

NV242 TRANSFER CASE

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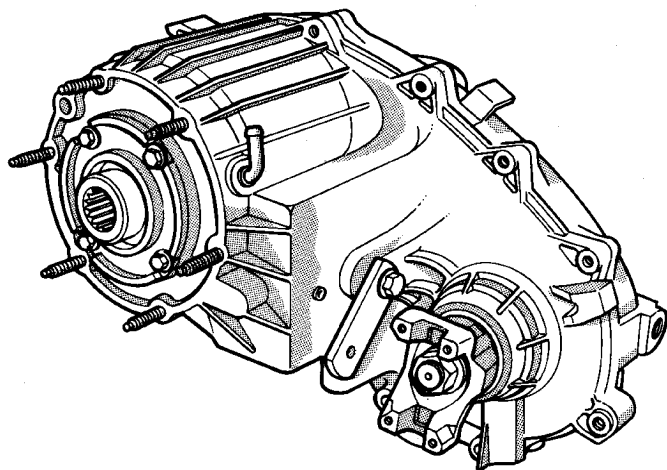
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GENERAL INFORMATION

NV242 TRANSFER CASE

The NV242 is a full and part-time transfer case (Fig. 1). It provides full time 2-wheel, or 4-wheel drive operation.

A differential in the transfer case is used to control torque transfer to the front and rear axles. A low range gear provides increased low speed torque capability for off road operation. The low range provides a 2.72:1 reduction ratio.



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Fig. 1 NV242 Transfer Case

The input gear is splined to the transmission output shaft. It drives the mainshaft through the planetary gear and range hub. 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 synchro mechanism for shifting.

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

NV242 operating ranges are 2WD (2-wheel drive), 4x4 part-time, 4x4 full time, and 4 Lo.

The 2WD and 4x4 full time ranges can be used at any time and on any road surface.

The 4x4 part-time and 4 Lo ranges are for off road use only. The only time these ranges can be used on hard surface roads, is when the surface is covered with snow and ice.

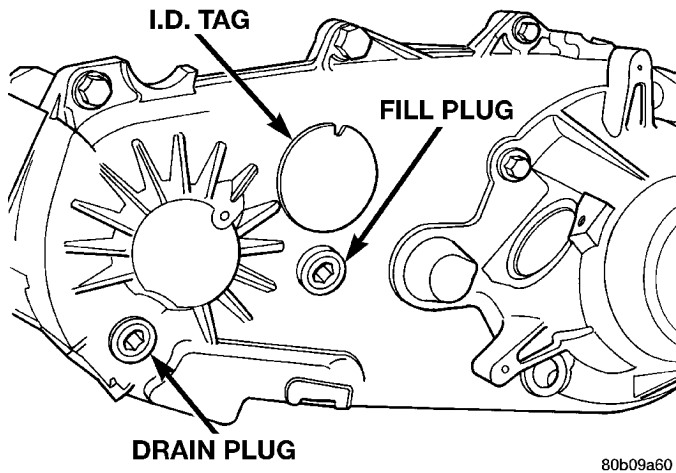
SHIFT MECHANISM

Operating ranges are selected with a floor mounted shift lever. The shift lever is connected to the transfer case range lever by an adjustable linkage rod. A straight line shift pattern is used. Range positions are marked on the shifter bezel cover plate, or on the shift knob.

TRANSFER CASE IDENTIFICATION

A circular ID tag is attached to the rear case of each transfer case (Fig. 2). 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.

GENERAL INFORMATION (Continued)

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Fig. 2 Fill/Drain Plug And I.D. Tag Locations**RECOMMENDED LUBRICANT AND FILL LEVEL**

Recommended lubricant for the NV242 transfer case is Mopar® Dexron II, or ATF Plus, type 7176. Approximate lubricant fill capacity is 1.35 liters (2.85 pints).

The fill and drain plugs are both in the rear case (Fig. 2). Correct fill level is to the bottom edge of the fill plug hole. Be sure the vehicle is level to ensure an accurate fluid level check.

DIAGNOSIS AND TESTING**NV242 DIAGNOSIS****DIAGNOSIS CHART**

Condition	Possible Cause	Correction
Transfer case difficult to shift or will not shift into desired range.	1) Transfer case shift linkage binding.	1) Repair or replace linkage as necessary.
	2) Insufficient or incorrect lubricant.	3) Drain and refill transfer case with the correct type and quantity of lubricant.
	3) Internal transfer case components binding, worn, or damaged.	3) 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 type and quantity of lubricant.
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.
Transfer case will not shift through 4X4 part time range (light remains on)	1) Incomplete shift due to drivetrain torque load.	1) Momentarily release the accelerator pedal to complete the shift.
	2) Incorrect tire pressure.	2) Correct tire pressure as necessary.
	3) Excessive Tire wear.	3) Correct tire condition as necessary.
	4) Excessive vehicle loading.	4) Correct as necessary.

REMOVAL AND INSTALLATION

TRANSFER CASE

REMOVAL

- (1) Shift transfer case into Neutral.
- (2) Raise vehicle.
- (3) Drain transfer case lubricant.
- (4) Mark front and rear propeller shaft yokes for alignment reference.
- (5) Support transmission with jack stand.
- (6) Remove rear crossmember, or skid plate.
- (7) Disconnect front/rear propeller shafts at transfer case.
- (8) Disconnect vehicle speed sensor wires.
- (9) Disconnect transfer case linkage rod from range lever.
- (10) Disconnect transfer case vent hose (Fig. 3) and indicator switch harness, if necessary.
- (11) Support transfer case with transmission jack.
- (12) Secure transfer case to jack with chains.
- (13) Remove nuts attaching transfer case to transmission.
- (14) Pull transfer case and jack rearward to disengage transfer case.
- (15) Remove transfer case from under vehicle.

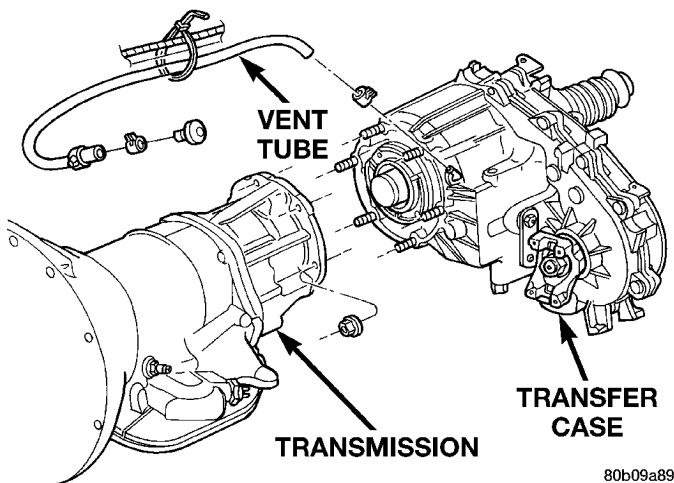


Fig. 3 Transfer Case Mounting

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 on transmission.
- (5) Install and tighten transfer case attaching nuts to 35 N·m (26 ft. lbs.) torque (Fig. 3).
- (6) Connect vehicle speed sensor wires, and vent hose.
- (7) Connect indicator switch harness to transfer case switch, if necessary. Secure wire harness to clips on transfer case.

(8) Align and connect propeller shafts. Refer to Group 3, Differential and Driveline, for proper procedures and specifications.

(9) Fill transfer case with correct fluid. Check transmission fluid level. Correct as necessary.

(10) Install rear crossmember, or skid plate. Tighten crossmember bolts to 41 N·m (30 ft. lbs.) torque.

(11) Remove transmission jack and support stand.

(12) Connect shift rod to transfer case range lever.

(13) Adjust transfer case shift linkage.

(14) Lower vehicle and verify transfer case shift operation.

SHIFT LEVER

REMOVAL

- (1) Shift transfer case into 4L.
- (2) Raise vehicle.
- (3) Loosen adjusting trunnion locknut and slide shift rod out of trunnion (Fig. 4). If rod lacks enough travel to come out of trunnion, push trunnion out of torque shaft.
- (4) Lower vehicle.
- (5) Remove console. Refer to Group 23, Body, for proper procedures.
- (6) Remove screws attaching lever assembly to floorpan and remove assembly and shift rod (if left attached).

INSTALLATION

- (1) If shift rod was not removed from lever assembly, work rod down through floorpan opening. Then position lever assembly on floorpan and install assembly attaching screws.
- (2) Install console. Refer to Group 23, Body, for proper procedures.
- (3) Raise vehicle.
- (4) Connect trunnion to torque shaft arm. Or, slide shift rod into trunnion on range lever. Be sure shift rod slides freely in trunnion.
- (5) Verify that range lever is in 4L position. Then tighten trunnion lock bolt.
- (6) Lower vehicle and check transfer case shift operation.

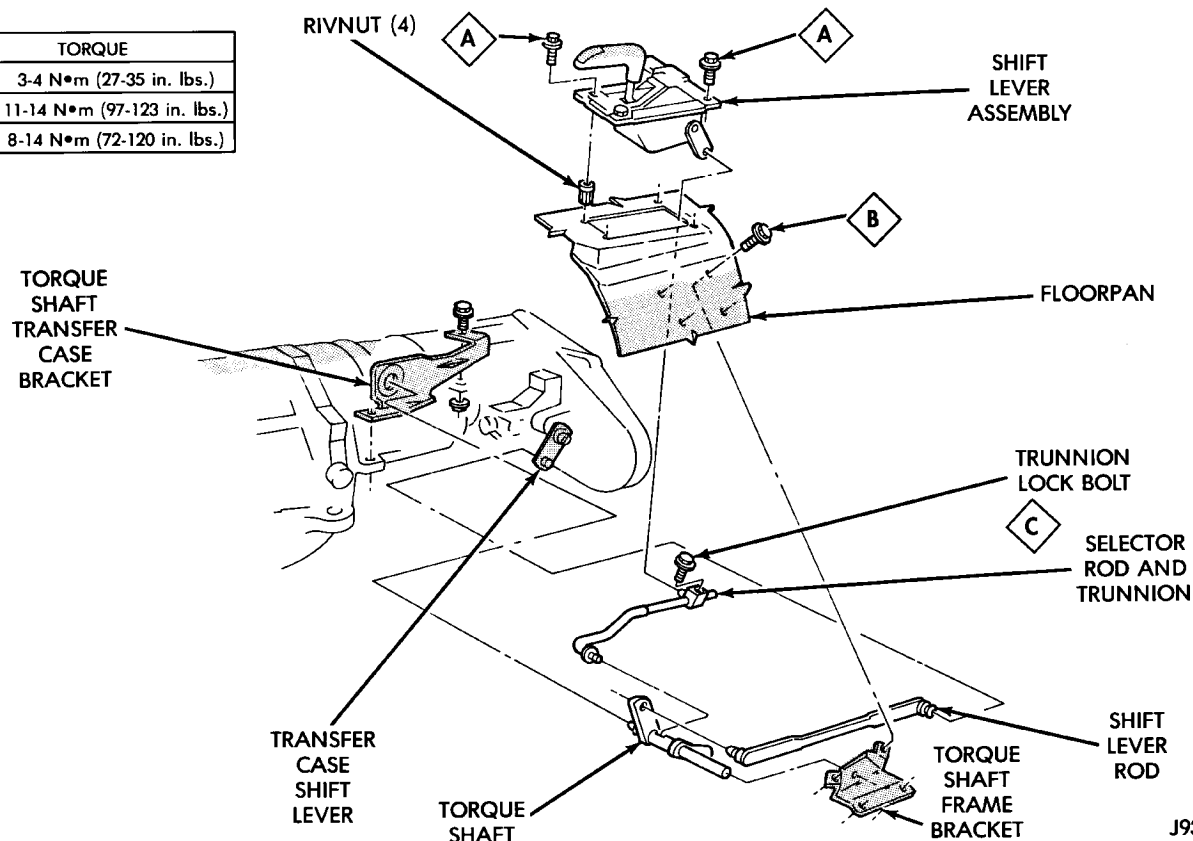
SPEEDOMETER

REMOVAL

- (1) Raise vehicle.
- (2) Disconnect wires from vehicle speed sensor.
- (3) Remove adapter clamp and screw (Fig. 5).
- (4) Remove speed sensor and speedometer adapter as an assembly.
- (5) Remove speed sensor retaining screw and remove sensor from adapter.

REMOVAL AND INSTALLATION (Continued)

TORQUE	
A	3-4 N•m (27-35 in. lbs.)
B	11-14 N•m (97-123 in. lbs.)
C	8-14 N•m (72-120 in. lbs.)

**Fig. 4 Shift Linkage**

(6) Remove speedometer pinion from adapter. Replace pinion if chipped, cracked, or worn.

(7) Inspect sensor and adapter O-rings (Fig. 5). Remove and discard O-rings if worn or damaged.

(8) Inspect terminal pins in speed sensor. Clean pins with Mopar® electrical spray cleaner if dirty or oxidized. Replace sensor if faulty, or if pins are loose, severely corroded, or damaged.

INSTALLATION AND INDEXING

(1) Thoroughly clean adapter flange and adapter mounting surface in housing. Surfaces must be clean for proper adapter alignment and speedometer operation.

(2) Install new O-rings on speed sensor and speedometer adapter (Fig. 5), if necessary.

(3) Lubricate sensor and adapter O-rings with transmission fluid.

(4) Install vehicle speed sensor in speedometer adapter. Tighten sensor attaching screw to 2-3 N•m (15-27 in. lbs.) torque.

(5) Install speedometer pinion in adapter.

(6) Count number of teeth on speedometer pinion. Do this before installing assembly in housing. Then lubricate pinion teeth with transmission fluid.

(7) Note index numbers on adapter body (Fig. 6). These numbers will correspond to number of teeth on pinion.

(8) Install speedometer assembly in housing.

(9) Rotate adapter until required range numbers are at 6 o'clock position. Be sure range index numbers correspond to number of teeth on pinion gear.

(10) Install speedometer adapter clamp and retaining screw. Tighten clamp screw to 10-12 N•m (90-110 in. lbs.) torque.

(11) Connect wires to vehicle speed sensor.

(12) Lower vehicle and top off transmission fluid level if necessary.

FRONT OUTPUT SHAFT SEAL**REMOVAL**

(1) Raise vehicle.

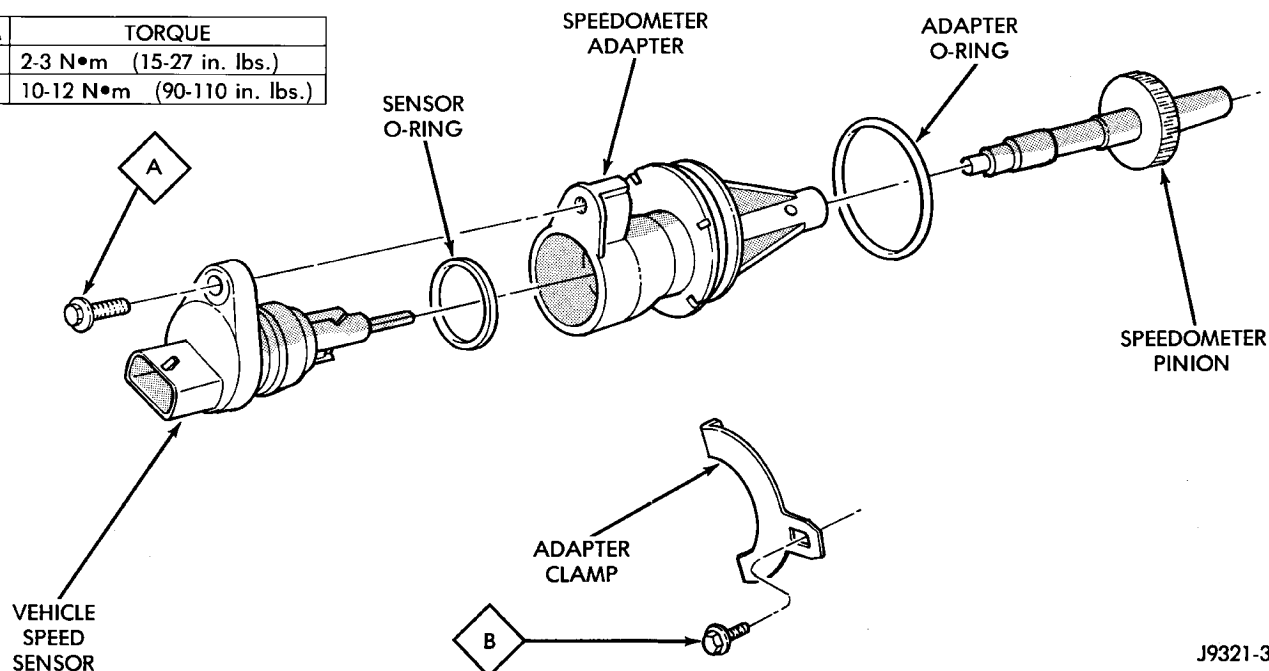
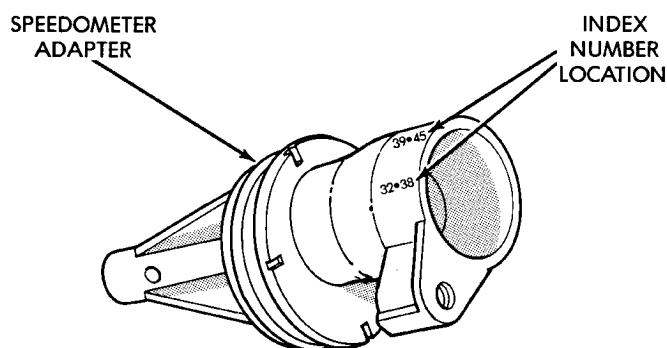
(2) Remove front propeller shaft. Refer to Group 3, Differential and Driveline, for proper procedure.

(3) Remove front output shaft yoke.

(4) Remove seal from front case with pry tool (Fig. 7).

REMOVAL AND INSTALLATION (Continued)

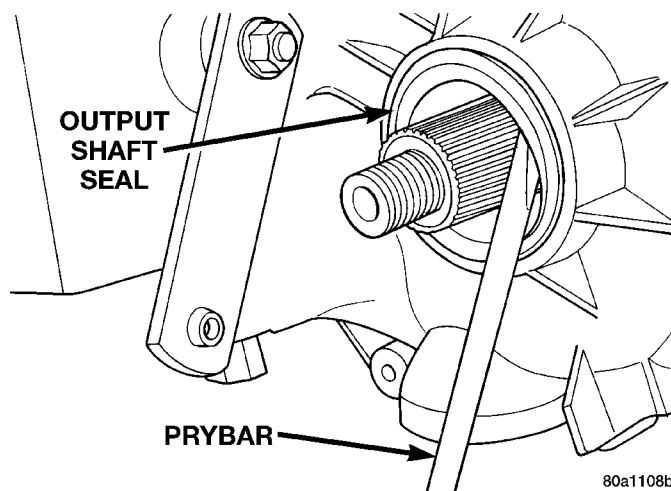
ITEM	TORQUE
A	2-3 N•m (15-27 in. lbs.)
B	10-12 N•m (90-110 in. lbs.)

**Fig. 5 Speedometer Components****Fig. 6 Location Of Index Numbers On Speedometer Adapter****INSTALLATION**

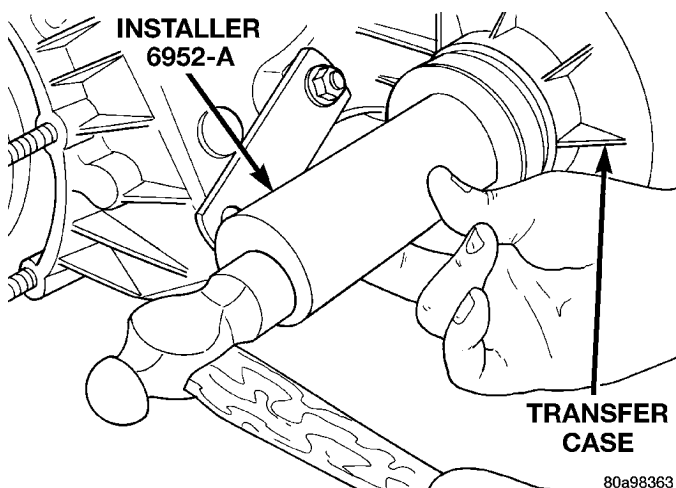
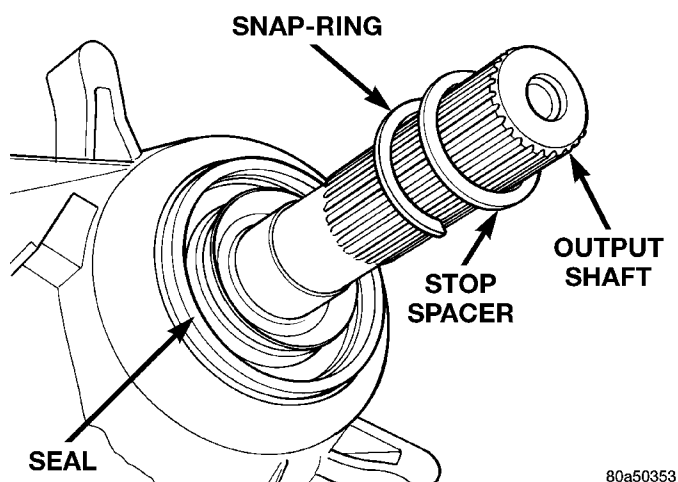
(1) Install new front output seal in front case with Installer Tool 6952-A as follows:

(a) Place new seal on tool. Garter spring on seal goes toward interior of case.

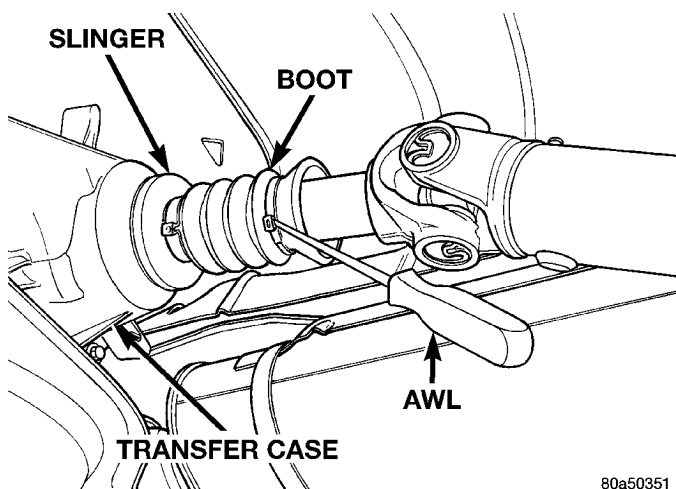
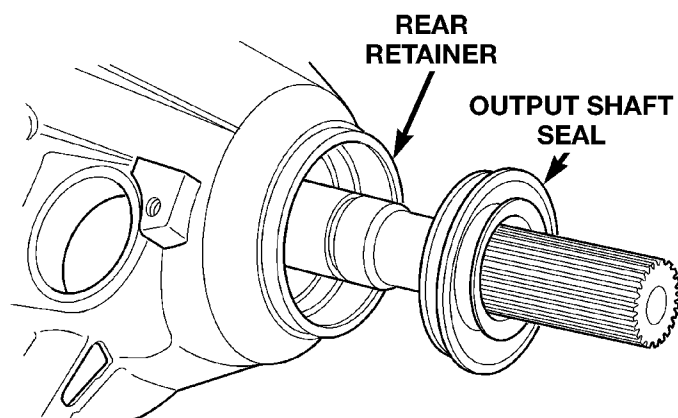
(b) Start seal in bore with light taps from hammer (Fig. 8). Once seal is started, continue tapping seal into bore until installer tool seats against case.

**Fig. 7 Remove Front Output Shaft Seal
DISASSEMBLY AND ASSEMBLY****NV242 TRANSFER CASE****DISASSEMBLY****REAR RETAINER REMOVAL**

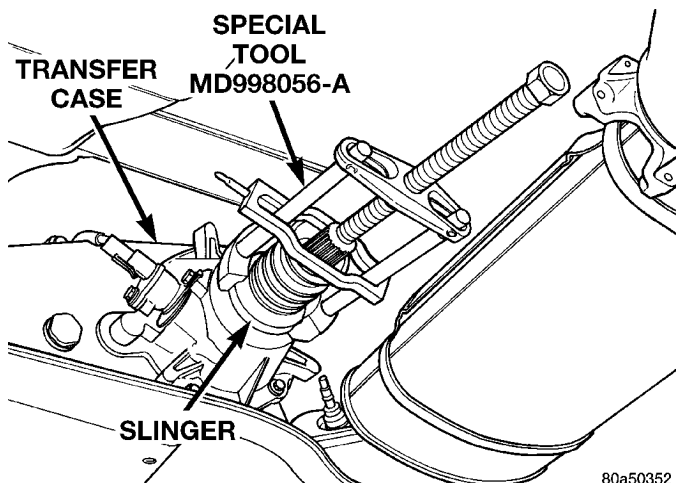
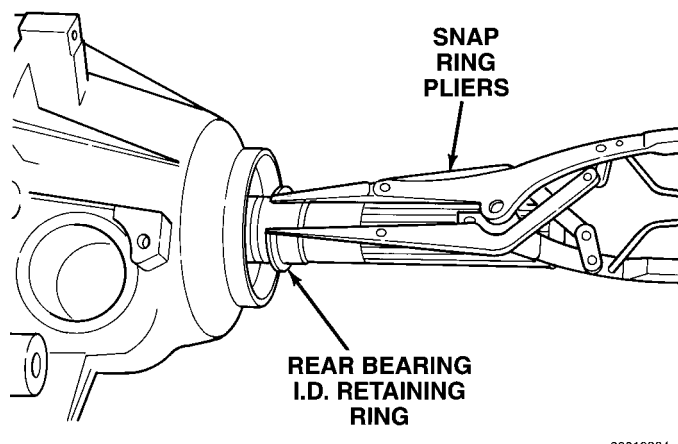
(1) Remove output shaft boot. Spread band clamp that secures boot on slinger with a suitable awl. Then slide boot off shaft (Fig. 9).

DISASSEMBLY AND ASSEMBLY (Continued)**Fig. 8 Front Output Seal Installation****Fig. 11 Slinger Stop Spacer and Snap-ring**

(4) Remove rear seal from retainer (Fig. 12). Use pry tool, or collapse seal with punch to remove it.

**Fig. 9 Output Boot—Typical****Fig. 12 Rear Seal Removal**

(5) Remove rear output bearing I.D. retaining ring (Fig. 13).

**Fig. 10 Rear Slinger Removal****Fig. 13 Rear Bearing I.D. Retaining Ring Removal**

DISASSEMBLY AND ASSEMBLY (Continued)

- (6) Remove speedometer adapter.
- (7) Remove rear retainer bolts.
- (8) Remove rear retainer. Tap retainer with mallet and pry upward to break sealer bead. Then slide retainer off case and output shaft (Fig. 14).

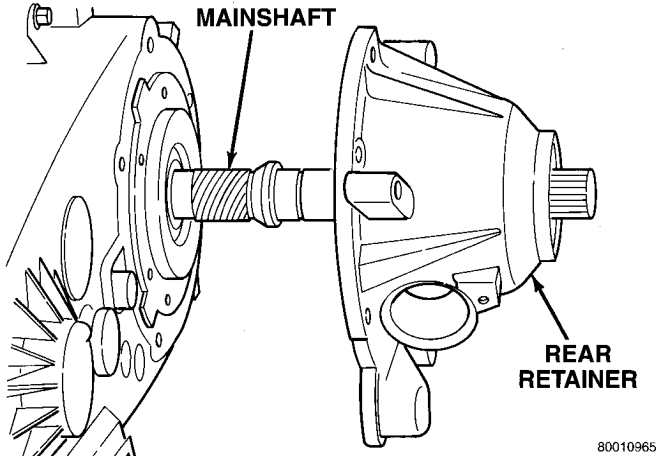


Fig. 14 Rear Retainer Removal

- (9) Remove rear bearing O.D. retaining ring with snap ring pliers. Then tilt pump and slide it off output shaft (Fig. 15)

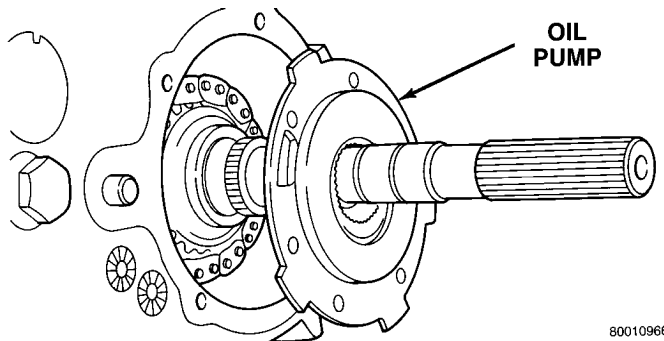


Fig. 15 Oil Pump Removal

- (10) Remove pickup tube O-ring from pump (Fig. 16) but do not disassemble pump; it is not a repairable part.
- (11) Remove seal from oil pump with pry tool.
- (12) Remove bolts attaching rear case to front case (Fig. 17). Note position of the two black finish bolts at each end of the case. These bolts go through the case dowels and require a washer under the bolt head.
- (13) Remove rear case from front case (Fig. 18). Insert screwdrivers into slots cast into each end of case. Then pry upward to break sealer bead and remove rear case.

CAUTION: Do not pry on the sealing surface of either case half as the surfaces will become damaged.

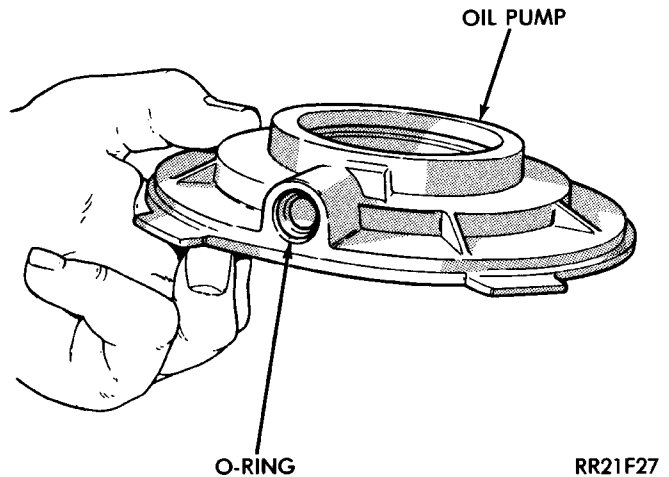


Fig. 16 Pickup Tube O-Ring Location

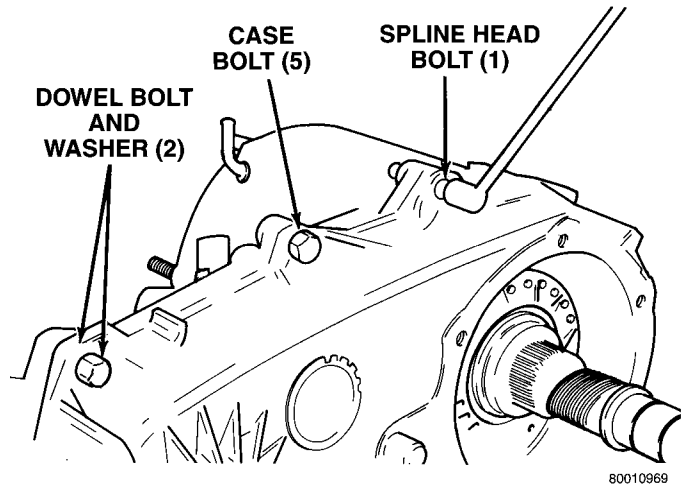


Fig. 17 Spline And Dowel Bolt Locations

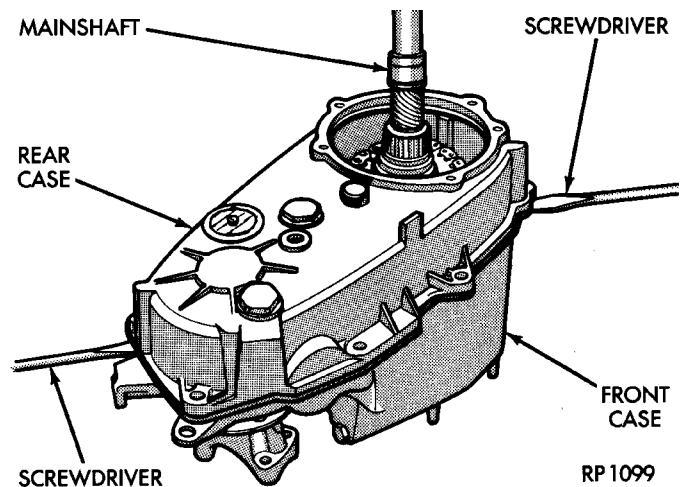
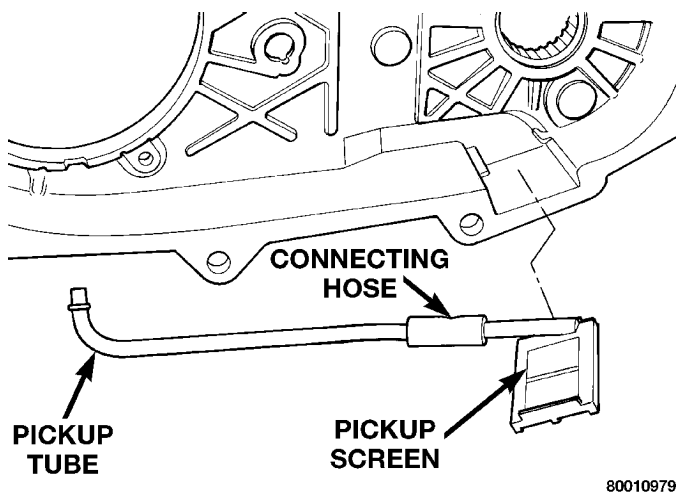


Fig. 18 Loosening/Removing Rear case

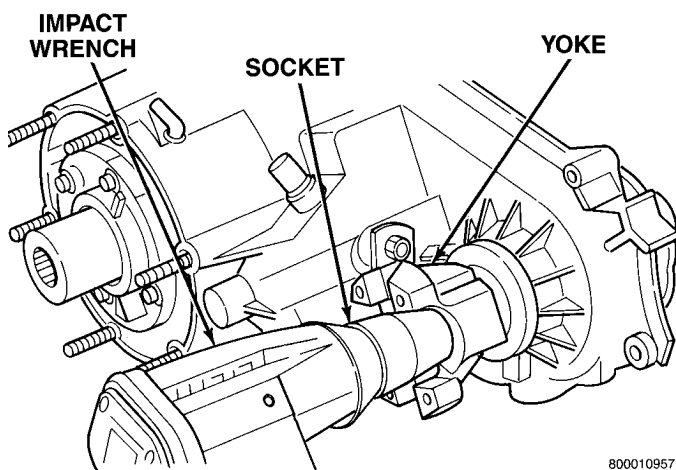
- (14) Remove oil pickup tube and screen from rear case (Fig. 19).

DISASSEMBLY AND ASSEMBLY (Continued)

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Fig. 19 Oil Pickup Screen, Hose And Tube Removal**YOKE AND RANGE LEVER REMOVAL**

- (1) Remove front yoke nut:
 - (a) Move range lever to 4L position.
 - (b) Remove nut with socket and impact wrench (Fig. 20).



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Fig. 20 Yoke Nut Removal

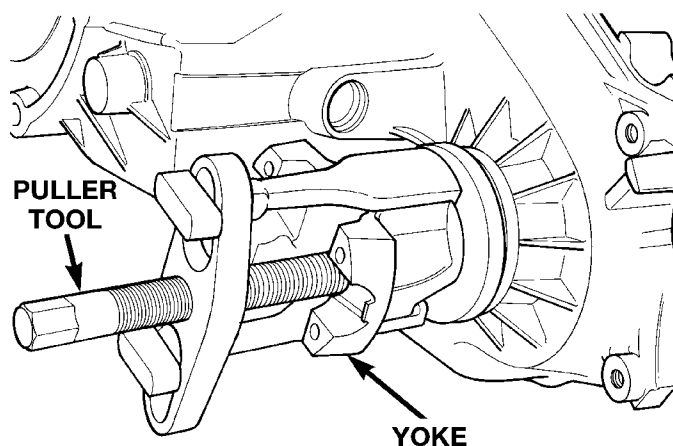
(2) Remove yoke. If yoke is difficult to remove by hand, remove it with bearing splitter, or with standard two jaw puller (Fig. 21). Be sure puller tool is positioned on yoke and not on slinger as slinger will be damaged.

(3) Remove seal washer from front output shaft. Discard washer as it should not be reused.

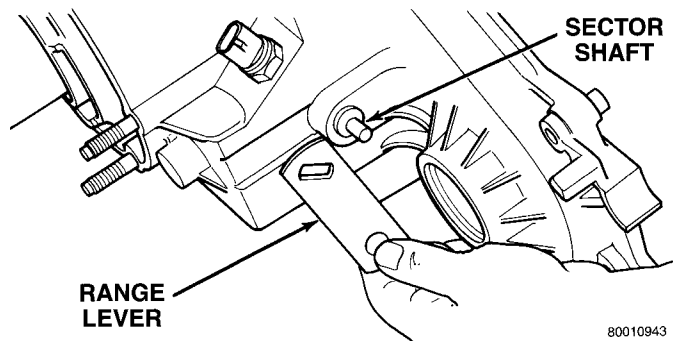
(4) Remove nut and washer that attach range lever to sector shaft. Then move sector to neutral position and remove range lever from shaft (Fig. 22).

FRONT OUTPUT SHAFT AND DRIVE CHAIN REMOVAL

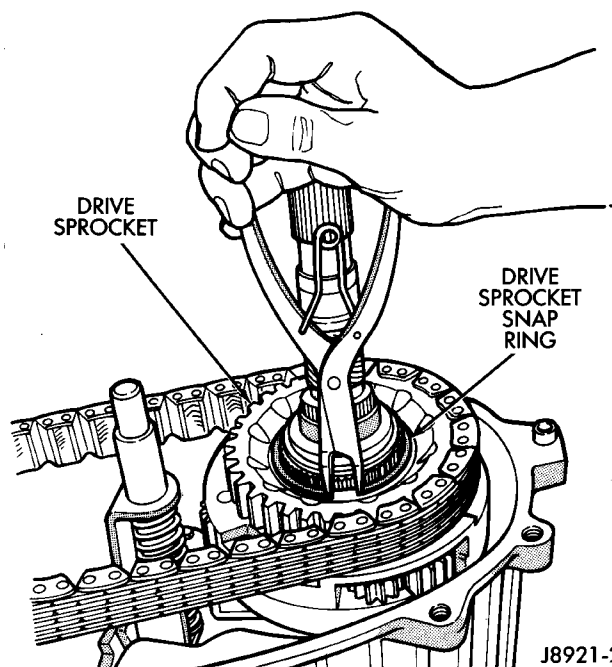
- (1) Remove drive sprocket snap-ring (Fig. 23).
- (2) Remove drive sprocket and chain (Fig. 24).
- (3) Remove front output shaft (Fig. 25).



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Fig. 21 Yoke Removal

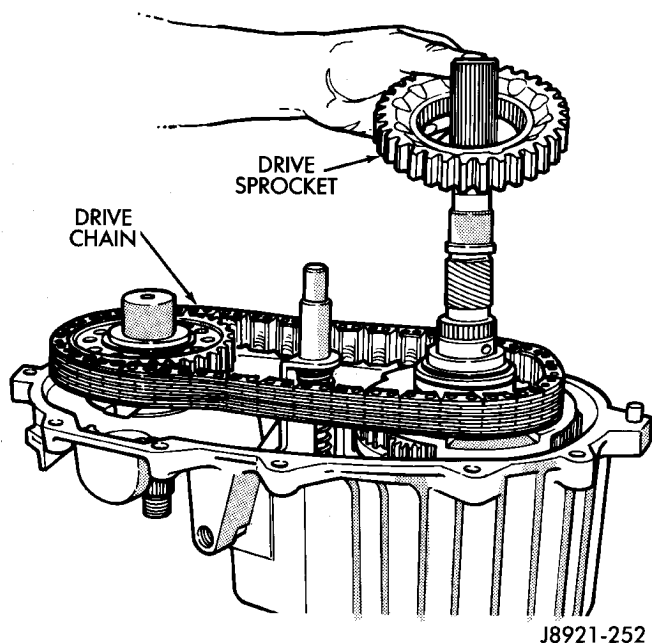
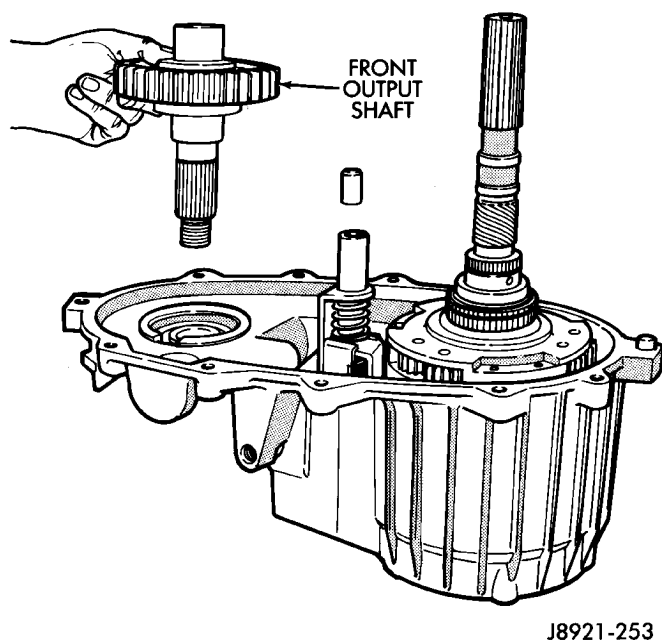
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Fig. 22 Range Lever Removal

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Fig. 23 Drive Sprocket Snap-Ring Removal

DISASSEMBLY AND ASSEMBLY (Continued)

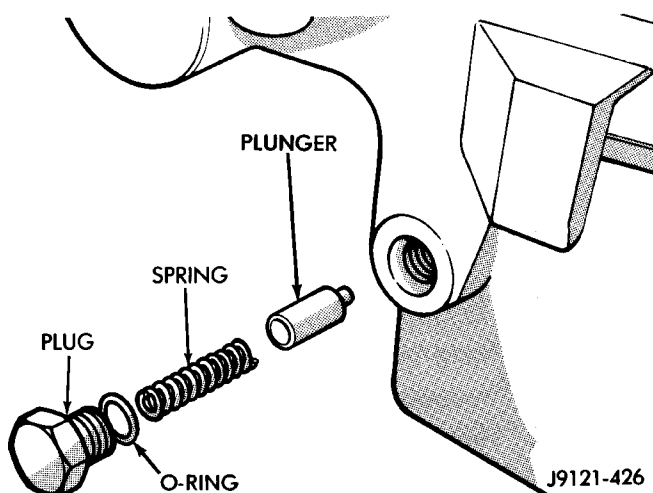
**Fig. 24 Drive Sprocket And Chain Removal****Fig. 25 Removing Front Output Shaft****SHIFT FORKS AND MAINSHAFT REMOVAL AND DISASSEMBLY**

(1) Remove shift detent plug, spring and pin (Fig. 26).

(2) Remove seal plug from low range fork lockpin access hole. Then move shift sector to align low range fork lockpin with access hole.

(3) Remove range fork lockpin with size number one easy-out tool as follows:

(a) Insert easy-out tool through access hole in side of transfer case and into lock-pin.

**Fig. 26 Detent Component Removal**

(b) Tap easy-out tool into lock-pin with hammer until tool is securely engaged into the lock-pin.

(c) Install a t-handle, such as from a tap and die set, onto the easy-out tool.

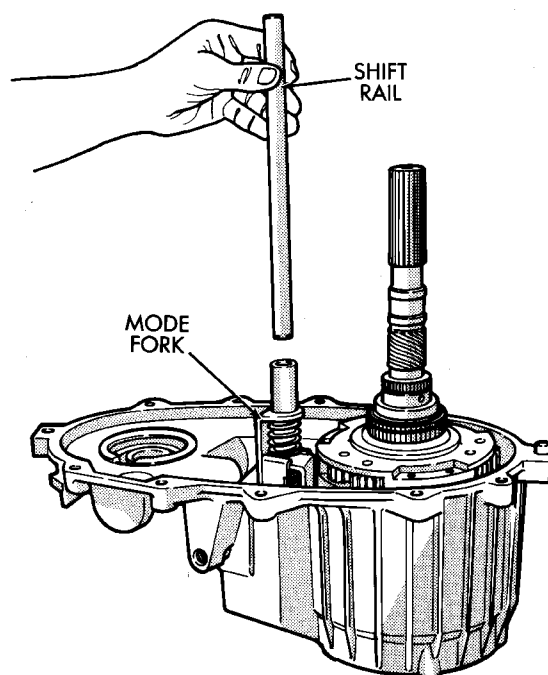
(d) Securely tighten the t-handle onto the tool.

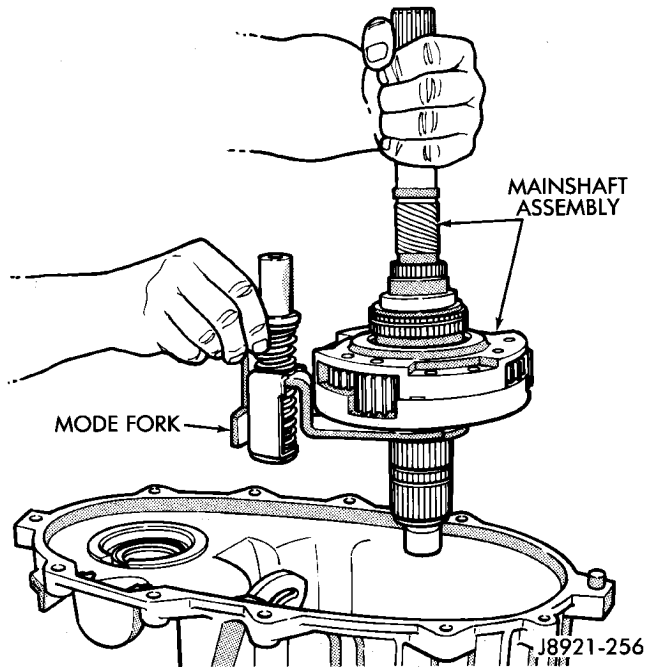
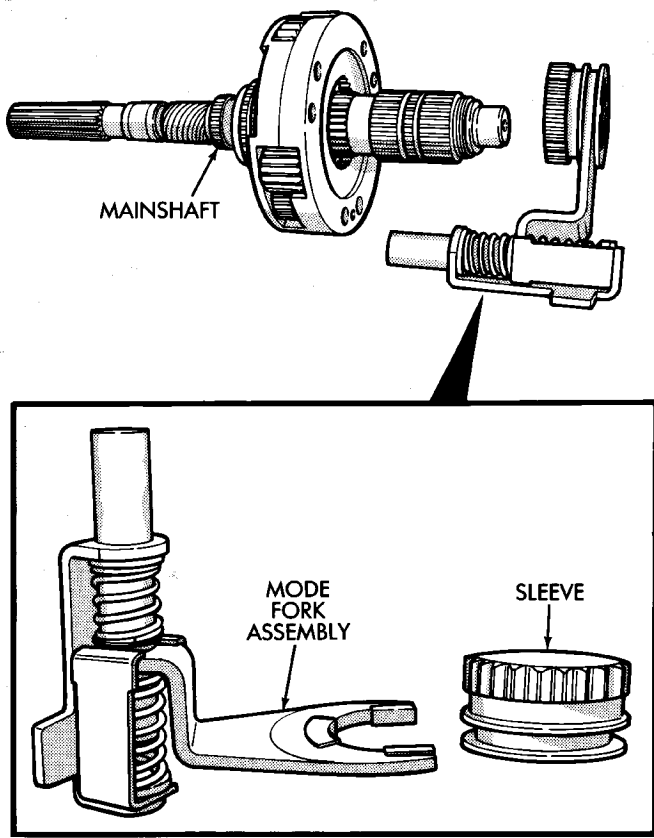
(e) In one motion, pull upward and turn the t-handle counter-clockwise to remove the lock-pin.

(4) Remove shift rail by pulling it straight up and out of fork (Fig. 27).

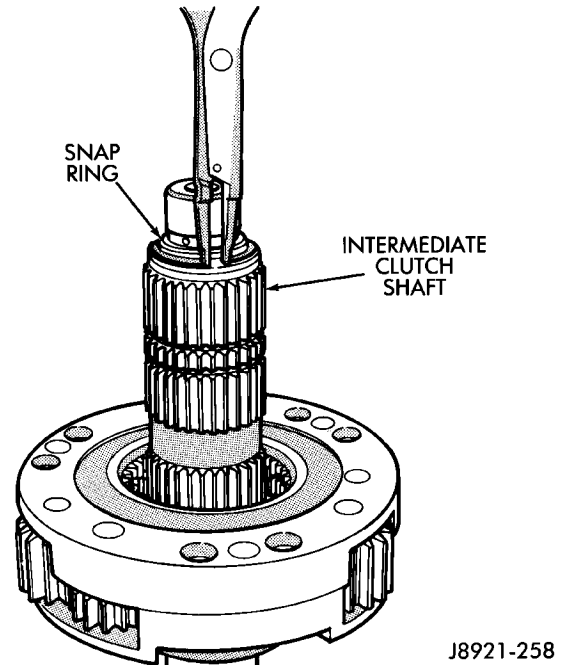
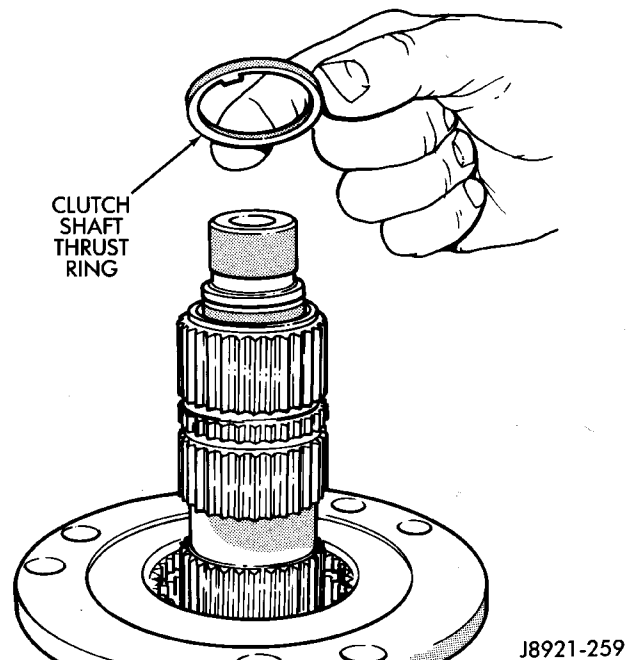
(5) Remove mode fork and mainshaft as assembly (Fig. 28).

(6) Remove mode shift sleeve and mode fork assembly from mainshaft (Fig. 29). Note position of mode sleeve in fork and remove sleeve.

**Fig. 27 Shift Rail Removal**

DISASSEMBLY AND ASSEMBLY (Continued)**Fig. 28 Mode Fork And Mainshaft Removal****Fig. 29 Mode Fork And Sleeve Removal**

- (7) Remove intermediate clutch shaft snap-ring (Fig. 30).
- (8) Remove clutch shaft thrust ring (Fig. 31).
- (9) Remove intermediate clutch shaft (Fig. 32).

**Fig. 30 Intermediate Clutch Shaft Snap-Ring Removal****Fig. 31 Clutch Shaft Thrust Ring Removal**

DISASSEMBLY AND ASSEMBLY (Continued)

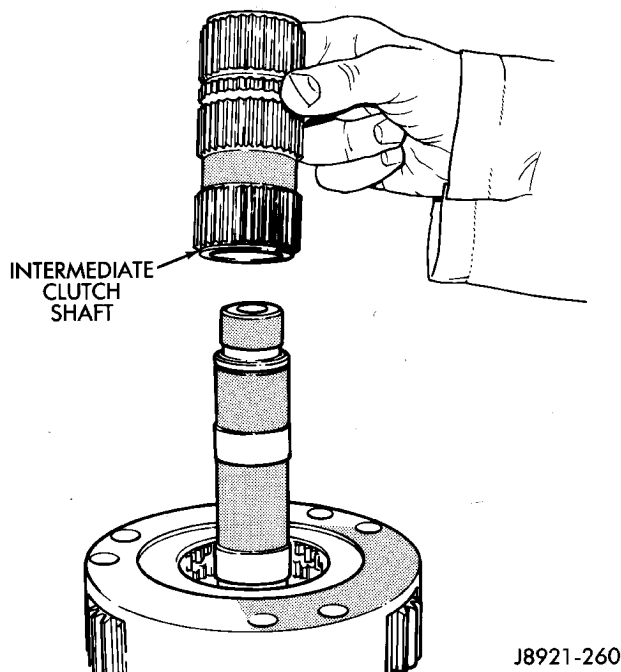


Fig. 32 Intermediate Clutch Shaft Removal

- (10) Remove differential snap-ring (Fig. 33).
- (11) Remove differential (Fig. 34).
- (12) Remove differential needle bearings and both needle bearing thrust washers from mainshaft.

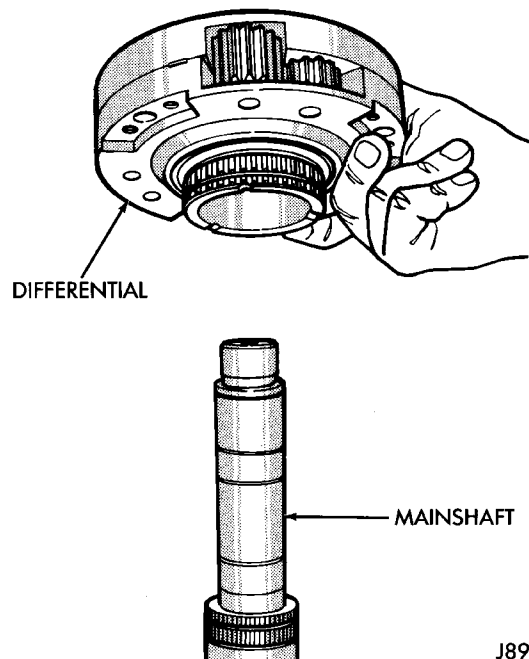


Fig. 34 Differential Removal

- (13) Slide low range fork pin out of shift sector slot (Fig. 35).
- (14) Remove low range fork and hub (Fig. 36).
- (15) Remove shift sector (Fig. 37).

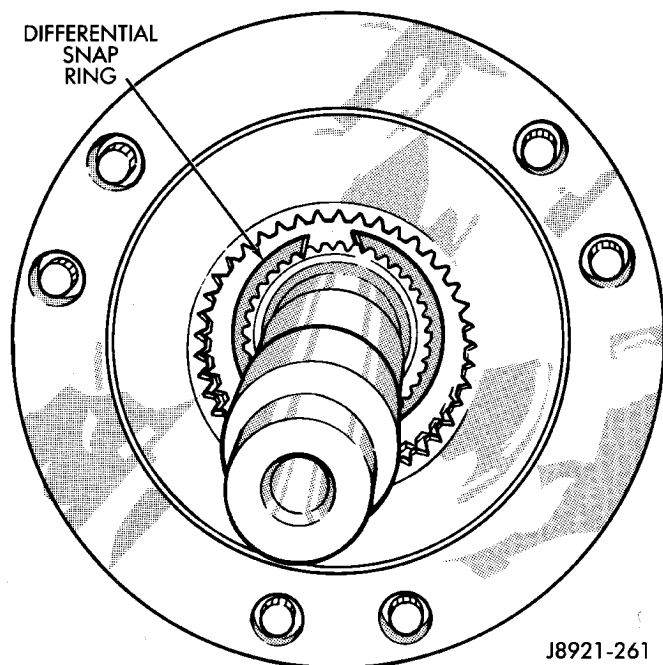


Fig. 33 Differential Snap-Ring Removal

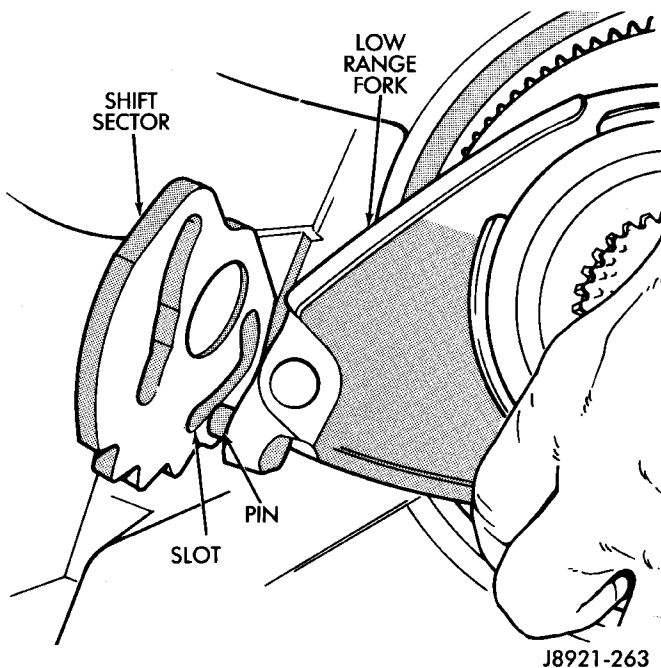
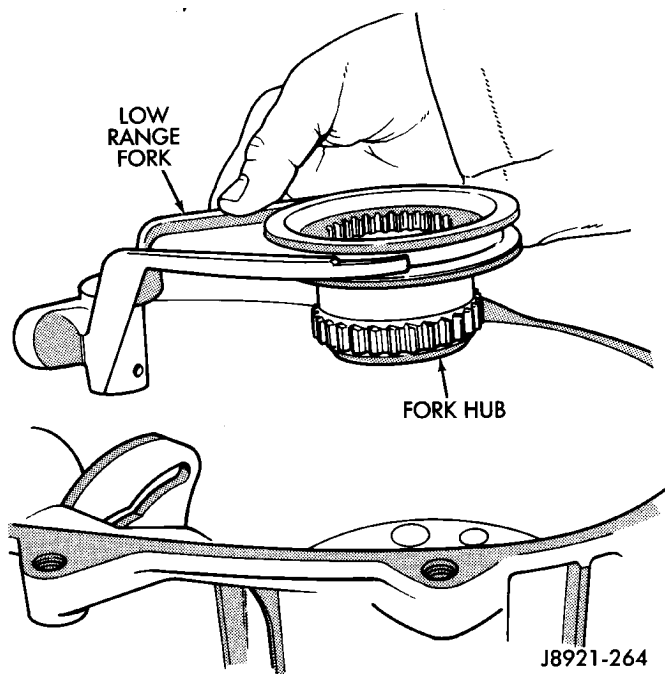
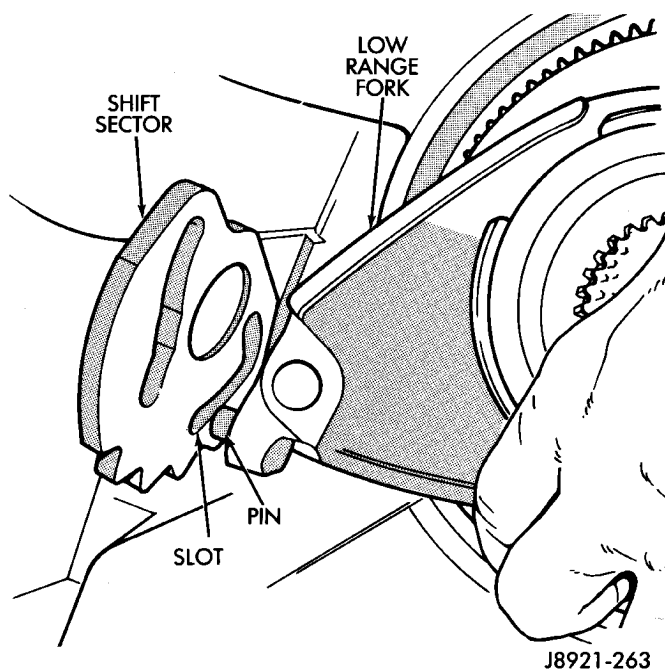
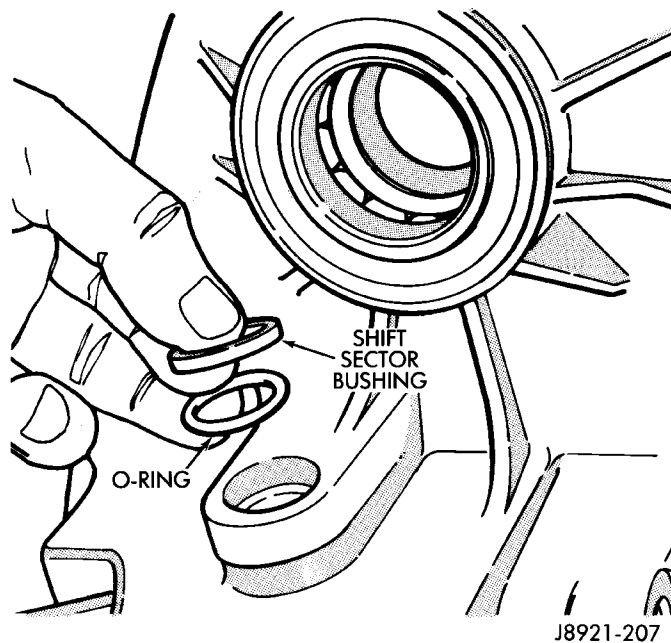


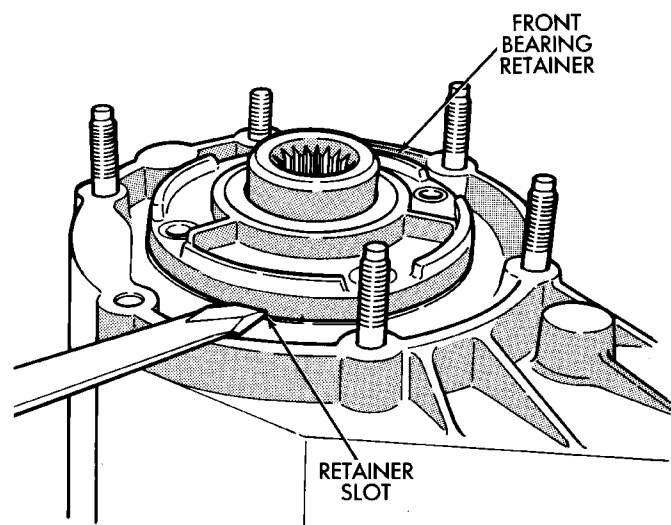
Fig. 35 Disengaging Low Range Fork

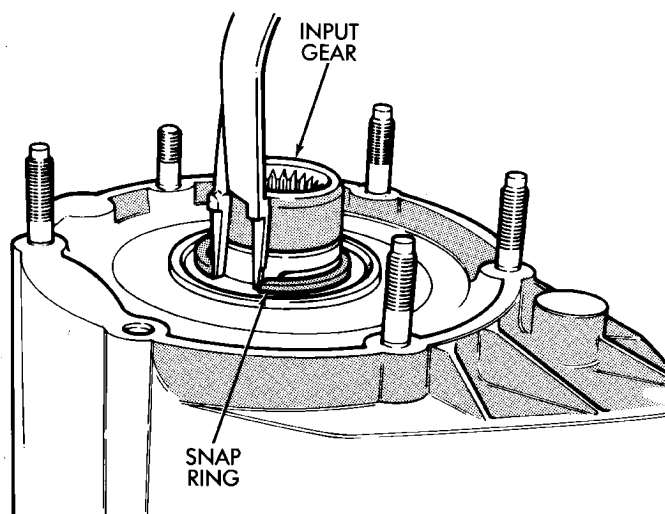
DISASSEMBLY AND ASSEMBLY (Continued)**Fig. 36 Low Range Fork And Hub Removal****Fig. 37 Shift Sector Position**

(16) Remove shift sector bushing and O-ring (Fig. 38).

**Fig. 38 Sector Bushing And O-Ring Removal****INPUT GEAR/LOW RANGE ASSEMBLY REMOVAL AND DISASSEMBLY**

- (1) Remove front bearing retainer bolts.
- (2) Remove front bearing retainer. Carefully pry retainer loose with screwdriver (Fig. 39). Position screwdriver in slots cast into retainer.
- (3) Remove input gear snap-ring (Fig. 40).

**Fig. 39 Front Bearing Retainer Removal**

DISASSEMBLY AND ASSEMBLY (Continued)

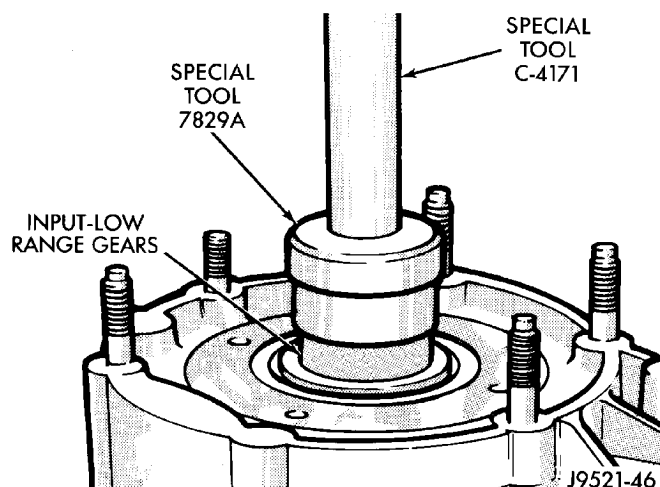
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Fig. 40 Input Gear Snap-Ring Removal

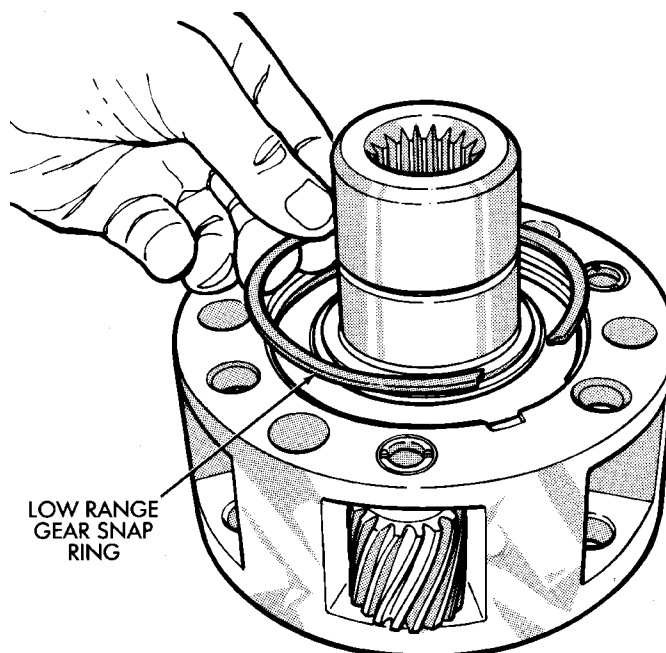
(4) Remove input/low range gear assembly from bearing with Tool Handle C-4171 and Tool 7829A (Fig. 41).

(5) Remove low range gear snap-ring (Fig. 42).

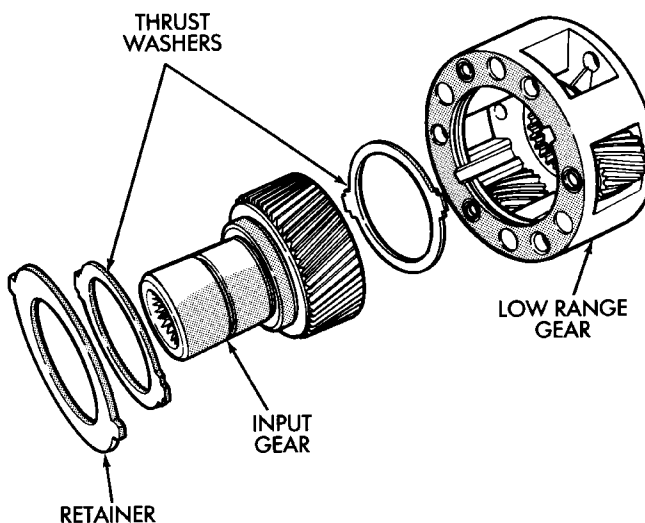
(6) Remove input gear retainer, thrust washers and input gear from low range gear (Fig. 43).



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Fig. 41 Input And Low Range Gear Assembly Removal

J8921-269

Fig. 42 Low Range Gear Snap-Ring Removal/Installation

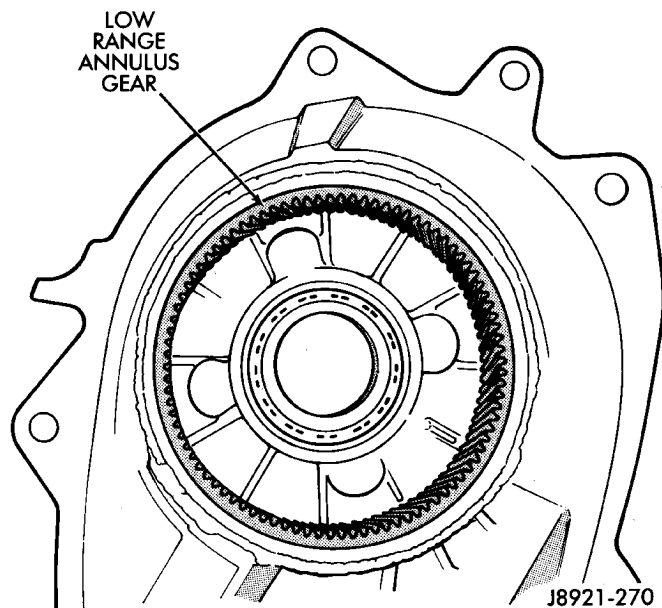
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Fig. 43 Low Range Gear Disassembly

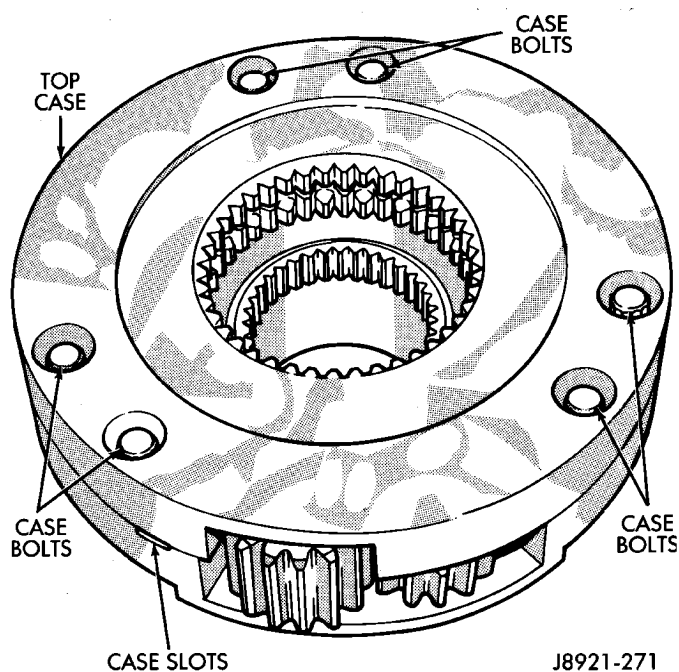
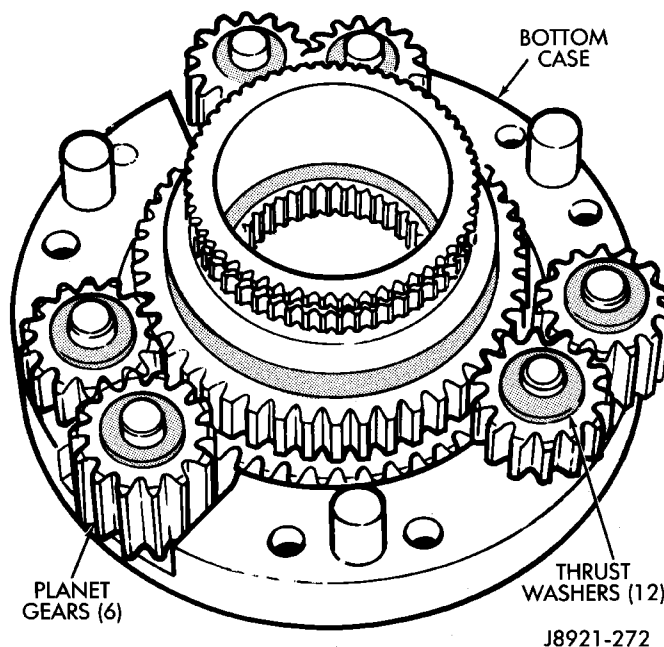
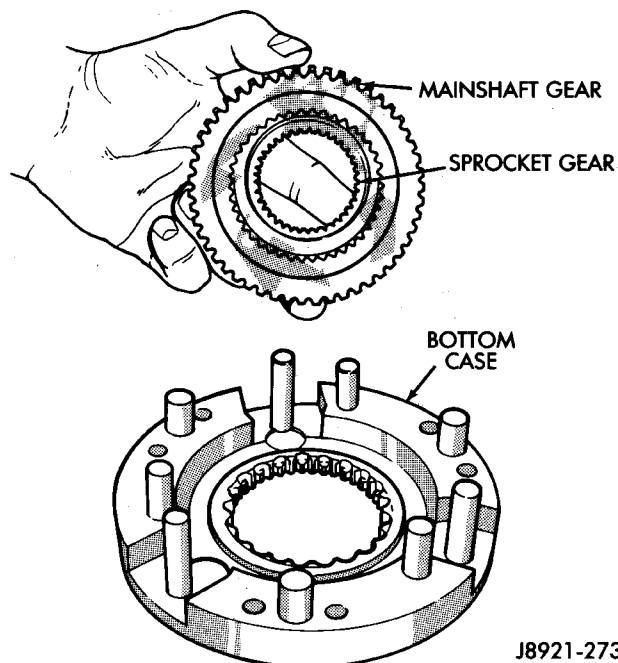
(7) Inspect low range annulus gear (Fig. 44). **Gear is not a serviceable component. If damaged, replace gear and front case as assembly.**

(8) Remove oil seals from following components:

- front bearing retainer.
- rear retainer.
- oil pump.
- case halves.

DISASSEMBLY AND ASSEMBLY (Continued)**Fig. 44 Inspecting Low Range Annulus Gear****DIFFERENTIAL DISASSEMBLY**

- (1) Mark differential case halves for reference.
- (2) Remove differential case bolts.
- (3) Invert differential on workbench.
- (4) Separate top case from bottom case. Use slots in case halves to pry them apart (Fig. 45).
- (5) Remove thrust washers and planet gears from case pins (Fig. 46).
- (6) Remove mainshaft and sprocket gears from bottom case (Fig. 47). Note gear position for reference before separating them.

**Fig. 45 Separating Differential Case Halves****Fig. 46 Planet Gears And Thrust Washer Removal****Fig. 47 Mainshaft And Sprocket Gear Removal****ASSEMBLY**

Lubricate transfer case components with automatic transmission fluid or petroleum jelly (where indicated) during assembly.

CAUTION: The bearing bores in various transfer case components contain oil feed holes. Make sure replacement bearings do not block the holes.

DISASSEMBLY AND ASSEMBLY (Continued)

BEARING AND SEAL INSTALLATION

(1) Remove snap-ring that retains front output shaft front bearing in case (Fig. 48). Then remove bearing. Use hammer handle, or hammer and brass punch to tap bearing out of case.

(2) Install new front output shaft front bearing with Tool Handle C-4171 and Installer 8033A with the tapered cone upward (Fig. 49).

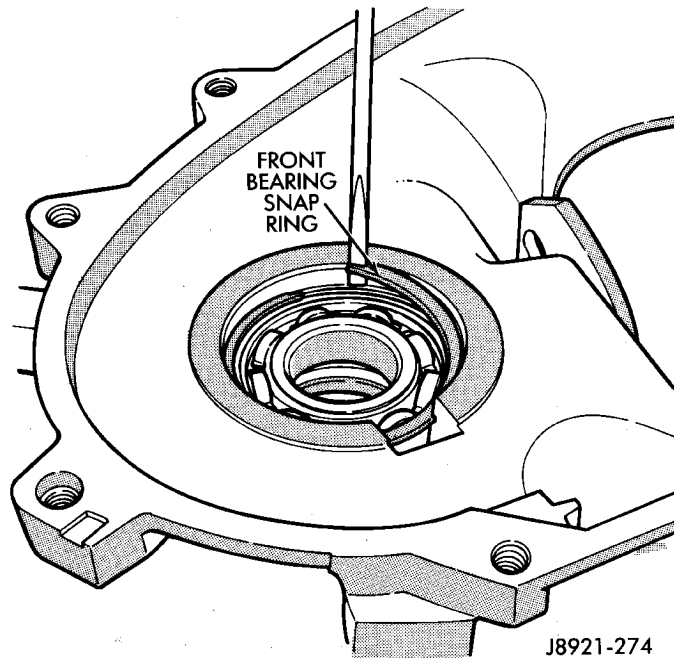


Fig. 48 Front Output Shaft Front Bearing Snap-Ring Removal

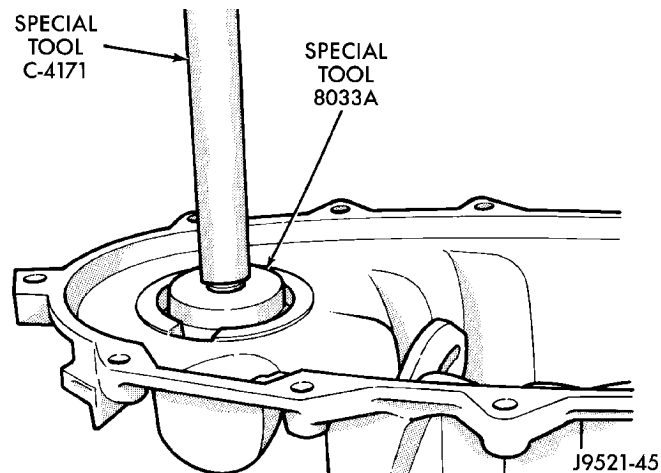


Fig. 49 Front Output Shaft Front Bearing Installation

(3) Install front bearing snap-ring (Fig. 48).

(4) Remove front output shaft seal using an appropriate pry tool (Fig. 50) or slide-hammer mounted screw.

(5) Install new front output shaft oil seal with Installer 6952-A (Fig. 51).

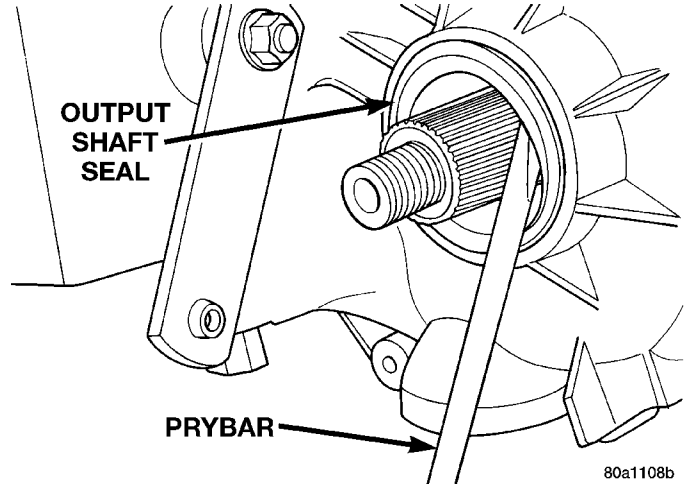


Fig. 50 Remove Front Output Shaft Seal

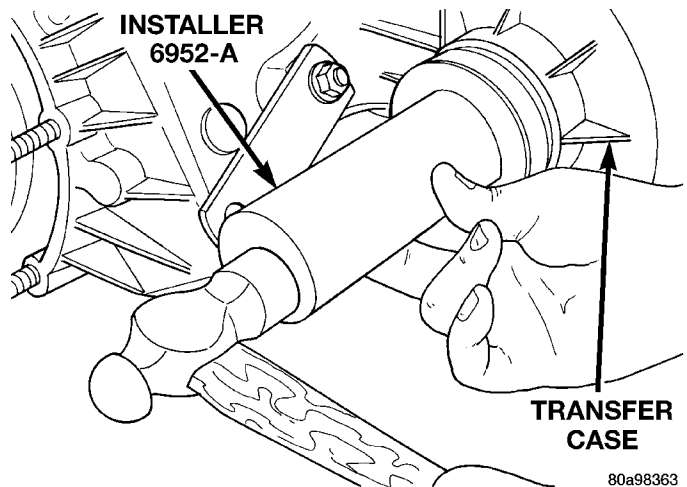


Fig. 51 Install Front Output Shaft Seal

DISASSEMBLY AND ASSEMBLY (Continued)

(6) Remove input gear bearing with Tool Handle C-4171 and Remover C-4210 (Fig. 52).

(7) Install snap-ring on new input gear bearing.

(8) Install new input gear bearing with Tool Handle C-4171 and Remover C-4210. Install bearing far enough to seat snap-ring against case (Fig. 53).

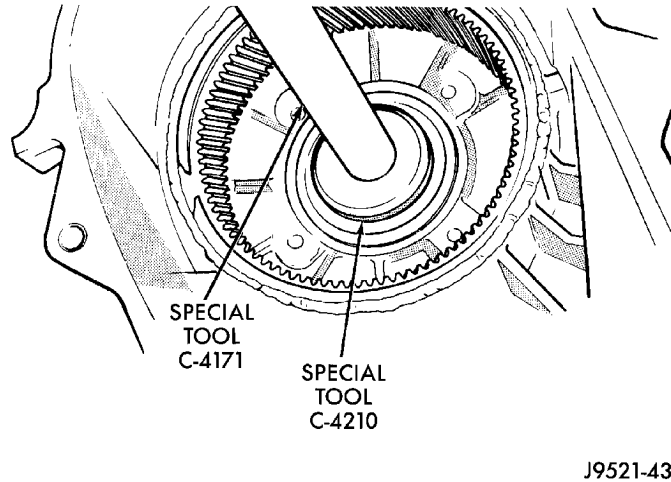


Fig. 52 Input Gear Bearing Removal

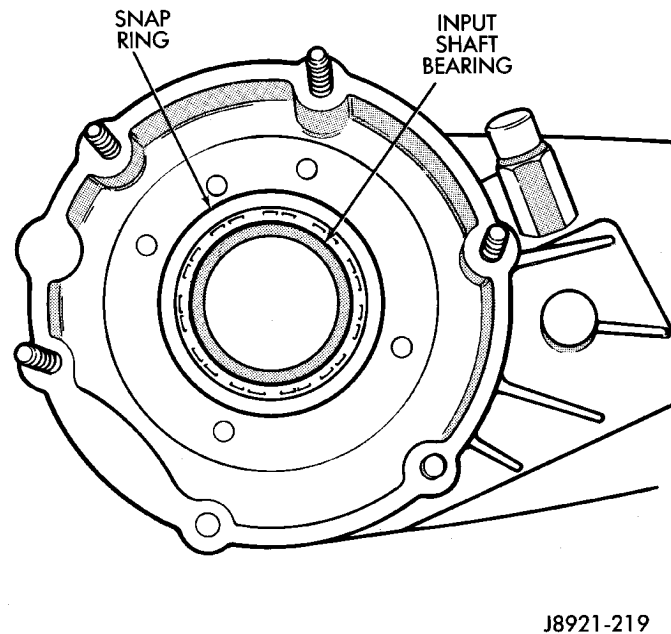


Fig. 53 Seating Input Gear Bearing

(9) Remove the 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. 54).

(10) Install new pilot bearing with Installer 8128 and Handle C-4171 (Fig. 55).

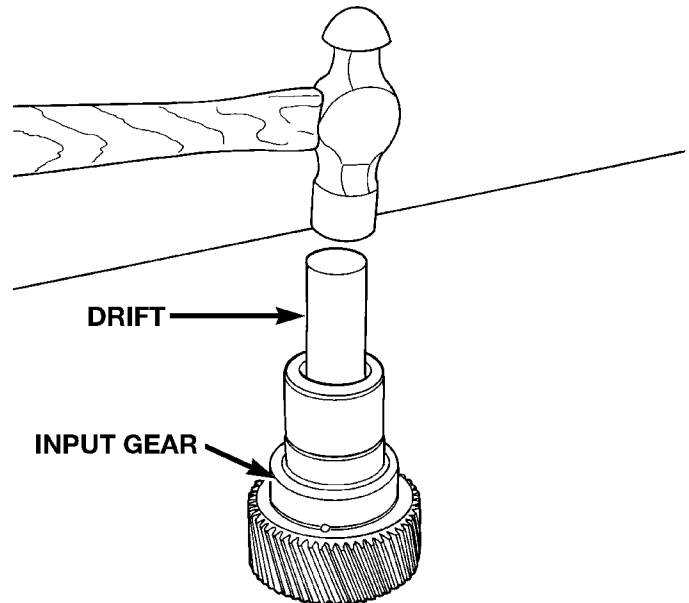


Fig. 54 Remove Input Gear Pilot Bearing

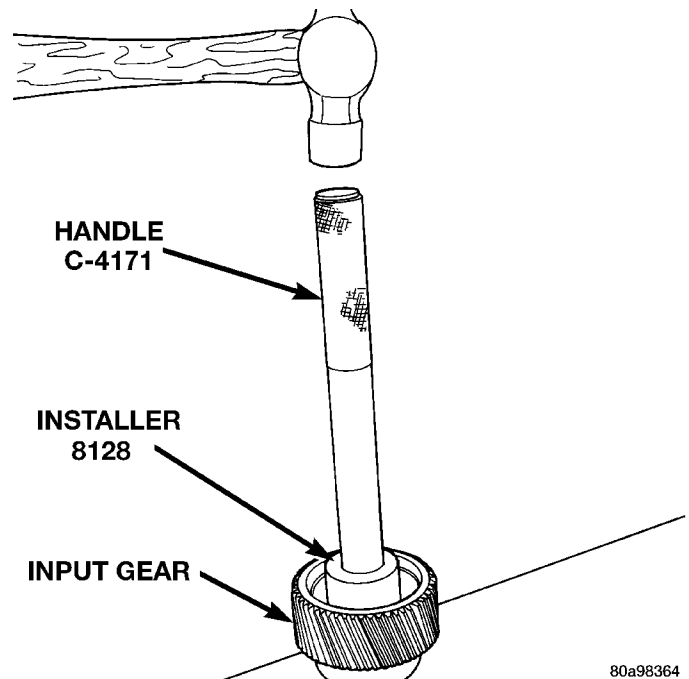


Fig. 55 Install Input Gear Pilot Bearing

DISASSEMBLY AND ASSEMBLY (Continued)

(11) Install new seal in front bearing retainer with Installer 7884 (Fig. 56).

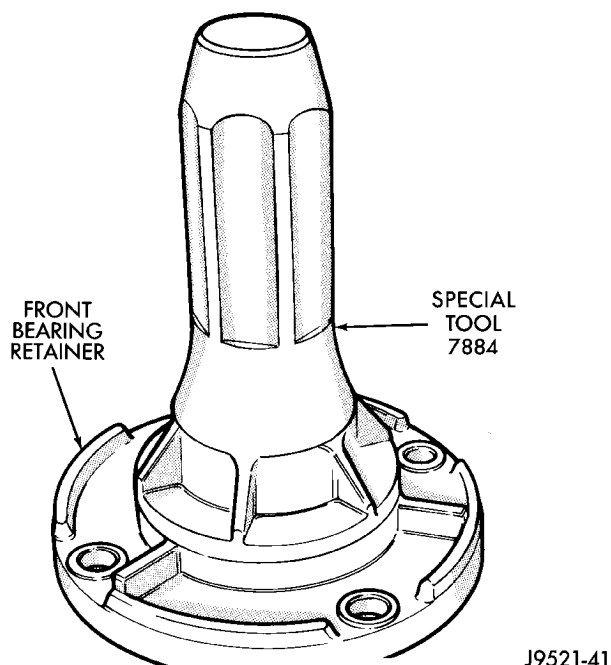


Fig. 56 Front Bearing Retainer Seal Installation

(12) Remove output shaft rear bearing with the screw and jaws from Remover L-4454 and Cup 8148 (Fig. 57).

(13) Install new bearing with Tool Handle C-4171 and Installer 5066 (Fig. 58). Lubricate bearing after installation.

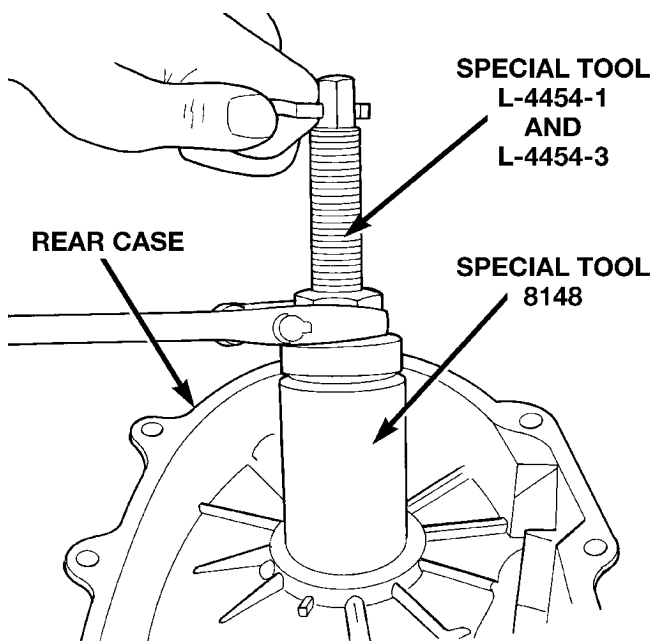


Fig. 57 Remove Front Output Shaft Rear Bearing

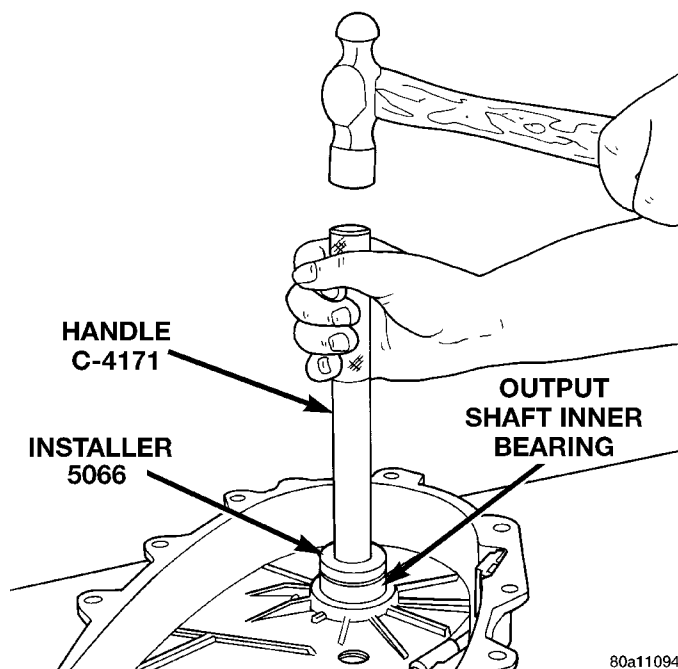


Fig. 58 Install Front Output Shaft Rear Bearing

(14) Install new seal in oil pump feed housing with Special Tool 7888 (Fig. 59).

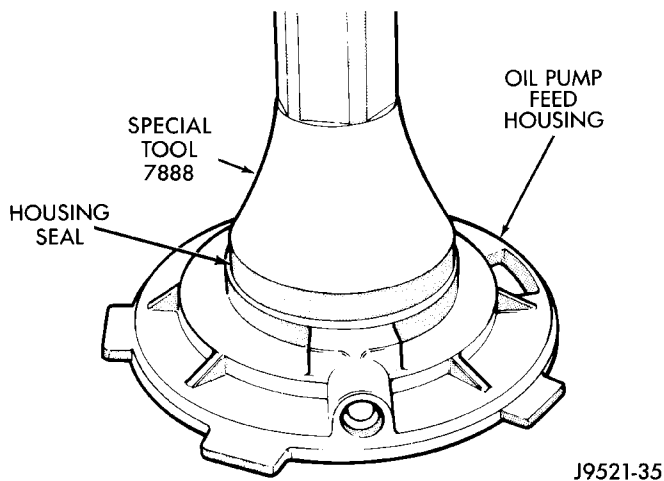
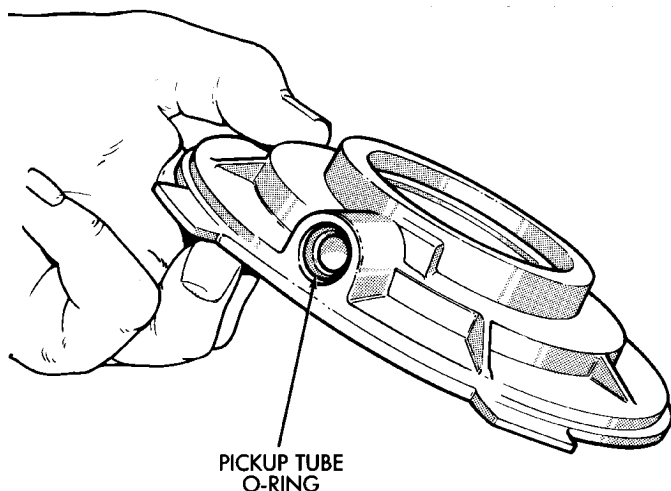


Fig. 59 Oil Pump Seal Installation

DISASSEMBLY AND ASSEMBLY (Continued)

(15) Install new pickup tube O-ring in oil pump (Fig. 60).

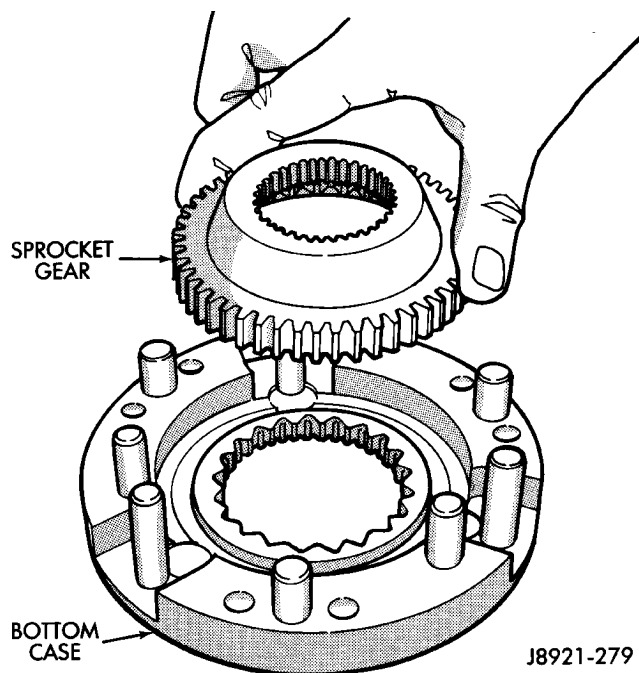


J8921-286

Fig. 60 Pickup Tube O-Ring Installation**DIFFERENTIAL ASSEMBLY**

(1) Lubricate differential components with automatic transmission fluid.

(2) Install sprocket gear in differential bottom case (Fig. 61).



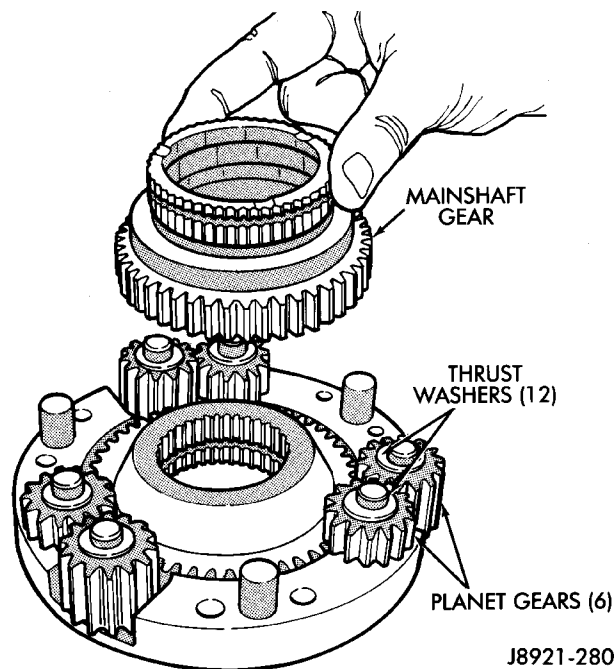
J8921-279

Fig. 61 Installing Differential Sprocket Gear

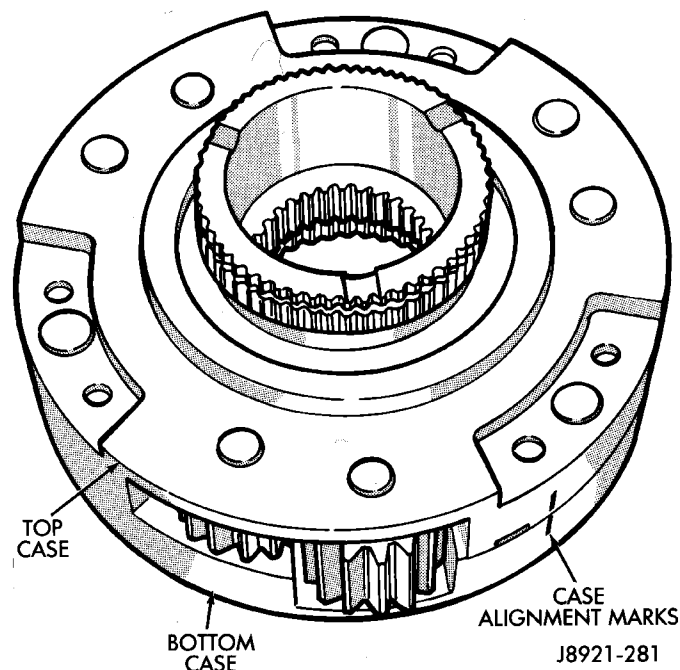
(3) Install differential planet gears and new thrust washers (Fig. 62). **Be sure thrust washers are installed at top and bottom of each planet gear.**

(4) Install differential mainshaft gear (Fig. 62).

(5) Align and position differential top case on bottom case (Fig. 63). Align using scribe marks made at disassembly.



J8921-280

Fig. 62 Installing Mainshaft And Planet Gears

J8921-281

Fig. 63 Differential Case Assembly

DISASSEMBLY AND ASSEMBLY (Continued)

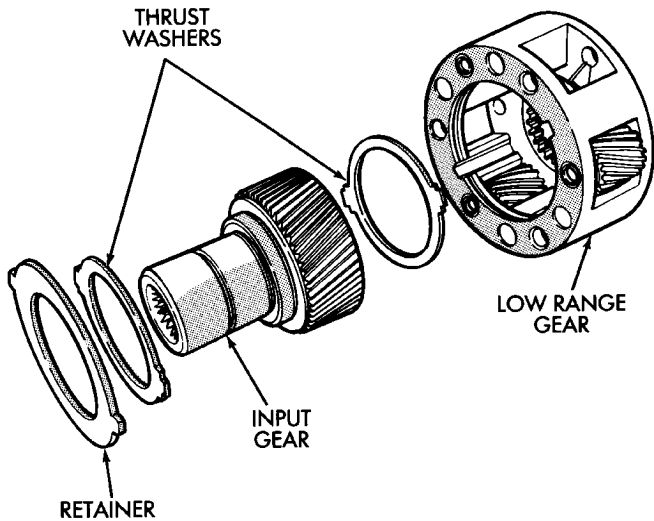
(6) While holding differential case halves together, invert the differential and start the differential case bolts.

(7) Tighten differential case bolts to specified torque.

INPUT GEAR/LOW RANGE ASSEMBLY

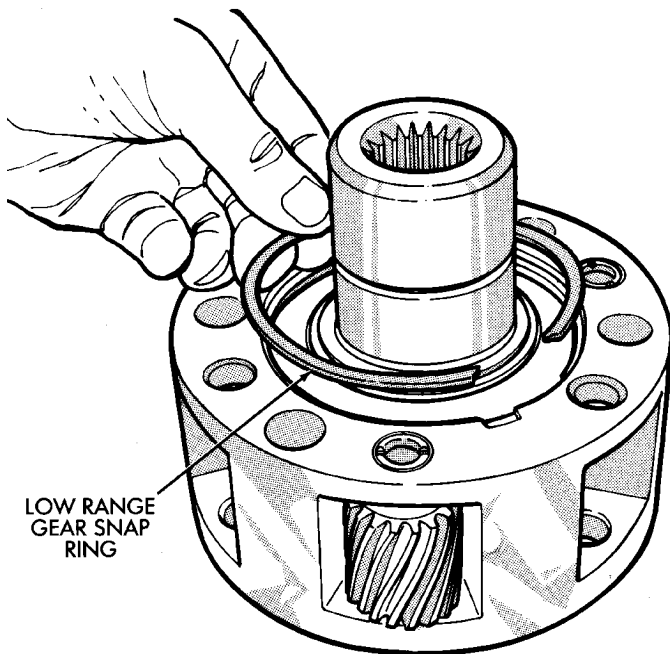
(1) Assemble low range gear, input gear thrust washers, input gear and input gear retainer (Fig. 64).

(2) Install low range gear snap ring (Fig. 65).



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Fig. 64 Low Range And Input Gear Assembly



J8921-269

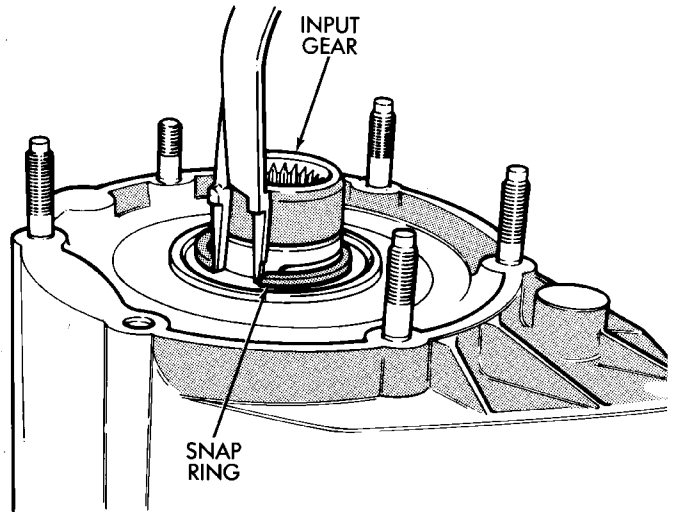
Fig. 65 Install Low Range Gear Snap Ring

(3) Lubricate input gear and low range gears with automatic transmission fluid.

(4) Start input gear shaft into front case bearing.

(5) Press input gear shaft into front bearing.

(6) Install new input gear snap ring (Fig. 66).

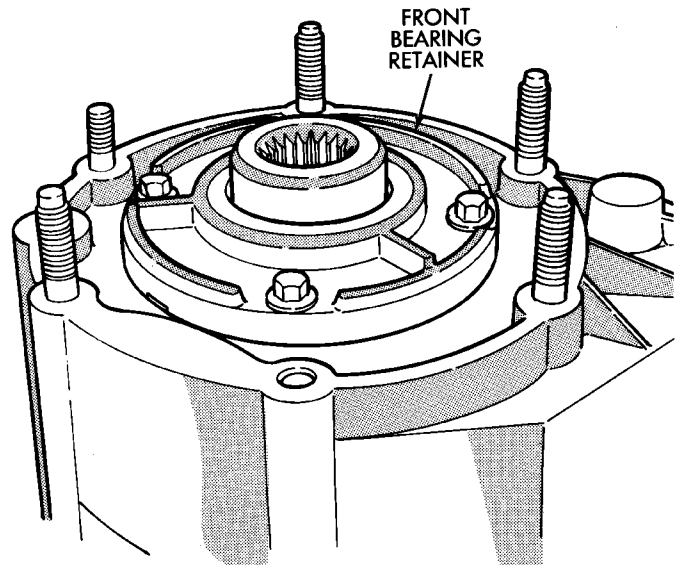


J8921-267

Fig. 66 Input Gear Snap Ring Installation

(7) Apply 3 mm (1/8 in.) wide bead of Mopar® gasket maker or silicone adhesive sealer to seal surface of front bearing retainer.

(8) Install front bearing retainer (Fig. 67). Tighten retainer bolts to 16 ft. lbs. (21 N·m) torque.



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Fig. 67 Installing Front Bearing Retainer

DISASSEMBLY AND ASSEMBLY (Continued)**SHIFT FORKS AND MAINSHAFT INSTALLATION**

(1) Install new sector shaft O-ring and bushing (Fig. 68).

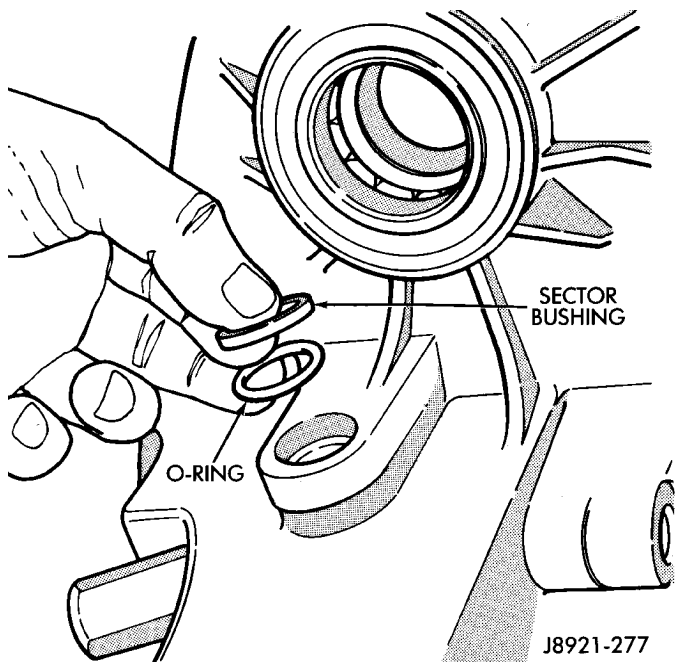


Fig. 68 Sector O-Ring And Bushing Installation

- (2) Install shift sector.
 (3) Install new pads on low range fork, if necessary, (Fig. 69).
 (4) Assemble low range fork and hub (Fig. 69).
 (5) Position low range fork and hub in case. Be sure low range fork pin is engaged in shift sector slot (Fig. 70).

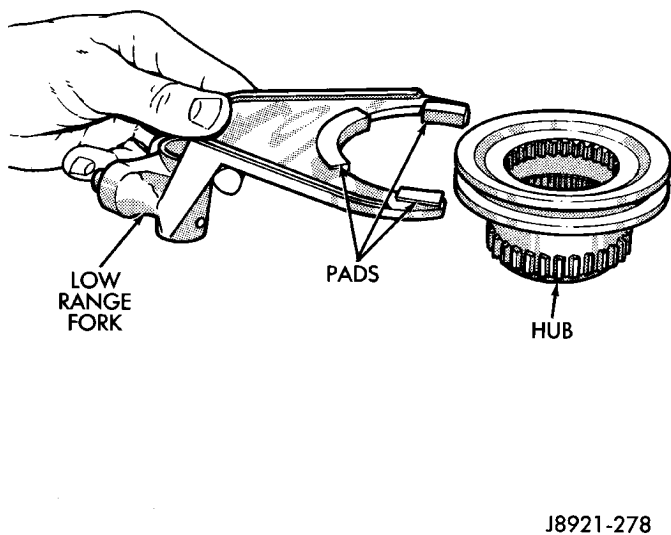


Fig. 69 Assembling Low Range Fork And Hub

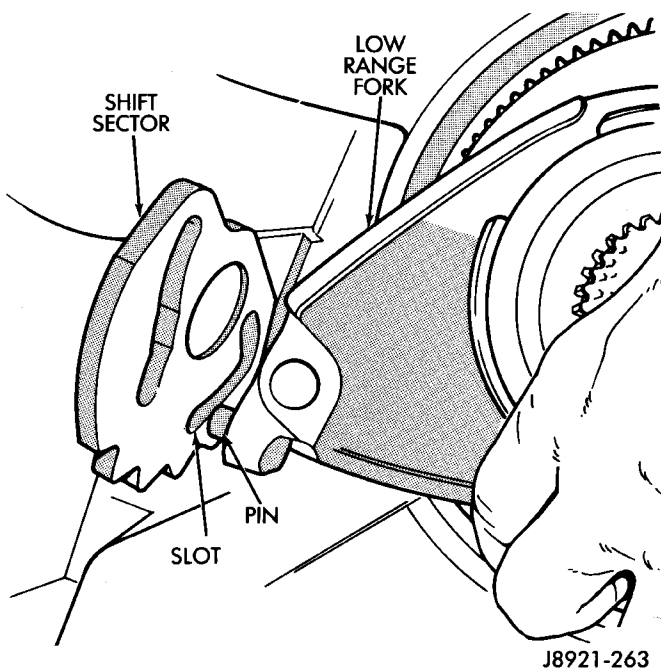


Fig. 70 Positioning Low Range Fork

- (6) Install first mainshaft bearing spacer on mainshaft (Fig. 71).
 (7) Install bearing rollers on mainshaft (Fig. 71). **Coat bearing rollers with generous quantity of petroleum jelly to hold them in place.**
 (8) Install remaining bearing spacer on mainshaft (Fig. 71). Do not displace any bearings while installing spacer.

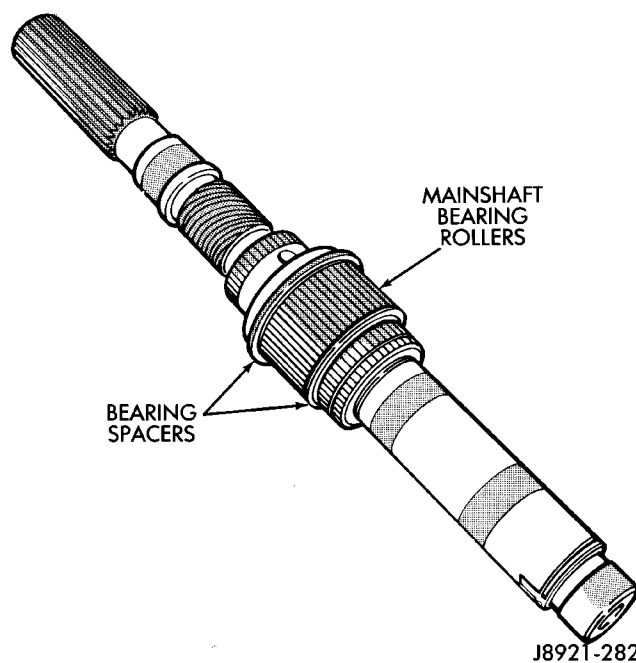
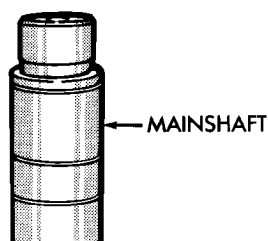
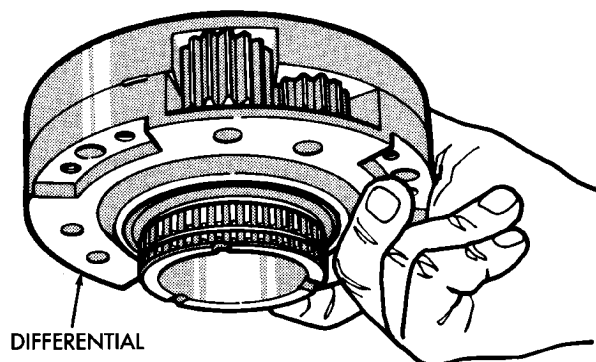


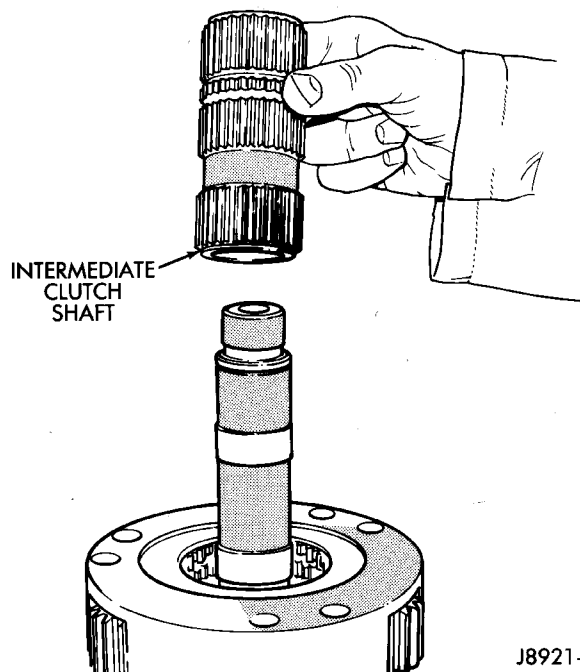
Fig. 71 Installing Mainshaft Bearing Rollers and Spacers

DISASSEMBLY AND ASSEMBLY (Continued)

- (9) Install differential (Fig. 72). **Do not displace mainshaft bearings when installing differential.**
 (10) Install differential snap-ring (Fig. 73).
 (11) Install intermediate clutch shaft (Fig. 74).



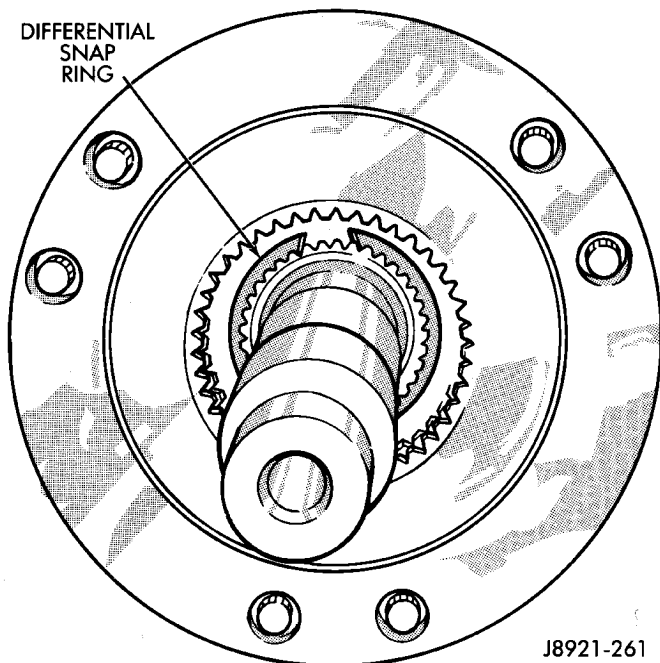
J8921-283

Fig. 72 Differential Installation

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Fig. 74 Installing Intermediate Clutch Shaft

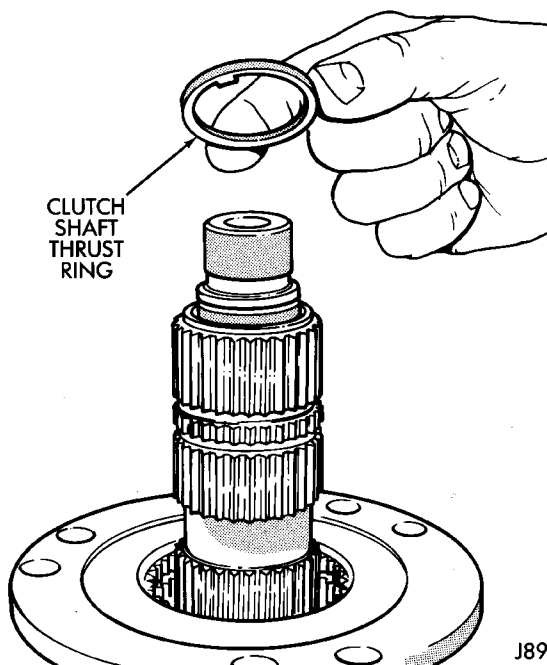
(14) Inspect mode fork assembly (Fig. 77). Replace pads and bushing if necessary. Replace fork tube if bushings inside tube are worn or damaged. Also check springs and slider bracket (Fig. 77). Replace worn, damaged components.



J8921-261

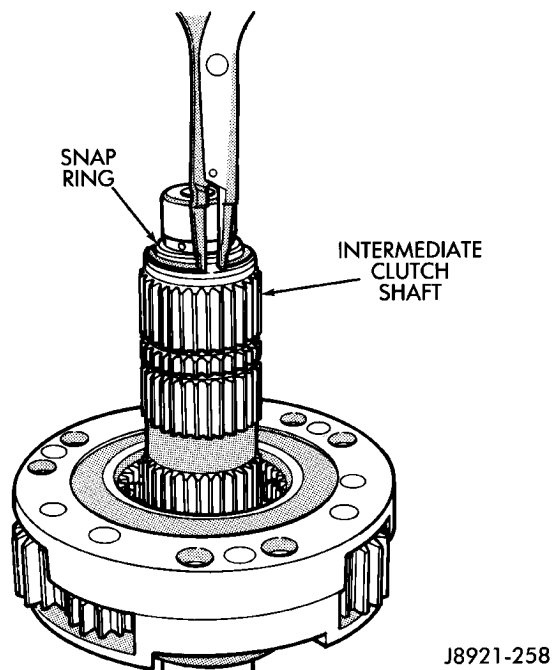
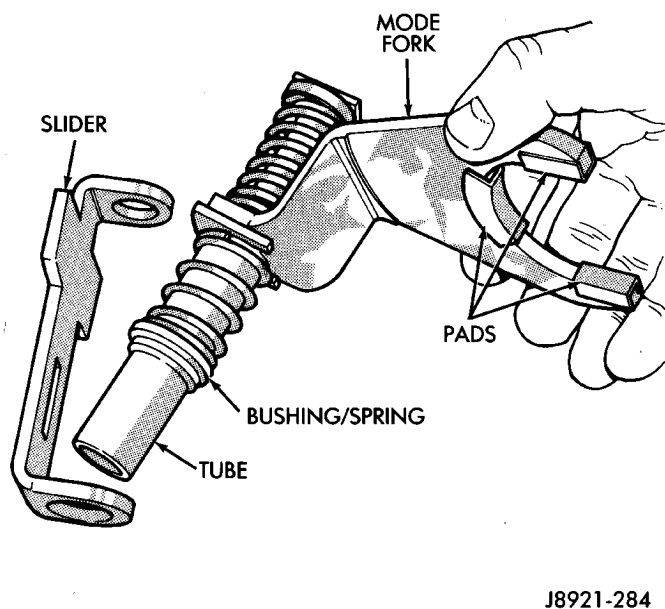
Fig. 73 Installing Differential Snap-Ring

- (12) Install clutch shaft thrust washer (Fig. 75).
 (13) Install clutch shaft snap-ring (Fig. 76).



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Fig. 75 Installing Clutch Shaft Thrust Washer

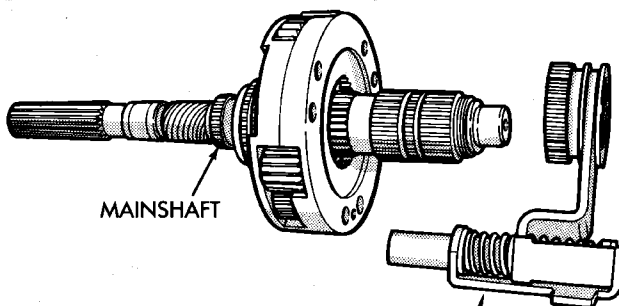
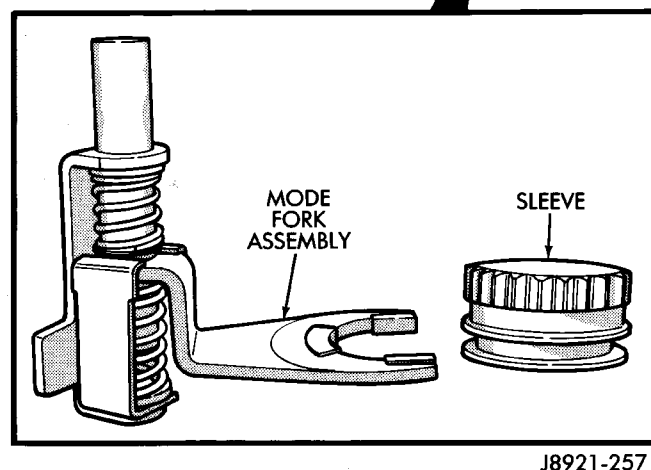
DISASSEMBLY AND ASSEMBLY (Continued)**Fig. 76 Installing Clutch Shaft Snap-Ring****Fig. 77 Mode Fork Assembly Inspection**

(15) Install mode sleeve in mode fork (Fig. 78). Then install assembled sleeve and fork on mainshaft. Be sure mode sleeve splines are engaged in differential splines.

(16) Install mode fork and mainshaft assembly in case (Fig. 79). Rotate mainshaft slightly to engage shaft with low range gears.

(17) Rotate mode fork pin into shift sector slot.

(18) Install shift rail (Fig. 80). Be sure rail is seated in both shift forks.

**Fig. 78 Installing Mode Fork And Sleeve****Fig. 79 Assembled Mainshaft And Mode Fork Installation**

DISASSEMBLY AND ASSEMBLY (Continued)

(19) Rotate shift sector to align lockpin hole in low range fork with access hole in case.

(20) Insert an easy-out in range fork lockpin to hold it securely for installation (Fig. 81). **Lockpin is slightly tapered on one end. Insert tapered end into fork and rail.**

(21) Insert lockpin through access hole and into shift fork (Fig. 81). Then remove easy-out and seat the pin with pin punch.

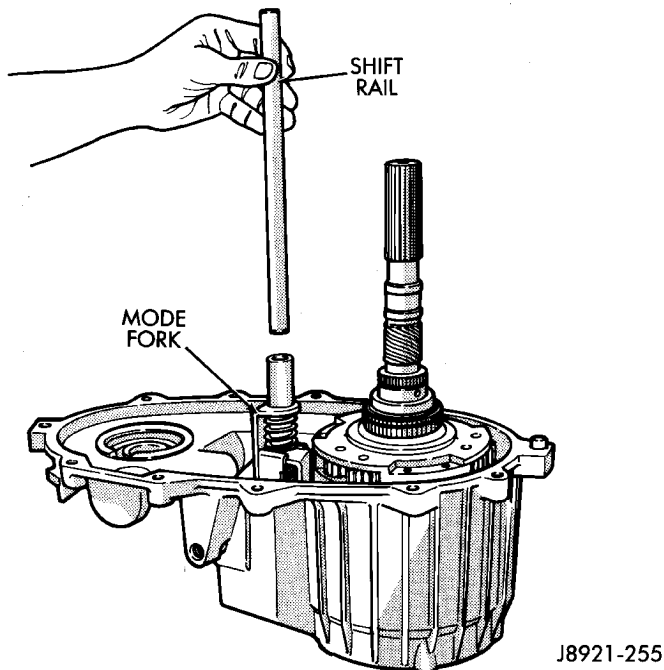


Fig. 80 Shift Rail Installation

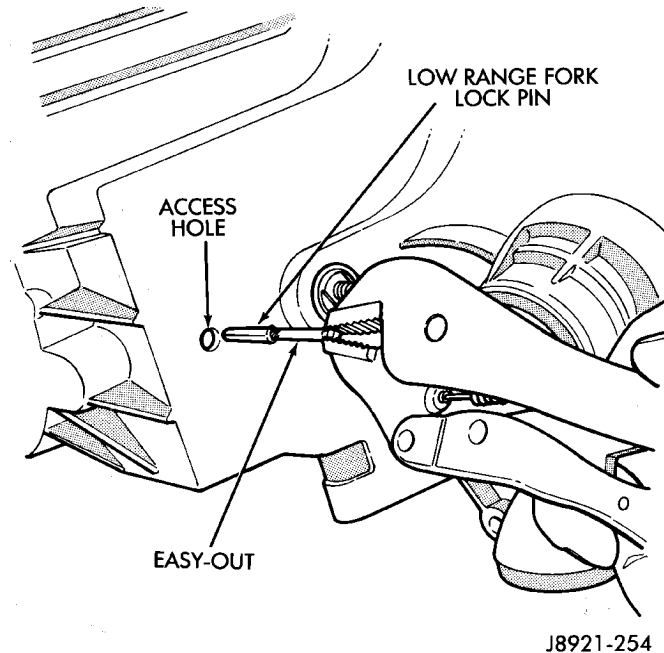


Fig. 81 Installing Low Range Fork Lockpin

(22) Install plug in lockpin access hole.

(23) Install detent plunger, detent spring and detent plug in case (Fig. 82).

FRONT OUTPUT SHAFT AND DRIVE CHAIN INSTALLATION

(1) Install front output shaft (Fig. 83).

(2) Install drive chain (Fig. 83). Engage chain with front output shaft sprocket teeth.

(3) Install drive sprocket (Fig. 83). Engage drive sprocket teeth with chain. Then engage sprocket splines with mainshaft splines

(4) Install drive sprocket snap-ring (Fig. 84)..

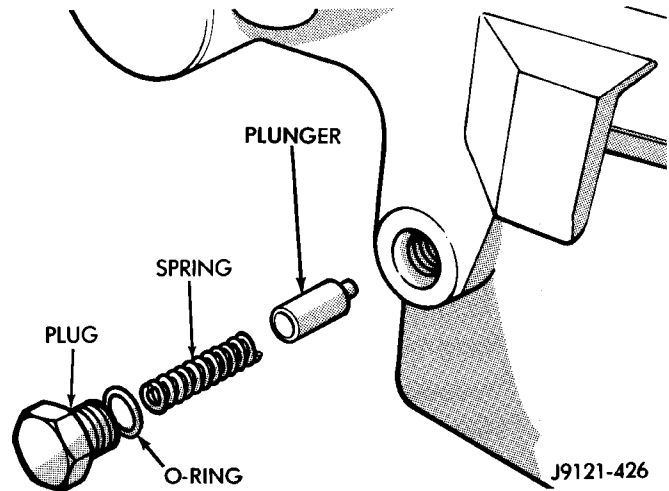


Fig. 82 Detent Pin, Spring And Plug Installation

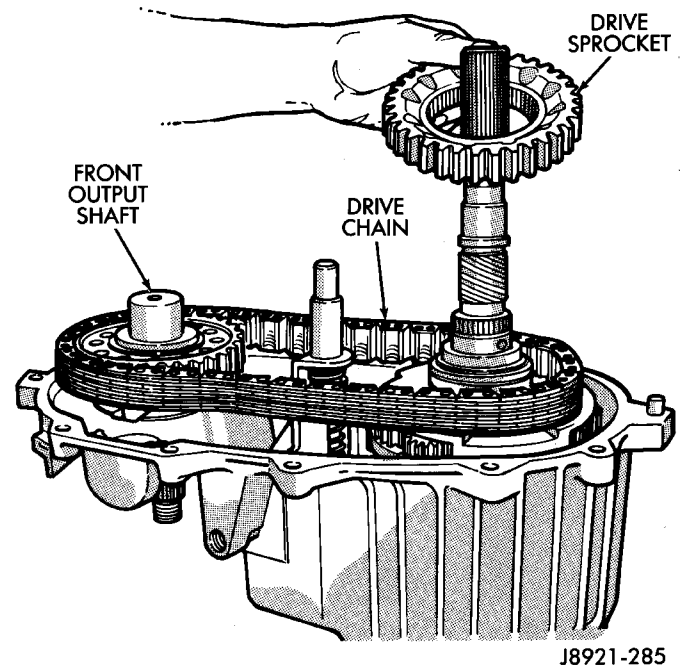
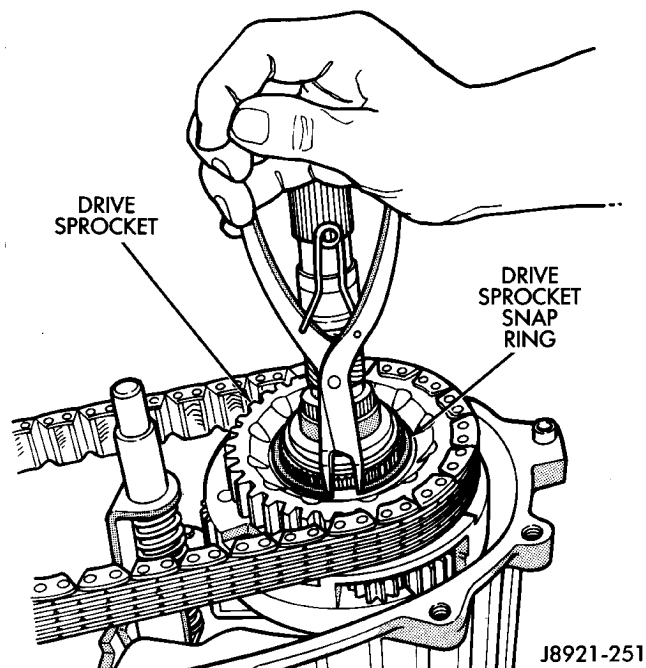


Fig. 83 Drive Chain And Sprocket Installation

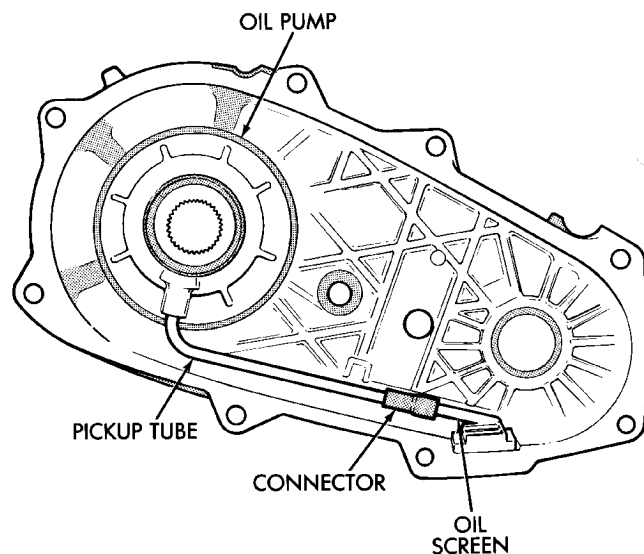
OIL PUMP AND REAR CASE INSTALLATION

(1) Insert oil pickup tube in oil pump and attach oil screen and connector hose to pickup tube. Then

DISASSEMBLY AND ASSEMBLY (Continued)**Fig. 84 Drive Sprocket Snap-Ring Installation**

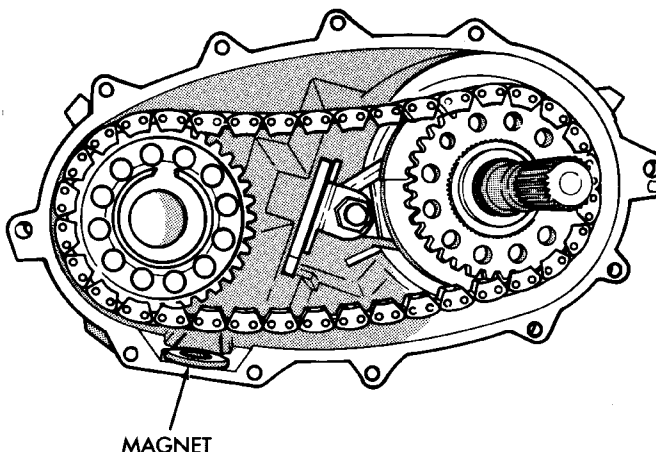
install assembled pump, tube and screen in rear case (Fig. 85). Be sure screen is seated in case slot as shown.

- (2) Install magnet in front case pocket (Fig. 86).

**Fig. 85 Oil Screen And Pickup Tube Installation**

(3) Apply 3 mm (1/8 in.) wide bead of Mopar gasket maker or silicone adhesive sealer to seal surface of front case.

(4) Align and install rear case on front case. Be sure case locating dowels are in place and that main-shaft splines are engaged in oil pump inner gear.

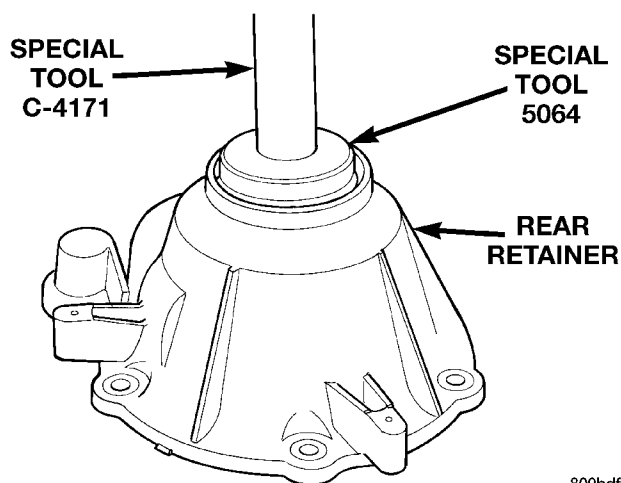
**Fig. 86 Installing Case Magnet**

(5) Install and tighten front case-to-rear case bolts to 41 N·m (30 ft. lbs.) torque. **Be sure to install a washer under each bolt used at case dowel locations.**

REAR RETAINER INSTALLATION

(1) Remove rear bearing in retainer using Installer 8128 and Handle C-4171.

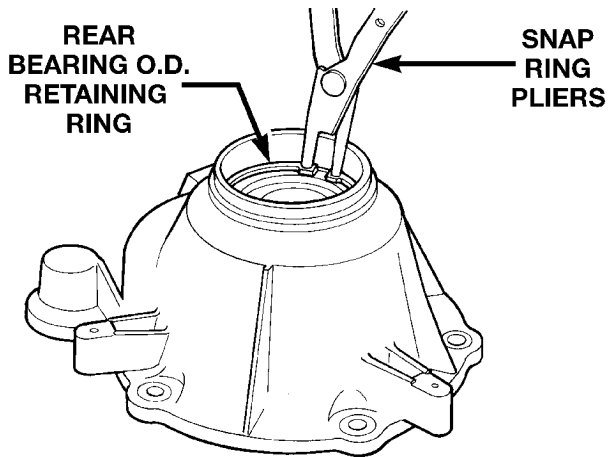
(2) Install rear bearing in retainer with Tools C-4171 and 5064 (Fig. 87).

**Fig. 87 Installing Rear Bearing In Retainer**

(3) Install rear bearing O.D. retaining ring with snap-ring pliers (Fig. 88). Be sure retaining ring is fully seated in retainer groove.

(4) Apply bead of Mopar® Sealer P/N 82300234, or Loctite® Ultra Gray, to mating surface of rear retainer. Sealer bead should be a maximum of 3/16 in.

(5) Install rear retainer on rear case. Tighten retainer bolts to 20–27 N·m (15–20 ft. lbs.) torque.

DISASSEMBLY AND ASSEMBLY (Continued)

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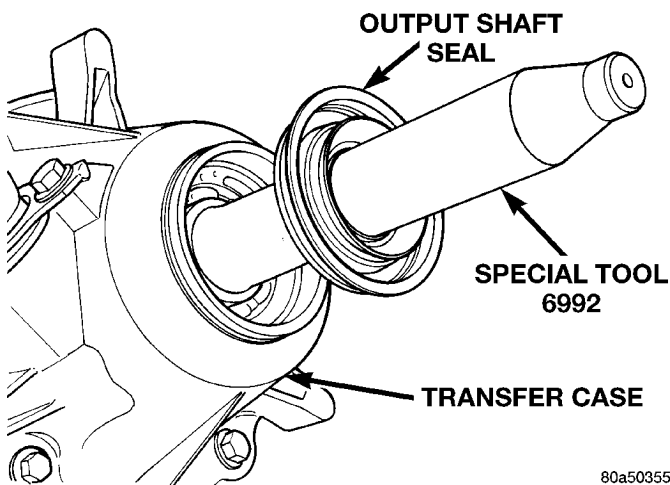
Fig. 88 Rear Bearing Retaining Ring Installation

(6) Install rear bearing I.D. retaining ring and spacer on output shaft.

(7) Apply liberal quantity of petroleum jelly to new rear seal and to output shaft. Petroleum jelly is needed to protect seal lips during installation.

(8) Slide seal onto Seal Protector 6992 (Fig. 89). Slide seal protector and seal onto output shaft.

(9) Slide Installer C-4076-B onto seal protector with the recessed side of the tool toward the seal. Drive seal into rear bearing retainer with installer C-4076-B and handle MD-998323 (Fig. 90).



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Fig. 89 Output Shaft Seal and Protector

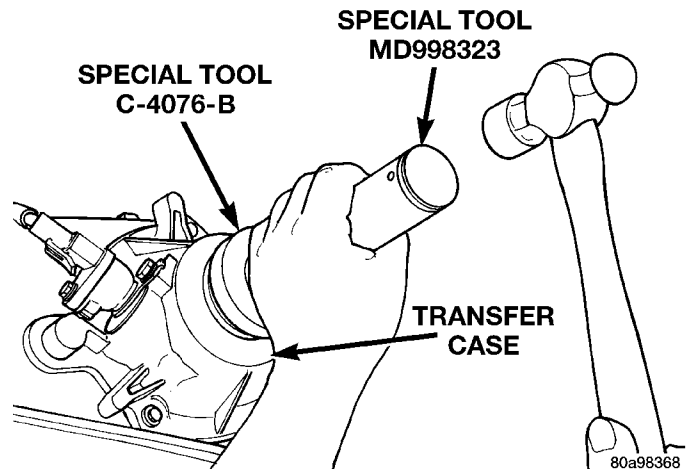
(10) Install rear slinger with installer C-4076-A and handle MD-998323 (Fig. 90).

(11) Install boot on output shaft slinger and crimp retaining clamp with tool C-4975-A (Fig. 91).

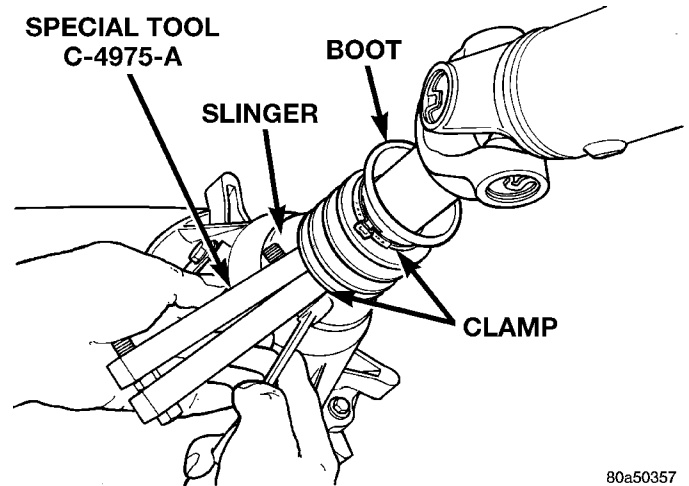
FRONT YOKE AND SWITCH INSTALLATION

(1) Install indicator switch in front case. Tighten switch to 20–34 N·m (15–25 ft. lbs.) torque.

(2) Lubricate yoke hub with transmission fluid and install yoke on front shaft.



80a98368

Fig. 90 Rear Seal Installation

80a50357

Fig. 91 Slinger Boot Installation

(3) Install new seal washer on front shaft.

(4) Install yoke on front shaft. Secure yoke with new nut.

CLEANING AND INSPECTION**NV242 TRANSFER CASE**

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 all purpose cleaner. Use compressed air to remove solvent residue from oil feed passages in the case halves, retainers, gears, and shafts.

The oil pickup screen can be cleaned with solvent. Shake excess solvent from the screen after cleaning and allow it to air dry. Do not use compressed air.

MAINSHAFT/SPROCKET/HUB INSPECTION

Inspect the splines on the hub and shaft and the teeth on the sprocket. Minor nicks and scratches can

CLEANING AND INSPECTION (Continued)

be smoothed with an oilstone. However, replace any part 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. 92). 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.

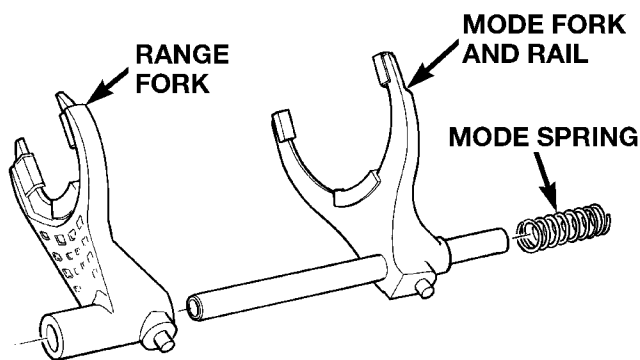
Check the lock ring and both thrust washers for wear or cracks. Replace them if necessary. Also replace the lock retaining ring if bent, distorted, or broken.

SHIFT FORKS/HUBS/SLEEVES

Check condition of the shift forks and mode fork shift rail (Fig. 93). Minor nicks on the shift rail can be smoothed with 320–400 grit emery cloth.

Inspect the shift fork wear pads. The mode fork pads are serviceable and can be replaced if necessary. The range fork pads are also serviceable.

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



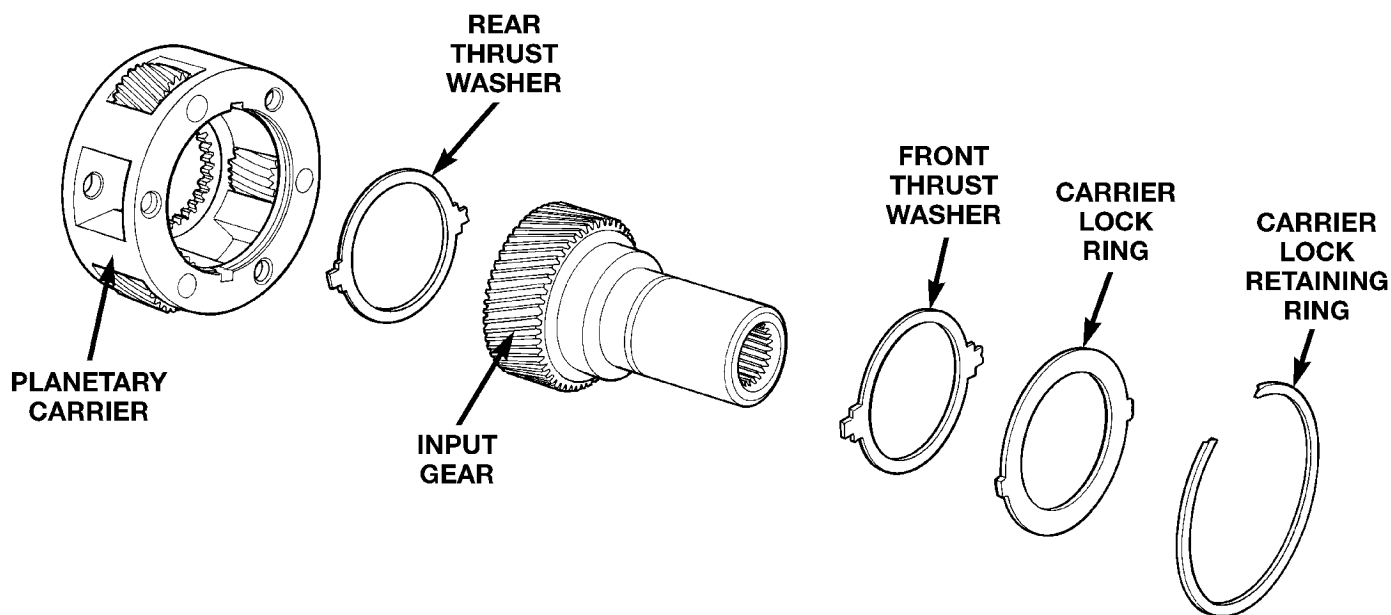
80010948

Fig. 93 Shift forks**REAR RETAINER/BEARING/ SEAL/SLINGER/ BOOT**

Inspect the retainer components (Fig. 94). Replace the bearing if rough or noisy. Check the retainer for cracks or wear in the bearing bore. Clean the retainer sealing surfaces with a scraper and all purpose cleaner. This will ensure proper adhesion of the sealer during reassembly.

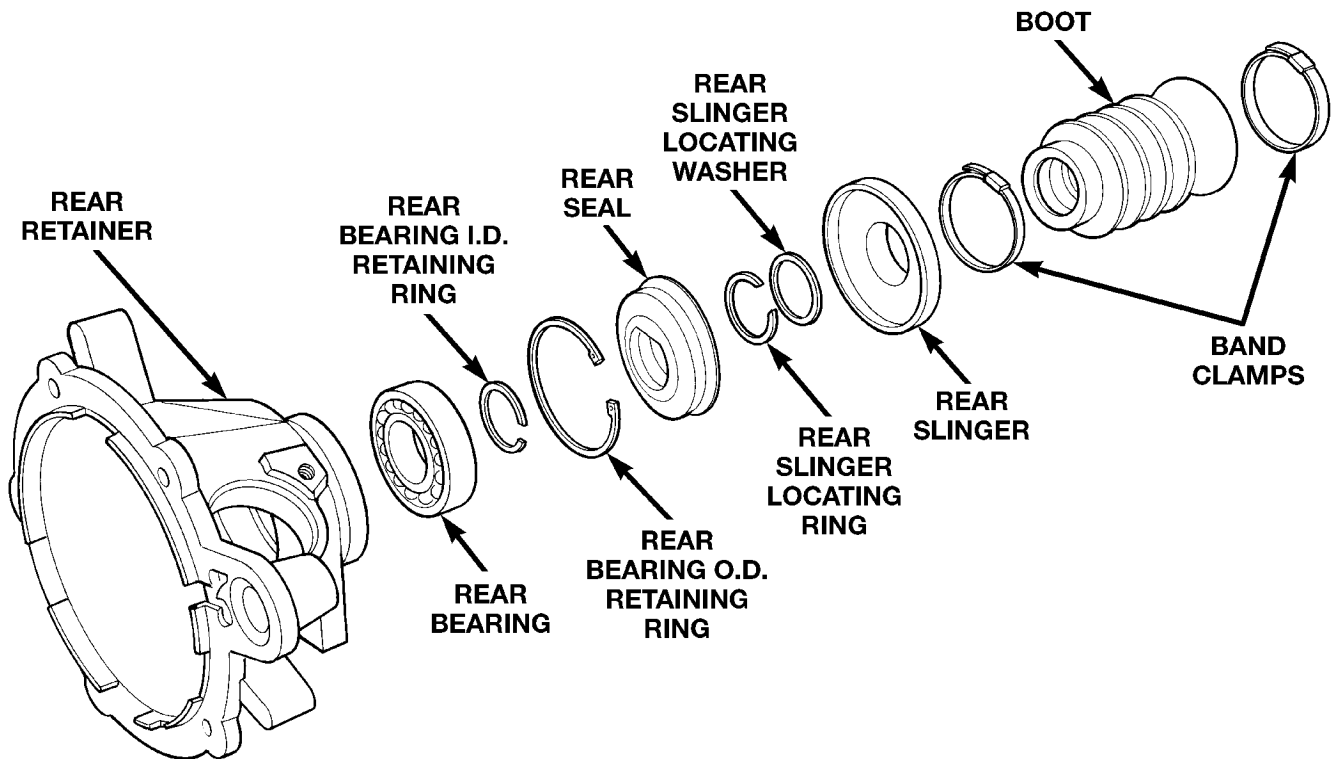
Replace the slinger and seal outright; do not reuse either part.

Inspect the retaining rings and washers. Replace any part if distorted, bent, or broken. Reuse is not recommended. Also replace the boot if cut or torn. Replace the boot band clamps, do not reuse them.



8001b75f

Fig. 92 Input Gear And Carrier Components

CLEANING AND INSPECTION (Continued)

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Fig. 94 Rear Retainer Components**REAR OUTPUT SHAFT/YOKE/DRIVE CHAIN**

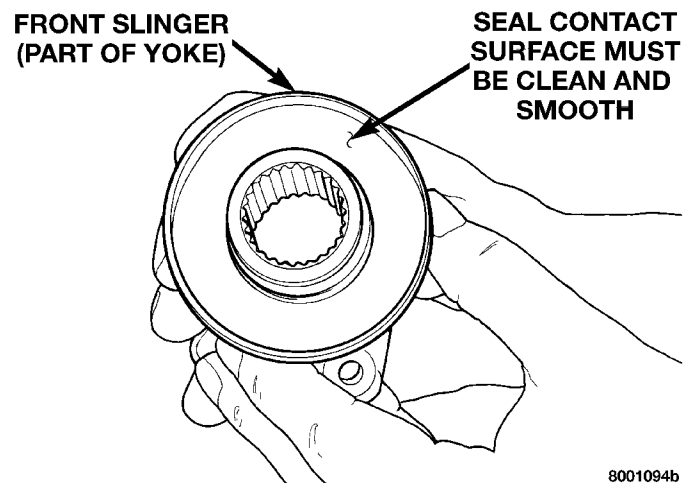
Check condition of the seal contact surfaces of the yoke slinger (Fig. 95). This surface must be clean and smooth to ensure proper seal life. Replace the yoke nut and seal washer as neither part should be reused.

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. 96).

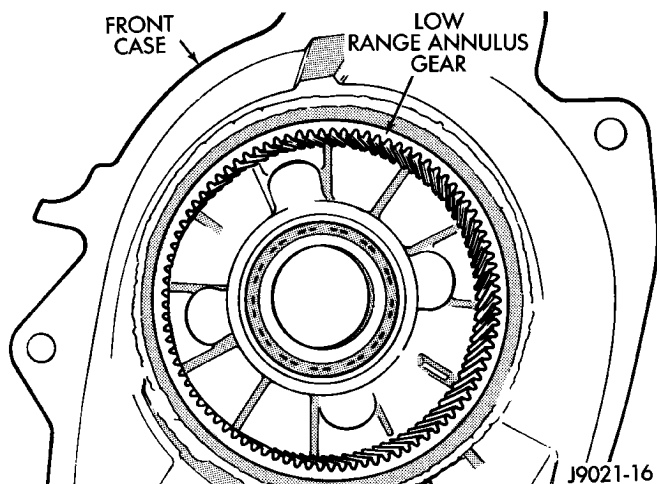


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Fig. 95 Seal Contact Surface Of Yoke Slinger**FRONT-REAR CASES AND FRONT RETAINER**

Inspect the cases and retainer for wear and damage. Clean the sealing surfaces with a scraper and all purpose cleaner. This will ensure proper sealer adhesion at assembly. Replace the input retainer seal; do not reuse it.

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.

CLEANING AND INSPECTION (Continued)**Fig. 96 Low Range Annulus Gear**

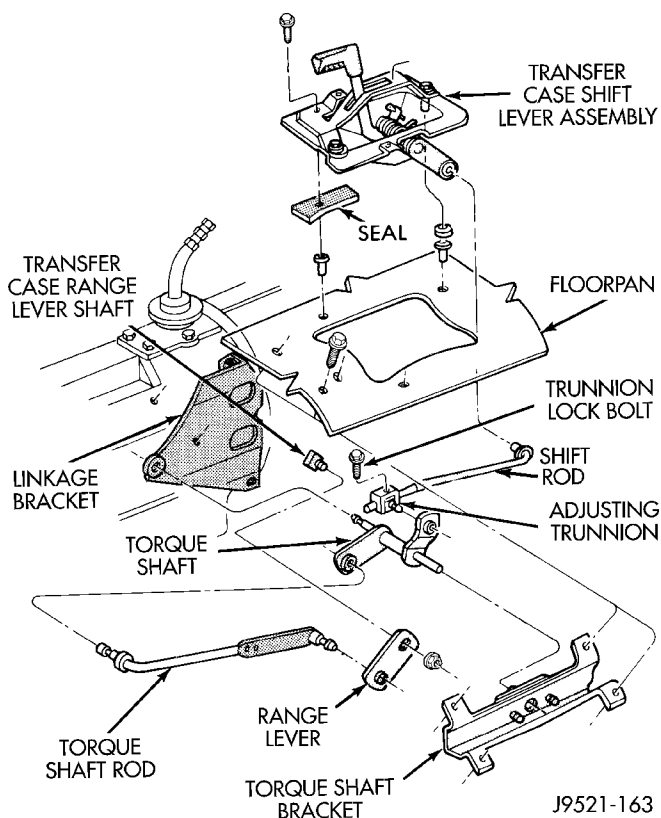
Check the front case mounting studs and vent tube. The tube can be secured with Loctite™ 271 or 680 if loose. The stud threads can be cleaned up with a die if necessary. Also check condition of the fill/drain plug threads in the rear case. The threads can be repaired with a thread chaser or tap if necessary.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

ADJUSTMENTS**SHIFT LINKAGE ADJUSTMENT**

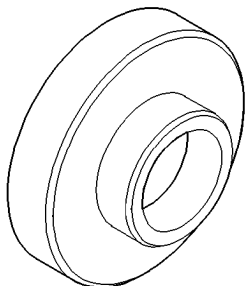
- (1) Shift transfer case into 4L position.
- (2) Raise vehicle.
- (3) Loosen lock bolt on adjusting trunnion (Fig. 97).
- (4) Be sure linkage rod slides freely in trunnion. Clean rod and apply spray lube if necessary.
- (5) Verify that transfer case range lever is fully engaged in 4L position.
- (6) Tighten adjusting trunnion lock bolt.
- (7) Lower vehicle.

**Fig. 97 Shift Linkage****SPECIFICATIONS****TORQUE**

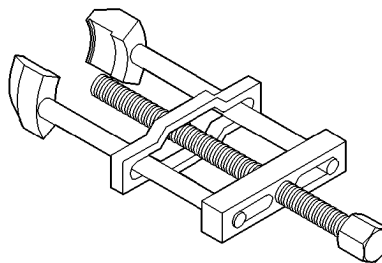
DESCRIPTION	TORQUE
Plug, Detent	16–24 N·m (12–18 ft. lbs.)
Bolt, Diff. Case	17–27 N·m (15–24 ft. lbs.)
Plug, Drain/Fill	20–25 N·m (15–25 ft. lbs.)
Bolt, Front Brg. Retainer. .	16–27 N·m (12–20 ft. lbs.)
Bolt, Case Half	35–46 N·m (26–34 ft. lbs.)
Nut, Front Yoke	122–176 N·m (90–130 ft. lbs.)
Screw, Oil Pump	1.2–1.8 N·m (12–15 in. lbs.)
Nut, Range Lever	27–34 N·m (20–25 ft. lbs.)
Bolt, Rear Retainer	35–46 N·m (26–34 ft. lbs.)
Nuts, Mounting.	35 N·m (26 ft. lbs.)
Bolts, U-Joint	19 N·m (17 ft. lbs.)

SPECIAL TOOLS

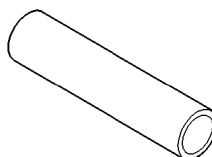
SPECIAL TOOLS—NV242



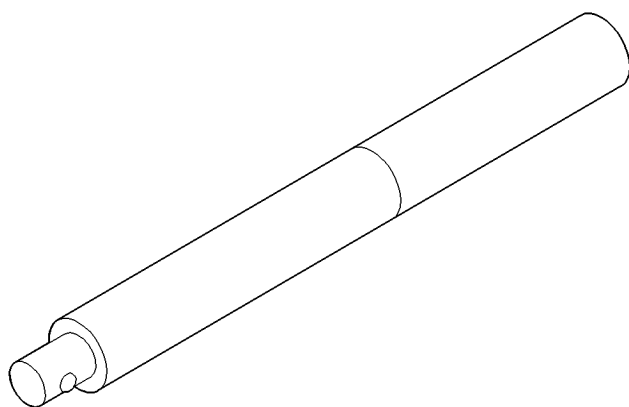
Installer—C-4076-B



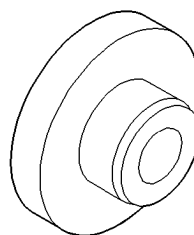
Puller, Slinger—MD-998056-A



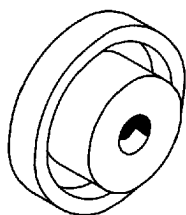
Installer—MD-998323



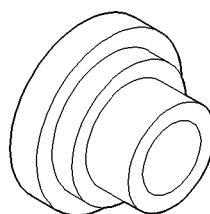
Handle, Universal—C-4171



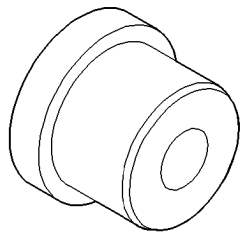
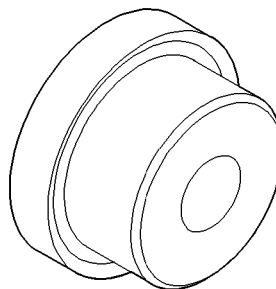
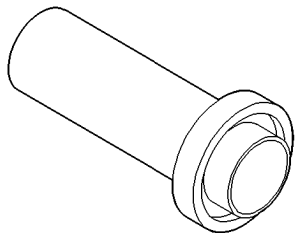
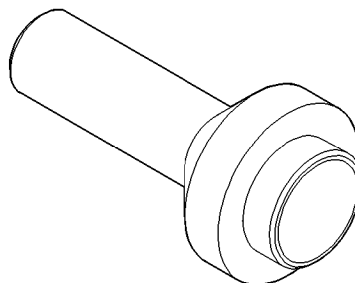
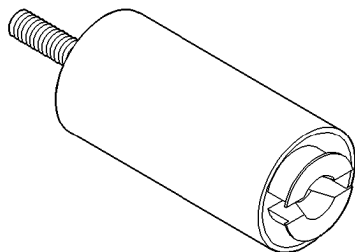
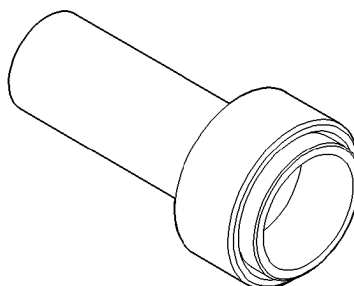
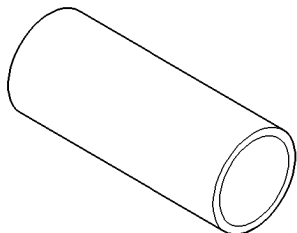
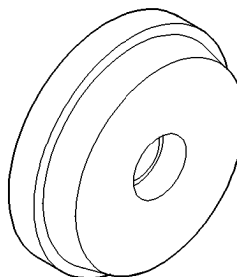
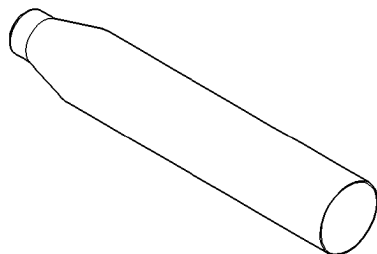
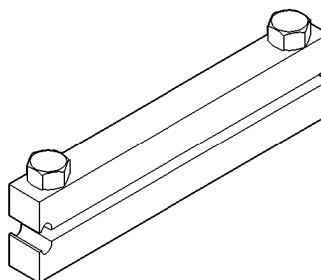
Installer, Bearing—5064



Remover—C-4210



Installer—8128

SPECIAL TOOLS (Continued)***Installer—5066******Installer, Input Gear Bearing—7829-A******Installer—6952-A******Installer, Seal—7884******Remover—L-4454******Installer, Pump Housing Seal—7888******Cup—8148******Installer, Bearing—8033-A******Seal Protector—6992******Installer, Boot Clamp—C-4975-A***

NV249 TRANSFER CASE

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GENERAL INFORMATION

GENERAL INFORMATION

The NV249 (Fig. 1) is an on-demand 4-wheel drive transfer case with two operating ranges and a neutral position.

Operating ranges are 4-high and 4-low. The 4-low range is used for extra pulling power in off-road situations.

Engine torque is distributed to the front and rear axles through a viscous coupling. Nearly all the available engine torque is directed to the rear wheels during normal driving situations. when slippery conditions are encountered, the variable viscous directs torque to the front wheels as necessary. The NV249 low range is provided by a gear reduction system for

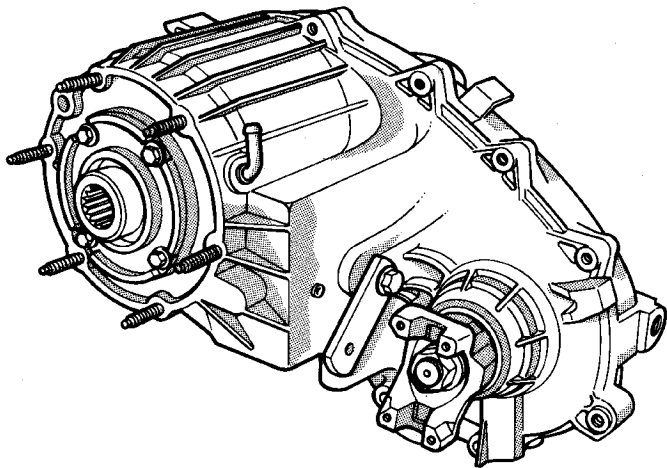
increased low speed, off-road torque capability. This range is designed for temporary use only.

Transfer case operating ranges are selected with a floor mounted shift lever. The shift lever is connected to the transfer case range lever by an adjustable linkage rod. Range positions are marked on the shifter bezel plate.

TRANSFER CASE IDENTIFICATION

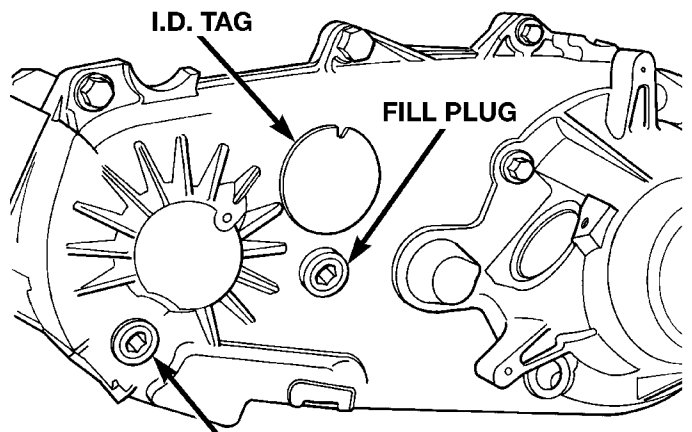
A circular I.D. tag is attached to the rear case of each NV249 transfer case (Fig. 2). The tag provides the transfer case model number, assembly number, serial number and low range ratio.

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



J8921-243

Fig. 1 NV249 Transfer Case



DRAIN PLUG

Fig. 2 Transfer Case I.D. Tag

GENERAL INFORMATION (Continued)**RECOMMENDED LUBRICANT AND FILL LEVEL**

Mopar® Dexron II, or ATF Plus are the only lubricants recommended for the NV249 transfer case. Approximate fluid refill capacity is approximately 1.18 liters (2.50 pints).

The fill and drain plugs are both in the rear case. Correct fill level is to the bottom edge of the fill plug

hole. Be sure that the vehicle is level to ensure an accurate fluid level check.

DIAGNOSIS AND TESTING**NV249 DIAGNOSIS**

Condition	Possible Cause	Correction
TRANSFER CASE DIFFICULT TO SHIFT OR WILL NOT SHIFT INTO DESIRED RANGE	(a) Vehicle speed too great to permit shifting. (b) If vehicle was operated for extended period in 4H mode on dry paved surface, driveline torque load may cause difficulty. (c) Transfer case external shift linkage binding. (d) Insufficient or incorrect lubricant. (e) Internal components binding, worn or damaged.	(a) Stop vehicle and shift into desired range. Or reduce speed to 3-4 km/h (2-3 mph) before attempting to shift. (b) Stop vehicle, shift transmission to neutral, shift transfer case to 2H mode and operate vehicle on 2H on dry paved surface. (c) Lubricate, repair or replace linkage, or tighten loosen components as necessary. (d) Drain and refill to edge of fill hole with MOPAR ATF PLUS (Type 7176) or DEXRON II Automatic Transmission Fluid. (e) Disassemble unit and replace worn or damaged components as necessary.
TRANSFER CASE NOISY IN ALL DRIVE MODES	(a) Insufficient or incorrect lubricant.	(a) Drain and refill to edge of fill hole with MOPAR ATF PLUS (Type 7176) or DEXRON II Automatic Transmission Fluid. Check for leaks and repair if necessary. If unit is still noisy after drain and refill, disassembly and inspection may be required to locate source of noise.
NOISY IN—OR JUMPS OUT OF FOUR-WHEEL-DRIVE LOW RANGE	(a) Transfer case not completely engaged in 4L position. (b) Shift linkage loose or binding. (c) Range fork cracked, inserts worn, or fork is binding on shift rail. (d) Annulus gear or lockplate work or damaged.	(a) Stop vehicle, shift transfer case to Neutral, then shift back into 4L position. (b) Tighten, lubricate, or repair linkage as necessary. (c) Disassemble unit and repair as necessary (d) Disassemble unit and repair as necessary
LUBRICANT LEAKING FROM OUTPUT SHAFT SEALS OR FROM VENT	(a) Transfer case overfilled. (b) Vent closed or restricted. (c) Output shaft seals damaged or installed correctly.	(a) Drain to correct level. (b) Clear or replace vent if necessary. (c) Replace seals. Be sure seal lip faces interior of case when installed. Also be sure yoke seal surfaces are not scored or nicked. Remove scores and nicks with fine sandpaper or replace yoke(s) if necessary.
ABNORMAL TIRE WEAR	(a) Extended operation on dry hard surface (paved) roads in 4H range.	(a) Operate in 2H on hard surface (paved) roads.

REMOVAL AND INSTALLATION

TRANSFER CASE

REMOVAL

- (1) Shift transfer case into Neutral.
- (2) Raise vehicle.
- (3) Drain transfer case lubricant.
- (4) Mark front and rear propeller shaft yokes for alignment reference.
- (5) Support transmission with jack stand.
- (6) Remove rear crossmember, or skid plate.
- (7) Disconnect front/rear propeller shafts at transfer case.
- (8) Disconnect vehicle speed sensor wires.
- (9) Disconnect transfer case linkage rod from range lever.
- (10) Disconnect transfer case vent hose (Fig. 3) and indicator switch harness, if necessary.
- (11) Support transfer case with transmission jack.
- (12) Secure transfer case to jack with chains.
- (13) Remove nuts attaching transfer case to transmission.
- (14) Pull transfer case and jack rearward to disengage transfer case.
- (15) Remove transfer case from under vehicle.

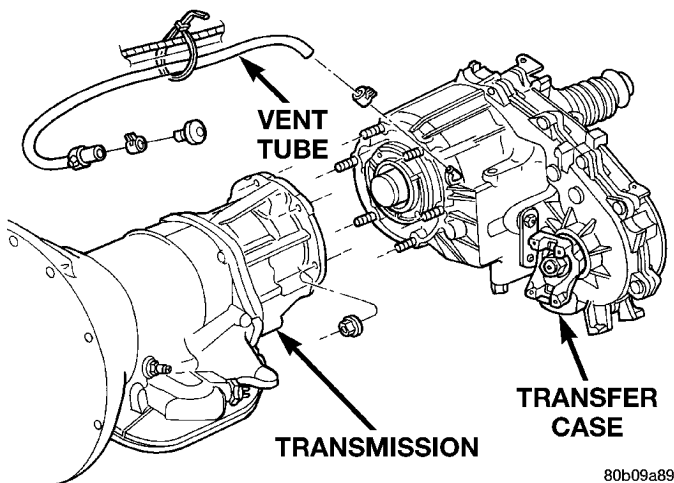


Fig. 3 Transfer Case Mounting

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 on transmission.
- (5) Install and tighten transfer case attaching nuts to 35 N·m (26 ft. lbs.) torque (Fig. 3).
- (6) Connect vehicle speed sensor wires, and vent hose.
- (7) Connect indicator switch harness to transfer case switch, if necessary. Secure wire harness to clips on transfer case.

(8) Align and connect propeller shafts. Refer to Group 3, Differential and Driveline, for proper procedures and specifications.

(9) Fill transfer case with correct fluid. Check transmission fluid level. Correct as necessary.

(10) Install rear crossmember, or skid plate. Tighten crossmember bolts to 41 N·m (30 ft. lbs.) torque.

(11) Remove transmission jack and support stand.

(12) Connect shift rod to transfer case range lever.

(13) Adjust transfer case shift linkage.

(14) Lower vehicle and verify transfer case shift operation.

SHIFT LEVER

REMOVAL

- (1) Shift transfer case into 4L.
- (2) Raise vehicle.
- (3) Loosen adjusting trunnion locknut and slide shift rod out of trunnion (Fig. 4). If rod lacks enough travel to come out of trunnion, push trunnion out of torque shaft.
- (4) Lower vehicle.
- (5) Remove console. Refer to Group 23, Body, for proper procedures.
- (6) Remove screws attaching lever assembly to floorpan and remove assembly and shift rod (if left attached).

INSTALLATION

- (1) If shift rod was not removed from lever assembly, work rod down through floorpan opening. Then position lever assembly on floorpan and install assembly attaching screws.
- (2) Install console. Refer to Group 23, Body, for proper procedures.
- (3) Raise vehicle.
- (4) Connect trunnion to torque shaft arm. Or, slide shift rod into trunnion on range lever. Be sure shift rod slides freely in trunnion.
- (5) Verify that range lever is in 4L position. Then tighten trunnion lock bolt.
- (6) Lower vehicle and check transfer case shift operation.

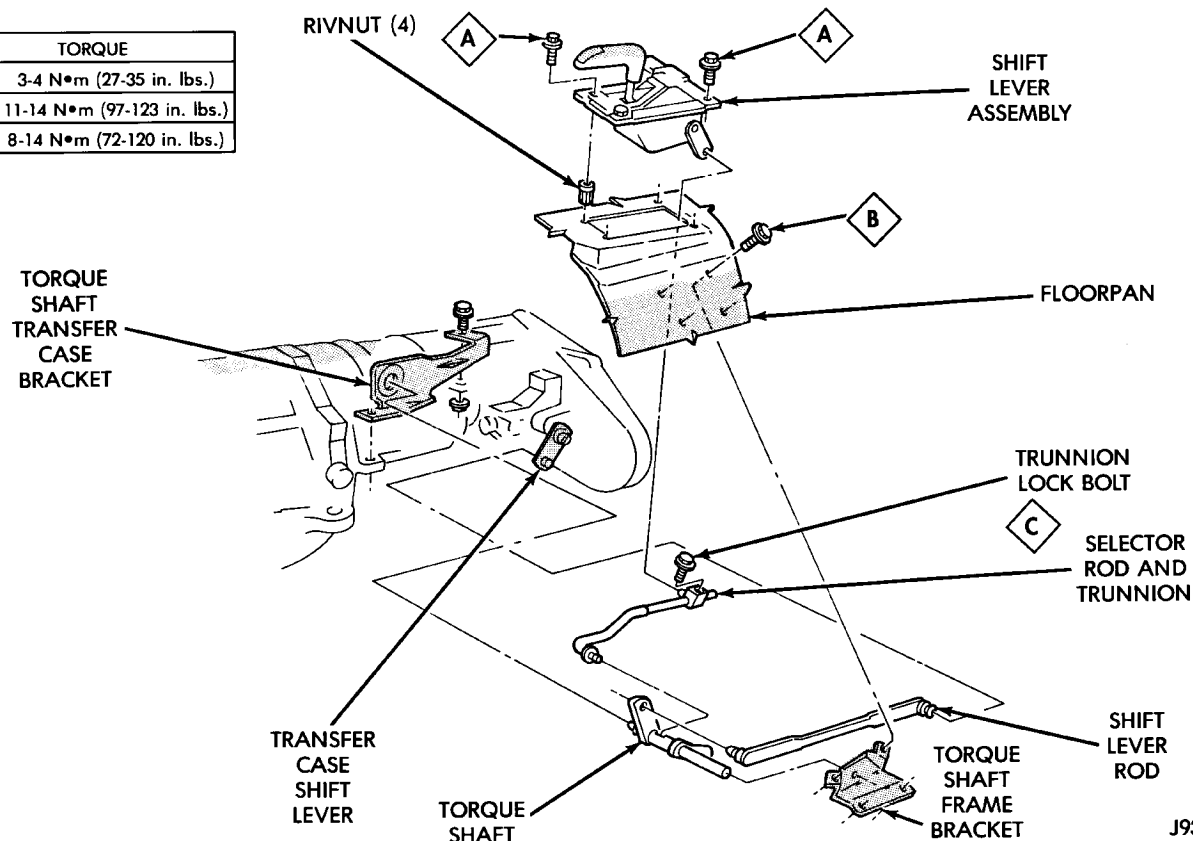
SPEEDOMETER

REMOVAL

- (1) Raise vehicle.
- (2) Disconnect wires from vehicle speed sensor.
- (3) Remove adapter clamp and screw (Fig. 5).
- (4) Remove speed sensor and speedometer adapter as an assembly.
- (5) Remove speed sensor retaining screw and remove sensor from adapter.

REMOVAL AND INSTALLATION (Continued)

TORQUE	
A	3-4 N•m (27-35 in. lbs.)
B	11-14 N•m (97-123 in. lbs.)
C	8-14 N•m (72-120 in. lbs.)

**Fig. 4 Shift Linkage**

(6) Remove speedometer pinion from adapter. Replace pinion if chipped, cracked, or worn.

(7) Inspect sensor and adapter O-rings (Fig. 5). Remove and discard O-rings if worn or damaged.

(8) Inspect terminal pins in speed sensor. Clean pins with Mopar® electrical spray cleaner if dirty or oxidized. Replace sensor if faulty, or if pins are loose, severely corroded, or damaged.

INSTALLATION AND INDEXING

(1) Thoroughly clean adapter flange and adapter mounting surface in housing. Surfaces must be clean for proper adapter alignment and speedometer operation.

(2) Install new O-rings on speed sensor and speedometer adapter (Fig. 5), if necessary.

(3) Lubricate sensor and adapter O-rings with transmission fluid.

(4) Install vehicle speed sensor in speedometer adapter. Tighten sensor attaching screw to 2-3 N•m (15-27 in. lbs.) torque.

(5) Install speedometer pinion in adapter.

(6) Count number of teeth on speedometer pinion. Do this before installing assembly in housing. Then lubricate pinion teeth with transmission fluid.

(7) Note index numbers on adapter body (Fig. 6). These numbers will correspond to number of teeth on pinion.

(8) Install speedometer assembly in housing.

(9) Rotate adapter until required range numbers are at 6 o'clock position. Be sure range index numbers correspond to number of teeth on pinion gear.

(10) Install speedometer adapter clamp and retaining screw. Tighten clamp screw to 10-12 N•m (90-110 in. lbs.) torque.

(11) Connect wires to vehicle speed sensor.

(12) Lower vehicle and top off transmission fluid level if necessary.

FRONT OUTPUT SHAFT SEAL**REMOVAL**

(1) Raise vehicle.

(2) Remove front propeller shaft. Refer to Group 3, Differential and Driveline, for proper procedure.

(3) Remove front output shaft yoke.

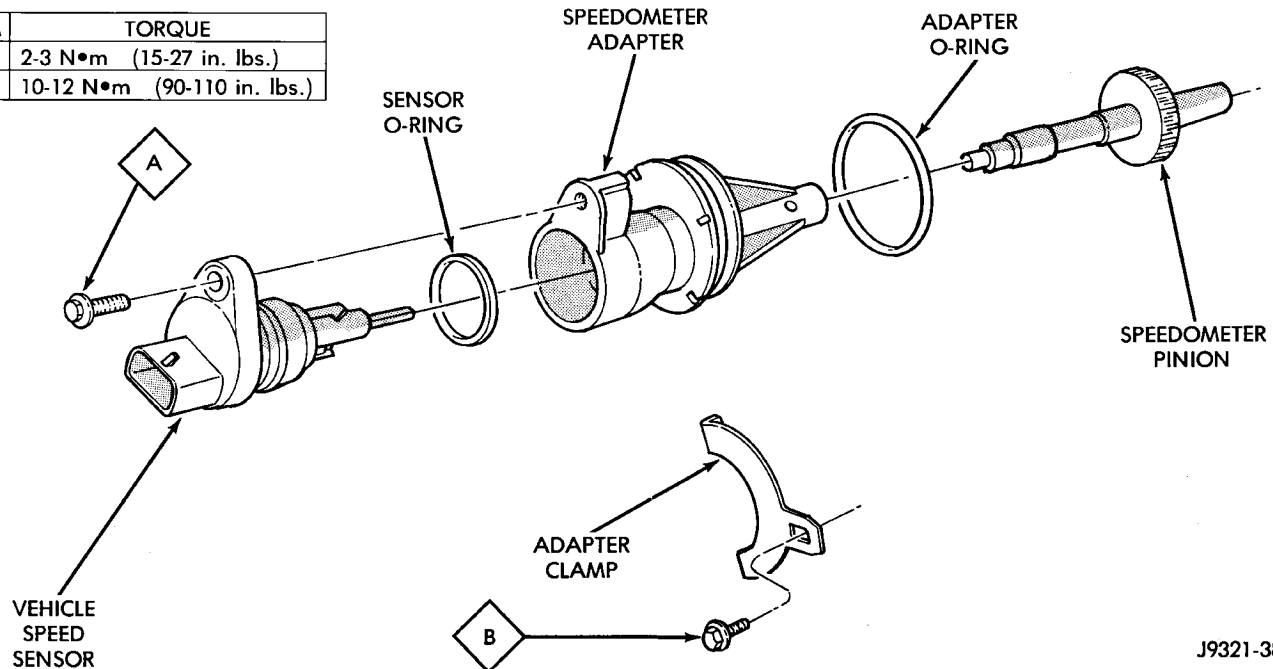
(4) Remove seal from front case with pry tool (Fig. 7).

INSTALLATION

(1) Install new front output seal in front case with Installer Tool 6952-A as follows:

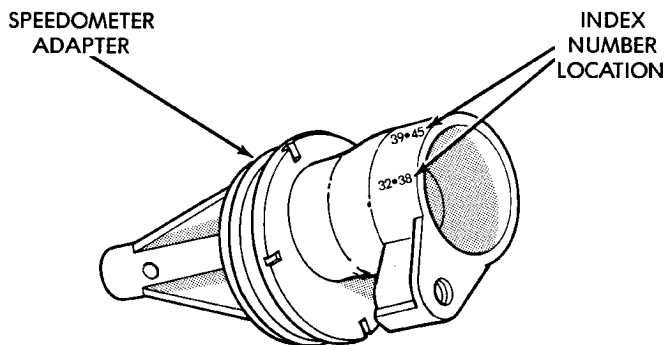
REMOVAL AND INSTALLATION (Continued)

ITEM	TORQUE
A	2-3 N•m (15-27 in. lbs.)
B	10-12 N•m (90-110 in. lbs.)



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Fig. 5 Speedometer Components



J9321-386

Fig. 6 Location Of Index Numbers On Speedometer Adapter

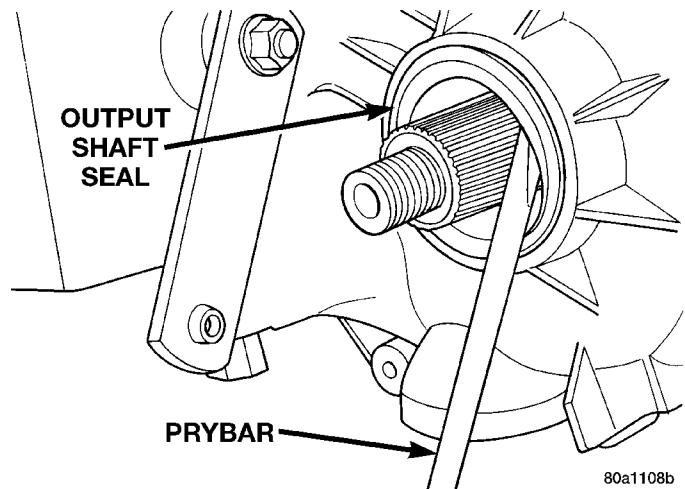
(a) Place new seal on tool. Garter spring on seal goes toward interior of case.

(b) Start seal in bore with light taps from hammer (Fig. 8). Once seal is started, continue tapping seal into bore until installer tool seats against case.

REAR RETAINER BUSHING AND SEAL

REMOVAL

- (1) Raise vehicle.
- (2) Remove rear propeller shaft. Refer to Group 3, Differential and Driveline, for proper procedure.
- (3) Using a suitable pry tool or slide-hammer mounted screw, remove the rear retainer seal.



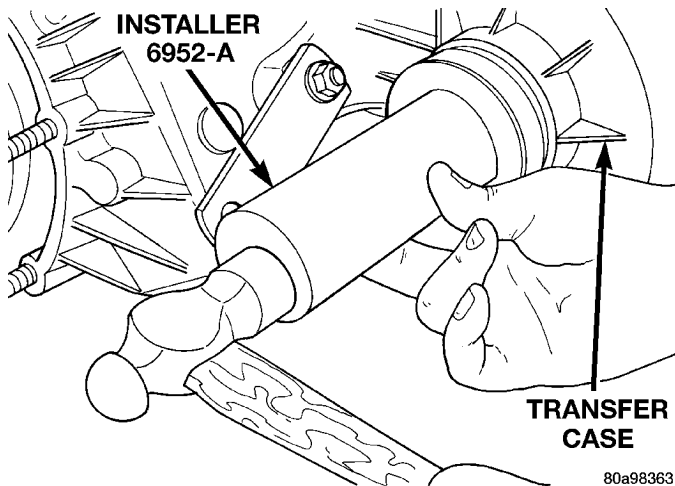
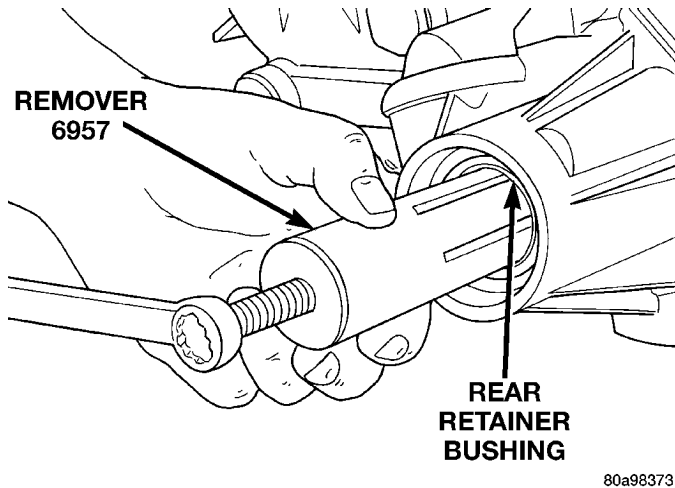
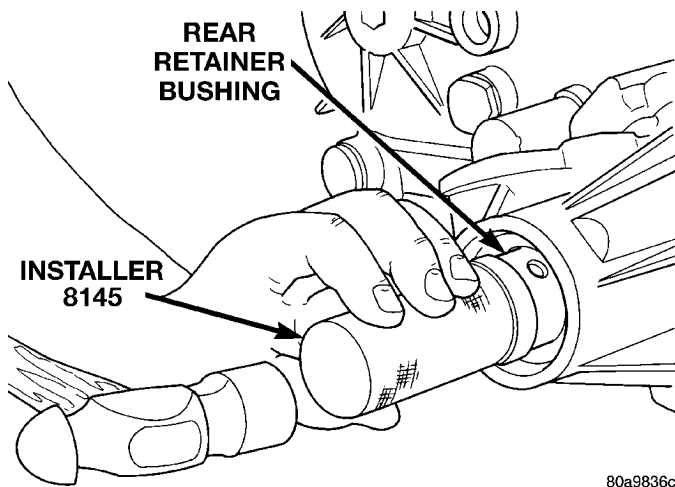
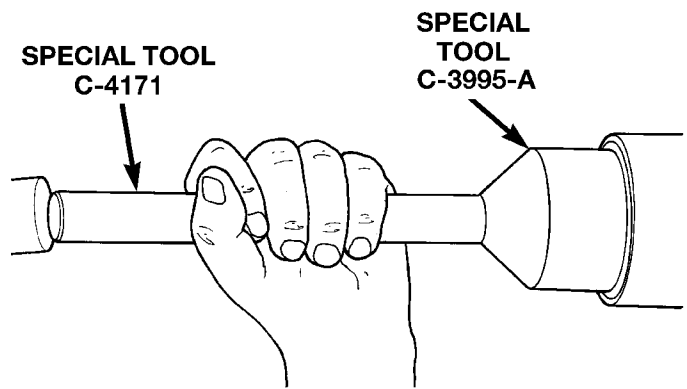
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Fig. 7 Remove Front Output Shaft Seal

- (4) Using Remover 6957, remove bushing from rear retainer (Fig. 9).

INSTALLATION

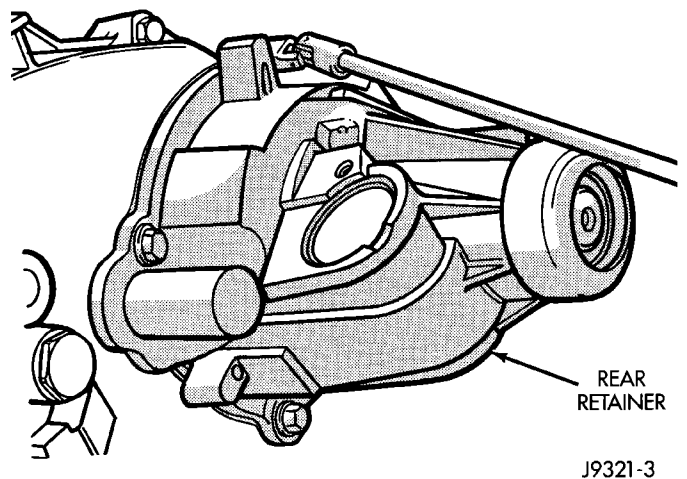
- (1) Clean fluid residue from sealing surface and inspect for defects.
- (2) Position replacement bushing in rear retainer with fluid port in bushing aligned with slot in retainer.
- (3) Using Installer 8145, drive bushing into retainer until installer seats against case (Fig. 10).
- (4) Using Installer C-3995-A, install seal in rear retainer (Fig. 11).
- (5) Install propeller shaft.
- (6) Verify proper fluid level.
- (7) Lower vehicle.

REMOVAL AND INSTALLATION (Continued)**Fig. 8 Front Output Seal Installation****Fig. 9 Rear Retainer Bushing Removal****Fig. 10 Rear Retainer Bushing Install****Fig. 11 Install Rear Retainer Seal****DISASSEMBLY AND ASSEMBLY****NV249 TRANSFER CASE****DISASSEMBLY**

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

REAR RETAINER AND OIL PUMP REMOVAL

- (1) Remove the speedometer adapter.
- (2) Remove rear retainer bolts (Fig. 12).
- (3) Remove rear bearing locating ring access cover screws, cover and gasket (Fig. 13).

**Fig. 12 Rear Retainer Bolt Removal**

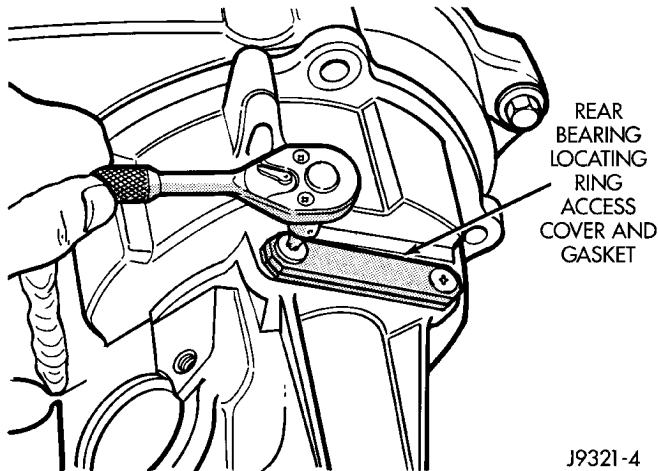
DISASSEMBLY AND ASSEMBLY (Continued)

Fig. 13 Locating Ring Access Cover And Gasket Removal

(4) Loosen rear retainer with pry tool to break sealer bead. Pry only against retainer boss as shown (Fig. 14).

(5) Remove rear retainer as follows:

(a) Spread rear bearing locating ring with snap ring pliers (Fig. 15).

(b) Then slide retainer off mainshaft and rear bearing (Fig. 16).

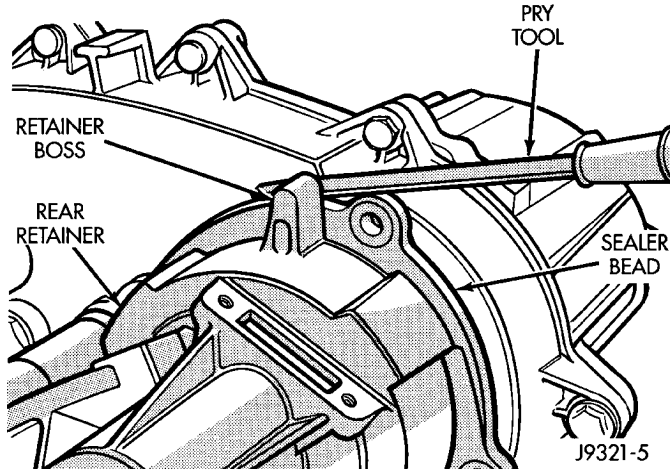


Fig. 14 Loosening Rear Retainer

(6) Remove speedometer drive gear (Fig. 17).

(7) Remove rear bearing snap-ring.

(8) Remove rear bearing. Note position of bearing locating ring groove for assembly reference.

(9) Disengage oil pickup tube from oil pump and remove oil pump assembly (Fig. 18).

(10) Remove pick-up tube o-ring from oil pump (Fig. 19), if necessary. Do not disassemble the oil pump, it is not serviceable.

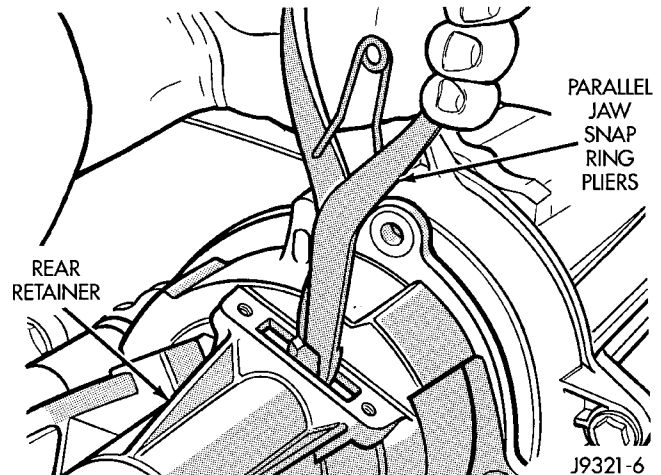


Fig. 15 Disengaging Rear Bearing Locating Ring

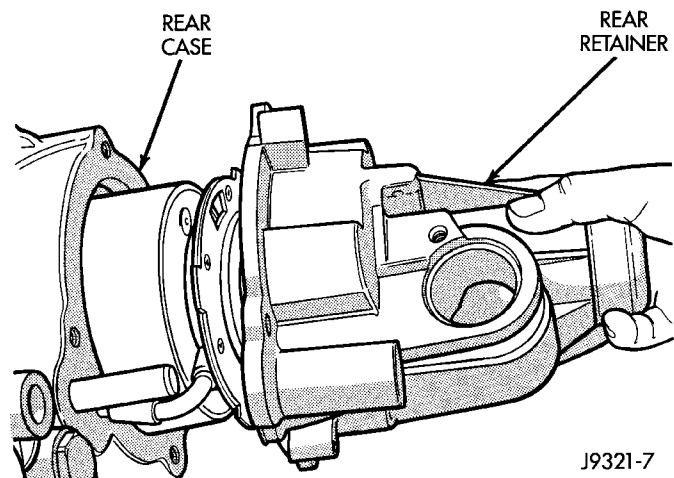


Fig. 16 Rear Retainer Removal

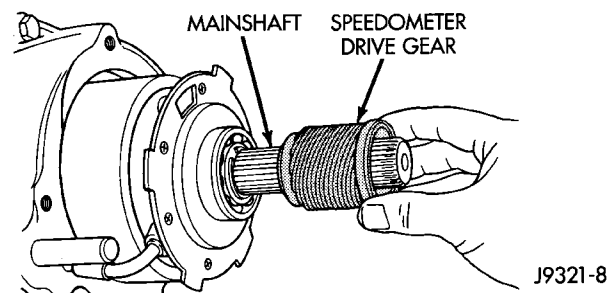


Fig. 17 Speedometer Drive Gear Removal

VISCOUS COUPLER REMOVAL

(1) Remove oil pump locating snap-ring and viscous coupling snap-ring from mainshaft (Fig. 20).

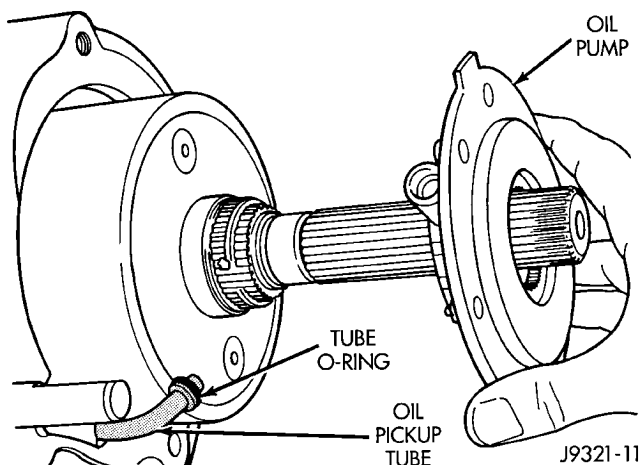
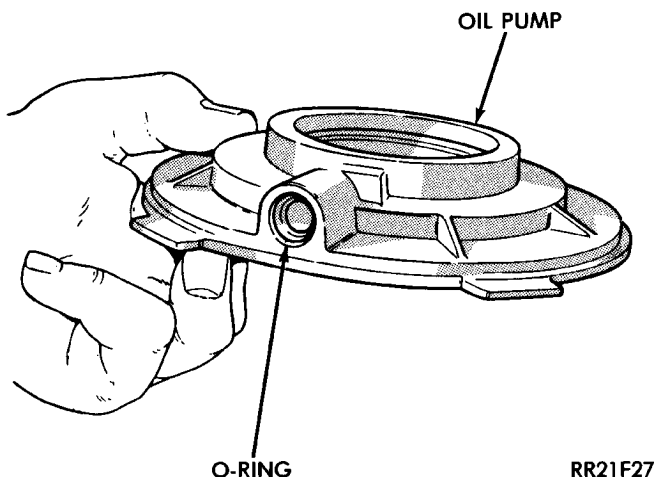
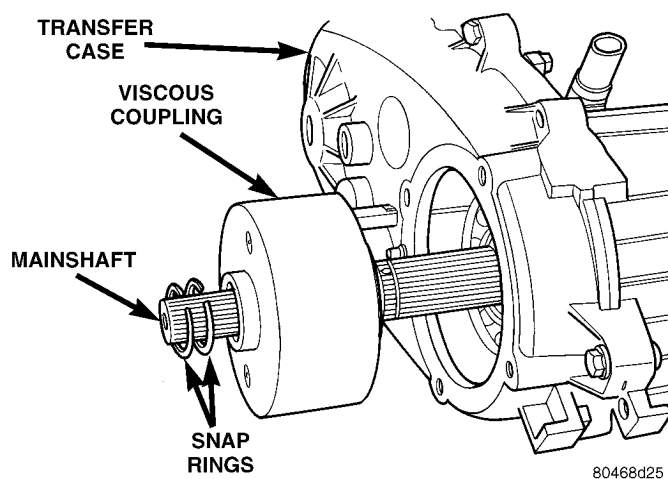
(2) Remove viscous coupling from mainshaft (Fig. 20).

YOKE AND RANGE LEVER REMOVAL

(1) Remove transfer case indicator switch.

(2) Remove front yoke nut as follows:

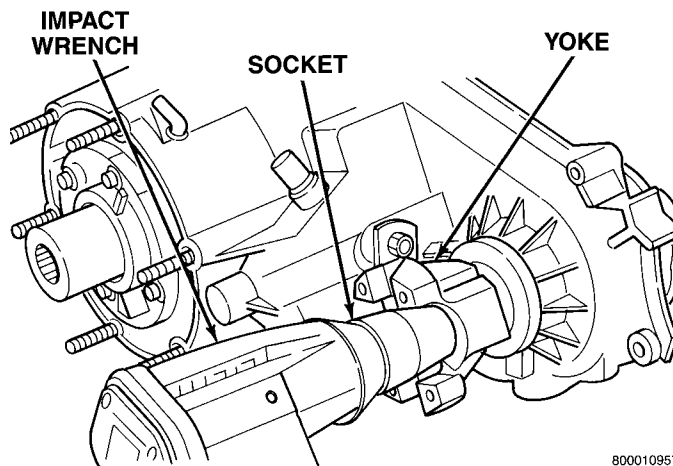
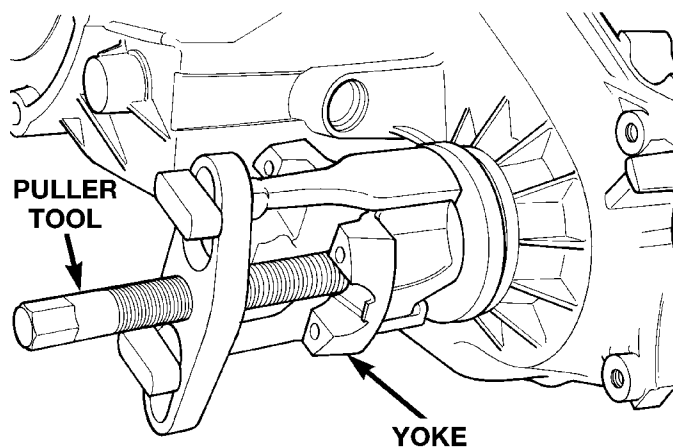
(a) Move range lever to 4L position.

DISASSEMBLY AND ASSEMBLY (Continued)**Fig. 18 Rear Bearing and Oil Pump Removal****Fig. 19 Pick-up Tube O-ring Location****Fig. 20 Viscous Coupling Removal**

(b) Remove nut with socket and impact wrench (Fig. 21).

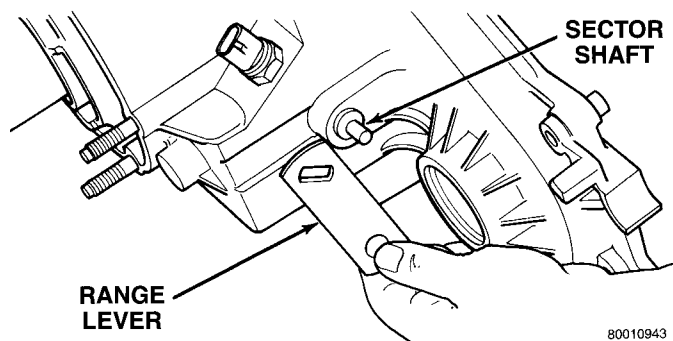
(3) Remove yoke. If yoke is difficult to remove by hand, remove it with bearing splitter, or with stan-

dard two jaw puller (Fig. 22). Be sure puller tool is positioned on yoke and not on slinger as slinger will be damaged.

**Fig. 21 Yoke Nut Removal****Fig. 22 Yoke Removal**

(4) Remove seal washer from front output shaft. Discard washer as it should not be reused.

(5) Remove nut and washer that attach range lever to sector shaft. Then move sector to neutral position and remove range lever from shaft (Fig. 23).

**Fig. 23 Range Lever Removal**

DISASSEMBLY AND ASSEMBLY (Continued)

FRONT OUTPUT SHAFT AND DRIVE CHAIN REMOVAL

- (1) Support transfer case so rear case is facing upward.
- (2) Remove bolts holding front case to rear case. The case alignment bolt require flat washers (Fig. 24).
- (3) Loosen rear case with flat blade screwdriver to break sealer bead. Insert screwdriver blade only into notches provided at each end of case (Fig. 25).
- (4) Remove rear case (Fig. 26).

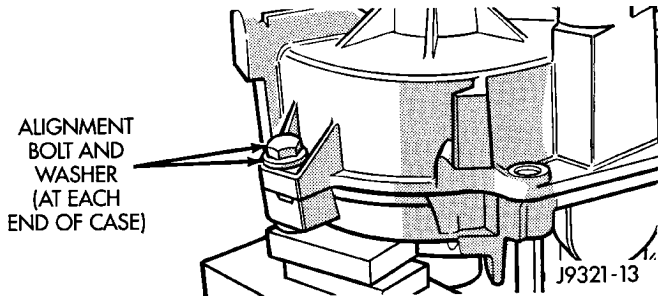


Fig. 24 Rear Case Alignment Bolt Locations

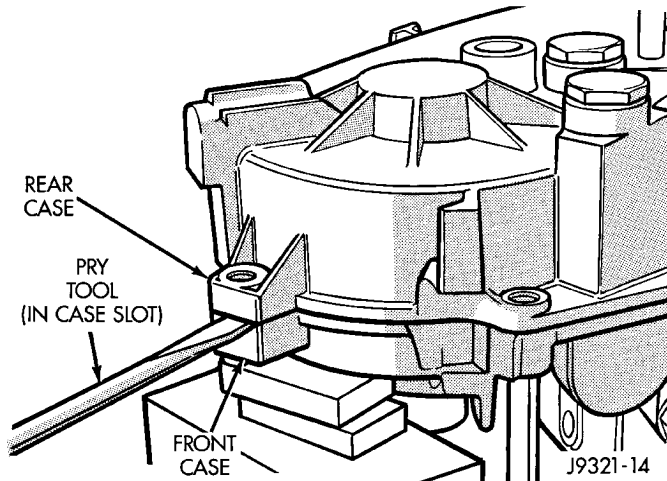


Fig. 25 Loosening Rear Case

- (5) Remove oil pickup tube from rear case (Fig. 27).
- (6) Remove drive gear snap-ring (Fig. 28).
- (7) Disengage drive gear (Fig. 28). Pry gear upward and off mainshaft as shown.
- (8) Remove front output shaft, drive chain and drive gear as assembly (Fig. 28).

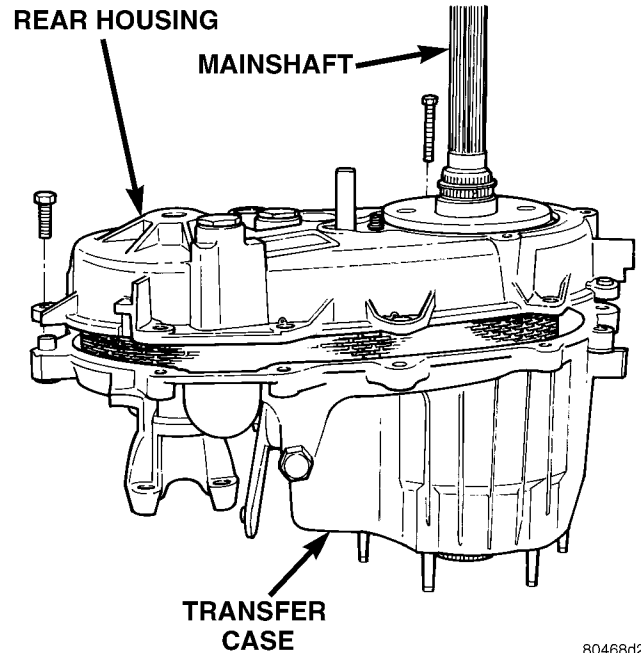


Fig. 26 Rear Case Removal

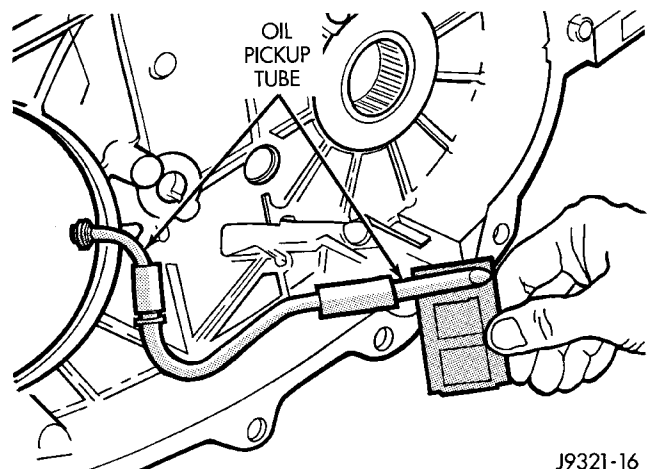


Fig. 27 Oil Pickup Tube Removal

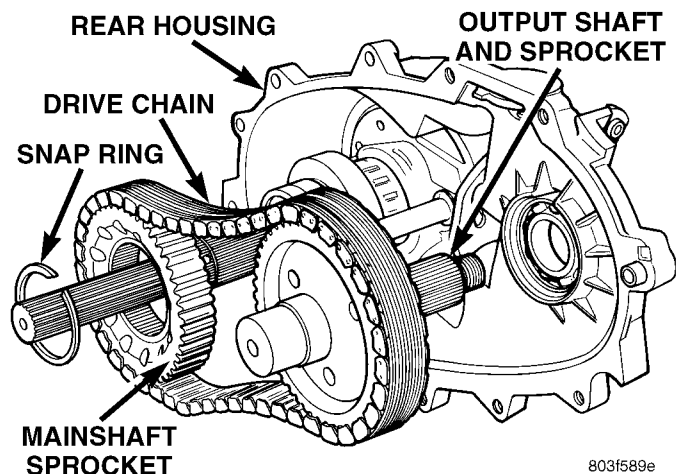
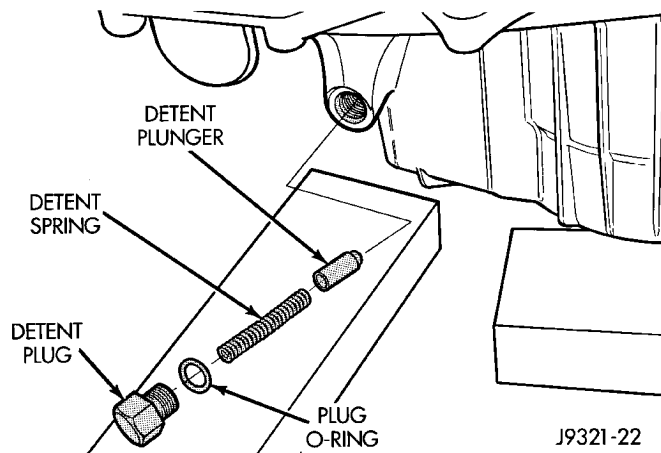


Fig. 28 Front Output Shaft, Drive Gear And Chain Removal

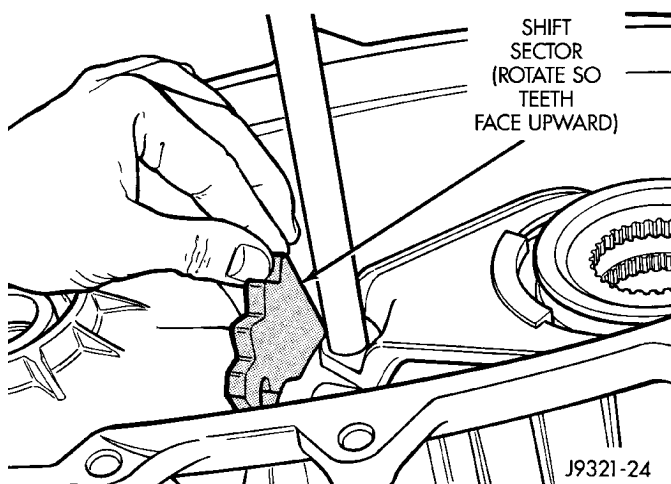
DISASSEMBLY AND ASSEMBLY (Continued)**SHIFT FORKS AND MAINSHAFT REMOVAL**

- (1) Remove detent plug, O-ring, detent spring and detent plunger (Fig. 29).
- (2) Remove mainshaft from clutch sleeve and input gear pilot bearing.

**Fig. 29 Detent Plug, Spring And Plunger Removal**

- (3) Rotate shift sector so sector teeth face upward (Fig. 30).

- (4) Remove range fork, rail and clutch sleeve assembly (Fig. 31). Lift shift rail upward, rotate fork out of shift sector and remove assembly.

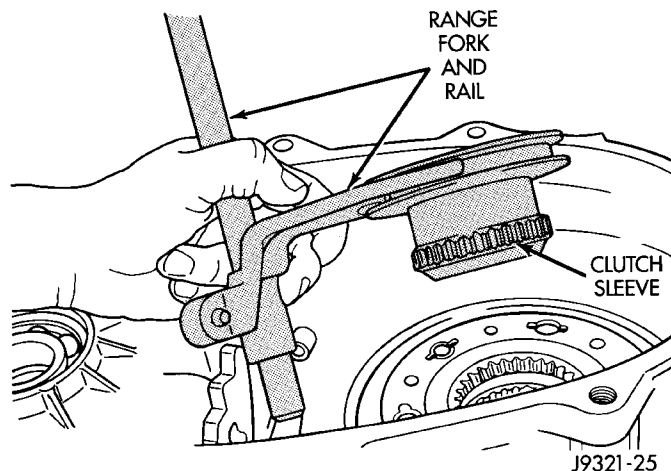
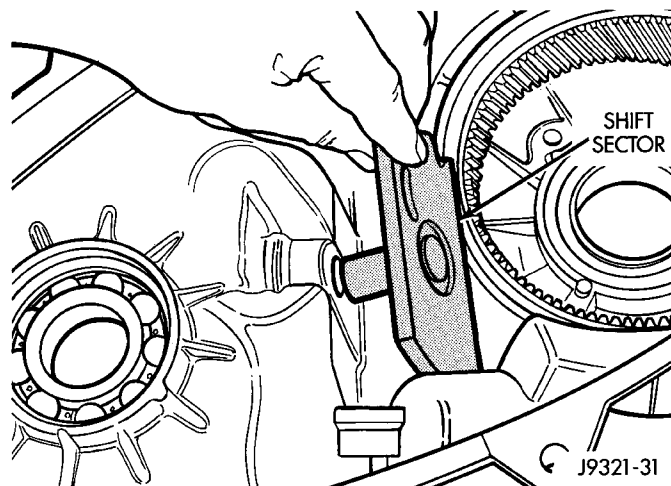
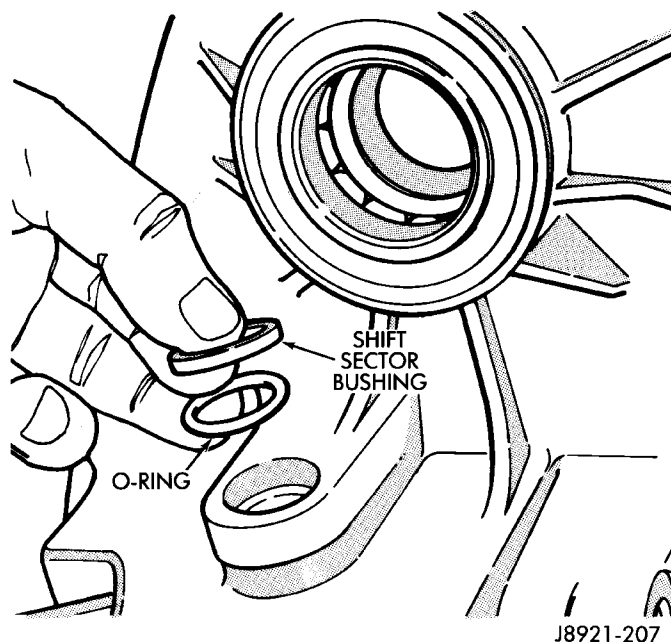
**Fig. 30 Rotating Shift Sector**

- (5) Remove shift sector. Rotate and tilt sector as needed to remove it (Fig. 32).

- (6) Remove shift sector bushing and O-ring (Fig. 33).

INPUT GEAR/LOW RANGE ASSEMBLY REMOVAL

- (1) Turn front case on side so front bearing retainer is accessible.
- (2) Remove front bearing retainer bolts (Fig. 34).
- (3) Remove front bearing retainer as follows:

**Fig. 31 Range Fork And Clutch Sleeve Removal****Fig. 32 Shift Sector Removal****Fig. 33 Sector Bushing And O-Ring Removal**

DISASSEMBLY AND ASSEMBLY (Continued)

(a) Loosen retainer with flat blade screwdriver to break sealer bead. **To avoid damaging case and retainer, position screwdriver blade only in slots provided in retainer (Fig. 35).**

(b) Then remove retainer from case and gear.

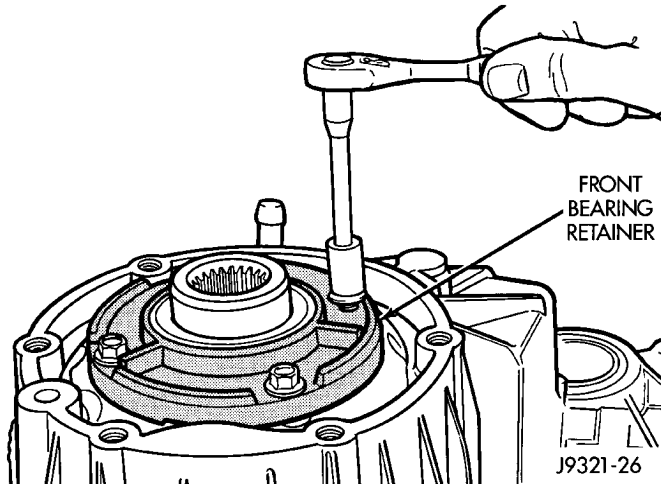


Fig. 34 Front Bearing Retainer Bolt Removal

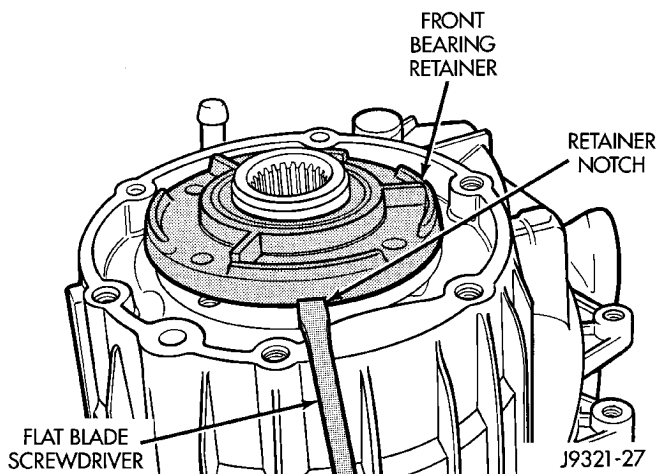


Fig. 35 Front Bearing Retainer Removal

(4) Remove snap-ring that retains input gear shaft in front bearing (Fig. 36).

(5) Remove input and low range gear assembly (Fig. 37).

(6) Remove oil seals from following components:

- front bearing retainer.
- rear retainer.
- case halves.

INPUT AND LOW RANGE GEAR DISASSEMBLY

(1) Remove snap-ring that retains input gear in low range gear (Fig. 38).

(2) Remove retainer (Fig. 39).

(3) Remove front tabbed thrust washer (Fig. 40).

(4) Remove input gear (Fig. 41).

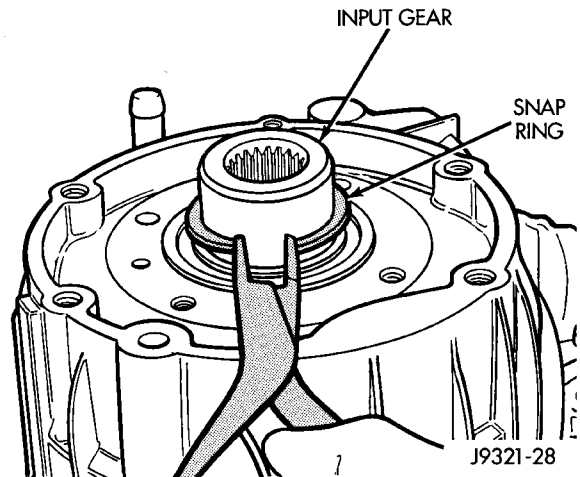


Fig. 36 Input Gear Snap-Ring Removal

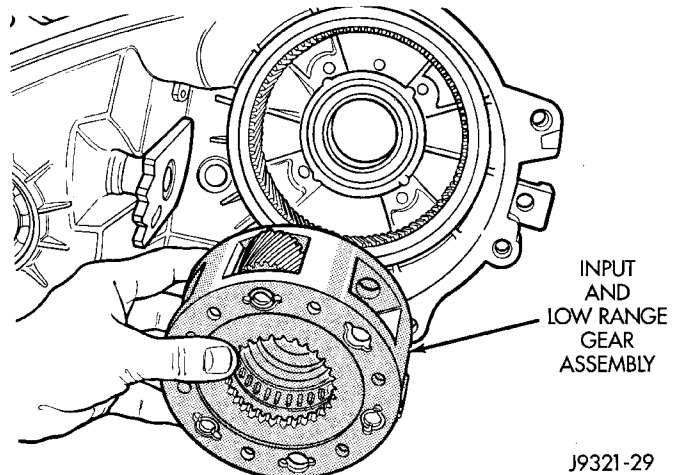


Fig. 37 Input And Low Range Gear Assembly Removal

(5) Remove rear tabbed thrust washer from low range gear (Fig. 42).

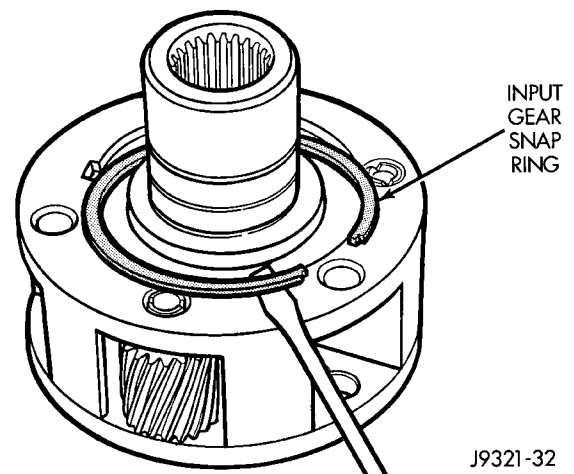
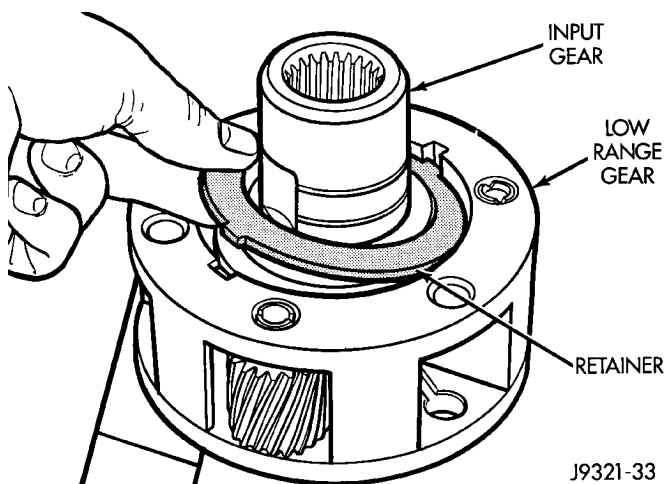
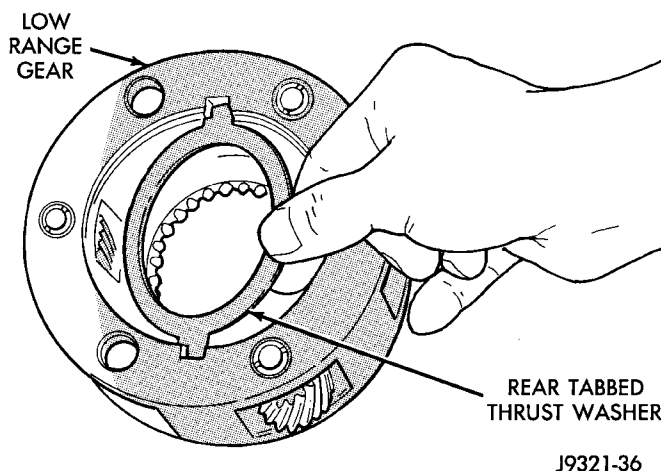


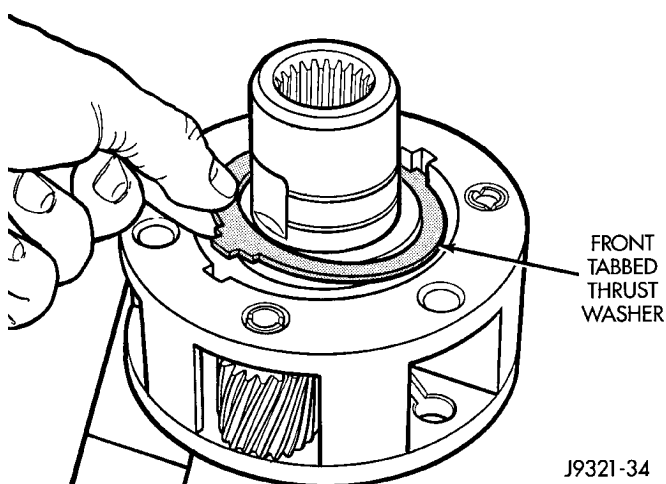
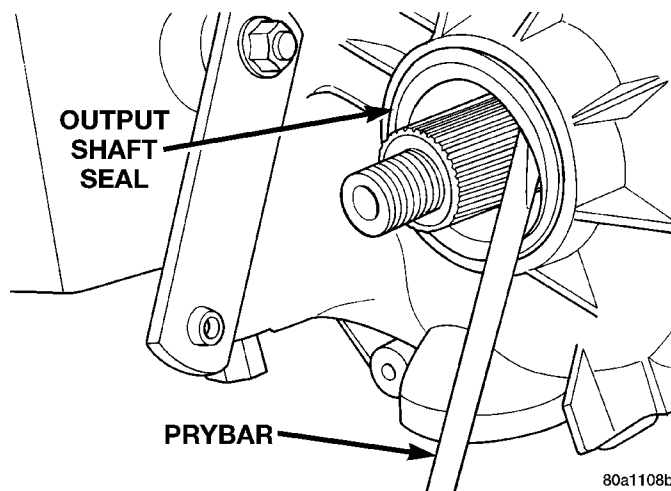
Fig. 38 Input Gear Snap-Ring Removal

DISASSEMBLY AND ASSEMBLY (Continued)**Fig. 39 Input Gear Retainer Removal****Fig. 42 Rear Tabbed Thrust Washer Removal**

CAUTION: The bearing bores in various transfer case components contain oil feed holes. Make sure replacement bearings do not block the holes.

BEARING AND SEAL INSTALLATION

(1) Remove front output shaft seal from front case with pry tool (Fig. 43).

**Fig. 40 Front Tabbed Thrust Washer Removal****Fig. 43 Remove Front Output Shaft Seal**

(2) Remove snap-ring that retains front output shaft bearing in front case (Fig. 44).

(3) Using tool 6953, remove bearing from front case (Fig. 45).

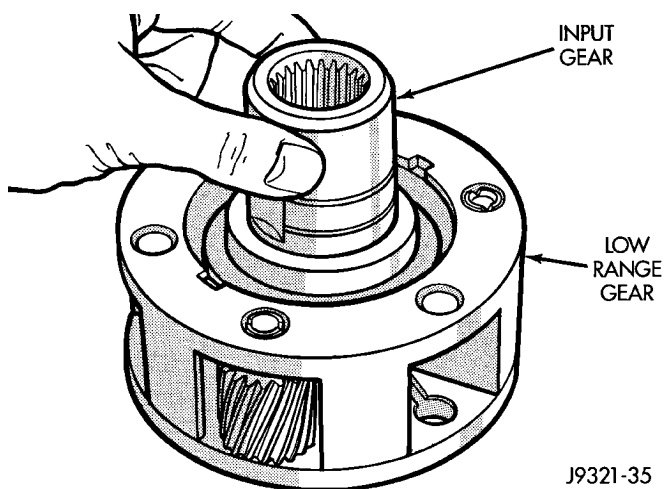
(4) Using tool 6953, install new bearing.

(5) Install snap-ring to hold bearing into case.

(6) Install new front output seal in front case with Installer Tool 6952-A as follows:

(a) Place new seal on tool. **Garter spring on seal goes toward interior of case.**

(b) Start seal in bore with light taps from hammer (Fig. 46). Once seal is started, continue tap-

**Fig. 41 Input Gear Removal****ASSEMBLY**

Lubricate transfer case components with Mopar® Dexron II automatic transmission fluid or petroleum jelly (where indicated) during assembly.

DISASSEMBLY AND ASSEMBLY (Continued)

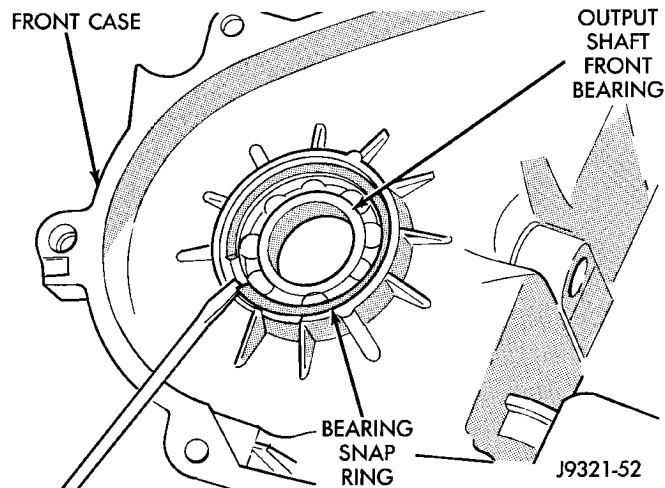


Fig. 44 Output Shaft Front Bearing Snap-Ring Removal

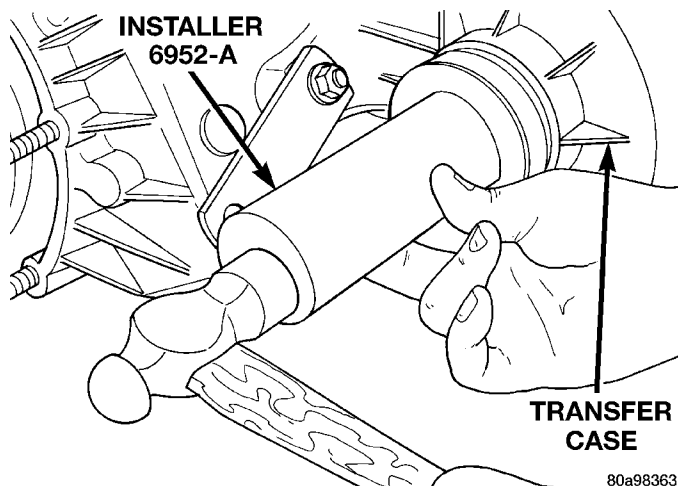


Fig. 46 Front Output Seal Installation

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

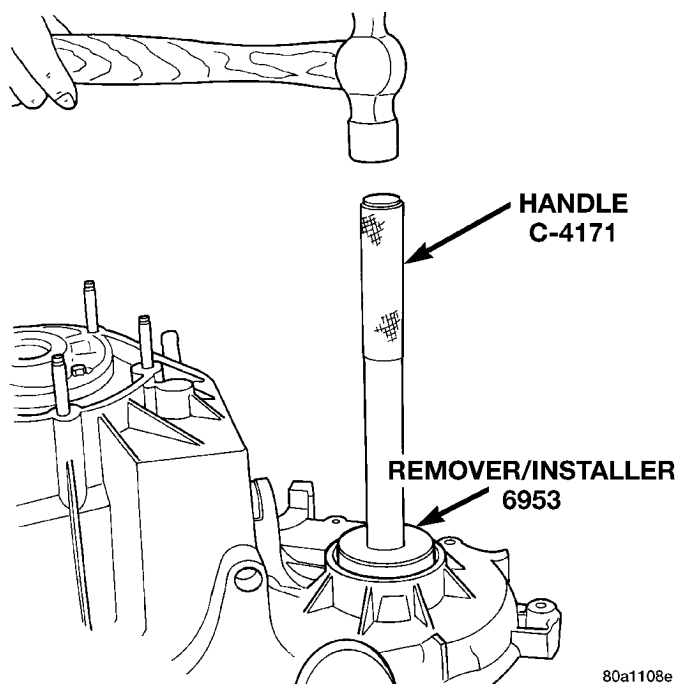


Fig. 45 Remove Output Shaft Front Bearing

ping seal into bore until installer tool bottoms against case.

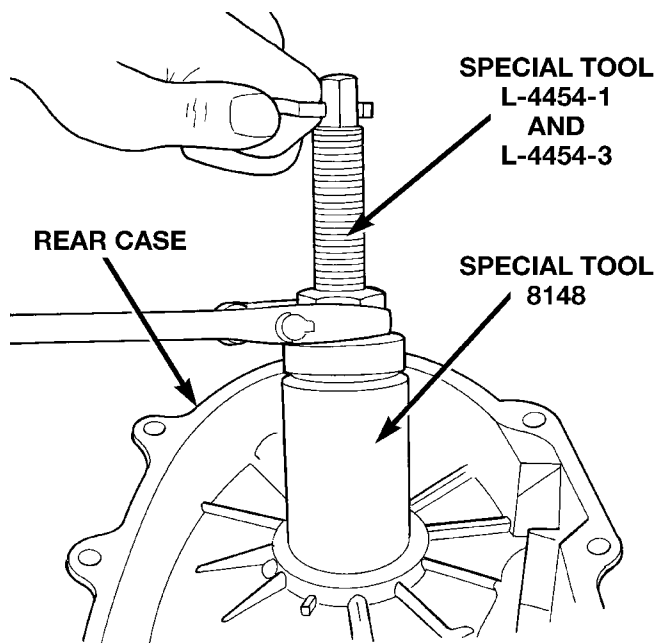


Fig. 47 Output Shaft Rear Bearing Removal

DISASSEMBLY AND ASSEMBLY (Continued)

(8) 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).

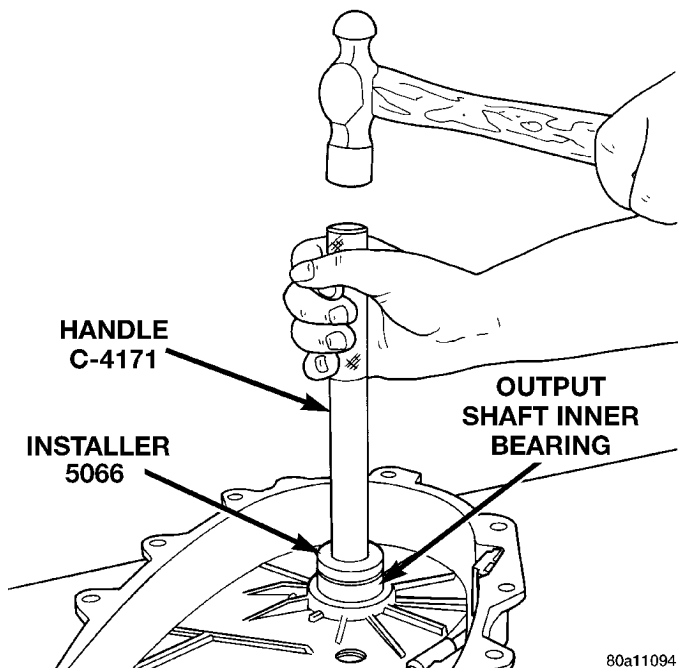


Fig. 48 Output Shaft Rear Bearing Installation

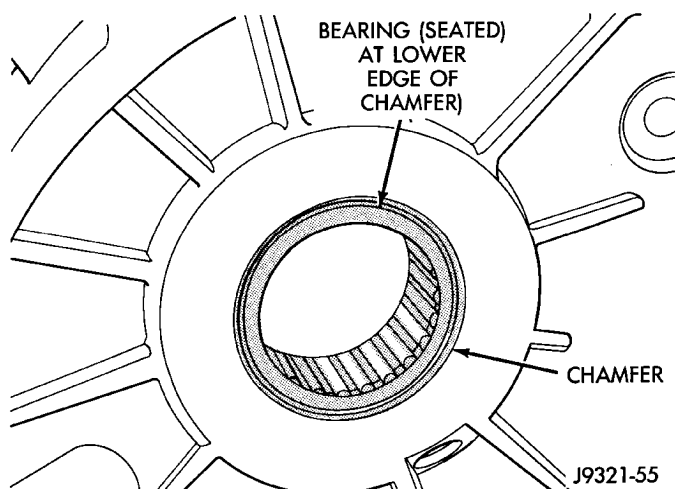


Fig. 49 Output Shaft Rear Bearing Installation Depth

(9) Using Remover C-4210 and Handle C-4171, drive input shaft bearing from inside the annulus gear opening in the case. (Fig. 50).

(10) Install locating ring on new bearing.

(11) Position case so forward end is facing upward.

(12) Using Remover C-4210 and Handle C-4171, drive input shaft bearing into case. The bearing locating ring must be fully seated against case surface (Fig. 51).

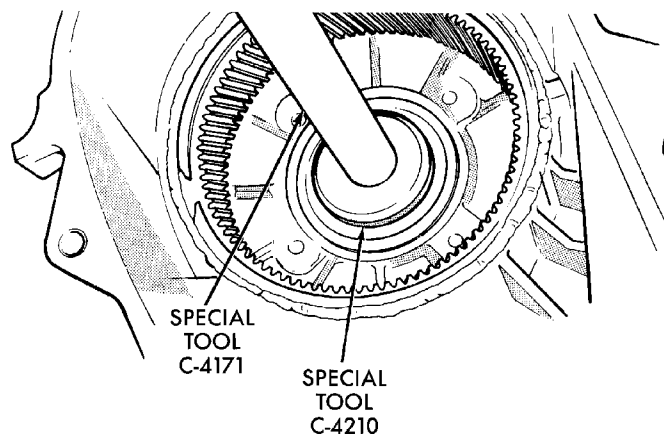


Fig. 50 Input Shaft Bearing Removal

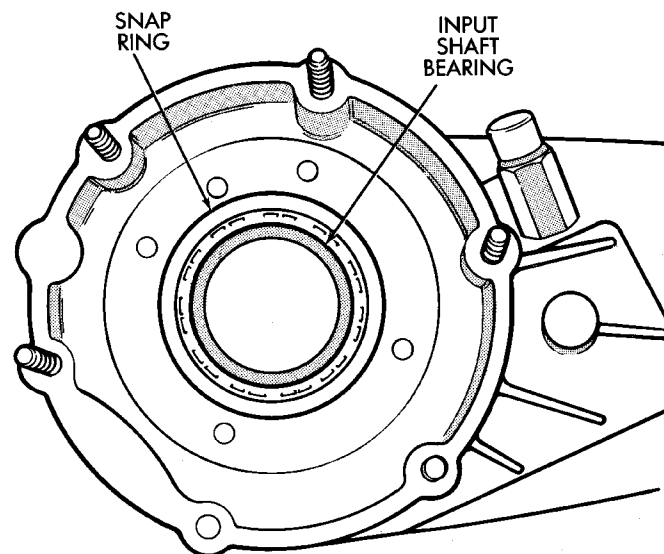


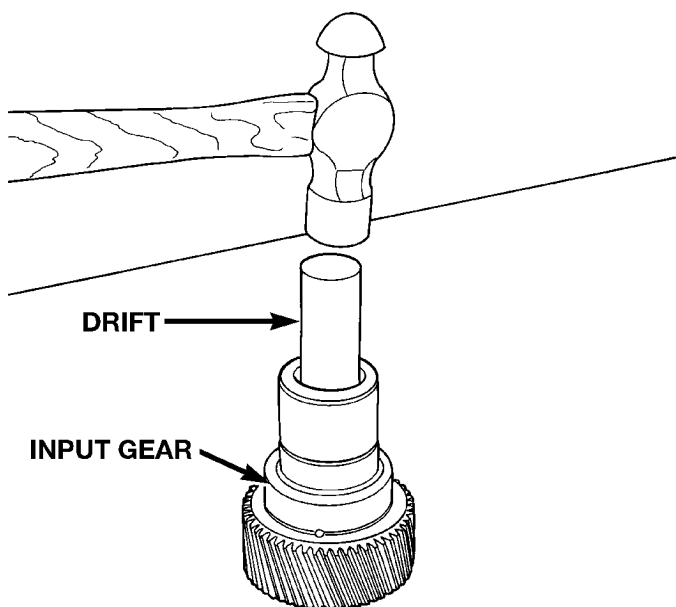
Fig. 51 Seating Input Shaft Bearing

(13) 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. 52).

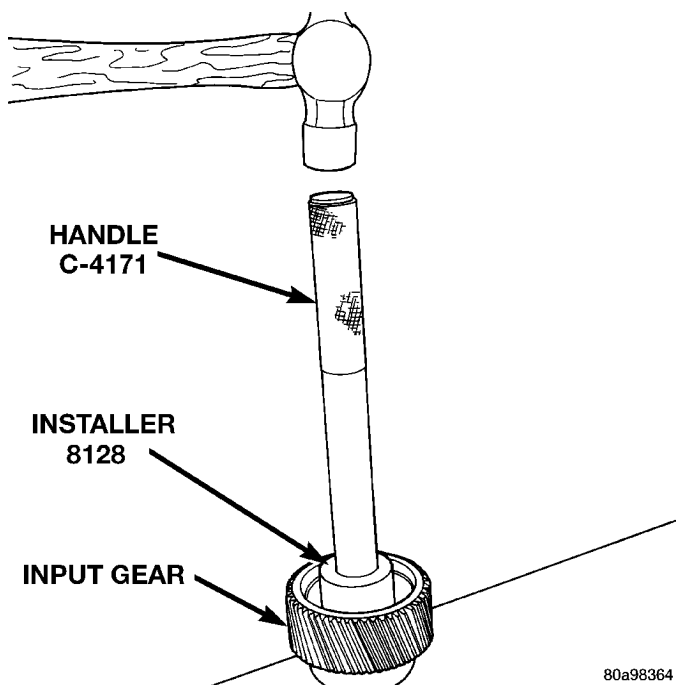
(14) Install new pilot bearing with Installer 8128 and Handle C-4171 (Fig. 53).

(15) Remove front bearing retainer seal with suitable pry tool.

(16) Install new front bearing retainer with Installer 7884 (Fig. 54).

DISASSEMBLY AND ASSEMBLY (Continued)

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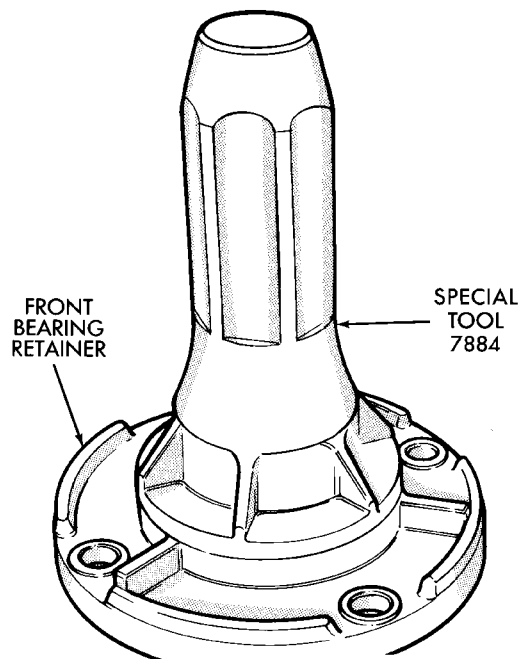
Fig. 52 Remove Input Gear Pilot Bearing

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Fig. 53 Install Input Gear Pilot Bearing**INPUT AND LOW RANGE GEAR ASSEMBLY**

(1) Lubricate gears and thrust washers (Fig. 55) with recommended transmission fluid.

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



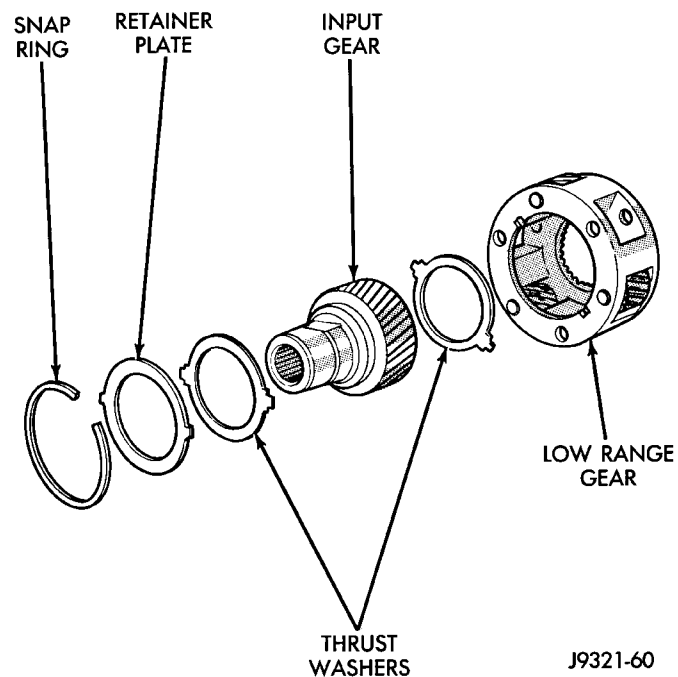
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Fig. 54 Install Front Bearing Retainer Seal

(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.



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Fig. 55 Input/Low Range Gear Components

DISASSEMBLY AND ASSEMBLY (Continued)**INPUT GEAR/LOW RANGE INSTALLATION**

(1) Align and install low range/input gear assembly in front case (Fig. 56). Be sure low range gear pinions are engaged in annulus gear and that input gear shaft is fully seated in front bearing.

(2) Install snap-ring to hold input/low range gear into front bearing (Fig. 57).

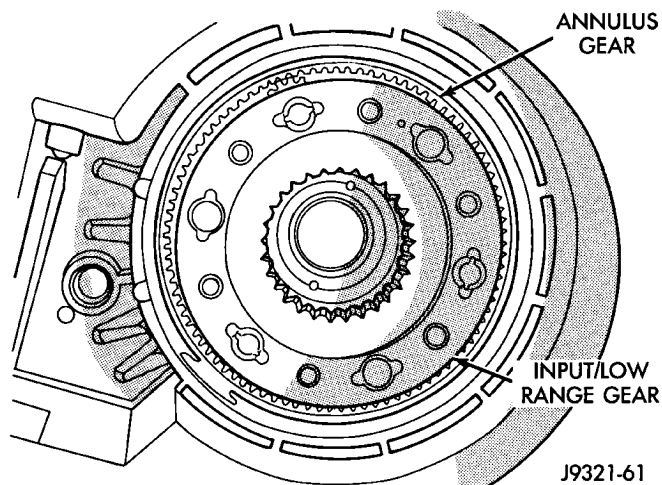


Fig. 56 Input/Low Range Gear Installation

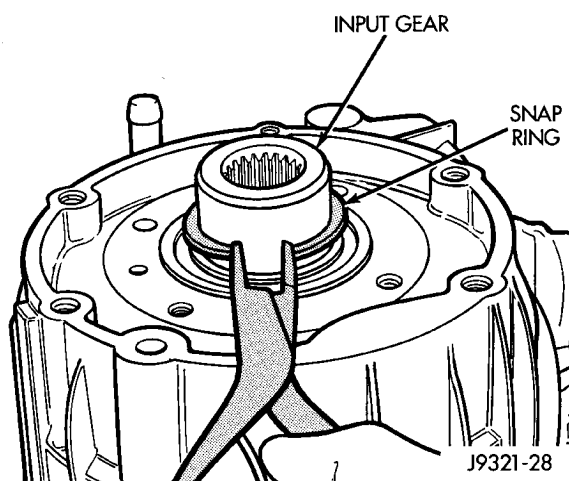


Fig. 57 Install Snap-Ring

(3) Clean gasket sealer residue from retainer and inspect retainer for cracks or other damage.

(4) Apply a 3 mm (1/8 in.) bead of Mopar® gasket maker or silicone adhesive to sealing surface of retainer.

(5) Align cavity in seal retainer with fluid return hole in front of case.

CAUTION: Do not block fluid return cavity on sealing surface of retainer when applying Mopar® gasket maker or silicone adhesive sealer. Seal failure and fluid leak can result.

(6) Install bolts to hold retainer to transfer case (Fig. 58). Tighten to 21 N·m (16 ft. lbs.) of torque.

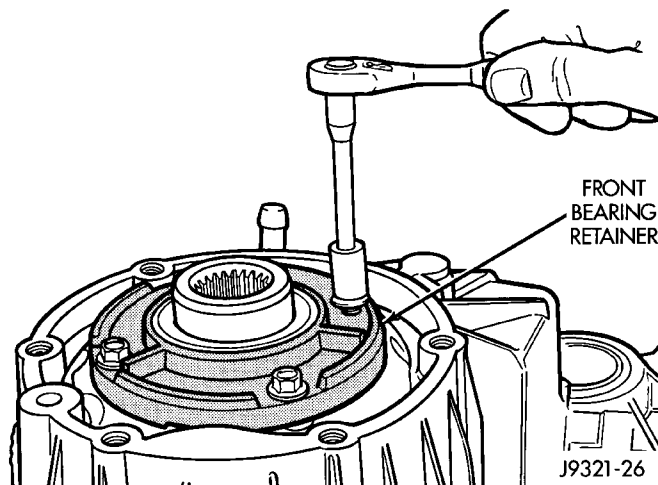


Fig. 58 Install Front Bearing Retainer

SHIFT FORKS AND MAINSHAFT INSTALLATION

(1) Install new sector shaft O-ring and bushing (Fig. 59).

(2) Install shift sector (Fig. 60).

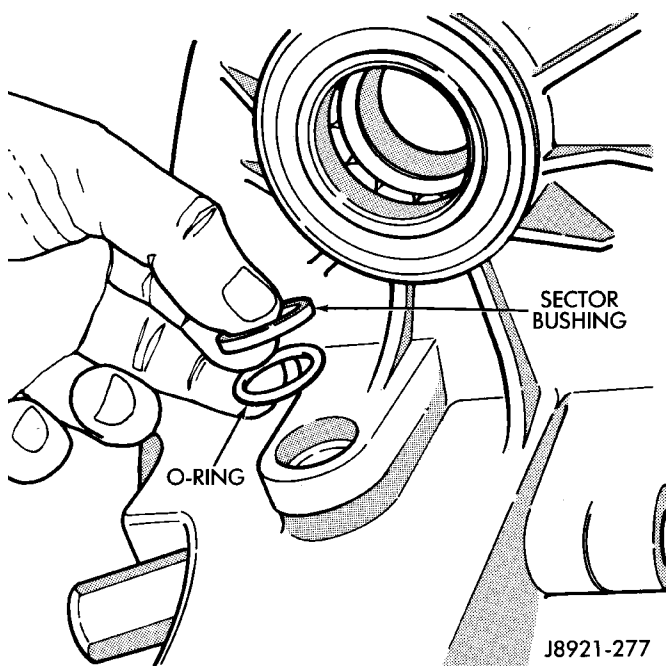


Fig. 59 Sector O-Ring And Bushing Installation

(3) Install new pads on range fork (Fig. 61), if necessary.

(4) Install clutch sleeve in range fork (Fig. 61).

(5) Install assembled range fork and clutch sleeve (Fig. 62).

(6) Insert range fork pin in sector. Then rotate sector and seat clutch gear in low range gear.

DISASSEMBLY AND ASSEMBLY (Continued)

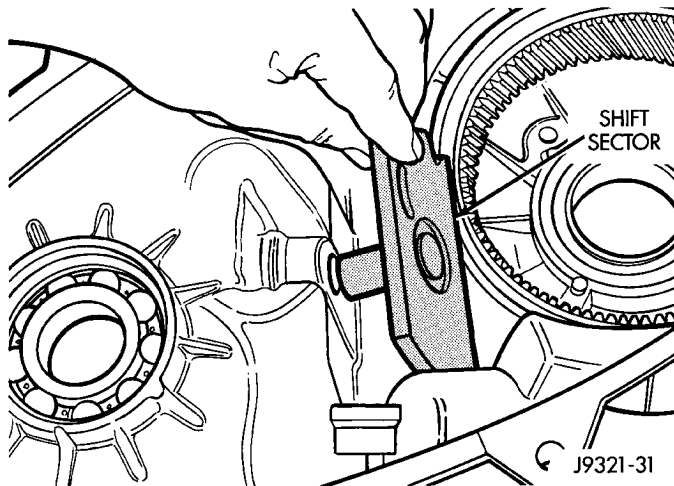


Fig. 60 Shift Sector Installation

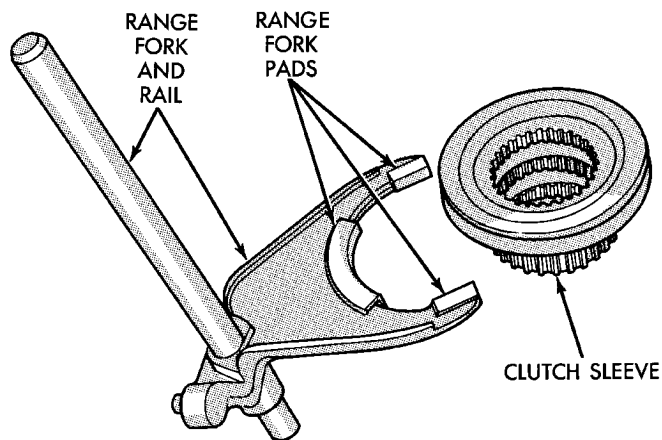


Fig. 61 Assembling Range Fork And Clutch Sleeve

(7) Verify that range fork rail is seated in case bushing and that clutch sleeve is properly engaged in low range gear.

(8) Rotate sector to Neutral position.

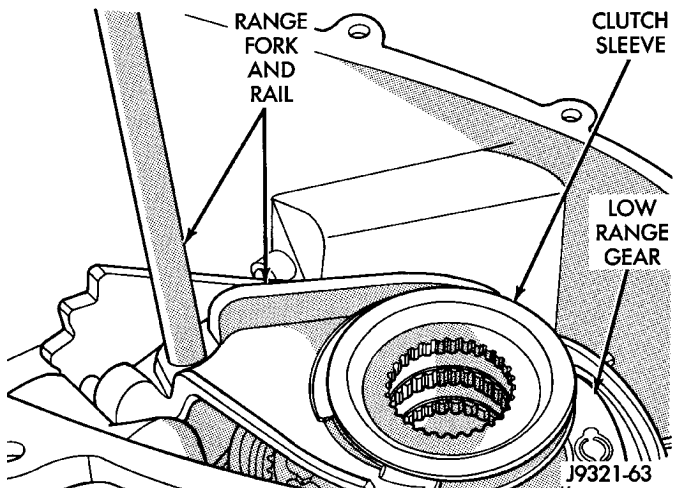


Fig. 62 Range Fork And Clutch Sleeve Installation

- (9) Install new O-ring on detent plug (Fig. 63).
- (10) Lubricate detent plunger with transmission fluid or light coat of petroleum jelly.
- (11) Install detent plunger, spring and plug (Fig. 63).
- (12) Verify that plunger is properly engaged in sector.

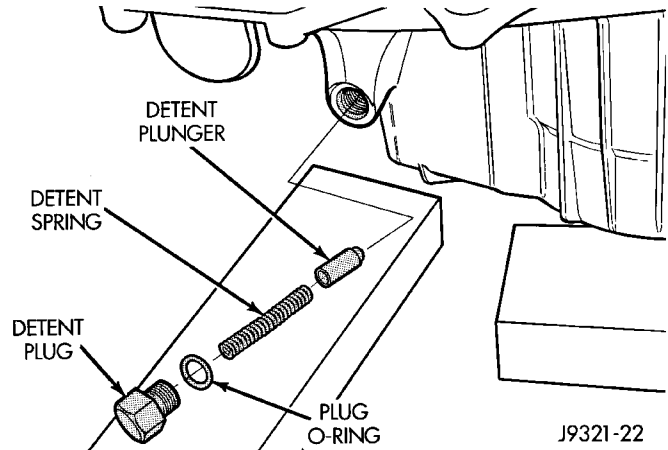


Fig. 63 Shift Detent Components

- (13) Insert mainshaft into input gear pilot bearing.

FRONT OUTPUT SHAFT AND DRIVE CHAIN INSTALLATION

- (1) Lubricate front output shaft-sprocket assembly, drive chain and drive sprocket with transmission fluid.
- (2) Assemble drive chain, drive sprocket and front output shaft (Fig. 64).
- (3) Start drive sprocket on mainshaft.

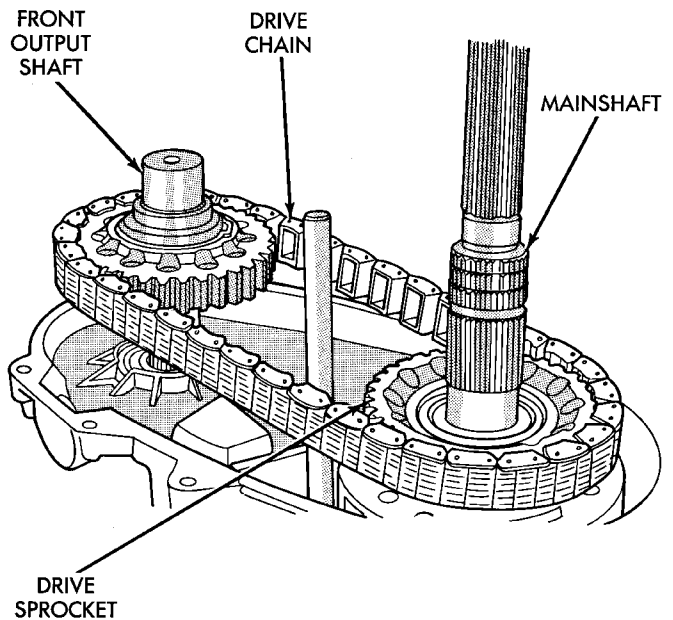


Fig. 64 Installing Drive Chain, Front Output Shaft And Drive Sprocket

DISASSEMBLY AND ASSEMBLY (Continued)

(4) Guide front shaft into bearing and drive sprocket onto mainshaft drive gear (Fig. 64).

(5) Install drive sprocket snap-ring (Fig. 65).

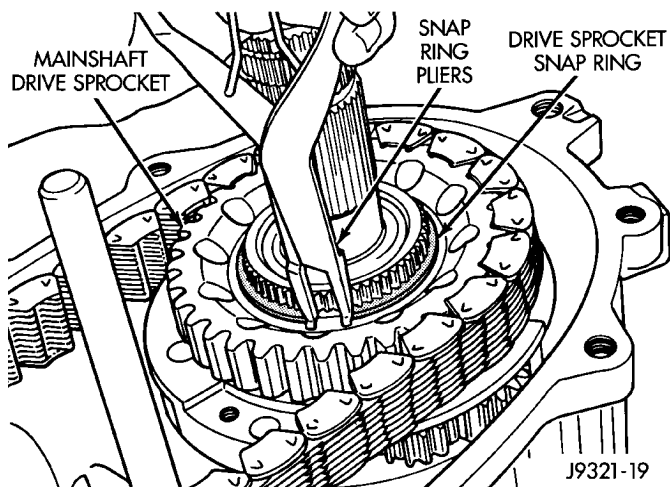


Fig. 65 Installing Drive Sprocket Snap-Ring

(6) Clean sealing flanges of front case and rear case with a wax and grease remover.

(7) Apply 3 mm (1/8 in.) wide bead of Mopar® gasket maker or silicone adhesive sealer to mounting flange of front case. Work sealer bead around bolt holes as shown (Fig. 66).

(8) Install oil pickup tube in rear case. Be sure tube is seated in case notch as shown (Fig. 67).

(9) Install magnet in front case pocket (Fig. 68).

(10) Align and install rear case on front case (Fig. 69).

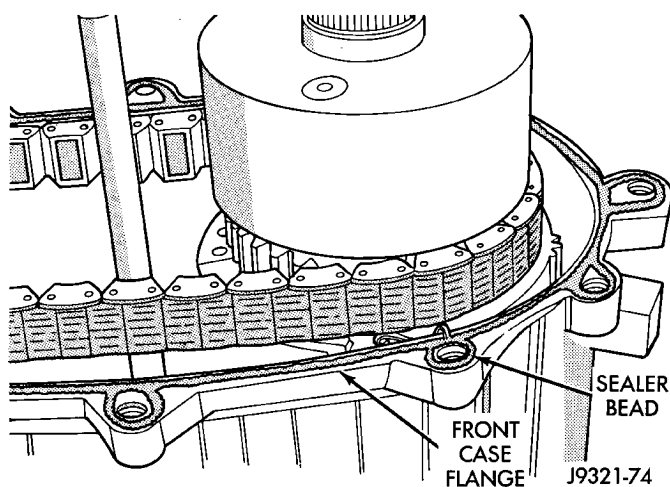


Fig. 66 Applying Sealer To Front Case Flange

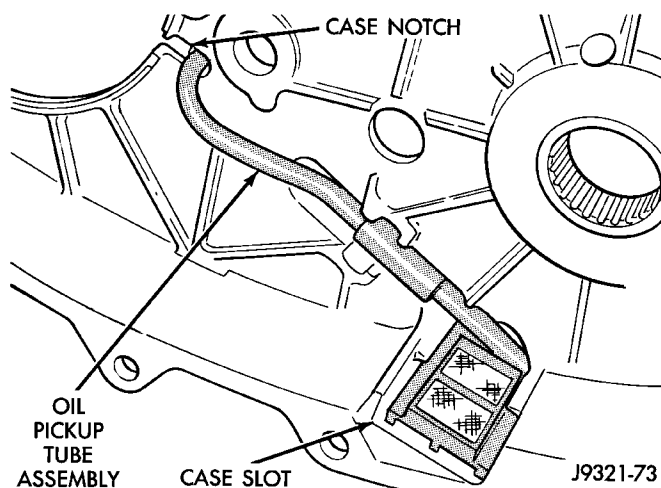


Fig. 67 Oil Pickup Tube Installation

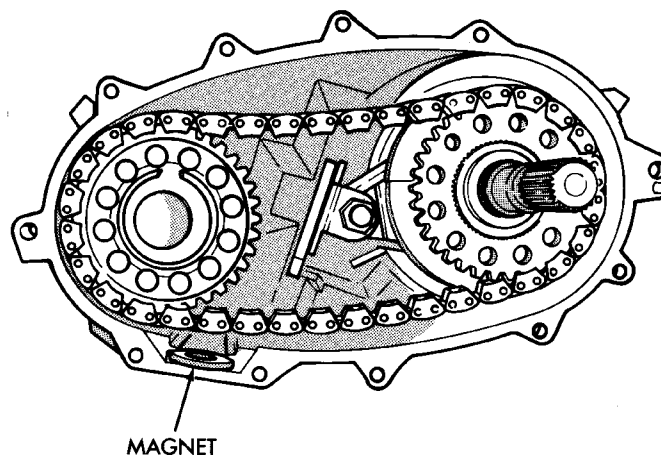


Fig. 68 Installing Case Magnet

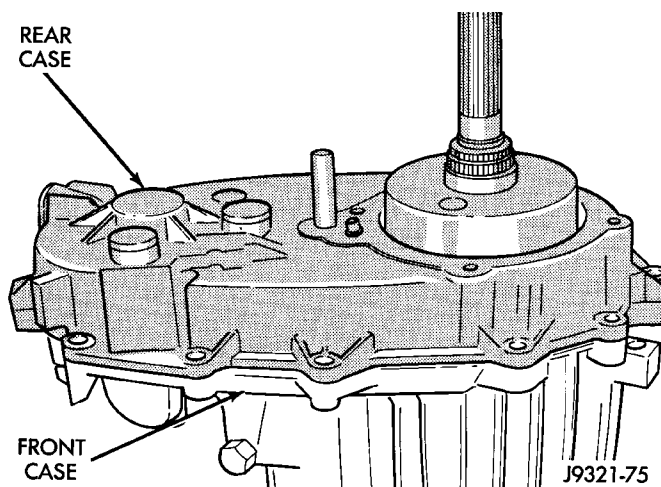


Fig. 69 Rear Case Installation

DISASSEMBLY AND ASSEMBLY (Continued)

(11) Verify that oil pickup tube is still seated in case notch and tube end is pointed toward mainshaft (Fig. 70).

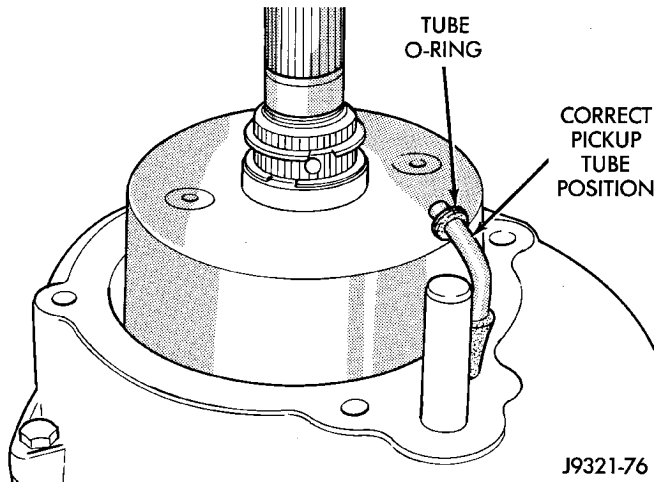


Fig. 70 Checking Position Of Oil Pickup Tube

(12) Install case attaching bolts. Alignment bolts at each end of case are only ones requiring washers (Fig. 71).

(13) Tighten case bolts to 27-34 N·m (20-25 ft. lbs.) torque.

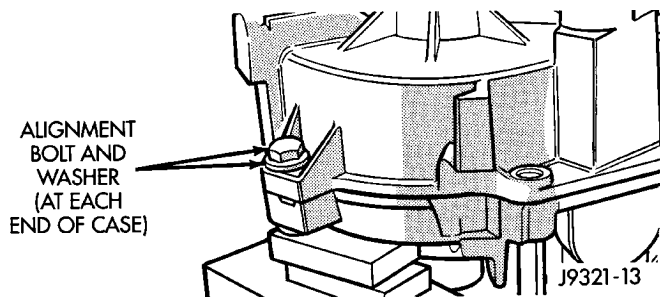


Fig. 71 Alignment Bolt Location

YOKE AND RANGE LEVER INSTALLATION

(1) Install indicator switch in front case. Tighten switch to 20-34 N·m (15-25 ft. lbs.) torque.

(2) Install range lever, washer and locknut on sector shaft (Fig. 72). Tighten locknut to 27-34 N·m (20-25 ft. lbs.) torque.

(3) Install new seal washer on front output shaft (Fig. 74).

(4) Lubricate yoke hub with transmission fluid and install yoke on front shaft.

(5) Install new seal washer on front shaft.

(6) Install yoke and new yoke nut on front output shaft (Fig. 73).

(7) Tighten yoke nut to 122-176 N·m (90-130 ft. lbs.) torque. Use Tool C-3281, or similar tool to hold yoke while tightening yoke nut.

VISCOUS COUPLER

(1) Install coupling on mainshaft (Fig. 75).

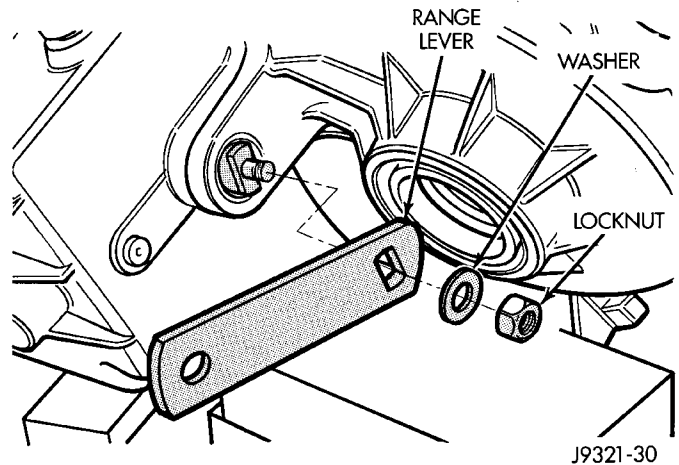


Fig. 72 Range Lever Installation

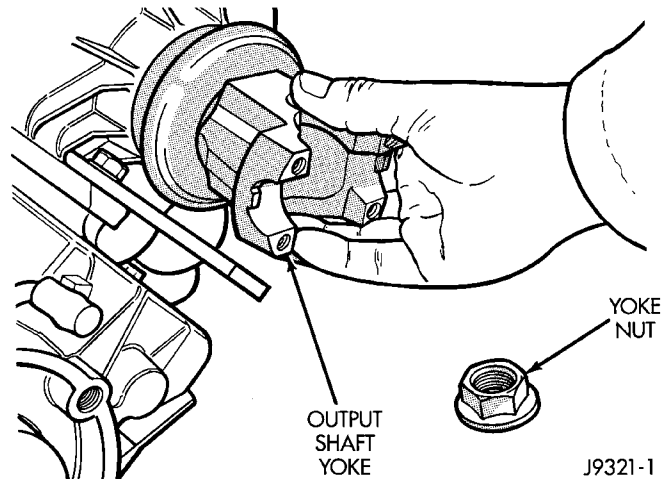


Fig. 73 Output Shaft Yoke Installation

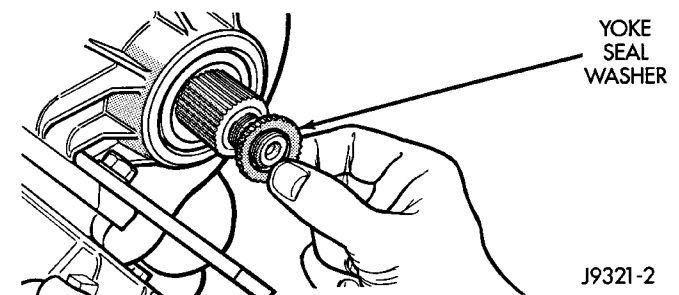


Fig. 74 Yoke Seal Washer Installation

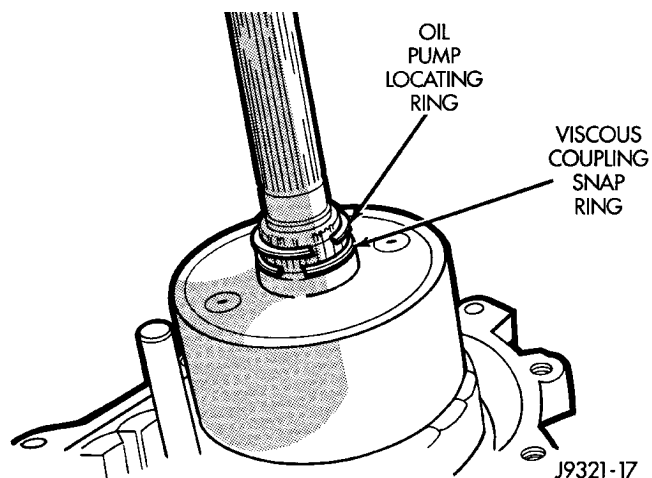
(2) Install coupling retaining snap-ring first (Fig. 75). Be sure snap ring is fully seated before proceeding.

(3) Install oil pump locating snap-ring on mainshaft (Fig. 75).

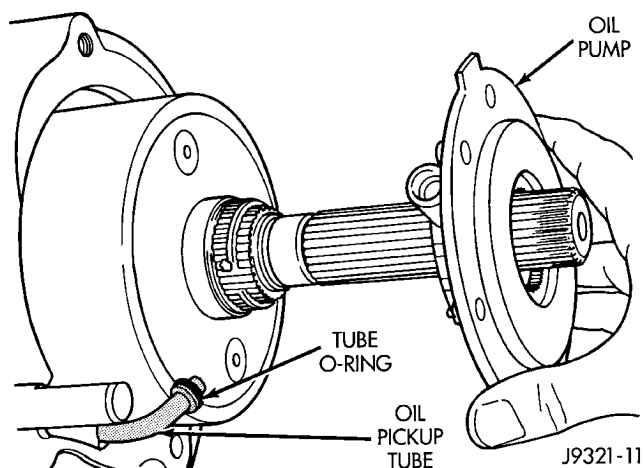
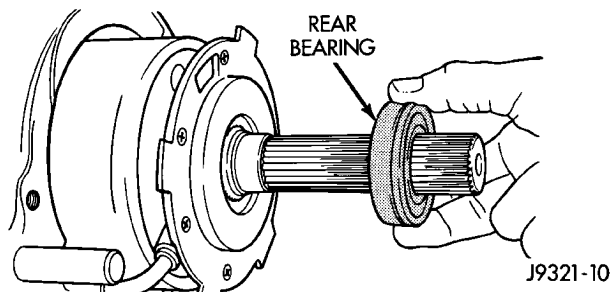
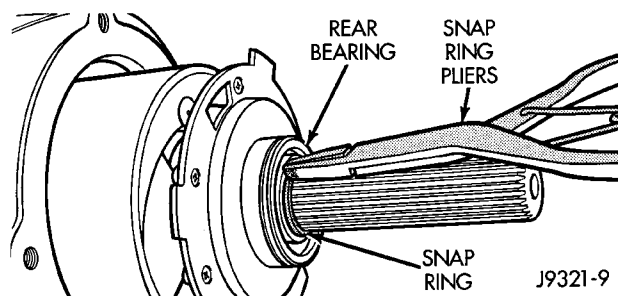
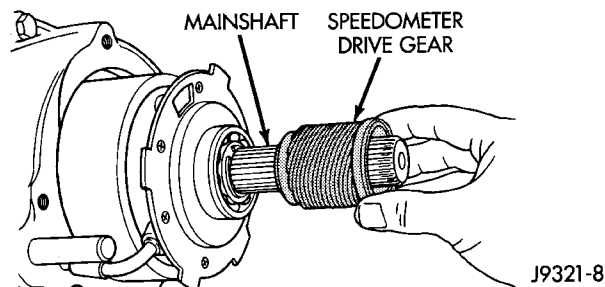
REAR RETAINER AND OIL PUMP INSTALLATION

(1) Install new O-ring on flanged end of oil pickup tube.

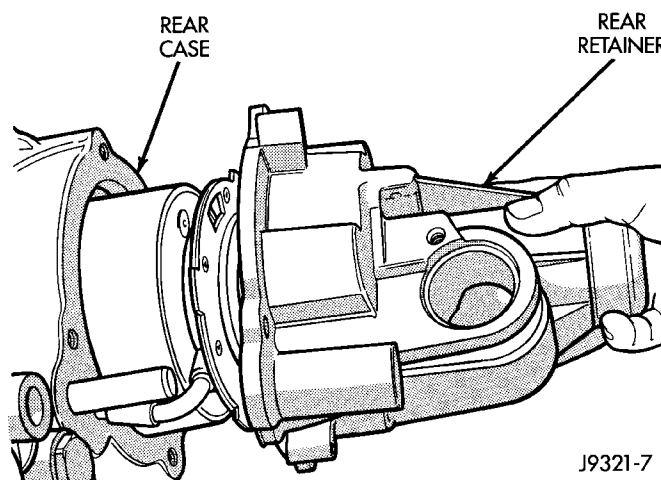
(2) Install oil pump (Fig. 76).

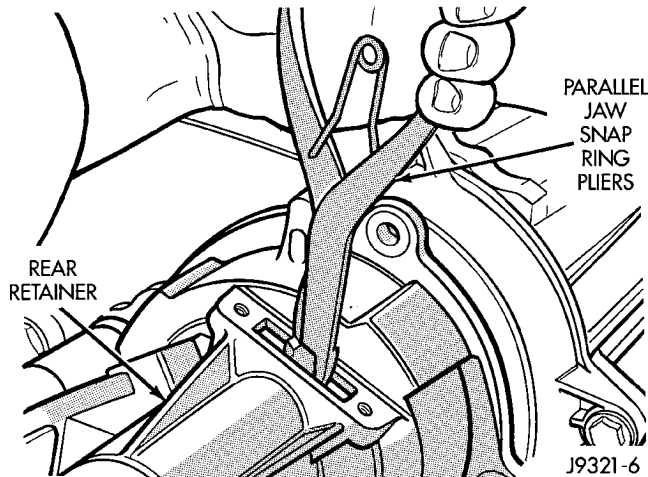
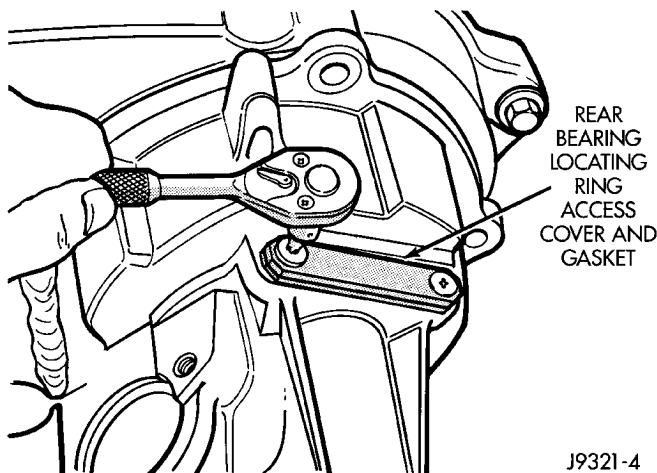
DISASSEMBLY AND ASSEMBLY (Continued)**Fig. 75 Viscous Coupling And Oil Pump Snap-Ring Installation**

- (3) Insert oil pickup tube in pump (Fig. 77).
- (4) Install rear bearing on mainshaft (Fig. 77). Locating ring groove in bearing goes toward end of mainshaft.
- (5) Install rear bearing retaining snap-ring (Fig. 78).
- (6) Install speedometer drive gear (Fig. 79).
- (7) Install rear bearing locating ring in rear retainer, if ring was removed during overhaul.

**Fig. 76 Installing Oil Pump****Fig. 77 Rear Bearing Installation****Fig. 78 Rear Bearing Snap-Ring Installation****Fig. 79 Speedometer Drive Gear Installation**

- (8) Apply 3 mm (1/8 in.) wide bead of Mopar® gasket maker or silicone adhesive sealer to mounting surface of rear retainer. Allow sealer to set-up slightly before proceeding.
- (9) Slide rear retainer onto mainshaft (Fig. 80).
- (10) Spread rear bearing locating ring and slide rear retainer into place on rear case (Fig. 81).
- (11) Install and tighten rear retainer bolts to 27-34 N·m (20-25 ft. lbs.).
- (12) Install locating ring access cover and gasket (Fig. 82). Tighten plate attaching screws to 10 N·m (85 in. lbs.) torque.

**Fig. 80 Rear Retainer Installation**

DISASSEMBLY AND ASSEMBLY (Continued)**Fig. 81 Engaging Rear Bearing Locating Ring****Fig. 82 Installing Locating Ring Access Cover And Gasket****FINAL ASSEMBLY**

- (1) Install drain plug. Tighten plug to 41-54 N·m (30-40 ft. lbs.) torque.
- (2) Level transfer case and fill it with Mopar Dexron II automatic transmission fluid. Correct fill level is to bottom edge of fill plug hole.
- (3) Install and tighten fill plug to 41-54 N·m (30-40 ft. lbs.) torque.

CLEANING AND INSPECTION**NV249 COMPONENTS****GENERAL**

Clean the transfer case components with parts cleaning solvent. Flush the oil passages in the cases and drivetrain components with solvent. This will help remove dirt and particles from these passages.

Dry the transfer case components with compressed air or allow them to air dry on clean shop towels.

Apply compressed air through all oil passages in the cases and gear components to clear them of any residue.

MAINSHAFT

Examine the mainshaft components carefully for evidence of wear or damage.

Replace the thrust washers if worn or damaged.

Replace the mainshaft and sprocket gears if the teeth or gear bores are worn or damaged.

Replace the mainshaft bearings if worn, flat spotted, brinelled, or damaged in any way.

Replace the mainshaft if it exhibits wear or damage to the bearing surfaces, splines or gear teeth.

INPUT AND LOW RANGE GEARS

Inspect the low range gear pinions and pinion pins. Replace the low range gear if any of the pins or pinions are worn or damaged.

Inspect the thrust washers, retainer, and snap-ring. Replace the snap-ring if bent, or distorted. Replace the thrust washers and retainer if worn, cracked or damaged in any way.

Examine the input gear carefully. Be sure the gear teeth and bearing surfaces are in good condition. Replace the gear if wear or damage is evident.

Check the input gear pilot bearing. Rotate the bearing and check for roughness or noise. Also check bearing position in the bore. The bearing should be recessed approximately 2.5 mm (0.100 in.) below the top edge of the bore. The bearing should not be seated at the bottom of the bore. Replace the bearing if worn, or roughness is evident. Replace both the gear and bearing if the bearing is a loose fit in the bore.

GEAR CASE AND RETAINERS

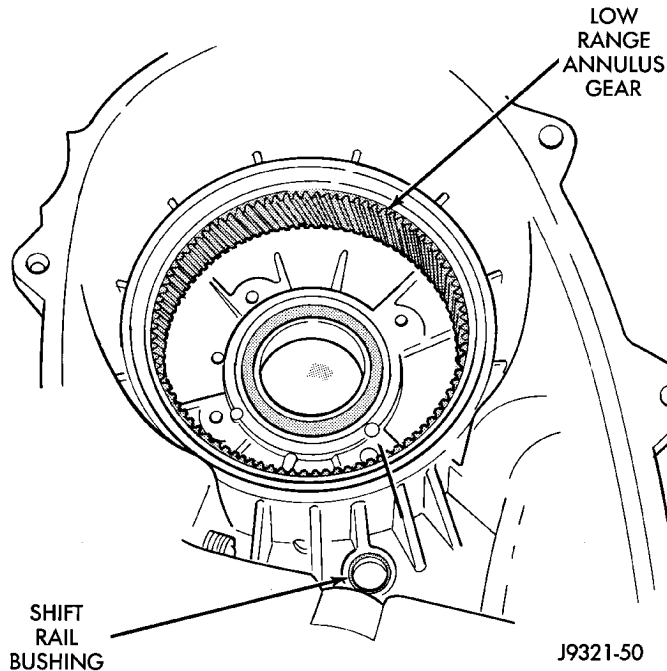
Examine both case halves and retainers carefully. Replace any retainer or case half if wear, cracks, or other damage is evident.

Check condition of the low range annulus gear and the shift rail bushing in the front case (Fig. 83). The low range annulus gear is not a serviceable part. Replace the gear and case as an assembly if the gear is loose, worn, or damaged. The shift rail bushing is a serviceable part and can be replaced if necessary.

Check the bushing in the rear retainer. Replace the bushing if worn or scored.

Examine the sealing surfaces of both case halves and retainers. Small burrs, or scratches on these surfaces can be reduced with crocus cloth or a fine tooth file.

Examine condition of the shift rail bushing in the front case. If the bushing is worn or damaged, it can be removed with a blind hole type puller. A replacement bushing can be installed with a suitable size

CLEANING AND INSPECTION (Continued)**Fig. 83 Low Range Annulus Gear Location**

driver. Recess the bushing slightly below the edge of the bore but do not seat it all the into the case.

GEARTRAIN

Inspect the mainshaft splines, gear teeth and bearing surfaces carefully for evidence of wear, or damage. Replace the shaft if necessary. do not attempt to salvage it if damaged.

The shift rail and range fork are an assembly. Replace both parts if either is damaged. However, the

nylon pads in the fork can be replaced if worn, or cracked.

Inspect the transfer case snap rings closely. Do not attempt to salvage a distorted snap ring by straightening or reshaping it. Replace any snap ring that is distorted, or worn.

Inspect the low range gear, input gear and the gear thrust washers retainer, and snap ring. The low range gear is serviced as an assembly only. Replace the gear if the case or pinions are damaged.

During inspection, also make sure the seal surface of the input gear is in good condition. Minor nicks on this surface can be reduced with crocus cloth. However, replace the gear if the seal surface is severely scored or worn.

The speedometer gear should be replaced if worn, cracked, or if the small spline teeth are worn.

OIL PUMP AND VISCOUS COUPLING

The oil pump and viscous coupling are not serviceable components. Replace the coupling as an assembly if it is leaking or damaged. Replace the oil pump as an assembly if the gear teeth are worn, or if the pump has become damaged.

BEARINGS AND SEALS

The transfer case seals should be replaced during overhaul. Use new seals in the input gear bearing retainer, front case and rear retainer. Also replace the yoke seal washer and the detent plug O-ring.

Check condition of each transfer case bearing. Replace any bearing exhibiting signs of roughness, wear, or damage.

ADJUSTMENTS

SHIFT LINKAGE ADJUSTMENT

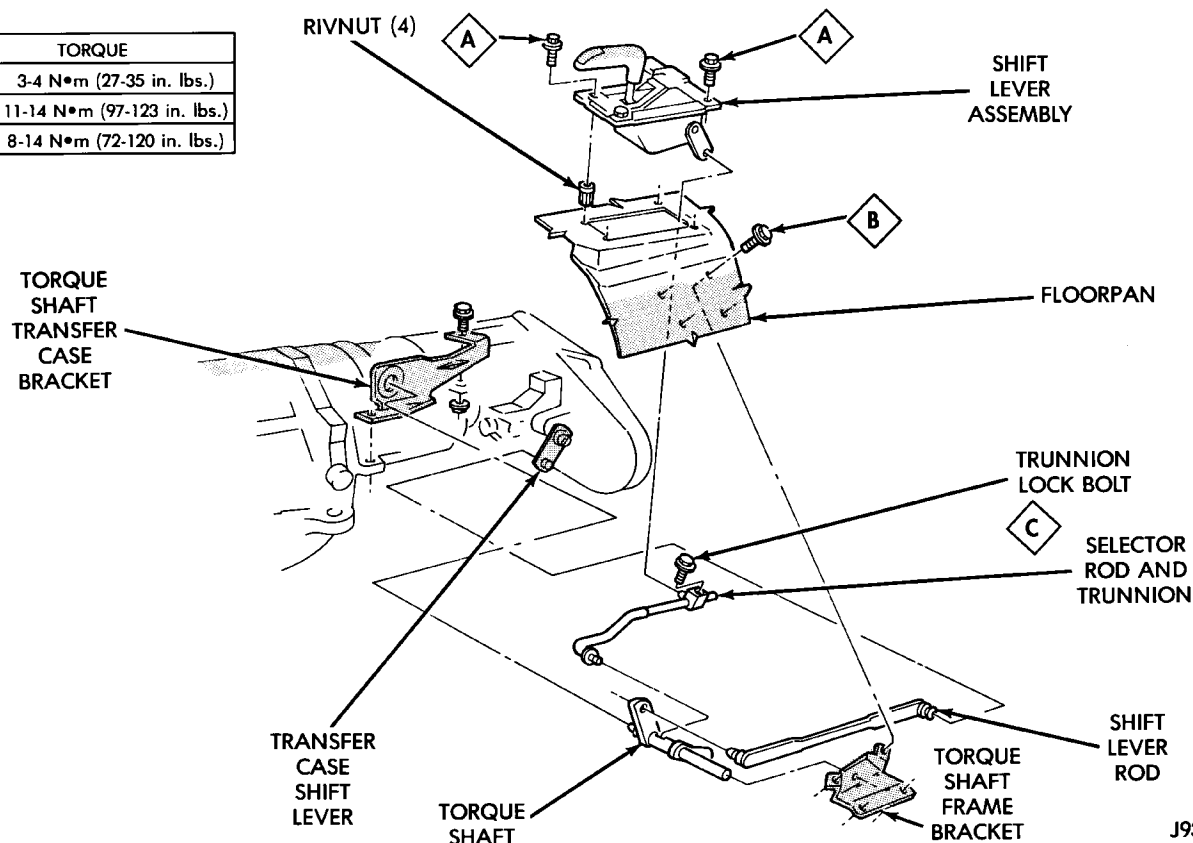
- (1) Shift transfer case into Neutral position.
- (2) Raise vehicle on hoist that will allow all four wheels to rotate freely.
- (3) Loosen trunnion lock bolt (Fig. 84). Loosen bolt enough so selector rod slides freely in trunnion.
- (4) Verify that shift lever on transfer case is in Neutral position.
- (5) Tighten trunnion lock bolt to 11-20 N·m (96-180 in. lbs.) torque.
- (6) Lower vehicle enough for entry into driver seat but keep all wheels off shop floor.
- (7) Verify correct linkage adjustment. Start engine, shift transmission into gear and shift transfer case into all ranges. Be sure transfer case is fully engaged in high and low range. Readjust linkage if necessary.
- (8) Shut engine off and lower vehicle completely.

SPECIFICATIONS

TORQUE

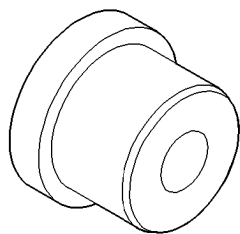
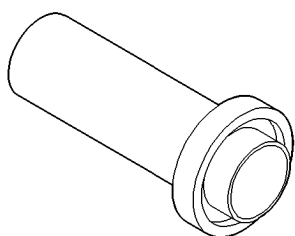
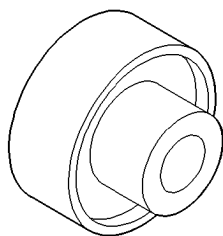
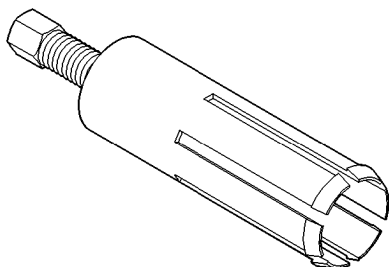
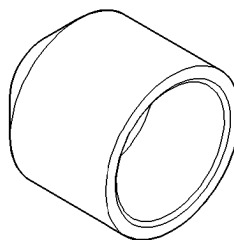
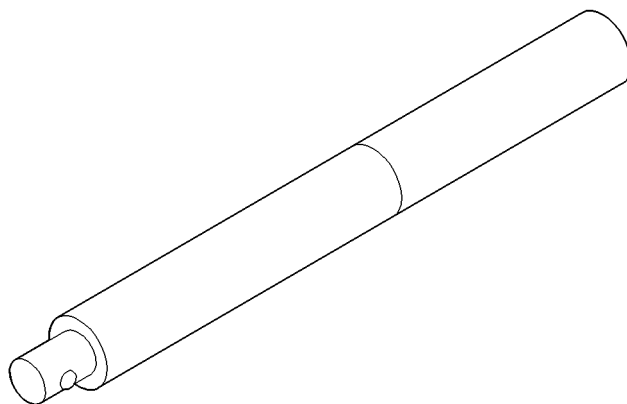
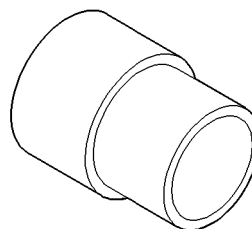
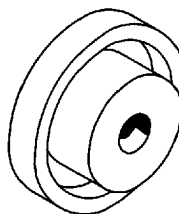
DESCRIPTION	TORQUE
Bolt, crossmember	41-47 N·m (30-35 ft. lbs.)
Plug, Detent	16-24 N·m (12-18 ft. lbs.)
Plugs, drain/fill.	41-54 N·m (30-40 ft. lbs.)
Switch, Electric	20-34 N·m (15-25 ft. lbs.)
Bolts, front brg.	
retainer	16-24 N·m (12-18 ft. lbs.)
Bolts, case half	27-34 N·m (20-25 ft. lbs.)
Nut, output yoke	122-176 N·m (90-130 ft. lbs.)
Bolts, rear extension	27-34 N·m (20-25 ft. lbs.)
Lock-nut, shift	27-34 N·m (20-25 ft. lbs.)
Bolt, shift rod	11-20 N·m (96-180 in. lbs.)
Nuts, T-case mount	
stud	33-41 N·m (24-30 ft. lbs.)
Bolt, U-joint clamp.	16-22 N·m (12-16 ft. lbs.)

TORQUE	
A	3-4 N·m (27-35 in. lbs.)
B	11-14 N·m (97-123 in. lbs.)
C	8-14 N·m (72-120 in. lbs.)

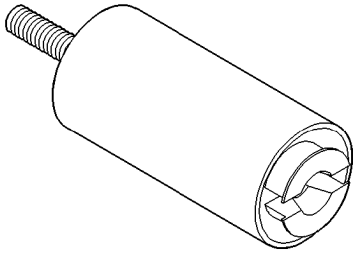


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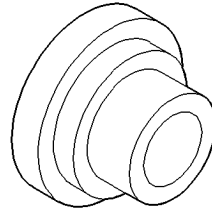
Fig. 84 Transfer Case Shift Linkage

SPECIAL TOOLS**NV249 TRANSFER CASE***Installer—5066**Installer—6952-A**Installer—6953**Remover—6957**Installer—C-3995-A**Handle—C-4171**Installer—8145**Remover—C-4210*

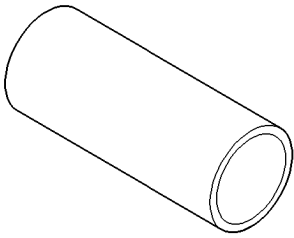
SPECIAL TOOLS (Continued)



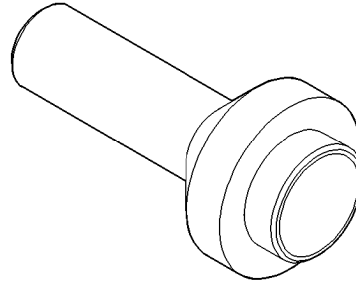
Remover—L-4454



Installer—8128



Cup—8148



Installer—7884

TRANSMISSION AND TRANSFER CASE

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AX15 MANUAL TRANSMISSION	1	NV231 TRANSFER CASE	7

AX15 MANUAL TRANSMISSION

GENERAL INFORMATION

AX 15 MANUAL TRANSMISSION

The AX 15 is a 5-speed, synchromesh, manual transmission. Fifth gear is an overdrive range with a ratio of 0.79:1. The shift mechanism is integral and mounted in the shift tower portion of the adapter housing (Fig. 1).

TRANSMISSION IDENTIFICATION

The AX 15 identification code numbers are on the bottom surface of the transmission gear case (Fig. 2).

The first number is year of manufacture. The second and third numbers indicate month of manufacture. The next series of numbers is the transmission serial number.

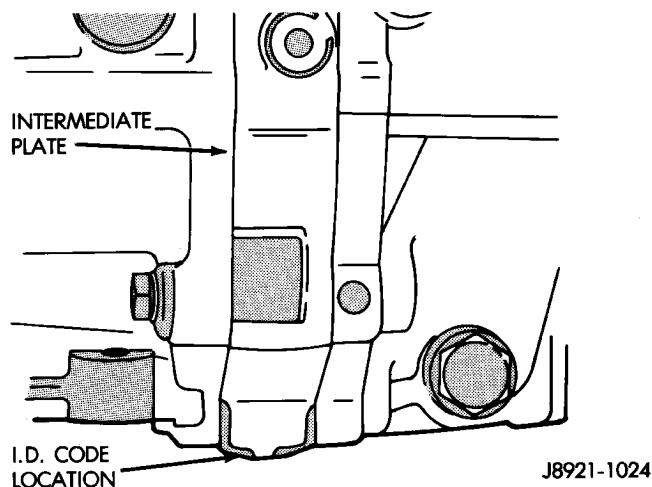


Fig. 2 Identification Code Number Location

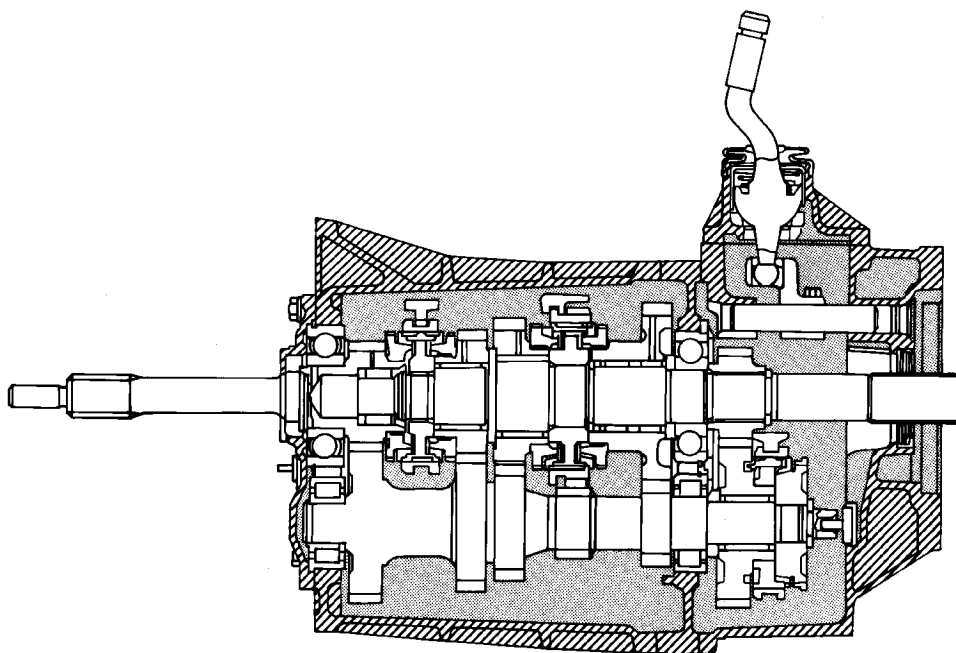


Fig. 1 AX 15 Manual Transmission

GENERAL INFORMATION (Continued)

TRANSMISSION SHIFT PATTERN

The AX 15 shift pattern is shown in (Fig. 3). First and second and third and fourth gear ranges are in line for improved shifting. Fifth and reverse gear ranges are also in line at the extreme right of the pattern (Fig. 3).

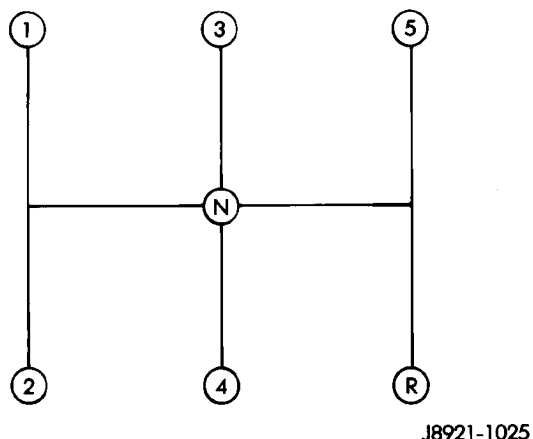


Fig. 3 AX 15 Shift Pattern

The AX 15 is equipped with a reverse lockout mechanism. The shift lever must be moved through the Neutral detent before making a shift to reverse.

TRANSMISSION LUBRICANT

Recommended lubricant for AX 15 transmissions is Mopar 75W-90, API Grade GL-5 gear lubricant, or equivalent.

Correct lubricant level is from the bottom edge, to no more than 6 mm (1/4 in.) below the bottom edge of the fill plug hole.

Approximate dry fill lubricant capacity is:

- 3.10 liters (3.27 qts.) in 4-wheel drive models

TRANSMISSION SWITCH AND PLUG LOCATIONS

The fill plug is at the driver side of the gear case (Fig. 4).

The drain plug and backup light switch are on the passenger side of the gear case (Fig. 5).

TRANSMISSION GEAR RATIOS

AX 15 gear ratios are:

First gear	3.83:1
Second gear	2.33:1
Third gear	1.44:1
Fourth gear	1.00:1
Fifth gear	0.79:1
Reverse	4.22:1

TRANSMISSION ASSEMBLY INFORMATION

Lubricate the transmission components with gear lubricant during assembly. Use petroleum jelly to

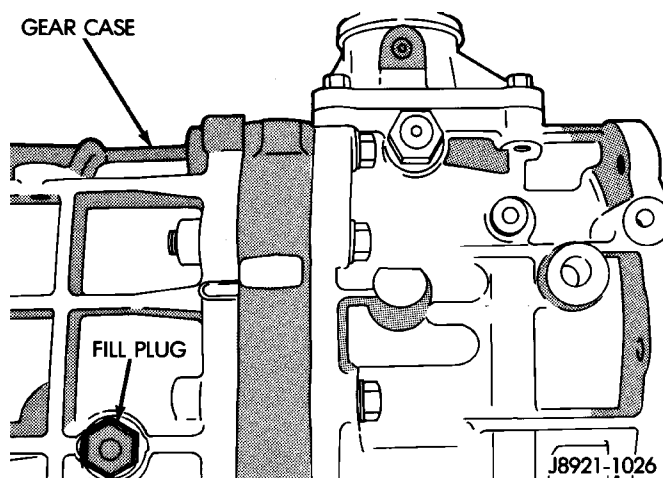


Fig. 4 Fill Plug Location

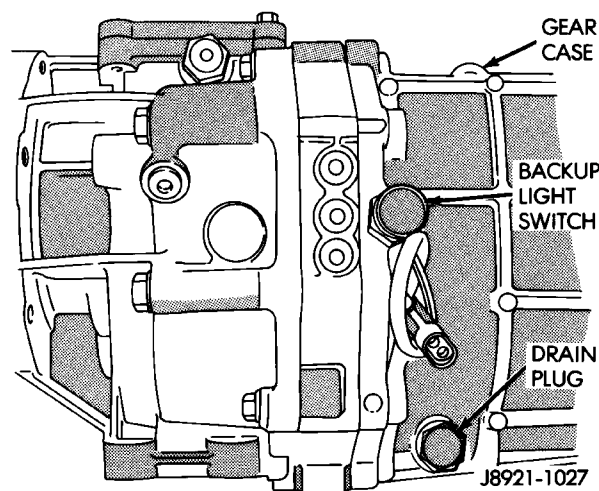


Fig. 5 Drain Plug/Backup Light Switch Location

lubricate seal lips and/or hold parts in place during installation.

DIAGNOSIS AND TESTING

LOW LUBRICANT LEVEL

A low transmission lubricant level is generally the result of a leak, inadequate lubricant fill, or an incorrect lubricant level check.

Leaks can occur at the mating surfaces of the gear case, intermediate plate and adapter or extension housing, or from the front/rear seals. A suspected leak could also be the result of an overfill condition.

Leaks at the rear of the extension or adapter housing will be from the housing oil seals. Leaks at component mating surfaces will usually be the result of inadequate sealer, gaps in the sealer, incorrect bolt tightening, or use of a non-recommended sealer.

A leak at the front of the transmission will be from either the front bearing retainer or retainer seal. Lubricant may be seen dripping from the clutch

DIAGNOSIS AND TESTING (Continued)

housing after extended operation. If the leak is severe, it may also contaminate the clutch disc causing slip, grab and chatter.

Transmissions filled from air or electrically powered lubricant containers can be under filled. This generally happens when the container delivery mechanism is improperly calibrated. Always check the lubricant level after filling to avoid an under fill condition.

A correct lubricant level check can only be made when the vehicle is level; use a drive-on hoist to ensure this. Also allow the lubricant to settle for a minute or so before checking. These recommendations will ensure an accurate check and avoid an under-or-over fill condition.

HARD SHIFTING

Hard shifting is usually caused by a low lubricant level, improper or contaminated lubricants, component damage, incorrect clutch adjustment, or by a damaged clutch pressure plate or disc.

Substantial lubricant leaks can result in gear, shift rail, synchro and bearing damage. If a leak goes undetected for an extended period, the first indications of a problem are usually hard shifting and noise.

Incorrect or contaminated lubricants can also contribute to hard shifting. The consequence of using non-recommended lubricants is noise, excessive wear, internal bind and hard shifting.

Improper clutch release is a frequent cause of hard shifting. Incorrect adjustment or a worn, damaged pressure plate or disc can cause incorrect release. If the clutch problem is advanced, gear clash during shifts can result.

Worn or damaged synchro rings can cause gear clash when shifting into any forward gear. In some new or rebuilt transmissions, new synchro rings may tend to stick slightly causing hard or noisy shifts. In most cases, this condition will decline as the rings wear-in.

TRANSMISSION NOISE

Most manual transmissions make some noise during normal operation. Rotating gears can generate a mild whine that may only be audible at extreme speeds.

Severe, obviously audible transmission noise is generally the result of a lubricant problem. Insufficient, improper, or contaminated lubricant can promote rapid wear of gears, synchros, shift rails, forks and bearings. The overheating caused by a lubricant problem, can also lead to gear breakage.

REMOVAL AND INSTALLATION

TRANSMISSION

REMOVAL

1. Disconnect the battery negative cable.
2. Remove the shifter boot and shifter.
3. Raise the vehicle on a hoist.
4. Drain the transmission fluid (Fig. 6).

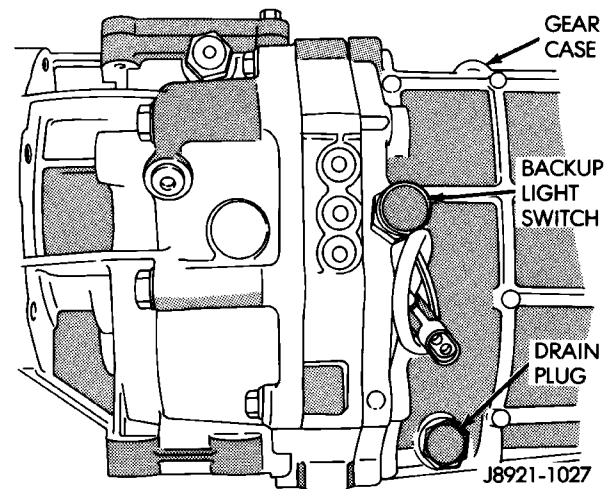


Fig. 6 Drain Plug and Backup Light Switch Location

5. Support the engine and transmission with an adjustable jack stand.
6. Remove exhaust pipe and heat shield.
7. Mark the front and rear propeller shafts for installation alignment (Fig. 7).

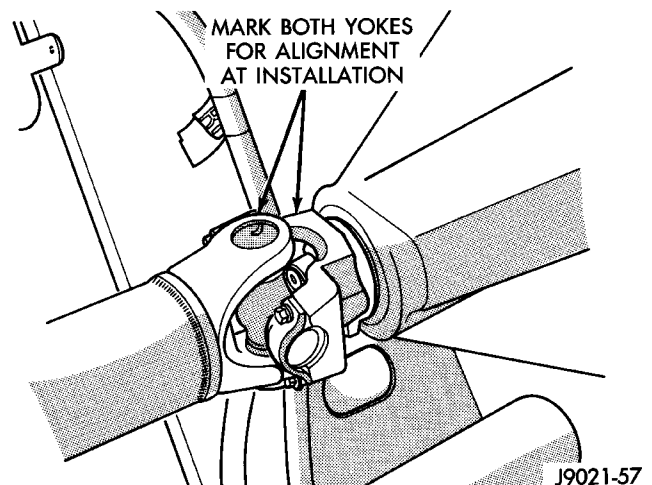
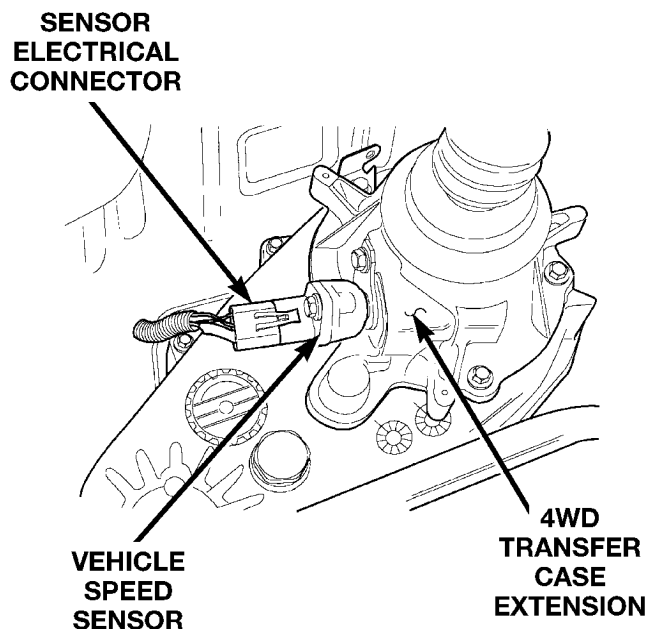


Fig. 7 Marking Propeller Shaft and Axle Yoke

8. Remove the front propeller shaft.
9. Remove the rear propeller shaft.
10. Remove the transmission skid plate.

REMOVAL AND INSTALLATION (Continued)

11. Disconnect the transfer case linkage and vehicle speed sensor electrical connector and vent tube hose (Fig. 8).



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Fig. 8 Vehicle Speed Sensor

12. Reposition the adjustable jackstand under the engine.

13. Place a transmission jack under the transmission and secure the transmission with safety chains.

14. Remove the rear transmission mount.

15. Remove the rear crossmember.

16. Remove the transfer case assembly. Refer to Transfer Case removal later in this Group.

17. Lower the engine and transmission no more than 7.6 cm.

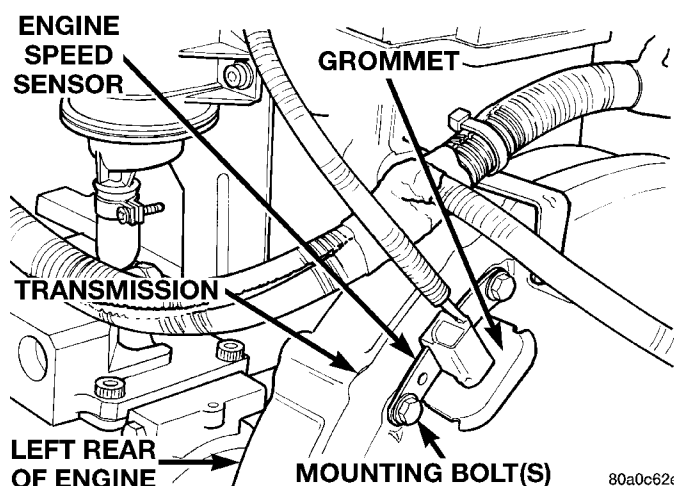
18. Remove the two (2) upper and two (2) mid clutch housing to engine bolts.

19. Remove the engine speed sensor (crankshaft position sensor) (Fig. 9).

20. Remove the clutch slave cylinder from the clutch housing.

21. Remove the lower transmission bolts.

22. Remove the transmission assembly from the vehicle.



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Fig. 9 Engine Speed Sensor**INSTALLATION**

1. Mount the transmission on a transmission jack and secure the transmission with safety chains.

2. Install the transmission to the vehicle (Fig. 10).

3. Install the two (2) lower transmission bolts. Tighten the bolts to 74.6 N·m.

4. Install the clutch slave cylinder to the clutch housing.

5. Install the engine speed sensor (crankshaft position sensor) to the vehicle (Fig. 9).

6. Install the two (2) upper clutch housing to engine bolts. Tighten the bolts to 36.6 N·m.

7. Install the two (2) mid clutch housing to engine bolts. Tighten the bolts to 58.3 N·m.

8. Raise the engine and transmission with the adjustable jackstand.

9. Install the transfer case assembly. Refer to Transfer Case installation later in this Group.

10. Install the rear crossmember.

11. Install the rear transmission mount.

12. Connect the transfer case linkage and vehicle speed sensor electrical connector and vent tube (Fig. 8).

13. Install the transmission skid plate.

14. Align and install the front and rear propeller shafts.

15. Install the exhaust pipe and heat shield.