- 1 - OUTPUT SHAFT
- 2 - DRIVE SPROCKET

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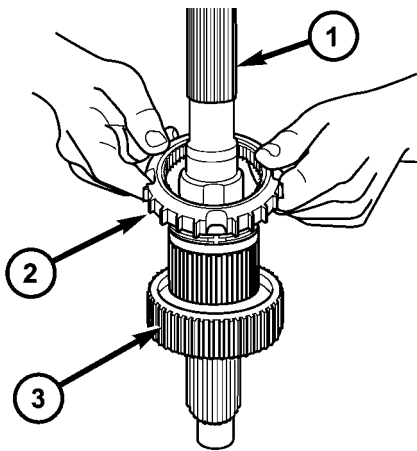


Fig. 29 Remove Clutch Gear

- 1 - OUTPUT SHAFT
- 2 - CLUTCH GEAR
- 3 - MODE HUB

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(5) Remove the mode hub retaining ring (Fig. 31) from the output shaft.

(6) Remove the mode hub (Fig. 32) from the output shaft.

INPUT AND PLANETARY GEAR

(1) Remove input gear seal with suitable screw and slide hammer.

(2) Remove input gear retaining ring (Fig. 33) with heavy duty snap-ring pliers.

(3) Place front case in horizontal position. Then remove input gear and low range gear as an assem-

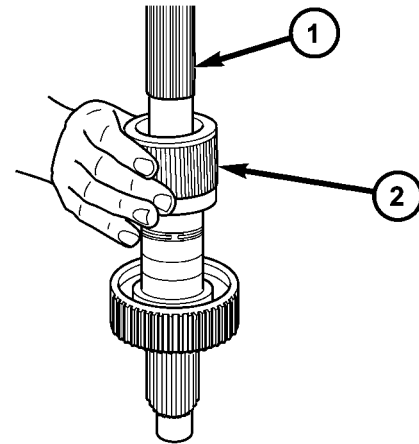


Fig. 30 Remove Sprocket Hub

- 1 - OUTPUT SHAFT
- 2 - SPROCKET HUB

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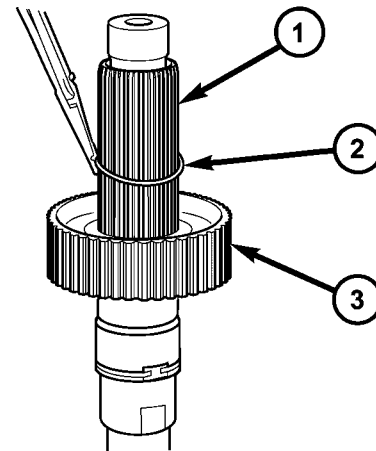


Fig. 31 Remove Retaining Ring

- 1 - OUTPUT SHAFT
- 2 - RETAINING RING
- 3 - MODE HUB

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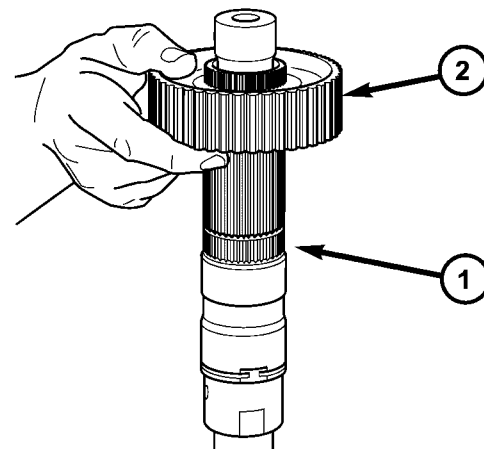


Fig. 32 Remove Mode Hub

- 1 - OUTPUT SHAFT
- 2 - MODE HUB

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TRANSFER CASE - NV241 GENII (Continued)

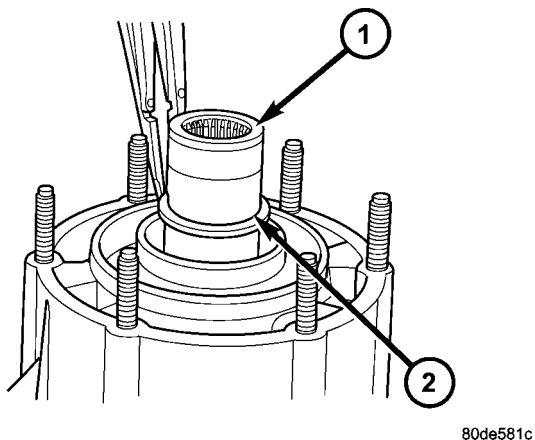


Fig. 33 Remove Input Gear Retaining Ring

- 1 - INPUT GEAR
- 2 - RETAINING RING

bly (Fig. 34). Tap gear out of bearing with plastic mallet, if necessary.

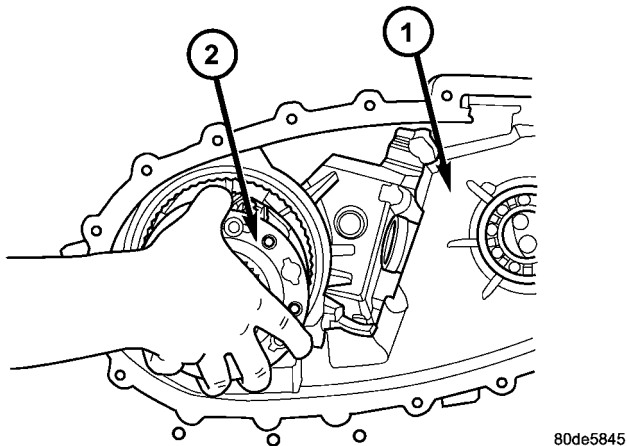


Fig. 34 Remove Input Planetary Assembly

- 1 - FRONT CASE
- 2 - INPUT PLANETARY ASSEMBLY

INPUT AND PLANETARY GEAR

- (1) Remove snap-ring that retains input gear in low range gear (Fig. 35).
- (2) Remove retainer (Fig. 36).

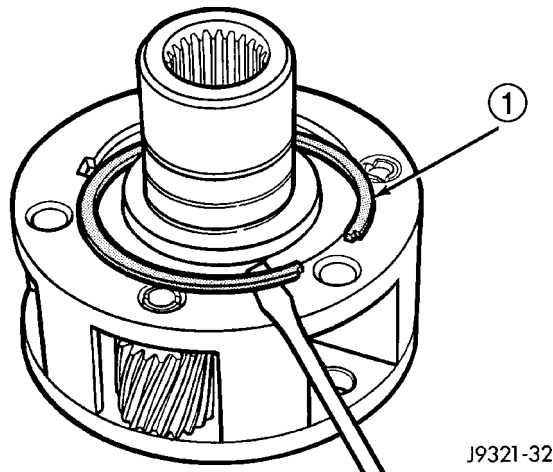


Fig. 35 Input Gear Snap-Ring Removal

- 1 - INPUT GEAR SNAP-RING

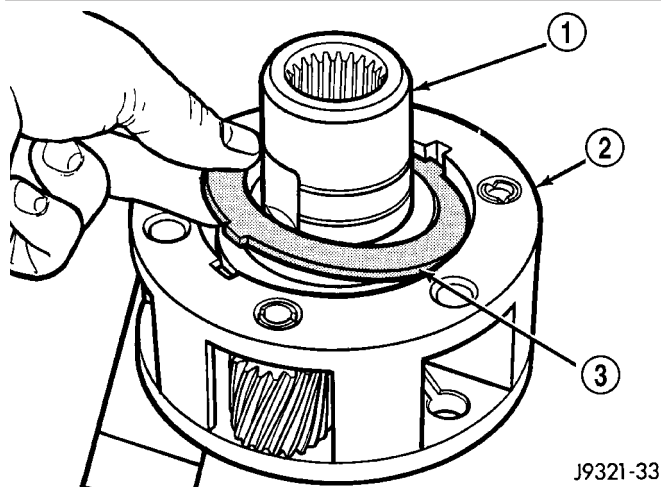
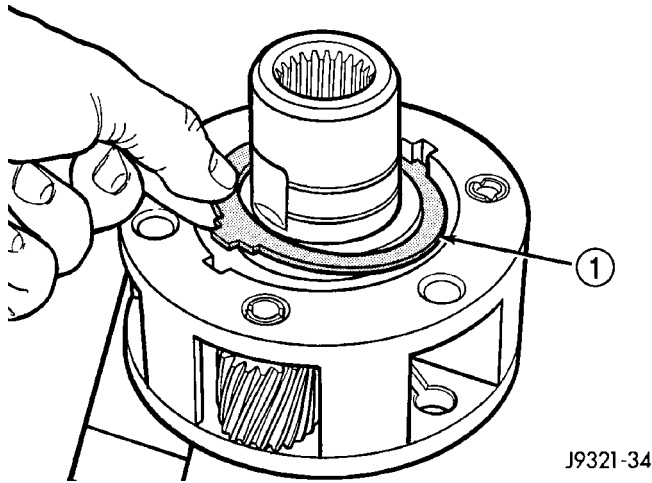


Fig. 36 Input Gear Retainer Removal

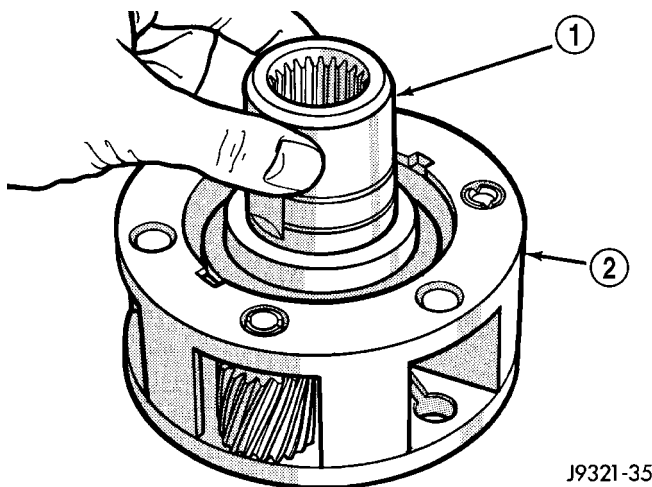
- 1 - INPUT GEAR
- 2 - LOW RANGE GEAR
- 3 - RETAINER

TRANSFER CASE - NV241 GENII (Continued)

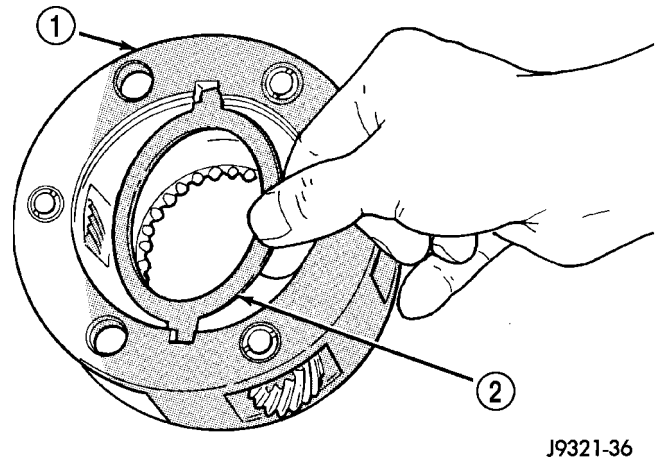
- (3) Remove front tabbed thrust washer (Fig. 37).
- (4) Remove input gear (Fig. 38).
- (5) Remove rear tabbed thrust washer from low range gear (Fig. 39).

**Fig. 37 Front Tabbed Thrust Washer Removal**

1 - FRONT TABBED THRUST WASHER

**Fig. 38 Input Gear Removal**1 - INPUT GEAR
2 - LOW RANGE GEAR**CLEANING**

Clean the transfer case parts with a standard parts cleaning solvent. Remove all traces of sealer from the cases and retainers with a scraper and 3M™ all purpose cleaner. Use compressed air to remove solvent residue from oil feed passages in the case halves, retainers, gears, and shafts.

**Fig. 39 Rear Tabbed Thrust Washer Removal**1 - LOW RANGE GEAR
2 - REAR TABBED THRUST WASHER**INSPECTION****MAINSHAFT/SPROCKET/HUB**

Inspect the splines on the hub and shaft and the teeth on the sprocket. Minor nicks and scratches can be smoothed with an oilstone, however, replace any part that is damaged.

Check the contact surfaces in the sprocket bore and on the mainshaft. Minor nicks and scratches can be smoothed with 320-400 grit emery cloth but do not try to salvage the shaft if nicks or wear is severe.

INPUT GEAR AND PLANETARY CARRIER

Check the teeth on the gear (Fig. 40). Minor nicks can be dressed off with an oilstone but replace the gear if any teeth are broken, cracked, or chipped. The bearing surface on the gear can be smoothed with 300-400 grit emery cloth if necessary.

Examine the carrier body and pinion gears for wear or damage. The carrier will have to be replaced as an assembly if the body, pinion pins, or pinion gears are damaged.

Check the lock ring and both thrust washers for wear or cracks. Replace them if necessary. Also replace the lock retaining ring if bent, distorted, or broken.

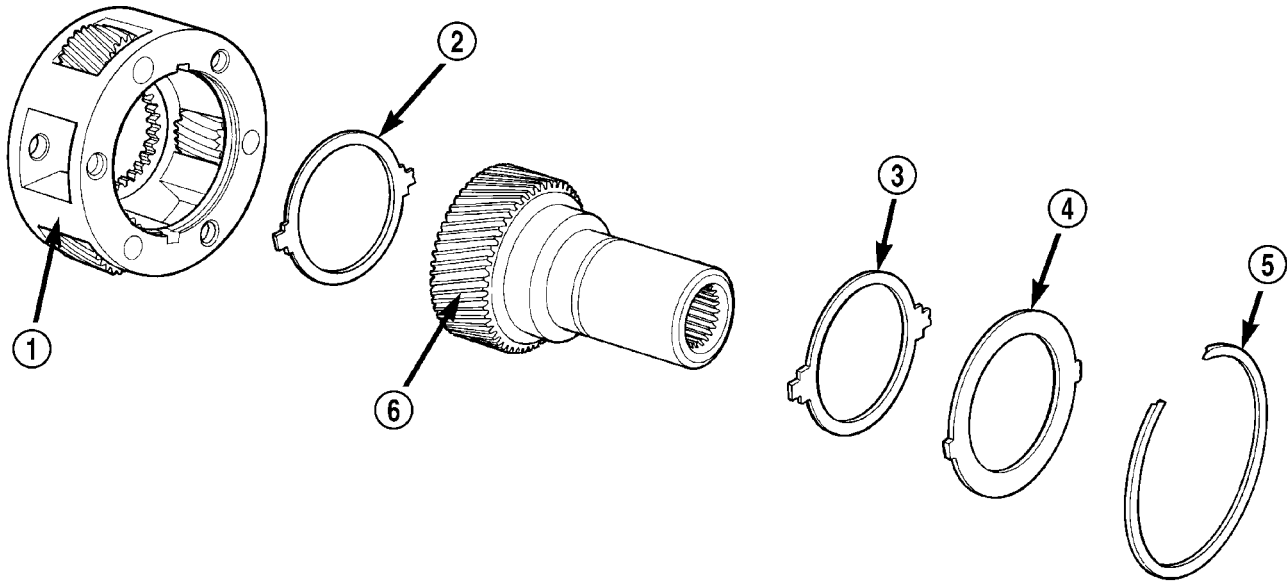
SHIFT FORKS/HUBS/SLEEVES

Check condition of the shift forks and mode fork shift rail (Fig. 41). Minor nicks on the shift rail can be smoothed with 320-400 grit emery cloth.

Inspect the shift fork wear pads (Fig. 42). The mode fork pads are serviceable and can be replaced if necessary. The range fork pads are not serviceable. The fork must be replaced as an assembly if the pads are worn or damaged.

Check both of the sleeves for wear or damage, especially on the interior teeth. Replace the sleeves if wear or damage is evident.

TRANSFER CASE - NV241 GENII (Continued)

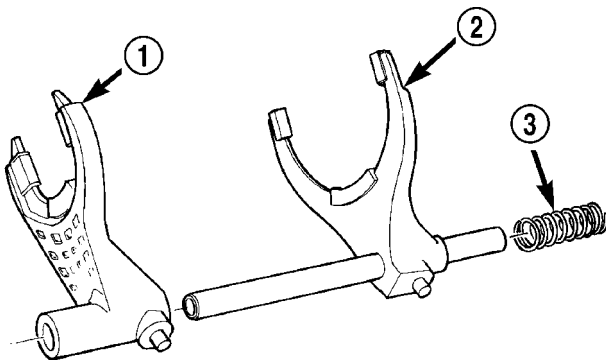


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Fig. 40 Input Gear And Carrier Components

- 1 - PLANETARY CARRIER
- 2 - REAR THRUST WASHER
- 3 - FRONT THRUST WASHER

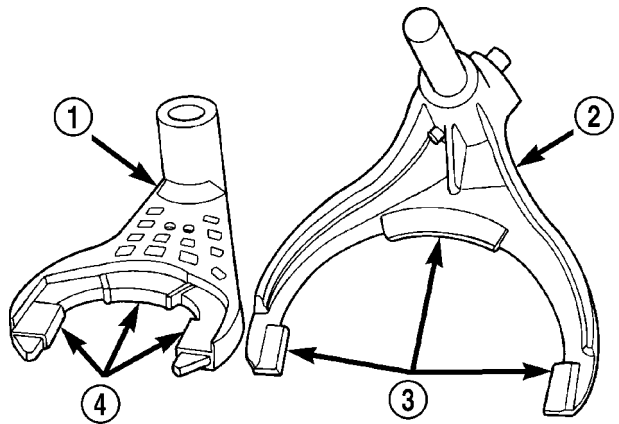
- 4 - CARRIER LOCK RING
- 5 - CARRIER LOCK RETAINING RING
- 6 - INPUT GEAR



80010948

Fig. 41 Shift Forks

- 1 - RANGE FORK
- 2 - MODE FORK AND RAIL
- 3 - MODE SPRING



8001097c

Fig. 42 Shift Fork And Wear Pad Locations

- 1 - RANGE FORK
- 2 - MODE FORK
- 3 - WEAR PADS (SERVICEABLE)
- 4 - WEAR PADS (SERVICEABLE)

REAR RETAINER COMPONENTS

Inspect the retainer components. Replace the bearing if rough or noisy. Check the retainer for cracks or wear in the bearing bore.

Inspect the retaining rings and washers. Replace any part if distorted, bent, or broken. Reuse is not recommended.

Inspect rear extension bushing. Replace if worn or scored.

DRIVE CHAIN

Examine the drive chain and shaft bearings. replace the chain if stretched, distorted, or if any of the links bind. Replace the bearings if rough, or noisy.

TRANSFER CASE - NV241 GENII (Continued)

LOW RANGE ANNULUS GEAR

Inspect annulus gear condition carefully. The gear is only serviced as part of the front case. If the gear is damaged, it will be necessary to replace the gear and front case as an assembly. Do not attempt to remove the gear (Fig. 43)

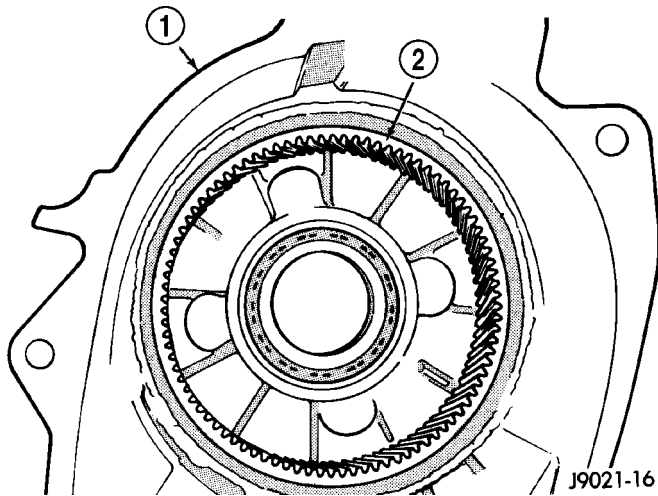


Fig. 43 Low Range Annulus Gear

- 1 - FRONT CASE
2 - LOW RANGE ANNULUS GEAR

FRONT CASE AND REAR CASE

Inspect the cases for wear and damage.

Check case condition. If leaks were a problem, look for gouges and severe scoring of case sealing surfaces. Also make sure the front case mounting studs are in good condition.

Check the front case mounting studs and vent tube. The tube can be secured with Loctite™ 271 or 680 if loose. The stud threads can be cleaned up with a die if necessary. Also check condition of the fill/drain plug threads in the rear case. The threads can be repaired with a thread chaser or tap if necessary. Or the threads can be repaired with Helicoil™ stainless steel inserts if required.

OIL PUMP/OIL PICKUP

Examine the oil pump pickup parts. Replace the pump if any part appears to be worn or damaged. Do not disassemble the pump as individual parts are not available. The pump is only available as a complete assembly. The pickup screen, hose, and tube are the only serviceable parts and are available separately.

ASSEMBLY**BEARINGS AND SEALS**

(1) Remove the input shaft bearing (Fig. 44) from the front case with suitable snap-ring pliers.

(2) Transfer the retaining ring to the new bearing if necessary and install the bearing into the front case.

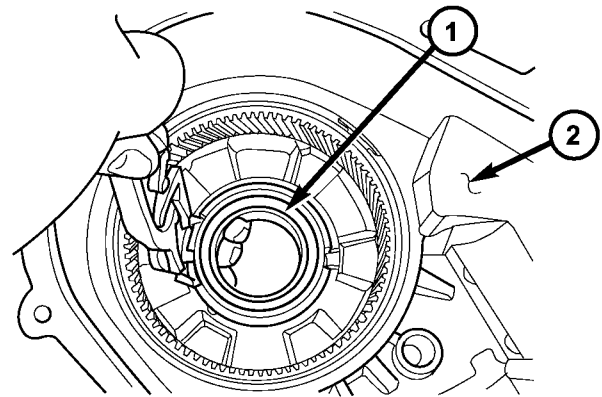


Fig. 44 Remove Input Gear Bearing

- 1 - INPUT GEAR BEARING
2 - FRONT CASE

(3) Using Installer 6436 and Handle C-4171 (Fig. 45), remove front output shaft bearing.

(4) Start front output shaft bearing in case. Then seat bearing with Handle C-4171 and Installer 6953.

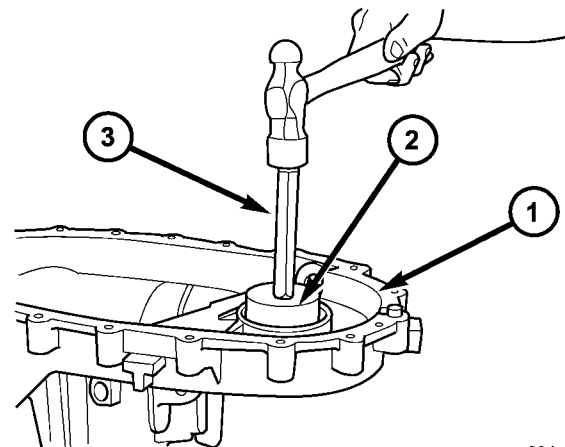


Fig. 45 Remove Front Output Shaft Bearing

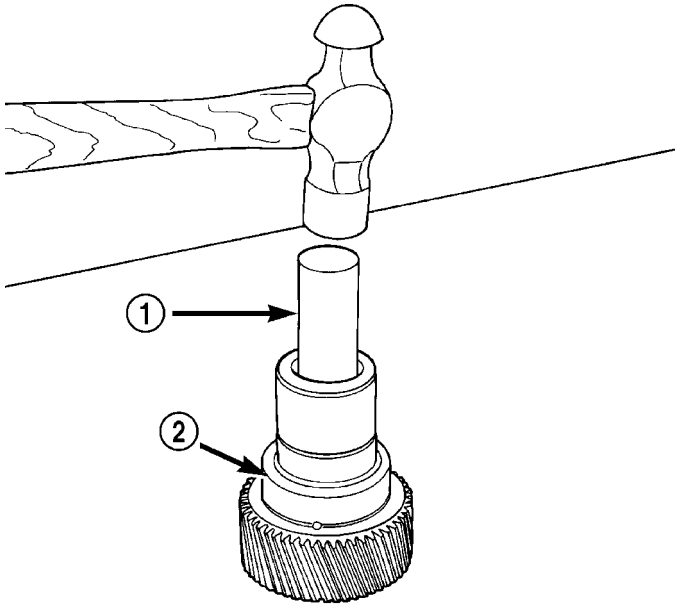
- 1 - FRONT CASE
2 - INSTALLER 6436
3 - HANDLE C-4171

TRANSFER CASE - NV241 GENII (Continued)

(5) Install front output shaft bearing retaining ring.

(6) Remove input gear pilot bearing by inserting a suitably sized drift into the splined end of the input gear and driving the bearing out with the drift and a hammer (Fig. 46).

(7) Install new pilot bearing with Remover/Installer 8684.



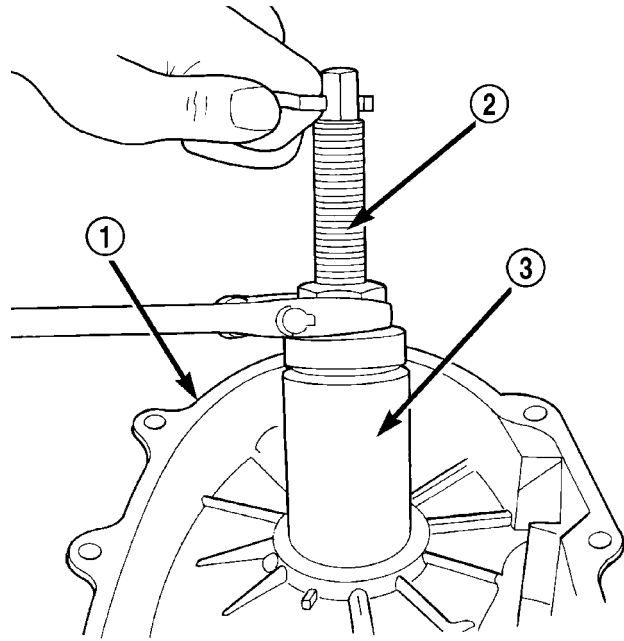
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Fig. 46 Remove Input Gear Cup Plug

- 1 - DRIFT
- 2 - INPUT GEAR

(8) Remove the front output shaft rear bearing with the screw and jaws from Remover L-4454 and Cup 8148 (Fig. 47).

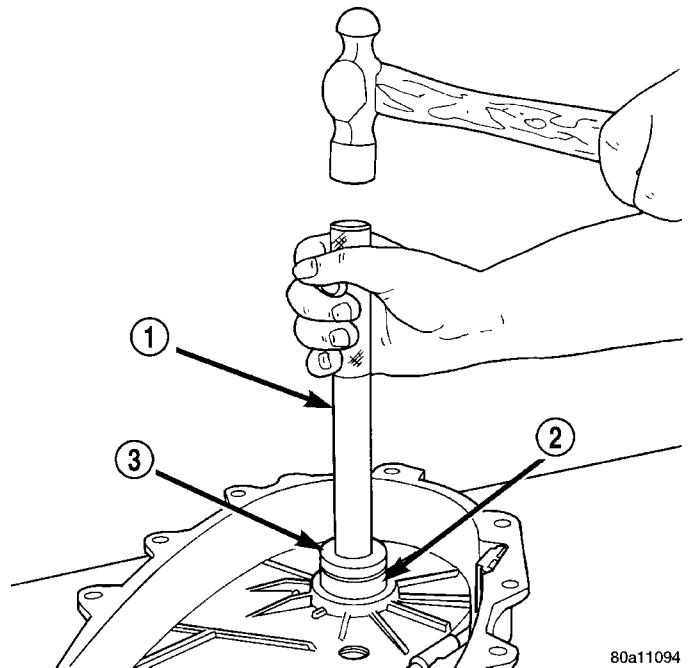
(9) Install new bearing with Tool Handle C-4171 and Installer 5066 (Fig. 48). The bearing bore is chamfered at the top. Install the bearing so it is flush with the lower edge of this chamfer (Fig. 49).



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Fig. 47 Front Output Shaft Rear Bearing Removal

- 1 - REAR CASE
- 2 - SPECIAL TOOL L-4454-1 AND L-4454-3
- 3 - SPECIAL TOOL 8148



80a11094

Fig. 48 Output Shaft Rear Bearing Installation

- 1 - HANDLE C-4171
- 2 - OUTPUT SHAFT INNER BEARING
- 3 - INSTALLER 5066

TRANSFER CASE - NV241 GENII (Continued)

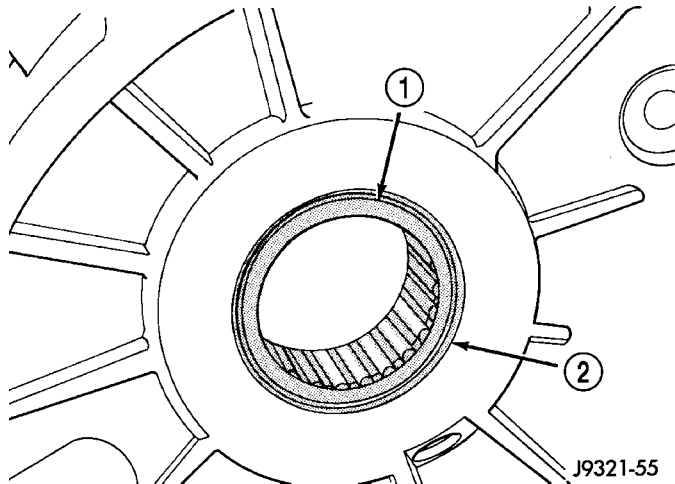


Fig. 49 Output Shaft Rear Bearing Installation Depth

- 1 - BEARING (SEATED) AT LOWER EDGE OF CHAMFER
- 2 - CHAMFER

(10) Remove the rear output shaft bearing from the rear case using Remover/Installer 8684 and Handle C-4171 (Fig. 50).

(11) Install the rear output shaft bearing (Fig. 51) into the rear case using Remover/Installer 6953 and Handle C-4171.

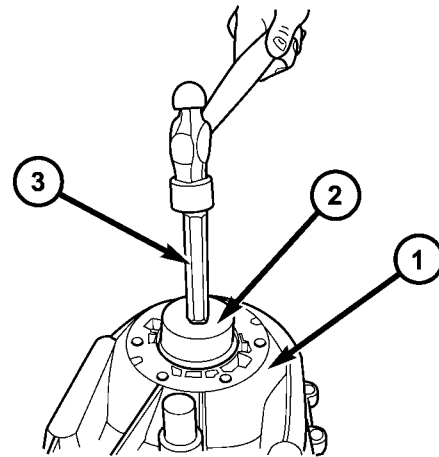


Fig. 51 Install Rear Output Shaft Bearing

- 1 - REAR CASE
- 2 - REMOVER/INSTALLER 6953
- 3 - HANDLE C-4171

(4) Install remaining thrust washer in low range gear and on top of input gear. Be sure washer tabs are properly aligned in gear notches.

(5) Install retainer on input gear and install snap-ring.

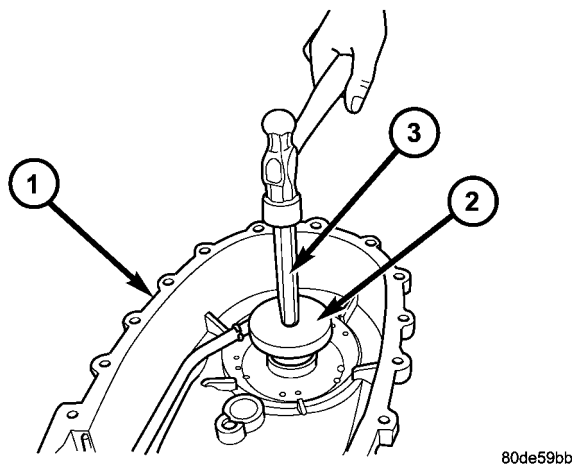


Fig. 50 Remove Rear Output Shaft Bearing

- 1 - REAR CASE
- 2 - REMOVER/INSTALLER 8684
- 3 - HANDLE C-4171

INPUT AND PLANETARY GEAR

(1) Lubricate gears and thrust washers (Fig. 52) with recommended transmission fluid.

(2) Install first thrust washer in low range gear (Fig. 52). Be sure washer tabs are properly aligned in gear notches.

(3) Install input gear in low range gear. Be sure input gear is fully seated.

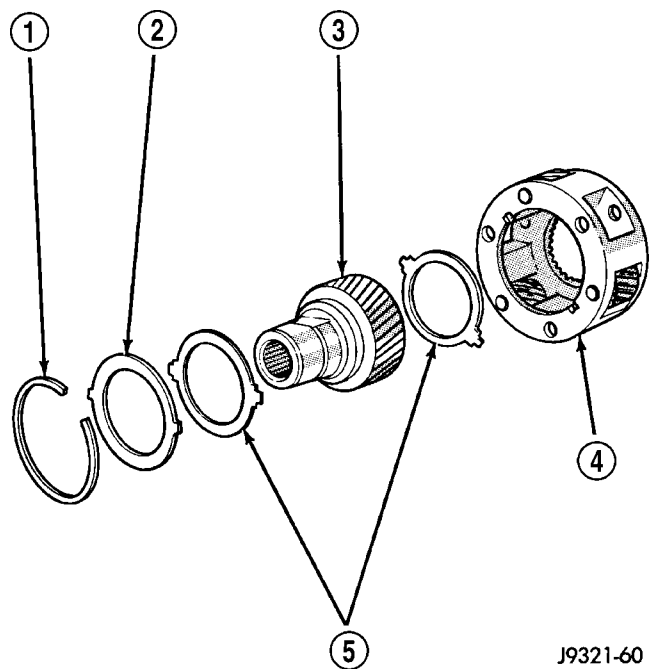


Fig. 52 Input/Low Range Gear Components

- 1 - SNAP-RING
- 2 - RETAINER PLATE
- 3 - INPUT GEAR
- 4 - LOW RANGE GEAR
- 5 - THRUST WASHERS

TRANSFER CASE - NV241 GENII (Continued)

(6) Align and install low range/input gear assembly in front case (Fig. 53). Be sure low range gear pinions are engaged in annulus gear and that input gear shaft is fully seated in front bearing.

(7) Install snap-ring to hold input/low range gear into front bearing (Fig. 54).

(8) Install a new input gear seal using Installer 8841 and Handle C-4171.

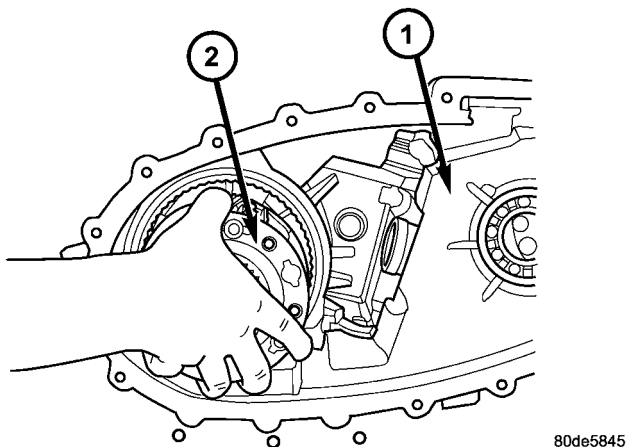


Fig. 53 Install Input Planetary Assembly

- 1 - FRONT CASE
- 2 - INPUT PLANETARY ASSEMBLY

SHIFT FORKS AND MAINSHAFT

(1) Lubricate mainshaft splines with recommended transmission fluid.

(2) Install the mode hub (Fig. 55) onto the output shaft.

(3) Install the mode hub retaining ring (Fig. 56) onto the output shaft.

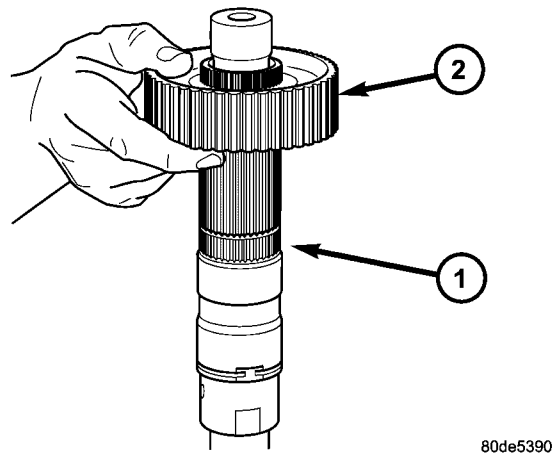


Fig. 55 Install Mode Hub

- 1 - OUTPUT SHAFT
- 2 - MODE HUB

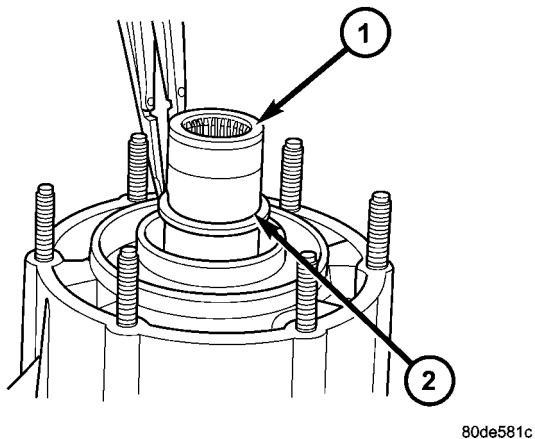


Fig. 54 Install Input Gear Retaining Ring

- 1 - INPUT GEAR
- 2 - RETAINING RING

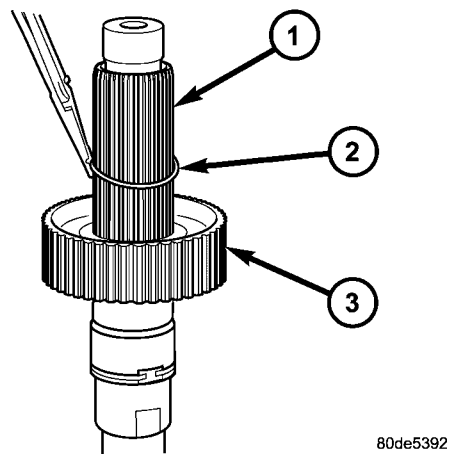


Fig. 56 Install Mode Hub Retaining Ring

- 1 - OUTPUT SHAFT
- 2 - RETAINING RING
- 3 - MODE HUB

TRANSFER CASE - NV241 GENII (Continued)

(4) Install the sprocket hub (Fig. 57) onto the output shaft.

(5) Install the clutch gear (Fig. 58) onto the output shaft.

(6) Install the drive sprocket (Fig. 59) onto the output shaft.

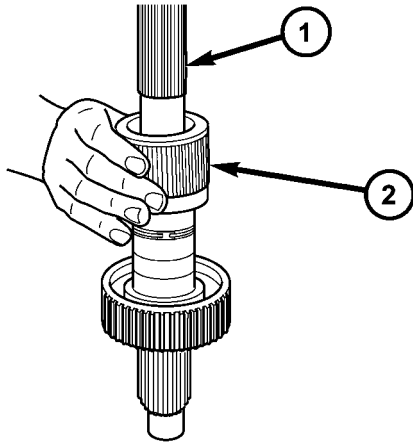


Fig. 57 Install Sprocket Hub

- 1 - OUTPUT SHAFT
- 2 - SPROCKET HUB

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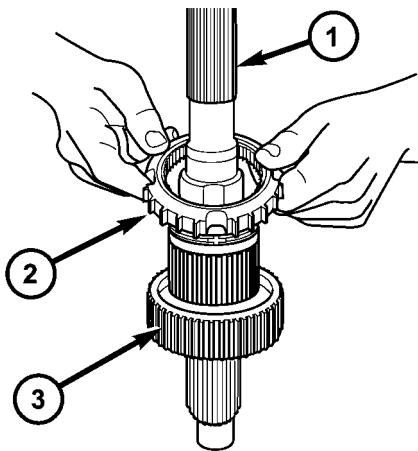
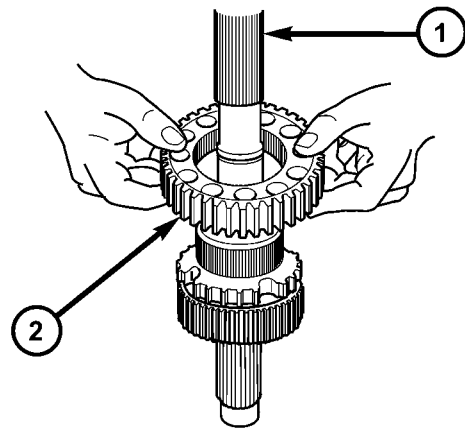


Fig. 58 Install Clutch Gear

- 1 - OUTPUT SHAFT
- 2 - CLUTCH GEAR
- 3 - MODE HUB

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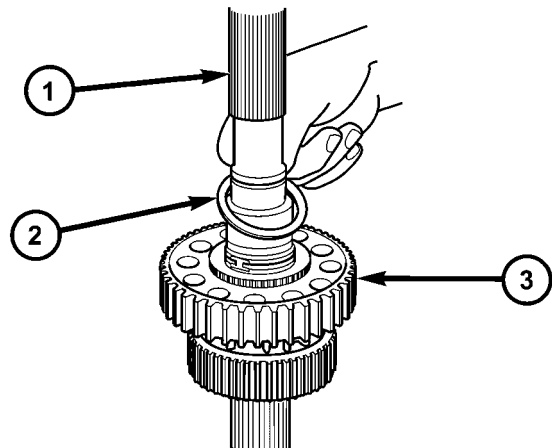


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Fig. 59 Install Drive Sprocket

- 1 - OUTPUT SHAFT
- 2 - DRIVE SPROCKET

(7) Install the drive sprocket thrust washer (Fig. 60) onto the output shaft.



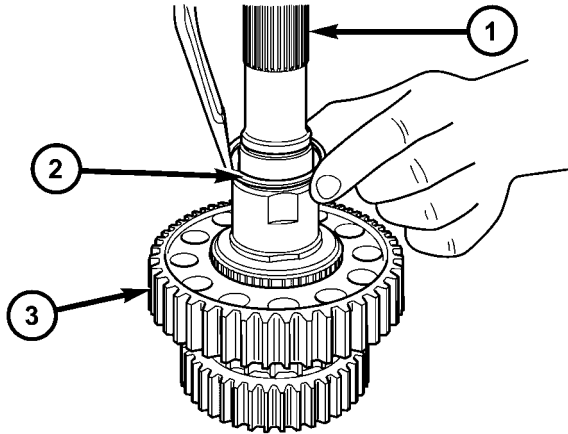
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Fig. 60 Install Drive Sprocket Thrust Washer

- 1 - OUTPUT SHAFT
- 2 - THRUST WASHER
- 3 - DRIVE SPROCKET

TRANSFER CASE - NV241 GENII (Continued)

(8) Install the drive sprocket retaining ring (Fig. 61) onto the output shaft.



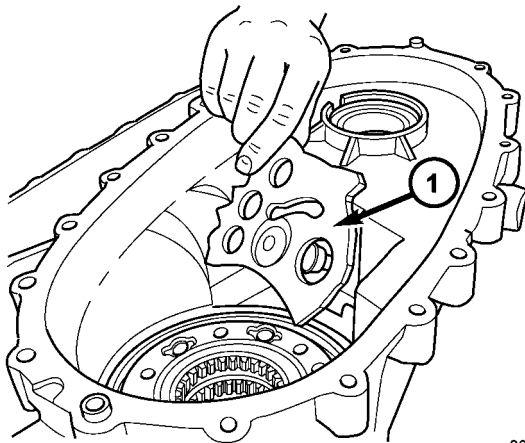
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Fig. 61 Install The Drive Sprocket Retaining Ring

- 1 - OUTPUT SHAFT
- 2 - RETAINING RING
- 3 - DRIVE SPROCKET

(9) Lubricate sector shaft with transmission fluid and install shift sector in case (Fig. 62). Position slot in sector so it will be aligned with shift fork pin when shift forks are installed.

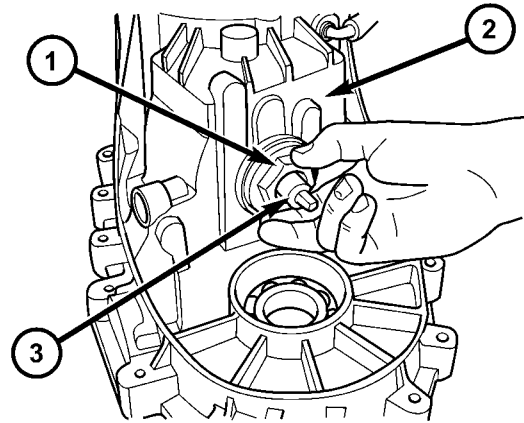
(10) Install the shift sector support (Fig. 63). Tighten the sector support to 27-42 N·m (20-30 ft.lbs.).



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Fig. 62 Install Shift Sector

- 1 - SHIFT SECTOR



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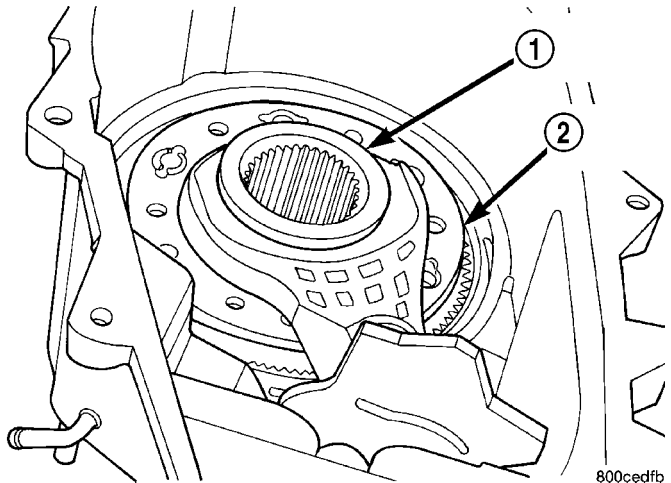
Fig. 63 Install Sector Support

- 1 - SECTOR SUPPORT
- 2 - FRONT CASE
- 3 - SECTOR SHAFT

(11) Assemble and install range fork and hub (Fig. 64). Be sure hub is properly seated in low range gear and engaged to the input gear.

(12) Align and insert range fork pin in shift sector slot.

(13) Install the range fork retaining ring.



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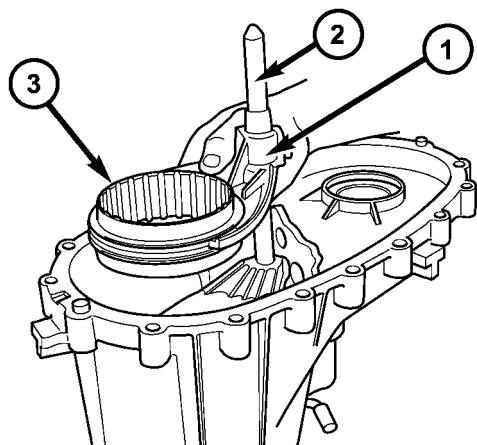
Fig. 64 Install Range Fork And Hub Assembly

- 1 - RANGE HUB
- 2 - RANGE FORK

TRANSFER CASE - NV241 GENII (Continued)

(14) Install mode fork and shift rail onto the mode sleeve.

(15) Install the mode fork, sleeve, and shift rail into the transfer case (Fig. 65).

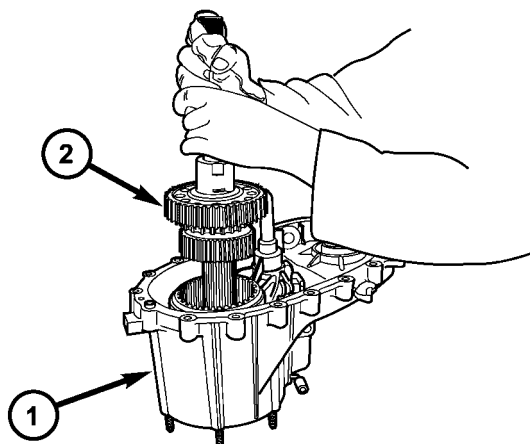


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Fig. 65 Install Mode Fork and Shift Rail

- 1 - MODE FORK
- 2 - SHIFT RAIL
- 3 - MODE SLEEVE

(16) Install mainshaft into the transfer case (Fig. 66). Guide mainshaft through the mode and range sleeves and into the input gear.

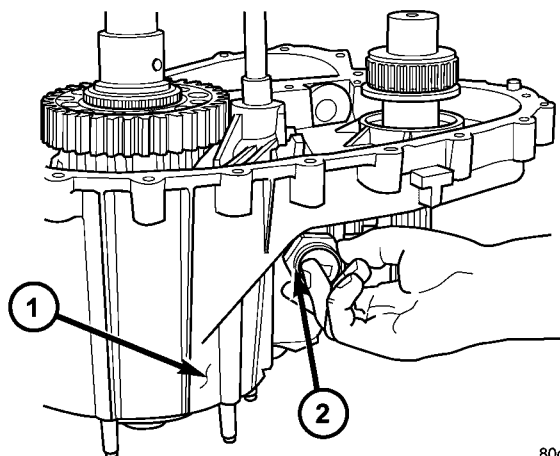


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Fig. 66 Install Mainshaft

- 1 - FRONT CASE
- 2 - MAINSHAFT

(17) Install the transfer case position sensor (Fig. 67). Tighten the sensor to 20-34 N·m (16-25 ft. lbs.) torque.



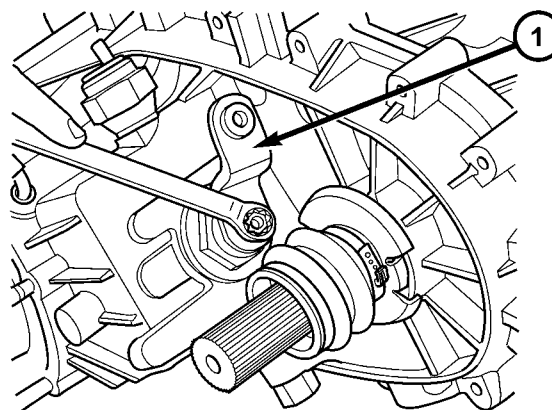
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Fig. 67 Install Position Sensor

- 1 - FRONT CASE
- 2 - POSITION SENSOR

(18) Install range lever on sector shaft (Fig. 68).

(19) Install washer and nut on sector shaft to secure shift lever. Apply 1-2 drops Mopar® Lock N' Seal, or equivalent, to nut threads before installation. Then tighten nut to 27-34 N·m (20-25 ft. lbs.) torque.



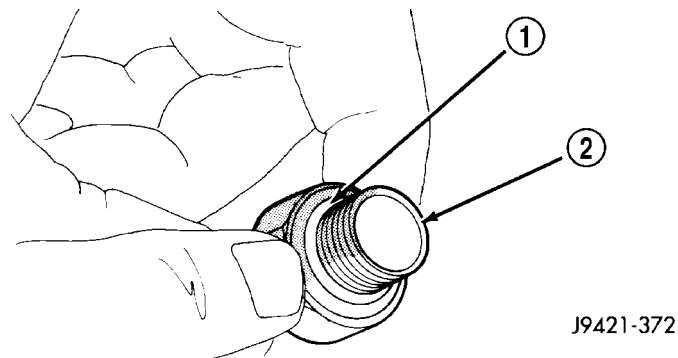
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Fig. 68 Install Range Lever Nut

- 1 - RANGE LEVER

TRANSFER CASE - NV241 GENII (Continued)

- (20) Install new o-ring on detent plug (Fig. 69).
- (21) Install detent plunger, spring, and plug (Fig. 70). Tighten the plug to 16-25 N·m (12-18 ft. lbs.).



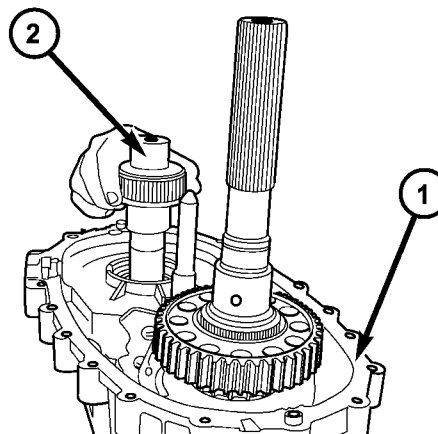
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Fig. 69 O-Ring Installation On Detent Plug

- 1 - O-RING
- 2 - DETENT PLUG

FRONT OUTPUT SHAFT AND DRIVE CHAIN

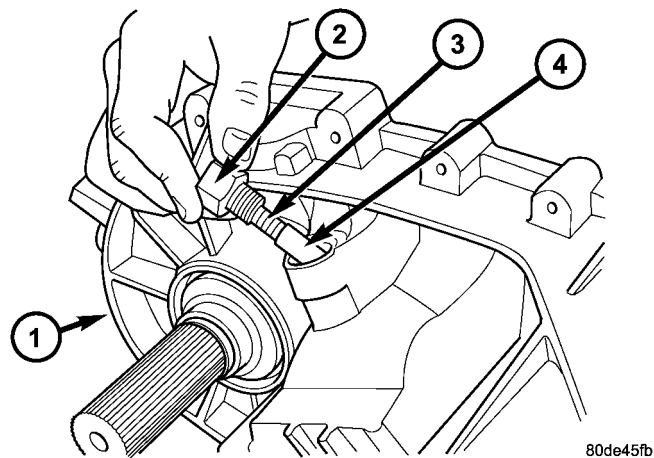
- (1) Install the front output shaft (Fig. 71) into the front output shaft bearing.
- (2) Install the front output shaft retaining ring (Fig. 72) onto the output shaft.
- (3) Install the new front output shaft seal with Installer MB991168A



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Fig. 71 Install Front Output Shaft

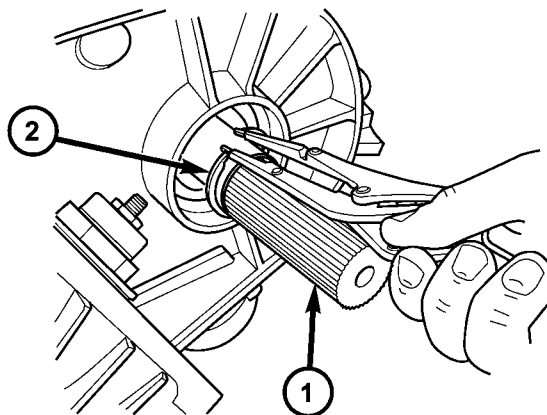
- 1 - FRONT CASE
- 2 - FRONT OUTPUT SHAFT



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Fig. 70 Install Detent Plug, Spring, and Plunger

- 1 - FRONT CASE
- 2 - DETENT PLUG
- 3 - DETENT SPRING
- 4 - DETENT PLUNGER



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Fig. 72 Install Front Output Shaft Snap-ring

- 1 - FRONT OUTPUT SHAFT
- 2 - SNAP-RING

TRANSFER CASE - NV241 GENII (Continued)

- (4) Insert front sprocket in drive chain.
- (5) Install drive chain around mainshaft sprocket (Fig. 73). Then position front sprocket over front shaft.
- (6) Raise mainshaft about 2.54 cm (one inch) and seat front sprocket on front output shaft.

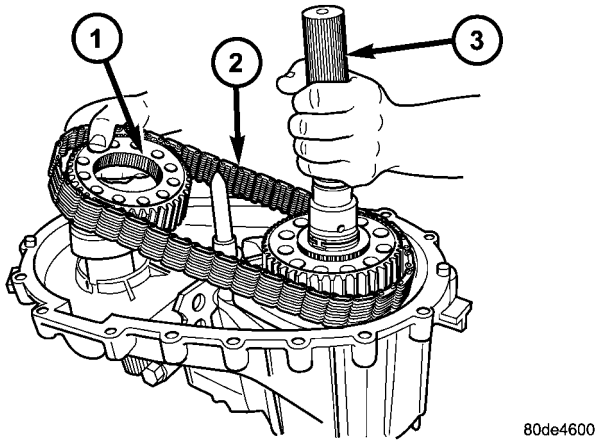


Fig. 73 Install Front Sprocket and Drive Chain

- 1 - FRONT DRIVE SPROCKET
- 2 - DRIVE CHAIN
- 3 - MAINSHAFT

- (7) If mainshaft and mode sleeve were unseated during chain installation, align and reseat mainshaft in input gear and hub.

- (8) Install front sprocket retaining ring (Fig. 74).

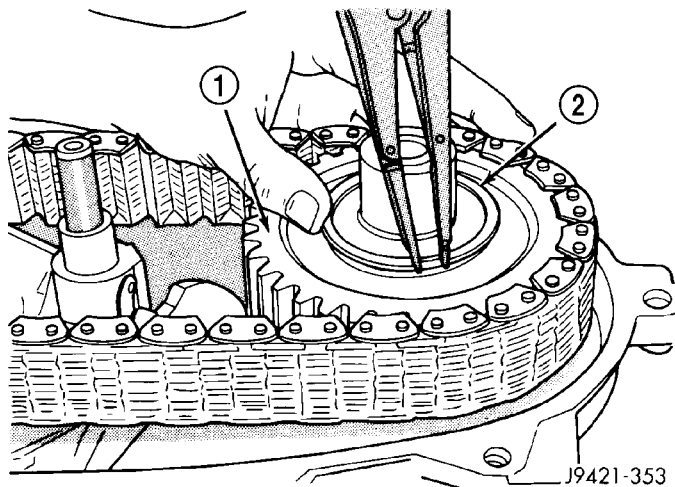


Fig. 74 Front Sprocket Retaining Ring Installation

- 1 - FRONT SPROCKET
- 2 - RETAINING RING

- (9) Install spring and cup on shift rail (Fig. 75).

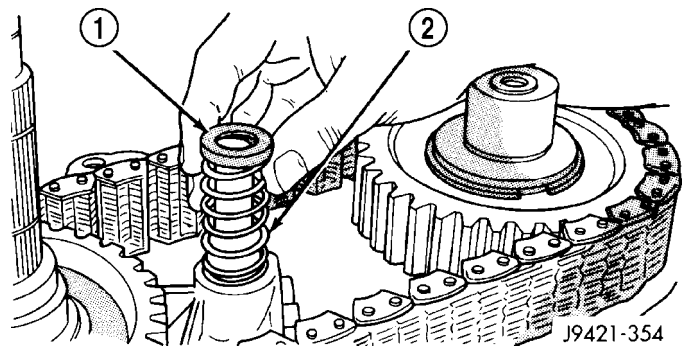


Fig. 75 Shift Rail Spring And Cup Installation

- 1 - CUP
- 2 - SPRING

- (10) Insert magnet in front case pocket (Fig. 76).

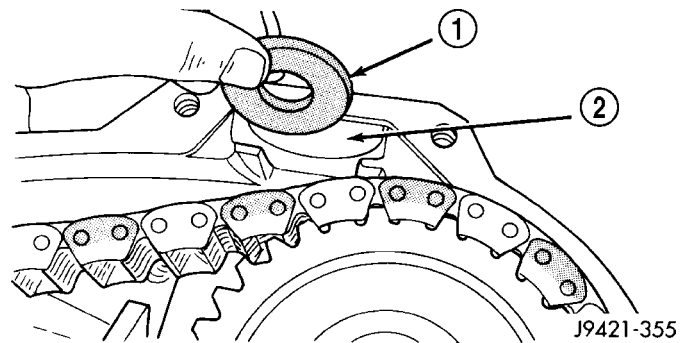


Fig. 76 Case Magnet Installation

- 1 - MAGNET
- 2 - CASE POCKET

OIL PUMP AND REAR CASE

CAUTION: Do not remove the bolts holding the oil pump cover to the rear case half. The oil pump cover is aligned to the rear output shaft inner bearing race and will become mis-aligned if the bolts are loosened. If the transfer case failure has generated any debris which may have become trapped in the oil pump, the rear case and oil pump assembly **MUST** be replaced.

- (1) Apply bead of Mopar® Gasket Maker, or equivalent, to mating surface of front case. Keep sealer bead width to maximum of 3/16 inch. Do not use excessive amount of sealer as excess will be displaced into case interior.

TRANSFER CASE - NV241 GENII (Continued)

(2) Align oil pump with mainshaft and align shift rail with bore in rear case. Then install rear case and oil pump assembly (Fig. 77).

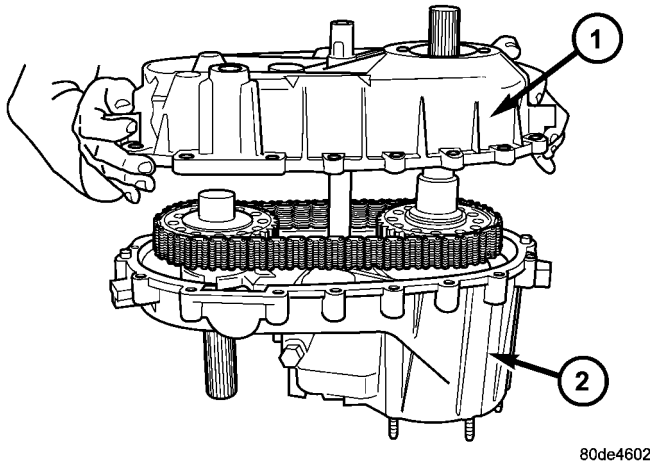


Fig. 77 Install Rear Case

- 1 - REAR CASE
- 2 - FRONT CASE

(3) Install 4-5 rear case-to front case bolts (Fig. 78) to hold rear case in position. Tighten bolts snug but not to specified torque at this time.

CAUTION: Verify that shift rail, and case alignment dowels are seated before installing any bolts. Case could be cracked if shaft rail or dowels are misaligned.

(4) Apply Loctite™ 242 to remainder of rear case-to-front case bolt threads and install bolts. Tighten bolts to 20-27 N·m (15-24 ft. lbs.),

(5) Install rear output bearing snap-ring (Fig. 79) to output shaft.

SEAL BOOT

(1) Install the front output shaft seal slinger with Installer 8840. Install the slinger onto the shaft until the tool contacts the rear of the output shaft.

(2) Install a new seal boot clamp onto the seal boot.

(3) Install the seal boot and clamp onto the slinger hub and tighten the clamp with Crimp Tool C-4975-A.

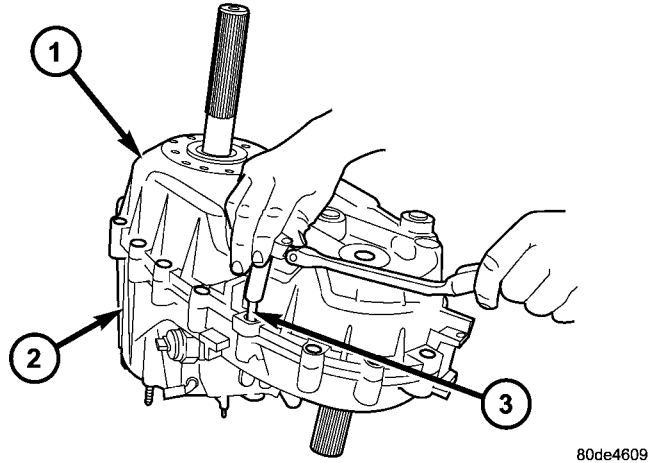


Fig. 78 Install Case Bolts

- 1 - REAR CASE
- 2 - FRONT CASE
- 3 - BOLT

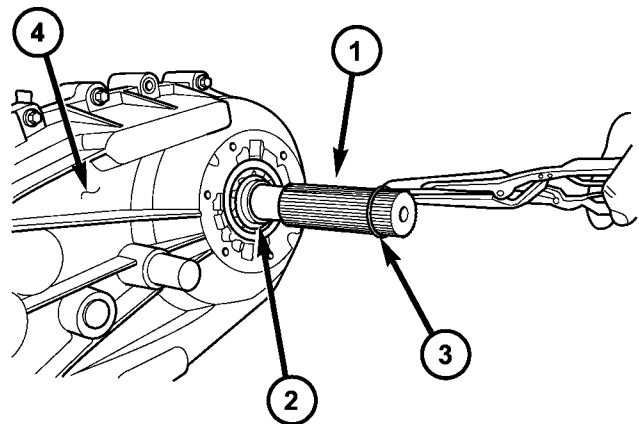


Fig. 79 Install Output Shaft Retaining Ring

- 1 - REAR OUTPUT SHAFT
- 2 - OUTPUT SHAFT BEARING
- 3 - RETAINING RING
- 4 - TRANSFER CASE

TRANSFER CASE - NV241 GENII (Continued)

REAR EXTENSION

- (1) Install new seal in rear extension housing seal with Installer D-163 and Handle C-4171..
- (2) Apply bead of Mopar® Gasket Maker, or equivalent, to mating surface of rear extension housing. Keep sealer bead width to maximum of 3/16 inch. Do not use excessive amount of sealer as excess could be displaced into output bearing.
- (3) Align and install rear extension on retainer (Fig. 80).

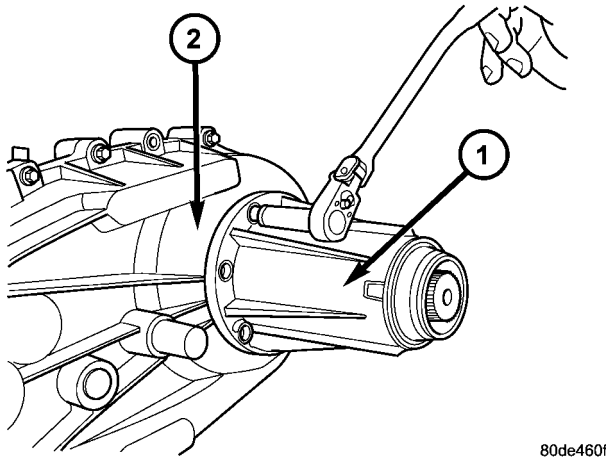


Fig. 80 Install Rear Extension Bolts

- 1 - EXTENSION HOUSING
- 2 - TRANSFER CASE

- (4) Apply Mopar® Silicone Sealer to threads of rear extension housing bolts. Then install and tighten bolts to 16-24 N·m (12-18 ft. lbs.) torque.

SPECIFICATIONS

TRANSFER CASE - NV241 GENII

TORQUE SPECIFICATIONS

DESCRIPTION	N-m	Ft. Lbs.	In. Lbs.
Plug, Detent	16-24	12-18	-
Plug, Drain/Fill	40-45	30-40	-
Bolt, Extension Housing	16-24	12-18	-
Bolt, Case Half	20-27	15-24	-
Screw, Oil Pump	12-16	8-12	-
Nut, Range Lever	27-34	20-25	-
Sector Support	27-42	20-30	-
Nuts, Mounting	30-41	20-30	-
Position Sensor	20-34	16-25	-

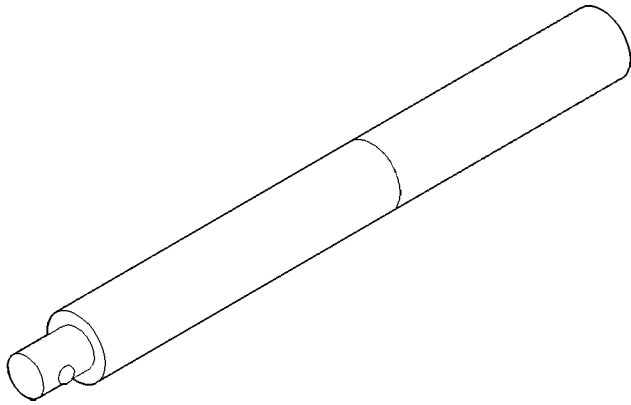
INSTALLATION

- (1) Align and seat transfer case on transmission. Be sure transfer case input gear splines are aligned with transmission output shaft. Align splines by rotating transfer case rear output shaft yoke if necessary. Do not install any transfer case attaching nuts until the transfer case is completely seated against the transmission.
- (2) Install and tighten transfer case attaching nuts. Tighten nuts to 30-41 N·m (20-30 ft.lbs.).
- (3) Remove jack stand from under transmission.
- (4) Align and connect propeller shafts. (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - INSTALLATION)
- (5) Connect vent hose and transfer case position sensor connector.
- (6) Connect shift rod to transfer case lever or floor shift arm. Use channel lock style pliers to press rod back into lever grommet.
- (7) Adjust shift linkage, if necessary.
- (8) Fill transfer case with recommended transmission fluid and install fill plug.
- (9) Install skid plate, if equipped. (Refer to 13 - FRAMES & BUMPERS/FRAME/TRANSFER CASE SKID PLATE - INSTALLATION)
- (10) Lower vehicle

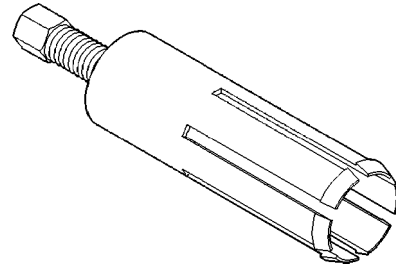
TRANSFER CASE - NV241 GENII (Continued)

SPECIAL TOOLS

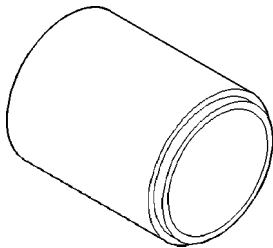
TRANSFER CASE - NV241/NV243



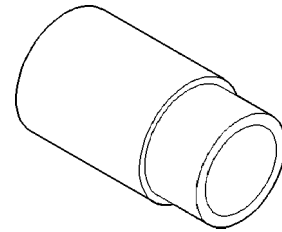
Handle, Universal - C-4171



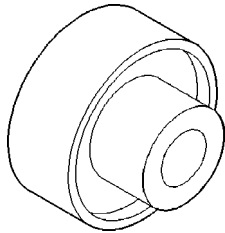
Remover, Bushing - 6957



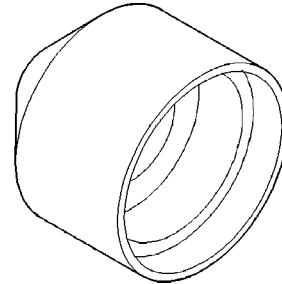
Installer, Seal - 6888



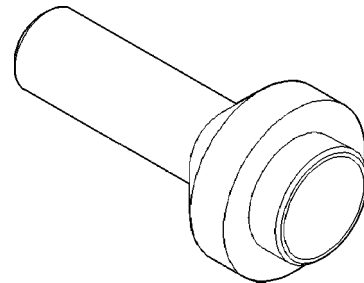
Installer, Bushing - 8157



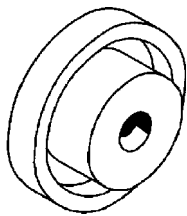
Installer, Bearing - 6953



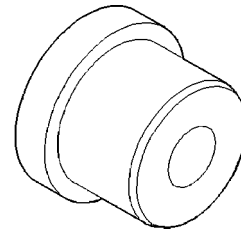
Installer, Seal - D-163



Installer, Seal - 7884

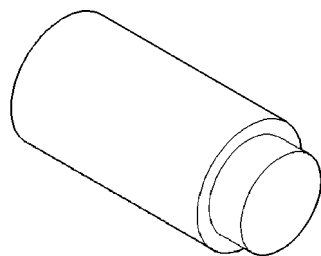
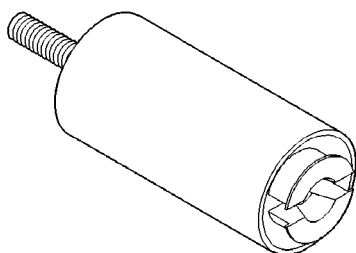
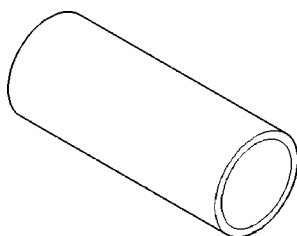
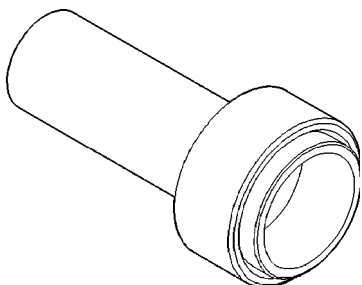


Installer, Seal - C-4210



Installer, Bushing - 5066

TRANSFER CASE - NV241 GENII (Continued)

**Plug, Extension - C-293-3****Remover - L-4454****Cup - 8148****Installer, Pump Housing Seal - 7888**

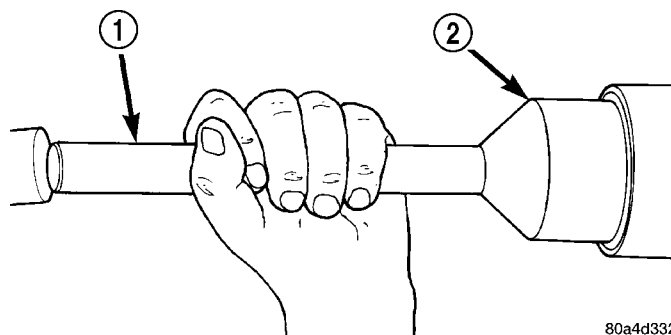
EXTENSION HOUSING BUSHING AND SEAL

REMOVAL

- (1) Raise and support vehicle.
- (2) Remove rear propeller shaft. (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - REMOVAL)
- (3) Using a suitable pry tool or slide-hammer mounted screw, remove the extension housing seal.
- (4) Using Remover 8158, remove bushing from extension housing.

INSTALLATION

- (1) Clean fluid residue from sealing surface and inspect for defects.
- (2) Position replacement bushing in extension housing with fluid port in bushing aligned with slot in housing.
- (3) Using Installer 8157, drive bushing into housing until installer seats against case.
- (4) Using Installer D-163, install seal in extension housing (Fig. 81).



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Fig. 81 Install Rear Seal in Extension Housing

- 1 - SPECIAL TOOL C-4171
- 2 - SPECIAL TOOL D-163

- (5) Install propeller shaft. (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - INSTALLATION)
- (6) Verify proper transfer case fluid level.
- (7) Lower vehicle.

FLUID

STANDARD PROCEDURE - FLUID DRAIN AND REFILL

The fill and drain plugs are both in the rear case (Fig. 82).

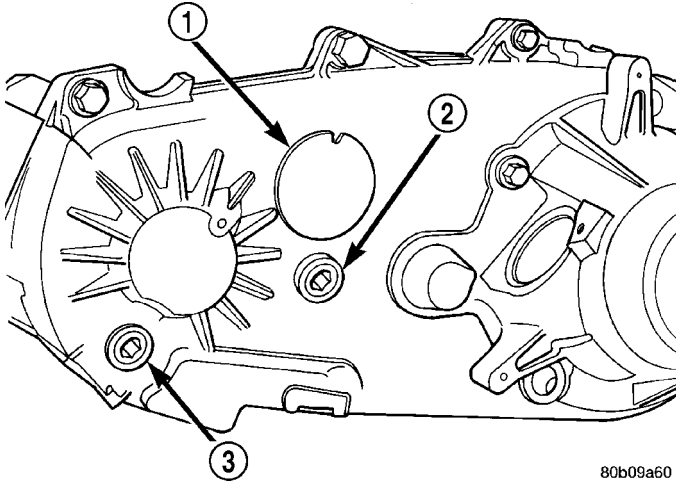


Fig. 82 Fill/Drain Plug and I.D. Tag Location - Typical

- 1 - I.D. TAG
- 2 - FILL PLUG
- 3 - DRAIN PLUG

- (1) Raise vehicle.
- (2) Position drain pan under transfer case.
- (3) Remove drain and fill plugs and drain lubricant completely.
- (4) Install drain plug. Tighten plug to 41-54 N-m (30-40 ft. lbs.).
- (5) Remove drain pan.
- (6) Fill transfer case to bottom edge of fill plug opening with Mopar® ATF +4, Automatic Transmission fluid.
- (7) Install and tighten fill plug to 41-54 N-m (30-40 ft. lbs.).
- (8) Lower vehicle.

FRONT OUTPUT SHAFT SEAL

REMOVAL

(1) Remove the front propeller shaft (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - REMOVAL).

(2) Remove the front propeller shaft seal boot retaining clamp (Fig. 83).

(3) Remove the front propeller shaft seal boot (Fig. 84).

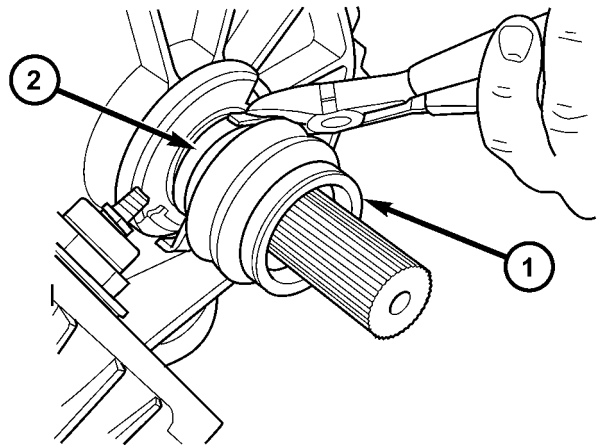


Fig. 83 Remove Boot Clamp

- 1 - SEAL BOOT
- 2 - BOOT CLAMP

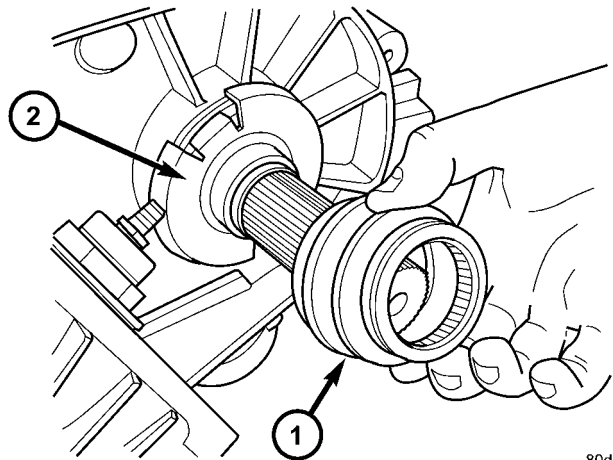


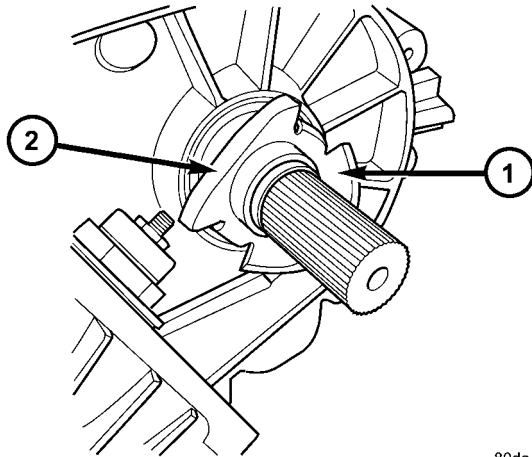
Fig. 84 Remove Seal Boot

- 1 - SEAL BOOT
- 2 - SEAL SLINGER

FRONT OUTPUT SHAFT SEAL (Continued)

(4) Remove the front output shaft seal slinger by bending (Fig. 85) the slinger ears away from the transfer case.

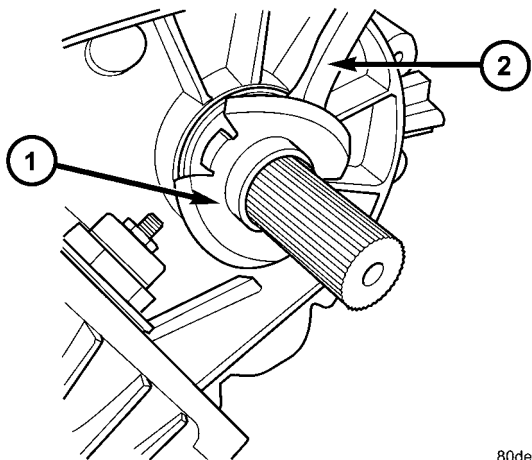
(5) Using a suitable pry tool (Fig. 86), remove the slinger from the output shaft using care not to damage the shaft.



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Fig. 85 Bend Slinger Ears

1 - SLINGER
2 - BEND UPWARD



80de4611

Fig. 86 Remove Slinger From Shaft

1 - SLINGER
2 - PRY TOOL

(6) Using a screw and a slide hammer, remove the front output shaft seal.

INSTALLATION

(1) Install the new front output shaft seal with Installer MB991168A

(2) Install the front output shaft seal slinger with Installer 8840. Install the slinger onto the shaft until the tool contacts the rear of the output shaft.

(3) Install a new seal boot clamp onto the seal boot.

(4) Install the seal boot and clamp onto the slinger hub and tighten the clamp with Crimp Tool C-4975-A.

(5) Install front propeller shaft (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - INSTALLATION).

POSITION SENSOR

DESCRIPTION

The transfer case position sensor is an electronic device whose output can be interpreted to indicate the transfer case's current operating mode. The sensor consists of a five position, resistive multiplexed circuit which returns a specific resistance value to the Powertrain Control Module (PCM) for each transfer case operating mode. The sensor is located on the top of the transfer case, just left of the transfer case centerline and rides against the sector plate rooster-comb. The PCM supplies 5VDC (+/- 0.5V) to the sensor and monitors the return voltage to determine the sector plate, and therefore the transfer case, position.

POSITION SENSOR (Continued)

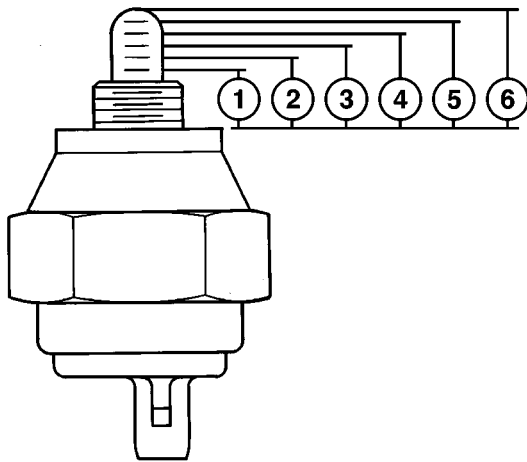
OPERATION

During normal vehicle operation, the Powertrain Control Module (PCM) monitors the transfer case position sensor return voltage to determine the oper-

ating mode of the transfer case. Refer to the Operating Mode Versus Resistance table for the correct resistance for each position (Fig. 87).

OPERATING MODE VERSUS RESISTANCE

SENSOR POSITION	OPERATING MODE	SENSOR RESISTANCE (ohms)
1	2H	1124-1243
2	4H	650-719
3	NEUTRAL	389-431
4	4L	199-221
5	NOT USED	57-64



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Fig. 87 Position Sensor Linear Movement

- 1 - POSITION 1 - 10mm ±0.5mm
- 2 - POSITION 2 - 12mm ±0.5mm
- 3 - POSITION 3 - 14mm ±0.5mm
- 4 - POSITION 4 - 16mm ±0.5mm
- 5 - POSITION 5 - 18mm ±0.5mm
- 6 - POSITION 6 - 20mm±0.5mm - FULL EXTENSION

REMOVAL

- (1) Raise and support the vehicle.
- (2) Disengage the transfer case position sensor connector from the position sensor.
- (3) Remove the position sensor from the transfer case.

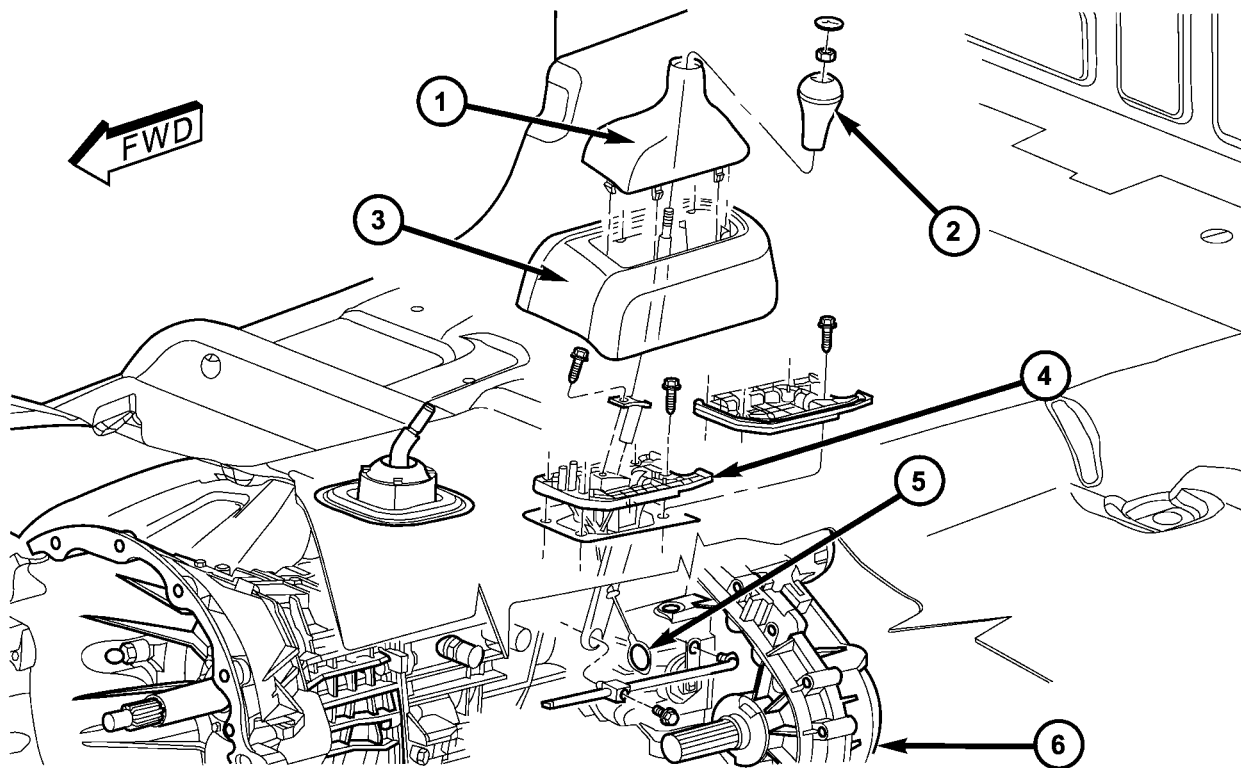
INSTALLATION

- (1) Inspect the o-ring seal on the transfer case position sensor. Replace the o-ring if necessary.
- (2) Install the transfer case position sensor into the transfer case. Torque the sensor to 20-34 N·m (15-25 ft.lbs.).
- (3) Engage the transfer case position sensor connector to the position sensor.
- (4) Lower vehicle.
- (5) Verify proper sensor operation.

SHIFT LEVER

REMOVAL

- (1) Shift transfer case into 2H.
- (2) Raise and support the vehicle.
- (3) Loosen adjusting trunnion lock bolt and slide shift rod out of trunnion. If rod lacks enough travel to come out of trunnion, push trunnion out of shift lever.
- (4) Lower vehicle.
- (5) Remove transfer case shifter knob cap.
- (6) Remove nut holding shifter knob to shift lever.
- (7) Remove shifter knob.
- (8) Remove the shift boot from the shifter console.
- (9) Remove the bolts securing the shifter mechanism to the floor pan (Fig. 88).
- (10) Separate shift lever mechanism from the vehicle.



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Fig. 88 Transfer Case Shifter

1 - SHIFTER BOOT
2 - SHIFTER KNOB
3 - SHIFTER CONSOLE

4 - SHIFTER MECHANISM
5 - ALIGNMENT PIN
6 - TRANSFER CASE

SHIFT LEVER (Continued)

INSTALLATION

(1) If the shifter mechanism does not have a adjustment locating pin installed, align the adjustment channel on the shifter assembly to the locating hole in the lower shift lever and install an appropriately sized pin to retain the position (Fig. 89).

(2) Position shift lever in vehicle.

(3) Install the bolts to hold the shifter mechanism to the floor pan.

(4) Raise vehicle.

(5) Verify that the transfer case is still in the 2H position. The 2H detent position on the transfer case shift arm is the second position from full forward.

(6) Install trunnion to shift lever, if necessary.

(7) Install shift rod to trunnion, if necessary.

(8) Tighten the shift rod lock bolt to 10 N·m (90 in.lbs.).

(9) Remove the shifter adjustment locating pin from the adjustment channel and the locating hole.

(10) Lower vehicle.

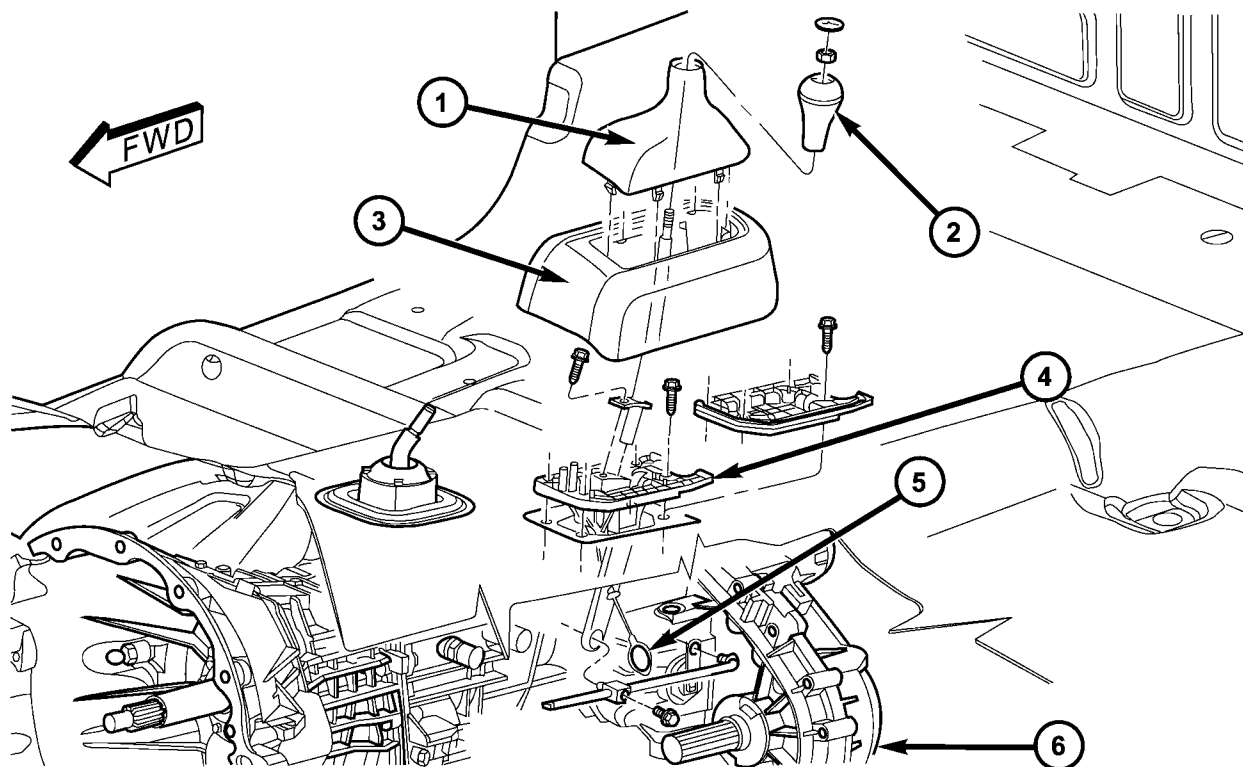
(11) Install the transfer case shifter console.

(12) Install the shifter boot and the shifter knob onto the shifter lever.

(13) Install nut to hold shifter knob to shift lever.

(14) Install shifter knob cap.

(15) Verify transfer case operation.



80de77d0

Fig. 89 Transfer Case Shifter

1 - SHIFTER BOOT
2 - SHIFTER KNOB
3 - SHIFTER CONSOLE

4 - SHIFTER MECHANISM
5 - ALIGNMENT PIN
6 - TRANSFER CASE

SHIFT LEVER (Continued)

ADJUSTMENTS

ADJUSTMENT - SHIFT LEVER

- (1) Move shift lever into 2H position.
- (2) Raise vehicle.
- (3) Loosen shift rod lock bolt at trunnion.
- (4) Check shift rod fit in trunnion. Be sure rod does not bind in trunnion. Lubricate the shift rod and trunnion if necessary.
- (5) Verify that transfer case shift lever is in 2H detent position. The 2H detent position on the transfer case shift arm is the second position from full forward.

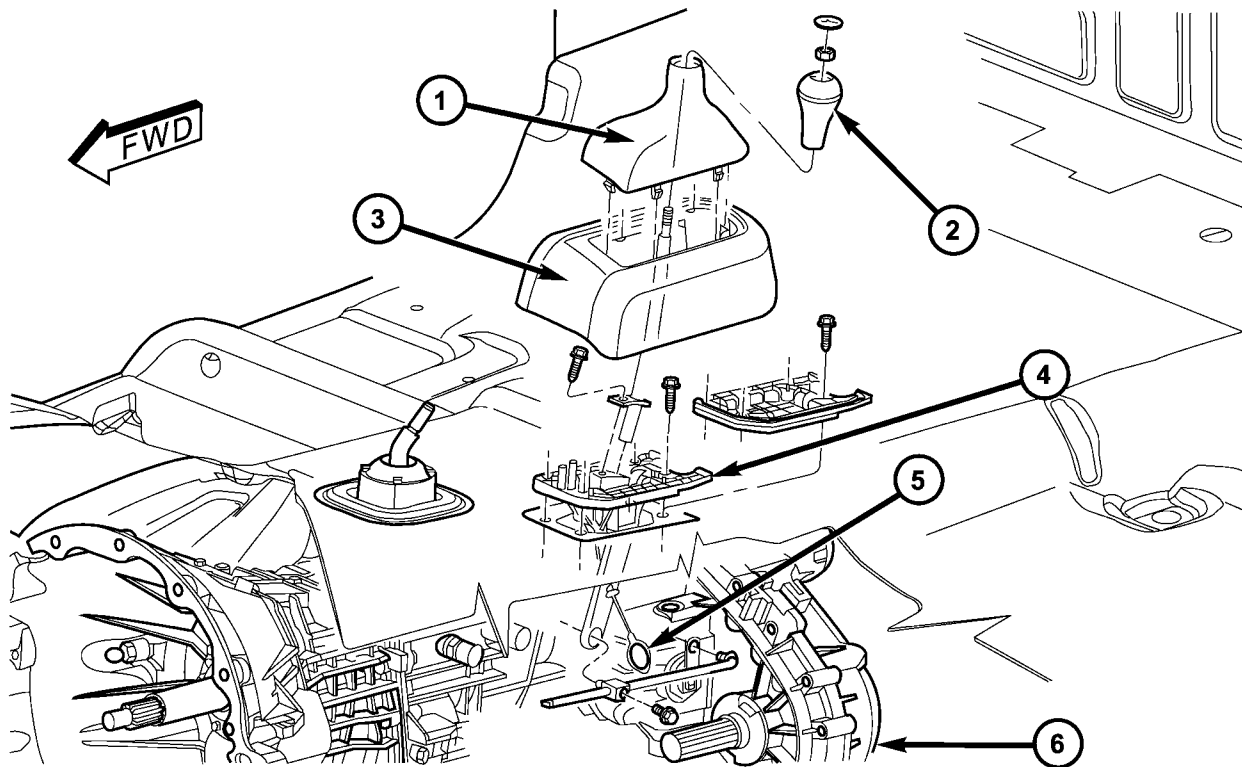
(6) Align the adjustment locating hole on the lower shifter lever with the adjustment channel on the shifter bracket assembly (Fig. 90).

(7) Insert an appropriately sized pin through into the adjustment channel and through the locating hole to hold the shifter in the correct position.

(8) Tighten shift rod lock bolt to 10 N·m (90 in. lbs.) torque.

(9) Remove the locating pin from the adjustment channel and locating hole.

(10) Check shift linkage operation. Be sure transfer case shifts into and operates properly in all ranges.



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Fig. 90 Transfer Case Shifter

1 - SHIFTER BOOT
2 - SHIFTER KNOB
3 - SHIFTER CONSOLE

4 - SHIFTER MECHANISM
5 - ALIGNMENT PIN
6 - TRANSFER CASE

TRANSFER CASE - NV271

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TRANSFER CASE - NV271

DESCRIPTION

The NV271 transfer case is a part-time transfer case with a low-range gear system. It provides three operating ranges plus a NEUTRAL position. The low range position provides a gear reduction ratio of 2.72:1 for increased low speed torque capability.

The gear cases and extension are all of aluminum (Fig. 1). Drive sprockets and an interconnecting drive chain are used to transmit engine torque to the front/rear propeller shafts. The mainshaft, input gear and front output shaft are supported by ball and needle bearings.

IDENTIFICATION

An identification tag (Fig. 2) is attached to the rear case of every transfer case. The tag provides the transfer case model number, assembly number, serial number, and low range ratio.

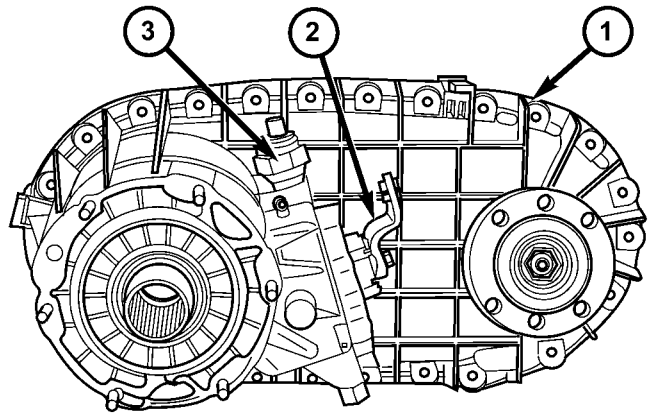
The transfer case serial number also represents the date of build.

OPERATION

OPERATING RANGE

Transfer case operating ranges are:

- 2H (2-wheel drive)
- 4H (4-wheel drive)
- 4LO (4-wheel drive low range)



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Fig. 1 Transfer Case - Front View

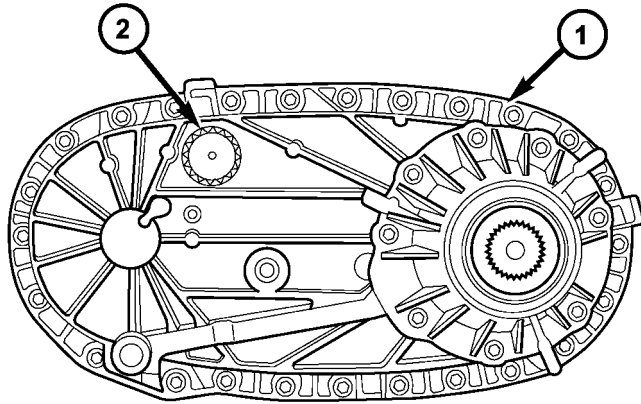
- 1 - TRANSFER CASE
- 2 - MANUAL LEVER
- 3 - POSITION SENSOR

The 2H range is for use on any road surface at any time.

The 4H and 4LO ranges are for off road use only. They are not for use on hard surface roads. The only exception being when the road surface is covered by ice and snow.

The low range reduction gear system is operative in 4LO range only. This range is for extra pulling power in off road situations. Low range reduction ratio is 2.72:1.

TRANSFER CASE - NV271 (Continued)



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Fig. 2 Transfer Case - Rear View

- 1 - TRANSFER CASE
- 2 - IDENTIFICATION TAG

SHIFT MECHANISM

The transfer case is operated by an adjustable floor mounted shift linkage. The transfer case shift lever is directly attached to the shift sector. The sector operates the range and mode forks within the transfer case.

A straight line shift pattern is used with a NEUTRAL detent. Lever range positions are imprinted in the shift knob.

SHIFTING

The transfer case can be shifted between the 2H and 4H operating ranges while the vehicle is in motion. The vehicle must have the transmission placed in NEUTRAL, or the clutch depressed in the case of a manual transmission, and be moving less than 2-3 MPH when shifting into and out of the 4L operating range.

DIAGNOSIS AND TESTING - TRANSFER CASE - NV271

Before beginning repair on a suspected transfer case malfunction, check all other driveline components beforehand.

The actual cause of a problem may be related to such items as: front hubs, axles, propeller shafts, wheels and tires, transmission, or clutch instead. If all other driveline components are in good condition and operating properly, refer to the Diagnosis Chart for further information.

DIAGNOSIS CHART

Condition	Possible Cause	Correction
Transfer Case difficult to shift or will not shift into desired range.	1) Vehicle speed too great to permit shifting. 2) If vehicle was operated for an extended period in 4H on a dry paved surface, the driveline torque load may be causing a bind. 3) Transfer case external shift linkage binding. 4) Insufficient or incorrect lubricant. 5) Internal components binding, worn, or damaged.	1) Stop vehicle and shift into desired range. Or, reduce speed to below 3-4 km/h (2-3 mph) before attempting the shift. 2) Stop vehicle and shift the transmission into neutral. Shift the transfer case to 2H and operate vehicle in 2H on dry paved surfaces. 3) Lubricate, repair, or replace linkage bushings, or tighten loose components as necessary. 4) Drain and refill to edge of fill hole with Mopar® ATF +4, Automatic Transmission fluid. 5) Disassemble the transfer case and replace worn or damaged components as necessary.
Transfer Case noisy in all operating ranges.	1) Insufficient or incorrect lubricant.	1) Drain and refill to edge of fill hole with Mopar® ATF +4, Automatic Transmission fluid.

TRANSFER CASE - NV271 (Continued)

Condition	Possible Cause	Correction
Noisy in, or jumps out of, four wheel drive low range.	1) Transfer case not completely engaged in 4L position. 2) Shift linkage out of adjustment. 3) Shift linkage loose or binding. 4) Range fork damaged, inserts worn, or fork is binding on the shift rail. 5) Low range gear worn or damaged.	1) With the transmission in NEUTRAL, or the clutch depressed in the case of a manual transmission and the vehicle moving under 3-4 km/h (2-3 mph), shift the transfer case to NEUTRAL and then shift into the 4L position. 2) Adjust linkage. 3) Tighten, lubricate, or repair linkage as necessary. 4) Disassemble unit and repair as necessary. 5) Disassemble unit and repair as necessary.
Lubricant leaking from output shaft seal or vent.	1) Transfer case overfilled. 2) Vent closed or restricted. 3) Output shaft seals damaged or installed incorrectly.	1) Drain lubricant to the correct level. 2) Clear or replace vent as necessary. 3) Replace seal as necessary. Check to ensure that another component, the propeller shaft slip yoke for example, is not causing damage to seal.
Abnormal tire wear.	1) Extended operation on hard, dry surfaces in the 4H position.	1) Operate vehicle in the 2H position on hard, dry surfaces.

REMOVAL

- (1) Raise and support vehicle.
- (2) Remove skid plate, if equipped. (Refer to 13 - FRAMES & BUMPERS/FRAME/TRANSFER CASE SKID PLATE - REMOVAL)
- (3) Position drain oil container under transfer case.
- (4) Remove transfer case drain plug and drain lubricant into container.
- (5) Disconnect vent hose and transfer case position sensor connector.
- (6) Disconnect shift rod from grommet in transfer case shift lever, or from floor shift arm whichever provides easy access. Use channel lock style pliers to press rod out of lever grommet.
- (7) Support transmission with jack stand.
- (8) Mark front and rear propeller shafts for assembly reference.
- (9) Remove front and rear propeller shafts. (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - REMOVAL)

- (10) Support transfer case with suitable jack. Secure transfer case to jack with safety chains.
- (11) Remove nuts attaching transfer case to transmission.
- (12) Move transfer case assembly rearward until free of transmission output shaft.
- (13) Lower jack and move transfer case from under vehicle.

DISASSEMBLY

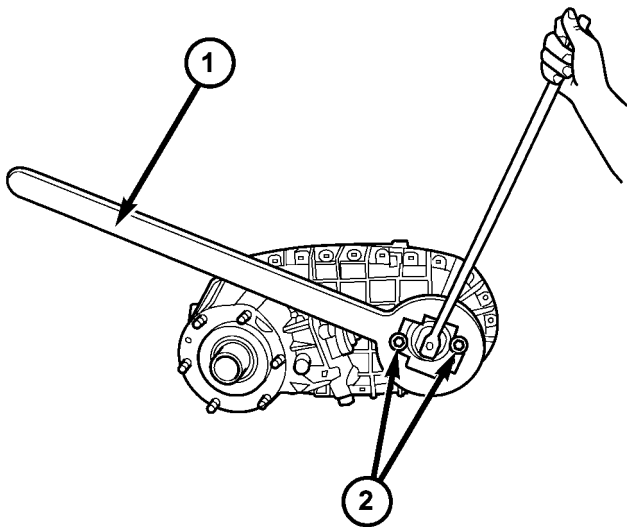
Position transfer case in a shallow drain pan. Remove drain plug and drain any remaining lubricant remaining in case.

COMPANION FLANGE AND EXTENSION HOUSING

- (1) Install two bolts 180° apart into the front output shaft companion flange.
- (2) Place holder over the bolts and against the companion flange (Fig. 3).
- (3) Remove and discard the front companion flange nut.

TRANSFER CASE - NV271 (Continued)

(4) Remove the companion flange from the front output shaft. It may be necessary to use Flange puller 8992 to remove the companion flange.



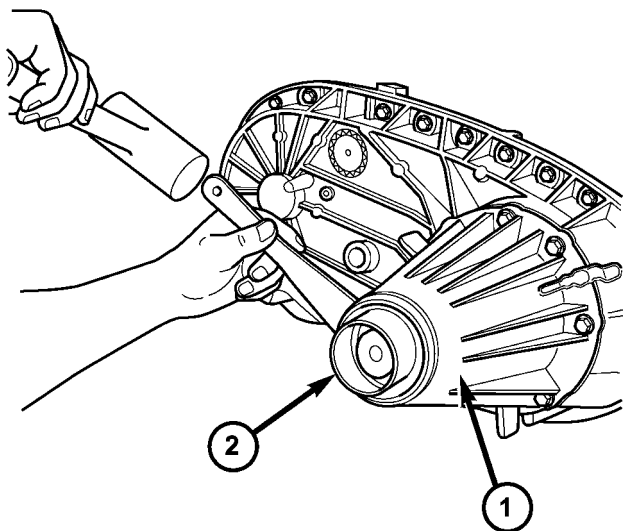
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Fig. 3 Remove Companion Flange Nut

- 1 - HOLDER 6719
- 2 - BOLTS

(5) Use a suitable chisel or pry tool to remove the rear extension housing dust boot (Fig. 4).

(6) Use a suitable chisel or pry tool to remove the rear extension housing seal.

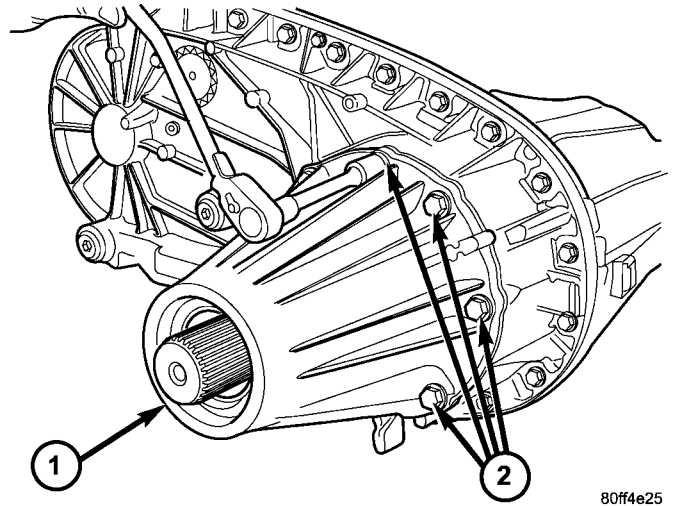


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Fig. 4 Remove Extension Housing Dust Boot

- 1 - EXTENSION HOUSING
- 2 - DUST BOOT

(7) Remove rear extension bolts (Fig. 5).

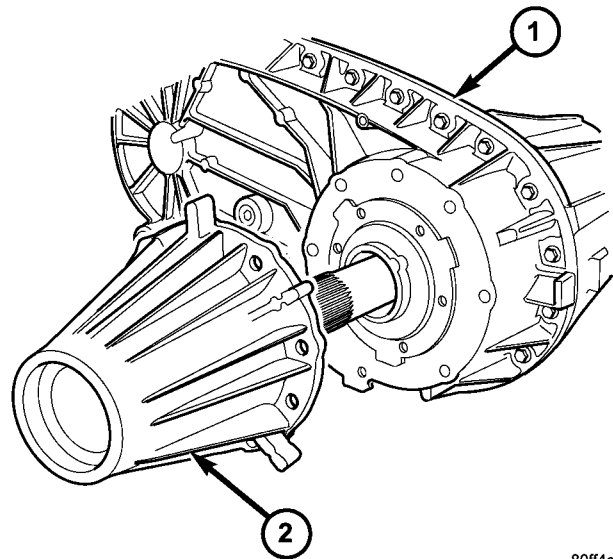


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Fig. 5 Remove Extension Housing Bolts

- 1 - EXTENSION HOUSING
- 2 - BOLTS

(8) Remove rear extension housing (Fig. 6). Tap extension once or twice with a plastic mallet to break sealer bead and loosen it.



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Fig. 6 Remove Extension Housing

- 1 - REAR CASE HALF
- 2 - EXTENSION HOUSING

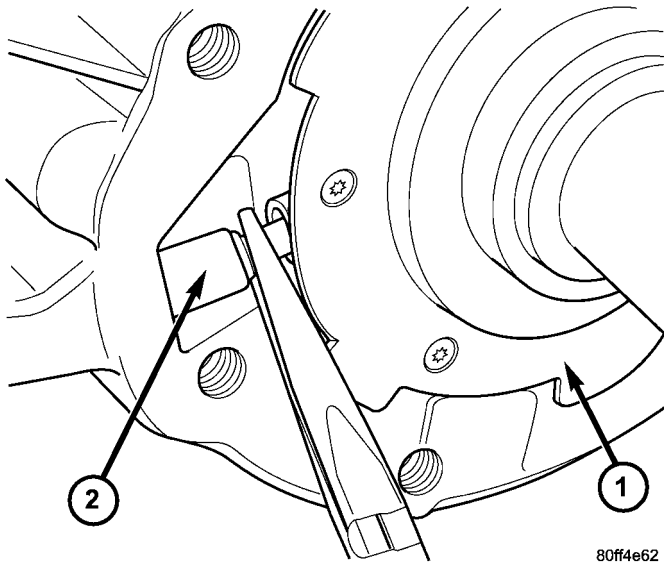
TRANSFER CASE - NV271 (Continued)

OIL PUMP AND REAR CASE

(1) Disengage the oil pump pick-up tube (Fig. 7) from the oil pump.

NOTE: The oil pump pick-up tube seals to the oil pump with an o-ring. Verify that the o-ring was removed with the tube and is in good condition. Replace the o-ring if necessary.

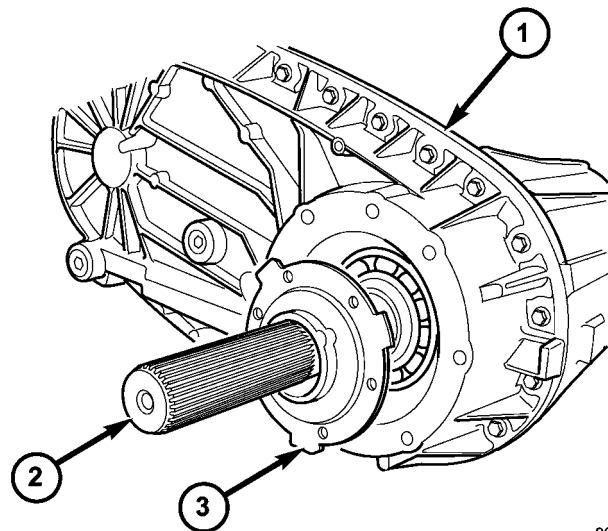
(2) Remove the oil pump (Fig. 8).



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Fig. 7 Disengage The Oil Pick-up From Oil Pump

- 1 - OIL PUMP
- 2 - OIL PICK-UP TUBE

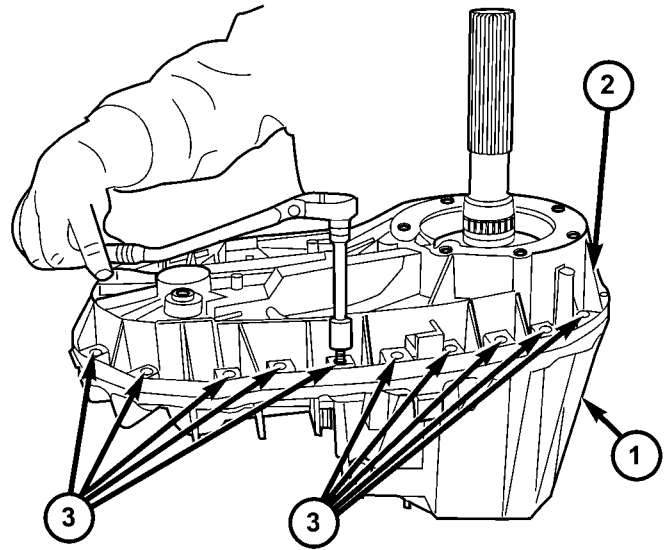


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Fig. 8 Remove Oil Pump

- 1 - REAR CASE HALF
- 2 - REAR OUTPUT SHAFT
- 3 - OIL PUMP

(3) Remove rear case-to-front case bolts (Fig. 9).

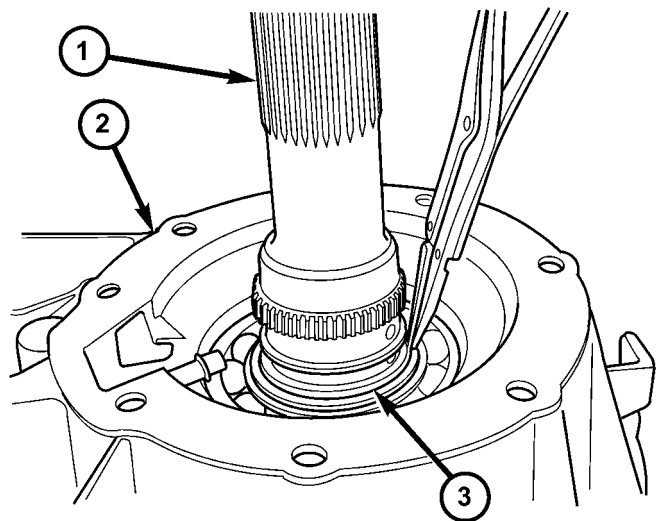


80ff4ed7

Fig. 9 Remove Case Half Bolts

- 1 - FRONT CASE HALF
- 2 - REAR CASE HALF
- 3 - BOLTS

(4) Remove the rear output shaft bearing inner snap-ring (Fig. 10) from the output shaft using suitable snap-ring pliers.



80ff4f29

Fig. 10 Remove Rear Bearing Inner Snap-Ring

- 1 - OUTPUT SHAFT
- 2 - REAR CASE HALF
- 3 - SNAP-RING

TRANSFER CASE - NV271 (Continued)

(5) Remove the rear output shaft bearing inner snap-ring (Fig. 11) from the output shaft.

(6) Loosen rear case with pry tool to break sealer bead. Insert tool at each end of case (Fig. 12).

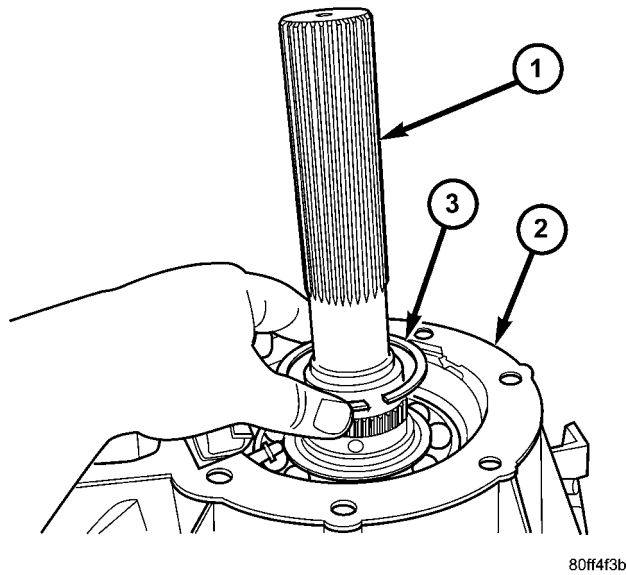


Fig. 11 Remove Rear Bearing Inner Snap-Ring

- 1 - OUTPUT SHAFT
- 2 - REAR CASE HALF
- 3 - SNAP-RING

(7) Unseat rear case from alignment dowels.

(8) Remove the rear case from the front case (Fig. 13).

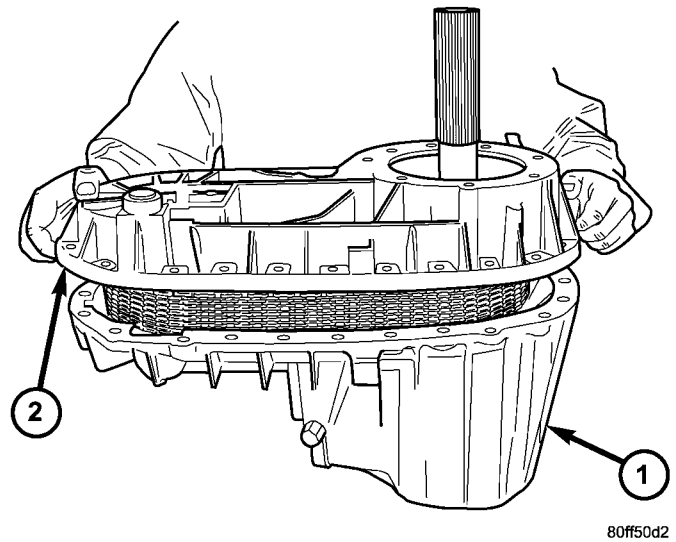


Fig. 13 Remove Rear Case Half

- 1 - FRONT CASE HALF
- 2 - REAR CASE HALF

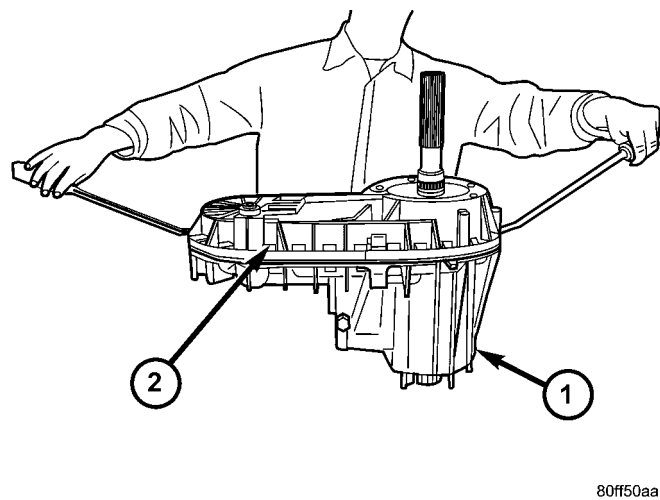


Fig. 12 Separate Front and Rear Case Halves

- 1 - FRONT CASE HALF
- 2 - REAR CASE HALF

FRONT OUTPUT SHAFT AND DRIVE CHAIN

(1) Remove the oil pick-up tube (Fig. 14) and screen from the front case half.

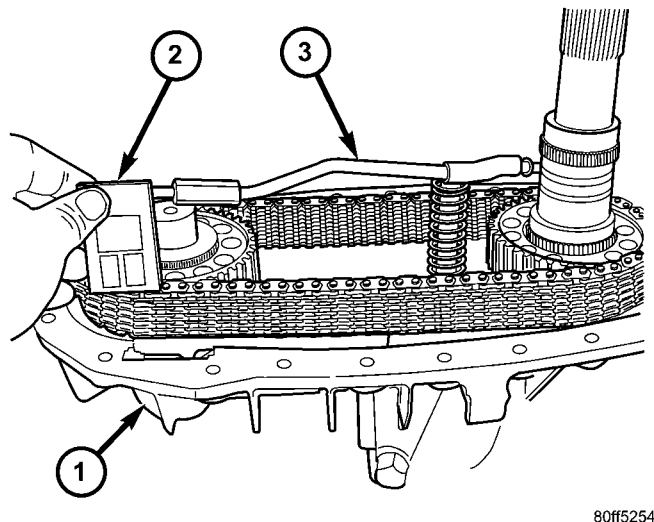
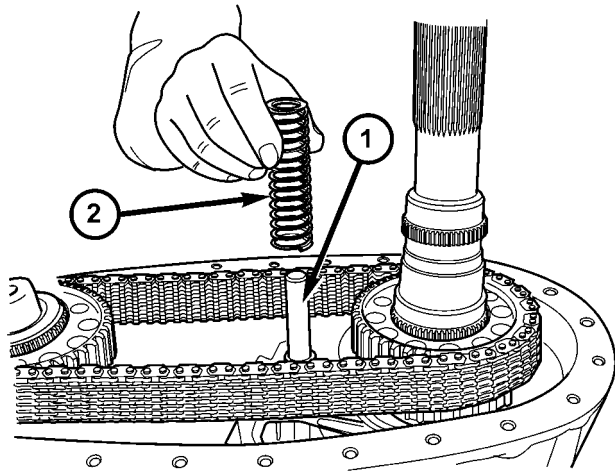


Fig. 14 Remove Oil Pick-Up Tube and Screen

- 1 - FRONT CASE HALF
- 2 - OIL SCREEN
- 3 - PICK-UP TUBE

TRANSFER CASE - NV271 (Continued)

(2) Remove the shift rail spring (Fig. 15).



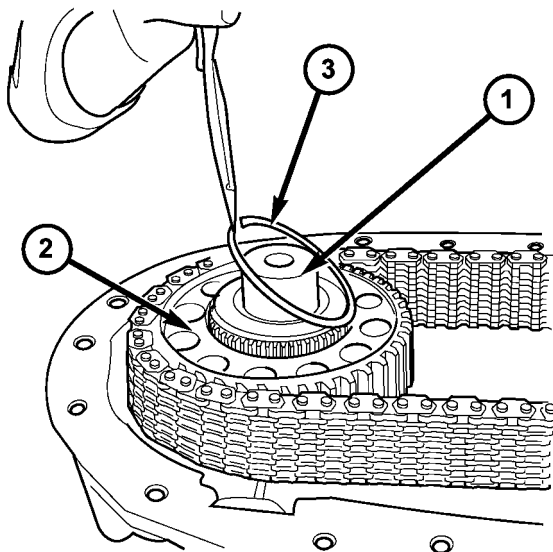
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Fig. 15 Remove Shift Rail Spring

- 1 - SHIFT RAIL
- 2 - SPRING

(3) Remove the front output shaft drive sprocket retaining ring (Fig. 16).

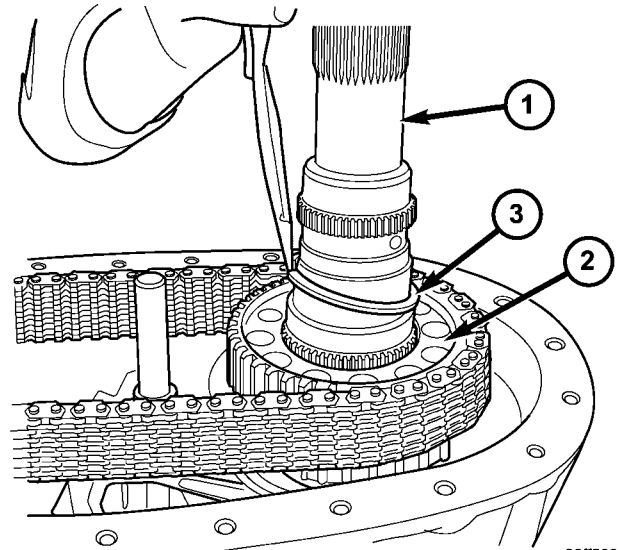
(4) Remove the rear output shaft drive sprocket retaining ring (Fig. 17).



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Fig. 16 Remove Front Output Shaft Sprocket Retaining Ring

- 1 - FRONT OUTPUT SHAFT
- 2 - DRIVE SPROCKET
- 3 - RETAINING RING



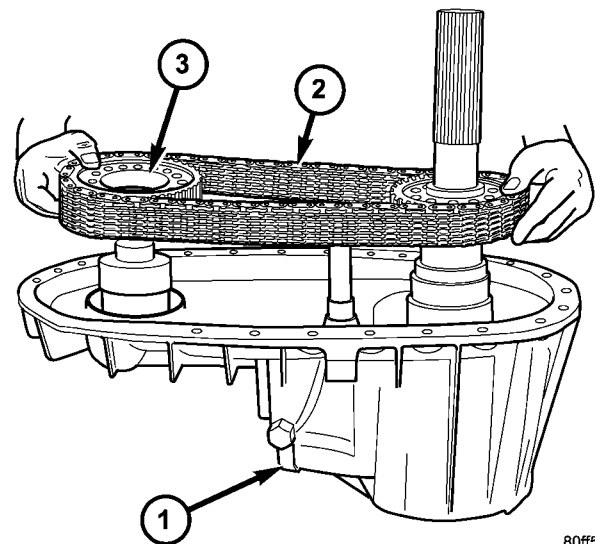
80ff5338

Fig. 17 Remove Rear Output Shaft Sprocket Retaining Ring

- 1 - REAR OUTPUT SHAFT
- 2 - DRIVE SPROCKET
- 3 - RETAINING RING

(5) Pull front sprocket (Fig. 18), rear sprocket, and chain upward until clear of the front and rear output shaft sprocket splines.

(6) Remove chain and sprockets as an assembly.



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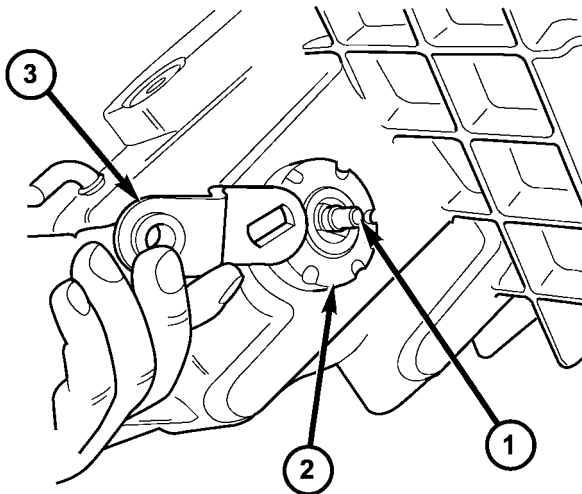
Fig. 18 Remove Drive Chain and Sprockets

- 1 - FRONT CASE HALF
- 2 - CHAIN
- 3 - DRIVE SPROCKETS

TRANSFER CASE - NV271 (Continued)

SHIFT FORKS AND MAINSHAFT

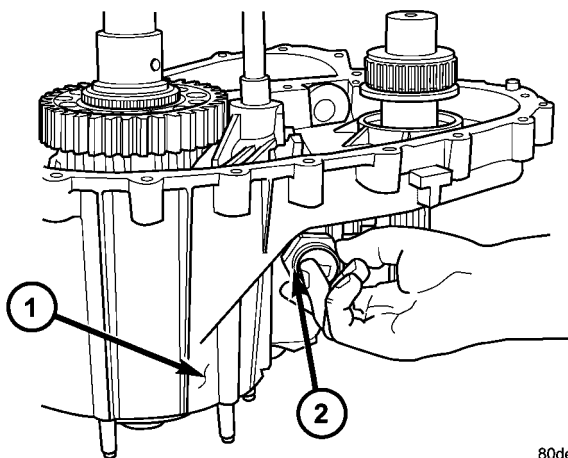
- (1) Shift transfer case into NEUTRAL.
- (2) Remove nut that retains the shift lever to sector shaft. Then remove shift lever (Fig. 19) and spacer from the shaft.
- (3) Remove the sector support with Socket 9033.
- (4) Remove the transfer case position sensor (Fig. 20).



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Fig. 19 Remove Manual Shift Lever

- 1 - SHIFT SECTOR
- 2 - SECTOR SUPPORT
- 3 - MANUAL SHIFT LEVER

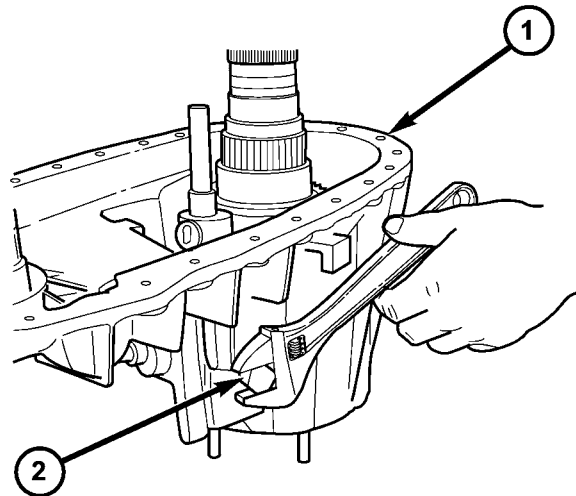


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Fig. 20 Remove Position Sensor

- 1 - FRONT CASE
- 2 - POSITION SENSOR

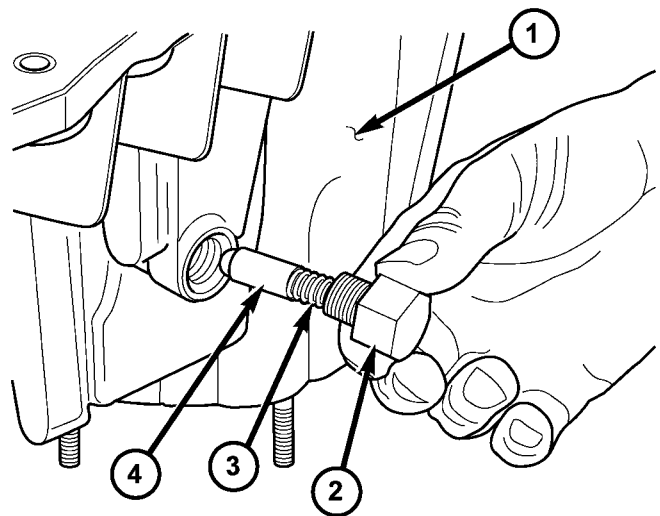
- (5) Loosen detent plug (Fig. 21).
- (6) Remove detent plug, spring, and plunger (Fig. 22). Note that the plug has an O-ring seal. Remove and discard this seal.



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Fig. 21 Loosen the Detent Plug

- 1 - FRONT CASE HALF
- 2 - DETENT PLUG



80ff53a3

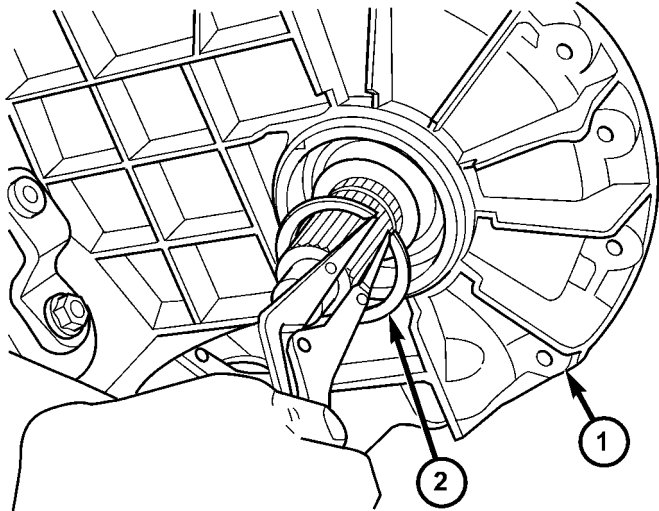
Fig. 22 Remove Detent plug, Spring, and Plunger

- 1 - FRONT CASE HALF
- 2 - DETENT PLUG
- 3 - SPRING
- 4 - PLUNGER

TRANSFER CASE - NV271 (Continued)

(7) Using a screw mounted in a slide hammer, remove the front output shaft seal.

(8) Remove the front output shaft snap-ring (Fig. 23).

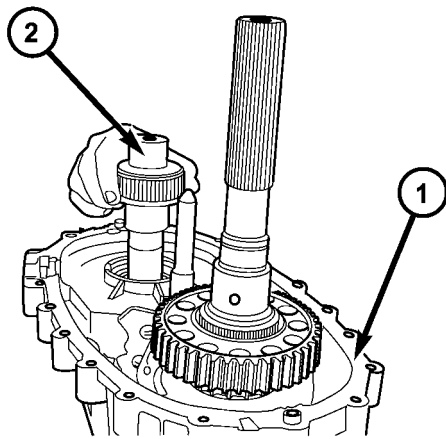


80ff53b2

Fig. 23 Remove Front Output Shaft Bearing Inner Snap-Ring

- 1 - FRONT CASE HALF
- 2 - SNAP-RING

(9) Remove front output shaft from bearing in case (Fig. 24).

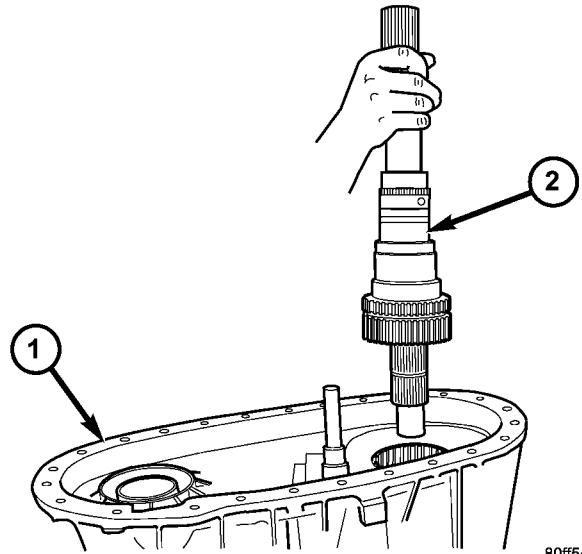


80de45f7

Fig. 24 Remove Front Output Shaft

- 1 - FRONT CASE
- 2 - FRONT OUTPUT SHAFT

(10) Pull mainshaft assembly out of input gear, mode sleeve, and case (Fig. 25).

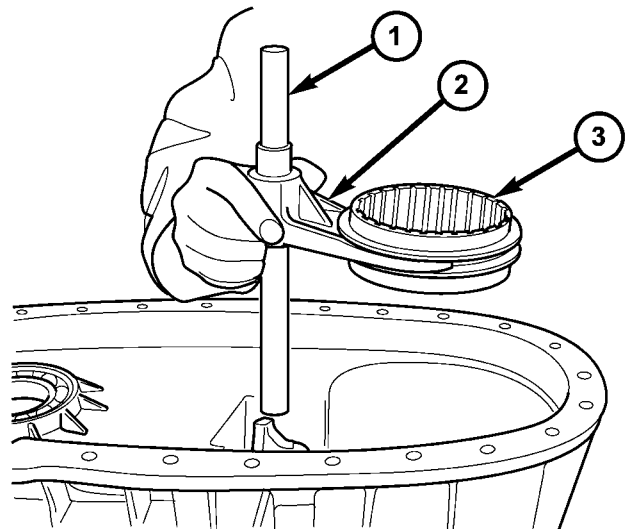


80ff547e

Fig. 25 Remove Mainshaft Assembly

- 1 - FRONT CASE HALF
- 2 - MAINSHAFT ASSEMBLY

(11) Remove mode fork, mode sleeve, and shift rail as assembly (Fig. 26). Note which way the sleeve fits in the fork (long side of sleeve goes to front or the points on the sleeve teeth go to the rear of case).



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Fig. 26 Remove Mode Fork, Sleeve, and Shift Rail Assembly

- 1 - SHIFT RAIL
- 2 - MODE FORK
- 3 - MODE SLEEVE

TRANSFER CASE - NV271 (Continued)

(12) Remove range fork and hub as an assembly (Fig. 27). Note fork position for installation reference.

(13) Remove shift sector (Fig. 28).

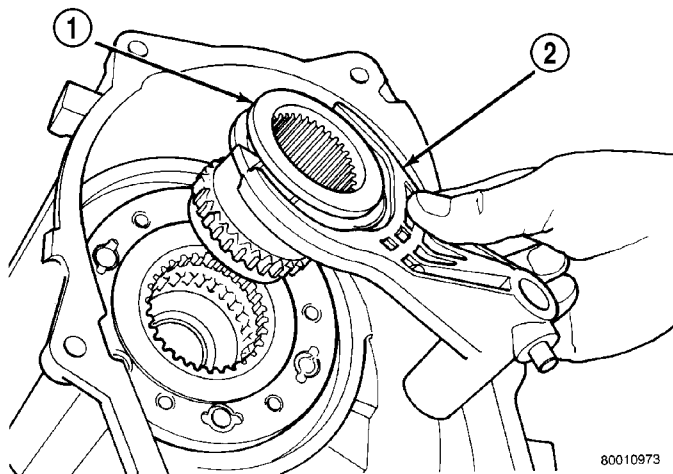


Fig. 27 Range Fork And Hub Removal

- 1 - RANGE HUB
2 - RANGE FORK

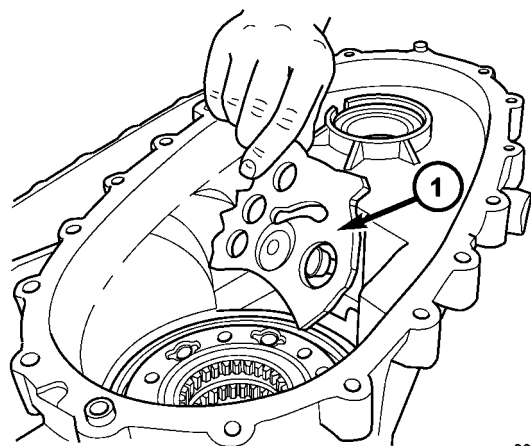


Fig. 28 Remove Shift Sector

- 1 - SHIFT SECTOR

MAINSHAFT

(1) Remove the clutch gear (Fig. 29) from the output shaft.

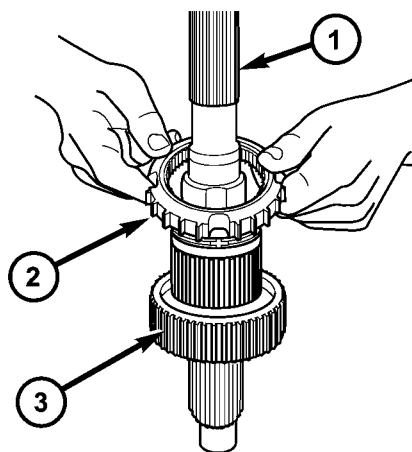


Fig. 29 Remove Clutch Gear

- 1 - OUTPUT SHAFT
2 - CLUTCH GEAR
3 - MODE HUB

(2) Remove the mode hub retaining ring (Fig. 30) from the mainshaft.

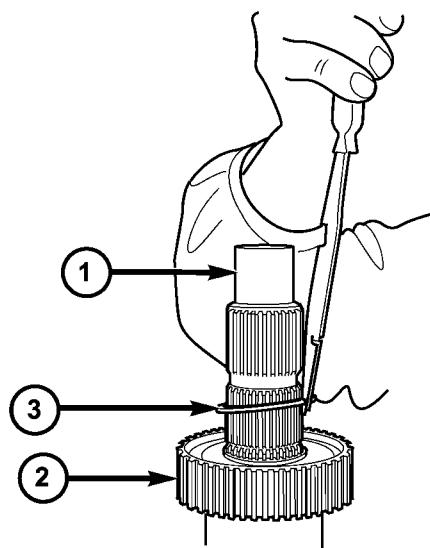
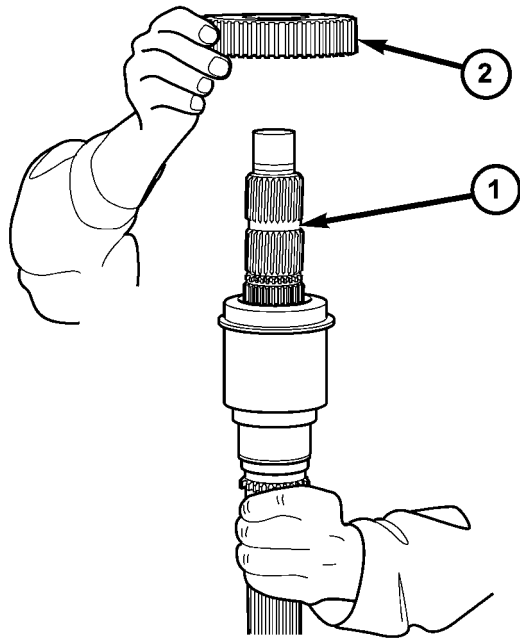


Fig. 30 Remove Mode Hub Retaining Ring

- 1 - MAINSHAFT
2 - MODE HUB
3 - RETAINING RING

TRANSFER CASE - NV271 (Continued)

(3) Remove the mode hub (Fig. 31) from the mainshaft.

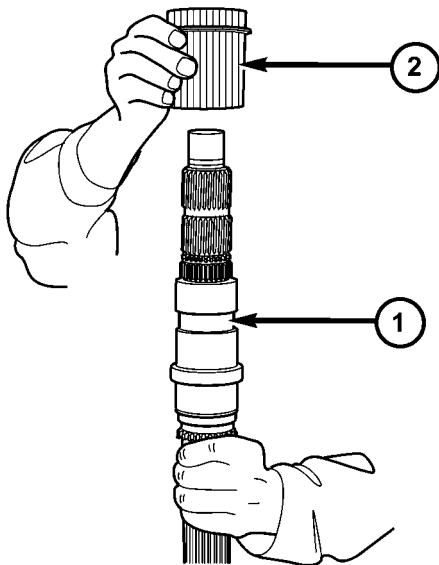


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Fig. 31 Remove Mode Hub

- 1 - MAINSHAFT
- 2 - MODE HUB

(4) Remove the drive sprocket drive hub (Fig. 32) from the mainshaft.



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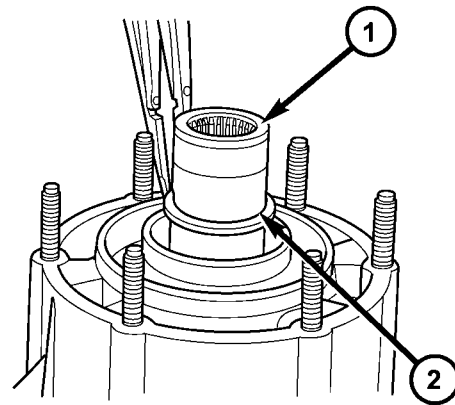
Fig. 32 Remove the Drive Sprocket Drive Hub

- 1 - MAINSHAFT
- 2 - DRIVE SPROCKET DRIVE HUB

INPUT AND PLANETARY GEAR

(1) Remove input gear seal with suitable screw and slide hammer.

(2) Remove input gear retaining ring (Fig. 33) with heavy duty snap-ring pliers.

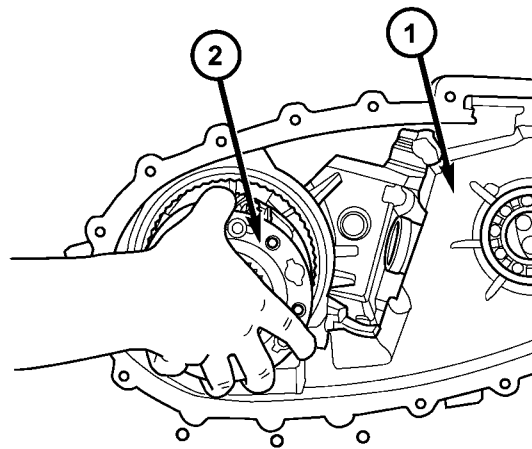


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Fig. 33 Remove Input Gear Retaining Ring

- 1 - INPUT GEAR
- 2 - RETAINING RING

(3) Place front case in horizontal position. Then remove input gear and low range gear as an assembly (Fig. 34). Tap gear out of bearing with plastic mallet, if necessary.



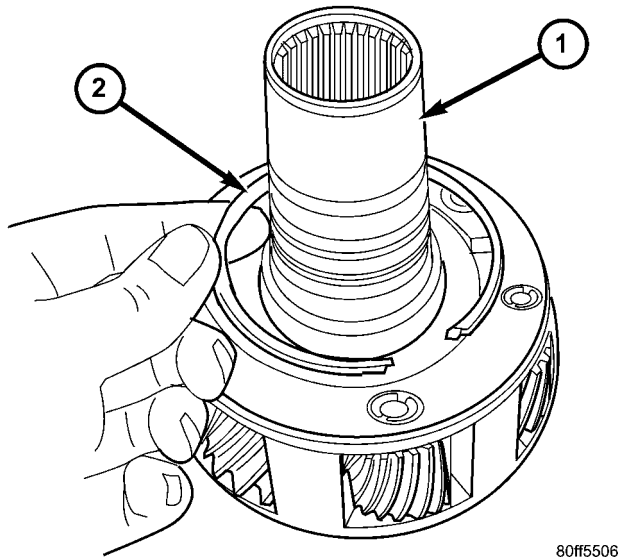
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Fig. 34 Remove Input Planetary Assembly

- 1 - FRONT CASE
- 2 - INPUT PLANETARY ASSEMBLY

TRANSFER CASE - NV271 (Continued)

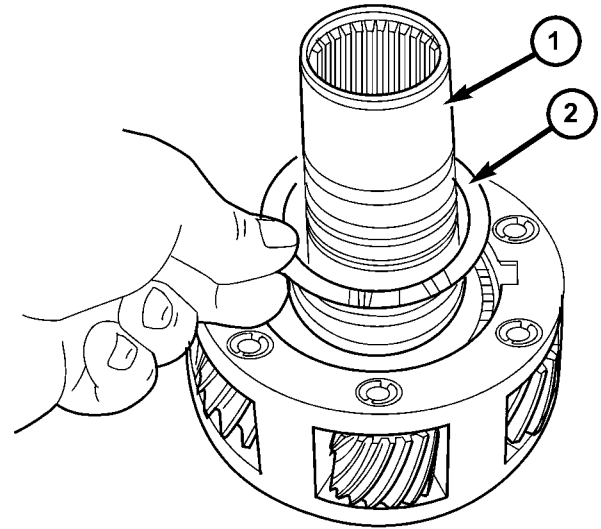
- (4) Remove snap-ring that retains input gear in the low range gear (Fig. 35).
- (5) Remove retainer (Fig. 36).
- (6) Remove front thrust plate (Fig. 37).



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Fig. 35 Remove Input Gear Retaining Ring

- 1 - INPUT GEAR
- 2 - RETAINING RING

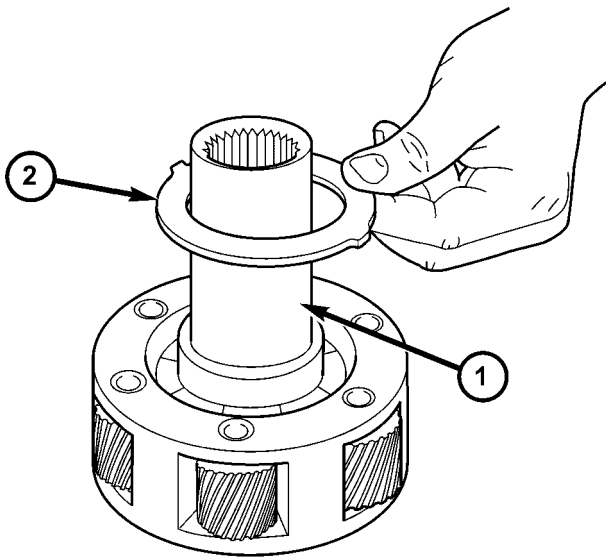


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Fig. 37 Remove Input Gear Thrust Plate

- 1 - INPUT GEAR
- 2 - THRUST PLATE

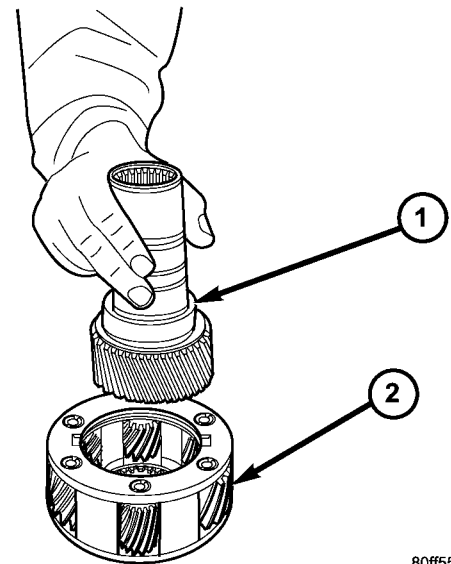
- (7) Remove input gear (Fig. 38).



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Fig. 36 Remove Input Gear Retainer

- 1 - INPUT GEAR
- 2 - RETAINER



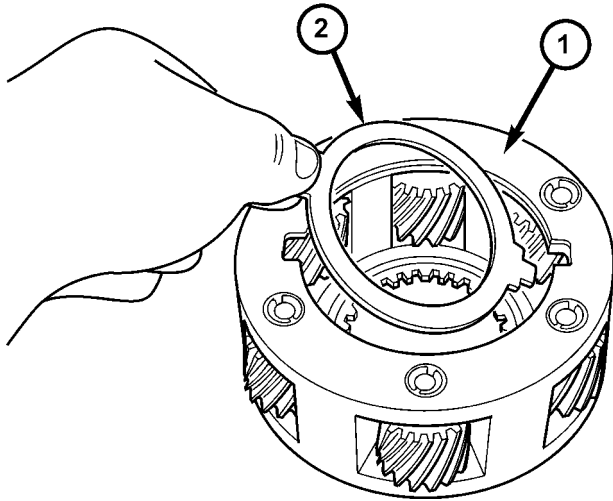
80ff5523

Fig. 38 Remove Input Gear From Planetary

- 1 - INPUT GEAR
- 2 - LOW RANGE PLANETARY

TRANSFER CASE - NV271 (Continued)

(8) Remove bottom tabbed thrust washer from low range planetary (Fig. 39).



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Fig. 39 Remove Bottom Input Gear Thrust Plate

- 1 - PLANETARY
- 2 - THRUST PLATE

CLEANING

Clean the transfer case parts with a standard parts cleaning solvent. Remove all traces of sealer from the cases and retainers with a scraper and 3M™ all purpose cleaner. Use compressed air to remove solvent residue from oil feed passages in the case halves, retainers, gears, and shafts.

INSPECTION

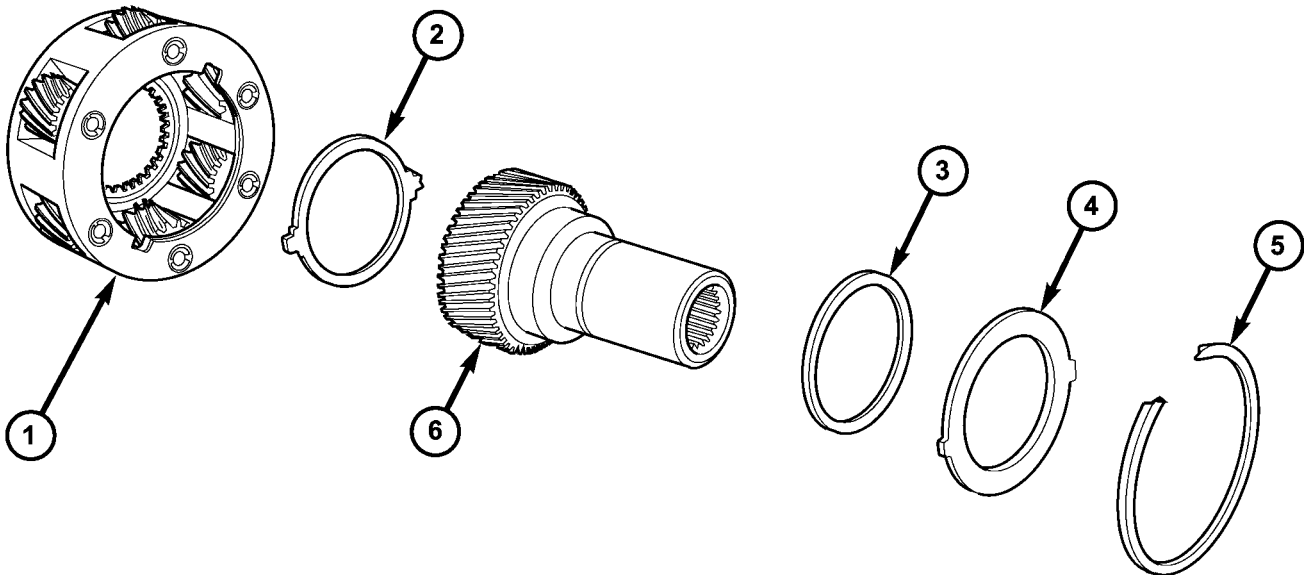
MAINSHAFT/SPROCKET/HUB

Inspect the splines on the hub and shaft and the teeth on the sprocket. Minor nicks and scratches can be smoothed with an oilstone, however, replace any part that is damaged.

Check the contact surfaces in the sprocket bore and on the mainshaft. Minor nicks and scratches can be smoothed with 320-400 grit emery cloth but do not try to salvage the shaft if nicks or wear is severe.

INPUT GEAR AND PLANETARY CARRIER

Check the teeth on the gear (Fig. 40). Minor nicks can be dressed off with an oilstone but replace the gear if any teeth are broken, cracked, or chipped. The bearing surface on the gear can be smoothed with 300-400 grit emery cloth if necessary.



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Fig. 40 Input Gear And Carrier Components

- 1 - PLANETARY CARRIER
- 2 - REAR THRUST WASHER
- 3 - FRONT THRUST WASHER
- 4 - CARRIER LOCK RING
- 5 - CARRIER LOCK RETAINING RING
- 6 - INPUT GEAR

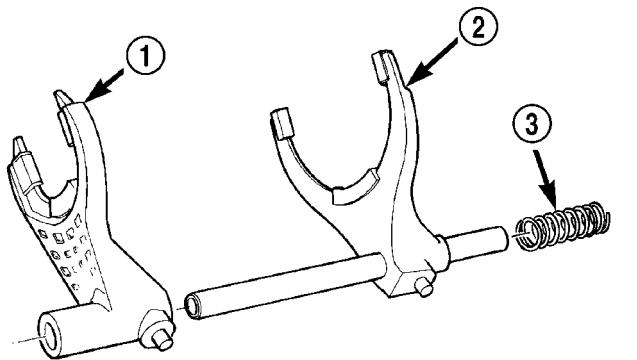
TRANSFER CASE - NV271 (Continued)

Examine the carrier body and pinion gears for wear or damage. Check the pinion gear thrust washers on the pinion pins for damage. The carrier will have to be replaced as an assembly if the body, pinion pins, or pinion gears are damaged.

Check the lock ring and both thrust washers for wear or cracks. Replace them if necessary. Also replace the lock retaining ring if bent, distorted, or broken.

SHIFT FORKS/HUBS/SLEEVES

Check condition of the shift forks and mode fork shift rail (Fig. 41). Minor nicks on the shift rail can be smoothed with 320-400 grit emery cloth.

**Fig. 41 Shift forks**

- 1 - RANGE FORK
- 2 - MODE FORK AND RAIL
- 3 - MODE SPRING

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Inspect the shift fork wear pads (Fig. 42). The mode and range fork pads are serviceable and can be replaced if necessary.

Check both of the sleeves for wear or damage, especially on the interior teeth. Replace the sleeves if wear or damage is evident.

DRIVE CHAIN

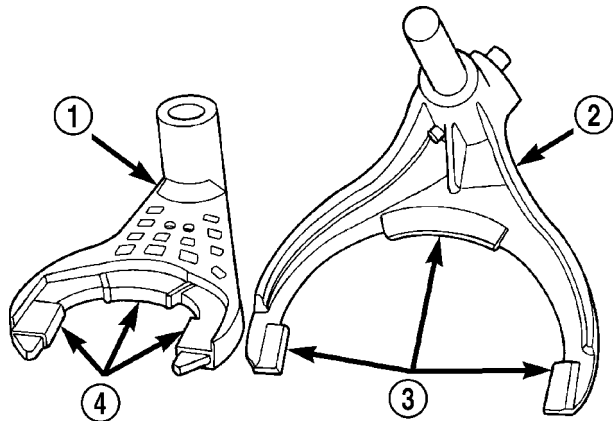
Examine the drive chain and shaft bearings. replace the chain if stretched, distorted, or if any of the links bind. Replace the bearings if rough, or noisy.

LOW RANGE ANNULUS GEAR

Inspect annulus gear condition carefully. The gear is only serviced as part of the front case. If the gear is damaged, it will be necessary to replace the gear and front case as an assembly. Do not attempt to remove the gear (Fig. 43)

FRONT CASE AND REAR CASE

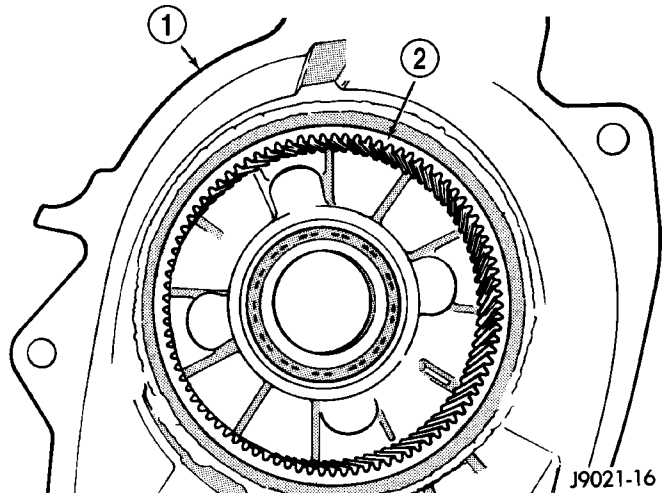
Inspect the cases for wear and damage.



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Fig. 42 Shift Fork And Wear Pad Locations

- 1 - RANGE FORK
- 2 - MODE FORK
- 3 - WEAR PADS (SERVICEABLE)
- 4 - WEAR PADS (SERVICEABLE)



J9021-16

Fig. 43 Low Range Annulus Gear

- 1 - FRONT CASE
- 2 - LOW RANGE ANNULUS GEAR

Check case condition. If leaks were a problem, look for gouges and severe scoring of case sealing surfaces. Also make sure the front case mounting studs are in good condition.

Check the front case mounting studs and vent tube. The tube can be secured with Loctite™ 271 or 680 if loose. The stud threads can be cleaned up with a die if necessary. Also check condition of the fill/drain plug threads in the rear case. The threads can be repaired with a thread chaser or tap if necessary. Or the threads can be repaired with Helicoil™ stainless steel inserts if required.

OIL PUMP/OIL PICKUP

Examine the oil pump pickup parts. Replace the pump if any part appears to be worn or damaged. Do

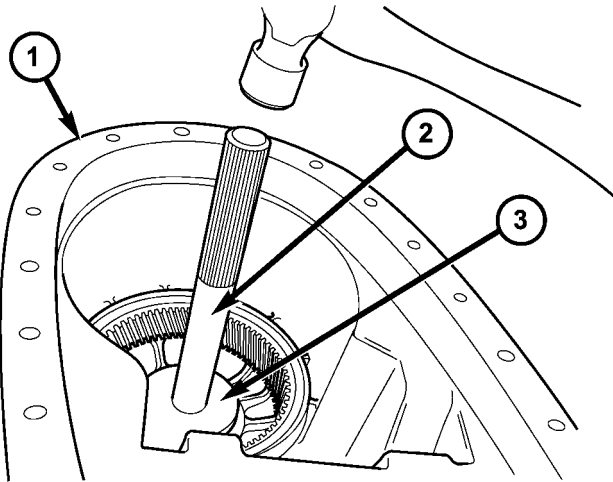
TRANSFER CASE - NV271 (Continued)

not disassemble the pump as individual parts are not available. The pump is only available as a complete assembly. The pickup screen, hose, and tube are the only serviceable parts and are available separately.

ASSEMBLY

BEARINGS AND SEALS

- (1) Remove the input shaft bearing snap-ring from the front case half with suitable snap-ring pliers.
- (2) Remove the input shaft bearing from the front case half with Installer 6953 and Handle C-4171 (Fig. 44).
- (3) Install the input shaft bearing into the front case half with Installer 8151 inverted on Handle C-4171 (Fig. 45).
- (4) Install the input shaft bearing snap-ring into the front case half with suitable snap-ring pliers.

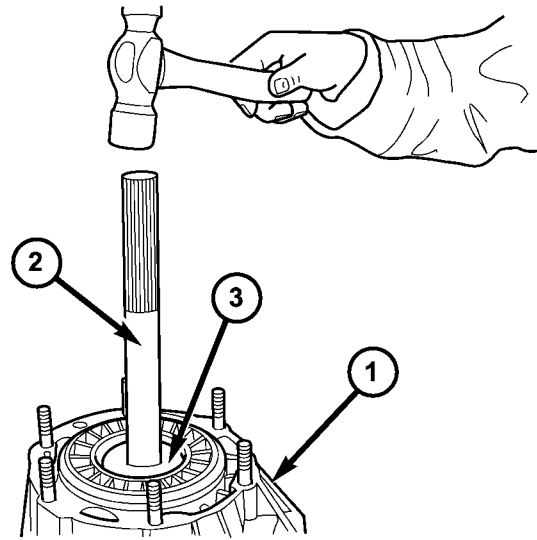


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Fig. 44 Remove Input Gear Bearing

- 1 - FRONT CASE HALF
- 2 - HANDLE C-4171
- 3 - INSTALLER 6953

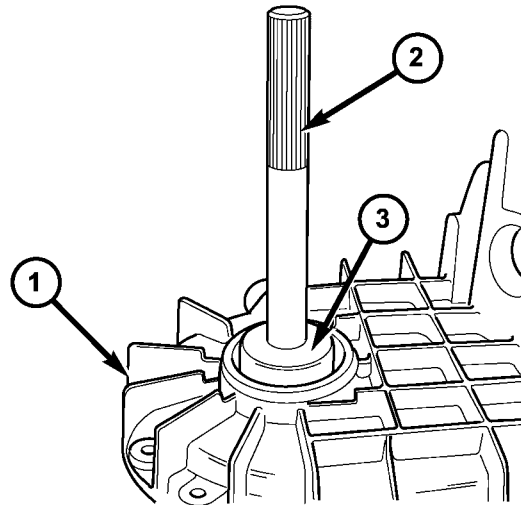
- (5) Remove the front output shaft front bearing snap-ring from the front case half.
- (6) Using Installer 6953 and Handle C-4171 (Fig. 46), remove the front output shaft front bearing.



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Fig. 45 Install Input Gear Bearing

- 1 - FRONT CASE HALF
- 2 - HANDLE C-4171
- 3 - INSTALLER 8151 (INVERTED)



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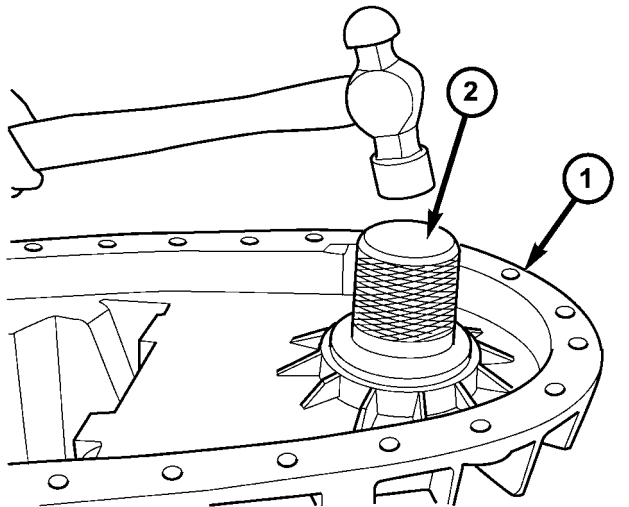
Fig. 46 Remove Front Output Shaft Front Bearing

- 1 - FRONT CASE HALF
- 2 - HANDLE C-4171
- 3 - INSTALLER 6953

TRANSFER CASE - NV271 (Continued)

(7) Start front output shaft front bearing in case. Then seat bearing with Installer 8891 (Fig. 47).

(8) Install front output shaft bearing retaining ring.

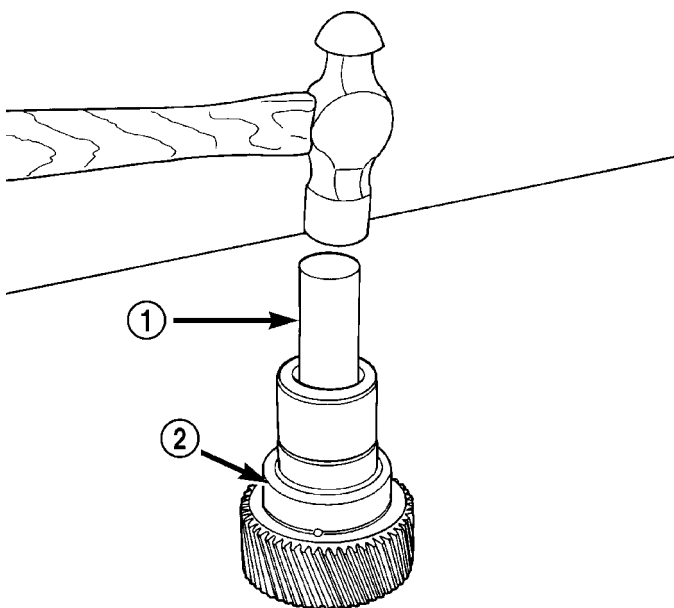


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Fig. 47 Install Front Output Shaft Front Bearing

- 1 - FRONT CASE HALF
- 2 - INSTALLER 8891

(9) Remove input gear pilot bearing by inserting a suitably sized drift into the splined end of the input gear and driving the bearing out with the drift and a hammer (Fig. 48).



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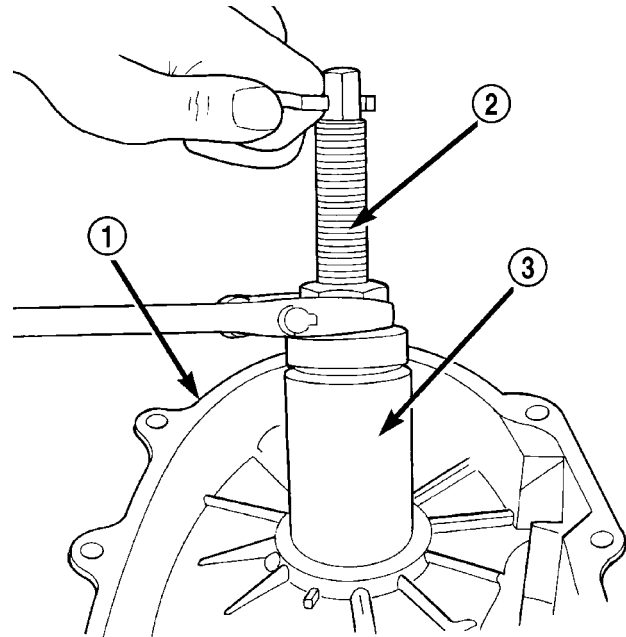
Fig. 48 Remove Input Gear Cup Bearing

- 1 - DRIFT
- 2 - INPUT GEAR

(10) Install new pilot bearing with Installer 9035.

(11) Remove the front output shaft rear bearing with the screw and jaws from Remover L-4454 and Cup 8148 (Fig. 49).

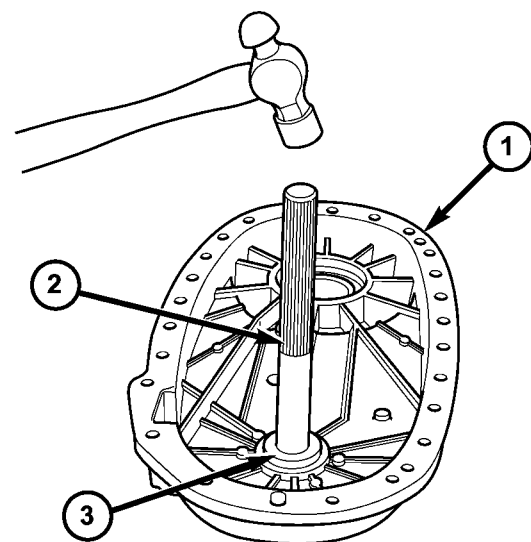
(12) Install new bearing with Tool Handle C-4171 and Installer 8128 (Fig. 50). The bearing bore is chamfered at the top. Install the bearing so it is flush with the lower edge of this chamfer (Fig. 51).



80a98366

Fig. 49 Front Output Shaft Rear Bearing Removal

- 1 - REAR CASE
- 2 - SPECIAL TOOL L-4454-1 AND L-4454-3
- 3 - SPECIAL TOOL 8148



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Fig. 50 Install Front Output Shaft Rear Bearing

- 1 - REAR CASE HALF
- 2 - HANDLE C-4171
- 3 - INSTALLER 8128

TRANSFER CASE - NV271 (Continued)

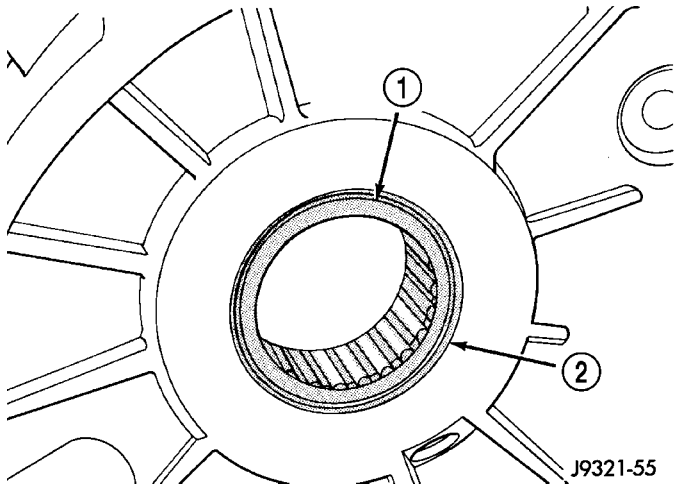


Fig. 51 Output Shaft Rear Bearing Installation Depth

- 1 - BEARING (SEATED) AT LOWER EDGE OF CHAMFER
- 2 - CHAMFER

(13) Remove seal from oil pump with suitable pry tool.

(14) Install new seal in oil pump with Installer 7888 (Fig. 52).

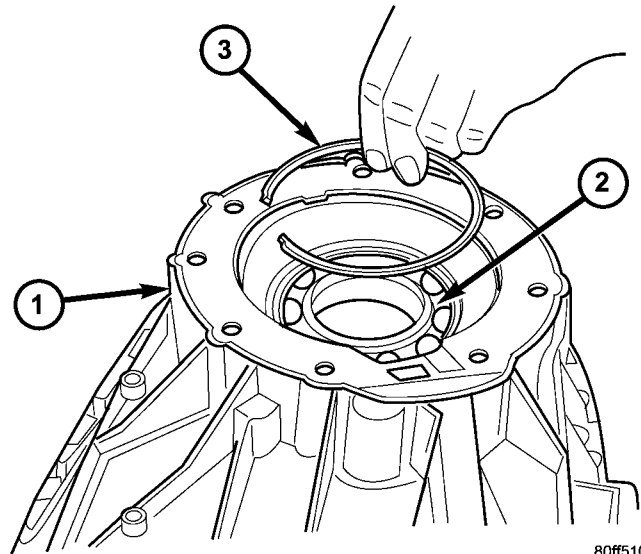


Fig. 53 Remove Rear Output Bearing Outer Snap-Ring

- 1 - REAR CASE HALF
- 2 - REAR OUTPUT SHAFT BEARING
- 3 - SNAP-RING

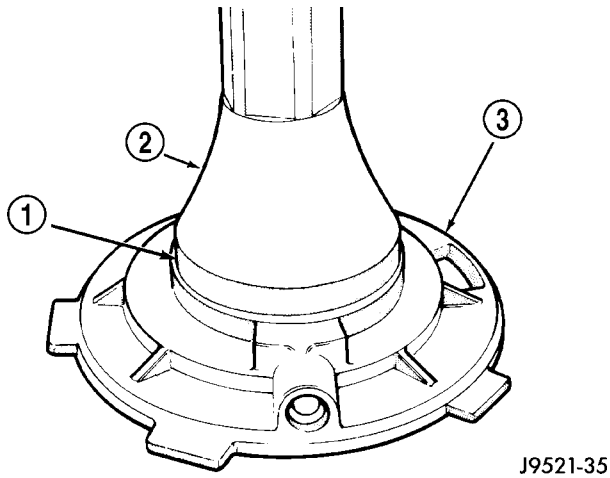


Fig. 52 Oil Pump Seal Installation

- 1 - HOUSING SEAL
- 2 - SPECIAL TOOL 7888
- 3 - OIL PUMP FEED HOUSING

(15) Remove the rear output shaft bearing snap-ring (Fig. 53) from the rear case half.

(16) Remove the rear output shaft bearing from the rear case using Installer 7888 (Fig. 54).

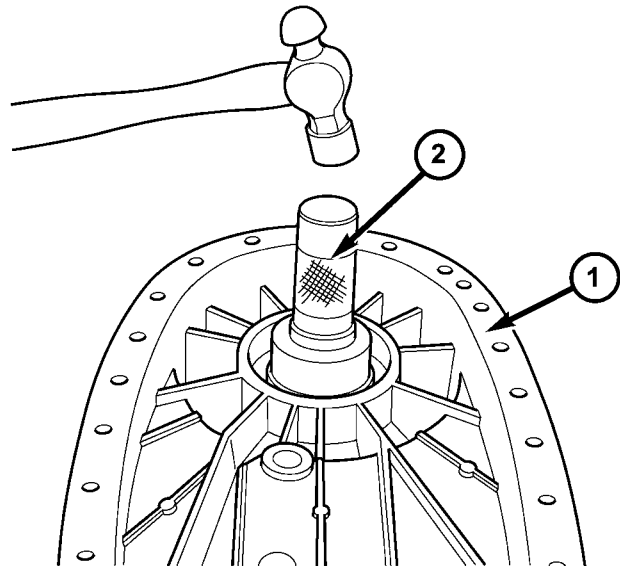


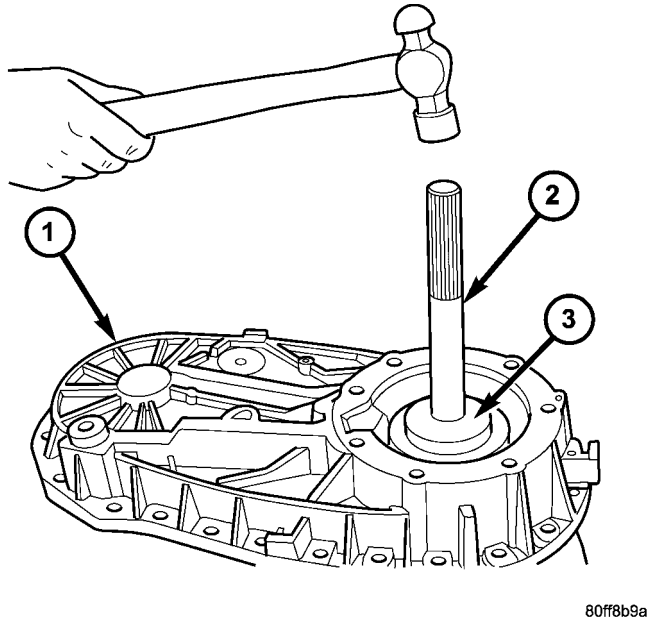
Fig. 54 Remove Rear Output Shaft Bearing

- 1 - REAR CASE HALF
- 2 - INSTALLER 7888

TRANSFER CASE - NV271 (Continued)

(17) Install the rear output shaft bearing (Fig. 55) into the rear case using Installer 8152 and Handle C-4171.

(18) Install the rear output shaft bearing snapping into the rear case half.



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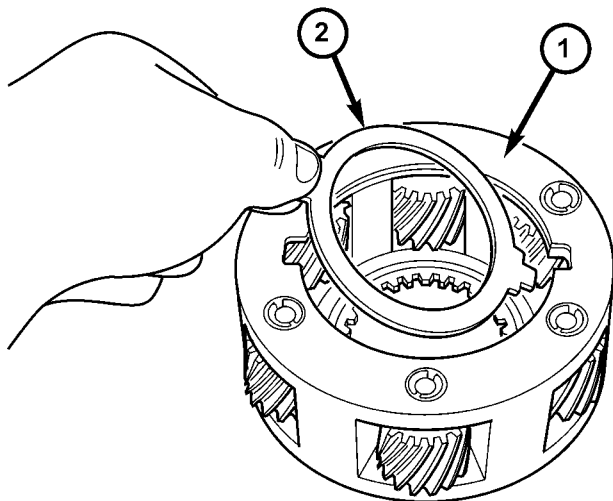
Fig. 55 Install Rear Output Shaft Bearing

- 1 - REAR CASE HALF
- 2 - HANDLE C-4171
- 3 - INSTALLER 8152

INPUT AND PLANETARY GEAR

(1) Lubricate gears and thrust washers with recommended transmission fluid.

(2) Install bottom thrust washer (Fig. 56) in low range gear planetary. Be sure washer tabs are properly aligned in gear notches.

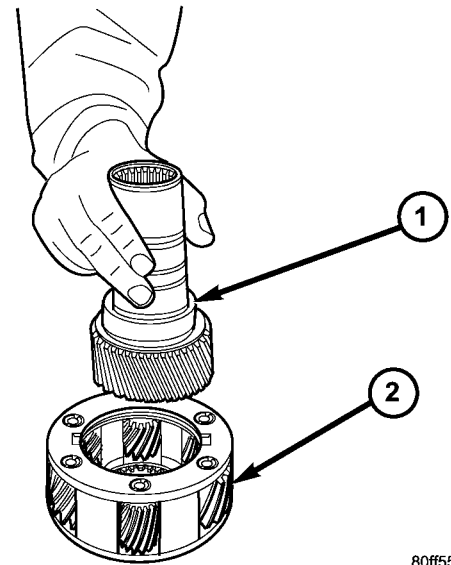


80ff5636

Fig. 56 Install Bottom Input Gear Thrust Plate

- 1 - PLANETARY
- 2 - THRUST PLATE

(3) Install input gear in low range gear (Fig. 57). Be sure input gear is fully seated.

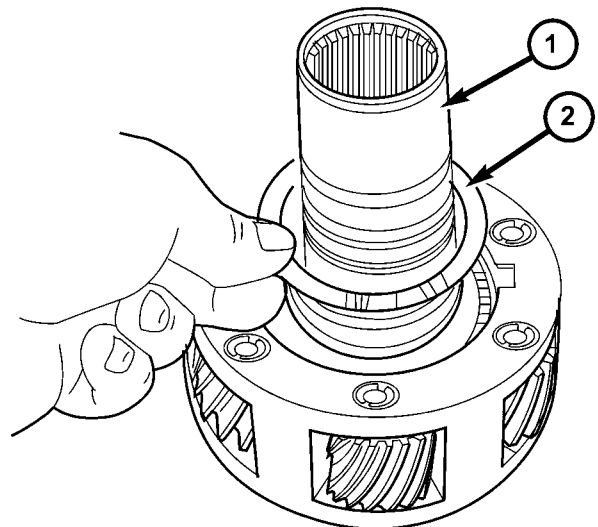


80ff5523

Fig. 57 Install Input Gear From Planetary

- 1 - INPUT GEAR
- 2 - LOW RANGE PLANETARY

(4) Install remaining thrust washer (Fig. 58) in low range gear and on top of input gear.



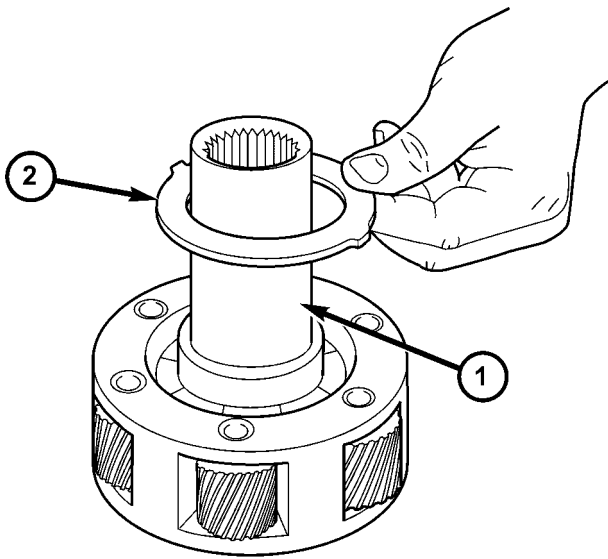
80ff5517

Fig. 58 Install Input Gear Thrust Plate

- 1 - INPUT GEAR
- 2 - THRUST PLATE

TRANSFER CASE - NV271 (Continued)

(5) Install retainer (Fig. 59) on input gear and install snap-ring (Fig. 60).



80ff550d

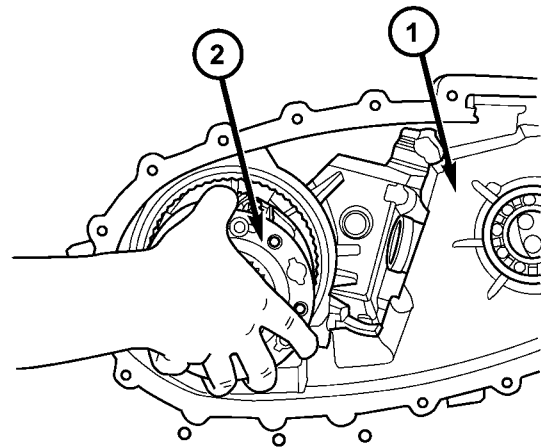
Fig. 59 Install Input Gear Retainer

- 1 - INPUT GEAR
- 2 - RETAINER

(6) Align and install low range/input gear assembly in front case (Fig. 61). Be sure low range gear pinions are engaged in annulus gear and that input gear shaft is fully seated in front bearing.

(7) Install snap-ring to hold input/low range gear into front bearing (Fig. 62).

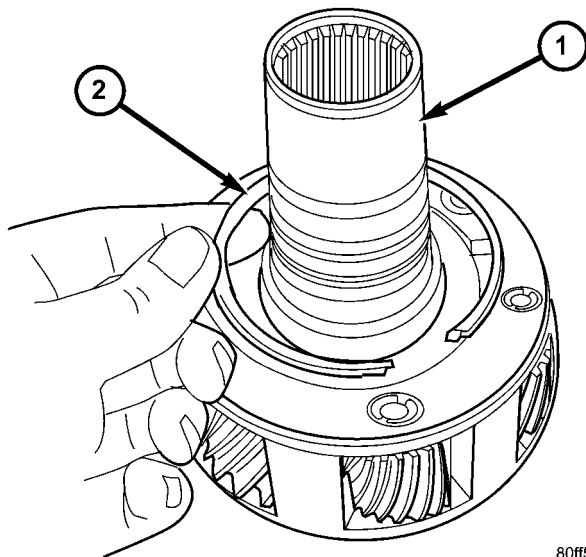
(8) Install a new input gear seal using Installer 8841 and Handle C-4171.



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Fig. 61 Install Input Planetary Assembly

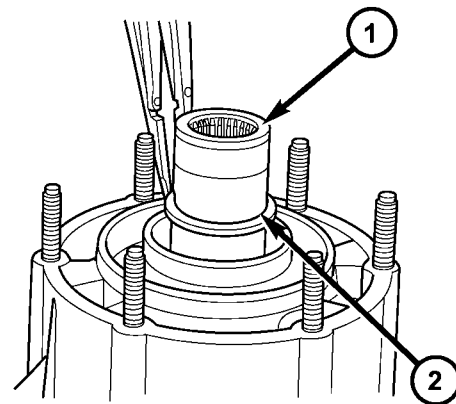
- 1 - FRONT CASE
- 2 - INPUT PLANETARY ASSEMBLY



80ff5506

Fig. 60 Install Input Gear Retaining Ring

- 1 - INPUT GEAR
- 2 - RETAINING RING



80de581c

Fig. 62 Install Input Gear Retaining Ring

- 1 - INPUT GEAR
- 2 - RETAINING RING

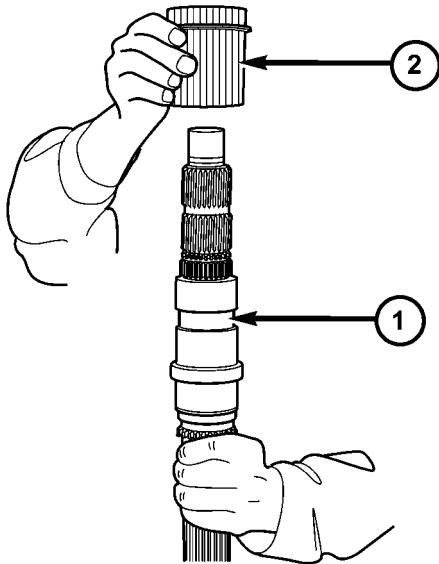
(9) Install a new input gear oil seal with Installer 9036 and Handle C-4171.

TRANSFER CASE - NV271 (Continued)

SHIFT FORKS AND MAINSHAFT

(1) Lubricate mainshaft splines with recommended transmission fluid.

(2) Coat the interior of the drive sprocket hub with ATF+4 and install the drive sprocket drive hub (Fig. 63) onto the mainshaft.



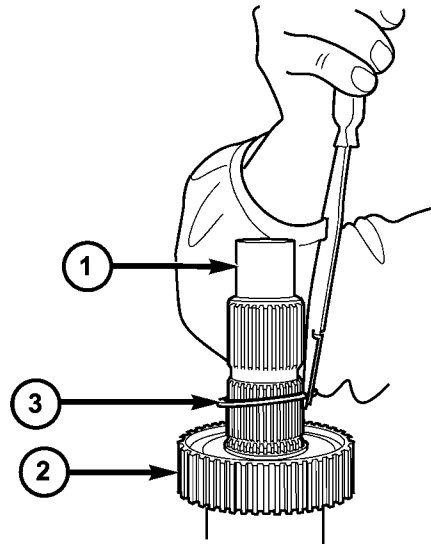
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Fig. 63 Install the Drive Sprocket Drive Hub

- 1 - MAINSHAFT
- 2 - DRIVE SPROCKET DRIVE HUB

(3) Install the mode hub (Fig. 64) onto the mainshaft.

(4) Install the mode hub retaining ring (Fig. 65) onto the mainshaft.

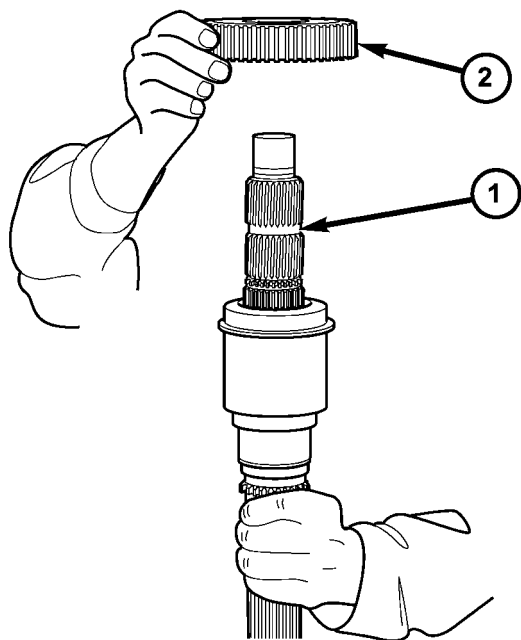


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Fig. 65 Install Mode Hub Retaining Ring

- 1 - MAINSHAFT
- 2 - MODE HUB
- 3 - RETAINING RING

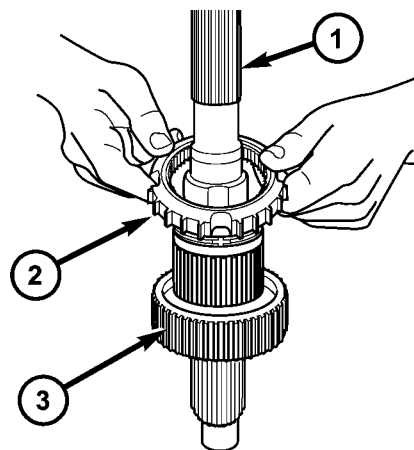
(5) Install the clutch gear (Fig. 66) onto the output shaft. Verify that the pointed ends of the clutch gear teeth are pointing to the front of the mainshaft.



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Fig. 64 Install Mode Hub

- 1 - MAINSHAFT
- 2 - MODE HUB



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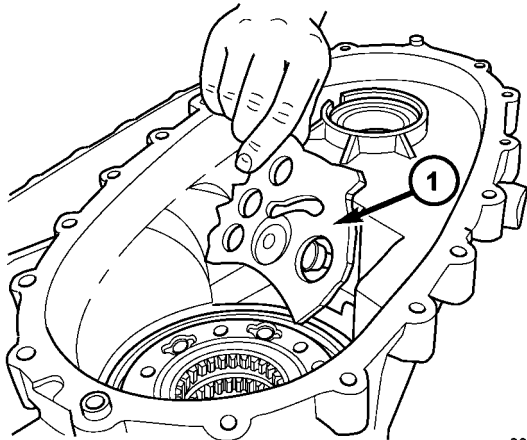
Fig. 66 Install Clutch Gear

- 1 - OUTPUT SHAFT
- 2 - CLUTCH GEAR
- 3 - MODE HUB

TRANSFER CASE - NV271 (Continued)

(6) Lubricate sector shaft with transmission fluid and install shift sector in case (Fig. 67). Position slot in sector so it will be aligned with shift fork pin when shift forks are installed.

(7) Apply Loctite™ 242, or equivalent, to the threads of the sector support to replenish the factory applied patch. Install the shift sector support. Tighten the sector support with Socket 9033 to 27-34 N·m (20-25 ft.lbs.).



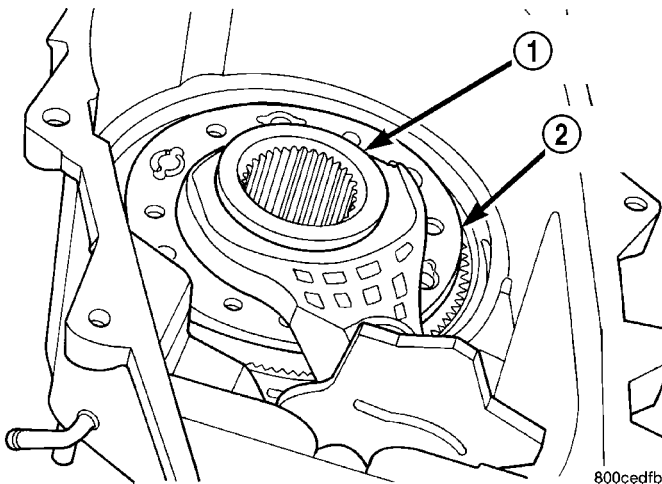
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Fig. 67 Install Shift Sector

1 - SHIFT SECTOR

(8) Assemble and install range fork and hub (Fig. 68). Be sure hub is properly seated in low range gear and engaged to the input gear.

(9) Align and insert range fork pin in shift sector slot.



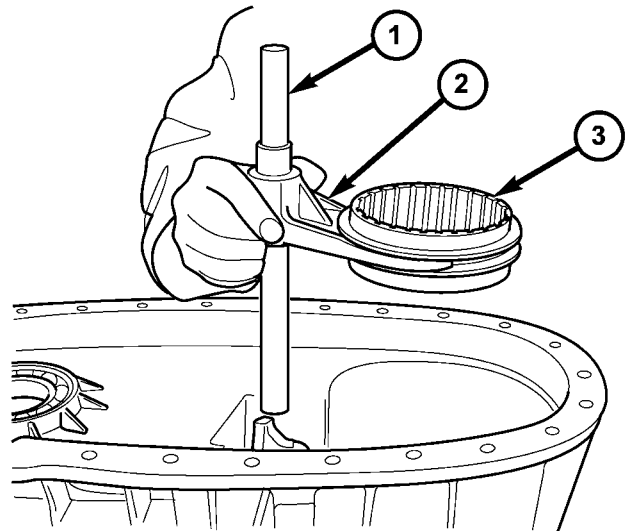
800cedfb

Fig. 68 Install Range Fork And Hub Assembly

1 - RANGE HUB
2 - RANGE FORK

(10) Install mode fork and shift rail onto the mode sleeve.

(11) Install the mode fork, sleeve, and shift rail into the transfer case (Fig. 69).

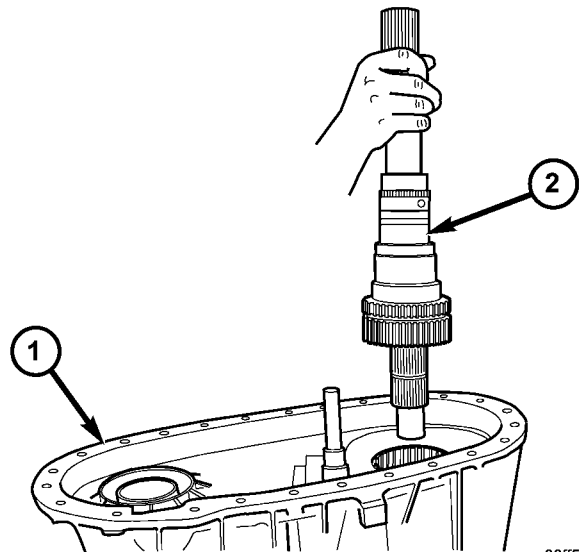


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Fig. 69 Install Mode Fork, Sleeve, and Shift Rail Assembly

1 - SHIFT RAIL
2 - MODE FORK
3 - MODE SLEEVE

(12) Install mainshaft into the transfer case (Fig. 70). Guide mainshaft through the mode and range sleeves and into the input gear.



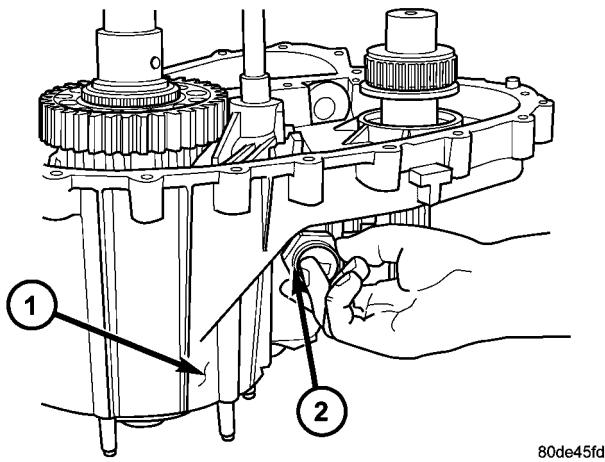
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Fig. 70 Install Mainshaft Assembly

1 - FRONT CASE HALF
2 - MAINSHAFT ASSEMBLY

TRANSFER CASE - NV271 (Continued)

(13) Install the transfer case position sensor (Fig. 71). Tighten the sensor to 20-34 N·m (15-25 ft. lbs.) torque.



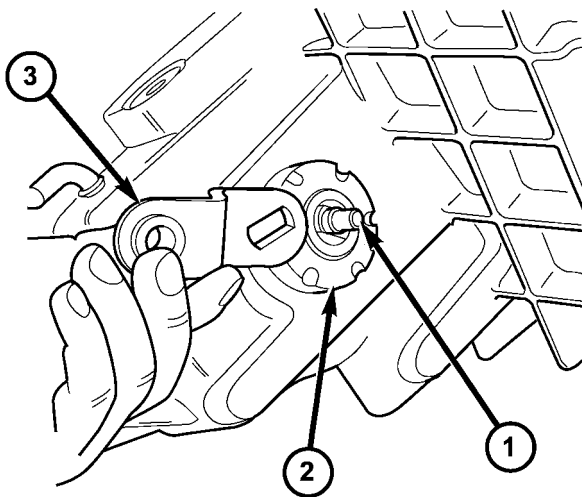
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Fig. 71 Install Position Sensor

- 1 - FRONT CASE
- 2 - POSITION SENSOR

(14) Install manual shift lever and spacer onto sector shaft (Fig. 72).

(15) Install washer and nut on sector shaft to secure shift lever. Apply 1-2 drops Mopar® Lock N' Seal, or equivalent, to nut threads before installation. Then tighten nut to 27-34 N·m (20-25 ft. lbs.) torque.

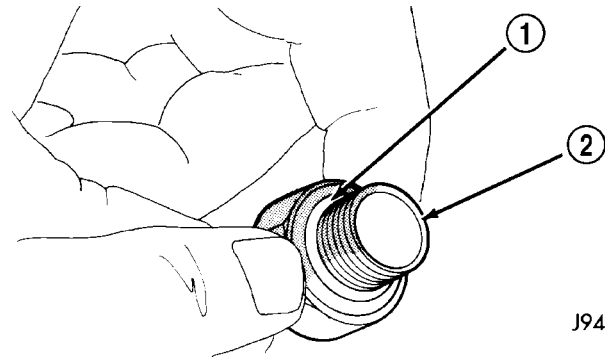


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Fig. 72 Install Manual Shift Lever

- 1 - SHIFT SECTOR
- 2 - SECTOR SUPPORT
- 3 - MANUAL SHIFT LEVER

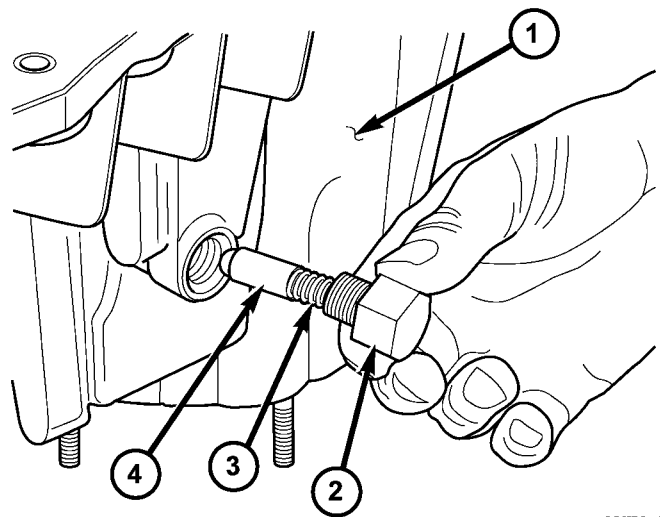
(16) Install new o-ring on detent plug (Fig. 73).
 (17) Install detent plunger, spring, and plug (Fig. 74). Tighten the plug to 16-25 N·m (12-18 ft. lbs.).



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Fig. 73 O-Ring Installation On Detent Plug

- 1 - O-RING
- 2 - DETENT PLUG



80ff53a3

Fig. 74 Install Detent plug, Spring, and Plunger

- 1 - FRONT CASE HALF
- 2 - DETENT PLUG
- 3 - SPRING
- 4 - PLUNGER

TRANSFER CASE - NV271 (Continued)

FRONT OUTPUT SHAFT AND DRIVE CHAIN

- (1) Install the front output shaft (Fig. 75) into the front output shaft front bearing.
- (2) Install the front output shaft bearing inner snap-ring (Fig. 76) onto the output shaft.
- (3) Install the new front output shaft seal with Installer MB991168A

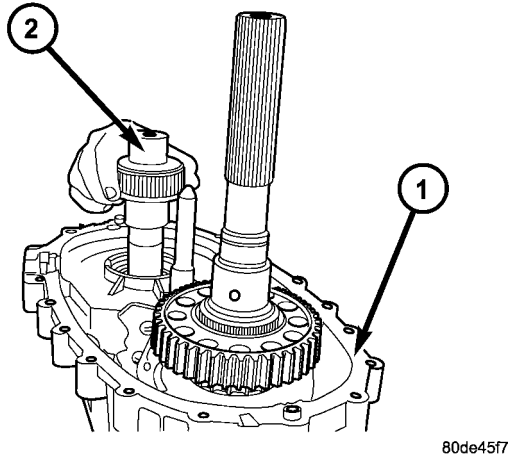


Fig. 75 Install Front Output Shaft

- 1 - FRONT CASE
- 2 - FRONT OUTPUT SHAFT

assembly until the front sprocket is positioned over the front output shaft.

- (7) Align the splines in the sprockets to the splines on the output shafts and install the sprockets onto the output shafts.

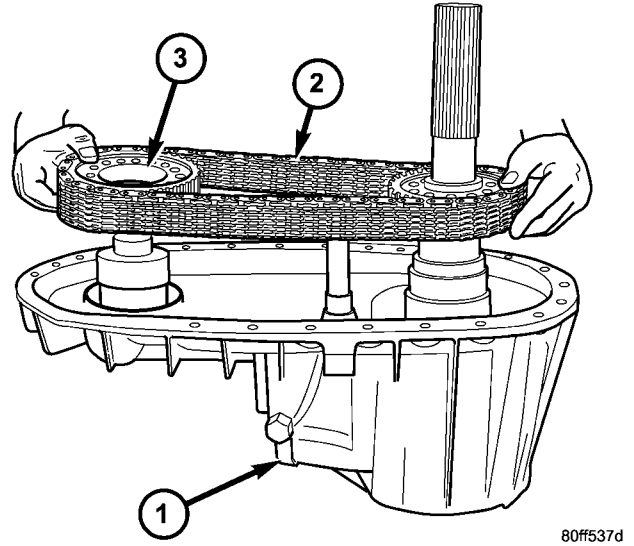


Fig. 77 Install Drive Chain and Sprockets

- 1 - FRONT CASE HALF
- 2 - CHAIN
- 3 - DRIVE SPROCKETS

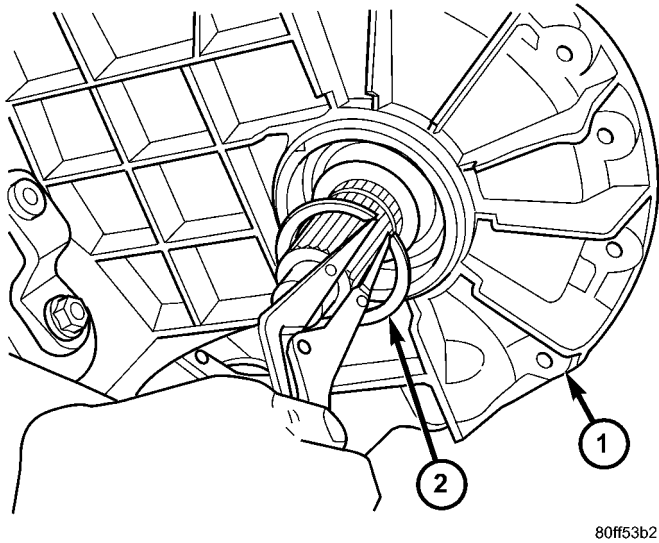


Fig. 76 Install Front Output Shaft Bearing Inner Snap-Ring

- 1 - FRONT CASE HALF
- 2 - SNAP-RING

- (4) Insert front drive sprocket in drive chain.
- (5) Install drive chain around rear drive sprocket.
- (6) Position rear drive sprocket (Fig. 77) over the output shaft and lower the sprocket and chain

- (8) Install front sprocket retaining ring (Fig. 78).

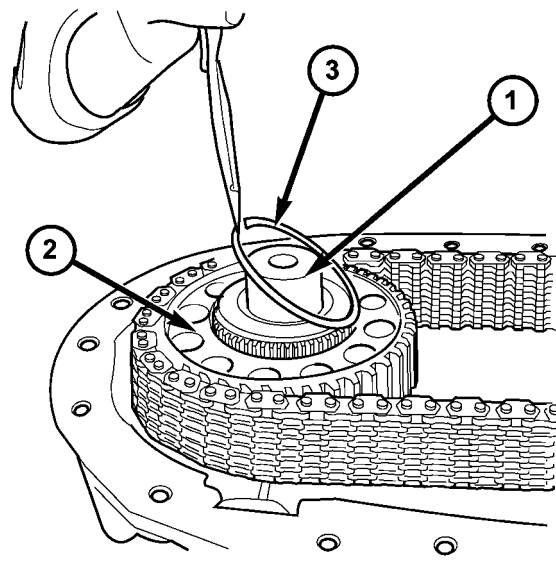


Fig. 78 Install Front Output Shaft Sprocket Retaining Ring

- 1 - FRONT OUTPUT SHAFT
- 2 - DRIVE SPROCKET
- 3 - RETAINING RING

TRANSFER CASE - NV271 (Continued)

- (9) Install rear sprocket retaining ring (Fig. 79).
- (10) Install spring onto shift rail (Fig. 80).

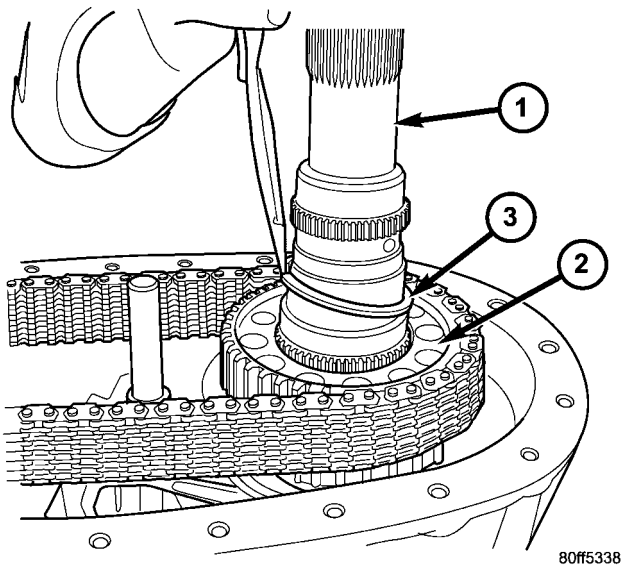


Fig. 79 Install Rear Output Shaft Sprocket Retaining Ring

- 1 - REAR OUTPUT SHAFT
- 2 - DRIVE SPROCKET
- 3 - RETAINING RING

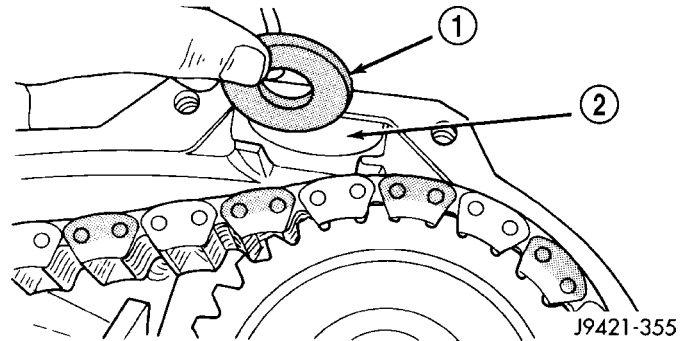


Fig. 81 Case Magnet Installation

- 1 - MAGNET
- 2 - CASE POCKET

bead width to maximum of 3/16 inch. Do not use excessive amount of sealer as excess will be displaced into case interior.

(3) Align mainshaft with the rear output shaft bearing and align shift rail with bore in rear case. Then install rear case (Fig. 82). Verify that the case alignment dowels correctly seat into their mating recesses.

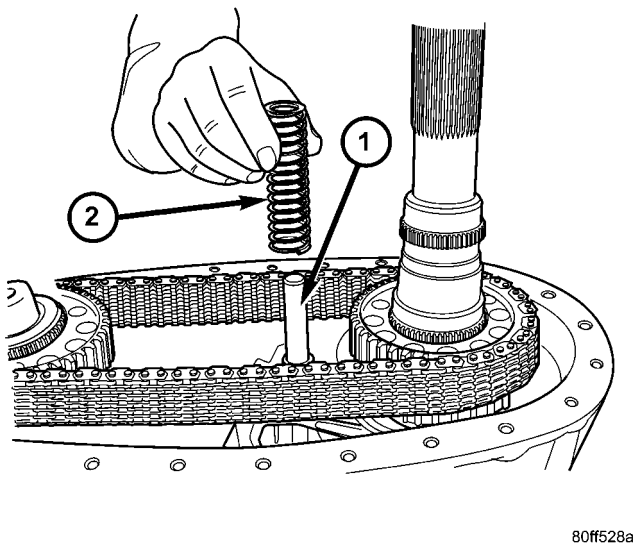


Fig. 80 Install Shift Rail Spring

- 1 - SHIFT RAIL
- 2 - SPRING

- (11) Insert magnet in front case pocket (Fig. 81).

REAR CASE

- (1) Install the oil pick-up tube and screen into the rear case half.
- (2) Apply bead of Mopar® Gasket Maker, or equivalent, to mating surface of front case. Keep sealer

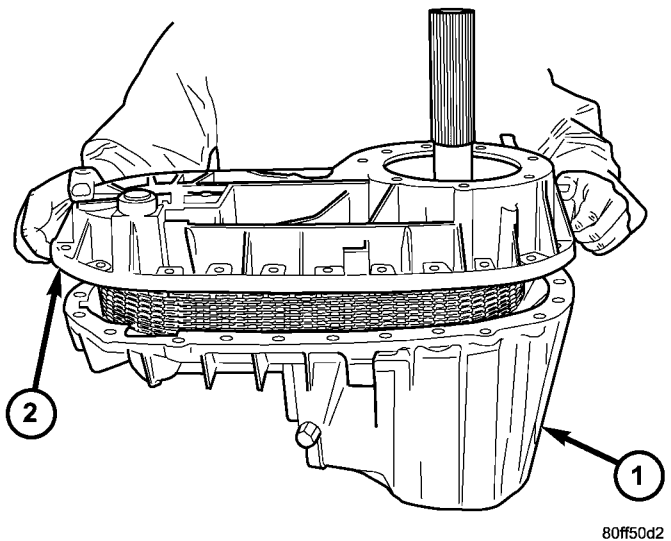


Fig. 82 Install Rear Case Half

- 1 - FRONT CASE HALF
- 2 - REAR CASE HALF

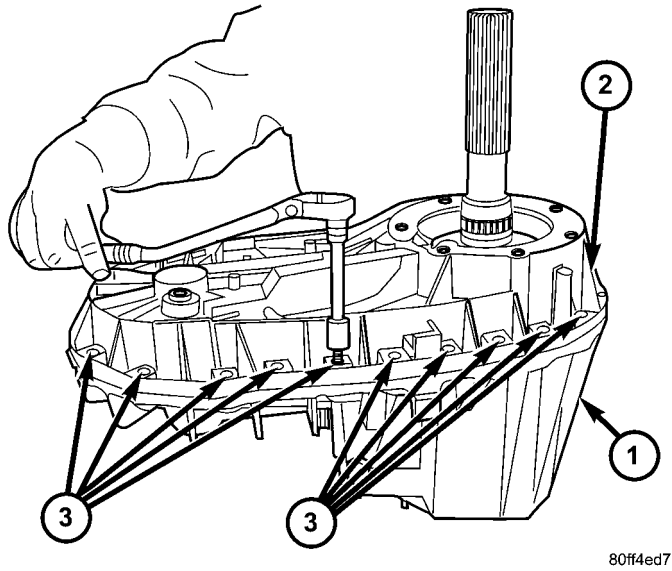
(4) Install 4-5 rear case-to front case bolts (Fig. 83) to hold rear case in position. Tighten bolts snug but not to specified torque at this time.

CAUTION: Verify that shift rail, and case alignment dowels are seated before installing any bolts. Case could be cracked if shaft rail or dowels are misaligned.

- (5) Tighten bolts to 27-34 N-m (20-25 ft. lbs.),

TRANSFER CASE - NV271 (Continued)

(6) Install rear output bearing inner snap-ring (Fig. 84) to output shaft.



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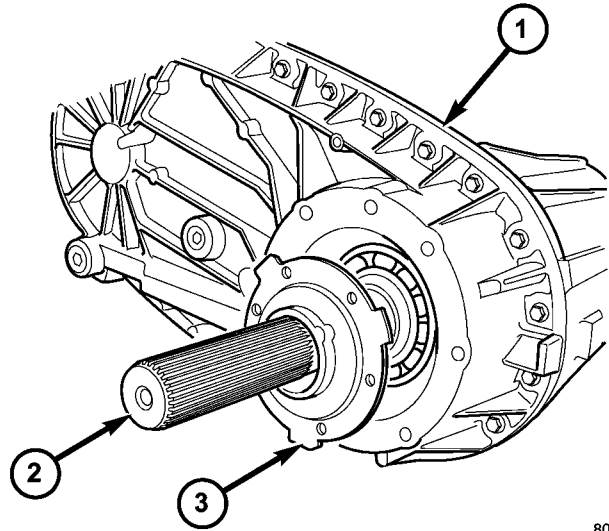
Fig. 83 Install Case Half Bolts

- 1 - FRONT CASE HALF
- 2 - REAR CASE HALF
- 3 - BOLTS

OIL PUMP AND REAR EXTENSION

(1) Install the oil pump (Fig. 85) onto the output shaft.

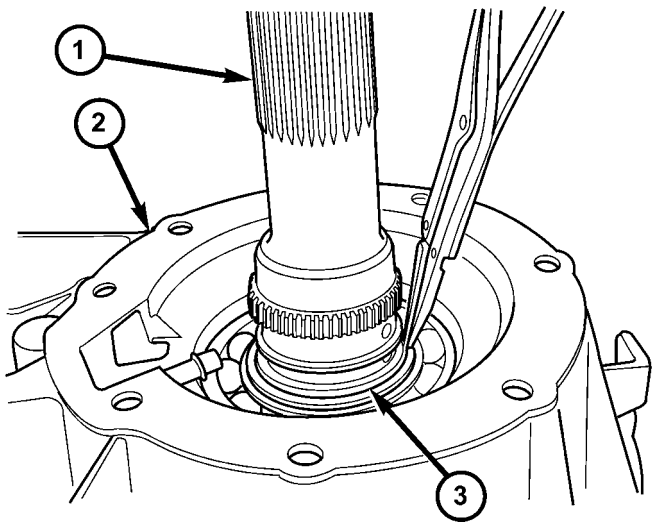
(2) Engage the oil pump pick-up tube (Fig. 86) into the oil pump. Verify that the pick-up tube o-ring is on the tube and is correctly installed to the oil pump.



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Fig. 85 Install Oil Pump

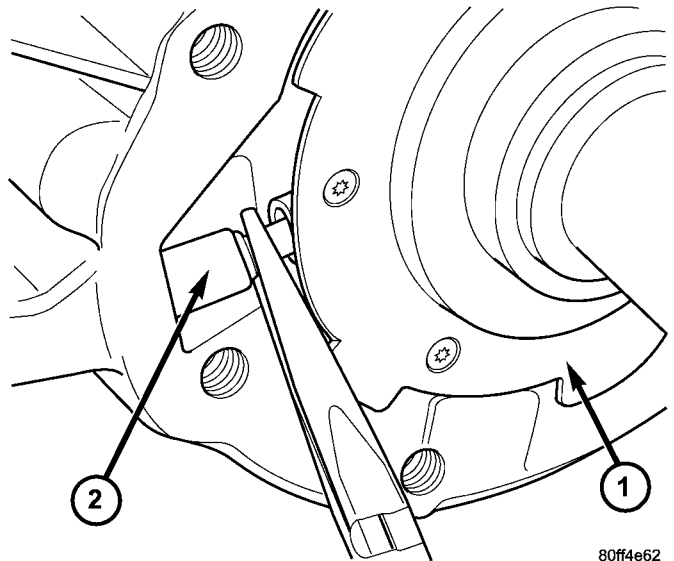
- 1 - REAR CASE HALF
- 2 - REAR OUTPUT SHAFT
- 3 - OIL PUMP



80ff4f29

Fig. 84 Install Rear Bearing Inner Snap-Ring

- 1 - OUTPUT SHAFT
- 2 - REAR CASE HALF
- 3 - SNAP-RING



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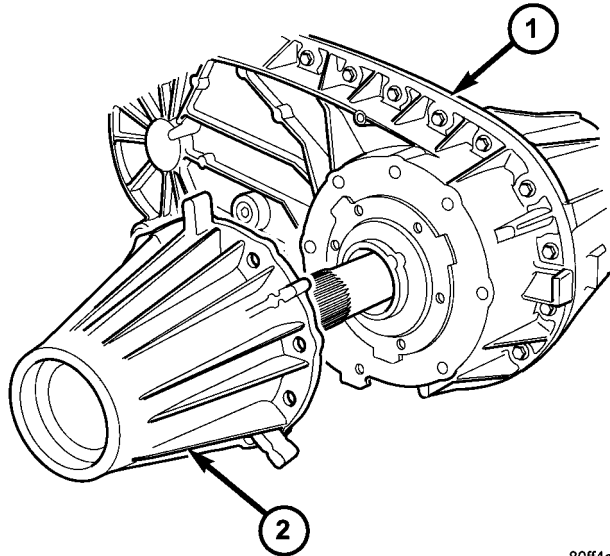
Fig. 86 Engage The Oil Pick-up To Oil Pump

- 1 - OIL PUMP
- 2 - OIL PICK-UP TUBE

TRANSFER CASE - NV271 (Continued)

(3) Apply bead of Mopar® Gasket Maker, or equivalent, to mating surface of rear extension housing. Keep sealer bead width to maximum of 3/16 inch. Do not use excessive amount of sealer as excess could be displaced into output bearing.

(4) Install extension housing (Fig. 87) onto the rear case half.

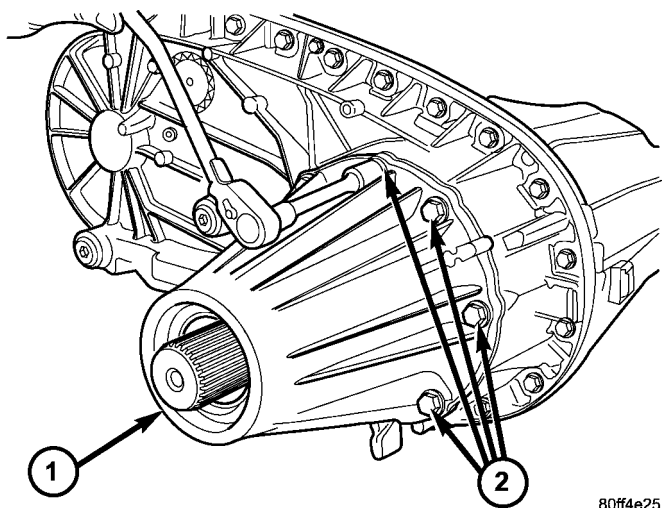


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Fig. 87 Install Extension Housing

- 1 - REAR CASE HALF
- 2 - EXTENSION HOUSING

(5) Install rear extension bolts (Fig. 88). Tighten the bolts to 27-34 N·m (20-25 ft.lbs.).

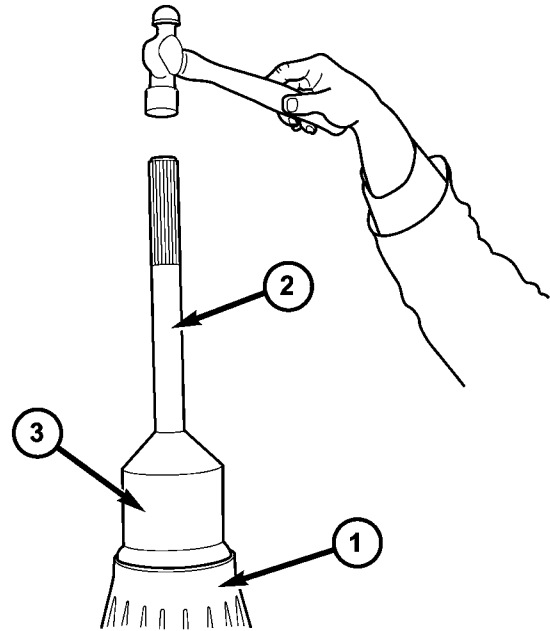


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Fig. 88 Install Extension Housing Bolts

- 1 - EXTENSION HOUSING
- 2 - BOLTS

(6) Install the extension housing boot and seal assembly with Installer 9037 and Handle C-4171 (Fig. 89).



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Fig. 89 Install Extension Housing Seal

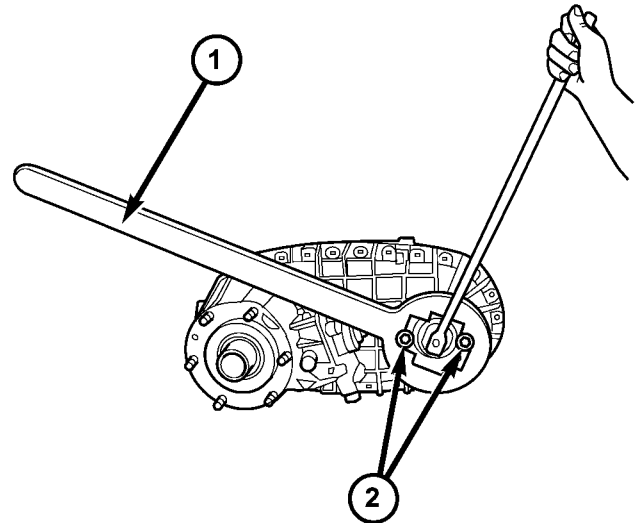
- 1 - EXTENSION HOUSING
- 2 - HANDLE C-4171
- 3 - INSTALLER 9037

TRANSFER CASE - NV271 (Continued)

- (7) Install the front companion flange onto the front output shaft.
- (8) Install two bolts 180° apart into the front output shaft companion flange.
- (9) Place holder over the bolts and against the companion flange (Fig. 90).
- (10) Install a new front companion flange nut. Tighten the companion flange nut to 176-271 N-m (130-200 ft.lbs.).

INSTALLATION

- (1) Align and seat transfer case on transmission. Be sure transfer case input gear splines are aligned with transmission output shaft. Align splines by rotating transfer case rear output shaft yoke if necessary. Do not install any transfer case attaching nuts until the transfer case is completely seated against the transmission.
- (2) Install and tighten transfer case attaching nuts. Tighten nuts to 30-41 N-m (20-30 ft.lbs.).
- (3) Remove jack stand from under transmission.
- (4) Align and connect propeller shafts. (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - INSTALLATION)
- (5) Connect vent hose and transfer case position sensor connector.
- (6) Connect shift rod to transfer case lever or floor shift arm. Use channel lock style pliers to press rod back into lever grommet.
- (7) Adjust shift linkage, if necessary.



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Fig. 90 Install Companion Flange Nut

- 1 - HOLDER 6719
- 2 - BOLTS

- (8) Fill transfer case with recommended transmission fluid and install fill plug.
- (9) Install skid plate, if equipped. (Refer to 13 - FRAMES & BUMPERS/FRAME/TRANSFER CASE SKID PLATE - INSTALLATION)
- (10) Lower vehicle

SPECIFICATIONS

TRANSFER CASE - NV271

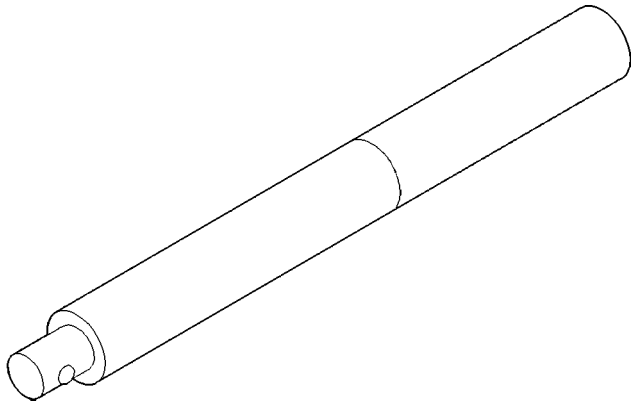
TORQUE SPECIFICATIONS

DESCRIPTION	N-m	Ft. Lbs.	In. Lbs.
Plug, Detent	16-25	12-18	-
Plug, Drain/Fill	20-34	15-25	-
Bolt, Extension Housing	27-34	20-25	-
Bolt, Case Half	27-34	20-25	-
Nut, Range Lever	27-34	20-25	-
Sector Support	27-34	20-25	-
Nuts, Mounting	30-41	20-30	-
Position Sensor	20-34	15-25	-
Nut, Companion Flange	176-271	130-200	-

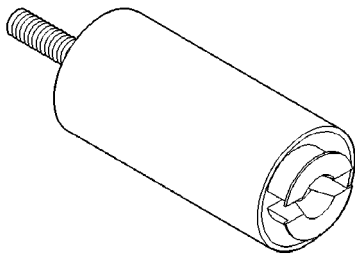
TRANSFER CASE - NV271 (Continued)

SPECIAL TOOLS

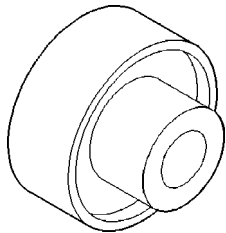
TRANSFER CASE NV271/NV273



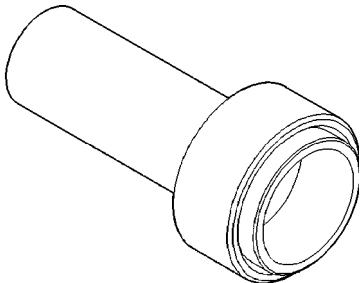
Handle, Universal - C-4171



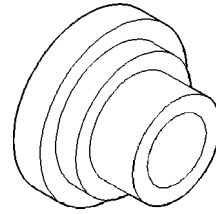
Remover - L-4454



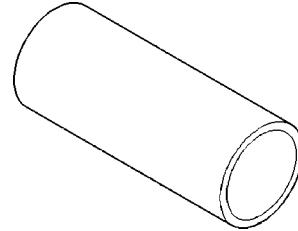
Installer, Bearing - 6953



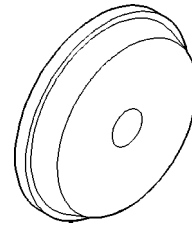
Installer, Pump Housing Seal - 7888



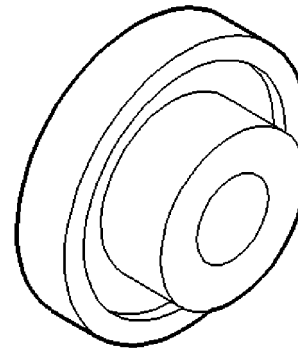
Installer, Bearing - 8128



Cup - 8148

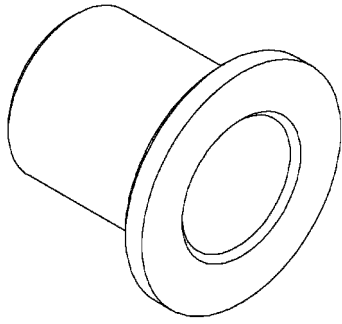


Installer - 8151

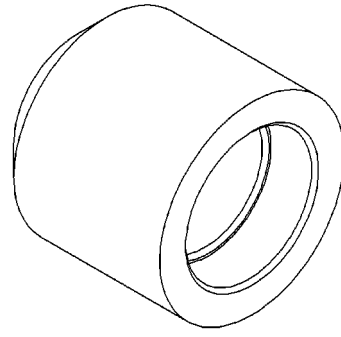


Installer - 8152

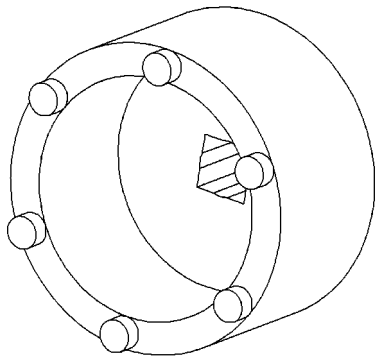
TRANSFER CASE - NV271 (Continued)



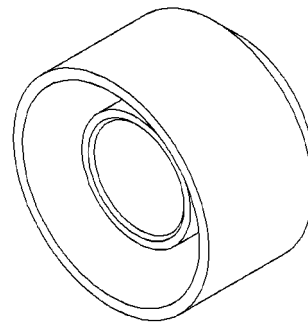
Installer - 8891



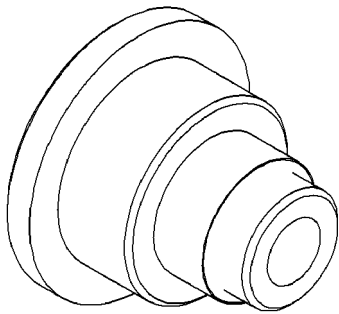
Installer, Seal - 9036



Socket - 9033



Installer, Seal - 9037



Installer, Bearing - 9035

EXTENSION HOUSING SEAL AND DUST BOOT

REMOVAL

- (1) Raise and support vehicle.
- (2) Remove rear propeller shaft. (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - REMOVAL)
- (3) Use a suitable chisel or pry tool to remove the rear extension housing dust boot (Fig. 91).
- (4) Use a suitable chisel or pry tool to remove the rear extension housing seal.

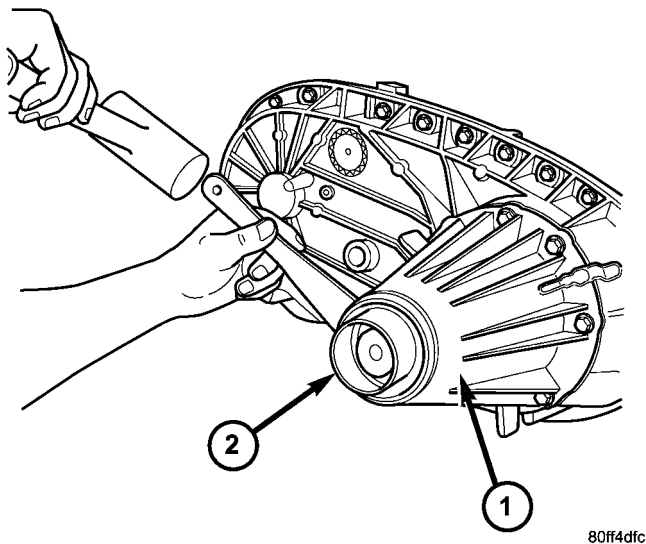


Fig. 91 Remove Extension Housing Dust Boot

- 1 - EXTENSION HOUSING
- 2 - DUST BOOT

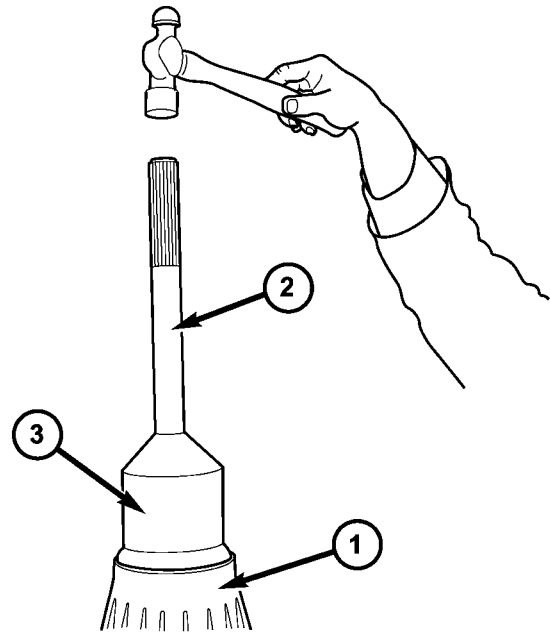


Fig. 92 Install Extension Housing Seal

- 1 - EXTENSION HOUSING
- 2 - HANDLE C-4171
- 3 - INSTALLER 9037

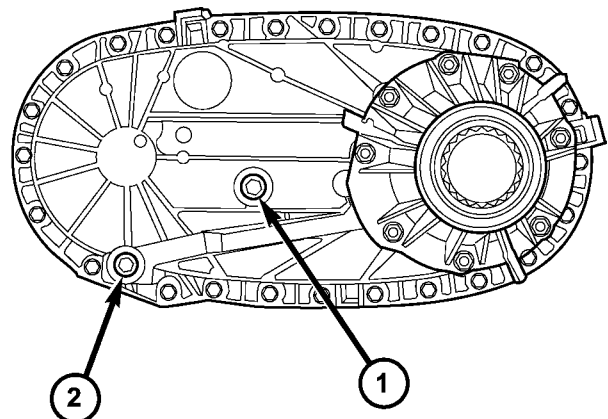


Fig. 93 Drain and Fill Locations

- 1 - FILL HOLE
- 2 - DRAIN HOLE

INSTALLATION

- (1) Clean fluid residue from sealing surface and inspect for defects.
- (2) Install the extension housing dust boot and seal assembly with Installer 9037 and Handle C-4171 (Fig. 92).
- (3) Install propeller shaft. (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - INSTALLATION)
- (4) Verify proper transfer case fluid level.
- (5) Lower vehicle.

FLUID

STANDARD PROCEDURE - FLUID DRAIN AND REFILL

The fill and drain plugs are both in the rear case (Fig. 93).

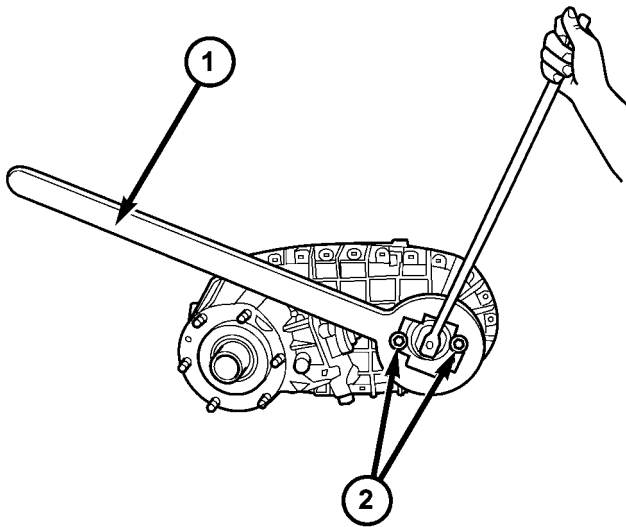
- (1) Raise vehicle.

- (2) Position drain pan under transfer case.
- (3) Remove drain and fill plugs and drain lubricant completely.
- (4) Install drain plug. Tighten plug to 41-54 N-m (30-40 ft. lbs.).
- (5) Remove drain pan.
- (6) Fill transfer case to bottom edge of fill plug opening with Mopar® ATF +4, Automatic Transmission fluid.
- (7) Install and tighten fill plug to 41-54 N-m (30-40 ft. lbs.).
- (8) Lower vehicle.

FRONT OUTPUT SHAFT SEAL

REMOVAL

- (1) Remove the front propeller shaft (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - REMOVAL).
- (2) Install two bolts 180° apart into the front output shaft companion flange.
- (3) Place holder over the bolts and against the companion flange (Fig. 94).
- (4) Remove and discard the front companion flange nut.
- (5) Remove the companion flange from the front output shaft. It may be necessary to use Flange puller 8992 to remove the companion flange.



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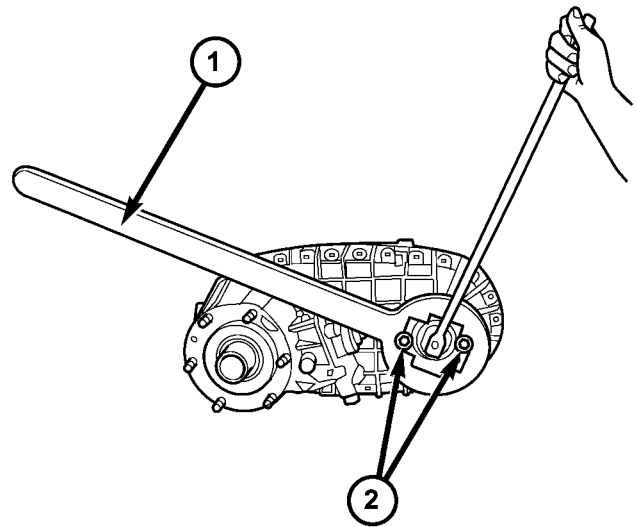
Fig. 94 Remove Companion Flange Nut

- 1 - HOLDER 6719
- 2 - BOLTS

- (6) Using a screw and a slide hammer, remove the front output shaft seal.

INSTALLATION

- (1) Install the new front output shaft seal with Installer MB991168A.
- (2) Install the front companion flange onto the front output shaft.
- (3) Install two bolts 180° apart into the front output shaft companion flange.
- (4) Place holder over the bolts and against the companion flange (Fig. 95).
- (5) Install a new front companion flange nut. Tighten the companion flange nut to 258-312 N·m (190-230 ft.lbs.).



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Fig. 95 Install Companion Flange Nut

- 1 - HOLDER 6719
- 2 - BOLTS

- (6) Install front propeller shaft (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - INSTALLATION).

POSITION SENSOR

DESCRIPTION

The transfer case position sensor is an electronic device whose output can be interpreted to indicate the transfer case's current operating mode. The sensor consists of a five position, resistive multiplexed circuit which returns a specific resistance value to the Powertrain Control Module (PCM) for each transfer case operating mode. The sensor is located on the top of the transfer case, just left of the transfer case centerline and rides against the sector plate rooster-

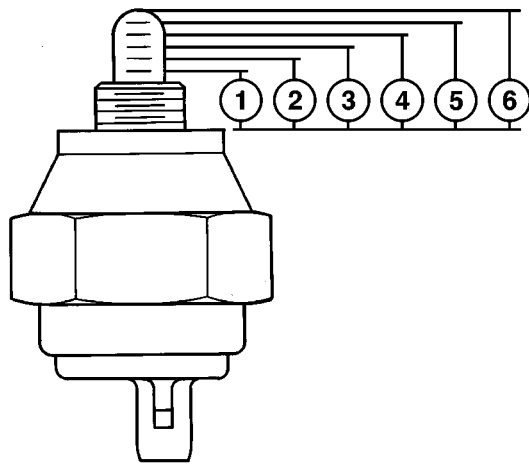
comb. The PCM supplies 5VDC (+/- 0.5V) to the sensor and monitors the return voltage to determine the sector plate, and therefore the transfer case, position.

OPERATION

During normal vehicle operation, the Powertrain Control Module (PCM) monitors the transfer case position sensor return voltage to determine the operating mode of the transfer case. Refer to the Operating Mode Versus Resistance table for the correct resistance for each position (Fig. 96).

OPERATING MODE VERSUS RESISTANCE

SENSOR POSITION	OPERATING MODE	SENSOR RESISTANCE (ohms)
1	2H	1172-1195
2	4H	677-691
3	NEUTRAL	406-415
4	4L	208-213
5	NOT USED	60-61



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Fig. 96 Position Sensor Linear Movement

- 1 - POSITION 1 - 10mm ±0.5mm
- 2 - POSITION 2 - 12mm ±0.5mm
- 3 - POSITION 3 - 14mm ±0.5mm
- 4 - POSITION 4 - 16mm ±0.5mm
- 5 - POSITION 5 - 18mm ±0.5mm
- 6 - POSITION 6 - 20mm±0.5mm - FULL EXTENSION

REMOVAL

- (1) Raise and support the vehicle.
- (2) Disengage the transfer case position sensor connector from the position sensor.
- (3) Remove the position sensor from the transfer case.

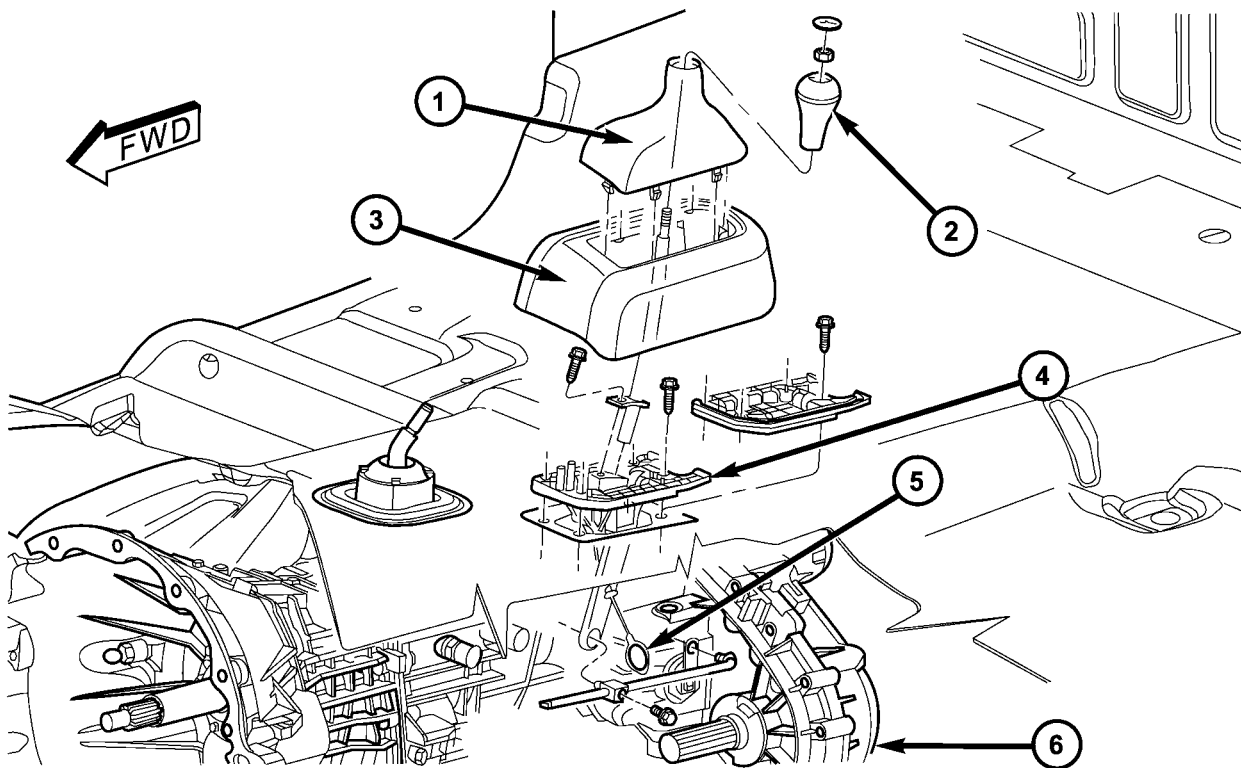
INSTALLATION

- (1) Inspect the o-ring seal on the transfer case position sensor. Replace the o-ring if necessary.
- (2) Install the transfer case position sensor into the transfer case. Torque the sensor to 20-34 N·m (15-25 ft.lbs.).
- (3) Engage the transfer case position sensor connector to the position sensor.
- (4) Lower vehicle.
- (5) Verify proper sensor operation.

SHIFT LEVER

REMOVAL

- (1) Shift transfer case into 2H.
- (2) Raise and support the vehicle.
- (3) Loosen adjusting trunnion lock bolt and slide shift rod out of trunnion. If rod lacks enough travel to come out of trunnion, push trunnion out of shift lever.
- (4) Lower vehicle.
- (5) Remove transfer case shifter knob cap.
- (6) Remove nut holding shifter knob to shift lever.
- (7) Remove shifter knob.
- (8) Remove the shift boot from the shifter console.
- (9) Remove the bolts securing the shifter mechanism to the floor pan (Fig. 97).
- (10) Separate shift lever mechanism from the vehicle.



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Fig. 97 Transfer Case Shifter

- | | |
|---------------------|-----------------------|
| 1 - SHIFTER BOOT | 4 - SHIFTER MECHANISM |
| 2 - SHIFTER KNOB | 5 - ALIGNMENT PIN |
| 3 - SHIFTER CONSOLE | 6 - TRANSFER CASE |

SHIFT LEVER (Continued)

INSTALLATION

(1) If the shifter mechanism does not have a adjustment locating pin installed, align the adjustment channel on the shifter assembly to the locating hole in the lower shift lever and install an appropriately sized pin to retain the position (Fig. 98).

(2) Position shift lever in vehicle.

(3) Install the bolts to hold the shifter mechanism to the floor pan.

(4) Raise vehicle.

(5) Verify that the transfer case is still in the 2H position. The 2H detent position on the transfer case shift arm is the second position from full forward.

(6) Install trunnion to shift lever, if necessary.

(7) Install shift rod to trunnion, if necessary.

(8) Tighten the shift rod lock bolt to 10 N·m (90 in.lbs.).

(9) Remove the shifter adjustment locating pin from the adjustment channel and the locating hole.

(10) Lower vehicle.

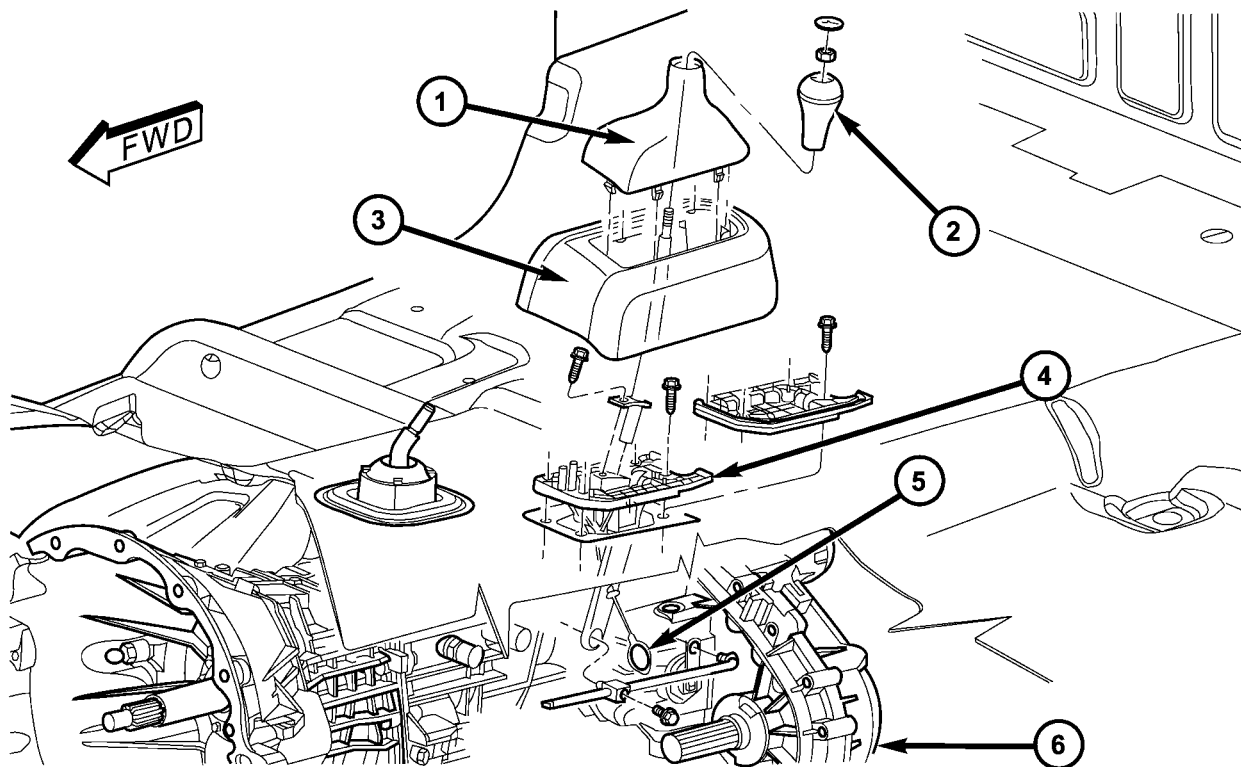
(11) Install the transfer case shifter console.

(12) Install the shifter boot and the shifter knob onto the shifter lever.

(13) Install nut to hold shifter knob to shift lever.

(14) Install shifter knob cap.

(15) Verify transfer case operation.



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Fig. 98 Transfer Case Shifter

1 - SHIFTER BOOT
2 - SHIFTER KNOB
3 - SHIFTER CONSOLE

4 - SHIFTER MECHANISM
5 - ALIGNMENT PIN
6 - TRANSFER CASE

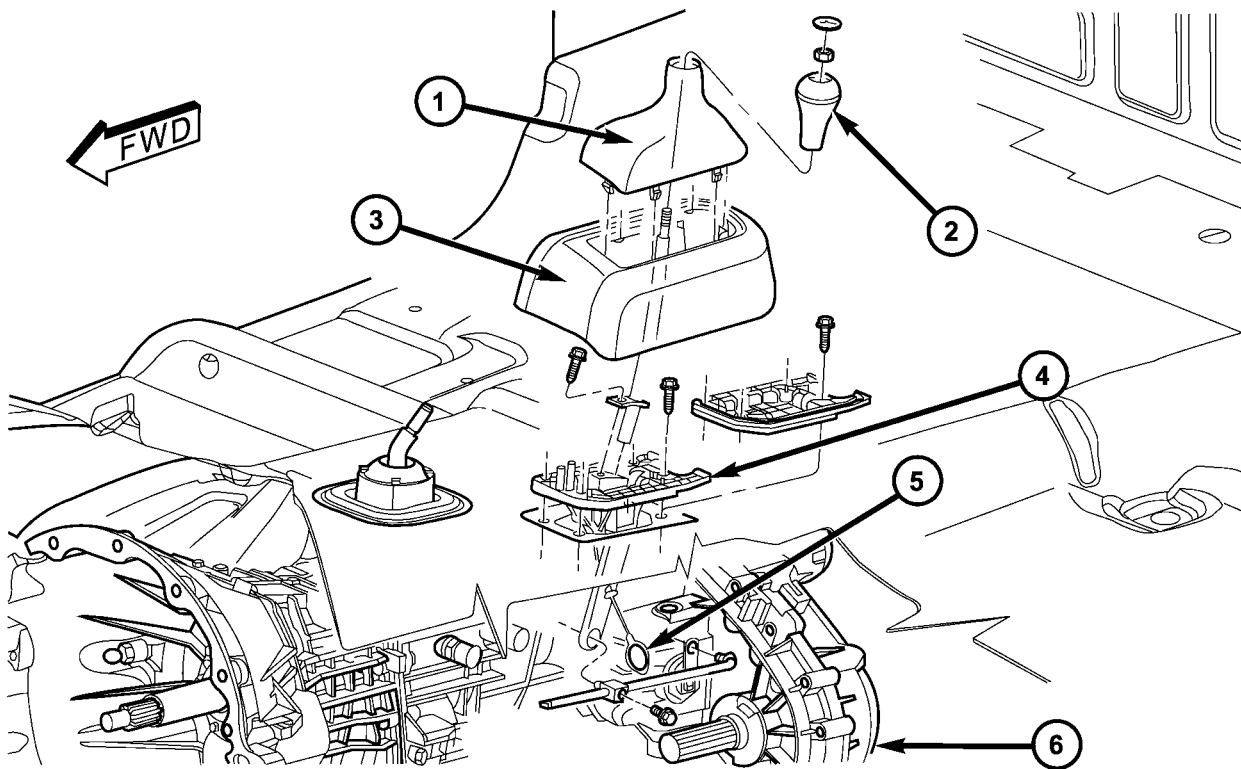
SHIFT LEVER (Continued)

ADJUSTMENTS

ADJUSTMENT - SHIFT LEVER

- (1) Move shift lever into 2H position.
- (2) Raise vehicle.
- (3) Loosen shift rod lock bolt at trunnion.
- (4) Check shift rod fit in trunnion. Be sure rod does not bind in trunnion. Lubricate the shift rod and trunnion if necessary.
- (5) Verify that transfer case shift lever is in 2H detent position. The 2H detent position on the transfer case shift arm is the second position from full forward.
- (6) Align the adjustment locating hole on the lower shifter lever with the adjustment channel on the shifter bracket assembly (Fig. 99).

- (7) Insert an appropriately sized pin through into the adjustment channel and through the locating hole to hold the shifter in the correct position.
- (8) Tighten shift rod lock bolt to 10 N-m (90 in. lbs.) torque.
- (9) Remove the locating pin from the adjustment channel and locating hole.
- (10) Check shift linkage operation. Be sure transfer case shifts into and operates properly in all ranges.



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Fig. 99 Transfer Case Shifter

- 1 - SHIFTER BOOT
- 2 - SHIFTER KNOB
- 3 - SHIFTER CONSOLE

- 4 - SHIFTER MECHANISM
- 5 - ALIGNMENT PIN
- 6 - TRANSFER CASE

TRANSFER CASE - NV243

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TRANSFER CASE - NV243

DESCRIPTION

The NV243 is an electronically controlled part-time transfer case with a low range gear reduction system. The NV243 has three operating ranges plus a NEUTRAL position. The low range system provides a gear reduction ratio for increased low speed torque capability.

The geartrain is mounted in two aluminum case halves attached with bolts. The mainshaft front and rear bearings are mounted in aluminum retainer housings bolted to the case halves.

OPERATING RANGES

Transfer case operating ranges are:

- 2WD (2-wheel drive)
- 4HI (4-wheel drive)
- 4LO (4-wheel drive low range)
- NEUTRAL

The 2WD range is for use on any road surface at any time.

The 4HI and 4LO ranges are for off road use only. They are not for use on hard surface roads. The only exception being when the road surface is wet or slippery or covered by ice and snow.

The low range reduction gear system is operative in 4LO range only. This range is for extra pulling power in off road situations. Low range reduction ratio is 2.72:1.

SHIFT MECHANISM

Operating ranges are selected with a dash mounted shift selector switch. The shift selector switch provides a input to the Transfer Case Control Module (TCCM) to indicate the driver's desire to change operating ranges. The TCCM uses this input, along with input from the transfer case mounted mode sensor and information from the vehicle's bus, to determine if a shift is permitted. If the TCCM decides the shift is permitted, the TCCM controls the shift motor, mounted to the exterior of the transfer case, to perform the shift.

TRANSFER CASE - NV243 (Continued)

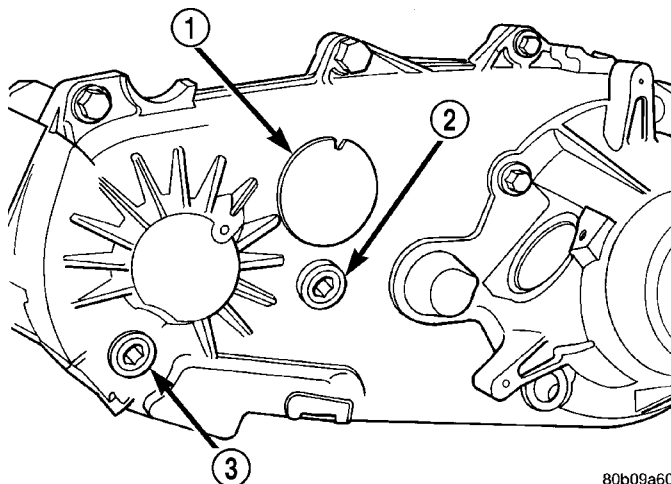
IDENTIFICATION

A circular ID tag is attached to the rear case of each transfer case (Fig. 1). The ID tag provides the transfer case model number, assembly number, serial number, and low range ratio.

The transfer case serial number also represents the date of build.

OPERATION

The input gear is splined to the transmission output shaft. The input gear drives the mainshaft through the planetary assembly and range sleeve. The front output shaft is operated by a drive chain that connects the shaft to a drive sprocket on the mainshaft. The drive sprocket is engaged/disengaged by the mode fork, which operates the mode sleeve and hub. The sleeve and hub are not equipped with a synchronizer mechanism for shifting.



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Fig. 1 Fill/Drain Plug And I.D. Tag Locations - Typical

- 1 - I.D. TAG
- 2 - FILL PLUG
- 3 - DRAIN PLUG

DIAGNOSIS AND TESTING - TRANSFER CASE - NV243

DIAGNOSIS CHART

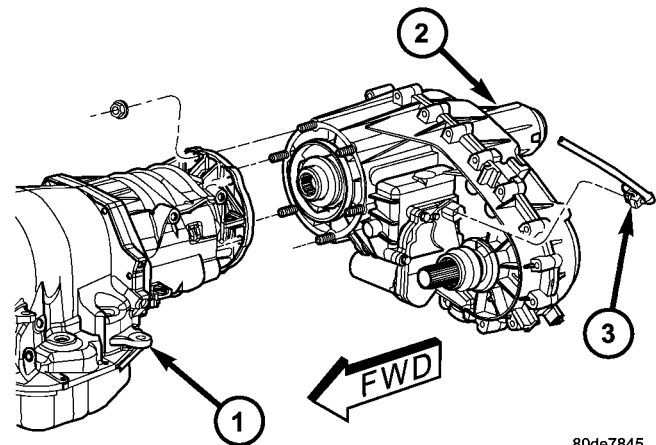
Condition	Possible Cause	Correction
Transfer case difficult to shift or will not shift into desired range.	1) Transfer case electronically controlled shift system malfunction.	1) Verify proper operation per the appropriate diagnostic manual.
	2) If vehicle was operated for an extended period in 4HI mode on dry surface, driveline torque load may cause difficulty.	2) Drive the vehicle in a straight line and momentarily release the accelerator. The transfer case can then be shifted to the desired mode.
	3) Insufficient or incorrect lubricant.	3) Drain and refill transfer case with the correct quantity of Mopar® ATF +4, Automatic Transmission Fluid.
	4) Internal transfer case components binding, worn, or damaged.	4) Repair or replace components as necessary.
Transfer case noisy in all drive modes.	1) Insufficient or incorrect lubricant.	1) Drain and refill transfer case with the correct quantity of Mopar® ATF +4, type 9602, Automatic Transmission Fluid.
	2) Internal transfer case components binding, worn, or damaged.	2) Repair or replace components as necessary.

TRANSFER CASE - NV243 (Continued)

Condition	Possible Cause	Correction
Transfer case noisy while in, or jumps out of, 4LO mode.	1) Transfer case not completely engaged in 4LO position.	1) While rolling 2-3 MPH and the transmission in NEUTRAL, or clutch depressed on vehicles equipped with a manual transmission, shift transfer case to the 2WD or 4HI position, and then back into the 4LO position.
	2) Range fork damaged, inserts worn, or fork is binding on the shift rail.	2) Repair or replace components as necessary.
	3) Low range gear worn or damaged.	3) Repair or replace components as necessary.
Lubricant leaking from transfer case seals or vent.	1) Transfer case overfilled.	1) Drain lubricant to the correct level.
	2) Transfer case vent closed or restricted.	2) Clean or replace vent as necessary.
	3) Transfer case seals damaged or installed incorrectly.	3) Replace suspect seal.
Abnormal tire wear.	1) Extended operation in 4HI mode on dry surfaces,	1) Operate vehicle in 2WD mode on dry surfaces.

REMOVAL

- (1) Shift transfer case into 2WD.
- (2) Raise vehicle.
- (3) Drain transfer case lubricant.
- (4) Mark front and rear propeller shafts for alignment reference.
- (5) Support transmission with jack stand.
- (6) Remove the transfer case skid plate, if equipped.
- (7) Disconnect front and rear propeller shafts at transfer case.
- (8) Disconnect transfer case shift motor and mode sensor wire connectors.
- (9) Disconnect transfer case vent hose.
- (10) Support transfer case with transmission jack.
- (11) Secure transfer case to jack with chains.
- (12) Remove nuts attaching transfer case to transmission (Fig. 2).
- (13) Pull transfer case and jack rearward to disengage transfer case.
- (14) Remove transfer case from under vehicle.



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Fig. 2 Remove Transfer Case - Typical

- 1 - TRANSMISSION
- 2 - TRANSFER CASE
- 3 - MODE SENSOR CONNECTOR

DISASSEMBLY

Position transfer case in a shallow drain pan. Remove drain plug and drain any remaining lubricant remaining in case.

TRANSFER CASE - NV243 (Continued)

SHIFT MOTOR ASSEMBLY AND FRONT OUTPUT SHAFT SEAL

(1) Remove the bolts (Fig. 3) which hold the shift motor and mode sensor assembly to the transfer case.

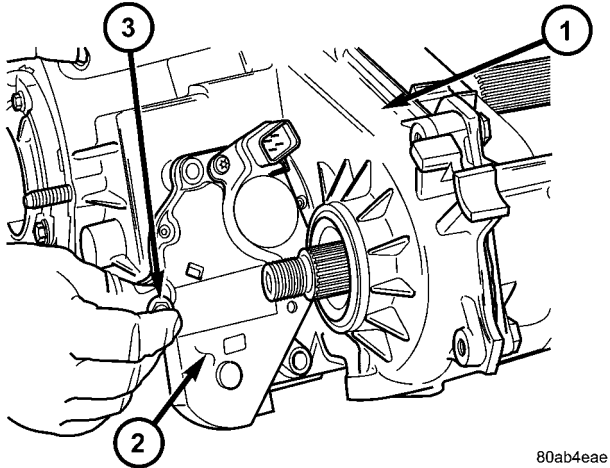


Fig. 3 Remove the Shift Motor and Mode Sensor Assembly Bolts - Typical

- 1 - TRANSFER CASE
- 2 - SHIFT MOTOR AND MODE SENSOR ASSEMBLY
- 3 - BOLT

(2) Remove the shift motor and mode sensor assembly from the transfer case.

(3) Remove the front propeller shaft seal boot retaining clamp (Fig. 4).

(4) Remove the front propeller shaft seal boot (Fig. 5).

(5) Remove the front output shaft seal slinger by bending (Fig. 6) the slinger ears away from the transfer case.

(6) Using a suitable pry tool (Fig. 7), remove the slinger from the output shaft using care not to damage the shaft.

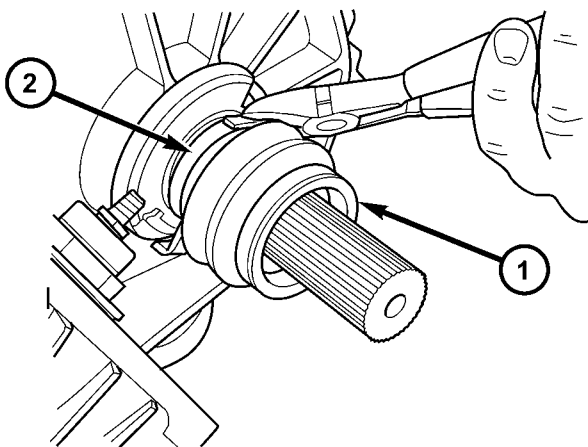


Fig. 4 Remove Boot Clamp - Typical

- 1 - SEAL BOOT
- 2 - BOOT CLAMP

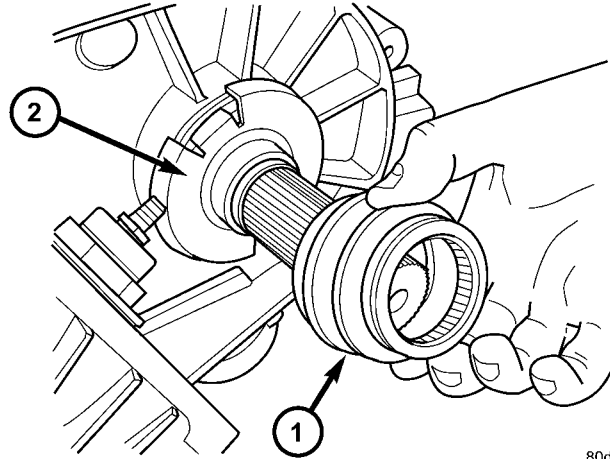


Fig. 5 Remove Seal Boot - Typical

- 1 - SEAL BOOT
- 2 - SEAL SLINGER

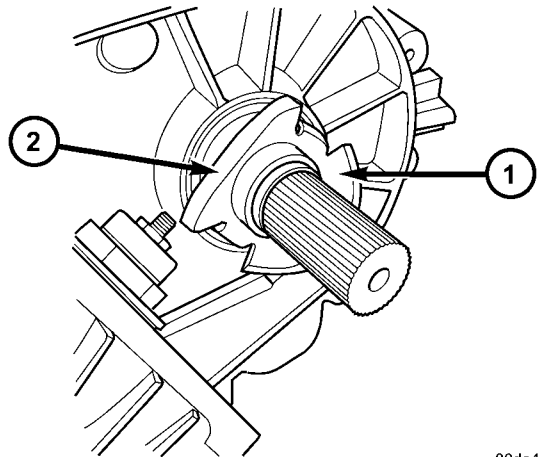


Fig. 6 Bend Slinger Ears - Typical

- 1 - SLINGER
- 2 - BEND UPWARD

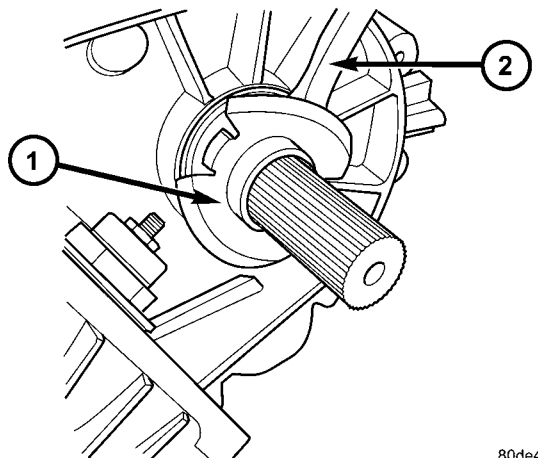


Fig. 7 Remove Slinger From Shaft - Typical

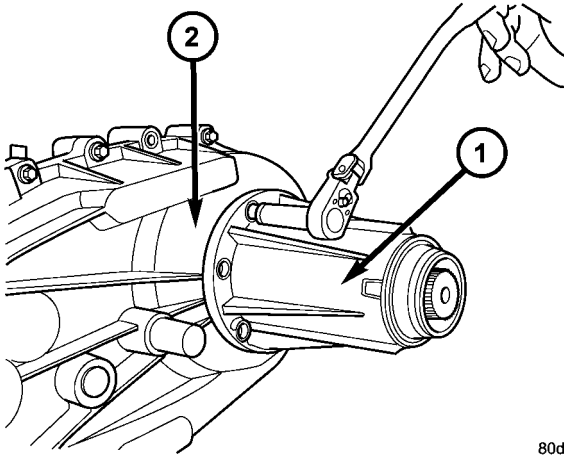
- 1 - SLINGER
- 2 - PRY TOOL

TRANSFER CASE - NV243 (Continued)

(7) Using a screw and a slide hammer, remove the front output shaft seal.

REAR EXTENSION

(1) Remove rear extension bolts (Fig. 8).

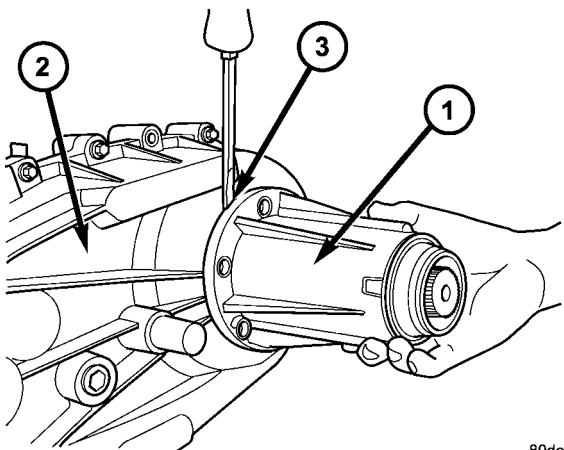


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Fig. 8 Remove Rear Extension Bolts

- 1 - EXTENSION HOUSING
- 2 - TRANSFER CASE

(2) Remove rear extension housing (Fig. 9). Tap extension once or twice with a plastic mallet to break sealer bead and loosen it.

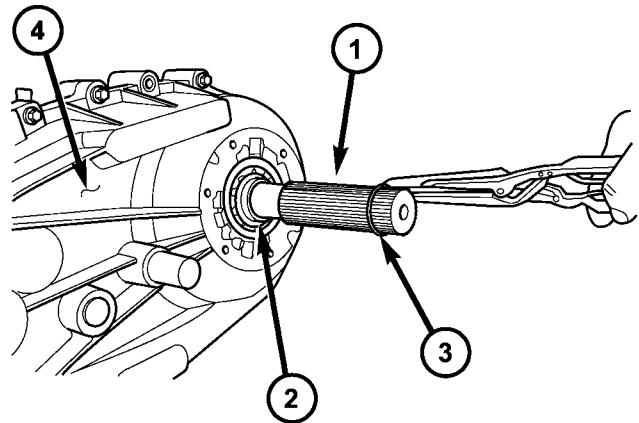


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Fig. 9 Remove Rear Extension

- 1 - EXTENSION HOUSING
- 2 - TRANSFER CASE
- 3 - PRY SLOT

(3) Remove output bearing retaining ring with heavy duty snap-ring pliers (Fig. 10).



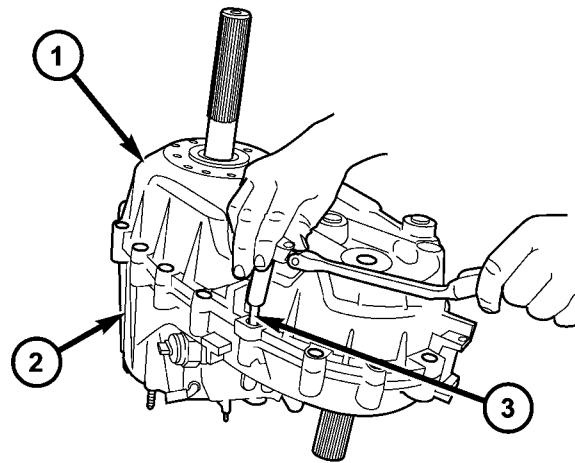
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Fig. 10 Remove Output Shaft Retaining Ring

- 1 - REAR OUTPUT SHAFT
- 2 - OUTPUT SHAFT BEARING
- 3 - RETAINING RING
- 4 - TRANSFER CASE

OIL PUMP AND REAR CASE

(1) Remove rear case-to-front case bolts (Fig. 11).



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Fig. 11 Remove Case Bolts

- 1 - REAR CASE
- 2 - FRONT CASE
- 3 - BOLT

TRANSFER CASE - NV243 (Continued)

(2) Loosen rear case with pry tool to break sealer bead. Insert tool in slot at each end of case (Fig. 12).

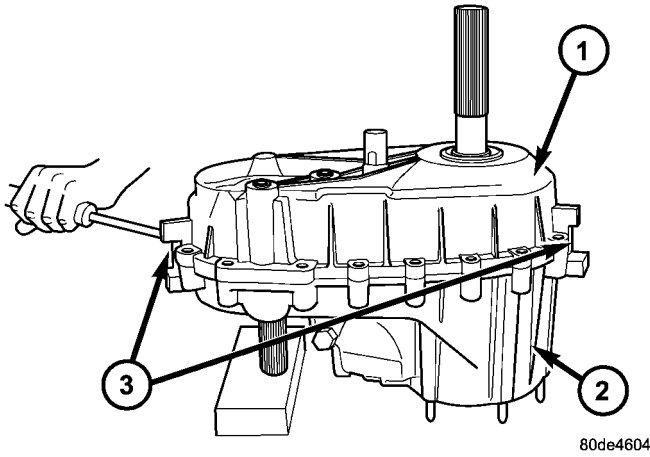


Fig. 12 Loosen Case Halves

- 1 - REAR CASE
- 2 - FRONT CASE
- 3 - PRY SLOTS

(3) Unseat rear case from alignment dowels.
 (4) Remove rear case and oil pump assembly from front case (Fig. 13).

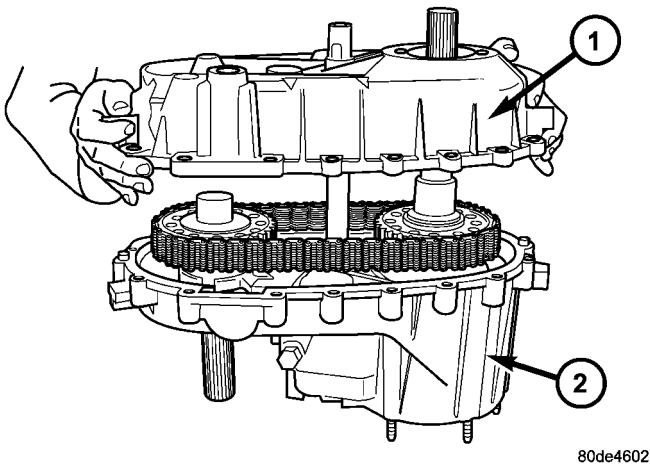


Fig. 13 Remove Rear Case

- 1 - REAR CASE
- 2 - FRONT CASE

CAUTION: Do not remove the bolts holding the oil pump cover to the rear case half. The oil pump cover is aligned to the rear output shaft inner bearing race and will become mis-aligned if the bolts are loosened. If the transfer case failure has generated any debris which may have become trapped in the oil pump, the rear case and oil pump assembly **MUST** be replaced.

(5) Remove the oil pump pickup tube.

FRONT OUTPUT SHAFT AND DRIVE CHAIN

(1) Remove shift rail cup and spring (Fig. 14).

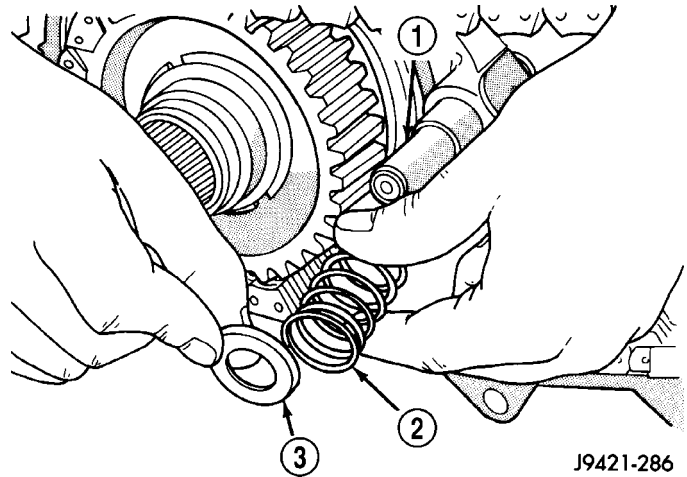


Fig. 14 Shift Rail Cup And Spring Removal

- 1 - SHIFT RAIL
- 2 - SPRING
- 3 - CUP

(2) Remove front sprocket retaining ring (Fig. 15).

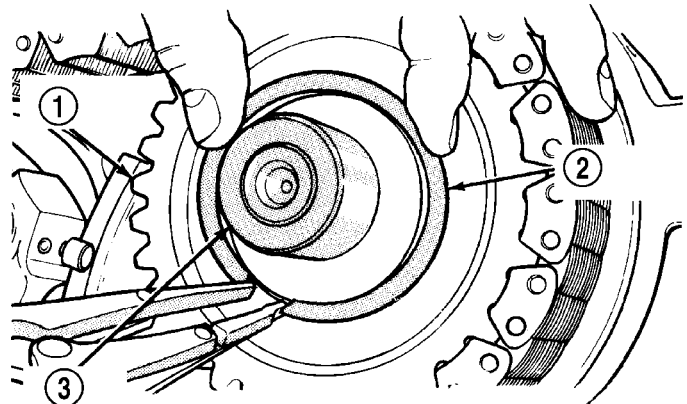


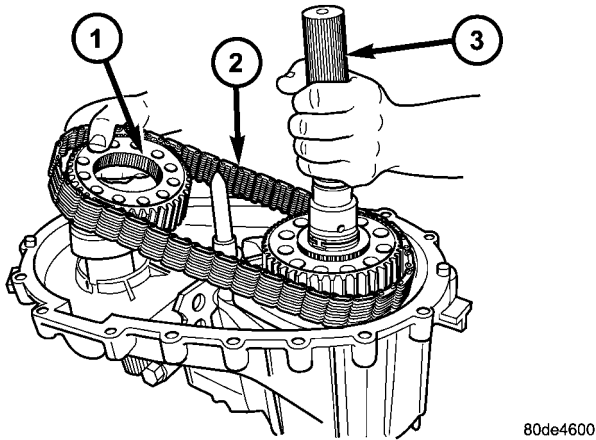
Fig. 15 Removing Front Sprocket Retaining Ring

- 1 - FRONT SPROCKET
- 2 - RETAINING RING
- 3 - FRONT OUTPUT SHAFT

TRANSFER CASE - NV243 (Continued)

(3) Pull mainshaft, front sprocket and chain outward about 25.4 mm (1-inch) simultaneously (Fig. 16).

(4) Remove chain from mainshaft drive sprocket and remove front sprocket and chain as assembly.



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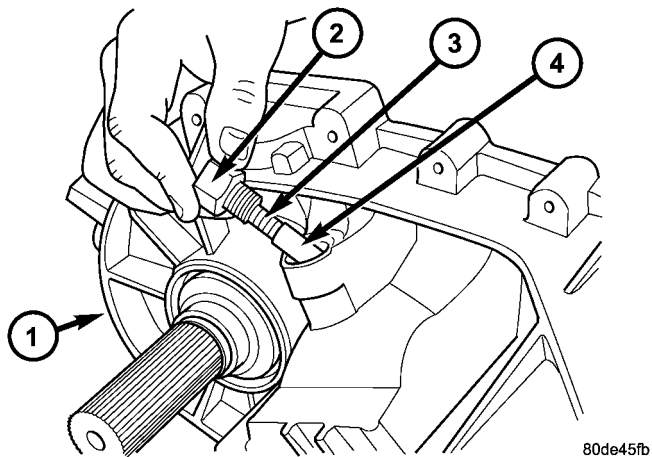
Fig. 16 Remove Front Sprocket and Drive Chain

- 1 - FRONT DRIVE SPROCKET
- 2 - DRIVE CHAIN
- 3 - MAINSHAFT

SHIFT FORKS AND MAINSHAFT

(1) Loosen detent plug.

(2) Remove detent plug, spring, and plunger (Fig. 17). Note that the plug has an O-ring seal. Remove and discard this seal.

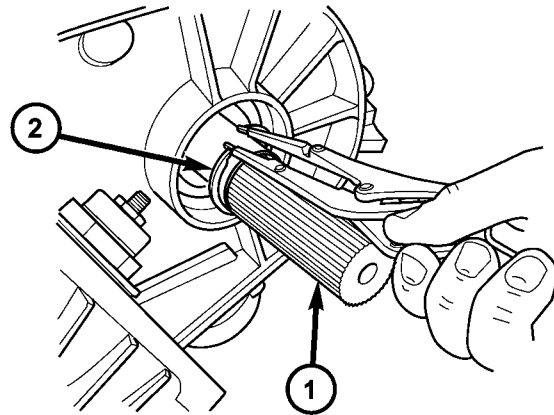


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Fig. 17 Remove Detent Plug, Spring, and Plunger

- 1 - FRONT CASE
- 2 - DETENT PLUG
- 3 - DETENT SPRING
- 4 - DETENT PLUNGER

(3) Remove the front output shaft snap-ring (Fig. 18).

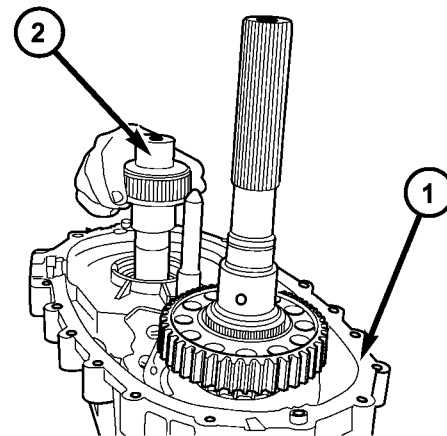


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Fig. 18 Remove Front Output Shaft Snap-ring - Typical

- 1 - FRONT OUTPUT SHAFT
- 2 - SNAP-RING

(4) Remove front output shaft from bearing in case (Fig. 19).



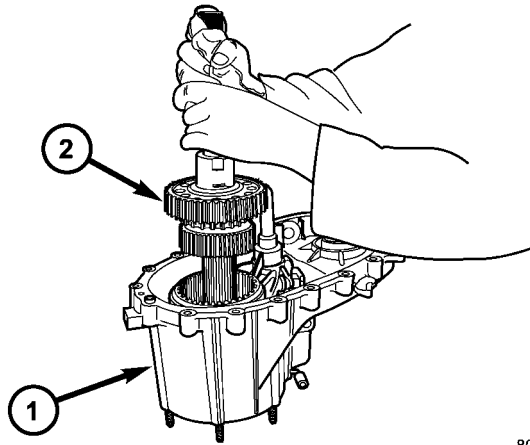
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Fig. 19 Remove Front Output Shaft

- 1 - FRONT CASE
- 2 - FRONT OUTPUT SHAFT

TRANSFER CASE - NV243 (Continued)

(5) Pull mainshaft assembly out of input gear, mode sleeve, and case (Fig. 20).

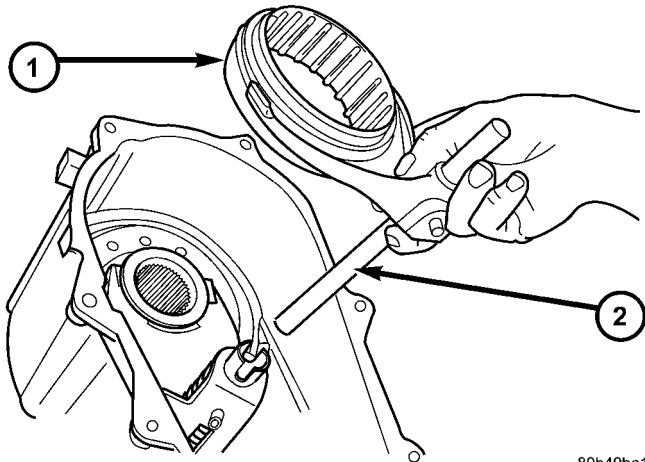


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Fig. 20 Remove Mainshaft

- 1 - FRONT CASE
- 2 - MAINSHAFT

(6) Remove mode fork, mode sleeve, and shift rail as assembly (Fig. 21). Note which way the sleeve fits in the fork (long side of sleeve goes to front).

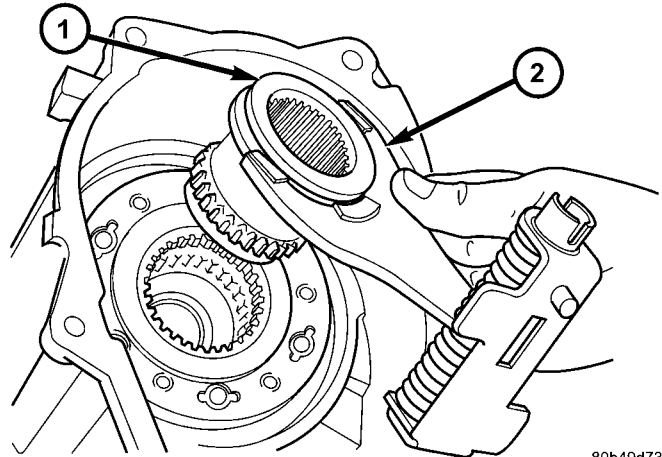


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Fig. 21 Mode Fork And Sleeve Removal

- 1 - MODE SLEEVE
- 2 - MODE FORK AND RAIL

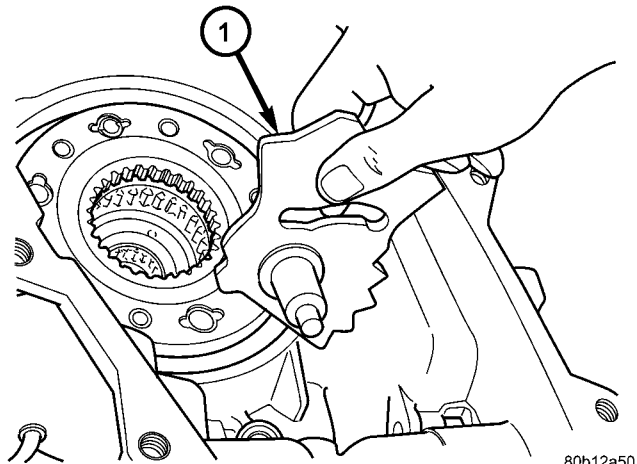
(7) Remove range fork retaining ring.
 (8) Remove range fork and hub as an assembly (Fig. 22). Note fork position for installation reference.
 (9) Remove shift sector (Fig. 23).
 (10) Remove the shift sector o-ring (Fig. 24).



80b49d73

Fig. 22 Range Fork And Hub Removal

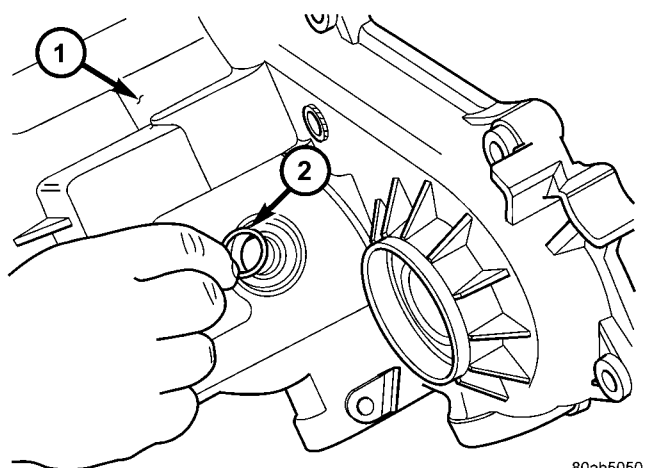
- 1 - RANGE HUB
- 2 - RANGE FORK



80b12a50

Fig. 23 Shift Sector Removal

- 1 - SHIFT SECTOR



80ab5050

Fig. 24 Remove the Shift Sector O-Ring

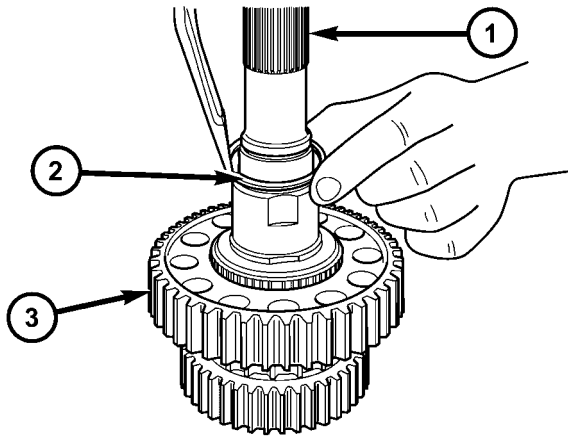
- 1 - TRANSFER CASE FRONT HOUSING
- 2 - SHIFT SECTOR O-RING

TRANSFER CASE - NV243 (Continued)

MAINSHAFT

(1) Remove the drive sprocket retaining ring (Fig. 25) from the output shaft.

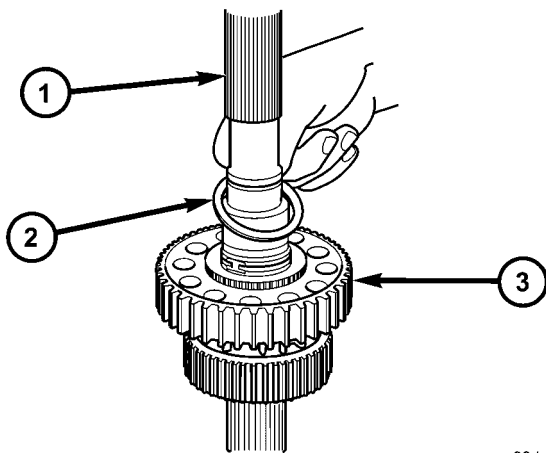
(2) Remove the drive sprocket thrust washer (Fig. 26) from the output shaft.



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Fig. 25 Remove The Drive Sprocket Retaining Ring

- 1 - OUTPUT SHAFT
- 2 - RETAINING RING
- 3 - DRIVE SPROCKET



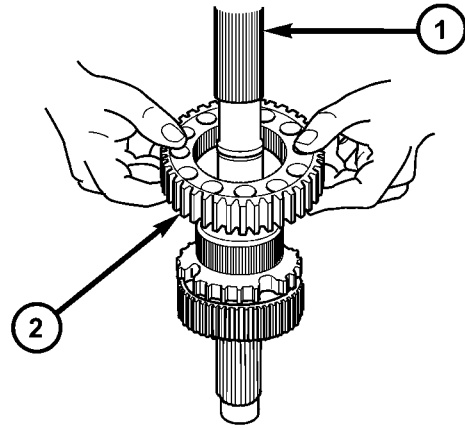
80de539e

Fig. 26 Remove Drive Sprocket Thrust Washer

- 1 - OUTPUT SHAFT
- 2 - THRUST WASHER
- 3 - DRIVE SPROCKET

(3) Remove drive sprocket (Fig. 27) from the output shaft.

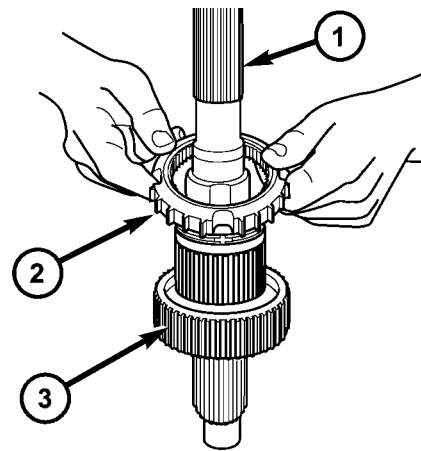
(4) Remove the clutch gear (Fig. 28) and hub (Fig. 29) from the output shaft.



80de5399

Fig. 27 Remove Drive Sprocket

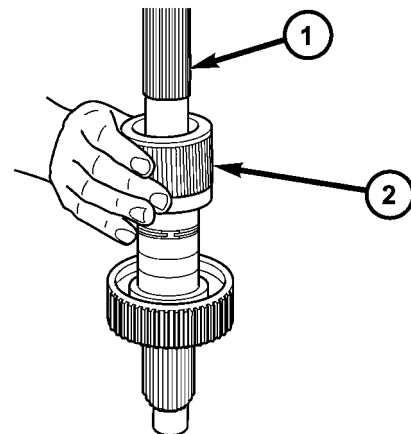
- 1 - OUTPUT SHAFT
- 2 - DRIVE SPROCKET



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Fig. 28 Remove Clutch Gear

- 1 - OUTPUT SHAFT
- 2 - CLUTCH GEAR
- 3 - MODE HUB



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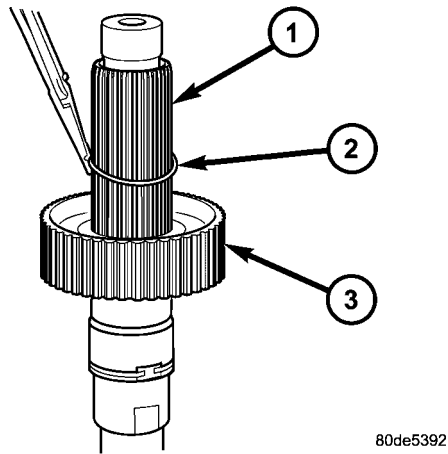
Fig. 29 Remove Sprocket Hub

- 1 - OUTPUT SHAFT
- 2 - SPROCKET HUB

TRANSFER CASE - NV243 (Continued)

(5) Remove the mode hub retaining ring (Fig. 30) from the output shaft.

(6) Remove the mode hub (Fig. 31) from the output shaft.



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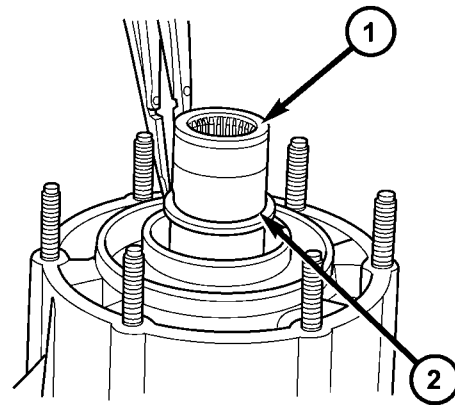
Fig. 30 Remove Retaining Ring

- 1 - OUTPUT SHAFT
- 2 - RETAINING RING
- 3 - MODE HUB

INPUT AND PLANETARY GEAR

(1) Remove input gear seal with suitable screw and slide hammer.

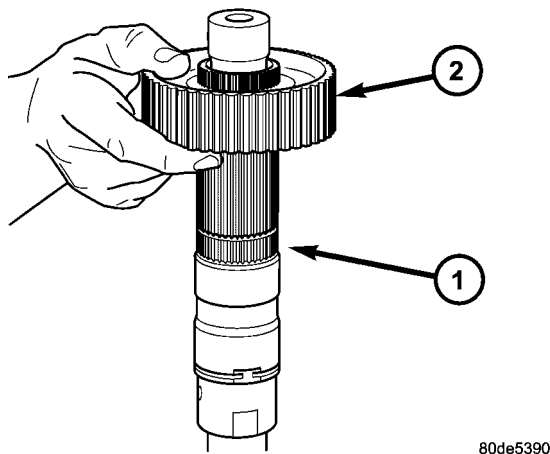
(2) Remove input gear retaining ring (Fig. 32) with heavy duty snap-ring pliers.



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Fig. 32 Remove Input Gear Retaining Ring

- 1 - INPUT GEAR
- 2 - RETAINING RING

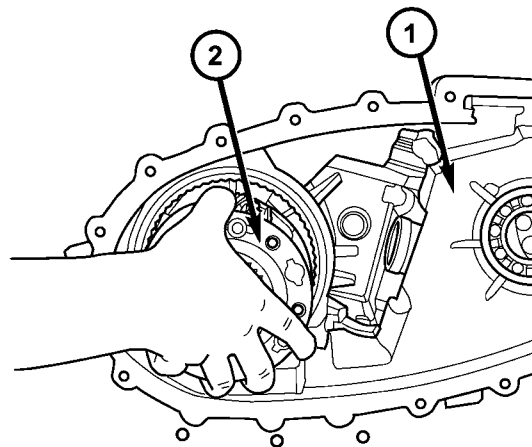


80de5390

Fig. 31 Remove Mode Hub

- 1 - OUTPUT SHAFT
- 2 - MODE HUB

(3) Place front case in horizontal position. Then remove input gear and low range gear as an assembly (Fig. 33). Tap gear out of bearing with plastic mallet, if necessary.



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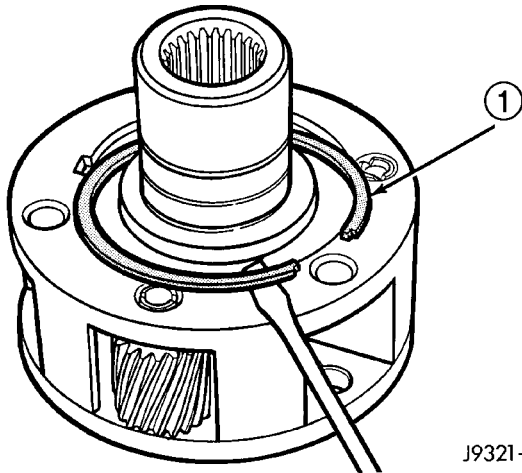
Fig. 33 Remove Input Planetary Assembly

- 1 - FRONT CASE
- 2 - INPUT PLANETARY ASSEMBLY

TRANSFER CASE - NV243 (Continued)

INPUT AND PLANETARY GEAR

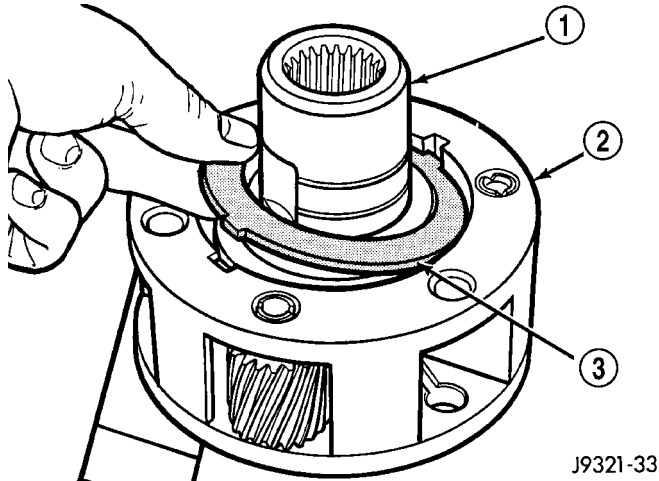
- (1) Remove snap-ring that retains input gear in low range gear (Fig. 34).
- (2) Remove retainer (Fig. 35).
- (3) Remove front tabbed thrust washer (Fig. 36).
- (4) Remove input gear (Fig. 37).
- (5) Remove rear tabbed thrust washer from low range gear (Fig. 38).



J9321-32

Fig. 34 Input Gear Snap-Ring Removal

1 - INPUT GEAR SNAP-RING



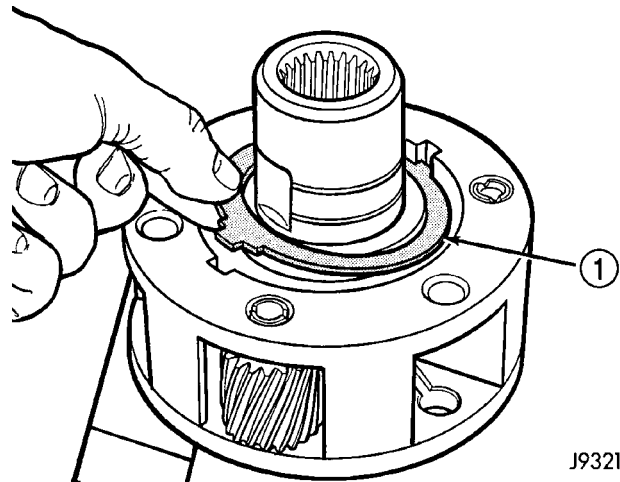
J9321-33

Fig. 35 Input Gear Retainer Removal

1 - INPUT GEAR
 2 - LOW RANGE GEAR
 3 - RETAINER

CLEANING

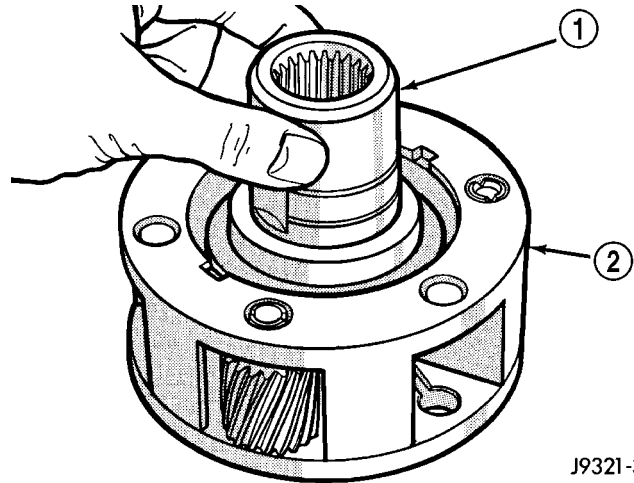
Clean the transfer case parts with a standard parts cleaning solvent. Remove all traces of sealer from the cases and retainers with a scraper and 3M™ all purpose cleaner. Use compressed air to remove solvent residue from oil feed passages in the case halves, retainers, gears, and shafts.



J9321-34

Fig. 36 Front Tabbed Thrust Washer Removal

1 - FRONT TABBED THRUST WASHER



J9321-35

Fig. 37 Input Gear Removal

1 - INPUT GEAR
 2 - LOW RANGE GEAR

INSPECTION

MAINSHAFT/SPROCKET/HUB INSPECTION

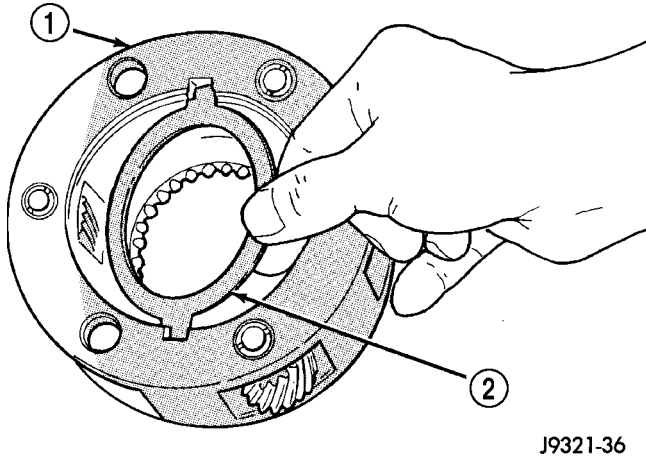
Inspect the splines on the hub and shaft and the teeth on the sprocket. Minor nicks and scratches can be smoothed with an oilstone. However, replace any part that is damaged.

Check the contact surfaces in the sprocket bore and on the mainshaft. Minor nicks and scratches can be smoothed with 320-400 grit emery cloth but do not try to salvage the shaft if nicks or wear is severe.

INPUT GEAR AND PLANETARY CARRIER

Check the teeth on the gear (Fig. 39). Minor nicks can be dressed off with an oilstone but replace the gear if any teeth are broken, cracked, or chipped. The bearing surface on the gear can be smoothed with 300-400 grit emery cloth if necessary.

TRANSFER CASE - NV243 (Continued)



J9321-36

Fig. 38 Rear Tabbed Thrust Washer Removal

- 1 - LOW RANGE GEAR
- 2 - REAR TABBED THRUST WASHER

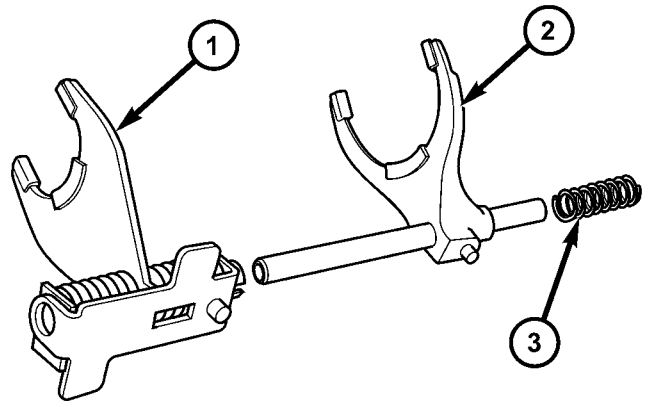
Examine the carrier body and pinion gears for wear or damage. The carrier will have to be replaced as an assembly if the body, pinion pins, or pinion gears are damaged.

Check the lock ring and both thrust washers for wear or cracks. Replace them if necessary. Also replace the lock retaining ring if bent, distorted, or broken.

SHIFT FORKS/HUBS/SLEEVES

Check condition of the shift forks and mode fork shift rail (Fig. 40). Minor nicks on the shift rail can

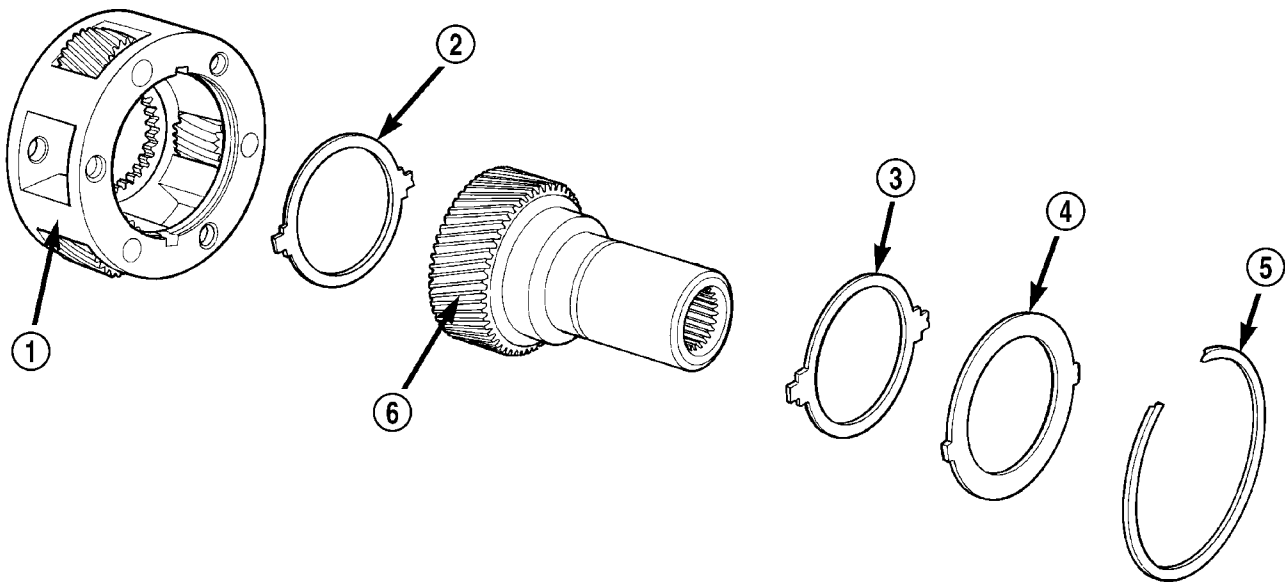
be smoothed with 320-400 grit emery cloth.



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Fig. 40 Shift Forks

- 1 - RANGE FORK
- 2 - MODE FORK AND RAIL
- 3 - MODE SPRING



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Fig. 39 Input Gear and Carrier Components

- 1 - PLANETARY CARRIER
- 2 - REAR THRUST WASHER
- 3 - FRONT THRUST WASHER
- 4 - CARRIER LOCK RING
- 5 - CARRIER LOCK RETAINING RING
- 6 - INPUT GEAR

TRANSFER CASE - NV243 (Continued)

Inspect the shift fork wear pads (Fig. 41). The mode and range fork pads are serviceable and can be replaced if necessary.

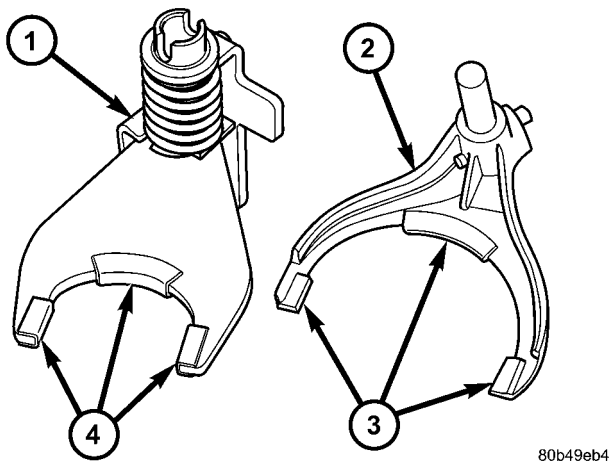


Fig. 41 Shift Fork And Wear Pad Locations

- 1 - RANGE FORK
- 2 - MODE FORK
- 3 - WEAR PADS (SERVICEABLE)
- 4 - WEAR PADS (SERVICEABLE)

Check both of the sleeves for wear or damage, especially on the interior teeth. Replace the sleeves if wear or damage is evident.

REAR EXTENSION HOUSING

Inspect the extension housing seal and bushing. Replace both components if either show any sign of wear or damage.

FRONT OUTPUT SHAFT AND DRIVE CHAIN

Inspect the shaft threads, sprocket teeth, and bearing surfaces. Minor nicks on the teeth can be smoothed with an oilstone. Use 320-400 grit emery to smooth minor scratches on the shaft bearing surfaces. Rough threads on the shaft can be chased if necessary. Replace the shaft if the threads are damaged, bearing surfaces are scored, or if any sprocket teeth are cracked or broken.

Examine the drive chain and shaft bearings. Replace the chain and both sprockets if the chain is stretched, distorted, or if any of the links bind. Replace the bearings if rough, or noisy.

LOW RANGE ANNULUS GEAR

Inspect annulus gear condition carefully. The gear is only serviced as part of the front case. If the gear is damaged, it will be necessary to replace the gear and front case as an assembly. Do not attempt to remove the gear (Fig. 42)

FRONT AND REAR CASES

Inspect the cases for wear and damage.

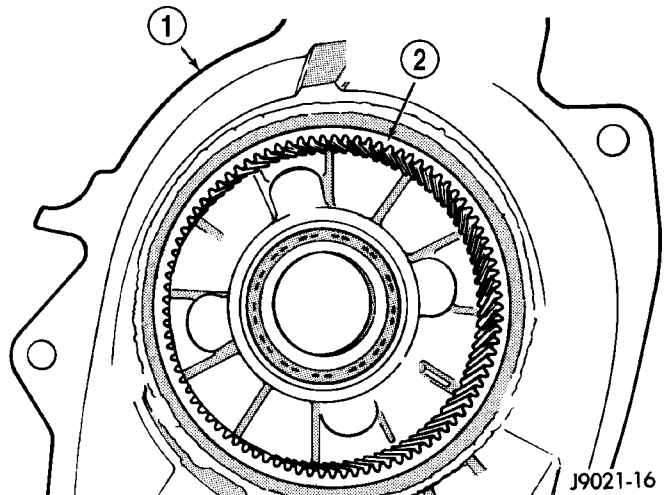


Fig. 42 Low Range Annulus Gear

- 1 - FRONT CASE
- 2 - LOW RANGE ANNULUS GEAR

Check case condition. If leaks were a problem, look for gouges and severe scoring of case sealing surfaces. Also make sure the front case mounting studs are in good condition.

Check the front case mounting studs and vent tube. The tube can be secured with Loctite™ 271 or 680 if loose. The stud threads can be cleaned up with a die if necessary. Also check condition of the fill/drain plug threads in the rear case. The threads can be repaired with a thread chaser or tap if necessary. Or the threads can be repaired with Helicoil® stainless steel inserts if required.

OIL PUMP/OIL PICKUP

Examine the oil pump pickup parts. Replace the pump if any part appears to be worn or damaged. Do not disassemble the pump as individual parts are not available. The pump is only available as a complete assembly. The pickup screen, hose, and tube are the only serviceable parts and are available separately.

ASSEMBLY

BEARINGS AND SEALS

(1) Remove the input shaft bearing (Fig. 43) from the front case with suitable snap-ring pliers.

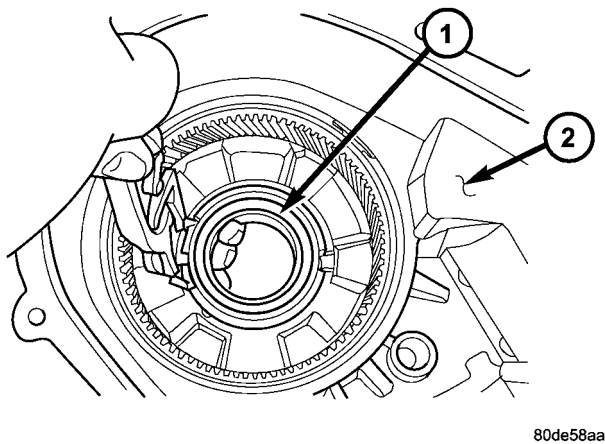
(2) Transfer the retaining ring to the new bearing if necessary and install the bearing into the front case.

(3) Using Installer 6436 and Handle C-4171 (Fig. 44), remove front output shaft bearing.

(4) Start front output shaft bearing in case. Then seat bearing with Handle C-4171 and Installer 6953.

(5) Install front output shaft bearing retaining ring.

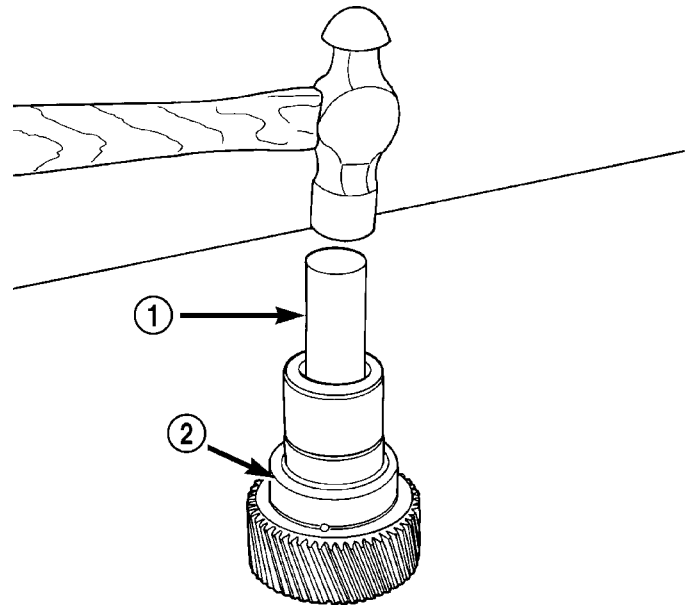
TRANSFER CASE - NV243 (Continued)



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Fig. 43 Remove Input Gear Bearing

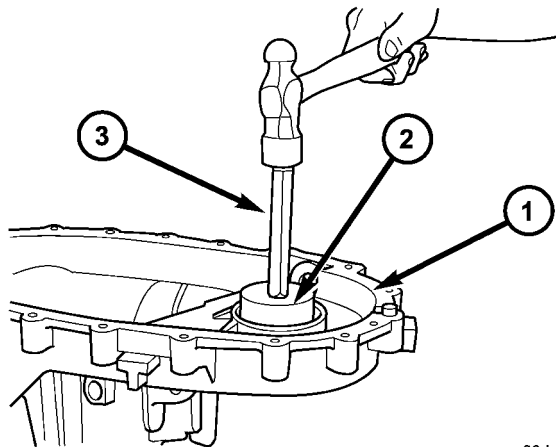
- 1 - INPUT GEAR BEARING
- 2 - FRONT CASE



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Fig. 45 Remove Input Gear Pilot Bearing

- 1 - DRIFT
- 2 - INPUT GEAR



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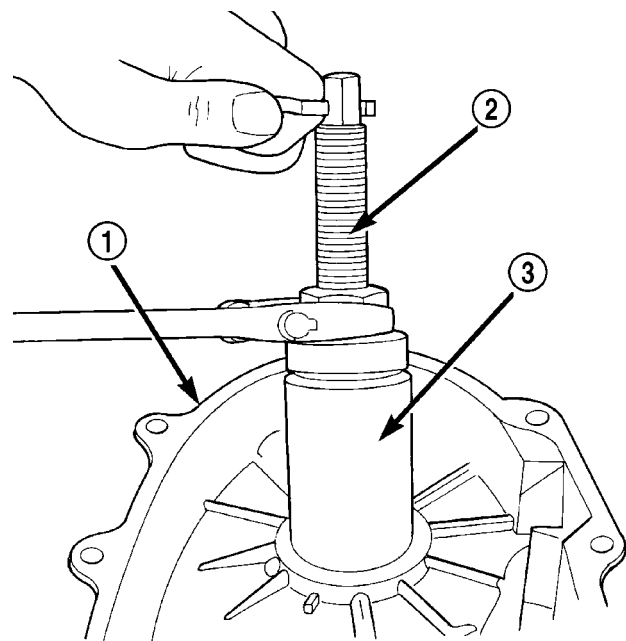
Fig. 44 Remove Front Output Shaft Bearing

- 1 - FRONT CASE
- 2 - INSTALLER 6436
- 3 - HANDLE C-4171

(6) Remove input gear pilot bearing by inserting a suitably sized drift into the splined end of the input gear and driving the bearing out with the drift and a hammer (Fig. 45).

(7) Install new pilot bearing with Remover/Installer 8684.

(8) Remove the front output shaft rear bearing with the screw and jaws from Remover L-4454 and Cup 8148 (Fig. 46).



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Fig. 46 Front Output Shaft Rear Bearing Removal

- 1 - REAR CASE
- 2 - SPECIAL TOOL L-4454-1 AND L-4454-3
- 3 - SPECIAL TOOL 8148

TRANSFER CASE - NV243 (Continued)

(9) Install new bearing with Tool Handle C-4171 and Installer 5066 (Fig. 47). The bearing bore is chamfered at the top. Install the bearing so it is flush with the lower edge of this chamfer (Fig. 48).

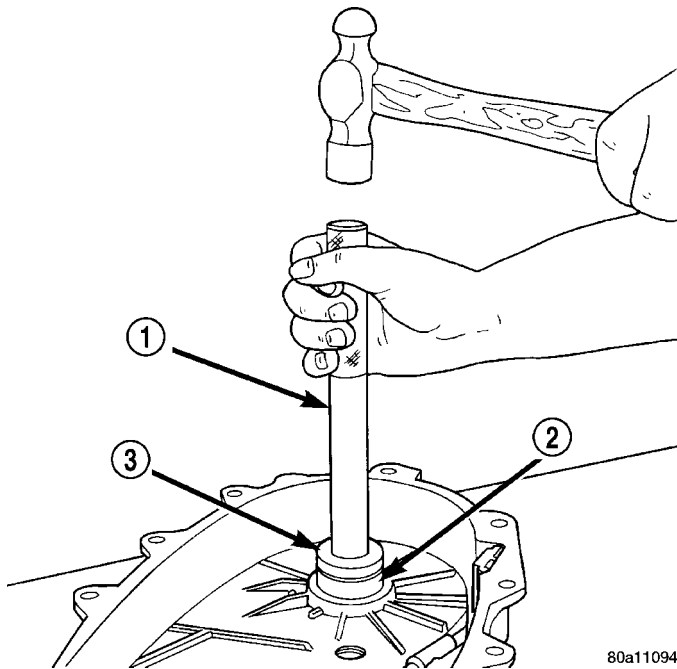


Fig. 47 Output Shaft Rear Bearing Installation

- 1 - HANDLE C-4171
- 2 - OUTPUT SHAFT INNER BEARING
- 3 - INSTALLER 5066

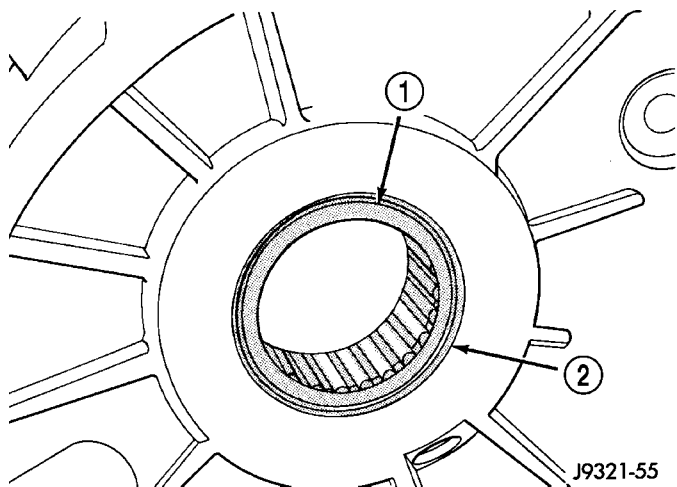


Fig. 48 Output Shaft Rear Bearing Installation Depth

- 1 - BEARING (SEATED) AT LOWER EDGE OF CHAMFER
- 2 - CHAMFER

(10) Remove the rear output shaft bearing from the rear case using Remover/Installer 8684 and Handle C-4171 (Fig. 49).

(11) Install the rear output shaft bearing (Fig. 50) into the rear case using Remover/Installer 6953 and Handle C-4171.

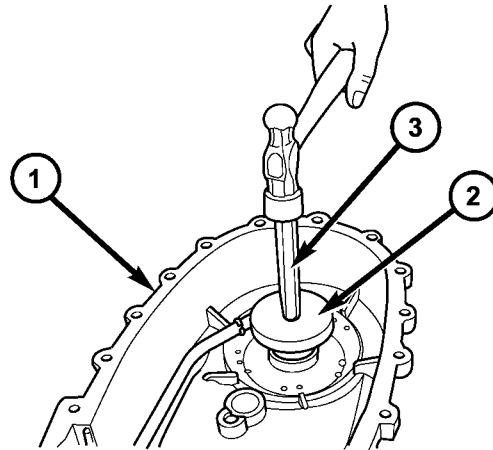


Fig. 49 Remove Rear Output Shaft Bearing

- 1 - REAR CASE
- 2 - REMOVER/INSTALLER 8684
- 3 - HANDLE C-4171

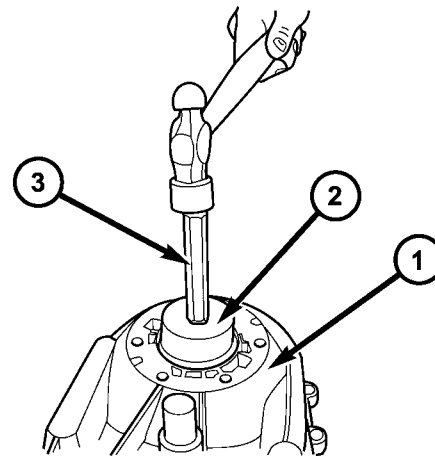


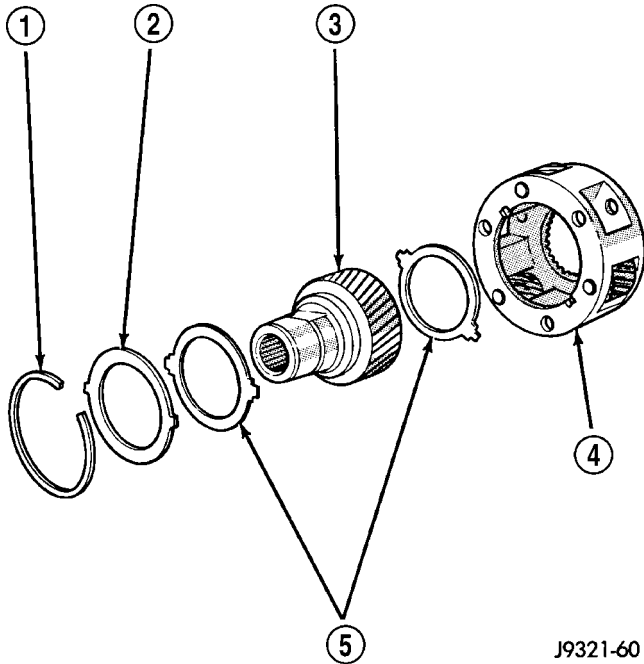
Fig. 50 Install Rear Output Shaft Bearing

- 1 - REAR CASE
- 2 - REMOVER/INSTALLER 6953
- 3 - HANDLE C-4171

TRANSFER CASE - NV243 (Continued)

INPUT AND PLANETARY GEAR

- (1) Lubricate gears and thrust washers (Fig. 51) with recommended transmission fluid.
- (2) Install first thrust washer in low range gear (Fig. 51). Be sure washer tabs are properly aligned in gear notches.
- (3) Install input gear in low range gear. Be sure input gear is fully seated.
- (4) Install remaining thrust washer in low range gear and on top of input gear. Be sure washer tabs are properly aligned in gear notches.
- (5) Install retainer on input gear and install snap-ring.

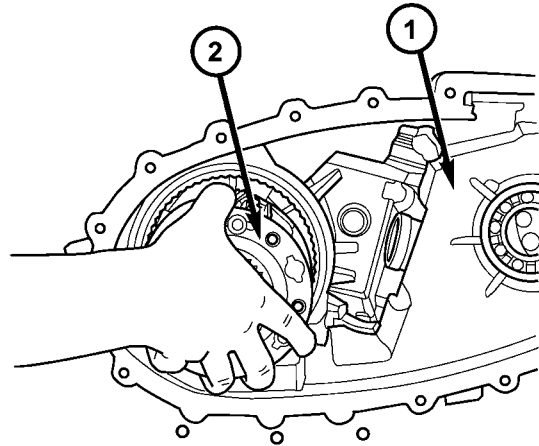


J9321-60

Fig. 51 Input/Low Range Gear Components

- 1 - SNAP-RING
- 2 - RETAINER PLATE
- 3 - INPUT GEAR
- 4 - LOW RANGE GEAR
- 5 - THRUST WASHERS

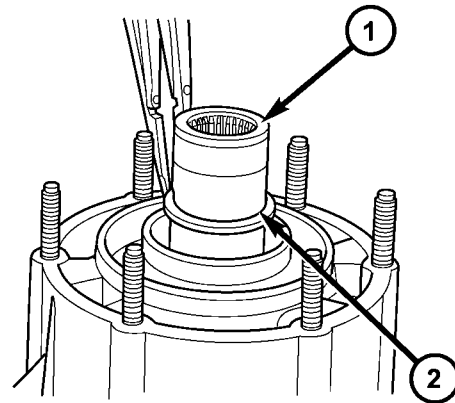
- (6) Align and install low range/input gear assembly in front case (Fig. 52). Be sure low range gear pinions are engaged in annulus gear and that input gear shaft is fully seated in front bearing.
- (7) Install snap-ring to hold input/low range gear into front bearing (Fig. 53).
- (8) Install a new input gear seal using Installer 8841 and Handle C-4171.



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Fig. 52 Install Input Planetary Assembly

- 1 - FRONT CASE
- 2 - INPUT PLANETARY ASSEMBLY



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Fig. 53 Install Input Gear Retaining Ring

- 1 - INPUT GEAR
- 2 - RETAINING RING

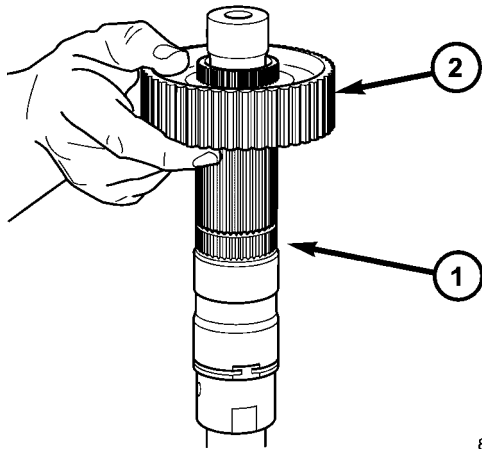
TRANSFER CASE - NV243 (Continued)

SHIFT FORKS AND MAINSHAFT

(1) Lubricate mainshaft splines with recommended transmission fluid.

(2) Install the mode hub (Fig. 54) onto the output shaft.

(3) Install the mode hub retaining ring (Fig. 55) onto the output shaft.



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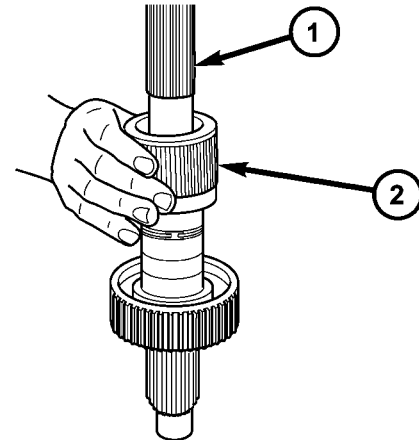
Fig. 54 Install Mode Hub

- 1 - OUTPUT SHAFT
- 2 - MODE HUB

(4) Install the sprocket hub (Fig. 56) onto the output shaft.

(5) Install the clutch gear (Fig. 57) onto the output shaft.

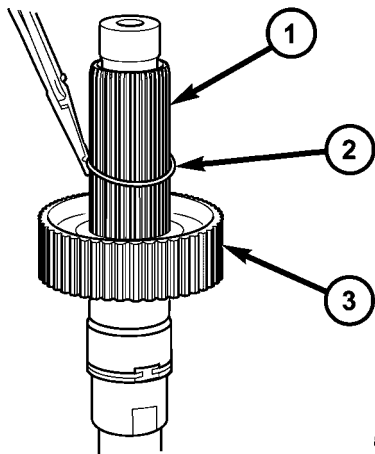
(6) Install the drive sprocket (Fig. 58) onto the output shaft.



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Fig. 56 Install Sprocket Hub

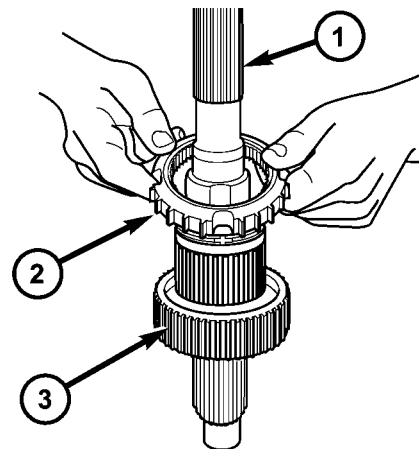
- 1 - OUTPUT SHAFT
- 2 - SPROCKET HUB



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Fig. 55 Install Mode Hub Retaining Ring

- 1 - OUTPUT SHAFT
- 2 - RETAINING RING
- 3 - MODE HUB

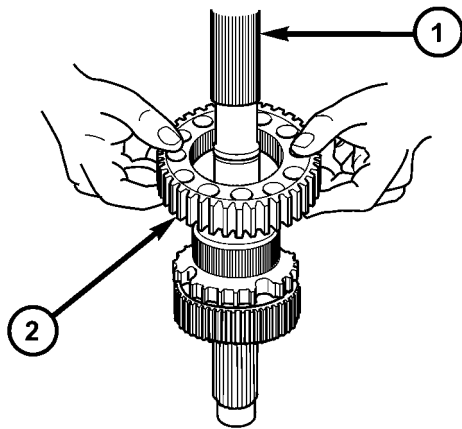


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Fig. 57 Install Clutch Gear

- 1 - OUTPUT SHAFT
- 2 - CLUTCH GEAR
- 3 - MODE HUB

TRANSFER CASE - NV243 (Continued)



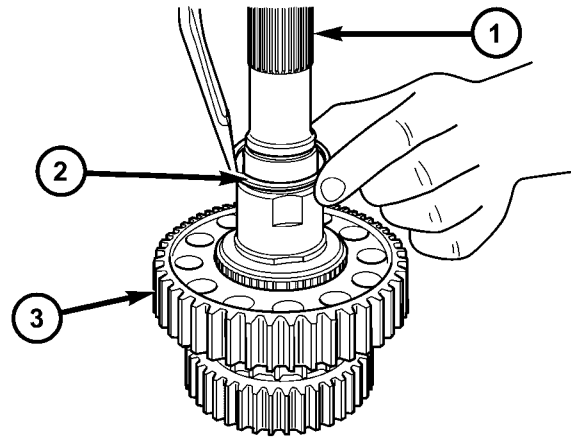
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Fig. 58 Install Drive Sprocket

- 1 - OUTPUT SHAFT
- 2 - DRIVE SPROCKET

(7) Install the drive sprocket thrust washer (Fig. 59) onto the output shaft.

(8) Install the drive sprocket retaining ring (Fig. 60) onto the output shaft.



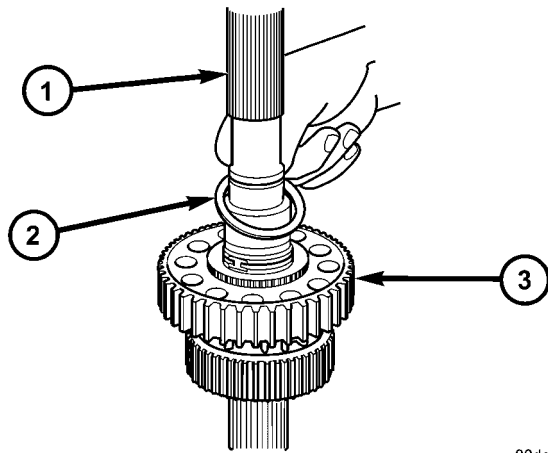
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Fig. 60 Install The Drive Sprocket Retaining Ring

- 1 - OUTPUT SHAFT
- 2 - RETAINING RING
- 3 - DRIVE SPROCKET

(9) Lubricate sector shaft with transmission fluid and install shift sector in case (Fig. 61). Position slot in sector so it will be aligned with shift fork pin when shift forks are installed.

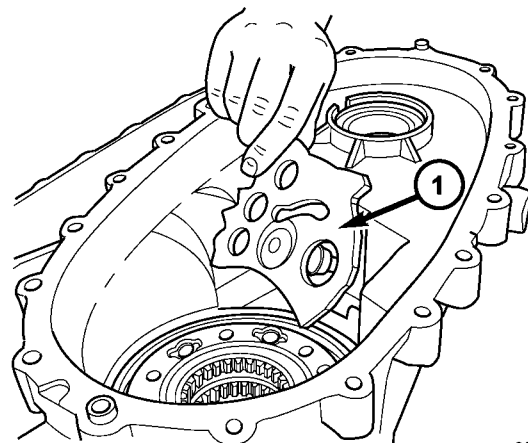
(10) Install the shift sector o-ring.



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Fig. 59 Install Drive Sprocket Thrust Washer

- 1 - OUTPUT SHAFT
- 2 - THRUST WASHER
- 3 - DRIVE SPROCKET



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Fig. 61 Install Shift Sector

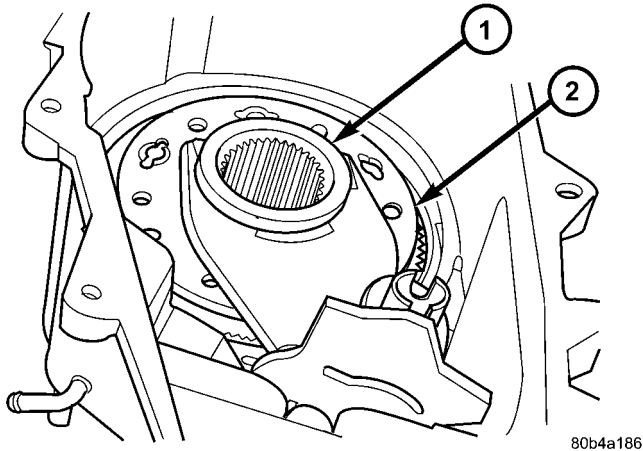
- 1 - SHIFT SECTOR

TRANSFER CASE - NV243 (Continued)

(11) Assemble and install range fork and hub (Fig. 62). Be sure hub is properly seated in low range gear and engaged to the input gear.

(12) Align and insert range fork pin in shift sector slot.

(13) Install the range fork retaining ring.



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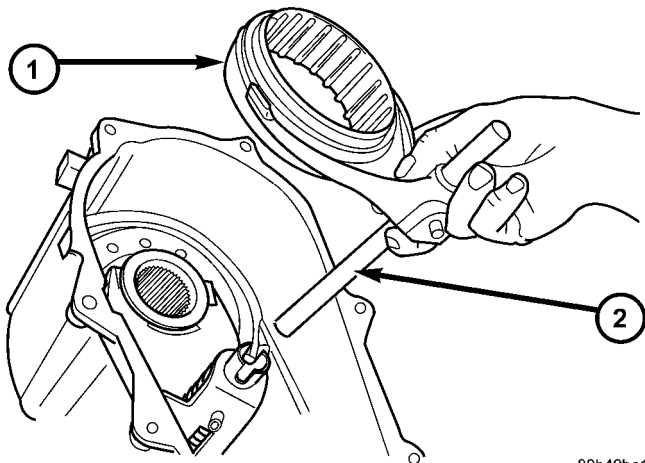
Fig. 62 Install Range Fork And Hub Assembly

- 1 - RANGE HUB
- 2 - RANGE FORK

(14) Install mode fork and shift rail onto the mode sleeve.

(15) Install the mode fork, sleeve, and shift rail into the transfer case (Fig. 63).

(16) Install mainshaft into the transfer case (Fig. 64). Guide mainshaft through the mode and range sleeves and into the input gear.



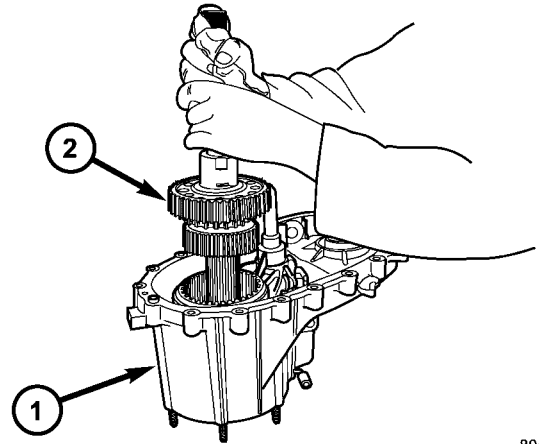
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Fig. 63 Mode Fork And Sleeve Installation

- 1 - MODE SLEEVE
- 2 - MODE FORK AND RAIL

(17) Install new o-ring on detent plug (Fig. 65).

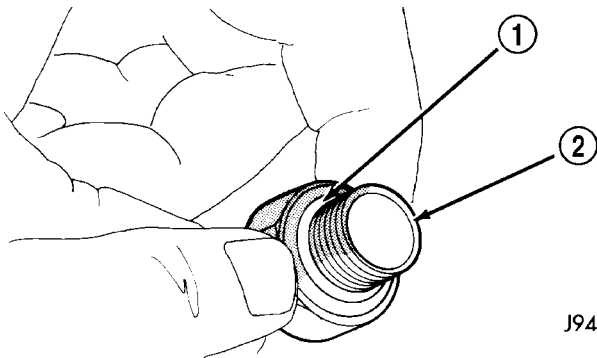
(18) Install detent plunger, spring, and plug (Fig. 66). Tighten the plug to 16-25 N·m (12-18 ft. lbs.).



80de45f5

Fig. 64 Install Mainshaft

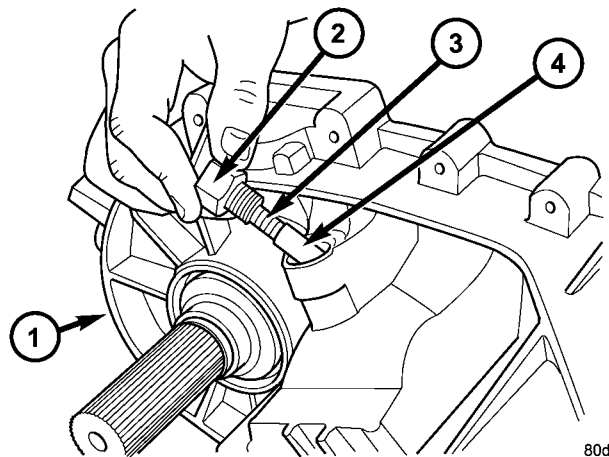
- 1 - FRONT CASE
- 2 - MAINSHAFT



J9421-372

Fig. 65 O-Ring Installation On Detent Plug

- 1 - O-RING
- 2 - DETENT PLUG



80de45fb

Fig. 66 Install Detent Plug, Spring, and Plunger

- 1 - FRONT CASE
- 2 - DETENT PLUG
- 3 - DETENT SPRING
- 4 - DETENT PLUNGER

TRANSFER CASE - NV243 (Continued)

FRONT OUTPUT SHAFT AND DRIVE CHAIN

- (1) Install the front output shaft (Fig. 67) into the front output shaft bearing.
- (2) Install the front output shaft retaining ring (Fig. 68) onto the output shaft.
- (3) Install the new front output shaft seal with Installer MB991168A

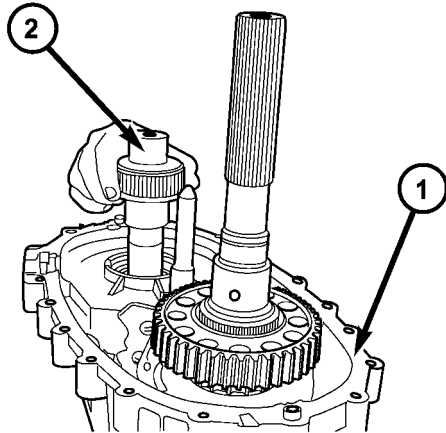


Fig. 67 Install Front Output Shaft

- 1 - FRONT CASE
- 2 - FRONT OUTPUT SHAFT

80de45f7

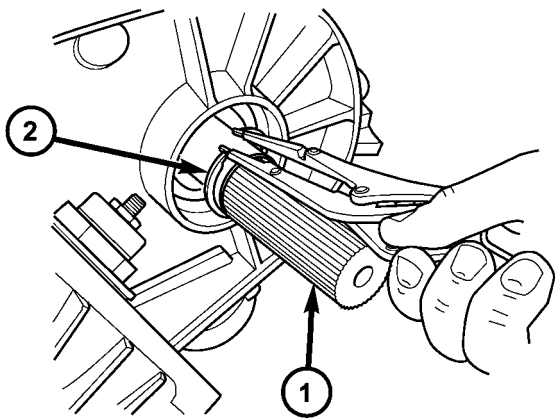


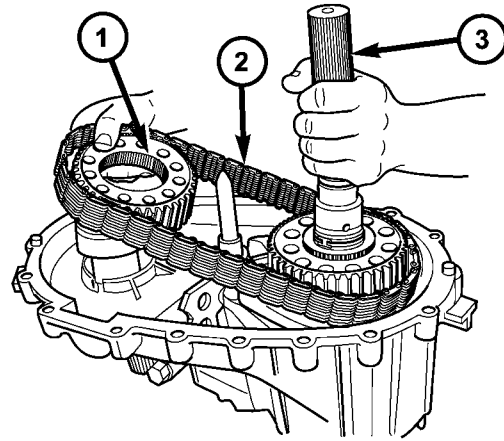
Fig. 68 Install Front Output Shaft Snap-ring - Typical

- 1 - FRONT OUTPUT SHAFT
- 2 - SNAP-RING

80de45f9

- (4) Insert front sprocket in drive chain.
- (5) Install drive chain around mainshaft sprocket (Fig. 69). Then position front sprocket over front shaft.

- (6) Raise mainshaft about 2.54 cm (one inch) and seat front sprocket on front output shaft.



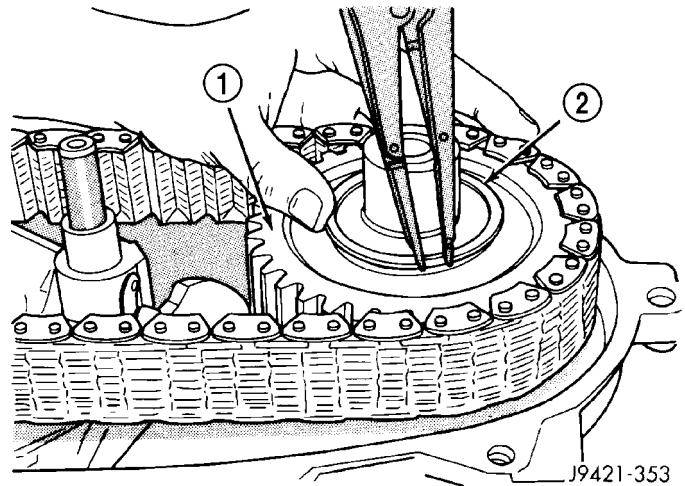
80de4600

Fig. 69 Install Front Sprocket and Drive Chain

- 1 - FRONT DRIVE SPROCKET
- 2 - DRIVE CHAIN
- 3 - MAINSHAFT

- (7) If mainshaft and mode sleeve were unseated during chain installation, align and reseat mainshaft in input gear and hub.

- (8) Install front sprocket retaining ring (Fig. 70).



J9421-353

Fig. 70 Front Sprocket Retaining Ring Installation

- 1 - FRONT SPROCKET
- 2 - RETAINING RING

TRANSFER CASE - NV243 (Continued)

(9) Install spring and cup on shift rail (Fig. 71).

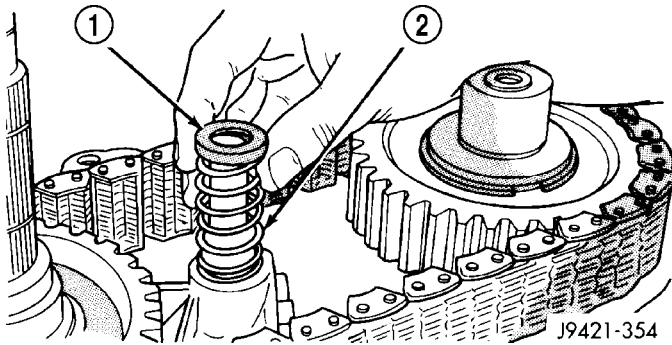


Fig. 71 Shift Rail Spring And Cup Installation

1 - CUP
2 - SPRING

(10) Insert magnet in front case pocket (Fig. 72).

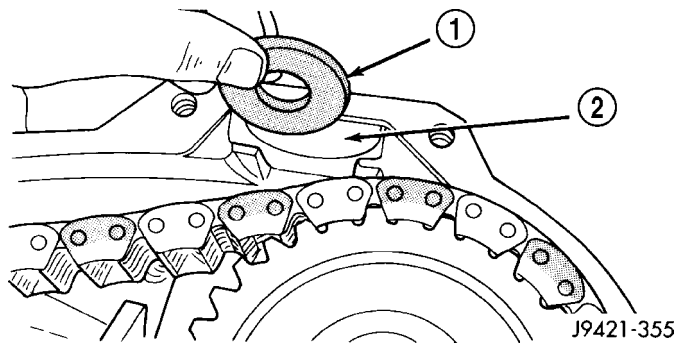


Fig. 72 Case Magnet Installation

1 - MAGNET
2 - CASE POCKET

OIL PUMP AND REAR CASE

Lubricate the oil pump components with transmission fluid before installation. Prime the oil pickup tube by pouring a little oil into the tube before installation.

CAUTION: Do not remove the bolts holding the oil pump cover to the rear case half. The oil pump cover is aligned to the rear output shaft inner bearing race and will become mis-aligned if the bolts are loosened. If the transfer case failure has generated any debris which may have become trapped in the oil pump, the rear case and oil pump assembly **MUST** be replaced.

(1) Install new o-ring in pickup tube inlet of oil pump.

(2) Insert oil pickup tube into the oil pump.

(3) Apply bead of Mopar® Gasket Maker, or equivalent, to mating surface of front case. Keep sealer bead width to maximum of 3/16 inch. Do not use excessive amount of sealer as excess will be displaced into case interior.

(4) Align oil pump with mainshaft and align shift rail with bore in rear case. Then install rear case and oil pump assembly (Fig. 73).

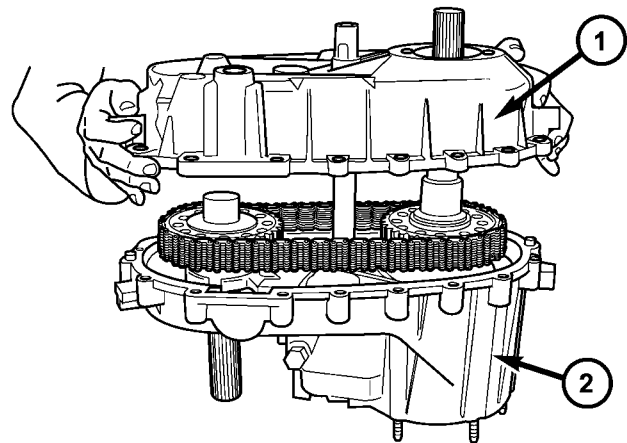


Fig. 73 Install Rear Case

1 - REAR CASE
2 - FRONT CASE

(5) Install 4-5 rear case-to front case bolts (Fig. 74) to hold rear case in position. Tighten bolts snug but not to specified torque at this time.

CAUTION: Verify that shift rail, and case alignment dowels are seated before installing any bolts. Case could be cracked if shaft rail or dowels are mis-aligned.

(6) Apply Loctite™ 242 to remainder of rear case-to-front case bolt threads and install bolts. Tighten bolts to 20-27 N·m (15-24 ft. lbs.),

(7) Install rear output bearing snap-ring (Fig. 75) to output shaft.

SEAL BOOT AND SHIFT MOTOR ASSEMBLY

(1) Install the front output shaft seal slinger with Installer 8840. Install the slinger onto the shaft until the tool contacts the rear of the output shaft.

(2) Install a new seal boot clamp onto the seal boot.

(3) Install the seal boot and clamp onto the slinger hub and tighten the clamp with Crimp Tool C-4975-A.

(4) Position the shift motor and mode sensor assembly onto the transfer case.

(5) Install the bolts to hold the shift motor and mode sensor assembly to the transfer case. Tighten the bolts to 16-25 N·m (12-18 ft. lbs.).

REAR EXTENSION

(1) Install new seal in rear extension housing seal with Installer D-163 and Handle C-4171..

TRANSFER CASE - NV243 (Continued)

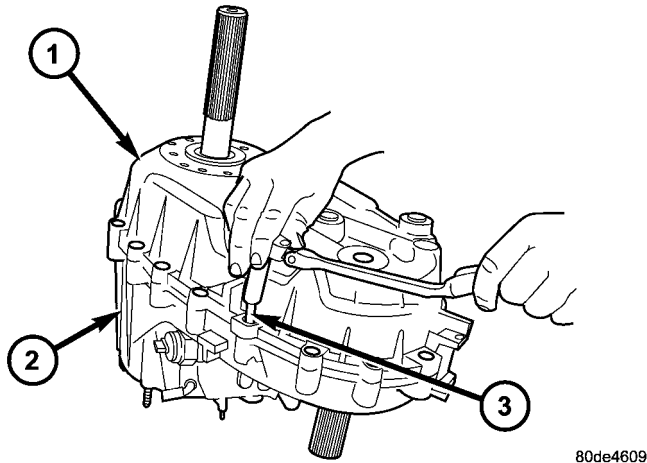


Fig. 74 Install Case Bolts - Typical

- 1 - REAR CASE
- 2 - FRONT CASE
- 3 - BOLT

(3) Align and install rear extension on retainer (Fig. 76).

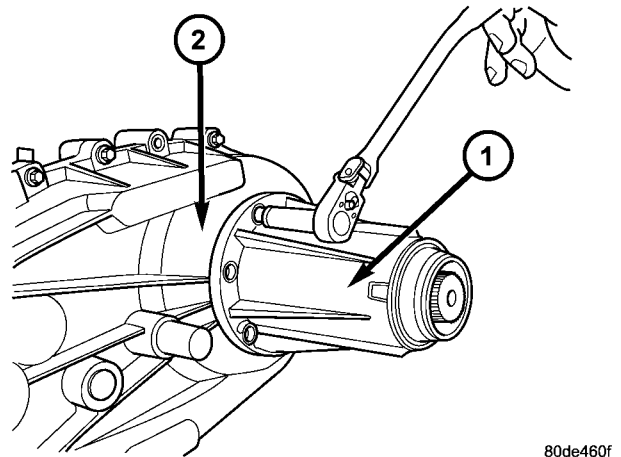


Fig. 76 Install Rear Extension Bolts

- 1 - EXTENSION HOUSING
- 2 - TRANSFER CASE

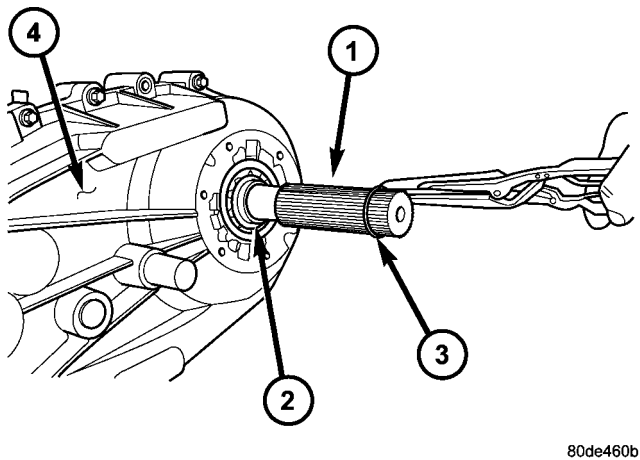


Fig. 75 Install Output Shaft Retaining Ring

- 1 - REAR OUTPUT SHAFT
- 2 - OUTPUT SHAFT BEARING
- 3 - RETAINING RING
- 4 - TRANSFER CASE

(2) Apply bead of Mopar® Gasket Maker, or equivalent, to mating surface of rear extension housing. Keep sealer bead width to maximum of 3/16 inch. Do not use excessive amount of sealer as excess could be displaced into output bearing.

(4) Apply Mopar® Silicone Sealer to threads of rear extension housing bolts. Then install and tighten bolts to 16-24 N·m (12-18 ft. lbs.) torque.

INSTALLATION

- (1) Mount transfer case on a transmission jack.
- (2) Secure transfer case to jack with chains.
- (3) Position transfer case under vehicle.
- (4) Align transfer case and transmission shafts and install transfer case onto the transmission.
- (5) Install and tighten transfer case attaching nuts to 27-34 N·m (20-25 ft. lbs.) torque.
- (6) Connect the vent hose.
- (7) Connect the shift motor and mode sensor wiring connectors. Secure wire harness to clips on transfer case.
- (8) Align and connect the propeller shafts.
- (9) Fill transfer case with correct fluid. (Refer to 21 - TRANSMISSION/TRANSFER CASE/FLUID - STANDARD PROCEDURE)
- (10) Install skid plate, if equipped.
- (11) Remove transmission jack and support stand.
- (12) Lower vehicle and verify transfer case shift operation.

TRANSFER CASE - NV243 (Continued)

SPECIFICATIONS

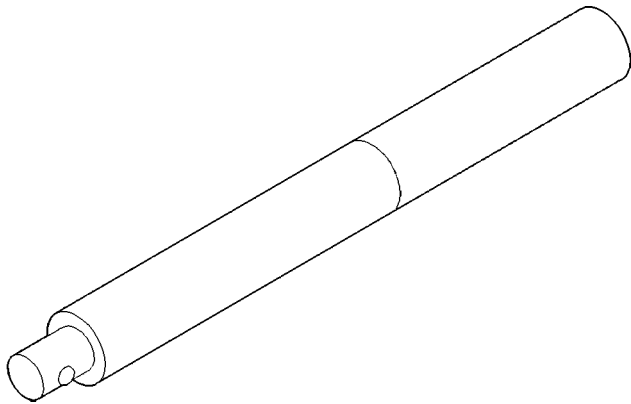
TRANSFER CASE - NV243

TORQUE SPECIFICATIONS

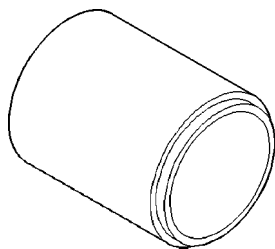
DESCRIPTION	N-m	Ft. Lbs.	In. Lbs.
Plug, Detent	16-24	12-18	-
Plug, Drain/Fill	40-45	30-40	-
Bolt, Extension Housing	16-24	12-18	-
Bolt, Case Half	20-27	15-24	-
Screw, Oil Pump	12-16	8-12	-
Nuts, Mounting	30-41	20-30	-
Bolts, Shift Motor and Mode Sensor Assembly	16-24	12-18	-

SPECIAL TOOLS

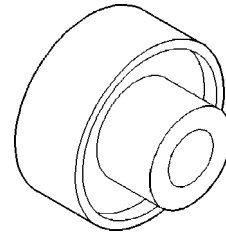
TRANSFER CASE - NV241/NV243



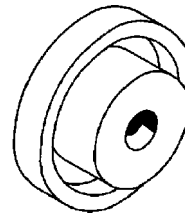
Handle, Universal - C-4171



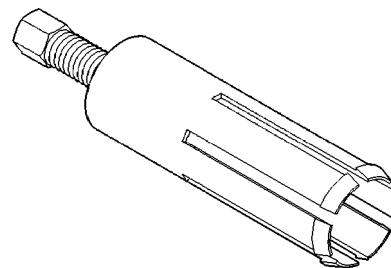
Installer, Seal - 6888



Installer, Bearing - 6953

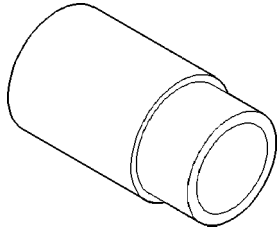


Installer, Seal - C-4210

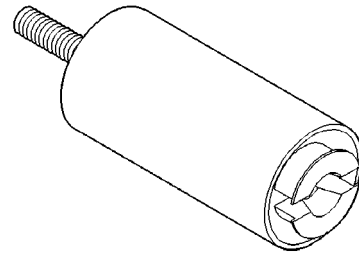


Remover, Bushing - 6957

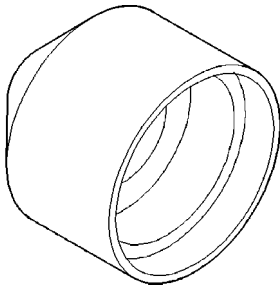
TRANSFER CASE - NV243 (Continued)



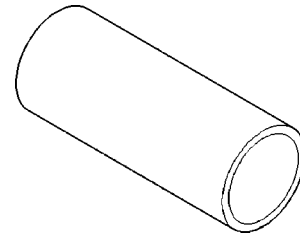
Installer, Bushing - 8157



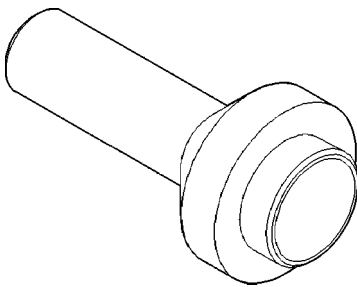
Remover - L-4454



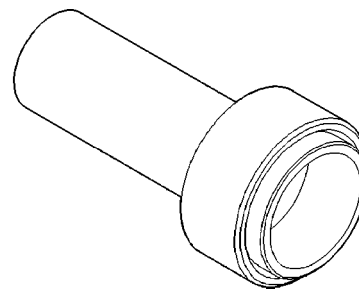
Installer, Seal - D-163



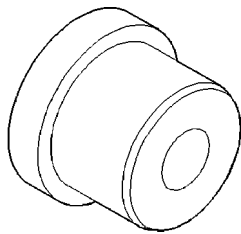
Cup - 8148



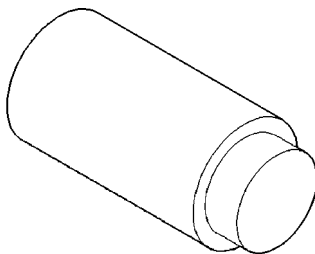
Installer, Seal - 7884



Installer, Pump Housing Seal - 7888



Installer, Bushing - 5066



Plug, Extension - C-293-3

EXTENSION HOUSING BUSHING AND SEAL

REMOVAL

- (1) Raise and support vehicle.
- (2) Remove rear propeller shaft. (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - REMOVAL)
- (3) Using a suitable pry tool or slide-hammer mounted screw, remove the extension housing seal.
- (4) Using Remover 8158, remove bushing from extension housing.

INSTALLATION

- (1) Clean fluid residue from sealing surface and inspect for defects.
- (2) Position replacement bushing in extension housing with fluid port in bushing aligned with slot in housing.
- (3) Using Installer 8157, drive bushing into housing until installer seats against case.
- (4) Using Installer D-163, install seal in extension housing (Fig. 77).

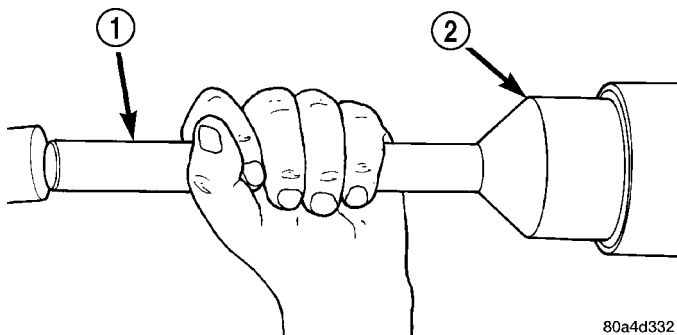


Fig. 77 Install Rear Seal in Extension Housing

- 1 - SPECIAL TOOL C-4171
- 2 - SPECIAL TOOL D-163

- (5) Install propeller shaft. (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - INSTALLATION)
- (6) Verify proper transfer case fluid level.
- (7) Lower vehicle.

FLUID

STANDARD PROCEDURE - FLUID DRAIN AND REFILL

The fill and drain plugs are both in the rear case (Fig. 78).

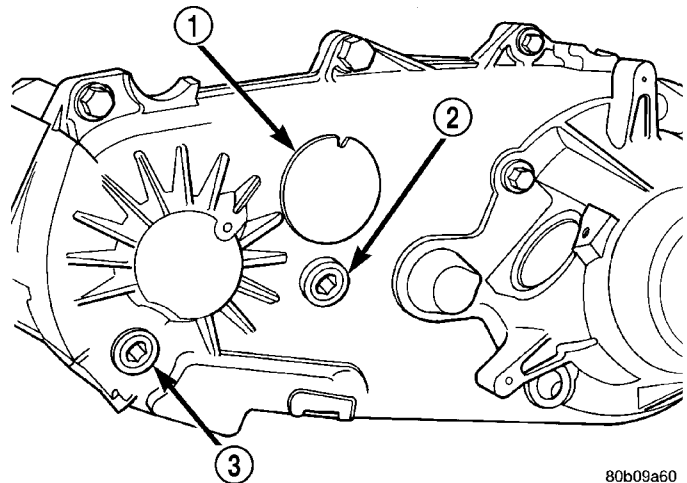


Fig. 78 Fill/Drain Plug and I.D. Tag Location - Typical

- 1 - I.D. TAG
- 2 - FILL PLUG
- 3 - DRAIN PLUG

- (1) Raise vehicle.
- (2) Position drain pan under transfer case.
- (3) Remove drain and fill plugs and drain lubricant completely.
- (4) Install drain plug. Tighten plug to 41-54 N·m (30-40 ft. lbs.).
- (5) Remove drain pan.
- (6) Fill transfer case to bottom edge of fill plug opening with Mopar® ATF +4, Automatic Transmission fluid.
- (7) Install and tighten fill plug to 41-54 N·m (30-40 ft. lbs.).
- (8) Lower vehicle.

FRONT OUTPUT SHAFT SEAL

REMOVAL

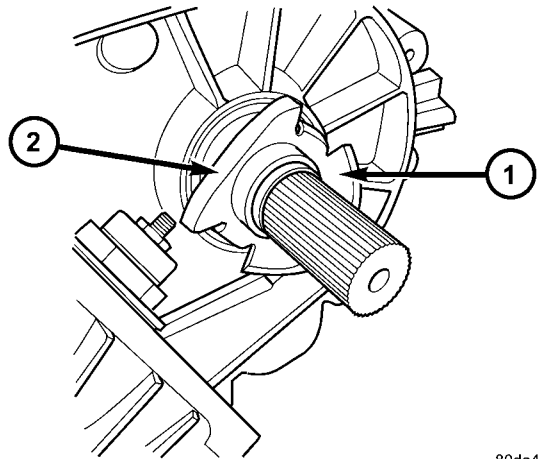
(1) Remove the front propeller shaft (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - REMOVAL).

(2) Remove the front propeller shaft seal boot retaining clamp (Fig. 79).

(3) Remove the front propeller shaft seal boot (Fig. 80).

(4) Remove the front output shaft seal slinger by bending (Fig. 81) the slinger ears away from the transfer case.

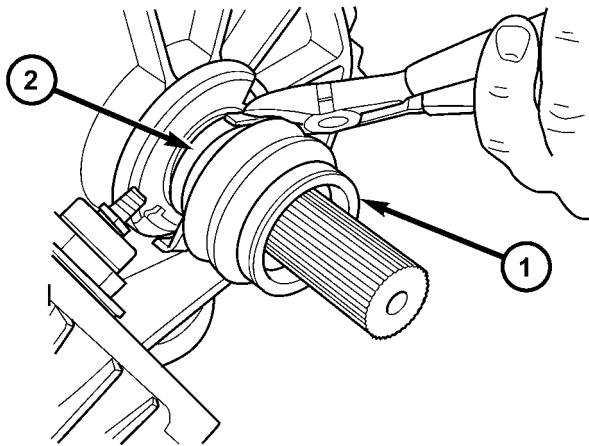
(5) Using a suitable pry tool (Fig. 82), remove the slinger from the output shaft using care not to damage the shaft.



80de4613

Fig. 81 Bend Slinger Ears

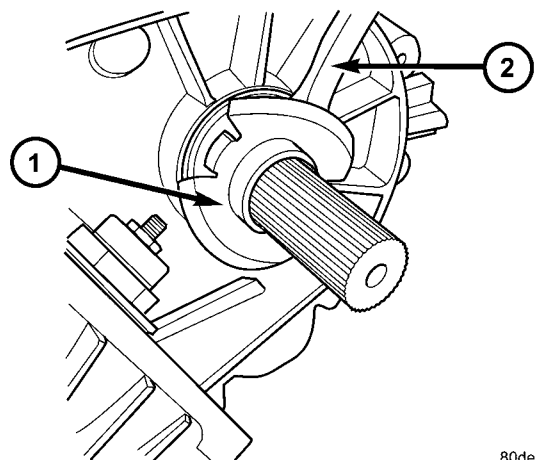
- 1 - SLINGER
- 2 - BEND UPWARD



80de4617

Fig. 79 Remove Boot Clamp

- 1 - SEAL BOOT
- 2 - BOOT CLAMP



80de4611

Fig. 82 Remove Slinger From Shaft

- 1 - SLINGER
- 2 - PRY TOOL

(6) Using a screw and a slide hammer, remove the front output shaft seal.

INSTALLATION

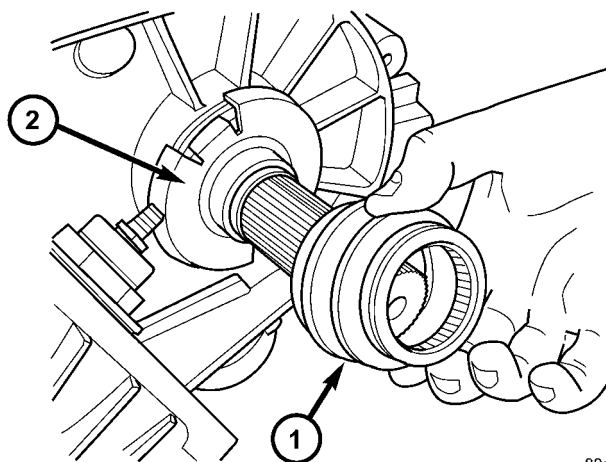
(1) Install the new front output shaft seal with Installer MB991168A

(2) Install the front output shaft seal slinger with Installer 8840. Install the slinger onto the shaft until the tool contacts the rear of the output shaft.

(3) Install a new seal boot clamp onto the seal boot.

(4) Install the seal boot and clamp onto the slinger hub and tighten the clamp with Crimp Tool C-4975-A.

(5) Install front propeller shaft (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - INSTALLATION).



80de4615

Fig. 80 Remove Seal Boot

- 1 - SEAL BOOT
- 2 - SEAL SLINGER

MODE SENSOR

DESCRIPTION

The transfer case mode sensor (Fig. 83) is an electronic device whose output can be interpreted to indicate the shift motor shaft's rotary position. The sensor consists of a magnetic ring and four Hall Effect Transistors to create a 4 channel digital device (non-contacting) whose output converts the motor shaft position into a coded signal. The TCCM must supply 5VDC (+/- 0.5v) to the sensor and monitor the shift motor position. The four channels are denoted A, B, C, and D. The sensor is mechanically linked to the shaft of the cam which causes the transfer case shifting. The mode sensor draws less than 53 mA.

OPERATION

During normal vehicle operation, the Transfer Case Control Module (TCCM) monitors the mode sensor outputs at least every 250 (+/-50) milliseconds when the shift motor is stationary and 400 microseconds when the shift motor is active. A mode sensor signal between 3.8 Volts and 0.8 Volts is considered to be undefined.

Refer to SECTOR ANGLES vs. TRANSFER CASE POSITION for the relative angles of the transfer case shift sector versus the interpreted transfer case gear operating mode. Refer to MODE SENSOR CHANNEL STATES for the sensor codes returned to the TCCM for each transfer case mode sensor position. The various between gears positions can also be referred as the transfer case's coarse position. These coarse positions come into play during shift attempts.

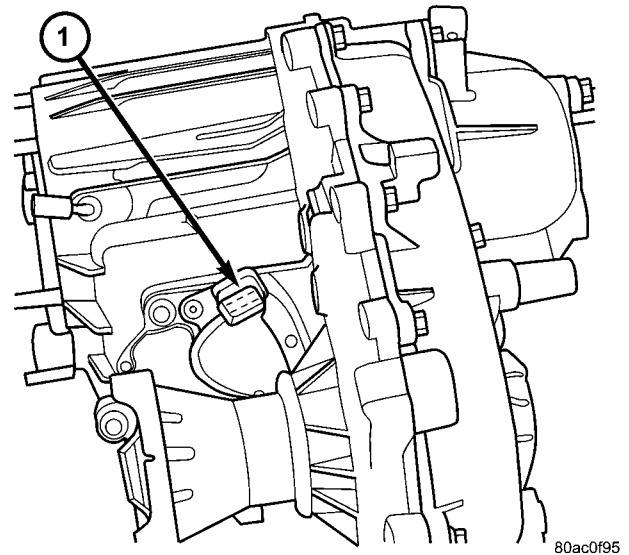


Fig. 83 Mode Sensor

1 - MODE SENSOR

SECTOR ANGLES VS. TRANSFER CASE POSITION

Shaft Angle (Degrees)	Transfer Case Position
+40	4LO
+20	N
0	2WD/AWD
-20	4HI

MODE SENSOR CHANNEL STATES

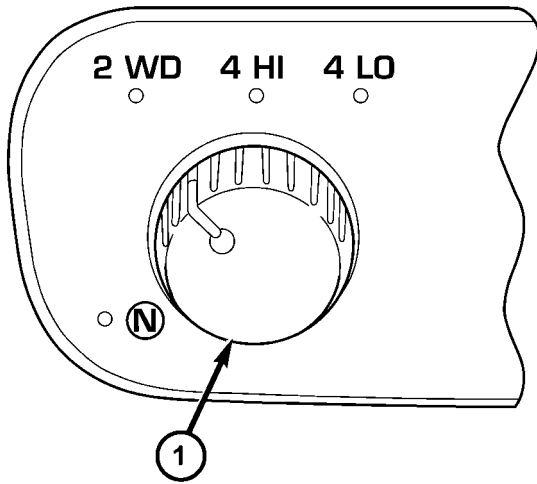
Transfer Case Angle (degrees)	Sensor Channel A	Sensor Channel B	Sensor Channel C	Sensor Channel D
Between Gears	H	H	L	H
+40 (4LO)	H	H	L	L
Between Gears	H	H	L	H
Between Gears	H	L	L	H
+20 (NEUTRAL)	H	L	L	L
Between Gears	H	L	L	H
Between Gears	H	L	H	H
0 (2WD/AWD)	H	L	H	L
Between Gears	H	L	H	H
Between Gears	L	L	H	H
-20 (4HI)	L	L	H	L
Between Gears	L	L	H	H
Between Gears	L	H	H	H

SELECTOR SWITCH

DESCRIPTION

The selector switch assembly (Fig. 84) is mounted in the left side of the vehicle's Instrument Panel (IP) and consists of a rotary knob connected to a resistive network for the mode and range shift selections. Also located in this assembly is a recessed, normally open momentary switch for making shifts into and out of transfer case NEUTRAL. A pen, or similar instrument, is used to make a NEUTRAL shift selection, thus reducing the likelihood of an inadvertent shift request.

The selector switch also contains four light emitting diode's (LED's) to indicate the transfer case position and whether a shift is in progress.



80de7896

Fig. 84 Transfer Case Selector Switch

1 - SELECTOR SWITCH

OPERATION

As the position of the selector switch varies, the resistance between the Mode Sensor supply voltage pin and the Mode Sensor output will vary. Hardware, software, and calibrations within the Transfer Case Control Module (TCCM) are provided that interpret the selector switch resistance as given in the table below: **SELECTOR SWITCH INTERPRETATION**

SELECTOR SWITCH INTERPRETATION

Step	Resistance Range (ohms)	Required Interpretation
A	<200	Shorted
B	400-700	NEUTRAL
C	1050-1450	4LO
D	1850-2300	4HI
E	3050-5950	2WD (Default)
F	9.5-12.5K	In between positions
G	>15.5K	Open

For resistances between the ranges B-E shown for each valid position (T-Case NEUTRAL, 4LO, 4HI, 2WD), the TCCM may interpret the resistance as:

- either of the neighboring valid positions.
- as an invalid fault position.

For resistances between the ranges E and F shown for 2WD and in-between positions, the TCCM may interpret the resistance as:

- the 2WD position.
- an invalid fault position.
- a valid in-between position.

For resistances between the ranges F and G shown for in-between positions and fault condition (open), the TCCM may interpret the resistance as:

- a valid in-between position.
- an invalid fault position.

For resistances between the ranges A and B shown for the fault condition (short) and , T-Case NEUTRAL, the TCCM may interpret the resistance as:

- the T-Case NEUTRAL position.
- an invalid fault position.

The LED's in the selector assembly are illuminated/flashed in the following manner to indicate a particular condition or state.

- A solidly illuminated LED indicates a successfully completed shift and the current operating mode of the transfer case. While a shift has been requested but not yet completed, the LED for the desired transfer case position is flashed.

SELECTOR SWITCH (Continued)

- A flashing operating mode LED for the desired gear indicates that a shift to that position has been requested, but all of the driver controllable conditions have not been met. This is in an attempt to notify the driver that the transmission needs to be put into NEUTRAL, the vehicle speed is too great, or some other condition outlined (other than a diagnostic failure that would prevent this shift) elsewhere (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/TRANSFER CASE CONTROL MODULE - OPERATION) is not met. Note that this flashing will continue indefinitely until the conditions are eventually met, or the selector switch position is changed, or if diagnostic routines no longer allow the requested shift.

- If the driver attempts to make a shift into transfer case NEUTRAL, and any of the driver controllable conditions are not met, the request will be ignored until all of the conditions are met or until the NEUTRAL select button is released. Additionally the neutral lamp will flash, or begin to flash while the button is depressed and operator controllable conditions are not being met. All of the LED's except the Neutral will flash if any of the operator controllable conditions for shifting are not met while the Neutral button is depressed. This "toggle" type of feature is necessary because the TCCM would interpret another request immediately after the shift into transfer case NEUTRAL has completed.

- No LED's illuminated indicate a fault in the transfer case control system.

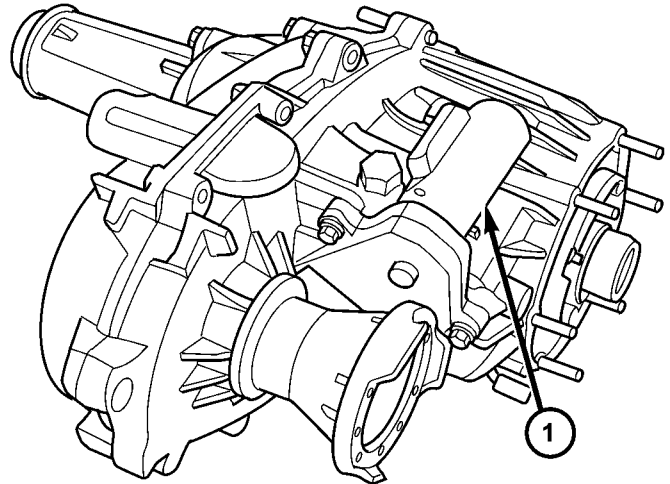
SHIFT MOTOR

DESCRIPTION

The shift motor (Fig. 85) consists of a permanent magnet D.C. motor with gear reduction to convert a high speed-low torque device into a low speed-high torque device. The output of the device is coupled to a shaft which internally moves the mode and range forks that change the transfer case operating ranges. The motor is rated at 25 amps maximum at 72° F with 10 volts at the motor leads.

OPERATION

The transfer case shift motor responds to the Transfer Case Control Module (TCCM) commands to move the transfer case shift sector bi-directionally, as required, to obtain the transfer case operating mode indicated by the instrument panel mounted selector switch.



80ac0e3e

Fig. 85 Shift Motor - Shown Inverted - Typical

1 - SHIFT MOTOR

REMOVAL

- (1) Raise the vehicle on a suitable hoist.
- (2) Disengage the wiring connectors from the shift motor and mode sensor.
- (3) Remove the bolts holding the shift motor and mode sensor assembly onto the transfer case.
- (4) Separate the shift motor and mode sensor assembly from the transfer case.

INSTALLATION

- (1) Verify that the shift sector o-ring is clean and properly positioned over the shift sector and against the transfer case.
- (2) Position the shift motor and mode sensor assembly onto the transfer case.
- (3) Install the bolts to hold the assembly onto the transfer case. Tighten the bolts to 16-24 N·m (12-18 ft.lbs.).

CAUTION: If the original shift motor and mode sensor assembly bolts are reused, be sure to use Mopar® Lock & Seal or Loctite™ 242 to replenish the lock patch material originally found on the bolts

- (4) Engage the wiring connectors to the shift motor and mode sensor.
- (5) Refill the transfer case as necessary.
- (6) Lower vehicle and verify transfer case operation.

TRANSFER CASE - NV273

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INSTALLATION	716		

TRANSFER CASE - NV273

DESCRIPTION

The NV273 is an electronically controlled part-time transfer case with a low range gear reduction system. The NV273 has three operating ranges plus a NEUTRAL position. The low range system provides a gear reduction ratio for increased low speed torque capability.

The geartrain is mounted in two aluminum case halves attached with bolts. The mainshaft front and rear bearings are mounted in aluminum case halves.

OPERATING RANGES

Transfer case operating ranges are:

- 2WD (2-wheel drive)
- 4HI (4-wheel drive)
- 4LO (4-wheel drive low range)
- NEUTRAL

The 2WD range is for use on any road surface at any time.

The 4HI and 4LO ranges are for off road use only. They are not for use on hard surface roads. The only exception being when the road surface is wet or slippery or covered by ice and snow.

The low range reduction gear system is operative in 4LO range only. This range is for extra pulling power in off road situations. Low range reduction ratio is 2.72:1.

SHIFT MECHANISM

Operating ranges are selected with a dash mounted shift selector switch. The shift selector switch provides a input to the Transfer Case Control Module (TCCM) to indicate the driver's desire to change operating ranges. The TCCM uses this input, along with input from the transfer case mounted mode sensor and information from the vehicle's bus, to determine if a shift is permitted. If the TCCM decides the shift is permitted, the TCCM controls the shift motor, mounted to the exterior of the transfer case, to perform the shift.

TRANSFER CASE - NV273 (Continued)

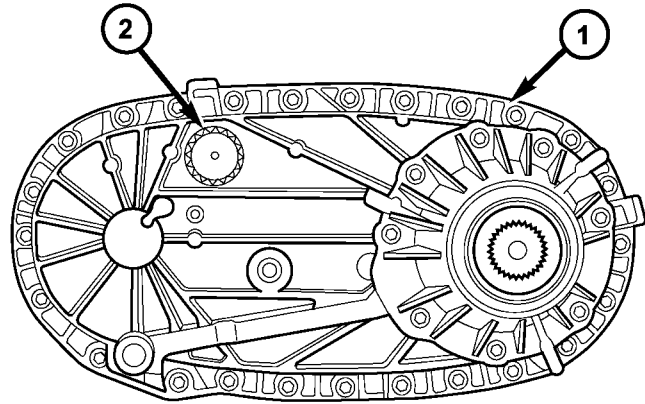
IDENTIFICATION

A circular ID tag is attached to the rear case of each transfer case (Fig. 1). The ID tag provides the transfer case model number, assembly number, serial number, and low range ratio.

The transfer case serial number also represents the date of build.

OPERATION

The input gear is splined to the transmission output shaft. The input gear drives the mainshaft through the planetary assembly and range sleeve. The front output shaft is operated by a drive chain that connects the shaft to a drive sprocket on the mainshaft. The drive sprocket is engaged/disengaged by the mode fork, which operates the mode sleeve and hub. The sleeve and hub are not equipped with a synchronizer mechanism for shifting.



80F50fc1

Fig. 1 Transfer Case - Rear View

- 1 - TRANSFER CASE
- 2 - IDENTIFICATION TAG

DIAGNOSIS AND TESTING - TRANSFER CASE - NV273

DIAGNOSIS CHART

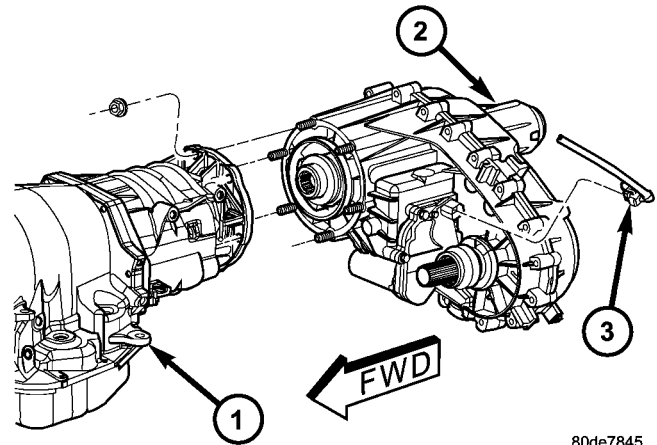
Condition	Possible Cause	Correction
Transfer case difficult to shift or will not shift into desired range.	1) Transfer case electronically controlled shift system malfunction.	1) Verify proper operation per the appropriate diagnostic manual.
	2) If vehicle was operated for an extended period in 4HI mode on dry surface, driveline torque load may cause difficulty.	2) Drive the vehicle in a straight line and momentarily release the accelerator. The transfer case can then be shifted to the desired mode.
	3) Insufficient or incorrect lubricant.	3) Drain and refill transfer case with the correct quantity of Mopar® ATF +4, Automatic Transmission Fluid.
	4) Internal transfer case components binding, worn, or damaged.	4) Repair or replace components as necessary.
Transfer case noisy in all drive modes.	1) Insufficient or incorrect lubricant.	1) Drain and refill transfer case with the correct quantity of Mopar® ATF +4, type 9602, Automatic Transmission Fluid.
	2) Internal transfer case components binding, worn, or damaged.	2) Repair or replace components as necessary.

TRANSFER CASE - NV273 (Continued)

Condition	Possible Cause	Correction
Transfer case noisy while in, or jumps out of, 4LO mode.	1) Transfer case not completely engaged in 4LO position.	1) While rolling 2-3 MPH and the transmission in NEUTRAL, or clutch depressed on vehicles equipped with a manual transmission, shift transfer case to the 2WD or 4HI position, and then back into the 4LO position.
	2) Range fork damaged, inserts worn, or fork is binding on the shift rail.	2) Repair or replace components as necessary.
	3) Low range gear worn or damaged.	3) Repair or replace components as necessary.
Lubricant leaking from transfer case seals or vent.	1) Transfer case overfilled.	1) Drain lubricant to the correct level.
	2) Transfer case vent closed or restricted.	2) Clean or replace vent as necessary.
	3) Transfer case seals damaged or installed incorrectly.	3) Replace suspect seal.
Abnormal tire wear.	1) Extended operation in 4HI mode on dry surfaces,	1) Operate vehicle in 2WD mode on dry surfaces.

REMOVAL

- (1) Shift transfer case into 2WD.
- (2) Raise vehicle.
- (3) Drain transfer case lubricant.
- (4) Mark front and rear propeller shafts for alignment reference.
- (5) Support transmission with jack stand.
- (6) Remove the transfer case skid plate, if equipped.
- (7) Disconnect front and rear propeller shafts at transfer case.
- (8) Disconnect transfer case shift motor and mode sensor wire connectors.
- (9) Disconnect transfer case vent hose.
- (10) Support transfer case with transmission jack.
- (11) Secure transfer case to jack with chains.
- (12) Remove nuts attaching transfer case to transmission (Fig. 2).
- (13) Pull transfer case and jack rearward to disengage transfer case.
- (14) Remove transfer case from under vehicle.



80de7845

Fig. 2 Remove Transfer Case - Typical

- 1 - TRANSMISSION
- 2 - TRANSFER CASE
- 3 - MODE SENSOR CONNECTOR

DISASSEMBLY

Position transfer case in a shallow drain pan. Remove drain plug and drain any remaining lubricant remaining in case.

TRANSFER CASE - NV273 (Continued)

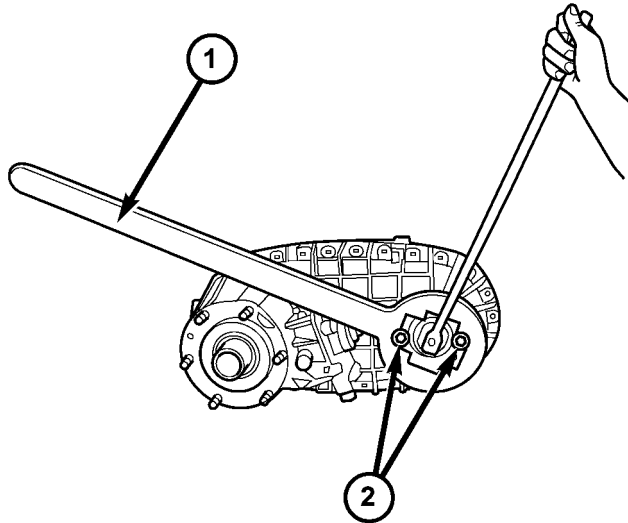
COMPANION FLANGE AND EXTENSION HOUSING

(1) Install two bolts 180° apart into the front output shaft companion flange.

(2) Place holder over the bolts and against the companion flange (Fig. 3).

(3) Remove and discard the front companion flange nut.

(4) Remove the companion flange from the front output shaft. It may be necessary to use Flange puller 8992 to remove the companion flange.



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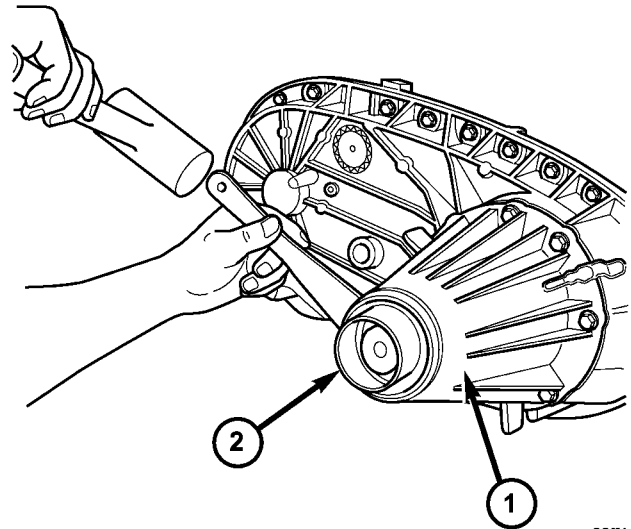
Fig. 3 Remove Companion Flange Nut - Typical

- 1 - HOLDER 6719
2 - BOLTS

(5) Use a suitable chisel or pry tool to remove the rear extension housing dust boot (Fig. 4).

(6) Use a suitable chisel or pry tool to remove the rear extension housing seal.

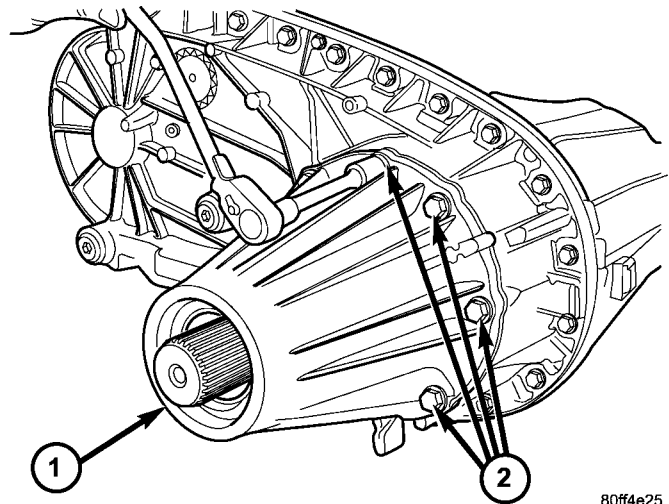
(7) Remove rear extension bolts (Fig. 5).



80ff4dfc

Fig. 4 Remove Extension Housing Dust Boot

- 1 - EXTENSION HOUSING
2 - DUST BOOT



80ff4e25

Fig. 5 Remove Extension Housing Bolts

- 1 - EXTENSION HOUSING
2 - BOLTS

TRANSFER CASE - NV273 (Continued)

(8) Remove rear extension housing (Fig. 6). Tap extension once or twice with a plastic mallet to break sealer bead and loosen it.

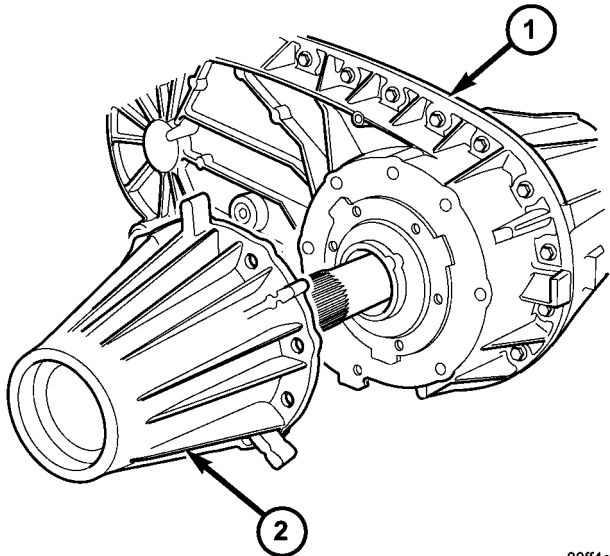


Fig. 6 Remove Extension Housing

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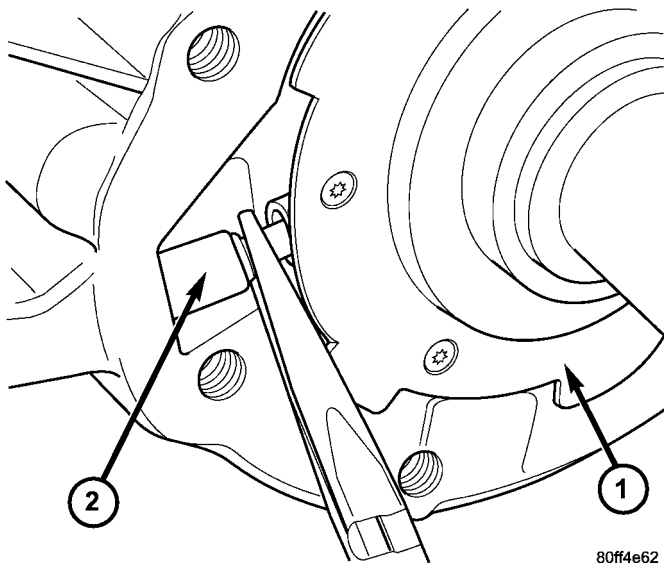
- 1 - REAR CASE HALF
- 2 - EXTENSION HOUSING

OIL PUMP AND REAR CASE

(1) Disengage the oil pump pick-up tube (Fig. 7) from the oil pump.

NOTE: The oil pump pick-up tube seals to the oil pump with an o-ring. Verify that the o-ring was removed with the tube and is in good condition. Replace the o-ring if necessary.

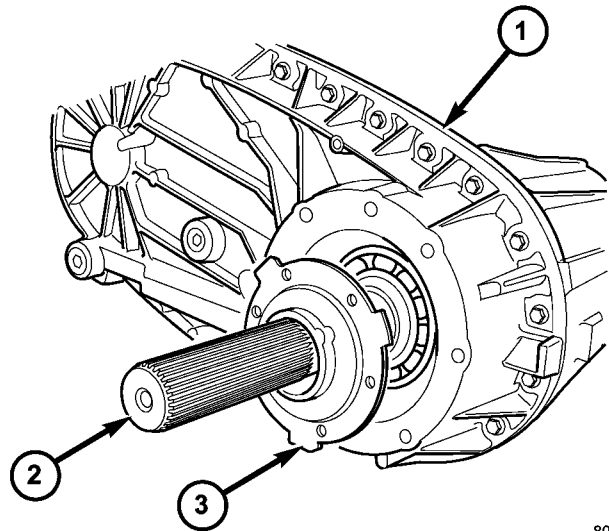
(2) Remove the oil pump (Fig. 8).



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Fig. 7 Disengage The Oil Pick-up From Oil Pump

- 1 - OIL PUMP
- 2 - OIL PICK-UP TUBE

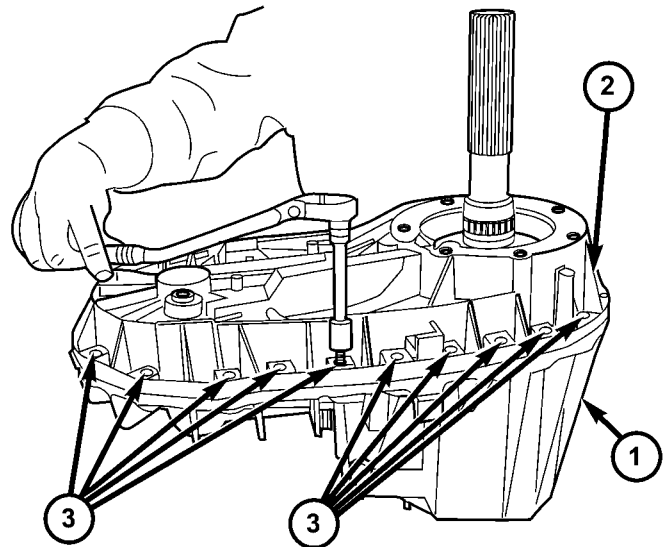


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Fig. 8 Remove Oil Pump

- 1 - REAR CASE HALF
- 2 - REAR OUTPUT SHAFT
- 3 - OIL PUMP

(3) Remove rear case-to-front case bolts (Fig. 9).



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Fig. 9 Remove Case Half Bolts

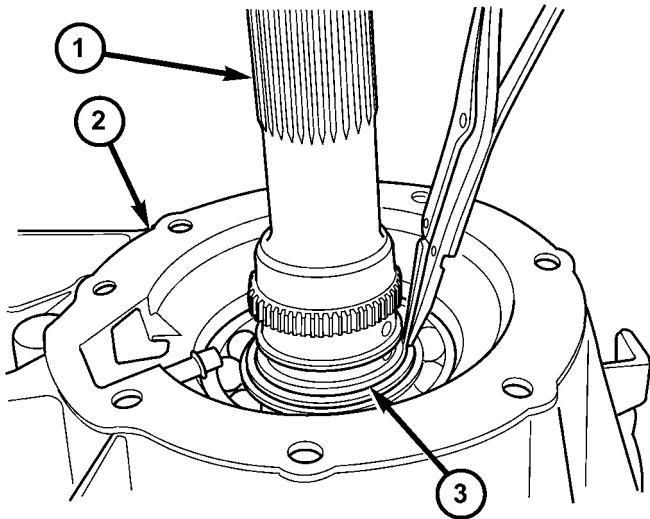
- 1 - FRONT CASE HALF
- 2 - REAR CASE HALF
- 3 - BOLTS

TRANSFER CASE - NV273 (Continued)

(4) Remove the rear output shaft bearing inner snap-ring (Fig. 10) from the output shaft using suitable snap-ring pliers.

(5) Remove the rear output shaft bearing inner snap-ring (Fig. 11) from the output shaft.

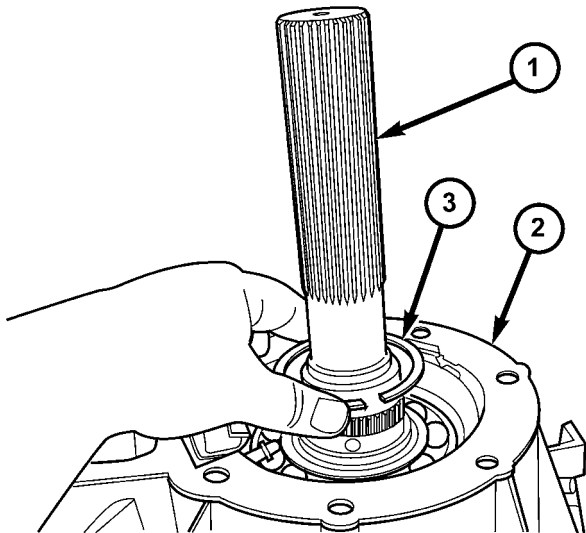
(6) Loosen rear case with pry tool to break sealer bead. Insert tool at each end of case (Fig. 12).



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Fig. 10 Remove Rear Bearing Inner Snap-Ring

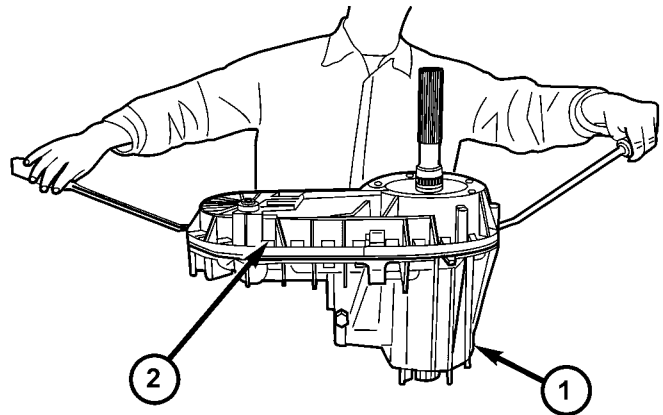
- 1 - OUTPUT SHAFT
- 2 - REAR CASE HALF
- 3 - SNAP-RING



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Fig. 11 Remove Rear Bearing Inner Snap-Ring

- 1 - OUTPUT SHAFT
- 2 - REAR CASE HALF
- 3 - SNAP-RING

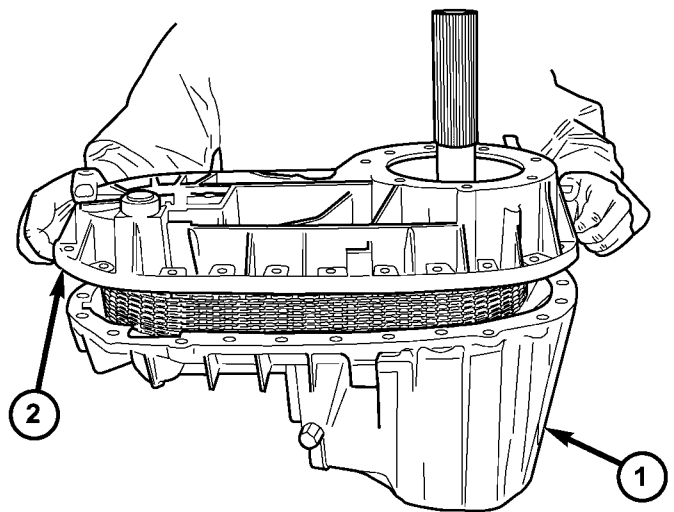


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Fig. 12 Separate Front and Rear Case Halves

- 1 - FRONT CASE HALF
- 2 - REAR CASE HALF

(8) Remove the rear case from the front case (Fig. 13).



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Fig. 13 Remove Rear Case Half

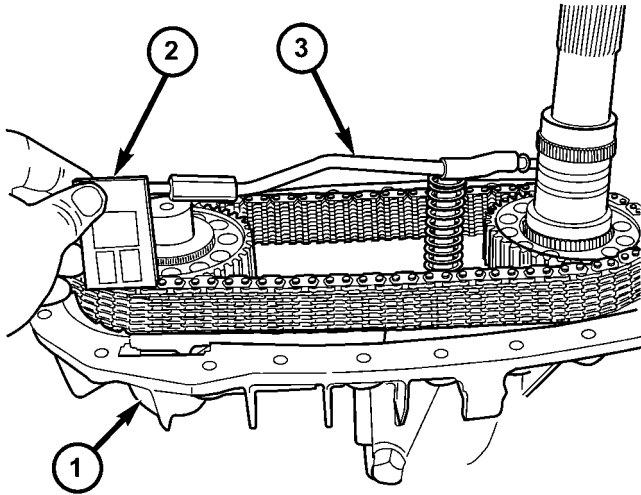
- 1 - FRONT CASE HALF
- 2 - REAR CASE HALF

(7) Unseat rear case from alignment dowels.

TRANSFER CASE - NV273 (Continued)

FRONT OUTPUT SHAFT AND DRIVE CHAIN

(1) Remove the oil pick-up tube (Fig. 14) and screen from the front case half.



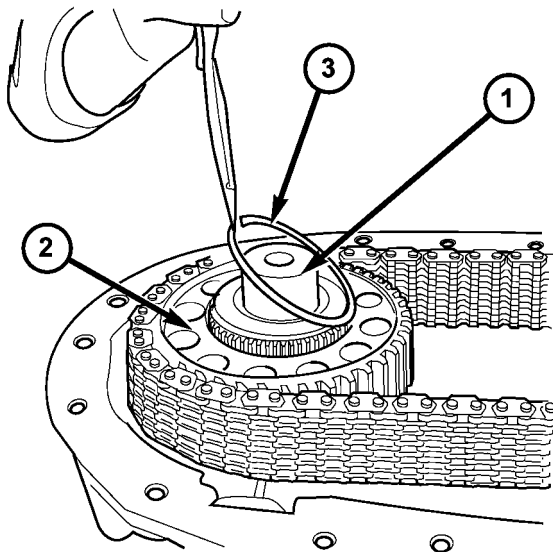
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Fig. 14 Remove Oil Pick-Up Tube and Screen

- 1 - FRONT CASE HALF
- 2 - OIL SCREEN
- 3 - PICK-UP TUBE

(2) Remove the front output shaft drive sprocket retaining ring (Fig. 15).

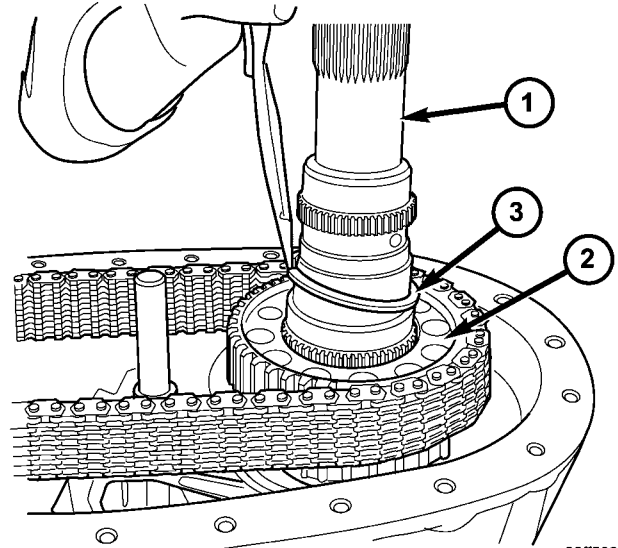
(3) Remove the rear output shaft drive sprocket retaining ring (Fig. 16).



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Fig. 15 Remove Front Output Shaft Sprocket Retaining Ring

- 1 - FRONT OUTPUT SHAFT
- 2 - DRIVE SPROCKET
- 3 - RETAINING RING



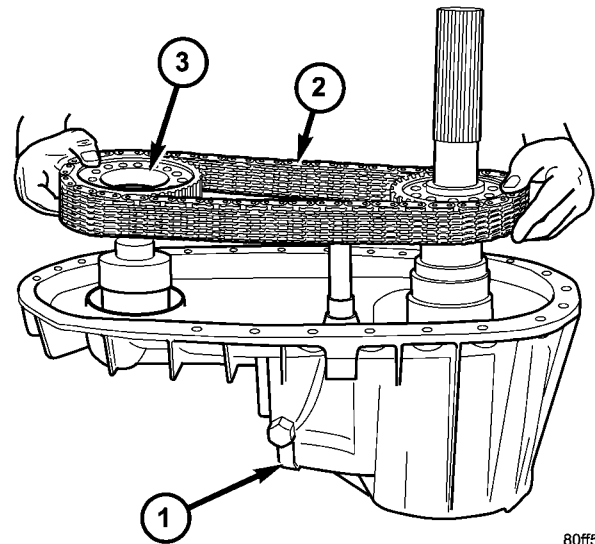
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Fig. 16 Remove Rear Output Shaft Sprocket Retaining Ring

- 1 - REAR OUTPUT SHAFT
- 2 - DRIVE SPROCKET
- 3 - RETAINING RING

(4) Pull front sprocket (Fig. 17), rear sprocket, and chain upward until clear of the front and rear output shaft sprocket splines.

(5) Remove chain and sprockets as an assembly.



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Fig. 17 Remove Drive Chain and Sprockets

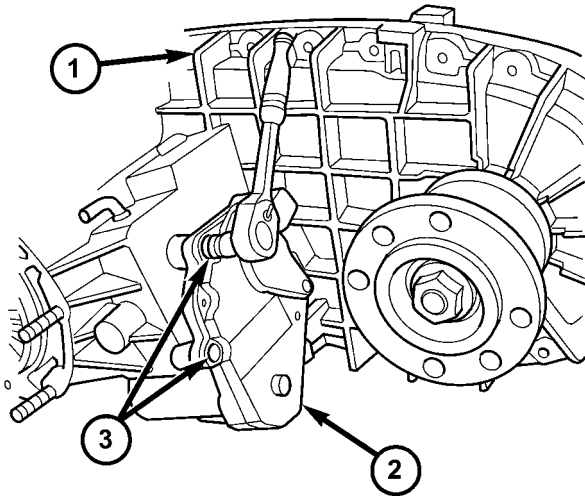
- 1 - FRONT CASE HALF
- 2 - CHAIN
- 3 - DRIVE SPROCKETS

TRANSFER CASE - NV273 (Continued)

SHIFT FORKS AND MAINSHAFT

(1) Remove the bolts (Fig. 18) that hold the shift motor assembly to the transfer case.

(2) Remove the shift motor assembly (Fig. 19) from the transfer case.



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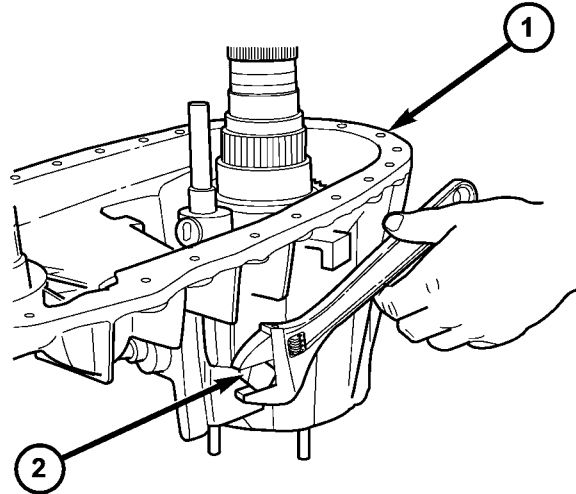
Fig. 18 Remove Shift Motor Assembly Bolts

- 1 - TRANSFER CASE
- 2 - SHIFT MOTOR ASSEMBLY
- 3 - BOLTS

(3) Remove the sector support with Socket 9033.

(4) Loosen detent plug (Fig. 20).

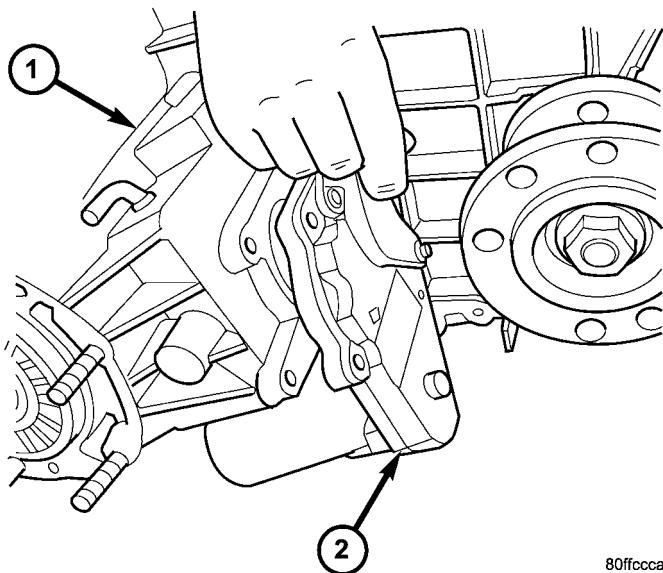
(5) Remove detent plug, spring, and plunger (Fig. 21). Note that the plug has an O-ring seal. Remove and discard this seal.



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Fig. 20 Loosen the Detent Plug

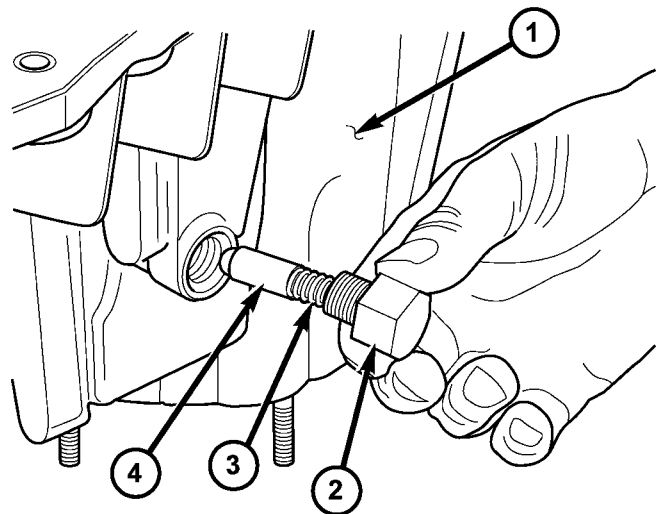
- 1 - FRONT CASE HALF
- 2 - DETENT PLUG



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Fig. 19 Remove Shift Motor Assembly From Transfer Case

- 1 - TRANSFER CASE
- 2 - SHIFT MOTOR ASSEMBLY



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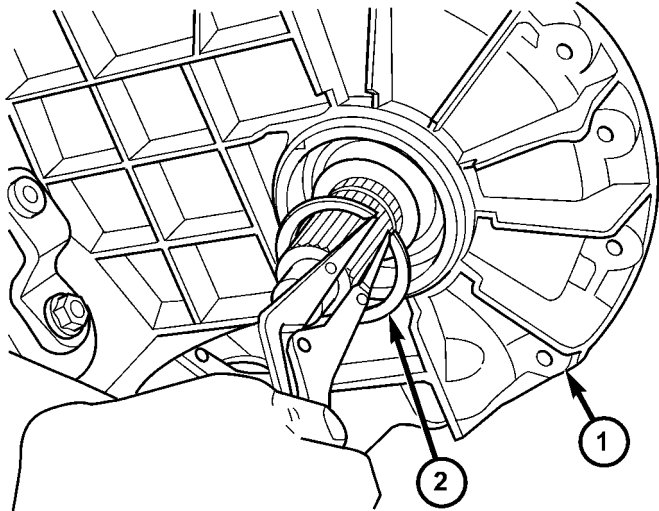
Fig. 21 Remove Detent plug, Spring, and Plunger

- 1 - FRONT CASE HALF
- 2 - DETENT PLUG
- 3 - SPRING
- 4 - PLUNGER

TRANSFER CASE - NV273 (Continued)

(6) Using a screw mounted in a slide hammer, remove the front output shaft seal.

(7) Remove the front output shaft snap-ring (Fig. 22).

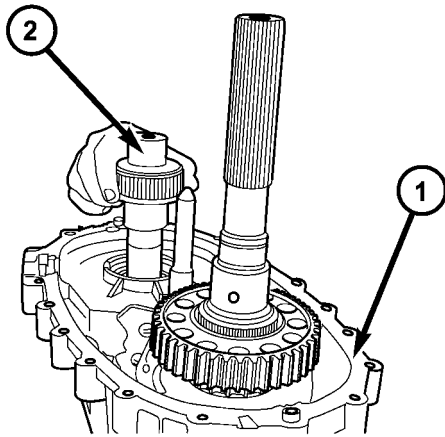


80ff53b2

Fig. 22 Remove Front Output Shaft Bearing Inner Snap-Ring

- 1 - FRONT CASE HALF
- 2 - SNAP-RING

(8) Remove front output shaft from bearing in case (Fig. 23).

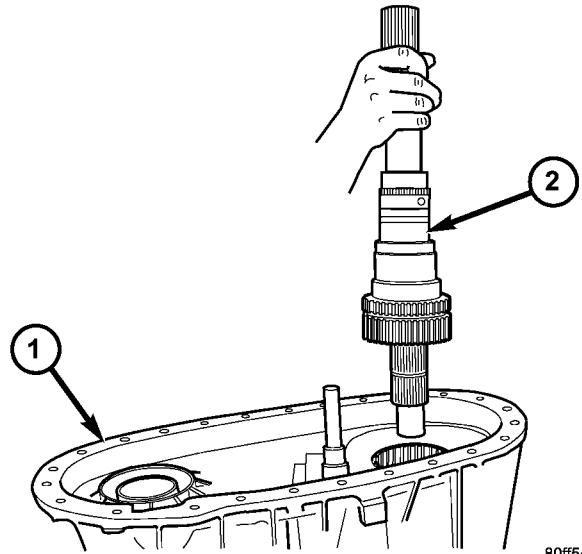


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Fig. 23 Remove Front Output Shaft

- 1 - FRONT CASE
- 2 - FRONT OUTPUT SHAFT

(9) Pull mainshaft assembly out of input gear, mode sleeve, and case (Fig. 24).

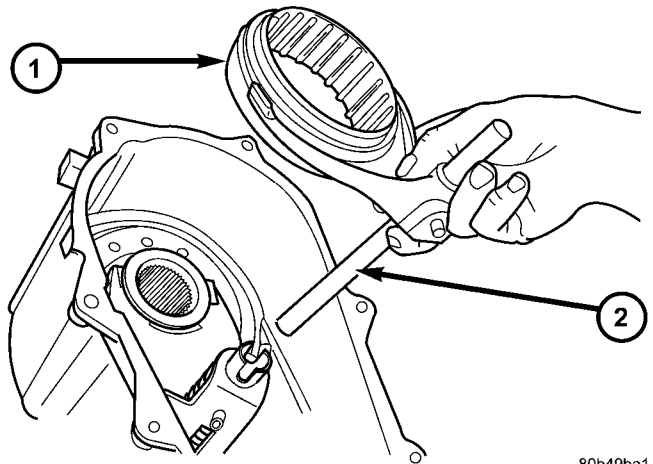


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Fig. 24 Remove Mainshaft Assembly

- 1 - FRONT CASE HALF
- 2 - MAINSHAFT ASSEMBLY

(10) Remove mode fork, mode sleeve, and shift rail as assembly (Fig. 25). Note which way the sleeve fits in the fork (long side of sleeve goes to front or the points on the sleeve teeth go to the rear of case).



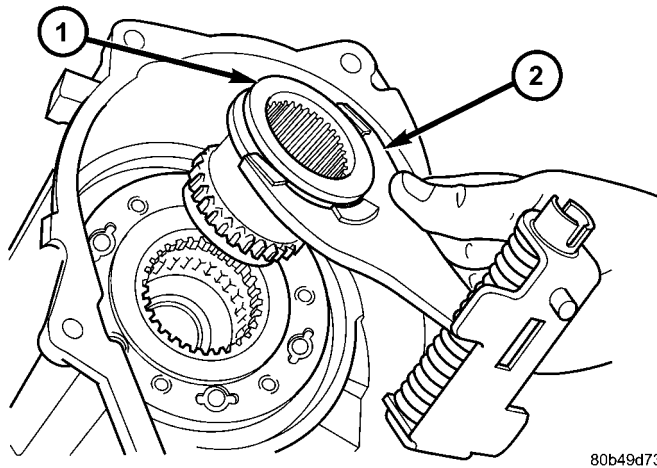
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Fig. 25 Mode Fork And Sleeve Removal

- 1 - MODE SLEEVE
- 2 - MODE FORK AND RAIL

TRANSFER CASE - NV273 (Continued)

- (11) Remove range fork and hub as an assembly (Fig. 26). Note fork position for installation reference.
- (12) Remove the shift sector (Fig. 27).



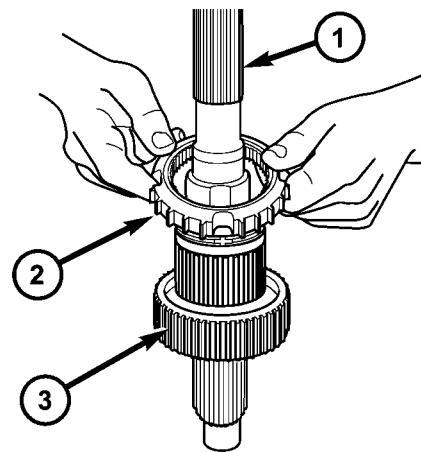
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Fig. 26 Range Fork And Hub Removal

- 1 - RANGE HUB
- 2 - RANGE FORK

MAINSHAFT

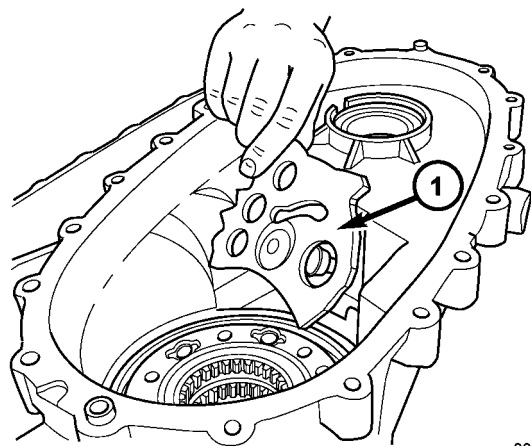
- (1) Remove the clutch gear (Fig. 28) from the output shaft.



80de5397

Fig. 28 Remove Clutch Gear

- 1 - OUTPUT SHAFT
- 2 - CLUTCH GEAR
- 3 - MODE HUB

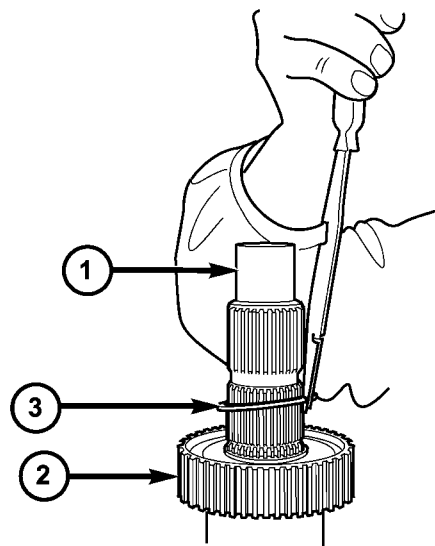


80de53a7

Fig. 27 Remove Shift Sector

- 1 - SHIFT SECTOR

- (2) Remove the mode hub retaining ring (Fig. 29) from the mainshaft.
- (3) Remove the mode hub (Fig. 30) from the mainshaft.



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Fig. 29 Remove Mode Hub Retaining Ring

- 1 - MAINSHAFT
- 2 - MODE HUB
- 3 - RETAINING RING

TRANSFER CASE - NV273 (Continued)

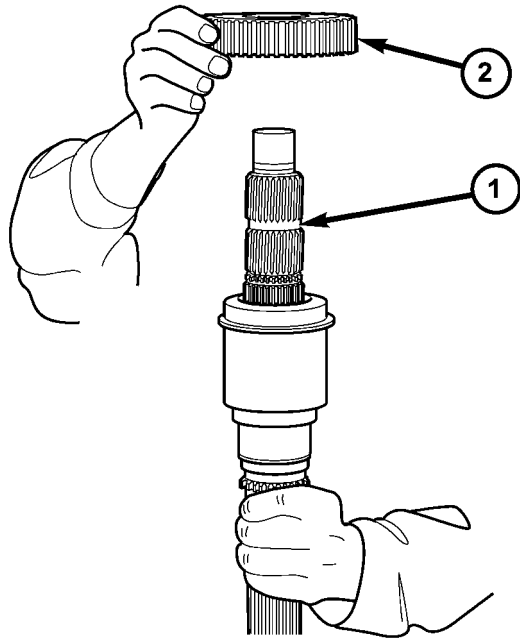


Fig. 30 Remove Mode Hub

- 1 - MAINSHAFT
- 2 - MODE HUB

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(4) Remove the drive sprocket drive hub (Fig. 31) from the mainshaft.

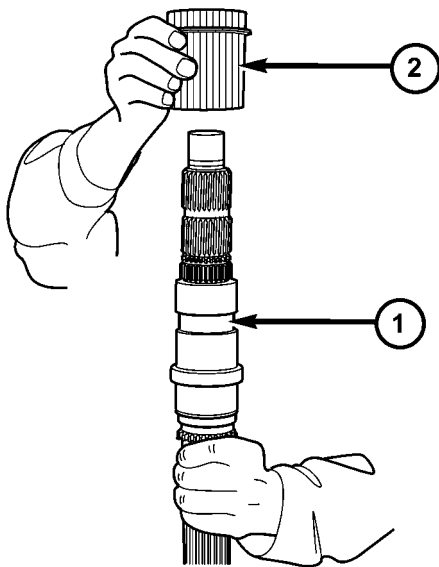


Fig. 31 Remove the Drive Sprocket Drive Hub

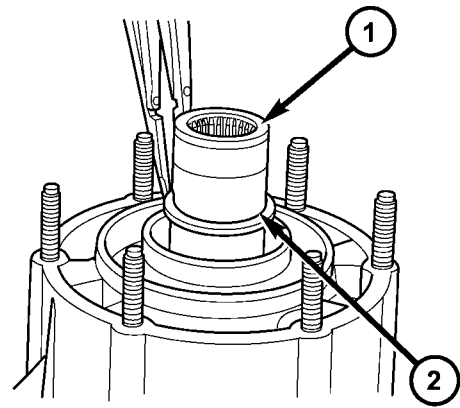
- 1 - MAINSHAFT
- 2 - DRIVE SPROCKET DRIVE HUB

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INPUT AND PLANETARY GEAR

(1) Remove input gear seal with suitable screw and slide hammer.

(2) Remove input gear retaining ring (Fig. 32) with heavy duty snap-ring pliers.

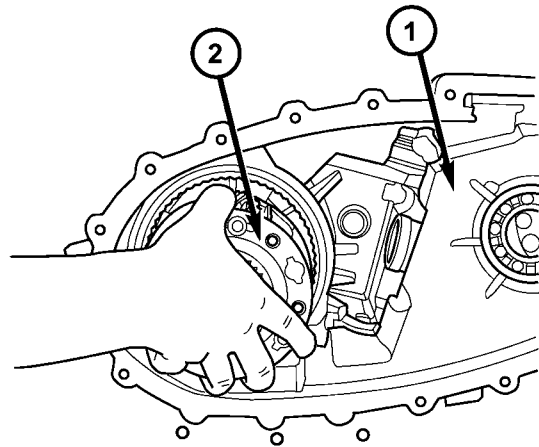


80de581c

Fig. 32 Remove Input Gear Retaining Ring

- 1 - INPUT GEAR
- 2 - RETAINING RING

(3) Place front case in horizontal position. Then remove input gear and low range gear as an assembly (Fig. 33). Tap gear out of bearing with plastic mallet, if necessary.



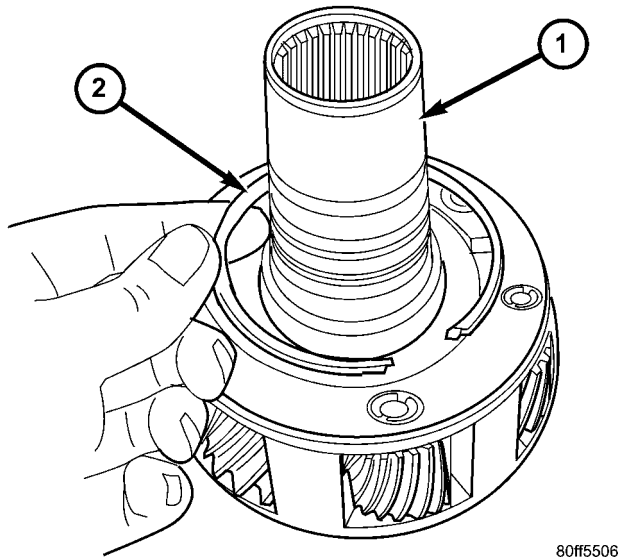
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Fig. 33 Remove Input Planetary Assembly

- 1 - FRONT CASE
- 2 - INPUT PLANETARY ASSEMBLY

TRANSFER CASE - NV273 (Continued)

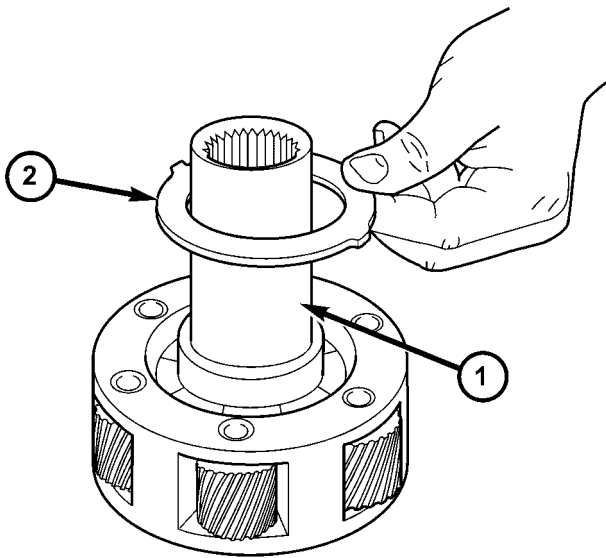
- (4) Remove snap-ring that retains input gear in the low range gear (Fig. 34).
- (5) Remove retainer (Fig. 35).
- (6) Remove front thrust plate (Fig. 36).



80ff5506

Fig. 34 Remove Input Gear Retaining Ring

- 1 - INPUT GEAR
- 2 - RETAINING RING

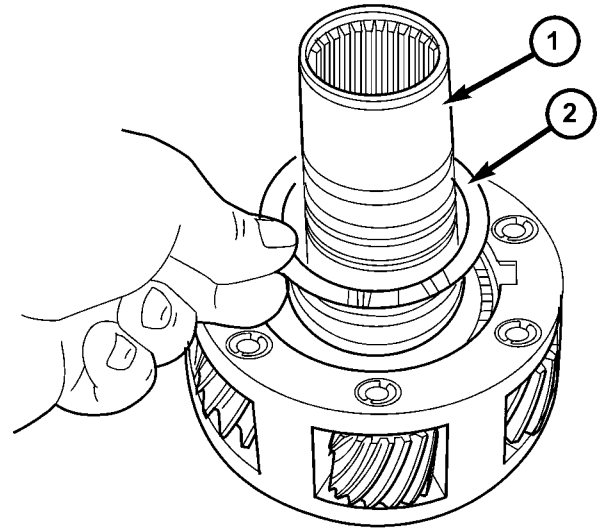


80ff550d

Fig. 35 Remove Input Gear Retainer

- 1 - INPUT GEAR
- 2 - RETAINER

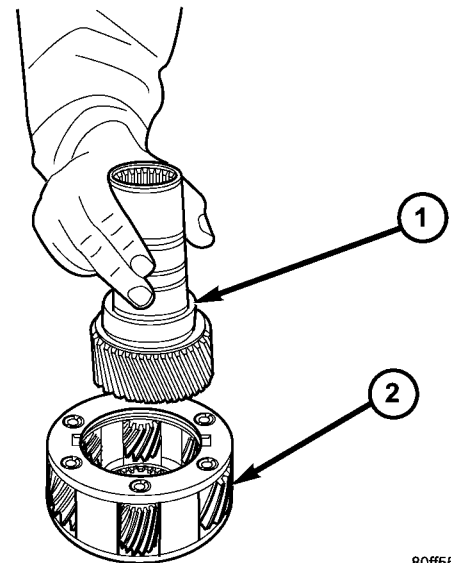
- (7) Remove input gear (Fig. 37).
- (8) Remove bottom tabbed thrust washer from low range planetary (Fig. 38).



80ff5517

Fig. 36 Remove Input Gear Thrust Plate

- 1 - INPUT GEAR
- 2 - THRUST PLATE



80ff5523

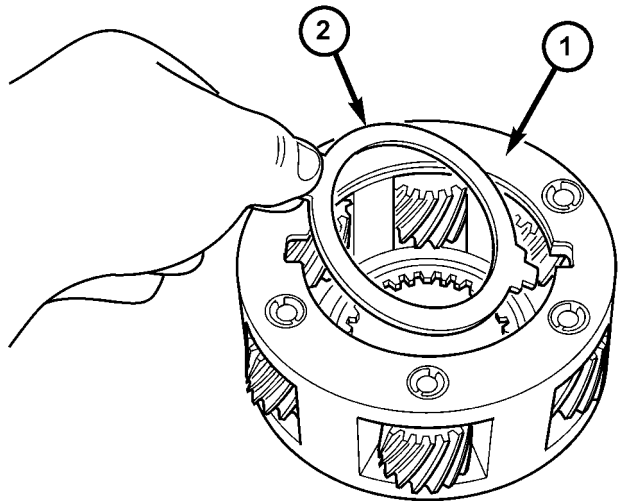
Fig. 37 Remove Input Gear From Planetary

- 1 - INPUT GEAR
- 2 - LOW RANGE PLANETARY

CLEANING

Clean the transfer case parts with a standard parts cleaning solvent. Remove all traces of sealer from the cases and retainers with a scraper and 3M™ all purpose cleaner. Use compressed air to remove solvent residue from oil feed passages in the case halves, retainers, gears, and shafts.

TRANSFER CASE - NV273 (Continued)



80ff5636

Fig. 38 Remove Bottom Input Gear Thrust Plate

- 1 - PLANETARY
- 2 - THRUST PLATE

INSPECTION

MAINSHAFT/SPROCKET/HUB INSPECTION

Inspect the splines on the hub and shaft and the teeth on the sprocket. Minor nicks and scratches can be smoothed with an oilstone. However, replace any part that is damaged.

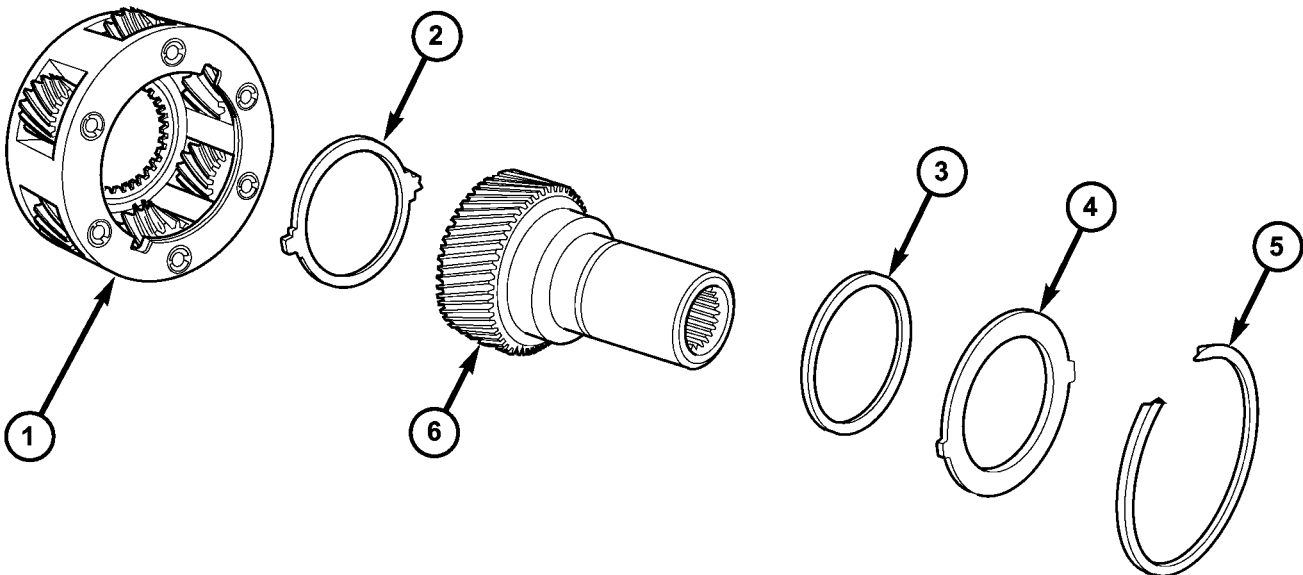
Check the contact surfaces in the sprocket bore and on the mainshaft. Minor nicks and scratches can be smoothed with 320-400 grit emery cloth but do not try to salvage the shaft if nicks or wear is severe.

INPUT GEAR AND PLANETARY CARRIER

Check the teeth on the gear (Fig. 39). Minor nicks can be dressed off with an oilstone but replace the gear if any teeth are broken, cracked, or chipped. The bearing surface on the gear can be smoothed with 300-400 grit emery cloth if necessary.

Examine the carrier body and pinion gears for wear or damage. Check the pinion gear thrust washers on the pinon pins for damage. The carrier will have to be replaced as an assembly if the body, pinion pins, or pinion gears are damaged.

Check the lock ring and both thrust washers for wear or cracks. Replace them if necessary. Also replace the lock retaining ring if bent, distorted, or broken.



80ff5d36

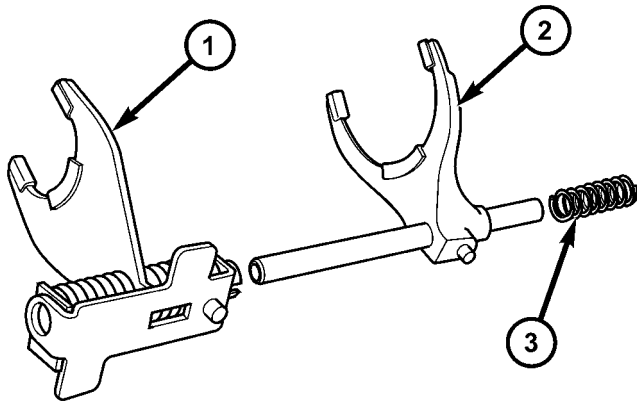
Fig. 39 Input Gear And Carrier Components

- 1 - PLANETARY CARRIER
- 2 - REAR THRUST WASHER
- 3 - FRONT THRUST WASHER
- 4 - CARRIER LOCK RING
- 5 - CARRIER LOCK RETAINING RING
- 6 - INPUT GEAR

TRANSFER CASE - NV273 (Continued)

SHIFT FORKS/HUBS/SLEEVES

Check condition of the shift forks and mode fork shift rail (Fig. 40). Minor nicks on the shift rail can be smoothed with 320-400 grit emery cloth.

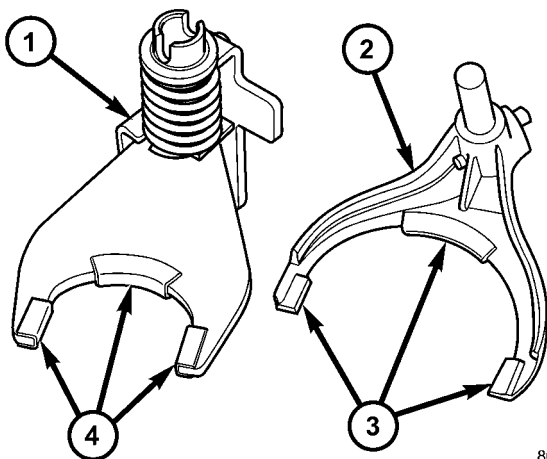


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Fig. 40 Shift Forks

- 1 - RANGE FORK
- 2 - MODE FORK AND RAIL
- 3 - MODE SPRING

Inspect the shift fork wear pads (Fig. 41). The mode and range fork pads are serviceable and can be replaced if necessary.



80b49eb4

Fig. 41 Shift Fork And Wear Pad Locations

- 1 - RANGE FORK
- 2 - MODE FORK
- 3 - WEAR PADS (SERVICEABLE)
- 4 - WEAR PADS (SERVICEABLE)

Check both of the sleeves for wear or damage, especially on the interior teeth. Replace the sleeves if wear or damage is evident.

REAR EXTENSION HOUSING

Inspect the extension housing seal and bushing. Replace both components if either show any sign of wear or damage.

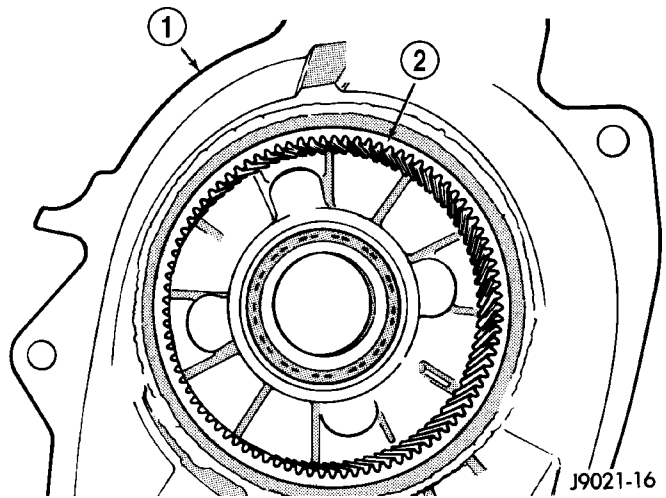
FRONT OUTPUT SHAFT AND DRIVE CHAIN

Inspect the shaft threads, sprocket teeth, and bearing surfaces. Minor nicks on the teeth can be smoothed with an oilstone. Use 320-400 grit emery to smooth minor scratches on the shaft bearing surfaces. Rough threads on the shaft can be chased if necessary. Replace the shaft if the threads are damaged, bearing surfaces are scored, or if any sprocket teeth are cracked or broken.

Examine the drive chain and shaft bearings. Replace the chain and both sprockets if the chain is stretched, distorted, or if any of the links bind. Replace the bearings if rough, or noisy.

LOW RANGE ANNULUS GEAR

Inspect annulus gear condition carefully. The gear is only serviced as part of the front case. If the gear is damaged, it will be necessary to replace the gear and front case as an assembly. Do not attempt to remove the gear (Fig. 42)



19021-16

Fig. 42 Low Range Annulus Gear

- 1 - FRONT CASE
- 2 - LOW RANGE ANNULUS GEAR

FRONT AND REAR CASES

Inspect the cases for wear and damage. Check case condition. If leaks were a problem, look for gouges and severe scoring of case sealing surfaces. Also make sure the front case mounting studs are in good condition.

Check the front case mounting studs and vent tube. The tube can be secured with Loctite™ 271 or 680 if loose. The stud threads can be cleaned up with a die if necessary. Also check condition of the fill/drain plug threads in the rear case. The threads can

TRANSFER CASE - NV273 (Continued)

be repaired with a thread chaser or tap if necessary. Or the threads can be repaired with Helicoil® stainless steel inserts if required.

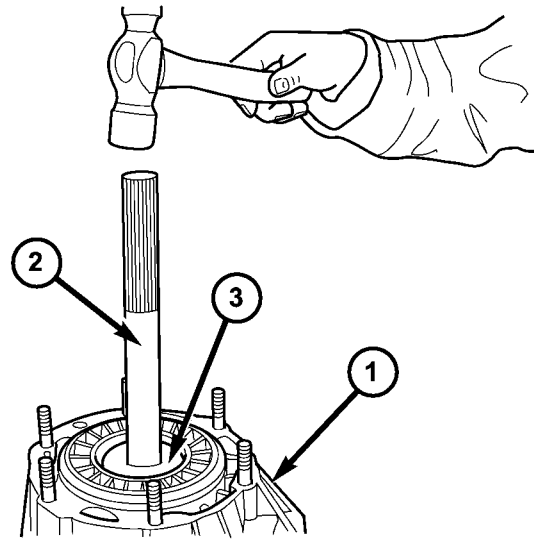
OIL PUMP/OIL PICKUP

Examine the oil pump pickup parts. Replace the pump if any part appears to be worn or damaged. Do not disassemble the pump as individual parts are not available. The pump is only available as a complete assembly. The pickup screen, hose, and tube are the only serviceable parts and are available separately.

ASSEMBLY

BEARINGS AND SEALS

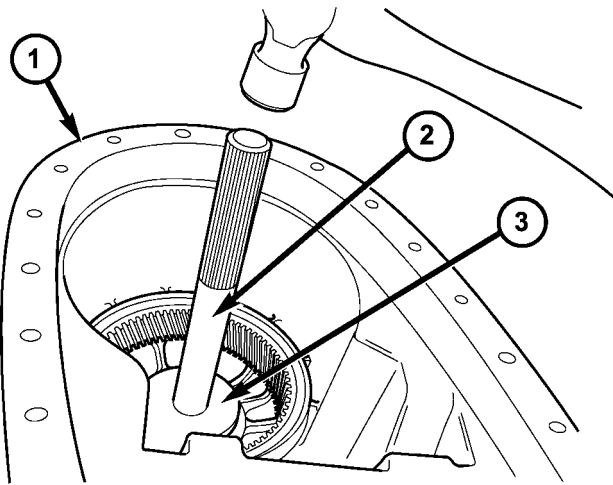
- (1) Remove the input shaft bearing snap-ring from the front case half with suitable snap-ring pliers.
- (2) Remove the input shaft bearing from the front case half with Installer 6953 and Handle C-4171 (Fig. 43).
- (3) Install the input shaft bearing into the front case half with Installer 8151 inverted on Handle C-4171 (Fig. 44).
- (4) Install the input shaft bearing snap-ring into the front case half with suitable snap-ring pliers.



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Fig. 44 Install Input Gear Bearing

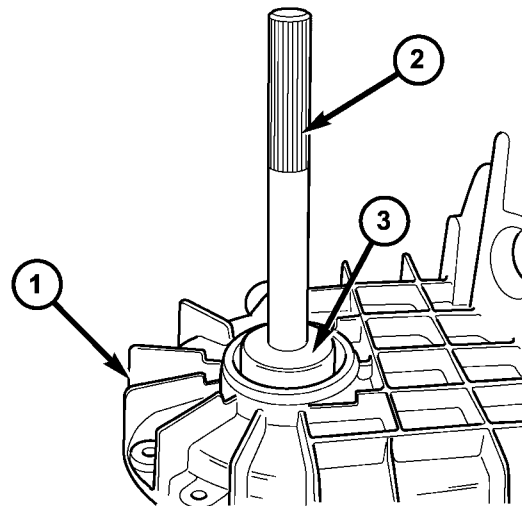
- 1 - FRONT CASE HALF
- 2 - HANDLE C-4171
- 3 - INSTALLER 8151 (INVERTED)



80ff87db

Fig. 43 Remove Input Gear Bearing

- 1 - FRONT CASE HALF
- 2 - HANDLE C-4171
- 3 - INSTALLER 6953



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Fig. 45 Remove Front Output Shaft Front Bearing

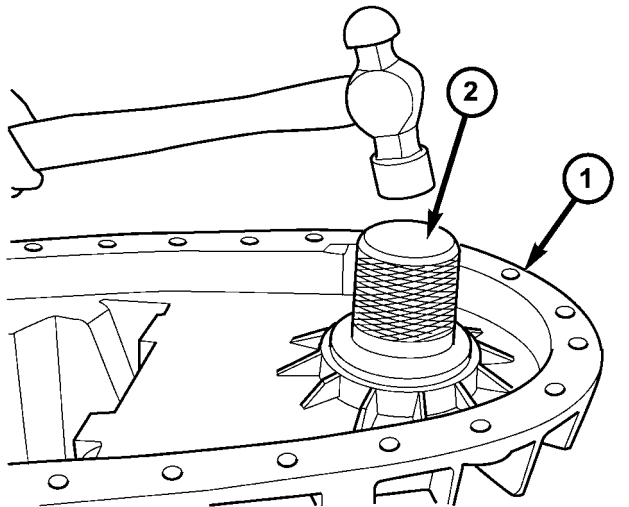
- 1 - FRONT CASE HALF
- 2 - HANDLE C-4171
- 3 - INSTALLER 6953

- (5) Remove the front output shaft front bearing snap-ring from the front case half.
- (6) Using Installer 6953 and Handle C-4171 (Fig. 45), remove the front output shaft front bearing.

TRANSFER CASE - NV273 (Continued)

(7) Start front output shaft front bearing in case. Then seat bearing with Installer 8891 (Fig. 46).

(8) Install front output shaft bearing retaining ring.

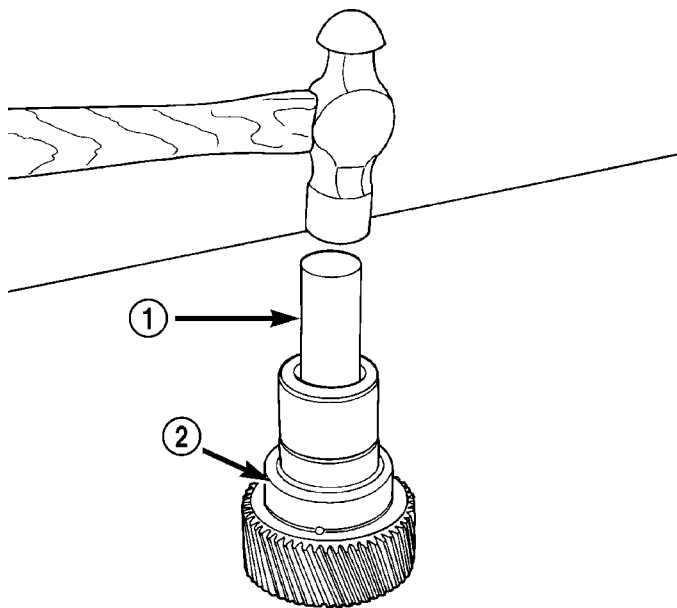


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Fig. 46 Install Front Output Shaft Front Bearing

- 1 - FRONT CASE HALF
- 2 - INSTALLER 8891

(9) Remove input gear pilot bearing by inserting a suitably sized drift into the splined end of the input gear and driving the bearing out with the drift and a hammer (Fig. 47).



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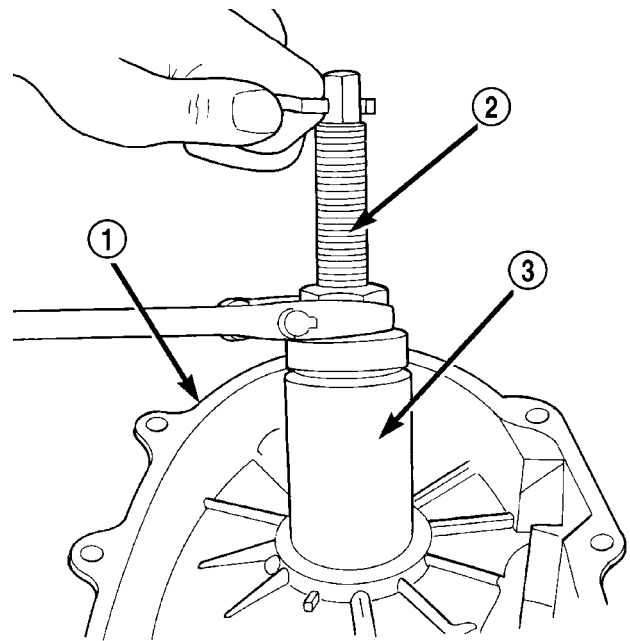
Fig. 47 Remove Input Gear Cup Bearing

- 1 - DRIFT
- 2 - INPUT GEAR

(10) Install new pilot bearing with Installer 9035.

(11) Remove the front output shaft rear bearing with the screw and jaws from Remover L-4454 and Cup 8148 (Fig. 48).

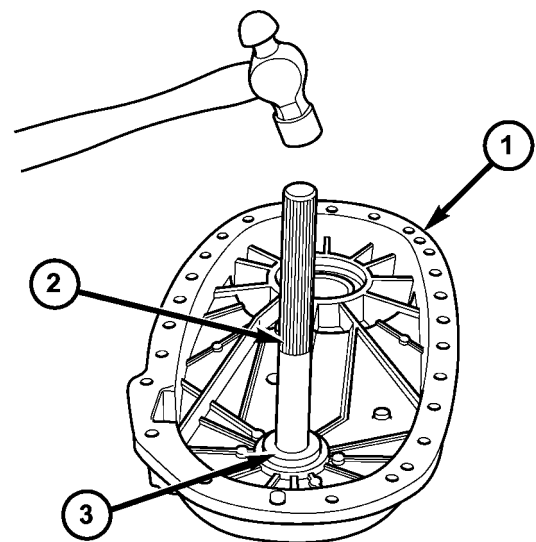
(12) Install new bearing with Tool Handle C-4171 and Installer 8128 (Fig. 49). The bearing bore is



80a98366

Fig. 48 Front Output Shaft Rear Bearing Removal

- 1 - REAR CASE
- 2 - SPECIAL TOOL L-4454-1 AND L-4454-3
- 3 - SPECIAL TOOL 8148



80ff8ce1

Fig. 49 Install Front Output Shaft Rear Bearing

- 1 - REAR CASE HALF
- 2 - HANDLE C-4171
- 3 - INSTALLER 8128

TRANSFER CASE - NV273 (Continued)

chamfered at the top. Install the bearing so it is flush with the lower edge of this chamfer (Fig. 50).

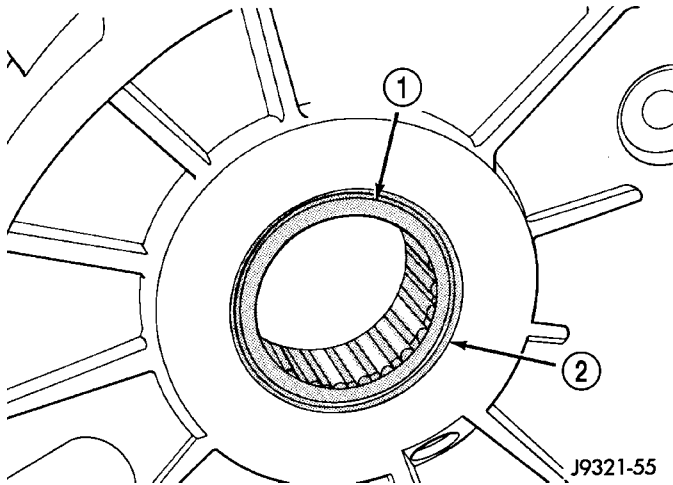


Fig. 50 Output Shaft Rear Bearing Installation Depth

- 1 - BEARING (SEATED) AT LOWER EDGE OF CHAMFER
- 2 - CHAMFER

(13) Remove seal from oil pump with suitable pry tool.

(14) Install new seal in oil pump with Installer 7888 (Fig. 51).

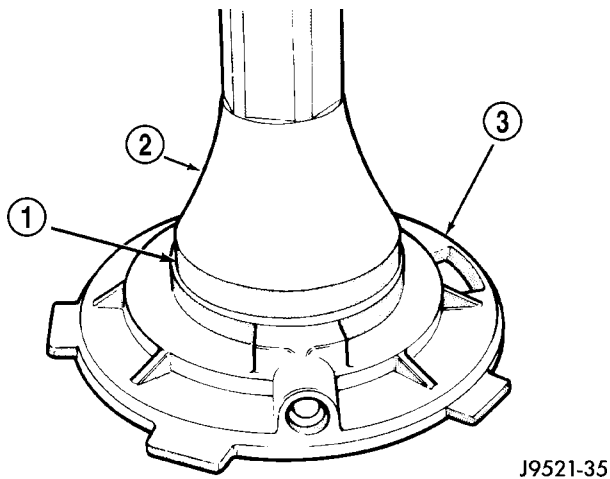


Fig. 51 Oil Pump Seal Installation

- 1 - HOUSING SEAL
- 2 - SPECIAL TOOL 7888
- 3 - OIL PUMP FEED HOUSING

(15) Remove the rear output shaft bearing snap-ring (Fig. 52) from the rear case half.

(16) Remove the rear output shaft bearing from the rear case using Installer 7888 (Fig. 53).

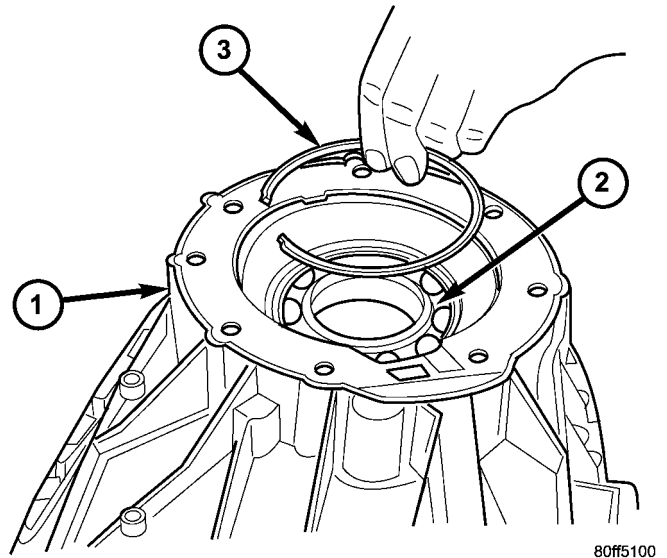


Fig. 52 Remove Rear Output Bearing Outer Snap-Ring

- 1 - REAR CASE HALF
- 2 - REAR OUTPUT SHAFT BEARING
- 3 - SNAP-RING

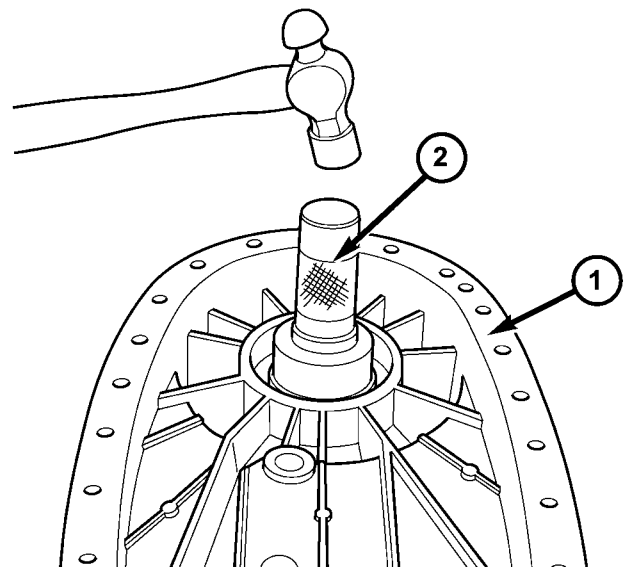


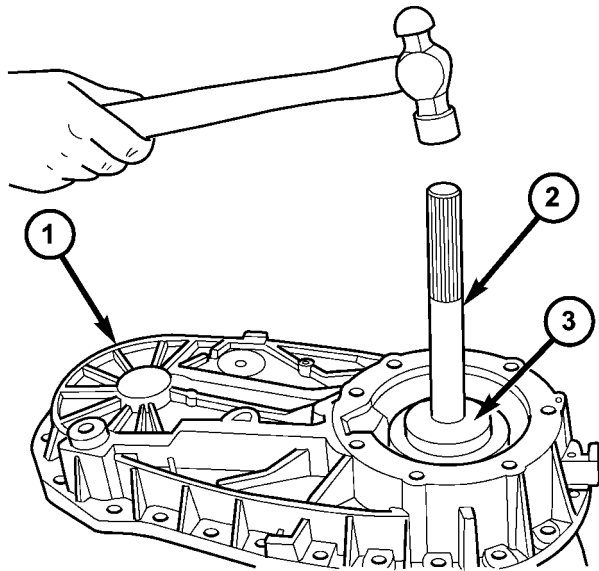
Fig. 53 Remove Rear Output Shaft Bearing

- 1 - REAR CASE HALF
- 2 - INSTALLER 7888

TRANSFER CASE - NV273 (Continued)

(17) Install the rear output shaft bearing (Fig. 54) into the rear case using Installer 8152 and Handle C-4171.

(18) Install the rear output shaft bearing snapping into the rear case half.



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Fig. 54 Install Rear Output Shaft Bearing

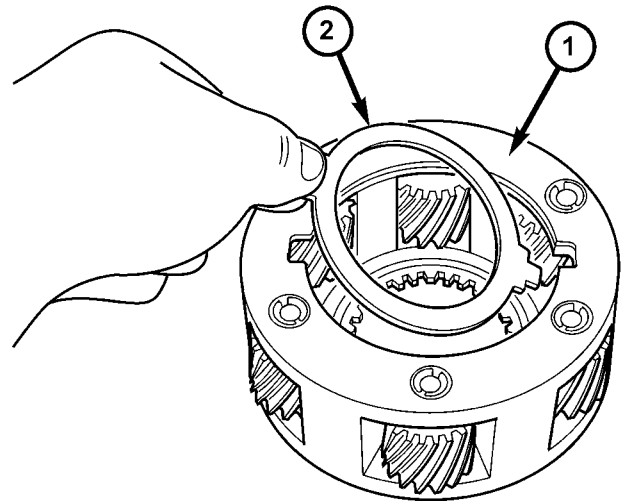
- 1 - REAR CASE HALF
- 2 - HANDLE C-4171
- 3 - INSTALLER 8152

INPUT AND PLANETARY GEAR

(1) Lubricate gears and thrust washers with recommended transmission fluid.

(2) Install bottom thrust washer (Fig. 55) in low range gear planetary. Be sure washer tabs are properly aligned in gear notches.

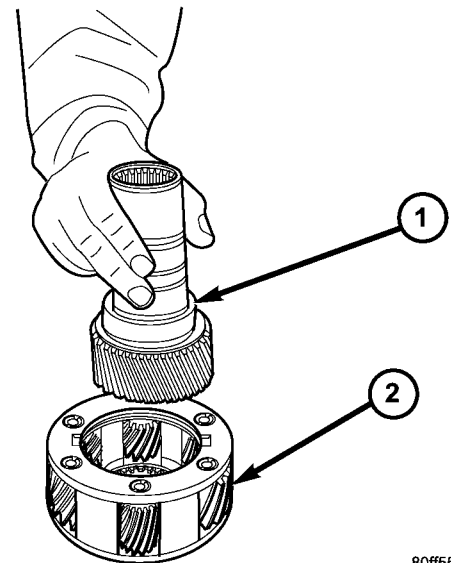
(3) Install input gear in low range gear (Fig. 56). Be sure input gear is fully seated.



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Fig. 55 Install Bottom Input Gear Thrust Plate

- 1 - PLANETARY
- 2 - THRUST PLATE



80ff5523

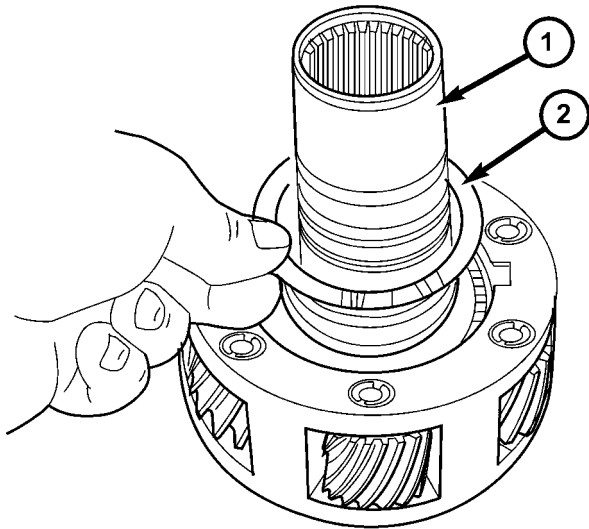
Fig. 56 Install Input Gear From Planetary

- 1 - INPUT GEAR
- 2 - LOW RANGE PLANETARY

TRANSFER CASE - NV273 (Continued)

(4) Install remaining thrust washer (Fig. 57) in low range gear and on top of input gear.

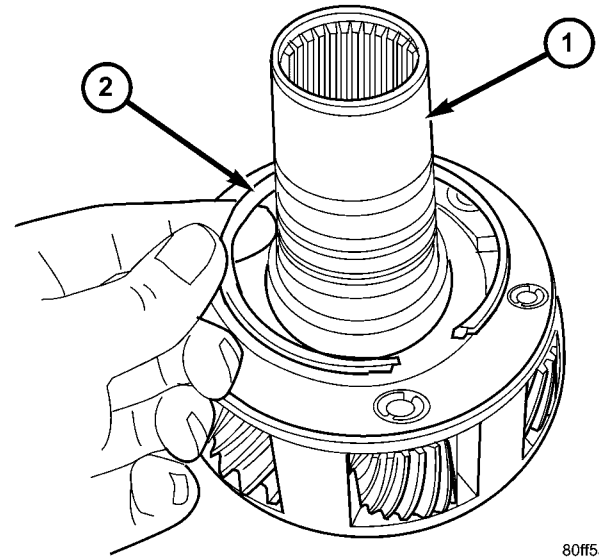
(5) Install retainer (Fig. 58) on input gear and install snap-ring (Fig. 59).



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Fig. 57 Install Input Gear Thrust Plate

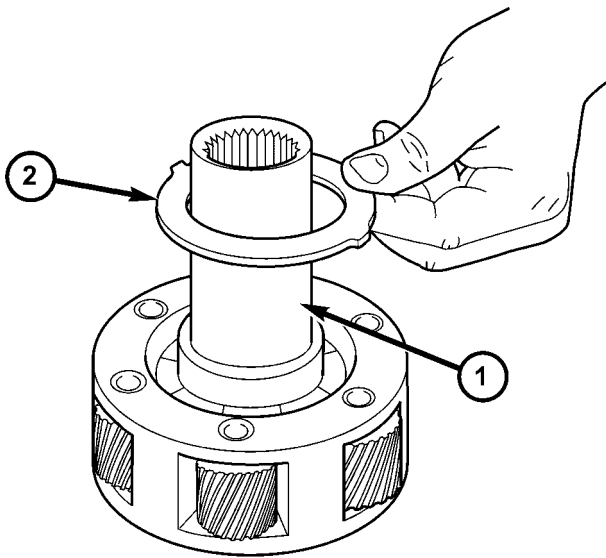
- 1 - INPUT GEAR
- 2 - THRUST PLATE



80ff5506

Fig. 59 Install Input Gear Retaining Ring

- 1 - INPUT GEAR
- 2 - RETAINING RING

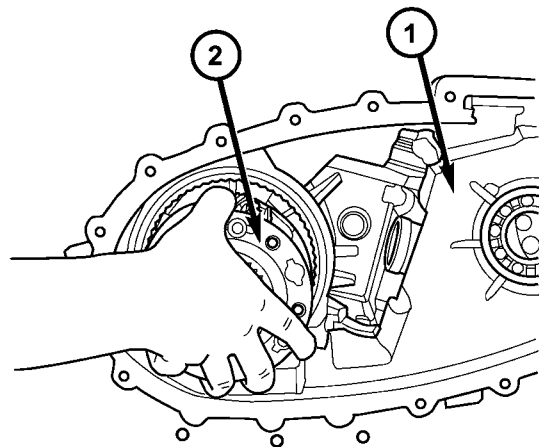


80ff550d

Fig. 58 Install Input Gear Retainer

- 1 - INPUT GEAR
- 2 - RETAINER

(6) Align and install low range/input gear assembly in front case (Fig. 60). Be sure low range gear pinions are engaged in annulus gear and that input gear shaft is fully seated in front bearing.



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Fig. 60 Install Input Planetary Assembly

- 1 - FRONT CASE
- 2 - INPUT PLANETARY ASSEMBLY

TRANSFER CASE - NV273 (Continued)

(7) Install snap-ring to hold input/low range gear into front bearing (Fig. 61).

(8) Install a new input gear seal using Installer 8841 and Handle C-4171.

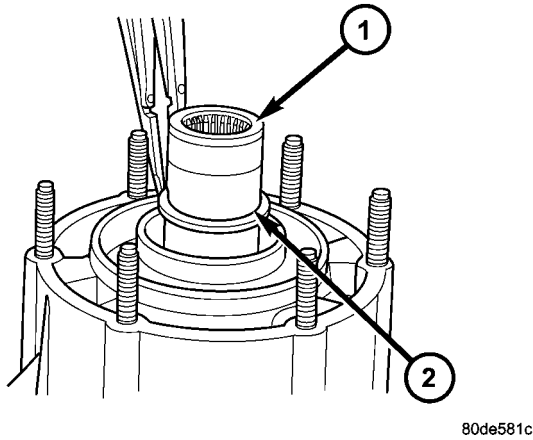


Fig. 61 Install Input Gear Retaining Ring

- 1 - INPUT GEAR
- 2 - RETAINING RING

(9) Install a new input gear oil seal with Installer 9036 and Handle C-4171.

SHIFT FORKS AND MAINSHAFT

(1) Lubricate mainshaft splines with recommended transmission fluid.

(2) Coat the interior of the drive sprocket hub with ATF+4 and install the drive sprocket drive hub (Fig. 62) onto the mainshaft.

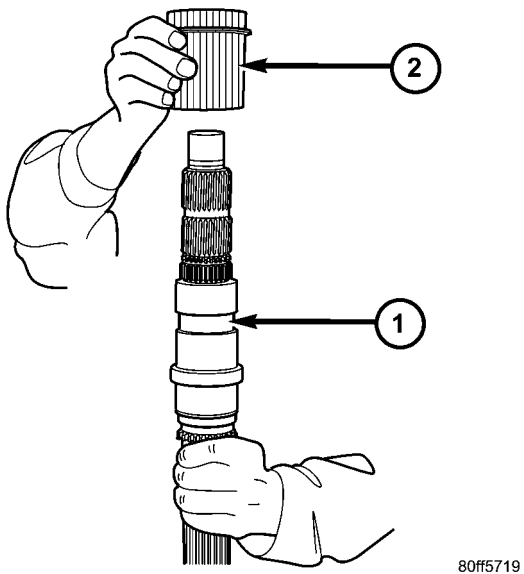


Fig. 62 Install the Drive Sprocket Drive Hub

- 1 - MAINSHAFT
- 2 - DRIVE SPROCKET DRIVE HUB

(3) Install the mode hub (Fig. 63) onto the mainshaft.

(4) Install the mode hub retaining ring (Fig. 64) onto the mainshaft.

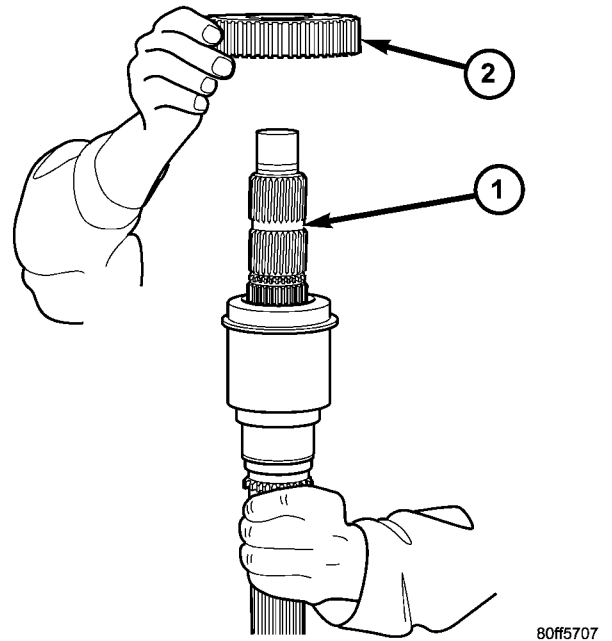


Fig. 63 Install Mode Hub

- 1 - MAINSHAFT
- 2 - MODE HUB

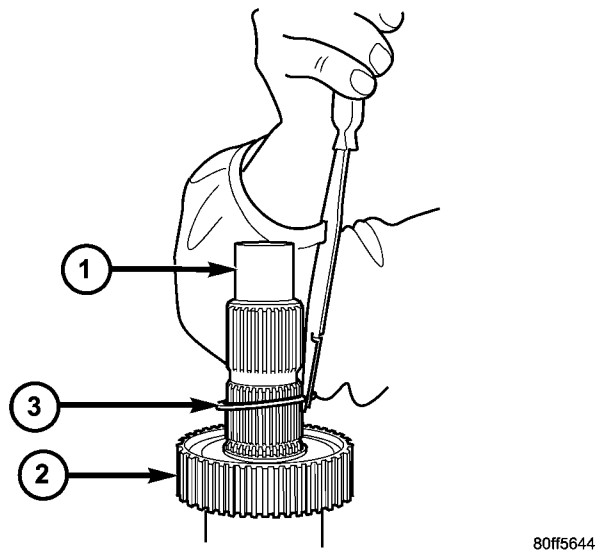
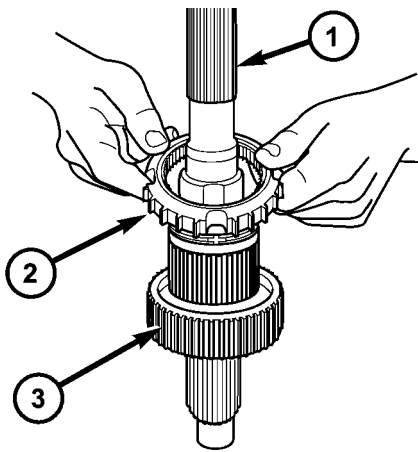


Fig. 64 Install Mode Hub Retaining Ring

- 1 - MAINSHAFT
- 2 - MODE HUB
- 3 - RETAINING RING

TRANSFER CASE - NV273 (Continued)

(5) Install the clutch gear (Fig. 65) onto the output shaft. Verify that the pointed ends of the clutch gear teeth are pointing to the front of the mainshaft.



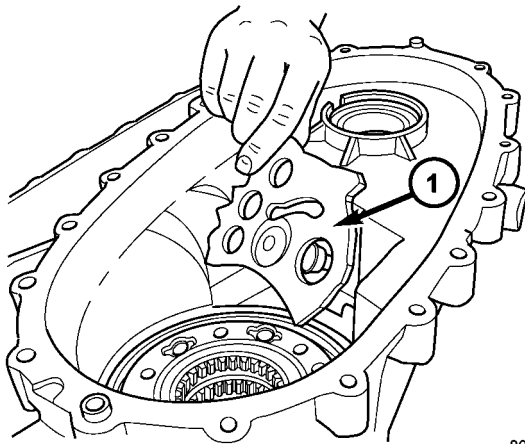
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Fig. 65 Install Clutch Gear

- 1 - OUTPUT SHAFT
- 2 - CLUTCH GEAR
- 3 - MODE HUB

(6) Lubricate sector shaft with transmission fluid and install shift sector in case (Fig. 66). Position slot in sector so it will be aligned with shift fork pin when shift forks are installed.

(7) Apply Loctite™ 242, or equivalent, to the threads of the sector support to replenish the factory applied patch. Install the shift sector support. Tighten the sector support with Socket 9033 to 27-34 N·m (20-25 ft.lbs.).



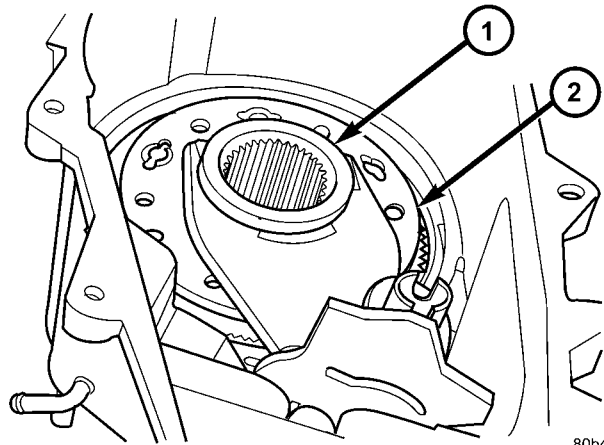
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Fig. 66 Install Shift Sector

- 1 - SHIFT SECTOR

(8) Assemble and install range fork and hub (Fig. 67). Be sure hub is properly seated in low range gear and engaged to the input gear.

(9) Align and insert range fork pin in shift sector slot.



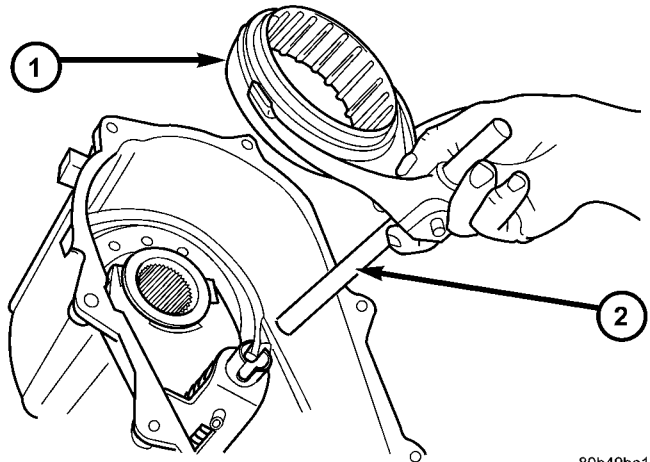
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Fig. 67 Install Range Fork And Hub Assembly

- 1 - RANGE HUB
- 2 - RANGE FORK

(10) Install mode fork and shift rail onto the mode sleeve.

(11) Install the mode fork, sleeve, and shift rail into the transfer case (Fig. 68).



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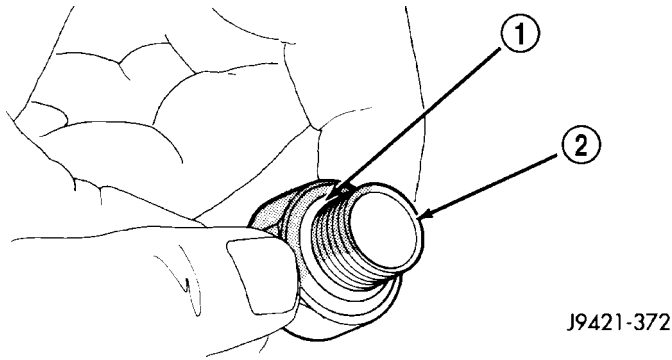
Fig. 68 Mode Fork And Sleeve Installation

- 1 - MODE SLEEVE
- 2 - MODE FORK AND RAIL

TRANSFER CASE - NV273 (Continued)

(12) Install new o-ring on detent plug (Fig. 69).

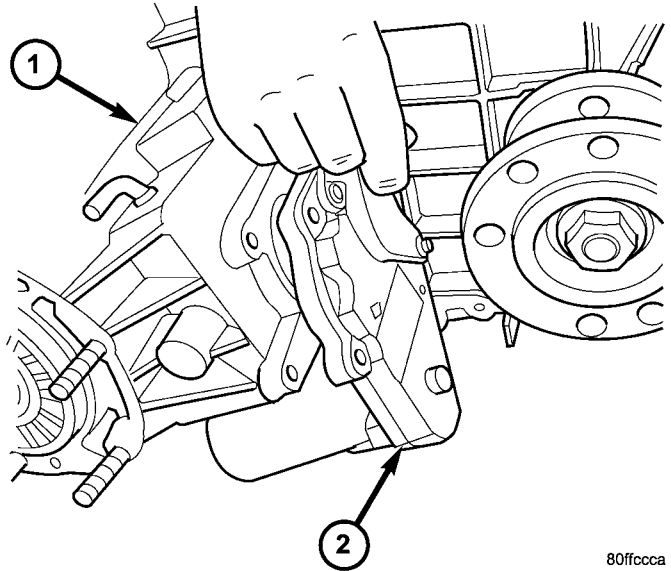
(13) Install detent plunger, spring, and plug (Fig. 70). Tighten the plug to 16-25 N·m (12-18 ft. lbs.).



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Fig. 69 O-Ring Installation On Detent Plug

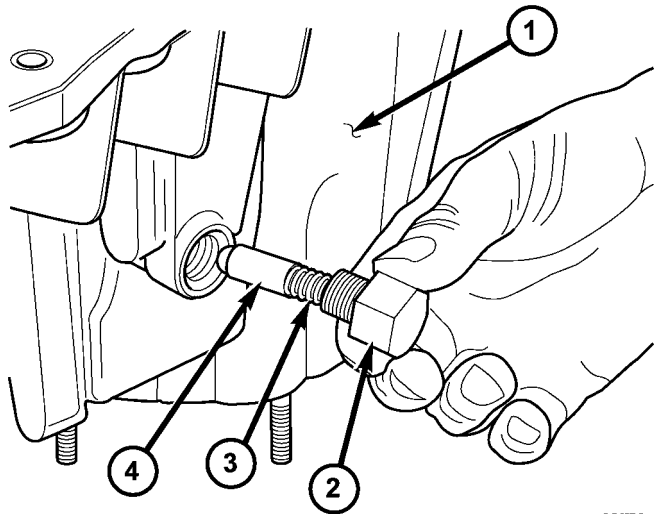
- 1 - O-RING
- 2 - DETENT PLUG



80ffcca

Fig. 71 Install Shift Motor Assembly Onto Transfer Case

- 1 - TRANSFER CASE
- 2 - SHIFT MOTOR ASSEMBLY



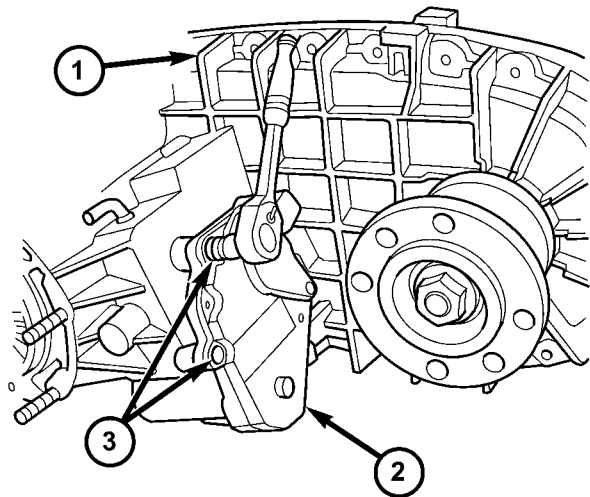
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Fig. 70 Install Detent plug, Spring, and Plunger

- 1 - FRONT CASE HALF
- 2 - DETENT PLUG
- 3 - SPRING
- 4 - PLUNGER

(1) Position the shift motor and mode sensor assembly (Fig. 71) onto the transfer case.

(2) Install the bolts (Fig. 72) to hold the shift motor and mode sensor assembly to the transfer case. Tighten the bolts to 16-25 N·m (12-18 ft. lbs.).



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Fig. 72 Install Shift Motor Assembly Bolts

- 1 - TRANSFER CASE
- 2 - SHIFT MOTOR ASSEMBLY
- 3 - BOLTS

TRANSFER CASE - NV273 (Continued)

(3) Install mainshaft into the transfer case (Fig. 73). Guide mainshaft through the mode and range sleeves and into the input gear.

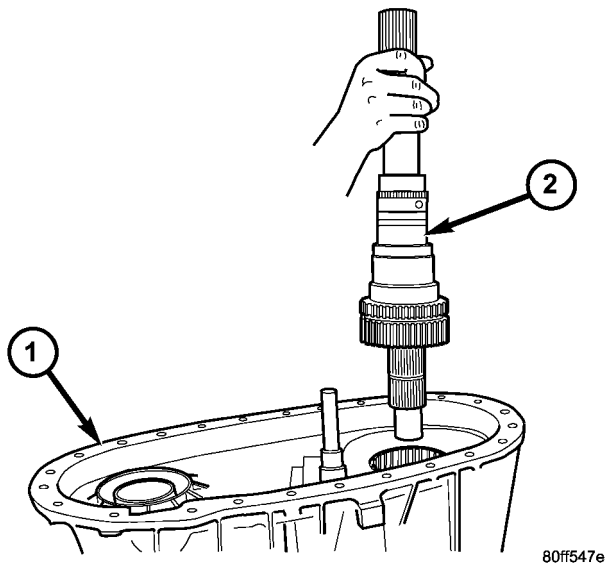


Fig. 73 Install Mainshaft Assembly

- 1 - FRONT CASE HALF
- 2 - MAINSHAFT ASSEMBLY

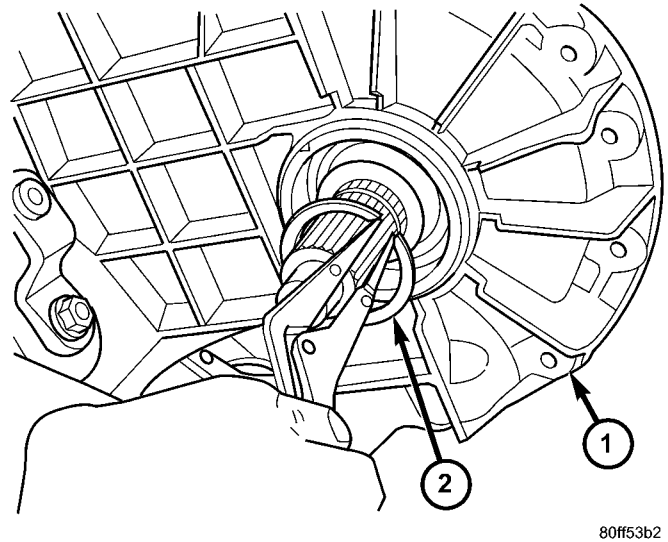


Fig. 75 Install Front Output Shaft Bearing Inner Snap-Ring

- 1 - FRONT CASE HALF
- 2 - SNAP-RING

FRONT OUTPUT SHAFT AND DRIVE CHAIN

- (1) Install the front output shaft (Fig. 74) into the front output shaft front bearing.
- (2) Install the front output shaft bearing inner snap-ring (Fig. 75) onto the output shaft.
- (3) Install the new front output shaft seal with Installer MB991168A

- (6) Position rear drive sprocket (Fig. 76) over the output shaft and lower the sprocket and chain assembly until the front sprocket is positioned over the front output shaft.
- (7) Align the splines in the sprockets to the splines on the output shafts and install the sprockets onto the output shafts.

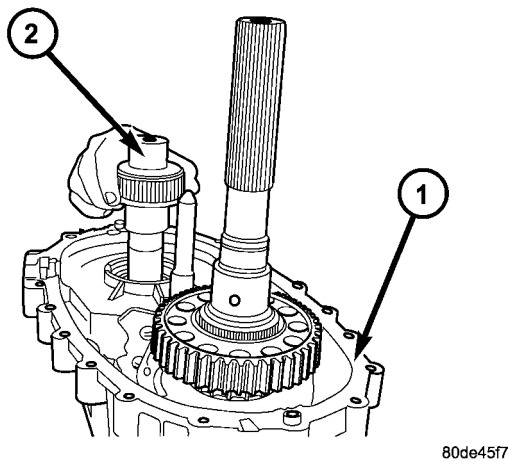


Fig. 74 Install Front Output Shaft

- 1 - FRONT CASE
- 2 - FRONT OUTPUT SHAFT

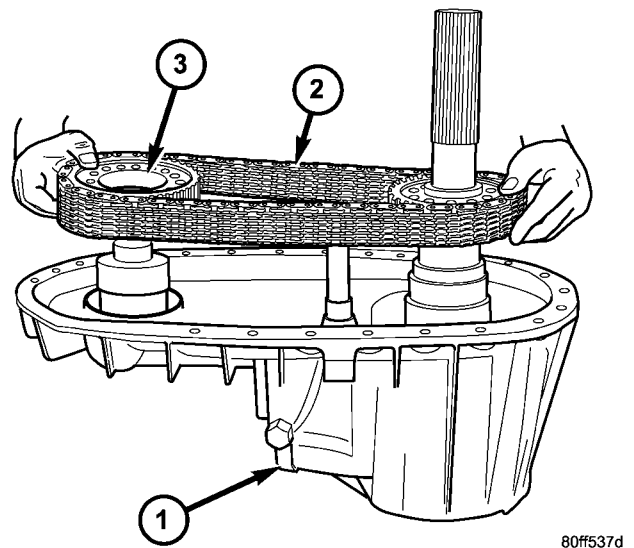


Fig. 76 Install Drive Chain and Sprockets

- 1 - FRONT CASE HALF
- 2 - CHAIN
- 3 - DRIVE SPROCKETS

- (4) Insert front drive sprocket in drive chain.
- (5) Install drive chain around rear drive sprocket.

TRANSFER CASE - NV273 (Continued)

- (8) Install front sprocket retaining ring (Fig. 77).
- (9) Install rear sprocket retaining ring (Fig. 78).

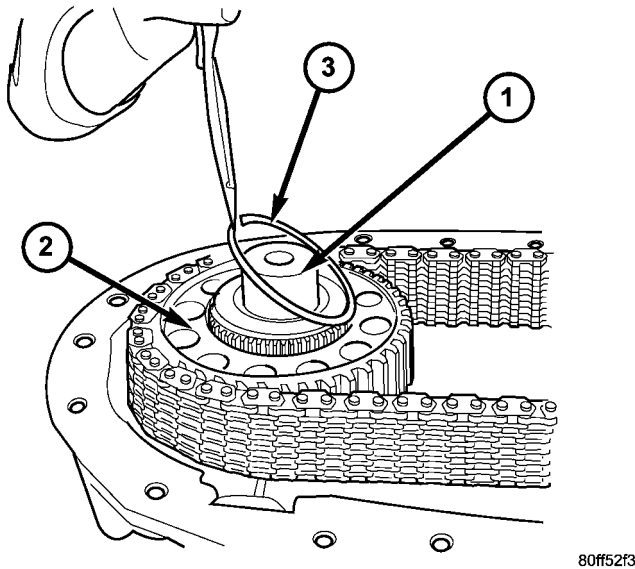


Fig. 77 Install Front Output Shaft Sprocket Retaining Ring

- 1 - FRONT OUTPUT SHAFT
- 2 - DRIVE SPROCKET
- 3 - RETAINING RING

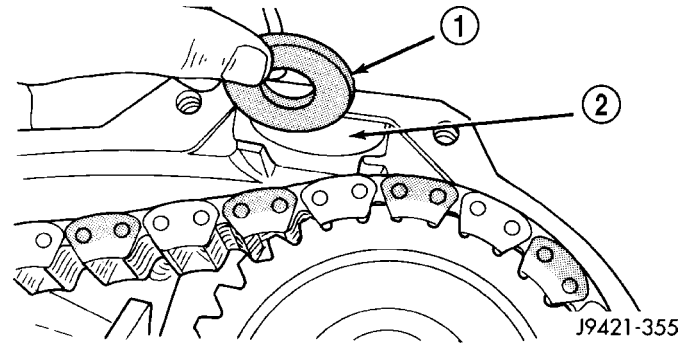


Fig. 79 Case Magnet Installation

- 1 - MAGNET
- 2 - CASE POCKET

(2) Apply bead of Mopar® Gasket Maker, or equivalent, to mating surface of front case. Keep sealer bead width to maximum of 3/16 inch. Do not use excessive amount of sealer as excess will be displaced into case interior.

(3) Align mainshaft with the rear output shaft bearing and align shift rail with bore in rear case. Then install rear case (Fig. 80). Verify that the case alignment dowels correctly seat into their mating recesses.

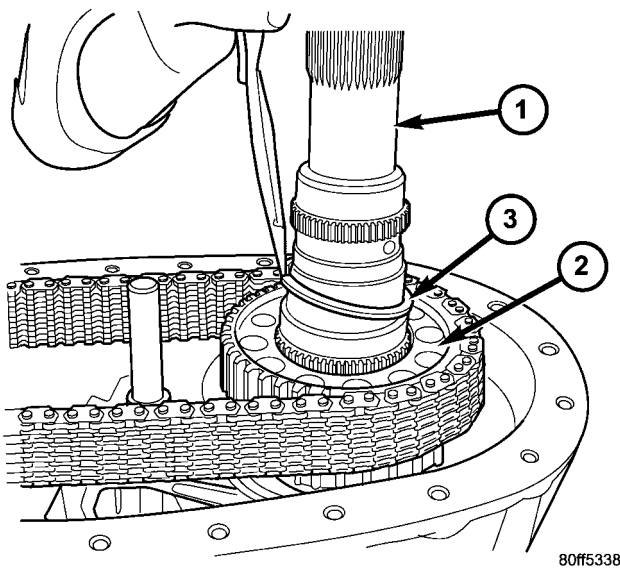


Fig. 78 Install Rear Output Shaft Sprocket Retaining Ring

- 1 - REAR OUTPUT SHAFT
- 2 - DRIVE SPROCKET
- 3 - RETAINING RING

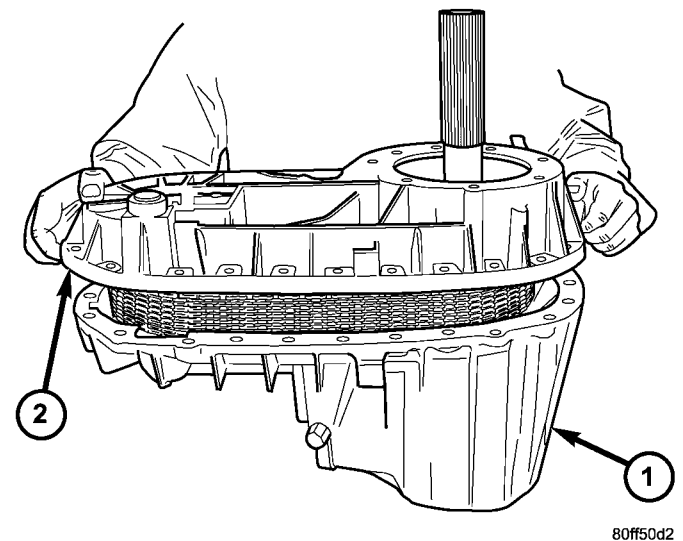


Fig. 80 Install Rear Case Half

- 1 - FRONT CASE HALF
- 2 - REAR CASE HALF

- (10) Insert magnet in front case pocket (Fig. 79).

REAR CASE

- (1) Install the oil pick-up tube and screen into the rear case half.

TRANSFER CASE - NV273 (Continued)

(4) Install 4-5 rear case-to-front case bolts (Fig. 81) to hold rear case in position. Tighten bolts snug but not to specified torque at this time.

CAUTION: Verify that shift rail, and case alignment dowels are seated before installing any bolts. Case could be cracked if shaft rail or dowels are misaligned.

(5) Tighten bolts to 27-34 N·m (20-25 ft. lbs.),
 (6) Install rear output bearing inner snap-ring (Fig. 82) to output shaft.

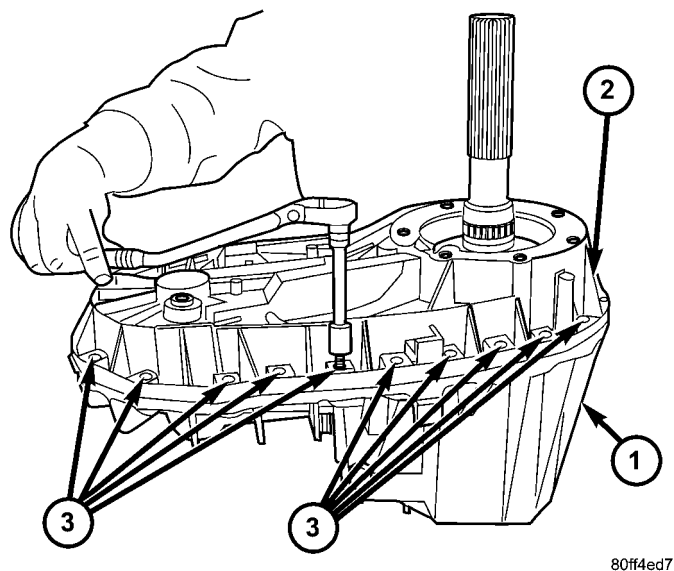


Fig. 81 Install Case Half Bolts

- 1 - FRONT CASE HALF
- 2 - REAR CASE HALF
- 3 - BOLTS

OIL PUMP AND REAR EXTENSION

(1) Install the oil pump (Fig. 83) onto the output shaft.

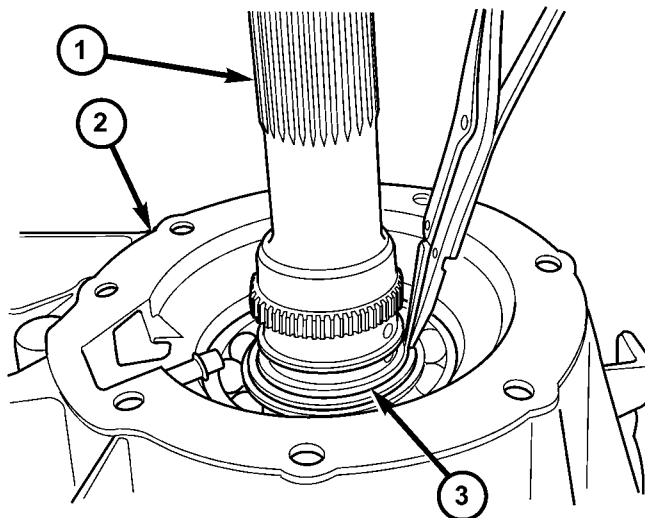


Fig. 82 Install Rear Bearing Inner Snap-Ring

- 1 - OUTPUT SHAFT
- 2 - REAR CASE HALF
- 3 - SNAP-RING

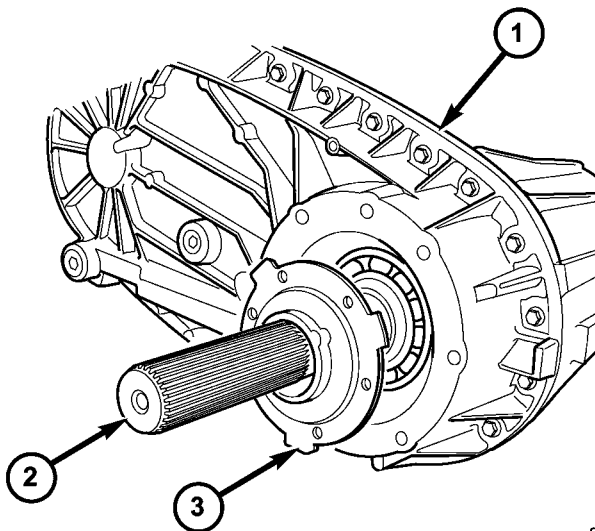


Fig. 83 Install Oil Pump

- 1 - REAR CASE HALF
- 2 - REAR OUTPUT SHAFT
- 3 - OIL PUMP

TRANSFER CASE - NV273 (Continued)

(2) Engage the oil pump pick-up tube (Fig. 84) into the oil pump. Verify that the pick-up tube o-ring is on the tube and is correctly installed to the oil pump.

(3) Apply bead of Mopar® Gasket Maker, or equivalent,

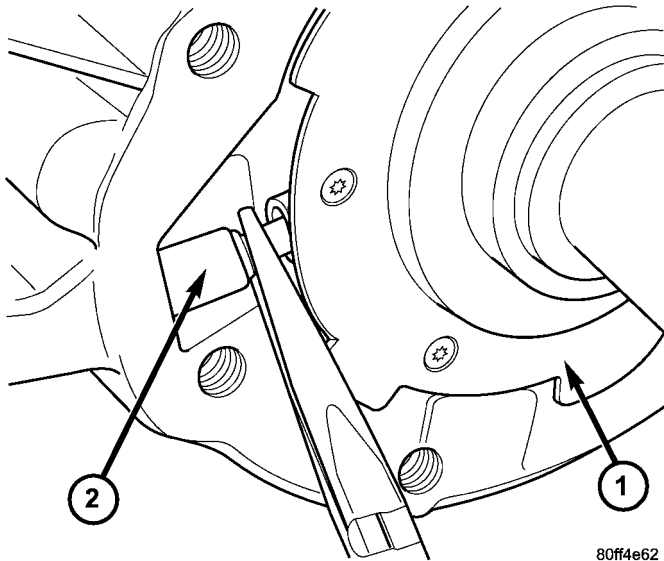


Fig. 84 Engage The Oil Pick-up To Oil Pump

- 1 - OIL PUMP
- 2 - OIL PICK-UP TUBE

alent, to mating surface of rear extension housing. Keep sealer bead width to maximum of 3/16 inch. Do not use excessive amount of sealer as excess could be displaced into output bearing.

(4) Install extension housing (Fig. 85) onto the rear case half.

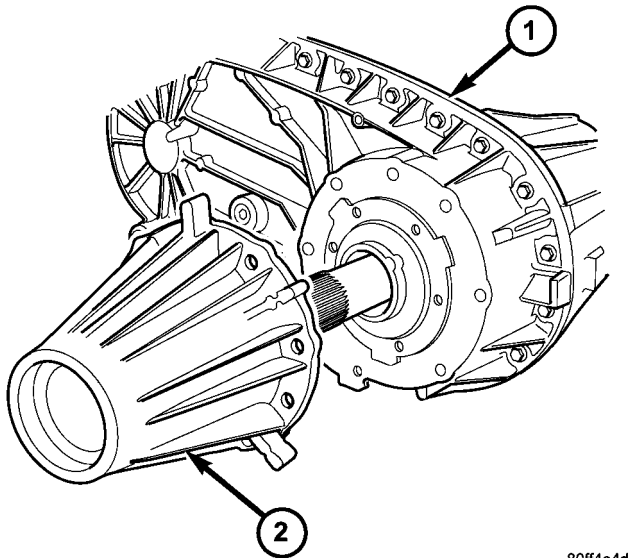


Fig. 85 Install Extension Housing

- 1 - REAR CASE HALF
- 2 - EXTENSION HOUSING

(5) Install rear extension bolts (Fig. 86). Tighten the bolts to 27-34 N·m (20-25 ft.lbs.).

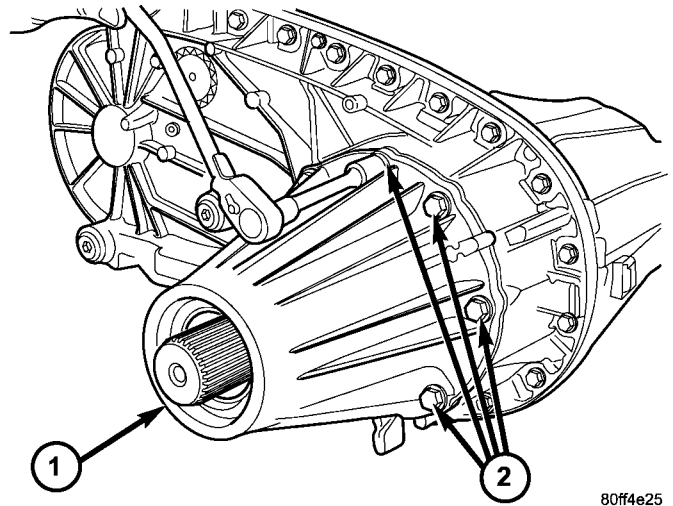


Fig. 86 Install Extension Housing Bolts

- 1 - EXTENSION HOUSING
- 2 - BOLTS

(6) Install the extension housing dust boot and seal assembly with Installer 9037 and Handle C-4171 (Fig. 87).

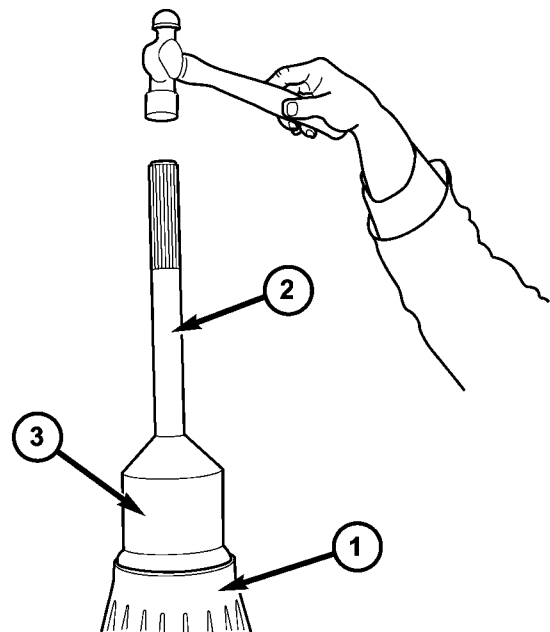


Fig. 87 Install Extension Housing Seal

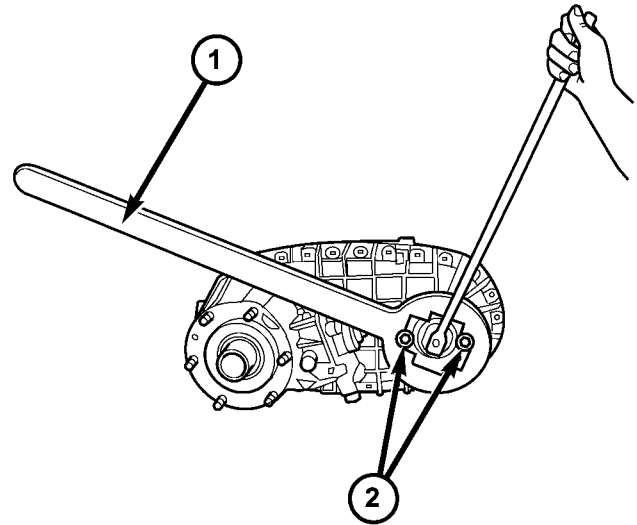
- 1 - EXTENSION HOUSING
- 2 - HANDLE C-4171
- 3 - INSTALLER 9037

TRANSFER CASE - NV273 (Continued)

- (7) Install the front companion flange onto the front output shaft.
- (8) Install two bolts 180° apart into the front output shaft companion flange.
- (9) Place holder over the bolts and against the companion flange (Fig. 88).
- (10) Install a new front companion flange nut. Tighten the companion flange nut to 176-271 N-m (130-200 ft.lbs.).

INSTALLATION

- (1) Mount transfer case on a transmission jack.
- (2) Secure transfer case to jack with chains.
- (3) Position transfer case under vehicle.
- (4) Align transfer case and transmission shafts and install transfer case onto the transmission.
- (5) Install and tighten transfer case attaching nuts to 27-34 N·m (20-25 ft. lbs.) torque.
- (6) Connect the vent hose.
- (7) Connect the shift motor and mode sensor wiring connectors. Secure wire harness to clips on transfer case.
- (8) Align and connect the propeller shafts.
- (9) Fill transfer case with correct fluid. (Refer to 21 - TRANSMISSION/TRANSFER CASE/FLUID - STANDARD PROCEDURE)
- (10) Install skid plate, if equipped.



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Fig. 88 Install Companion Flange Nut

- 1 - HOLDER 6719
- 2 - BOLTS

- (11) Remove transmission jack and support stand.
- (12) Lower vehicle and verify transfer case shift operation.

SPECIFICATIONS

TRANSFER CASE - NV273

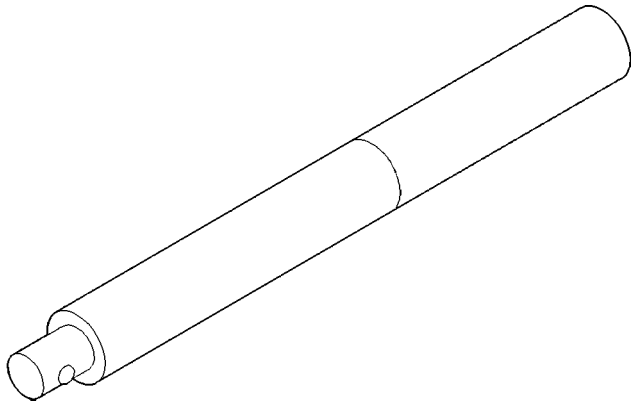
TORQUE SPECIFICATIONS

DESCRIPTION	N-m	Ft. Lbs.	In. Lbs.
Plug, Detent	16-24	12-18	-
Plug, Drain/Fill	20-34	15-25	-
Bolt, Extension Housing	27-34	20-25	-
Bolt, Case Half	27-34	20-25	-
Support, Sector	27-34	20-25	-
Nuts, Mounting	30-41	20-30	-
Bolts, Shift Motor and Mode Sensor Assembly	16-25	12-18	-
Nut, Companion Flange	176-271	130-200	-

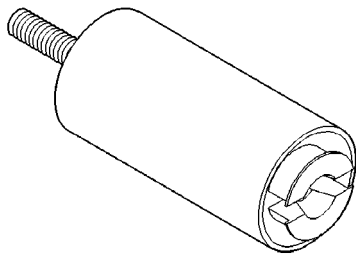
TRANSFER CASE - NV273 (Continued)

SPECIAL TOOLS

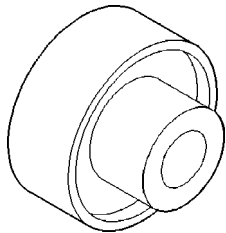
TRANSFER CASE NV271/NV273



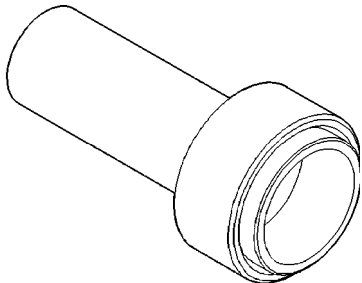
Handle, Universal - C-4171



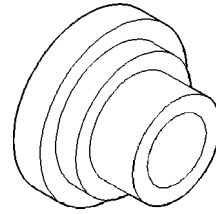
Remover - L-4454



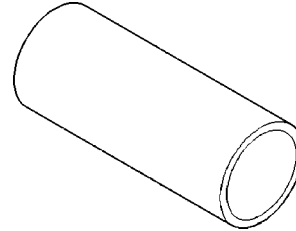
Installer, Bearing - 6953



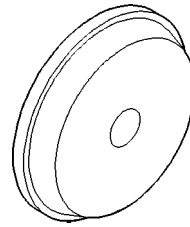
Installer, Pump Housing Seal - 7888



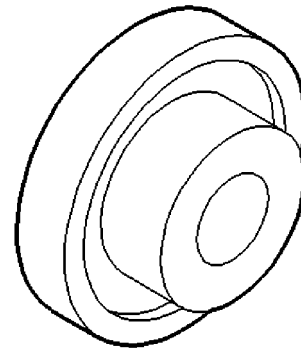
Installer, Bearing - 8128



Cup - 8148

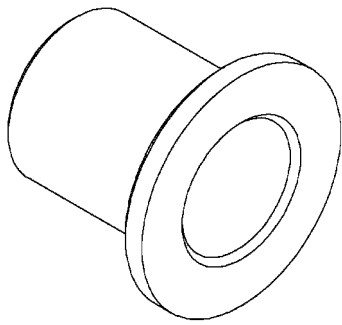


Installer - 8151

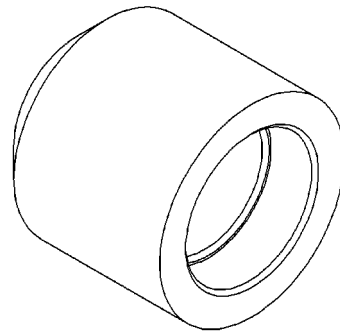


Installer - 8152

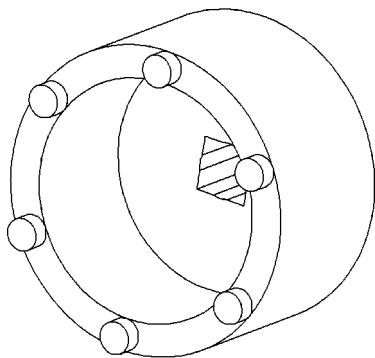
TRANSFER CASE - NV273 (Continued)



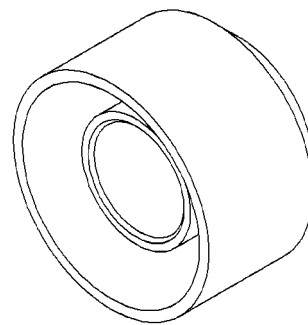
Installer - 8891



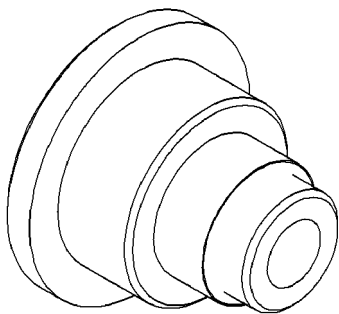
Installer, Seal - 9036



Socket - 9033



Installer, Seal - 9037



Installer, Bearing - 9035

EXTENSION HOUSING SEAL AND DUST BOOT

REMOVAL

- (1) Raise and support vehicle.
- (2) Remove rear propeller shaft. (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - REMOVAL)
- (3) Use a suitable chisel or pry tool to remove the rear extension housing dust boot (Fig. 89).
- (4) Use a suitable chisel or pry tool to remove the rear extension housing seal.

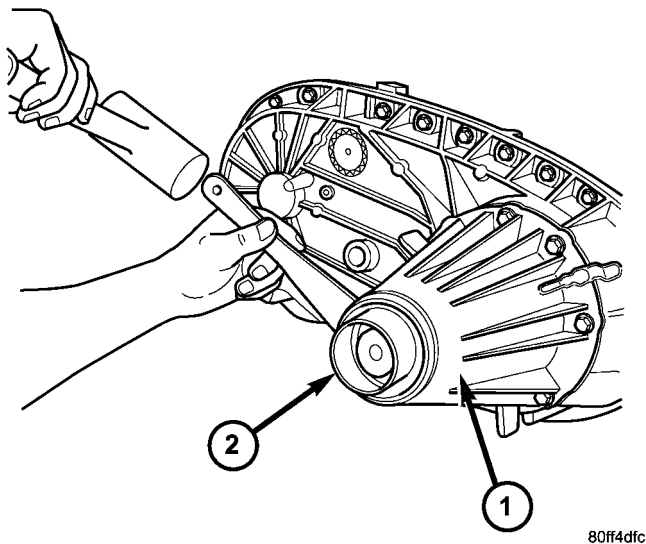


Fig. 89 Remove Extension Housing Dust Boot

- 1 - EXTENSION HOUSING
- 2 - DUST BOOT

INSTALLATION

- (1) Clean fluid residue from sealing surface and inspect for defects.
- (2) Install the extension housing dust boot and seal assembly with Installer 9037 and Handle C-4171 (Fig. 90).
- (3) Install propeller shaft. (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - INSTALLATION)
- (4) Verify proper transfer case fluid level.
- (5) Lower vehicle.

FLUID

STANDARD PROCEDURE - FLUID DRAIN AND REFILL

The fill and drain plugs are both in the rear case (Fig. 91).

- (1) Raise vehicle.

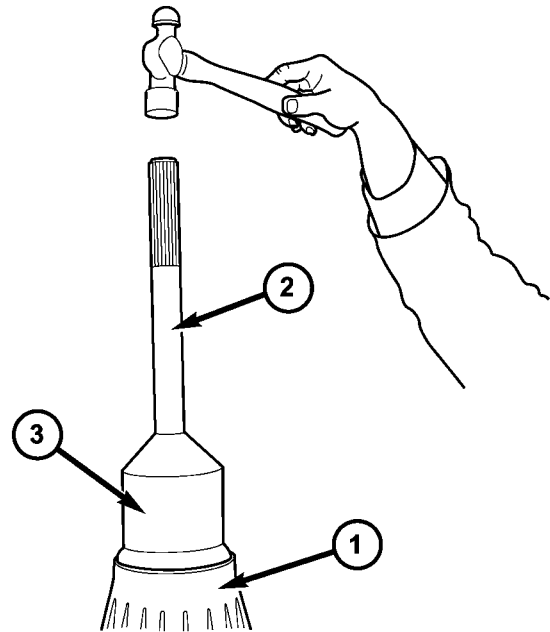


Fig. 90 Install Extension Housing Seal

- 1 - EXTENSION HOUSING
- 2 - HANDLE C-4171
- 3 - INSTALLER 9037

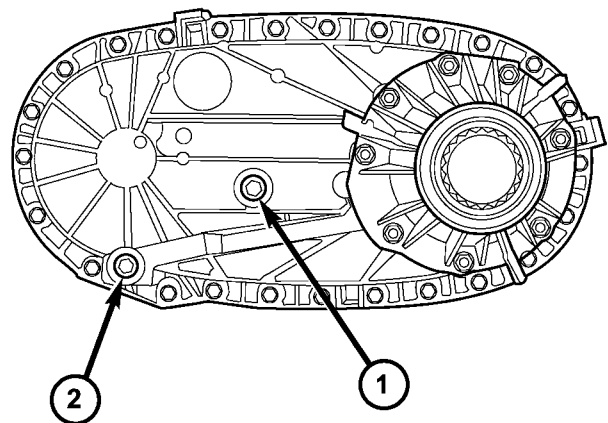


Fig. 91 Drain and Fill Locations

- 1 - FILL HOLE
- 2 - DRAIN HOLE

- (2) Position drain pan under transfer case.
- (3) Remove drain and fill plugs and drain lubricant completely.
- (4) Install drain plug. Tighten plug to 41-54 N·m (30-40 ft. lbs.).
- (5) Remove drain pan.

FLUID (Continued)

- (6) Fill transfer case to bottom edge of fill plug opening with Mopar® ATF +4, Automatic Transmission fluid.
- (7) Install and tighten fill plug to 41-54 N-m (30-40 ft. lbs.).
- (8) Lower vehicle.

FRONT OUTPUT SHAFT SEAL

REMOVAL

- (1) Remove the front propeller shaft (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - REMOVAL).
- (2) Install two bolts 180° apart into the front output shaft companion flange.
- (3) Place holder over the bolts and against the companion flange (Fig. 92).
- (4) Remove and discard the front companion flange nut.
- (5) Remove the companion flange from the front output shaft. It may be necessary to use Flange puller 8992 to remove the companion flange.

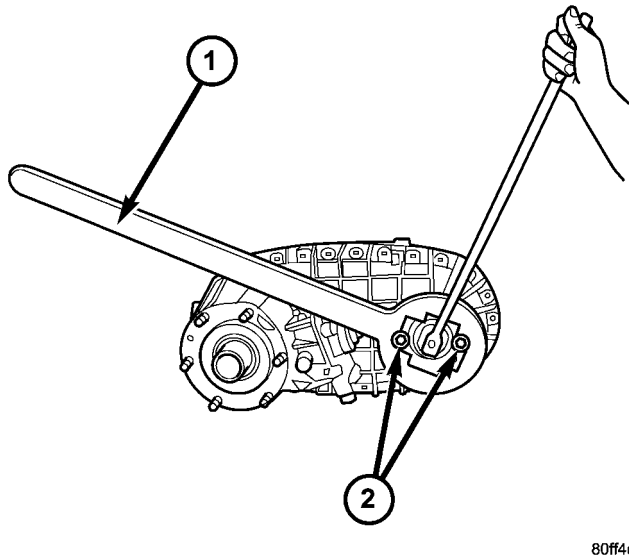


Fig. 92 Remove Companion Flange Nut

- 1 - HOLDER 6719
- 2 - BOLTS

- (6) Using a screw and a slide hammer, remove the front output shaft seal.

INSTALLATION

- (1) Install the new front output shaft seal with Installer MB991168A.
- (2) Install the front companion flange onto the front output shaft.
- (3) Install two bolts 180° apart into the front output shaft companion flange.
- (4) Place holder over the bolts and against the companion flange (Fig. 93).
- (5) Install a new front companion flange nut. Tighten the companion flange nut to 258-312 N-m (190-230 ft.lbs.).

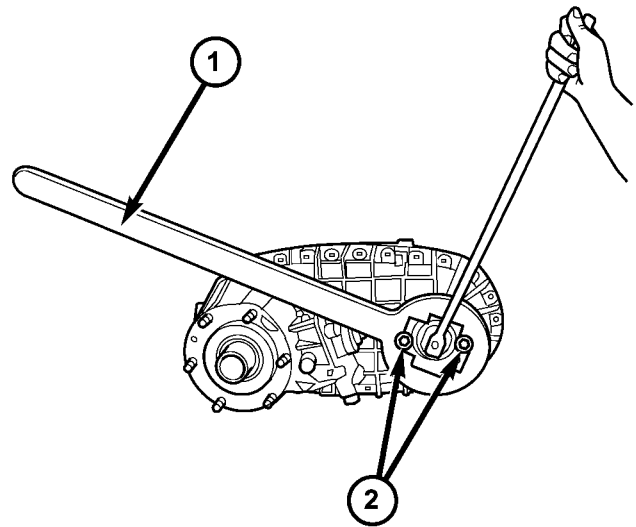


Fig. 93 Install Companion Flange Nut

- 1 - HOLDER 6719
- 2 - BOLTS

- (6) Install front propeller shaft (Refer to 3 - DIFFERENTIAL & DRIVELINE/PROPELLER SHAFT/PROPELLER SHAFT - INSTALLATION).

MODE SENSOR

DESCRIPTION

The transfer case mode sensor (Fig. 94) is an electronic device whose output can be interpreted to indicate the shift motor shaft's rotary position. The sensor consists of a magnetic ring and four Hall Effect Transistors to create a 4 channel digital device (non-contacting) whose output converts the motor shaft position into a coded signal. The TCCM must supply 5VDC (+/- 0.5v) to the sensor and monitor the shift motor position. The four channels are denoted A, B, C, and D. The sensor is mechanically linked to the shaft of the cam which causes the transfer case shifting. The mode sensor draws less than 53 mA.

OPERATION

During normal vehicle operation, the Transfer Case Control Module (TCCM) monitors the mode sensor outputs at least every 250 (+/-50) milliseconds when the shift motor is stationary and 400 microseconds when the shift motor is active. A mode sensor signal between 3.8 Volts and 0.8 Volts is considered to be undefined.

Refer to SECTOR ANGLES vs. TRANSFER CASE POSITION for the relative angles of the transfer case shift sector versus the interpreted transfer case gear operating mode. Refer to MODE SENSOR CHANNEL STATES for the sensor codes returned to the TCCM for each transfer case mode sensor position. The various between gears positions can also be referred as the transfer case's coarse position. These coarse positions come into play during shift attempts.

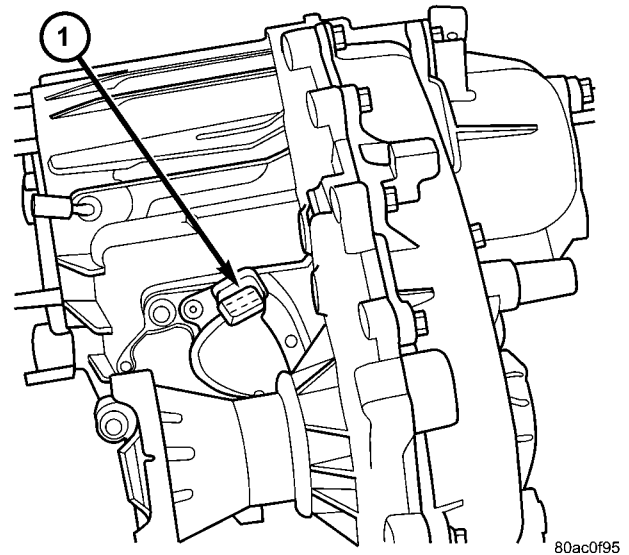


Fig. 94 Mode Sensor

1 - MODE SENSOR

SECTOR ANGLES VS. TRANSFER CASE POSITION

Shaft Angle (Degrees)	Transfer Case Position
+40	4LO
+20	N
0	2WD/AWD
-20	4HI

MODE SENSOR CHANNEL STATES

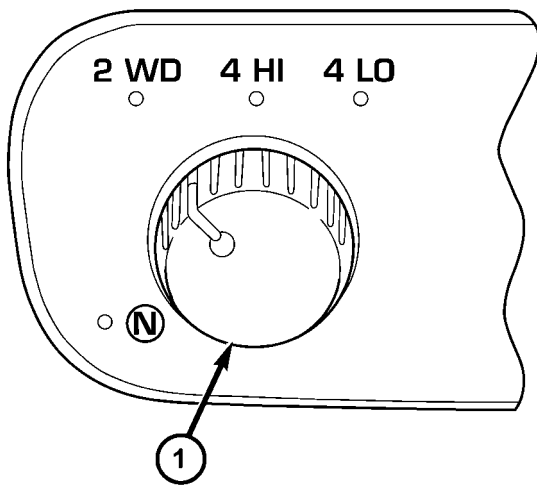
Transfer Case Angle (degrees)	Sensor Channel A	Sensor Channel B	Sensor Channel C	Sensor Channel D
Between Gears	H	H	L	H
+40 (4LO)	H	H	L	L
Between Gears	H	H	L	H
Between Gears	H	L	L	H
+20 (NEUTRAL)	H	L	L	L
Between Gears	H	L	L	H
Between Gears	H	L	H	H
0 (2WD/AWD)	H	L	H	L
Between Gears	H	L	H	H
Between Gears	L	L	H	H
-20 (4HI)	L	L	H	L
Between Gears	L	L	H	H
Between Gears	L	H	H	H

SELECTOR SWITCH

DESCRIPTION

The selector switch assembly (Fig. 95) is mounted in the left side of the vehicle's Instrument Panel (IP) and consists of a rotary knob connected to a resistive network for the mode and range shift selections. Also located in this assembly is a recessed, normally open momentary switch for making shifts into and out of transfer case NEUTRAL. A pen, or similar instrument, is used to make a NEUTRAL shift selection, thus reducing the likelihood of an inadvertent shift request.

The selector switch also contains four light emitting diode's (LED's) to indicate the transfer case position and whether a shift is in progress.



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Fig. 95 Transfer Case Selector Switch

1 - SELECTOR SWITCH

OPERATION

As the position of the selector switch varies, the resistance between the Mode Sensor supply voltage pin and the Mode Sensor output will vary. Hardware, software, and calibrations within the Transfer Case Control Module (TCCM) are provided that interpret the selector switch resistance as given in the table below: SELECTOR SWITCH INTERPRETATION

SELECTOR SWITCH INTERPRETATION

Step	Resistance Range (ohms)	Required Interpretation
A	<200	Shorted
B	400-700	NEUTRAL
C	1050-1450	4LO
D	1850-2300	4HI
E	3050-5950	2WD (Default)
F	9.5-12.5K	In between positions
G	>15.5K	Open

For resistances between the ranges B-E shown for each valid position (T-Case NEUTRAL, 4LO, 4HI, 2WD), the TCCM may interpret the resistance as:

- either of the neighboring valid positions.
- as an invalid fault position.

For resistances between the ranges E and F shown for 2WD and in-between positions, the TCCM may interpret the resistance as:

- the 2WD position.
- an invalid fault position.
- a valid in-between position.

For resistances between the ranges F and G shown for in-between positions and fault condition (open), the TCCM may interpret the resistance as:

- a valid in-between position.
- an invalid fault position.

For resistances between the ranges A and B shown for the fault condition (short) and , T-Case NEUTRAL, the TCCM may interpret the resistance as:

- the T-Case NEUTRAL position.
- an invalid fault position.

The LED's in the selector assembly are illuminated/flashed in the following manner to indicate a particular condition or state.

- A solidly illuminated LED indicates a successfully completed shift and the current operating mode of the transfer case. While a shift has been requested but not yet completed, the LED for the desired transfer case position is flashed.

SELECTOR SWITCH (Continued)

- A flashing operating mode LED for the desired gear indicates that a shift to that position has been requested, but all of the driver controllable conditions have not been met. This is in an attempt to notify the driver that the transmission needs to be put into NEUTRAL, the vehicle speed is too great, or some other condition outlined (other than a diagnostic failure that would prevent this shift) elsewhere (Refer to 8 - ELECTRICAL/ELECTRONIC CONTROL MODULES/TRANSFER CASE CONTROL MODULE - OPERATION) is not met. Note that this flashing will continue indefinitely until the conditions are eventually met, or the selector switch position is changed, or if diagnostic routines no longer allow the requested shift.

- If the driver attempts to make a shift into transfer case NEUTRAL, and any of the driver controllable conditions are not met, the request will be ignored until all of the conditions are met or until the NEUTRAL select button is released. Additionally the neutral lamp will flash, or begin to flash while the button is depressed and operator controllable conditions are not being met. All of the LED's except the Neutral will flash if any of the operator controllable conditions for shifting are not met while the Neutral button is depressed. This "toggle" type of feature is necessary because the TCCM would interpret another request immediately after the shift into transfer case NEUTRAL has completed.

- No LED's illuminated indicate a fault in the transfer case control system.

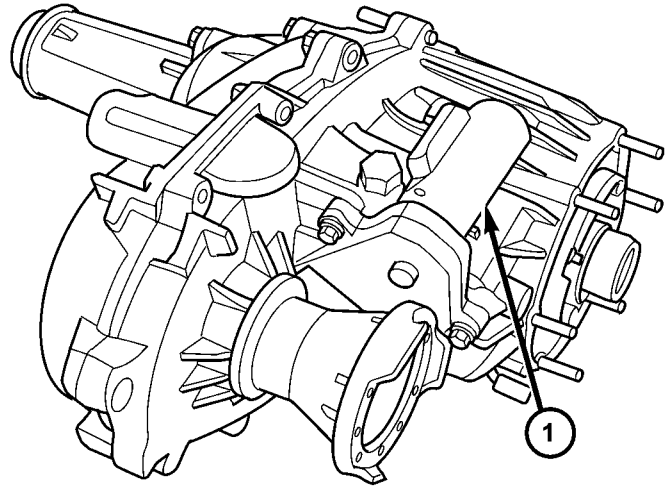
SHIFT MOTOR

DESCRIPTION

The shift motor (Fig. 96) consists of a permanent magnet D.C. motor with gear reduction to convert a high speed-low torque device into a low speed-high torque device. The output of the device is coupled to a shaft which internally moves the mode and range forks that change the transfer case operating ranges. The motor is rated at 25 amps maximum at 72° F with 10 volts at the motor leads.

OPERATION

The transfer case shift motor responds to the Transfer Case Control Module (TCCM) commands to move the transfer case shift sector bi-directionally, as required, to obtain the transfer case operating mode indicated by the instrument panel mounted selector switch.



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Fig. 96 Shift Motor - Shown Inverted - Typical

1 - SHIFT MOTOR

REMOVAL

- (1) Raise the vehicle on a suitable hoist.
- (2) Disengage the wiring connectors from the shift motor and mode sensor.
- (3) Remove the bolts holding the shift motor and mode sensor assembly onto the transfer case.
- (4) Separate the shift motor and mode sensor assembly from the transfer case.

INSTALLATION

- (1) Verify that the shift sector o-ring is clean and properly positioned over the shift sector and against the transfer case.
- (2) Position the shift motor and mode sensor assembly onto the transfer case.
- (3) Install the bolts to hold the assembly onto the transfer case. Tighten the bolts to 16-24 N·m (12-18 ft.lbs.).

CAUTION: If the original shift motor and mode sensor assembly bolts are reused, be sure to use Mopar® Lock & Seal or Loctite™ 242 to replenish the lock patch material originally found on the bolts

- (4) Engage the wiring connectors to the shift motor and mode sensor.
- (5) Refill the transfer case as necessary.
- (6) Lower vehicle and verify transfer case operation.