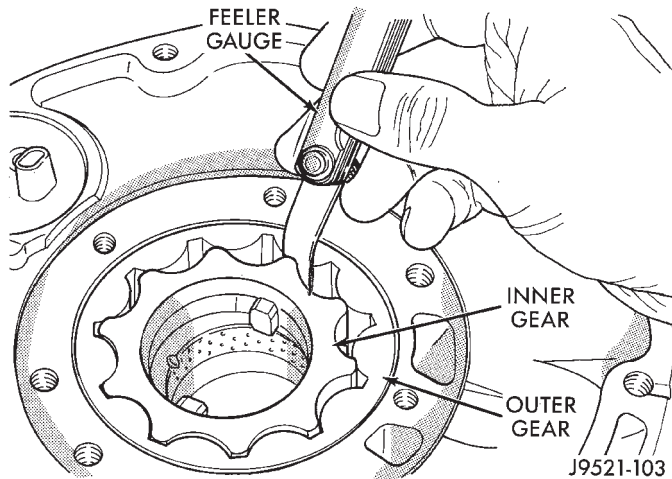


CLEANING AND INSPECTION (Continued)

**Fig. 350 Checking Pump Gear Tip Clearance**

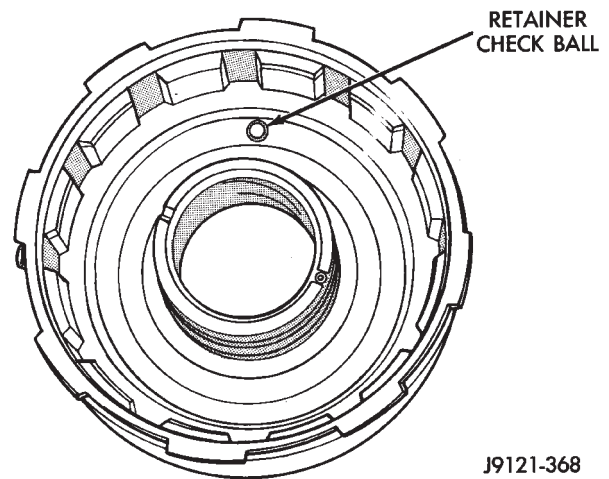
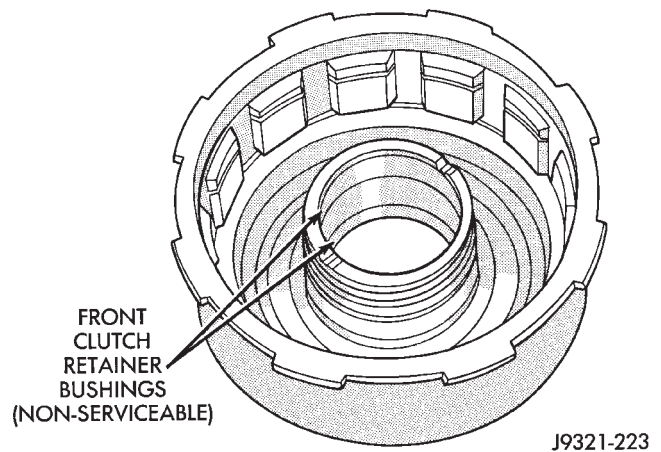
Replace the clutch spring and spring retainer if either is distorted, warped or broken.

Check the lug grooves in the clutch retainer. The steel plates should slide freely in the slots. Replace the retainer if the grooves are worn or damaged.

Check action of the check ball in the retainer (Fig. 351). The ball must move freely and not stick.

NOTE: Inspect the clutch retainer bushings carefully (Fig. 352). The retainer bushings are **NOT** serviceable. It will be necessary to replace the retainer if either bushing is scored, or worn.

Inspect the piston and retainer seal surfaces for nicks or scratches. Minor scratches can be removed with crocus cloth. However, replace the piston and/or retainer if the seal surfaces are seriously scored.

**Fig. 351 Front Clutch Piston Retainer Check Ball Location****Fig. 352 Retainer Bushing Location/Inspection**

CLEANING AND INSPECTION (Continued)

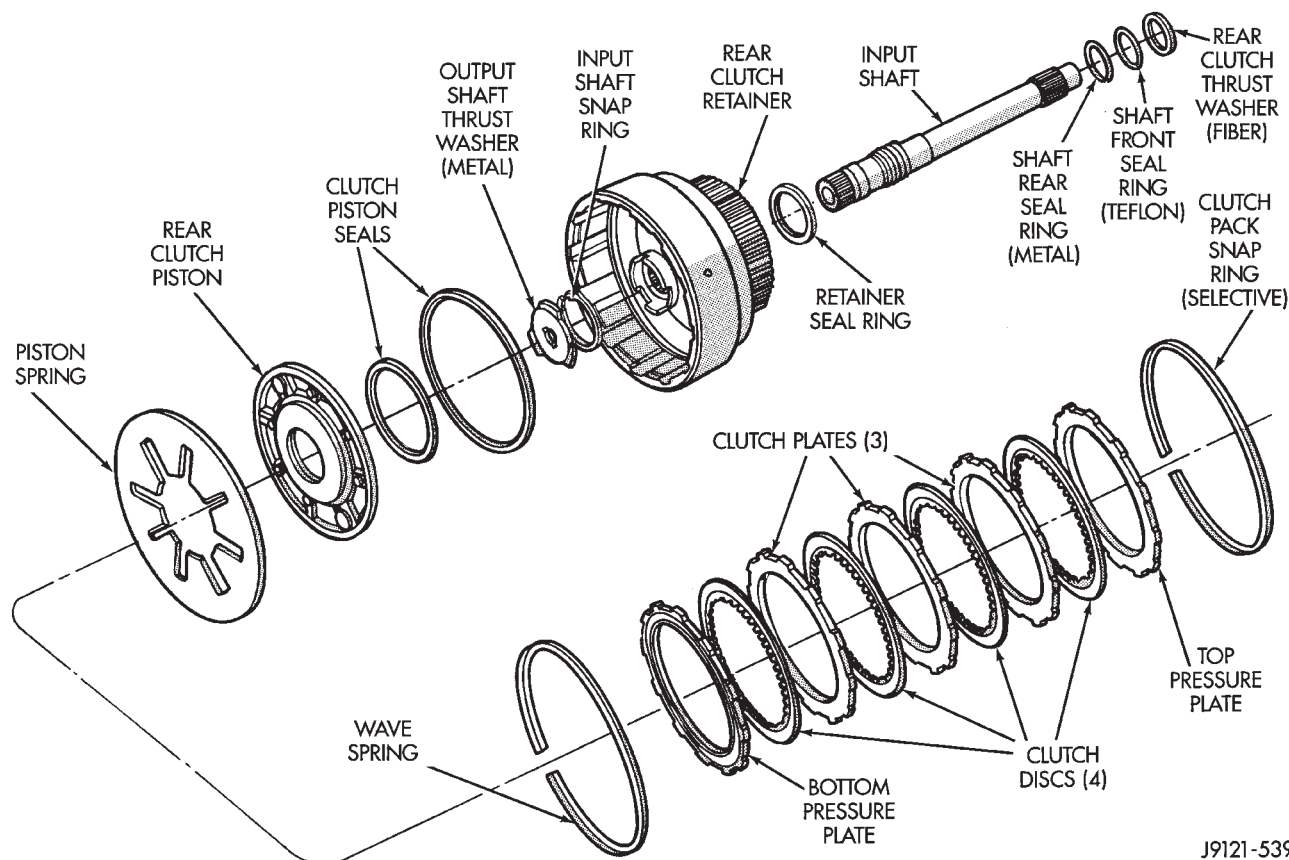


Fig. 353 Rear Clutch Components

J9121-539

REAR CLUTCH

Clean the clutch components (Fig. 353) with solvent and dry them with compressed air. Do not use rags or shop towels to dry any of the clutch parts. Lint from such materials will adhere to component surfaces and could restrict or block fluid passages after assembly.

Replace the clutch discs if warped, worn, scored, burned/charred, the lugs are damaged, or if the facing is flaking off. Replace the top and bottom pressure plates if scored, warped, or cracked. Be sure the driving lugs on the pressure and clutch plates are also in good condition. The lugs must not be bent, cracked or damaged in any way.

Replace the piston spring and wave spring if either part is distorted, warped or broken.

Check the lug grooves in the clutch retainer. The clutch and pressure plates should slide freely in the slots. Replace the retainer if the grooves are worn or damaged. Also check action of the check balls in the retainer and piston. Each check ball must move freely and not stick.

Replace the retainer bushing if worn, scored, or doubt exists about bushing condition.

Inspect the piston and retainer seal surfaces for nicks or scratches. Minor scratches can be removed with crocus cloth. However, replace the piston and/or retainer if the seal surfaces are seriously scored.

Check condition of the fiber thrust washer and metal output shaft thrust washer. Replace either washer if worn or damaged.

Check condition of the seal rings on the input shaft and clutch retainer hub. Replace the seal rings only if worn, distorted, or damaged. The input shaft front seal ring is teflon with chamfered ends. The rear ring is metal with interlocking ends.

Check the input shaft for wear, or damage. Replace the shaft if worn, scored or damaged in any way.

PLANETARY GEARTRAIN

Clean the planetary components in solvent and dry them with compressed air.

Check sun gear and driving shell condition (Fig. 354). Replace the gear if damaged or if the bushings are scored or worn. The bushings are not serviceable. Replace the driving shell if worn, cracked or damaged.

Replace planetary gear sets if gears, pinion pins, or carrier are damaged in any way. Replace the annulus gears and supports if either component is worn or damaged.

Inspect the geartrain spacers, thrust plates, snap rings, and thrust washers (Fig. 354). Replace any of these parts that are worn, distorted or damaged. Do not attempt to reuse these parts.

CLEANING AND INSPECTION (Continued)

The planetary gear thrust washers are different sizes. The large diameter washers go on the front planetary and the smaller washers go on the rear planetary. All the washers have four locating tabs on them. These tabs fit in the holes or slots provided in each planetary gear.

Inspect the output shaft carefully. Pay particular attention to the machined bushing/bearing surfaces on the shaft and the governor valve shaft bore at the shaft rear.

Replace the output shaft if the machined surfaces are scored, pitted, or damaged in any way. Also replace the shaft if the splines are damaged, or exhibits cracks at any location (especially at the governor valve shaft bore).

The annulus gears can be removed from their supports if necessary. Just remove the snap rings and separate the two parts when replacement is necessary. In addition, the annulus gear bushings can be replaced if severely worn, or scored. However it is not necessary to replace the bushings if they only exhibit normal wear. Check bushing fit on the output shaft to be sure.

Do not use shop towels for wiping parts dry unless the towels are made from a lint-free material. A sufficient quantity of lint (from shop towels, cloths, rags, etc.) could plug the transmission filter and fluid passages.

Discard the old case gasket and seals. Do not attempt to salvage these parts. They are not reusable. Replace any of the overdrive unit snap rings if distorted or damaged.

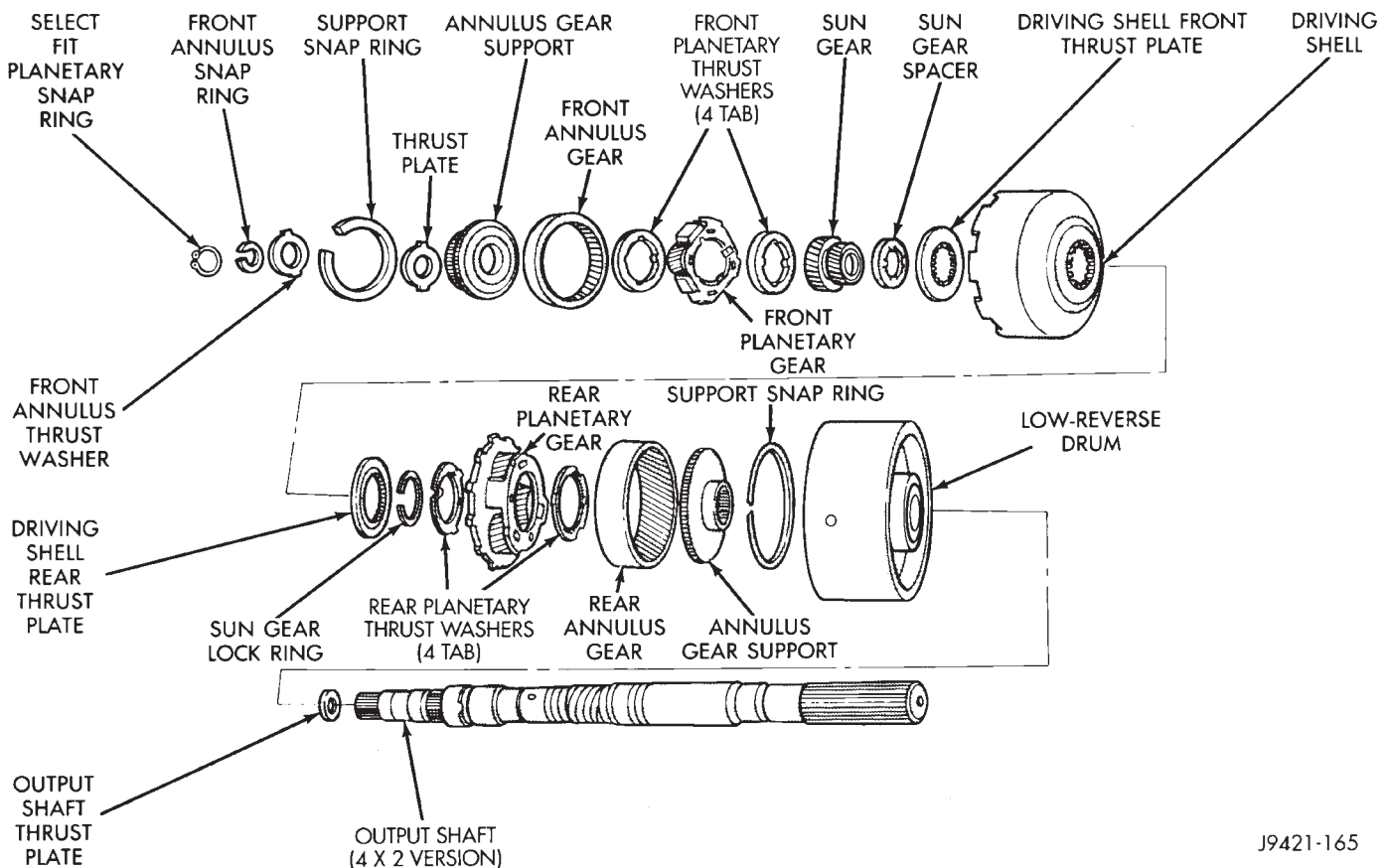
Minor nicks or scratches on components can be smoothed with crocus cloth. However, do not attempt to reduce severe scoring on any components with abrasive materials. Replace severely scored components; do not try to salvage them.

Check condition of the park lock components and the overdrive gear case (Fig. 356).

Replace the case if cracked, scored, or damaged. Replace the park lock pawl, plug, or spring if worn or damaged. Be sure the knob at the end of the park lock rod is in good condition. Replace the rod if the knob is worn or the rod itself is bent or distorted. Do not attempt to straighten the rod.

OVERDRIVE

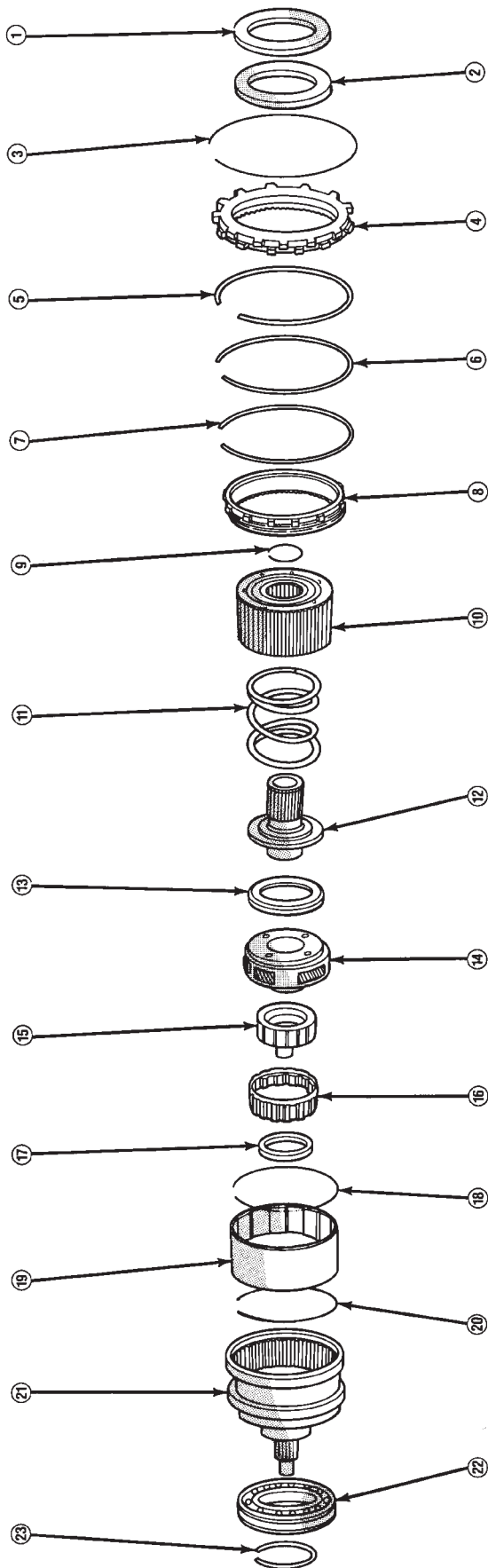
Clean the geartrain (Fig. 355) and case components (Fig. 356) with solvent. Dry all parts except the bearings with compressed air. Allow bearings to air dry.



J9421-165

Fig. 354 Planetary Geartrain Components

CLEANING AND INSPECTION (Continued)



- | | | |
|--|--------------------------------------|--|
| ① OVERDRIVE PISTON THRUST PLATE | ⑨ CLUTCH HUB RETAINING RING | ⑰ OVERRUNNING CLUTCH THRUST BEARING |
| ② OVERDRIVE PISTON THRUST BEARING | ⑩ DIRECT CLUTCH HUB | ⑱ RETAINING RING (CLUTCH DRUM INNER) |
| ③ OVERDRIVE CLUTCH PACK RETAINING RING | ⑪ DIRECT CLUTCH SPRING | ⑲ DIRECT CLUTCH DRUM |
| ④ OVERDRIVE CLUTCH PACK | ⑫ SUN GEAR AND SPRING PLATE ASSEMBLY | ⑳ RETAINING RING (CLUTCH DRUM OUTER) |
| ⑤ OVERDRIVE CLUTCH REACTION RING | ⑬ PLANETARY THRUST BEARING | ㉑ ANNULUS GEAR, OUTPUT SHAFT, AND SNAP RING ASSEMBLY |
| ⑥ OVERDRIVE CLUTCH SNAP RING | ⑭ PLANETARY GEAR | ㉒ REAR BEARING |
| ⑦ DIRECT CLUTCH PACK SNAP RING | ⑮ OVERRUNNING CLUTCH HUB | ㉓ REAR BEARING SNAP RING |
| ⑧ DIRECT CLUTCH PACK | ⑯ OVERRUNNING CLUTCH | |

J9321-366

Fig. 355 Overdrive Geartrain Components

CLEANING AND INSPECTION (Continued)

Check the bushings in the overdrive case. Replace the bushings if severely scored or worn. Also replace the case seal if loose, distorted, or damaged.

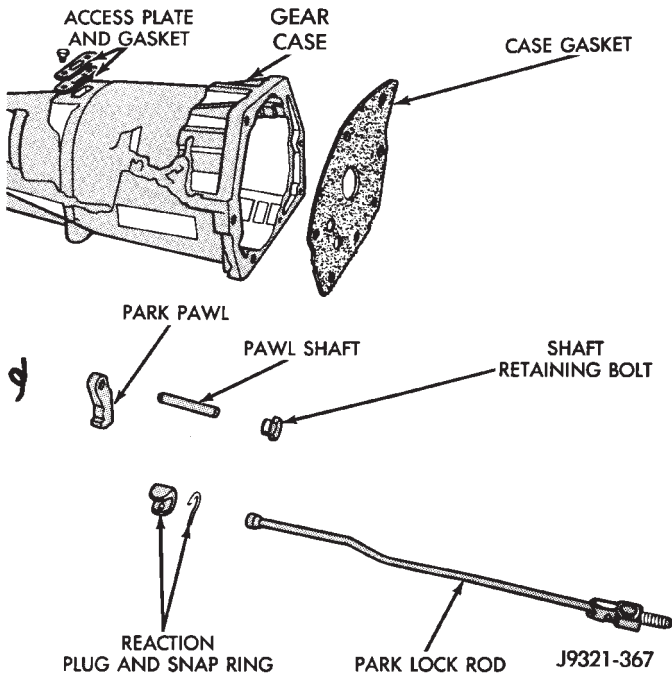


Fig. 356 Overdrive Gear Case And Park Lock Components

Examine the overdrive and direct clutch discs and plates (Fig. 355). Replace the discs if the facing is worn, severely scored, or burned and flaking off. Replace the clutch plates if worn, heavily scored, or cracked. Check the lugs on the clutch plates for wear. The plates should slide freely in the drum. Replace the plates or drum if binding occurs.

Check condition of the annulus gear, direct clutch hub, clutch drum and clutch spring (Fig. 355). Replace the gear, hub and drum if worn or damaged. Replace the spring if collapsed, distorted, or cracked. Be sure the splines and lugs on the gear, drum and hub are in good condition. The clutch plates and discs should slide freely in these components.

Inspect the thrust bearings and spring plate (Fig. 355). Replace the plate if worn or scored. Replace the bearings if rough, noisy, brinnelled, or worn.

Inspect the planetary gear assembly and the sun gear and bushings. If either the sun gear or the bushings are damaged, replace the gear and bushings as an assembly. The gear and bushings are not serviced separately.

The planetary carrier and pinions must be in good condition. Also be sure the pinion pins are secure and in good condition. Replace the carrier if worn or damaged.

Inspect the overrunning clutch and race. The race surface should be smooth and free of scores. Replace

the overrunning clutch assembly or the race if either assembly is worn or damaged in any way.

Check the machined surfaces on the output shaft. These surfaces should be clean and smooth. Very minor nicks or scratches can be polished down with crocus cloth. Replace the shaft if worn, severely scored, or damaged in any way.

Inspect the output shaft bushings (Fig. 357). The small bushing is the intermediate shaft pilot bushing. The large bushing is the overrunning clutch hub bushing. Replace either bushing if scored, pitted, cracked, or worn. Remove the annulus gear from the output shaft if bushing replacement is required. This will provide more working room and make bushing replacement easier.

The bushings can be removed with "blind hole puller tools" such as Snap-On set CG40CB for small bushings and set CG46 for large bushings. New bushings can be installed with tools from an all purpose installer kit such as the Snap-On A257 bushing driver set.

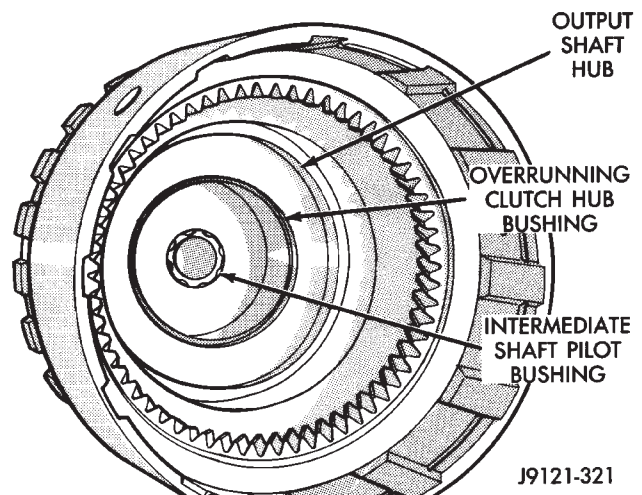


Fig. 357 Output Shaft Bushing Location

ADJUSTMENTS

BRAKE TRANSMISSION SHIFT INTERLOCK

The park interlock cable is part of the brake/shift lever interlock system. Correct cable adjustment is important to proper interlock operation. The gear shift and park lock cables must both be correctly adjusted in order to shift out of Park.

Park Interlock Cable Adjustment Procedure

- (1) Shift into Park position.
- (2) Turn ignition switch to Accessory position. **Be sure ignition key cylinder is in Accessory position. Cable will not adjust correctly in any other position.**

ADJUSTMENTS (Continued)

(3) Remove shift lever bezel and console screws. Raise bezel and console for access to park interlock cable.

(4) Pull cable lock button up to release cable (Fig. 358).

(5) Pull cable forward. Then release cable and press lock button down until it snaps in place.

(6) Check cable adjustment. With shift lever in Park, ignition lock cylinder should rotate freely from Off to Lock. Cylinder should not rotate in any other shift lever position.

(7) Verify brake/transmission interlock operation:

- Turn ignition lock cylinder to Run position.
- Press and hold brake pedal down. Pedal must travel at least 12 mm (1/2 in.) to activate position switch and supply operating voltage to cable release solenoid.

- Press button on shift lever handle inward and verify that shift lever comes out of Park.

(8) Shift back into Park. It is not necessary to apply brakes to shift back into Park. Shift lever can be moved into Park with engine off, or running, and the lock cylinder in any position. All that is required, is that shift handle release button be pressed inward before moving shift lever.

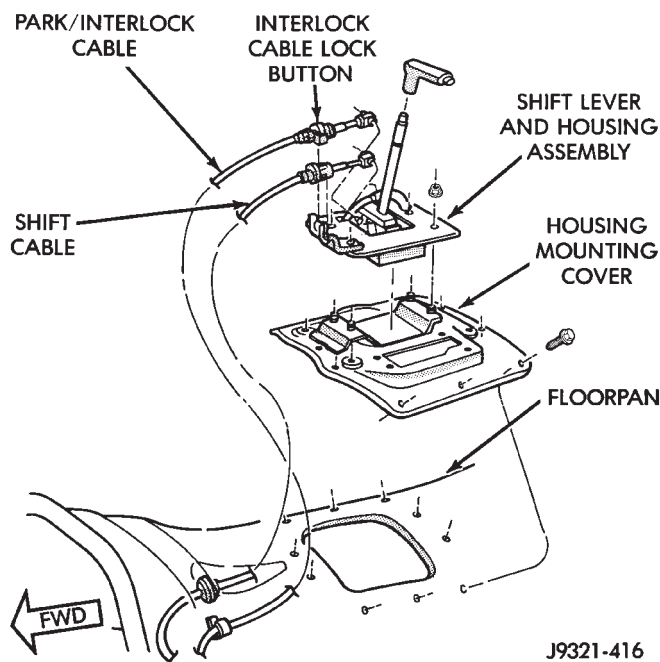


Fig. 358 Shift And Park Lock Cables

TRANSMISSION THROTTLE VALVE CABLE ADJUSTMENT

The transmission throttle valve is operated by a cam on the throttle lever. The throttle lever is operated by an adjustable cable (Fig. 359). The cable is attached to an arm mounted on the throttle lever

shaft. A lock button at the engine-end of the cable is provided for cable adjustment.

A correctly adjusted throttle valve cable will cause the throttle lever on the transmission to move simultaneously with the throttle body lever from the idle position. Proper adjustment will allow simultaneous movement without causing the transmission throttle lever to either move ahead of, or lag behind the lever on the throttle body.

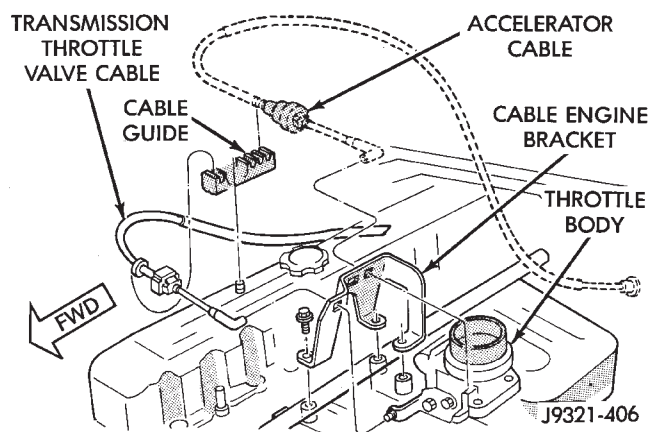


Fig. 359 Throttle Cable Attachment At Engine

Checking Throttle Valve Cable Adjustment

- (1) Turn ignition key to OFF position.
- (2) Remove air cleaner.
- (3) Verify that lever on throttle body is at curb idle position. Then verify that transmission throttle lever (Fig. 360) is also at idle (fully forward) position.

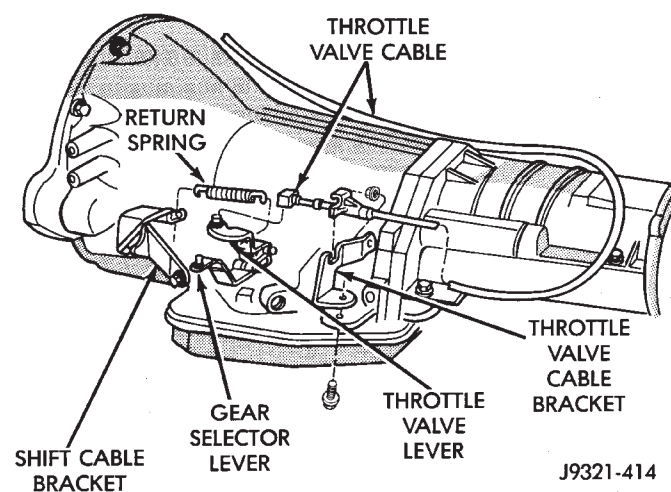


Fig. 360 Throttle Cable Attachment At Transmission

(4) Slide cable off attachment stud on throttle body lever (Fig. 361).

(5) Compare position of cable end to attachment stud on throttle body lever (Fig. 361):

- Cable end and attachment stud should be aligned (or centered on one another) to within 1 mm (0.039 in.) in either direction.

ADJUSTMENTS (Continued)

- If cable end and attachment stud are misaligned (off center), cable will have to be adjusted as described in Throttle Valve Cable Adjustment procedure.

(6) Reconnect cable end to attachment stud. Then with aid of a helper, observe movement of transmission throttle lever and lever on throttle body.

- If both levers move simultaneously from idle to half-throttle and back to idle position, adjustment is correct.

- If transmission throttle lever moves ahead of, or lags behind throttle body lever, cable adjustment will be necessary. Or, if throttle body lever prevents transmission lever from returning to closed position, cable adjustment will be necessary.

Throttle Valve Cable Adjustment Procedure

- (1) Turn ignition switch to OFF position.
- (2) Remove air cleaner if necessary.
- (3) Disconnect cable end from attachment stud.

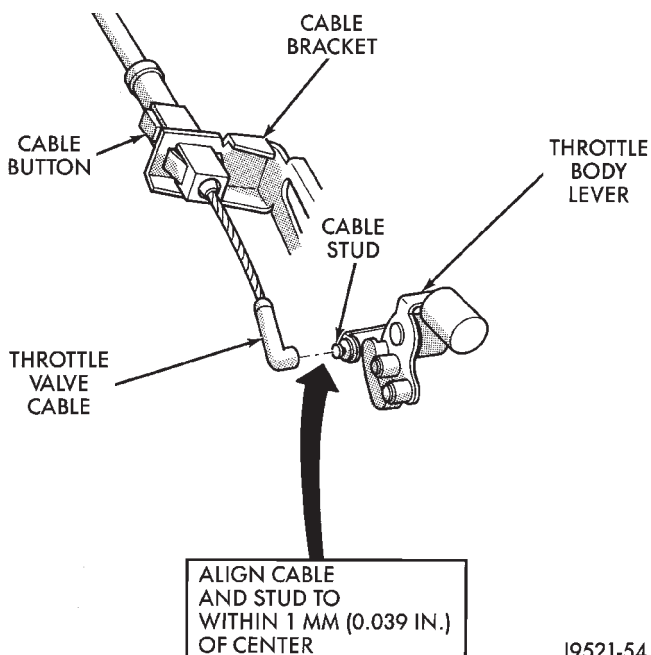
Carefully slide cable off stud. Do not pry or pull cable off.

(4) Verify that transmission throttle lever is in fully closed position. Then be sure lever on throttle body is at curb idle position.

(5) Press cable lock button inward to release cable (Fig. 361). Lock button only has to move about 2 mm (0.070 in.) to release cable in adjuster head.

(6) Center cable end on attachment stud to within 1 mm (0.039 in.) and release lock button.

(7) Check cable adjustment. Be sure transmission throttle lever and lever on throttle body move simultaneously as described in cable adjustment checking procedure.



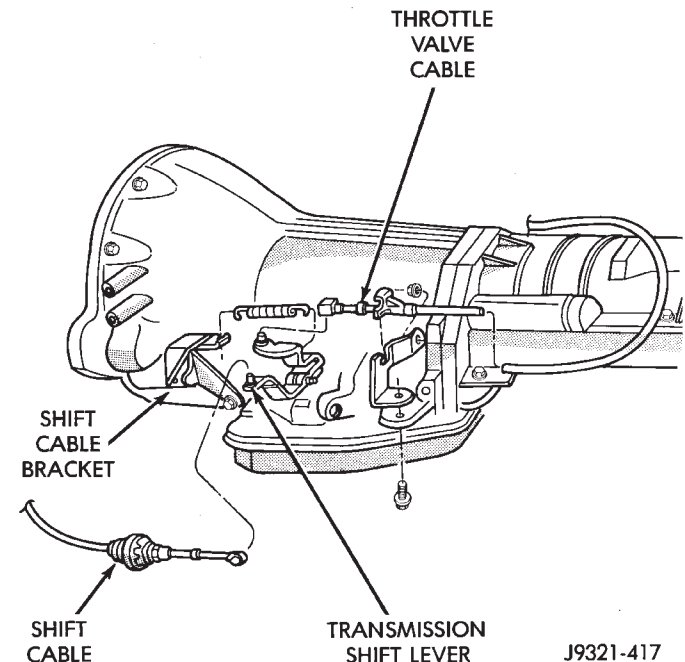
J9521-54

Fig. 361 Throttle Valve Cable Adjustment**GEARSHIFT CABLE**

Check adjustment by starting the engine in Park and Neutral. Adjustment is OK if the engine starts only in these positions. Adjustment is incorrect if the engine starts in one but not both positions. If the engine starts in any position other than Park or Neutral, or if the engine will not start at all, the park/neutral position switch may be faulty.

Gearshift Adjustment Procedure

- (1) Shift transmission into Park.
- (2) Raise vehicle.
- (3) Release cable adjuster clamp (at transmission end of cable) to unlock cable.
- (4) Unsnap cable from cable mounting bracket on transmission (Fig. 362).
- (5) Slide cable eyelet off transmission shift lever.
- (6) Verify transmission shift lever is in Park detent by moving lever fully rearward. Last rearward detent is Park position.
- (7) Verify positive engagement of transmission park lock by attempting to rotate propeller shaft. Shaft will not rotate when park lock is engaged.
- (8) Slide cable eyelet onto transmission shift lever.
- (9) Snap shift cable adjuster into mounting bracket on transmission.
- (10) Lock shift cable by pressing cable adjuster clamp down until it snaps into place.
- (11) Lower vehicle and check engine starting. Engine should start only in Park and Neutral.

**Fig. 362 Shift Cable Attachment At Transmission**

ADJUSTMENTS (Continued)

FRONT BAND ADJUSTMENT

The front (kickdown) band adjusting screw is located on the left side of the transmission case above the manual valve and throttle valve levers.

- (1) Raise vehicle.
- (2) Loosen band adjusting screw locknut (Fig. 363). Then back locknut off 3-5 turns. Be sure adjusting screw turns freely in case. Apply lubricant to screw threads if necessary.
- (3) Tighten band adjusting screw to 8 N·m (72 in. lbs.) torque with Inch Pound Torque Wrench C-3380-A, a 3-in. extension and 5/16 socket.

CAUTION: If Adapter C-3705 is needed to reach the adjusting screw (Fig. 364), tighten the screw to only 5 N·m (47-50 in. lbs.) torque.

- (4) Back off front band adjusting screw 2-7/8 turns.
- (5) Hold adjuster screw in position and tighten locknut to 41 N·m (30 ft. lbs.) torque.
- (6) Lower vehicle.

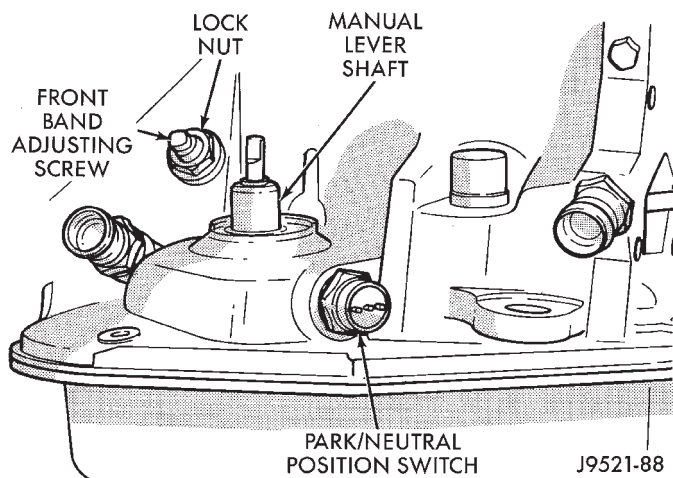


Fig. 363 Front Band Adjustment Screw Location

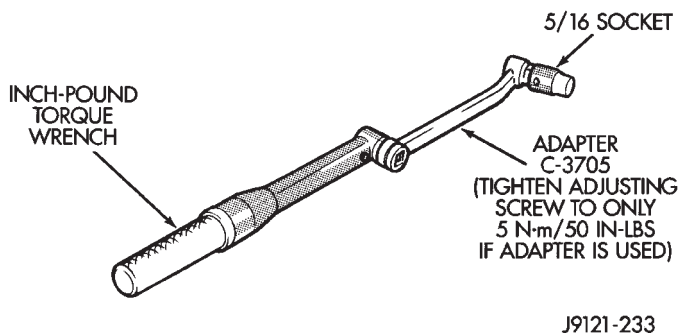


Fig. 364 Band Adjustment Adapter Tool

REAR BAND ADJUSTMENT

The transmission oil pan must be removed for access to the rear band adjusting screw.

- (1) Raise vehicle.

- (2) Remove transmission oil pan and drain fluid.
- (3) Loosen band adjusting screw locknut 5-6 turns. Be sure adjusting screw turns freely in lever.
- (4) Tighten adjusting screw to 8 N·m (72 in. lbs.) torque (Fig. 365).
- (5) Back off adjusting screw 2 turns.
- (6) Hold adjusting screw in place and tighten locknut to 34 N·m (25 ft. lbs.) torque.
- (7) Position new gasket on oil pan and install pan on transmission. Tighten pan bolts to 17 N·m (13 ft. lbs.) torque.
- (8) Lower vehicle and refill transmission with Mopar ATF Plus, Type 7176 fluid.

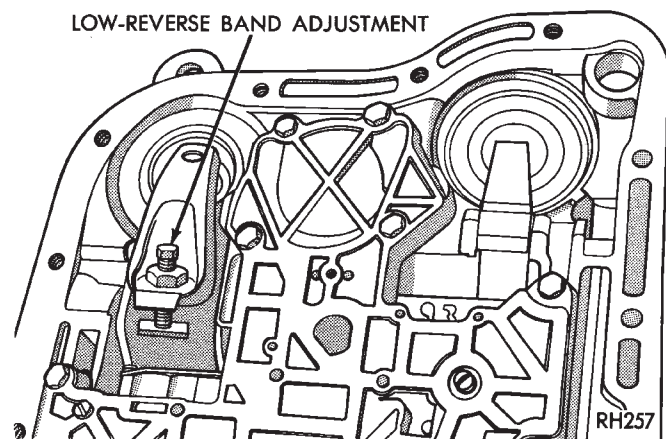


Fig. 365 Rear Band Adjustment Screw Location

VALVE BODY

CONTROL PRESSURE ADJUSTMENTS

There are two control pressure adjustments on the valve body;

- Line Pressure
- Throttle Pressure

Line and throttle pressures are interdependent because each affects shift quality and timing. As a result, both adjustments must be performed properly and in the correct sequence. Adjust line pressure first and throttle pressure last.

LINE PRESSURE ADJUSTMENT

Measure distance from the valve body to the inner edge of the adjusting screw with an accurate steel scale (Fig. 366).

Distance should be 33.4 mm (1-5/16 in.).

If adjustment is required, turn the adjusting screw in, or out, to obtain required distance setting.

NOTE: The 33.4 mm (1-5/16 in.) setting is an approximate setting. Manufacturing tolerances may make it necessary to vary from this dimension to obtain desired pressure.

ADJUSTMENTS (Continued)

One complete turn of the adjusting screw changes line pressure approximately 1-2/3 psi (9 kPa).

Turning the adjusting screw counterclockwise increases pressure while turning the screw clockwise decreases pressure.

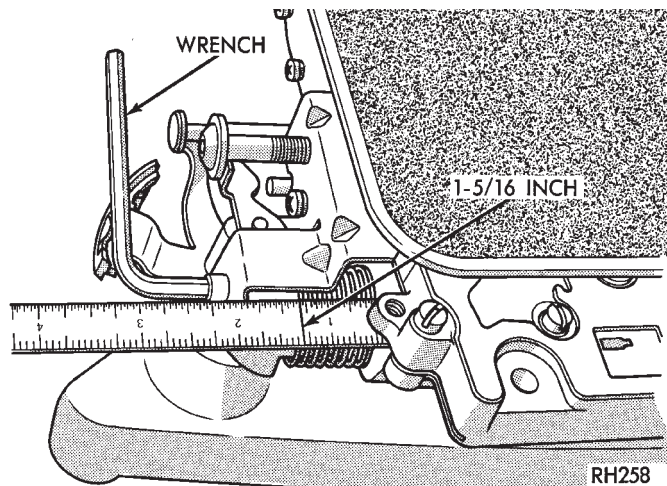


Fig. 366 Line Pressure Adjustment

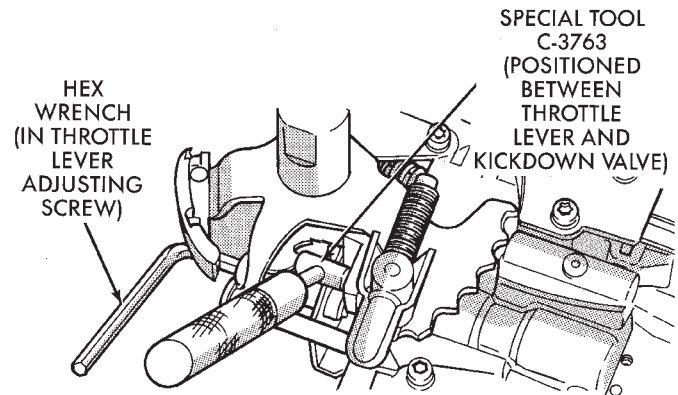
THROTTLE PRESSURE ADJUSTMENT

Insert Gauge Tool C-3763 between the throttle lever cam and the kickdown valve stem (Fig. 367).

Push the gauge tool inward to compress the kickdown valve against the spring and bottom the throttle valve.

Maintain pressure against kickdown valve spring. Turn throttle lever stop screw until the screw head touches throttle lever tang and the throttle lever cam touches gauge tool.

NOTE: The kickdown valve spring must be fully compressed and the kickdown valve completely bottomed to obtain correct adjustment.



J9521-109

Fig. 367 Throttle Pressure Adjustment

SCHEMATICS AND DIAGRAMS

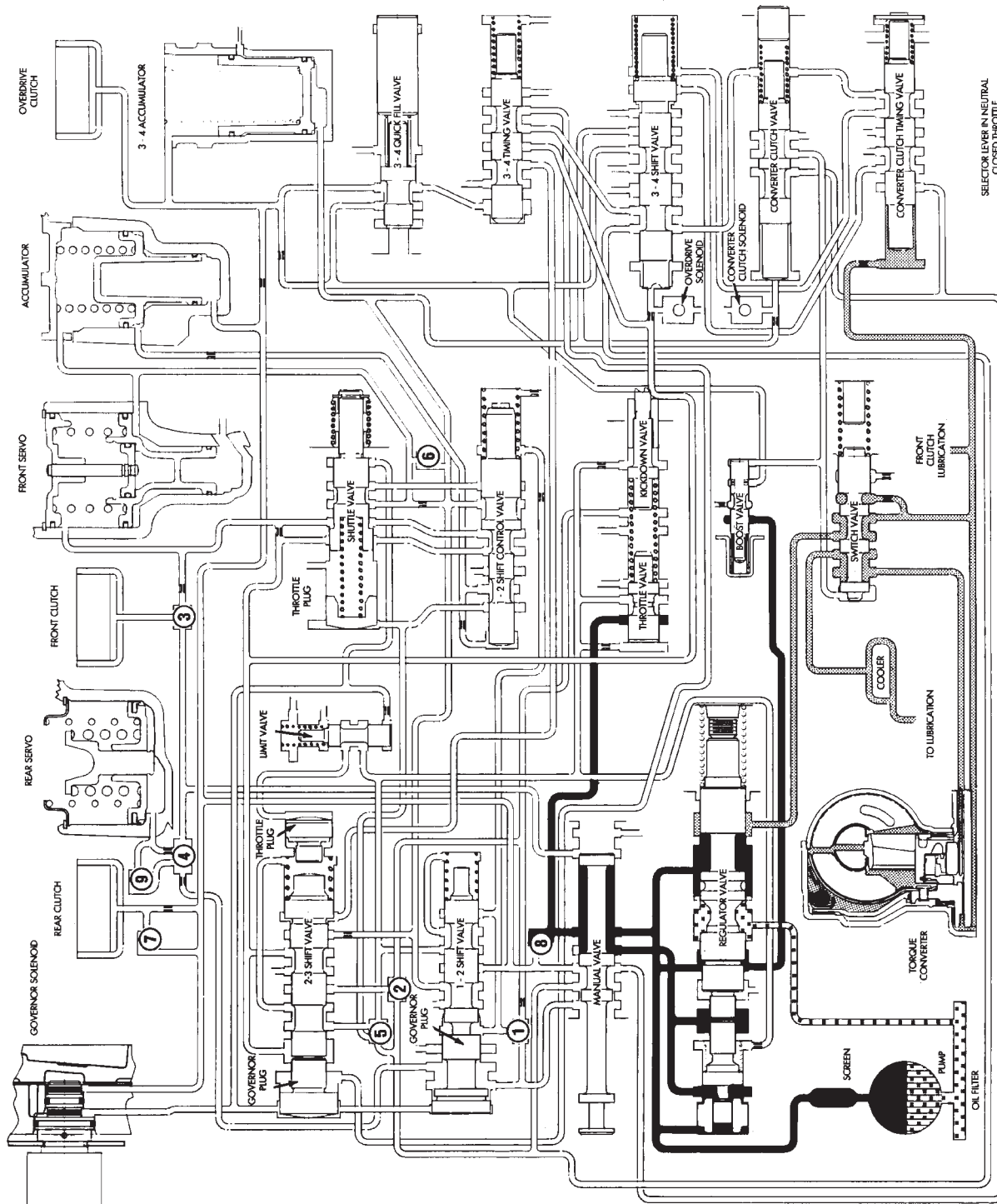
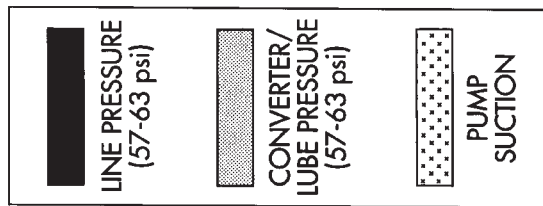
HYDRAULIC SCHEMATICS



LINE PRESSURE

PUMP
SUCTION

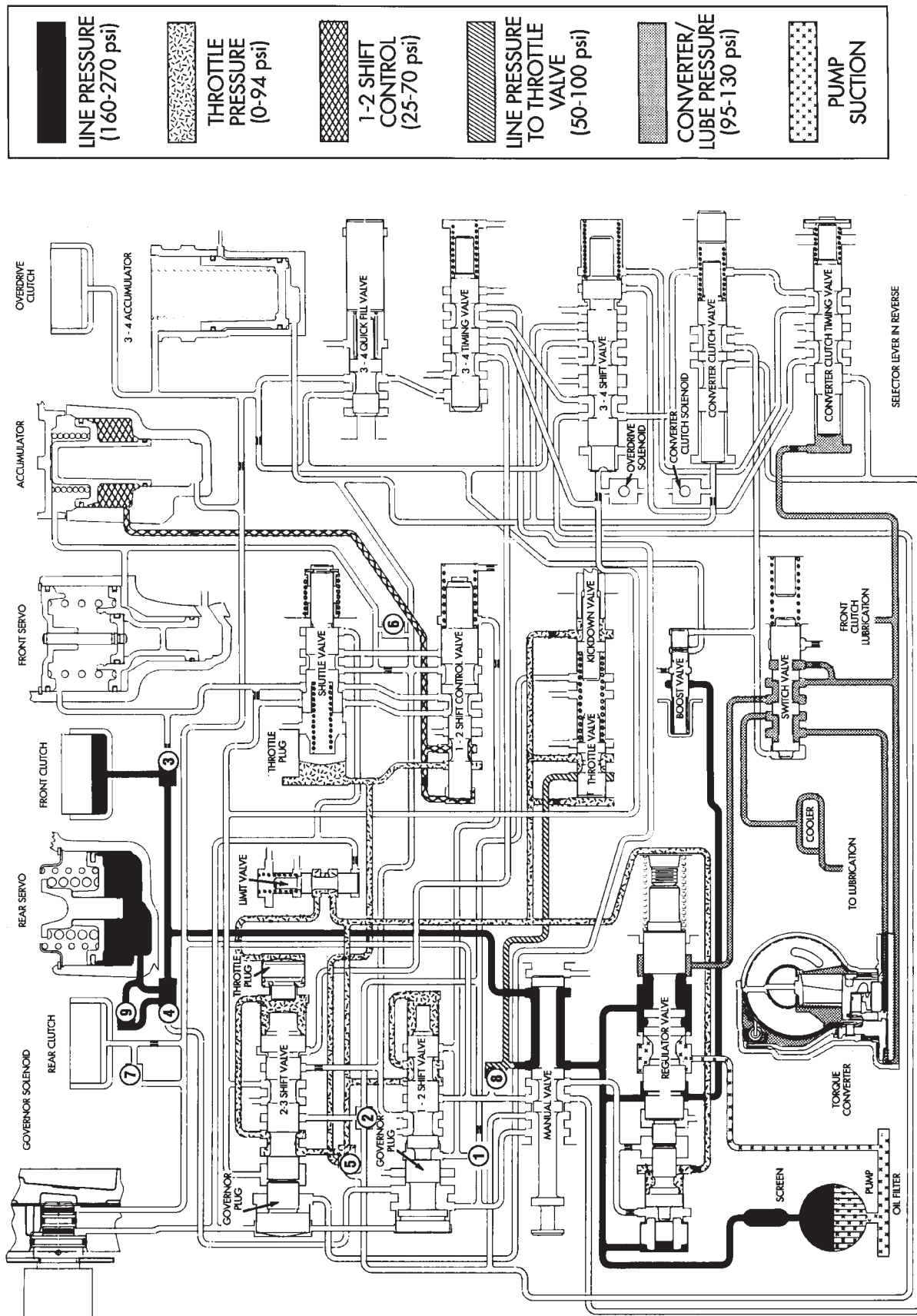
SCHEMATICS AND DIAGRAMS (Continued)



J9321-372

HYDRAULIC FLOW IN NEUTRAL

SCHEMATICS AND DIAGRAMS (Continued)



LINE PRESSURE
(160-270 psi)

THROTTLE
PRESSURE
(0-94 psi)

1-2 SHIFT
CONTROL
(25-70 psi)

LINE PRESSURE
TO THROTTLE
VALVE
(50-100 psi)

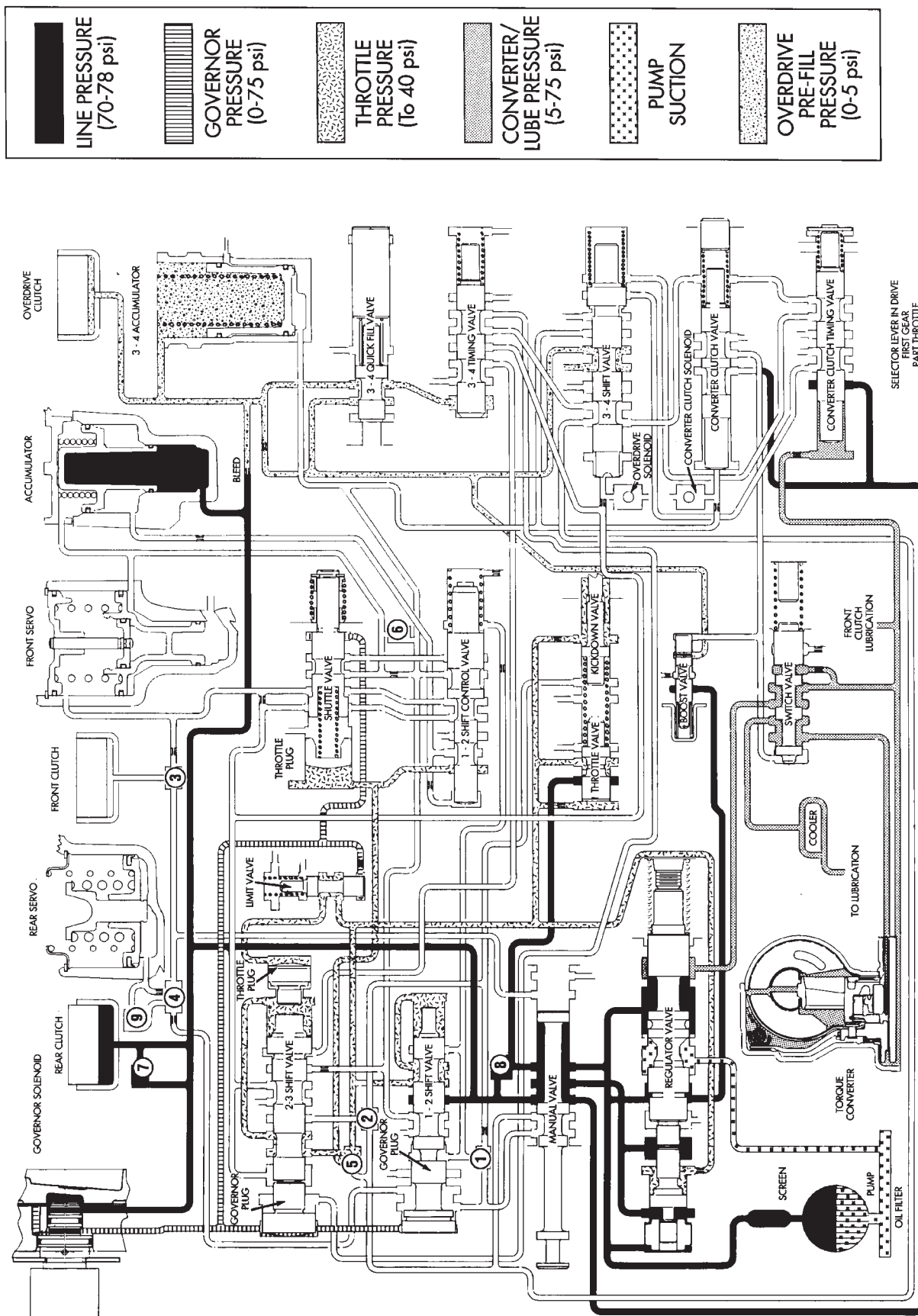
CONVERTER/
LUBE PRESSURE
(95-130 psi)

PUMP
SUCTION

J9321-373

HYDRAULIC FLOW IN REVERSE

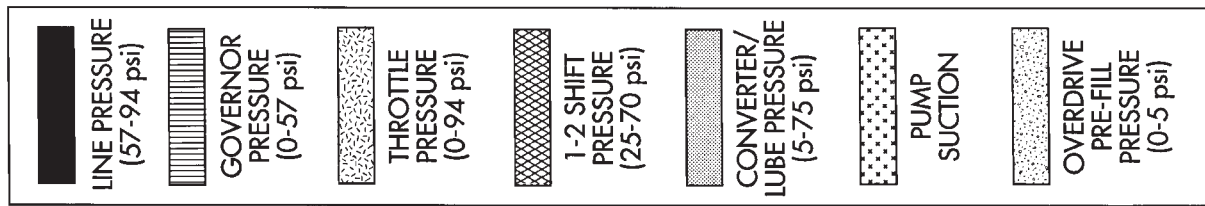
SCHEMATICS AND DIAGRAMS (Continued)



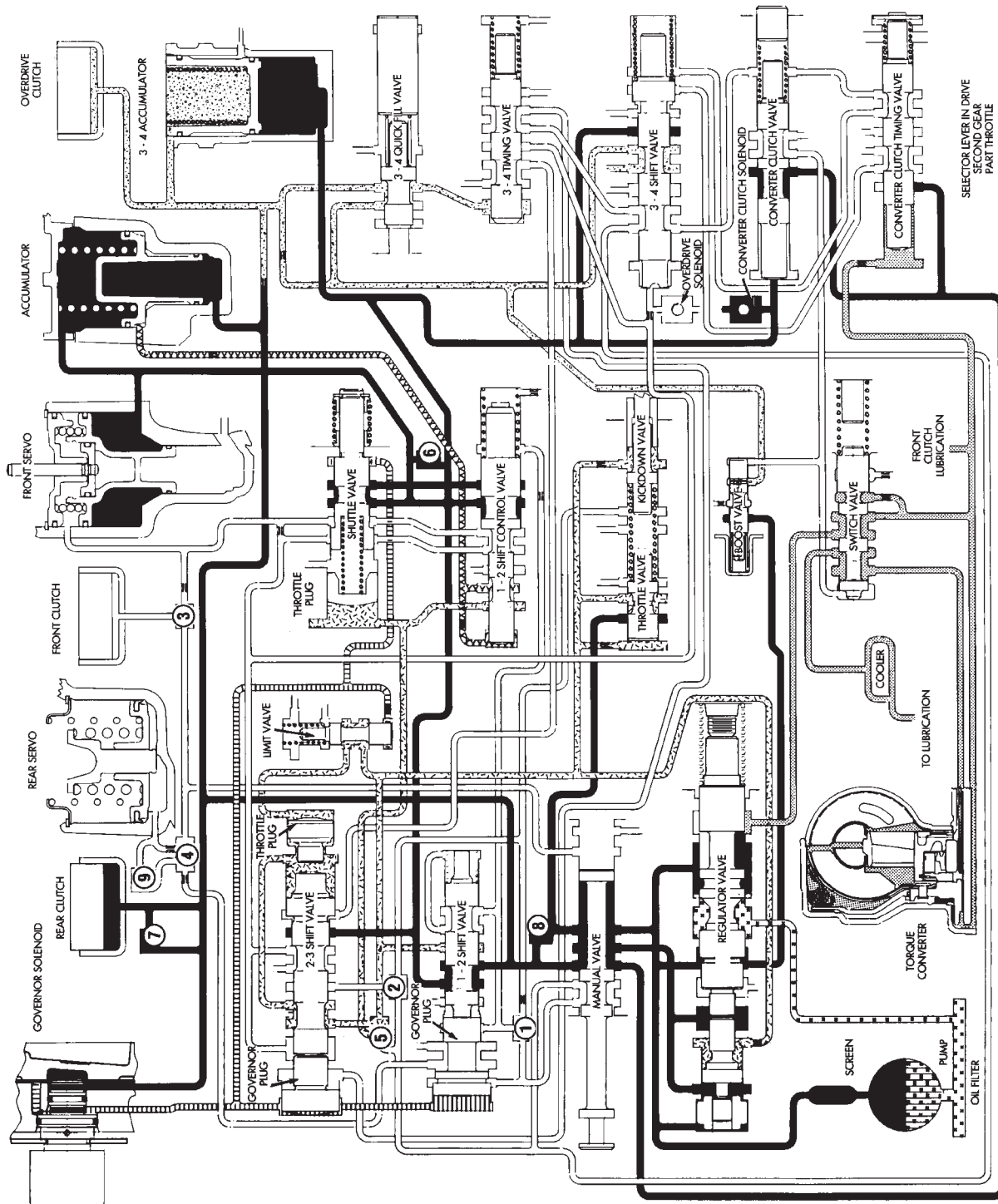
J9321-374

HYDRAULIC FLOW IN DRIVE FIRST GEAR

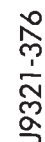
SCHEMATICS AND DIAGRAMS (Continued)



J9321-375

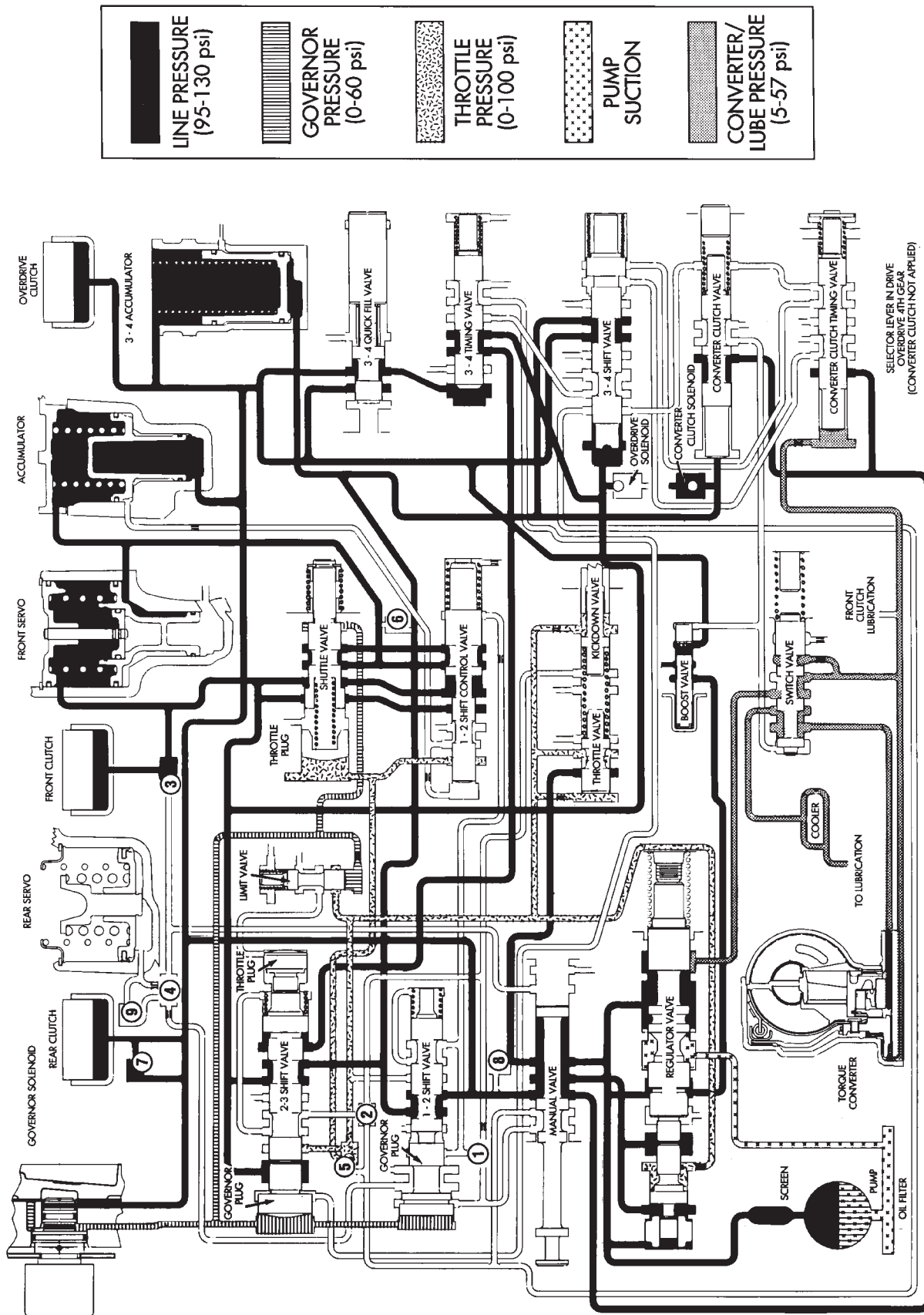


HYDRAULIC FLOW IN DRIVE SECOND GEAR

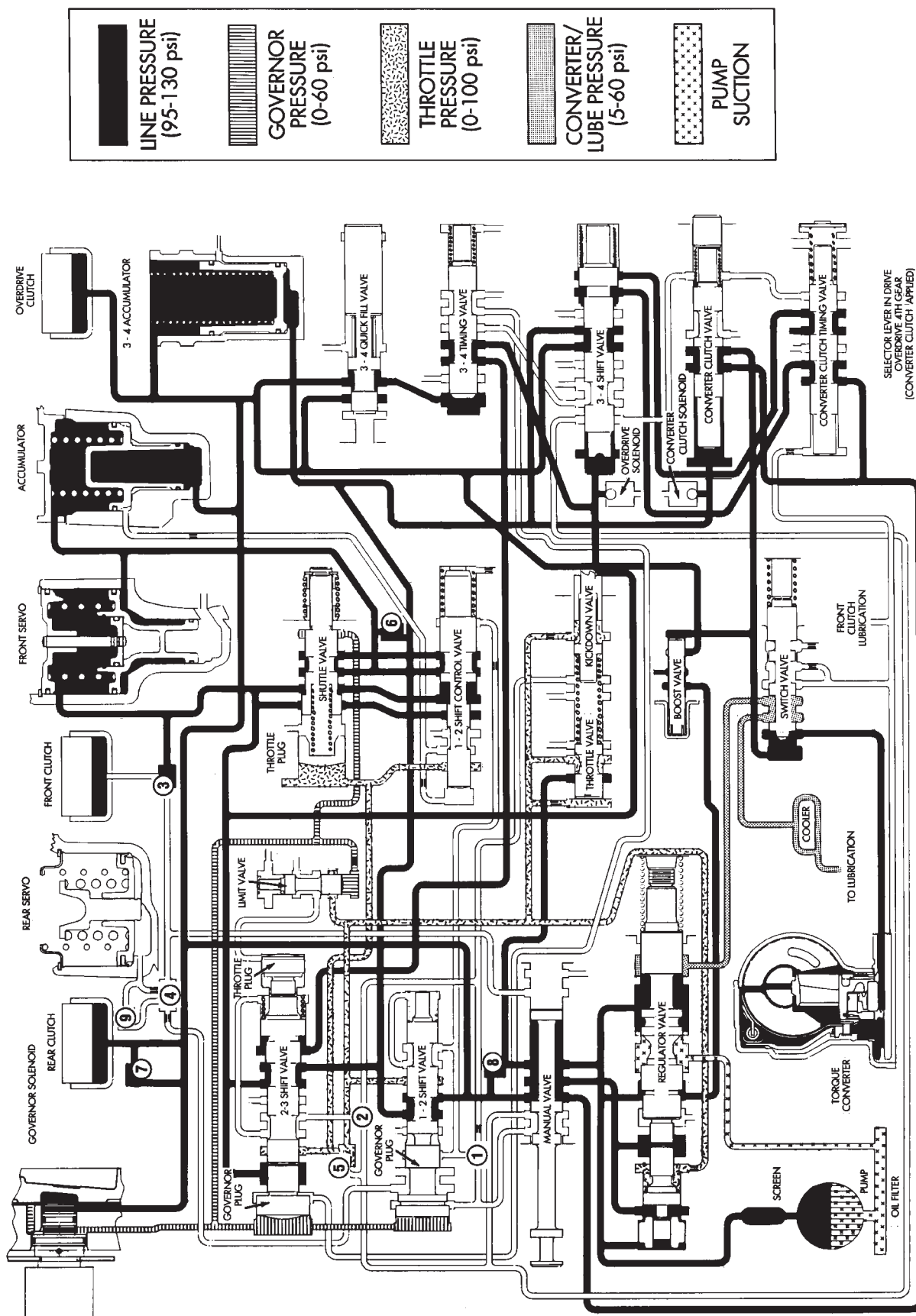


HYDRAULIC FLOW IN DRIVE THIRD GEAR

SCHEMATICS AND DIAGRAMS (Continued)



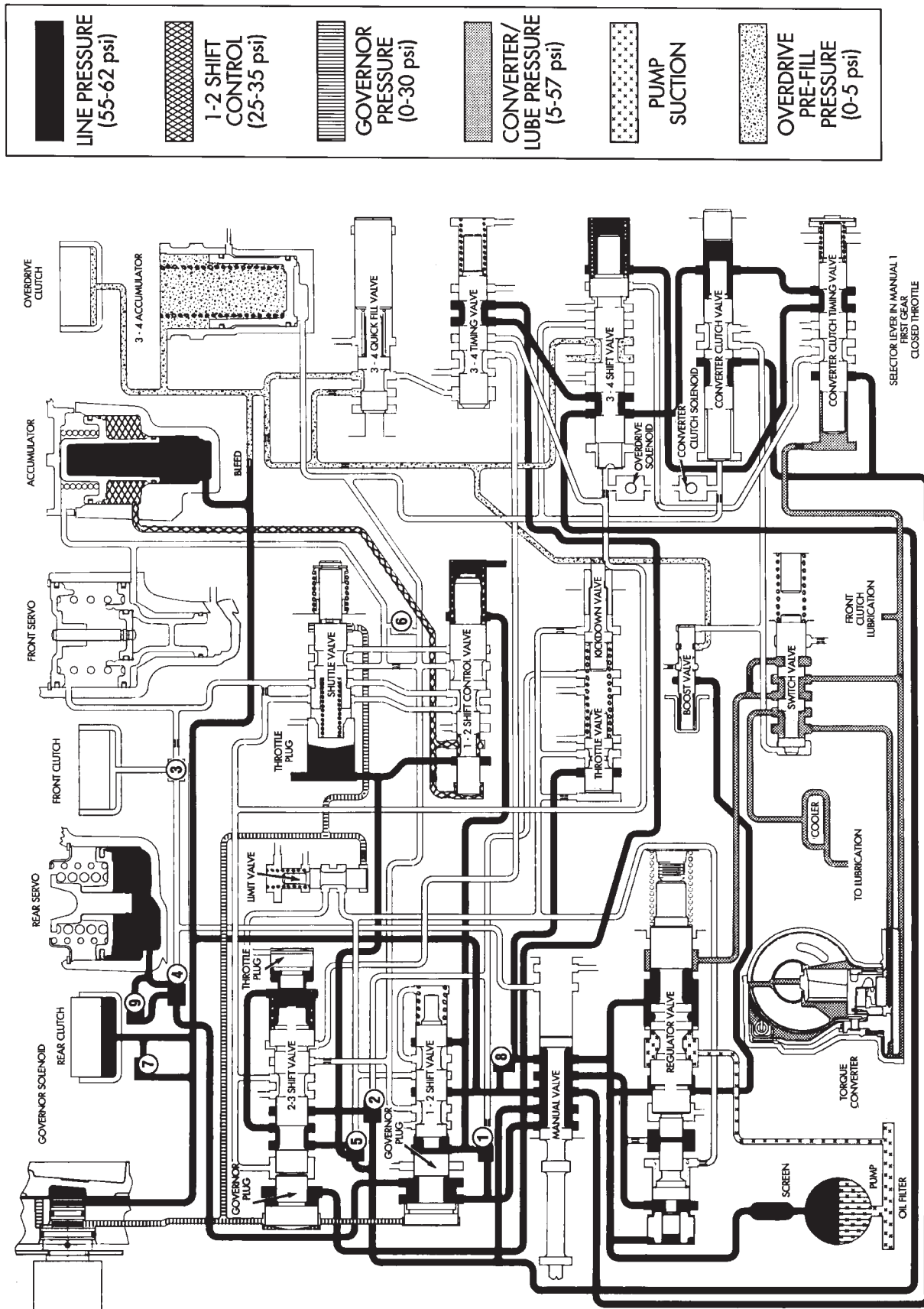
SCHEMATICS AND DIAGRAMS (Continued)



J9321-378

HYDRAULIC FLOW IN DRIVE FOURTH GEAR (CONVERTER CLUTCH APPLIED)

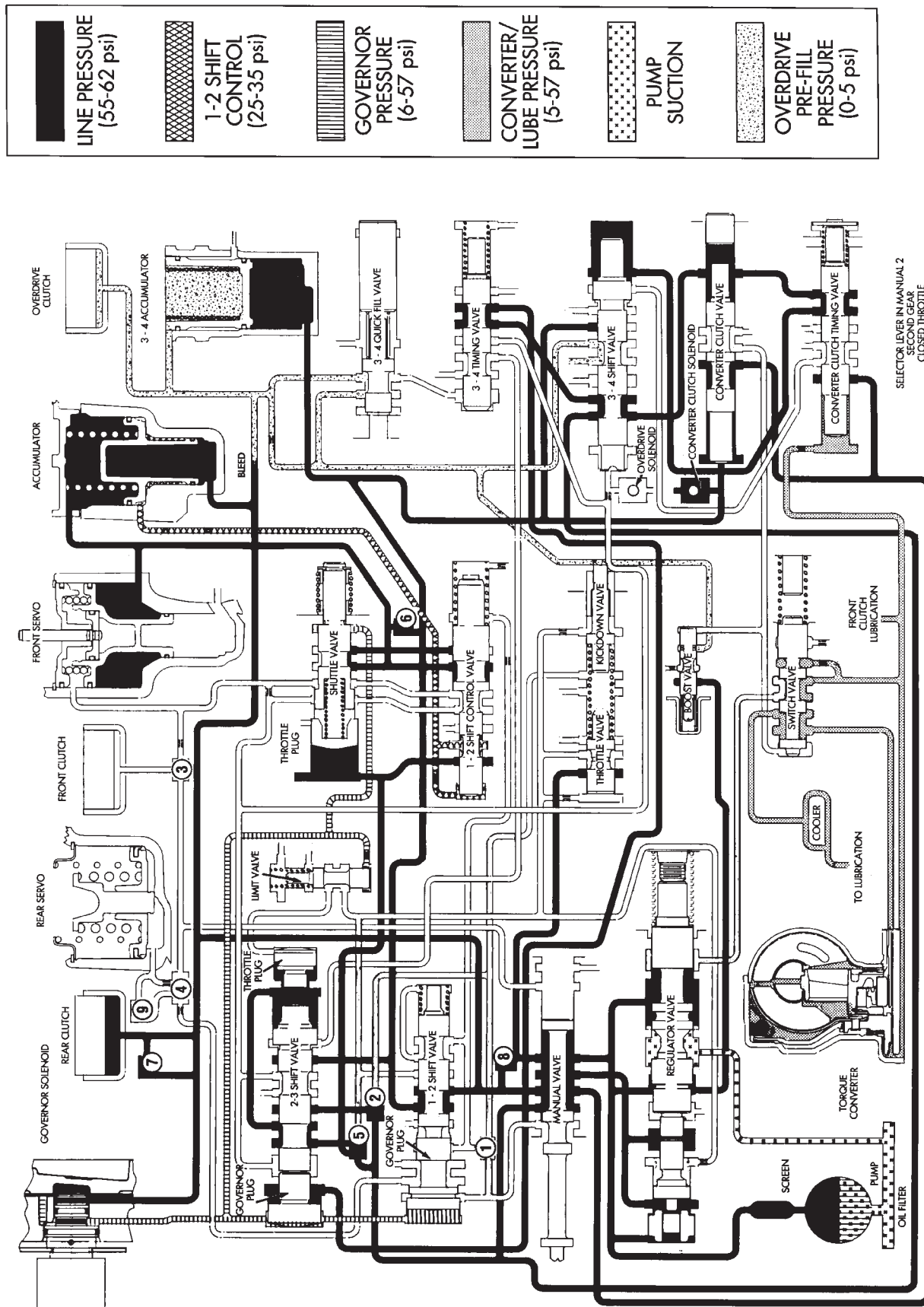
SCHEMATICS AND DIAGRAMS (Continued)



J9321-379

HYDRAULIC FLOW IN MANUAL LOW (1)

SCHEMATICS AND DIAGRAMS (Continued)

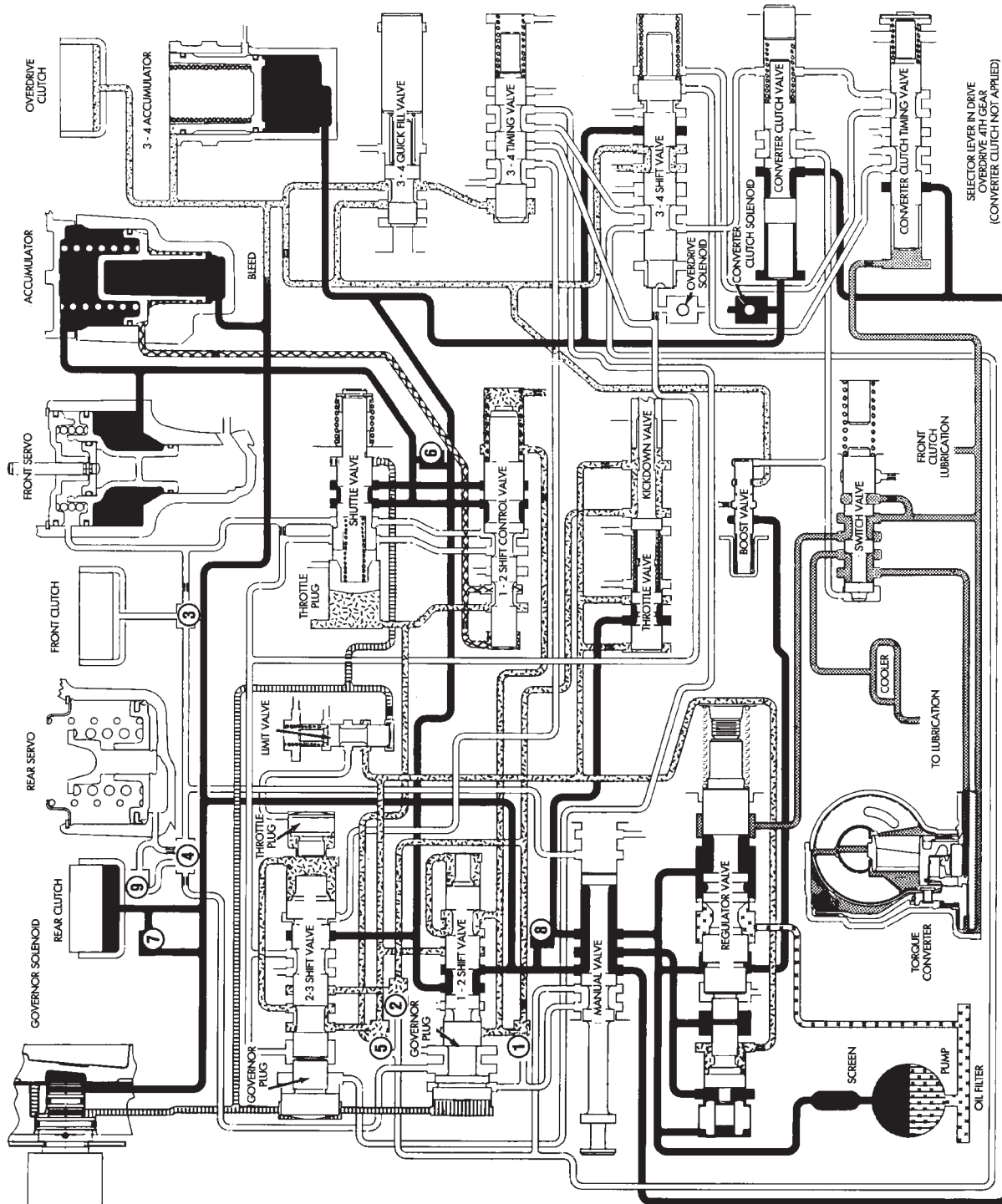
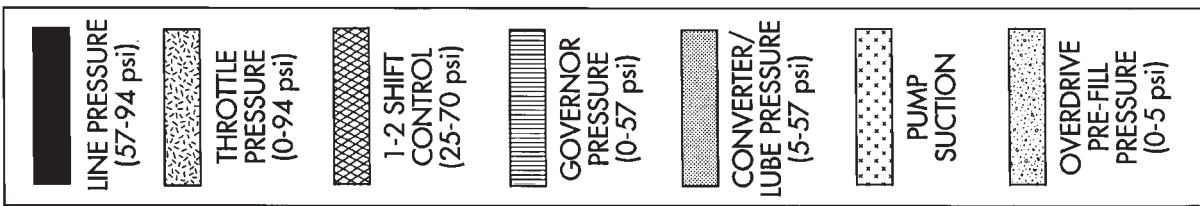


J9321-380

HYDRAULIC FLOW IN MANUAL SECOND (2)

SCHEMATICS AND DIAGRAMS (Continued)

J9321-381



HYDRAULIC FLOW DURING FULL THROTTLE 3-2 DOWNSHIFT (PASSING GEAR)

SPECIFICATIONS

TRANSMISSION

GENERAL

Component	Metric	Inch
Oil pump gear tip clearance	0.089-0.190 mm	0.004-0.008 in.
Planetary end play	0.127-1.22 mm	0.005-0.048 in.
Input shaft end play	0.56-2.31 mm	0.022-0.091 in.
Clutch pack clearance/Front 4-disc.	1.70-3.40mm	0.067-0.134 in.
Clutch pack clearance/Rear 4-disc.	0.81-1.40 mm	0.032-0.055 in.
Overdrive clutch disc usage	4 discs	
Direct clutch disc usage	8 discs	
Front clutch spring usage	1 spring	
Band adjustment from 72 in. lbs.		
Front band	Back off 2-7/8 turns	
Rear band	Back off 2 turns	
Recommended fluid	Mopar, ATF Plus type 7176	

TORQUE

DESCRIPTION

TORQUE

Fitting, cooler line at trans.18 N·m (13 ft. lbs.)
 Bolt, torque convertor31 N·m (23 ft. lbs.)
 Bolt/nut, crossmember68 N·m (50 ft. lbs.)
 Bolt, driveplate to crankshaft75 N·m (55 ft. lbs.)
 Plug, front band reaction17 N·m (13 ft. lbs.)
 Locknut, front band adj.34 N·m (25 ft. lbs.)
 Switch, park/neutral34 N·m (25 ft. lbs.)
 Bolt, fluid pan.17 N·m (13 ft. lbs.)
 Screws, fluid filter4 N·m (35 in. lbs.)
 Bolt, oil pump20 N·m (15 ft. lbs.)
 Bolt, overrunning clutch cam17 N·m (13 ft. lbs.)
 Bolt, O/D to trans.34 N·m (25 ft. lbs.)
 Bolt, O/D piston retainer17 N·m (13 ft. lbs.)
 Plug, pressure test port14 N·m (10 ft. lbs.)
 Bolt, reaction shaft support20 N·m (15 ft. lbs.)
 Locknut, rear band41 N·m (30 ft. lbs.)
 Bolt, speedometer adapter11 N·m (8 ft. lbs.)
 Bolt, valve body to case12 N·m (100 in. lbs.)
 Sensor, trans speed27 N·m (20 ft. lbs.)
 Screw, solenoid wiring connector . .4 N·m (35 in. lbs.)
 Screw, solenoid to transfer plate . .4 N·m (35 in. lbs.)

SPECIFICATIONS (Continued)

THRUST WASHER/SPACER/SNAP RING DIMENSIONS

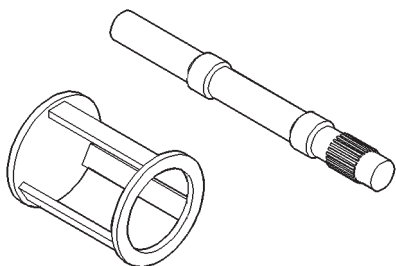
Component	Metric	Inch
Front clutch thrust washer (reaction shaft support hub)	1.55 mm	0.061 in.
Rear clutch thrust washer (clutch retainer)	1.55 mm	0.061 in.
Intermediate shaft thrust plate (shaft hub pilot)	1.5-1.6 mm	0.060-0.063 in.
Output shaft thrust washer (rear clutch hub)	Select fit to set end play	
Rear clutch pack snap ring	1.5 mm	0.060 in.
	1.95 mm	0.076 in.
	2.45 mm	0.098 in.
Planetary geartrain snap ring (at front of output shaft)	Select fit (three thicknesses available)	
Overdrive piston thrust plate	Thrust plate and spacer are select fit. Refer to size charts and selection procedures in Overdrive Unit D&A procedures	
Intermediate shaft spacer		

PRESSURE TEST

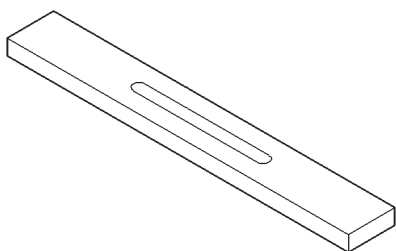
Overdrive clutch	Fourth gear only	Pressure should be 469-496 kPa (68-72 psi) with closed throttle and increase to 620-896 kPa (90-130 psi) at 1/2 to 3/4 throttle.
Line pressure (at accumulator)	Closed throttle	372-414 kPa (54-60 psi).
Front servo	Third gear only	No more than 21 kPa (3 psi) lower than line pressure.
Rear servo	1 range R range	No more than 21 kPa (3 psi) lower than line pressure. 1103 kPa (160 psi) at idle, builds to 1862 kPa (270 psi) at 1600 rpm.
Governor	D range closed throttle	Pressure should respond smoothly to changes in mph and return to 0-7 kPa (0-1.5 psi) when stopped with transmission in D, 1, 2. Pressure above 7 kPa (1.5 psi) at stand still will prevent transmission from downshifting.

SPECIAL TOOLS

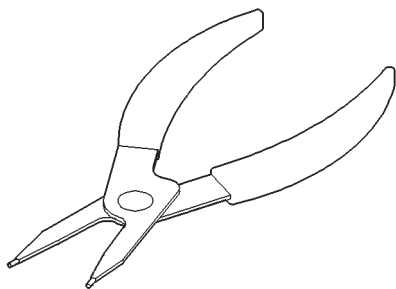
42/44 RE



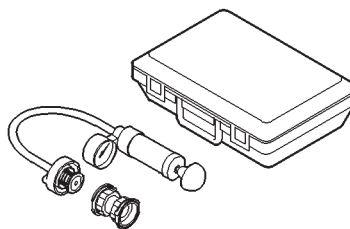
Spring Compressor and Alignment Shaft—6227



Gauge Bar—6311

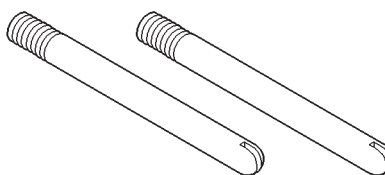


Snap-ring Plier—6823

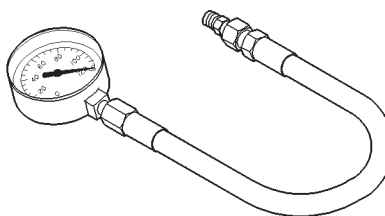


7700-8011c9c4

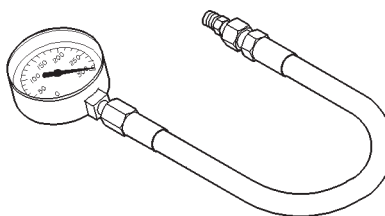
Pressure Tester—7700



Extension Housing Pilot—C-3288-B

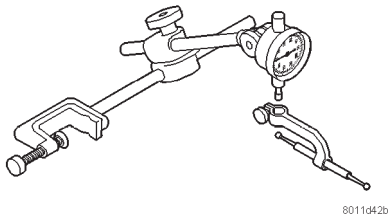


Pressure Gauge—C-3292

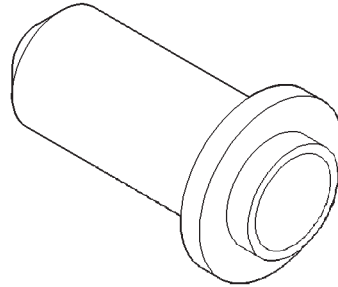


Pressure Gauge—C-3293SP

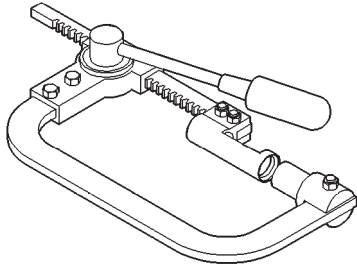
SPECIAL TOOLS (Continued)



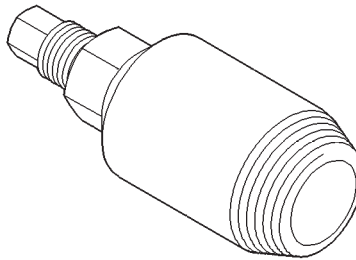
Dial Indicator—C-3339



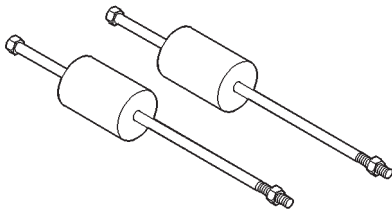
Seal Installer—C-3860-A



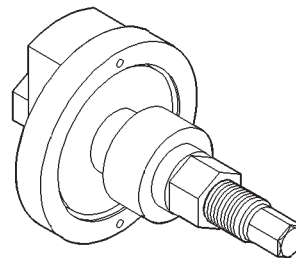
Spring Compressor—C-3422-B



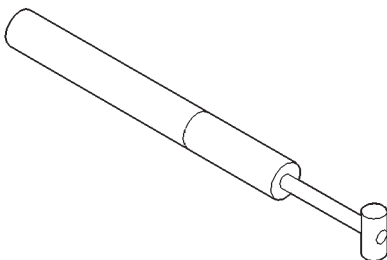
Seal Puller—C-3861



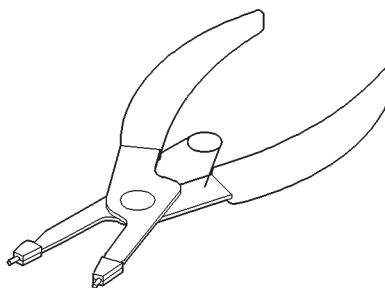
Puller, Slide Hammer—C-3752



Installer—C-3863-A

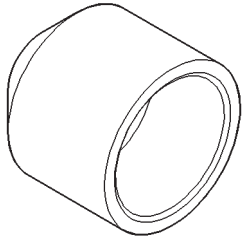


Gauge, Throttle Setting—C-3763

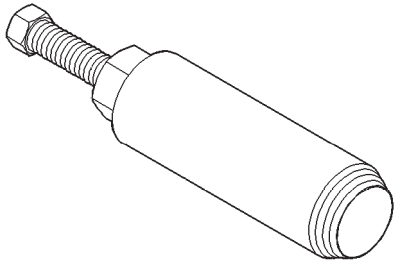


Snap-ring Plier—C-3915

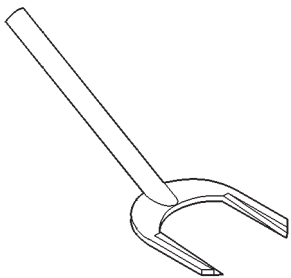
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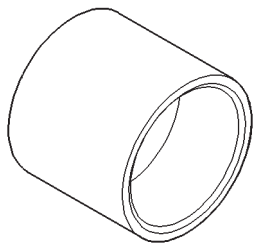
Seal Installer—C-3972-A



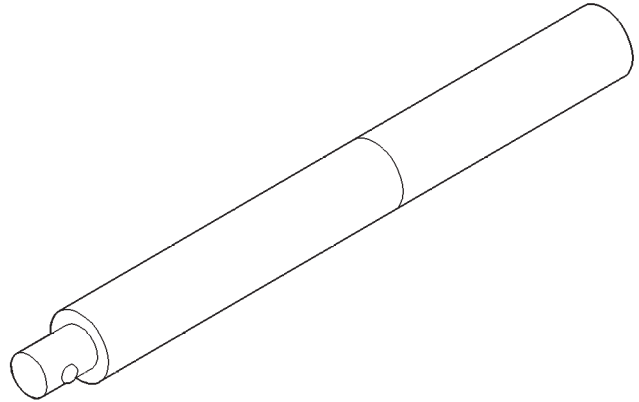
Seal Puller—C-3981-B



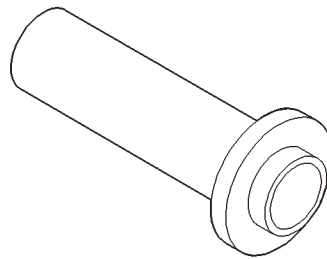
Seal Remover—C-3985-B



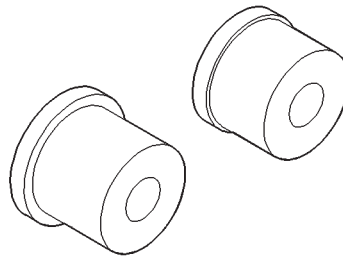
Installer—C-3995-A



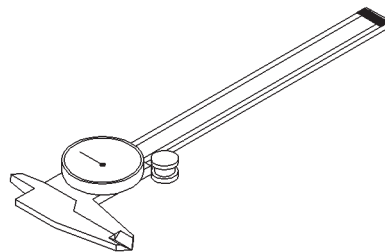
Universal Handle—C-4171



Seal Installer—C-4193-A

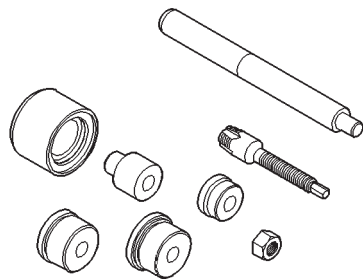
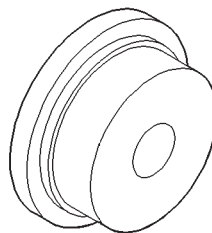
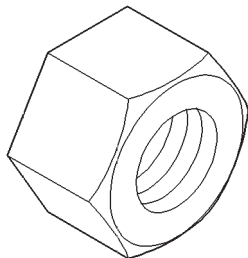
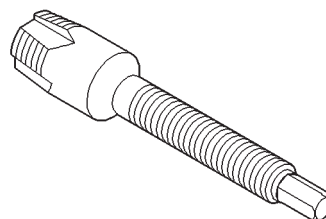
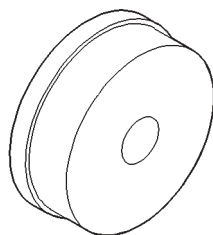
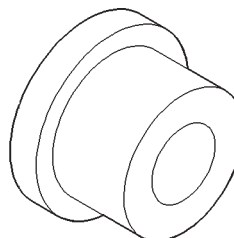
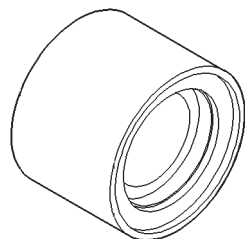
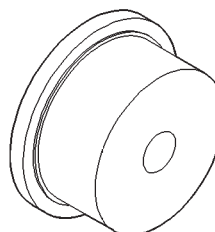


Remover/Installer—C-4470



Dial Caliper—C-4962

SPECIAL TOOLS (Continued)

***Bushing Remover/Installer Set—C-3887-B******Installer, Oil Pump Bushing—SP-5118, From kit C-3887-B******Nut, Bushing Remover—SP-1191, From kit C-3887-B******Remover, Reaction Shaft Bushing—SP-5301, From kit C-3887-B******Remover, Front Clutch Bushing—SP-3629, From kit C-3887-B******Installer, Reaction Shaft Bushing—SP-5302, From kit C-3887-B******Cup, Bushing Remover—SP-3633, From kit C-3887-B******Installer, Front Clutch Bushing—SP-5511, From kit C-3887-B***

NV231 TRANSFER CASE

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GENERAL INFORMATION

GENERAL INFORMATION

The NV 231 is a part-time transfer case with a low range reduction gear mechanism.

The NV 231 has three operating ranges plus a Neutral position. The reduction gear mechanism consists of a planetary and annulus gear that provide a 2.7:1 reduction ratio when engaged. The annulus gear is fixed in the case; it does not rotate.

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

NV 231 operating ranges are:

- 2-wheel drive high (2H)
- 4-wheel drive high (4H)
- 4-wheel drive low (4L)

Two-wheel drive range is for use on all road surfaces. The 4-wheel drive high and low ranges are not for use on paved roads. They are only recommended for off-road use on unpaved, low traction surfaces. The only time 4-wheel drive can be used on paved roads, is when the road surface is covered with snow or 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. 1). The ID tag provides the transfer case model number, assembly number, serial number, and low range ratio.

The transfer case serial number also represents the date of build. For example, a serial number of 7-10-95 would represent July 10, 1995.

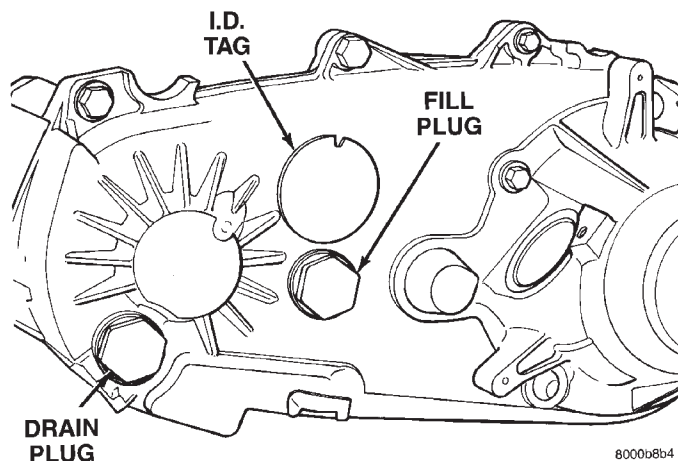


Fig. 1 Fill/Drain Plug And I.D. Tag Locations

RECOMMENDED LUBRICANT AND FILL LEVEL

Recommended lubricant for the NV 231 transfer case is Mopar Dexron II, or ATF Plus. Approximate lubricant fill capacity is 1.18 liters (2.2 pints).

The fill and drain plugs are both in the rear case (Fig. 1). 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

NV231 DIAGNOSIS

Condition	Possible Cause	Correction
TRANSFER CASE DIFFICULT TO SHIFT OR WILL NOT SHIFT INTO DESIRED RANGE	(1) Vehicle speed too great to permit shifting. (2) If vehicle was operated for extended period in 4H mode on dry paved surface, driveline torque load may cause difficulty. (3) Transfer case external shift linkage binding. (4) Insufficient or incorrect lubricant. (5) Internal components binding, worn or damaged.	(1) Stop vehicle and shift into desired range. Or reduce speed to 3-4 km/h (2-3 mph) before attempting to shift. (2) Stop vehicle, shift transmission to Neutral, shift transfer case to 2H mode and operate vehicle in 2H on dry paved surfaces. (3) Lubricate, repair or replace linkage bushings or tighten loose components as necessary. (4) Drain and refill to edge of fill hole with DEXRON II® or MOPAR-MERCON® Automatic Transmission Fluid. (5) Disassemble unit and replace worn or damaged components as necessary.
TRANSFER CASE NOISY IN ALL DRIVE MODES	(1) Insufficient or incorrect lubricant.	(1) Drain and refill to edge of fill hole with DEXRON II® or MOPAR-MERCON® Automatic Transmission Fluid. Check for leaks and repair if necessary. Note: 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	(1) Transfer case not completely engaged in 4L position. (2) Shift linkage out of adjustment. (3) Shift linkage loose or binding. (4) Range fork damaged, inserts worn, or fork is binding on shift rail. (5) Low range gear worn or damaged.	(1) Stop vehicle, shift transfer case to Neutral, then shift back into 4L position. (2) Adjust linkage. (3) Tighten, lubricate or repair linkage as necessary. (4) Disassemble unit and repair as necessary. (5) Disassemble and repair as necessary.
LUBRICANT LEAKING FROM OUTPUT SHAFT SEALS OR FROM VENT	(1) Transfer case overfilled. (2) Vent closed or restricted. (3) Output shaft seals damaged or installed incorrectly.	(1) Drain to correct level. (2) Clear or replace vent if necessary. (3) 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	(1) Extended operation on dry hard surface (paved) roads in 4H range.	(1) Operate in 2H on hard surface (paved) roads.

REMOVAL AND INSTALLATION

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. 2). If rod lacks enough travel to come out of trunnion, push trunnion out of torque shaft.
- (4) Lower vehicle.
- (5) Remove console. Refer to park brake section in Group 5 for procedures.
- (6) Remove screws attaching lever assembly to floorpan and remove assembly and shift rod (if left attached).

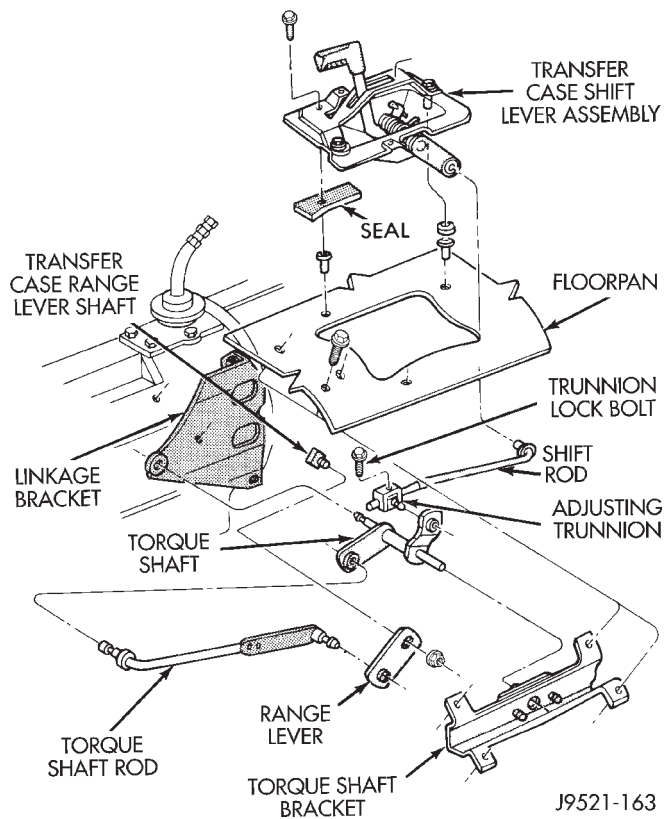


Fig. 2 Shift Linkage

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.
- (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.

NV231 TRANSFER CASE

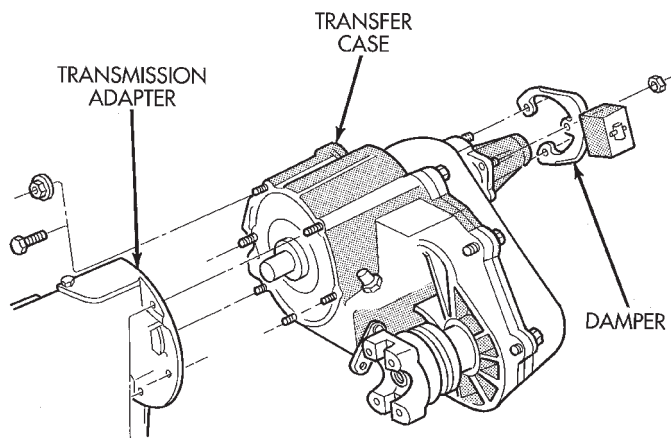
REMOVAL

- (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, and indicator or vacuum switch harness.
- (11) Support transfer case with transmission jack.
- (12) Remove nuts attaching transfer case to transmission.
- (13) Secure transfer case to jack with chains.
- (14) Pull transfer case and jack rearward to disengage transfer case.
- (15) Remove transfer case from under vehicle.
- (16) If transfer case was removed for overhaul, remove damper from rear retainer.

TRANSFER CASE INSTALLATION

- (1) Mount transfer case on a transmission jack. Secure transfer case to jack with chains.
- (2) Position transfer case under vehicle.
- (3) Align transfer case and transmission shafts and install transfer case on transmission.
- (4) Install and tighten transfer case attaching nuts to 35 N·m (26 ft. lbs.) torque.
- (5) Install damper on rear retainer (Fig. 3). Tighten damper attaching nuts to 54 N·m (40 ft. lbs.) torque.
- (6) Connect vehicle speed sensor wires, and vent hose.
- (7) Connect indicator or vacuum switch harness to transfer case switch. Secure wire harnesses to clips on transfer case.
- (8) Align and connect propeller shafts. Tighten shaft attaching bolts to 19 N·m (170 in. lbs.) torque.
- (9) Fill transfer case with Mopar Dexron II fluid.
- (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.

REMOVAL AND INSTALLATION (Continued)



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Fig. 3 Transfer Case Mounting

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

DISASSEMBLY AND ASSEMBLY

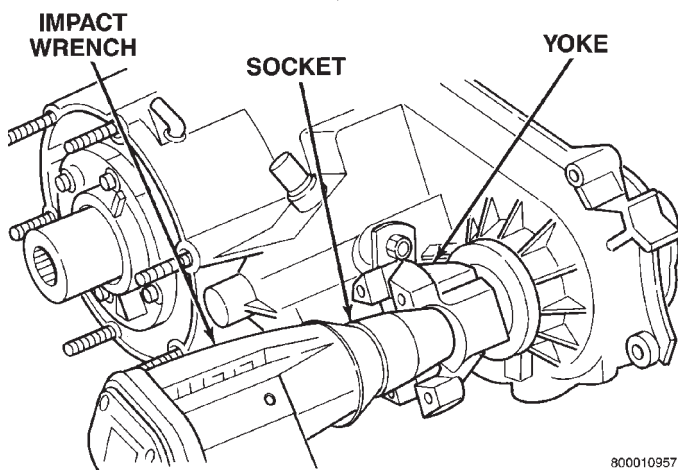
NV231 TRANSFER CASE

DISASSEMBLE

SPEEDOMETER/YOKE/RANGE LEVER REMOVAL

(1) Remove speedometer adapter and pinion if not previously removed previously.

(2) Remove front yoke nut: Move range lever to 4L position. Then remove nut with 1-1/8 socket and impact wrench (Fig. 4).

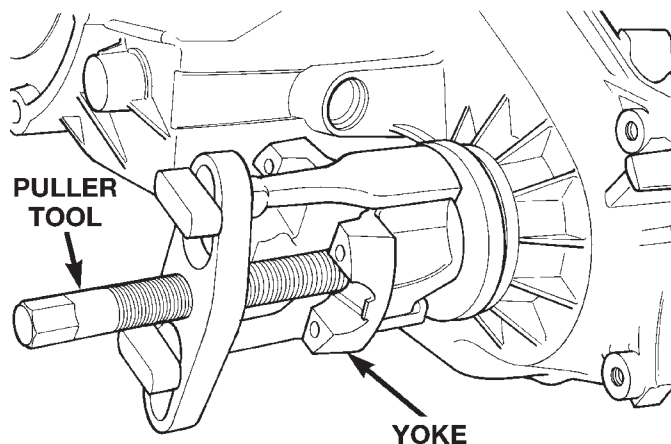


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Fig. 4 Yoke Nut Removal

(3) Remove yoke. If yoke is difficult to remove by hand, remove it with bearing splitter, or with standard two jaw puller (Fig. 5). Be sure puller tool is positioned on yoke and not on slinger as slinger will be damaged.

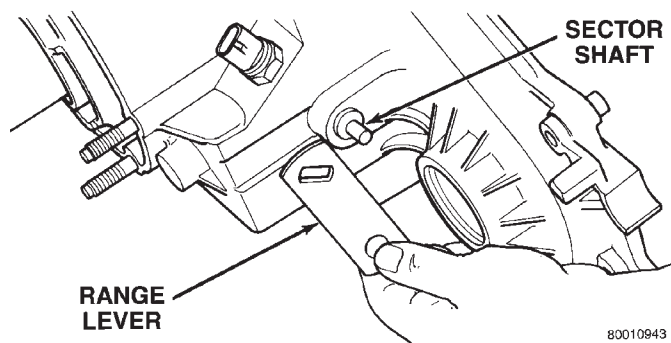
(4) Remove seal washer from front output shaft. Discard washer as it should not be reused.



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Fig. 5 Yoke Removal

(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. 6)

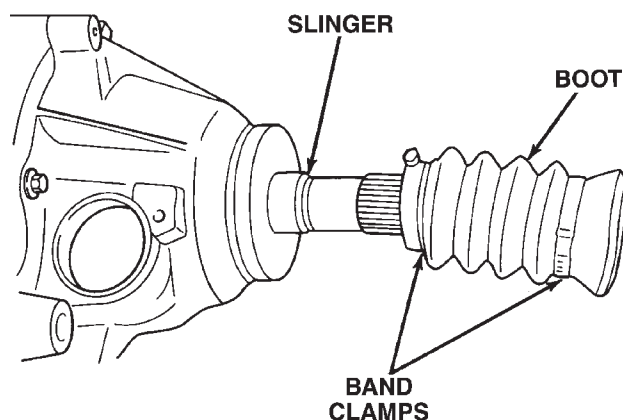


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Fig. 6 Range Lever Removal

REAR RETAINER REMOVAL AND DISASSEMBLY

(1) Remove mainshaft boot. Spread band clamp that secures boot on slinger with pliers and screwdriver. Then slide boot off shaft (Fig. 7).



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Fig. 7 Mainshaft Boot Removal

DISASSEMBLY AND ASSEMBLY (Continued)

(2) Remove rear slinger with brass drift and hammer (Fig. 8). Rotate slinger and tap at four positions 90 degrees apart to remove it. Discard slinger as it is not reusable.

CAUTION: Exercise care when removing the slinger. The rear retainer can be damaged by the drift punch.

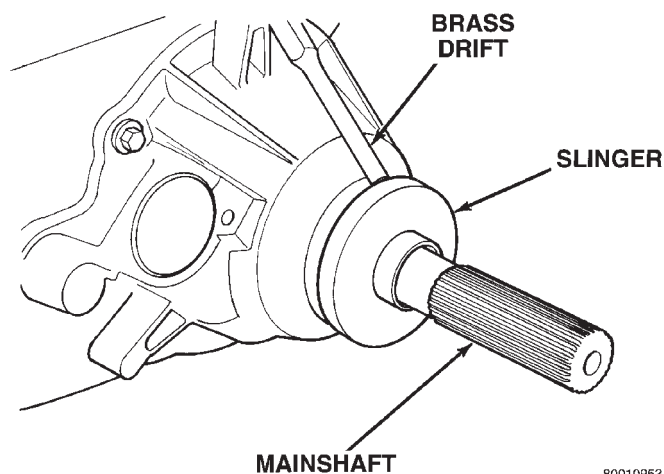


Fig. 8 Rear Slinger Removal

(3) Remove rear seal from retainer (Fig. 9). Use pry tool, or collapse seal with punch to remove it.

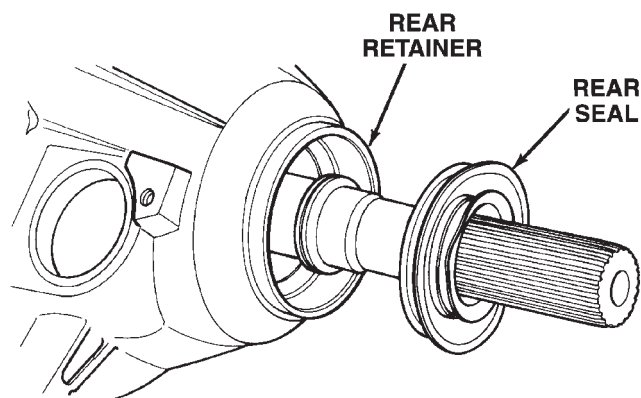


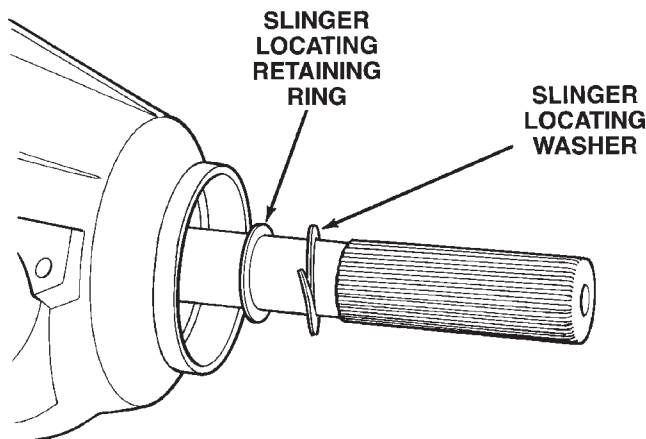
Fig. 9 Rear Seal Removal

(4) Remove slinger locating washer and locating retaining ring from output shaft (Fig. 10)

(5) Remove rear output bearing I.D. retaining ring (Fig. 11).

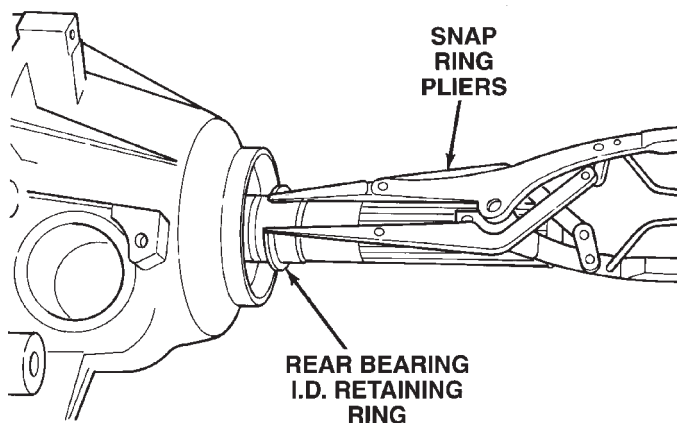
(6) Remove rear retainer bolts with 10mm socket and air ratchet.

(7) Remove rear retainer. Tap retainer with mallet and pry upward to break sealer bead. Then slide retainer off case and mainshaft (Fig. 12).



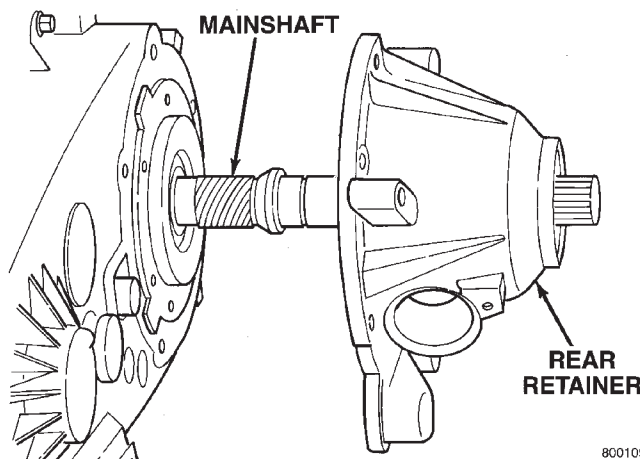
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Fig. 10 Slinger Locating Washer And Retaining Ring Removal



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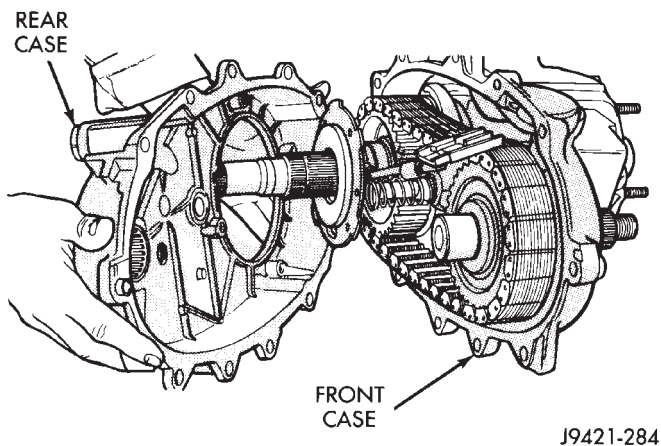
Fig. 11 Rear Bearing I.D. Retaining Ring Removal



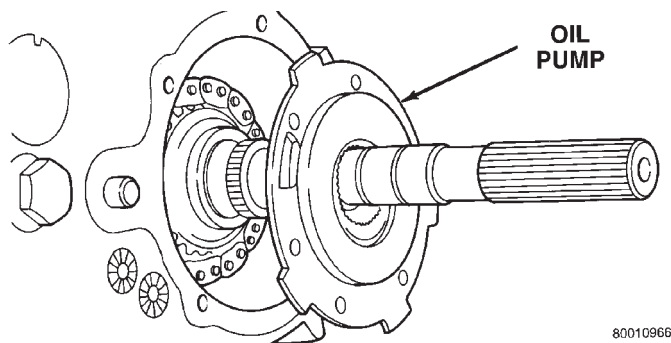
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Fig. 12 Rear Retainer Removal

DISASSEMBLY AND ASSEMBLY (Continued)

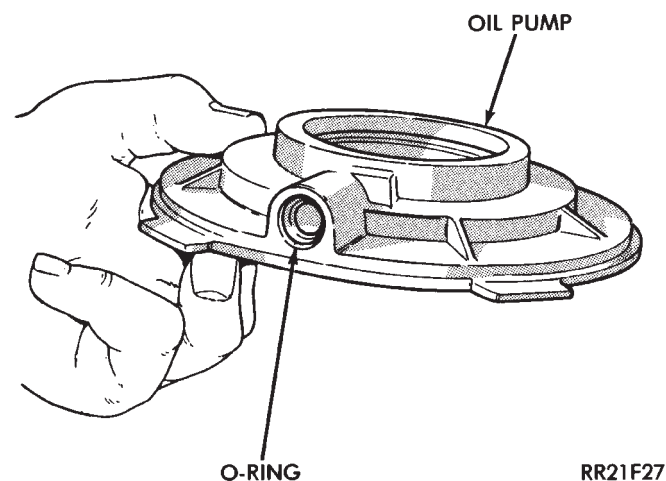
**Fig. 13 Oil Pump/Rear Case Removal**

(8) Remove rear bearing O.D. retaining ring with snap ring pliers. Then tilt pump and slide it off mainshaft (Fig. 14)

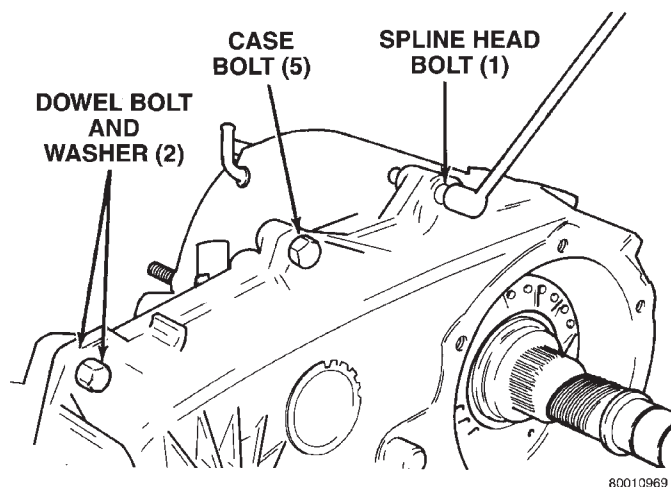
**Fig. 14 Oil Pump Removal**

(9) Remove pickup tube O-ring from pump (Fig. 15) but do not disassemble pump; it is not a repairable part.

(10) Remove seal from oil pump with pry tool.

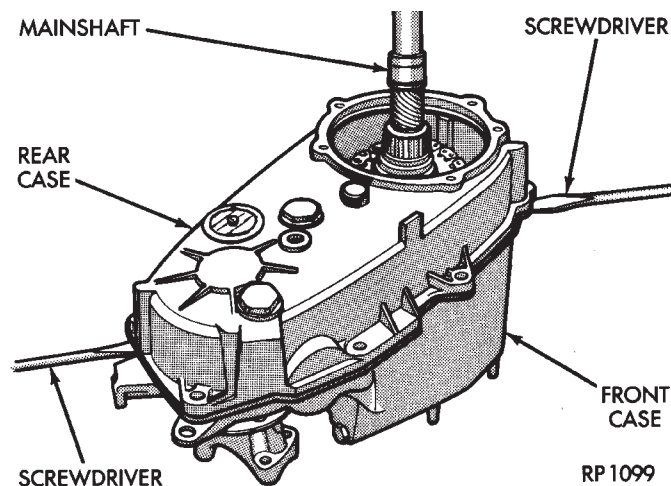
**Fig. 15 Pickup Tube O-Ring Location**

(11) Remove bolts attaching rear case to front case. A 10 mm, 12 point socket is needed for the spline head bolt (Fig. 13). A 15 mm socket is needed for the remaining bolts. 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 (Fig. 16)

**Fig. 16 Spline And Dowel Bolt Locations**

(12) Remove rear case from front case (Fig. 17). 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. 17 Loosening/Removing Rear case**

DISASSEMBLY AND ASSEMBLY (Continued)

(13) Remove oil pickup tube and screen from rear case (Fig. 18).

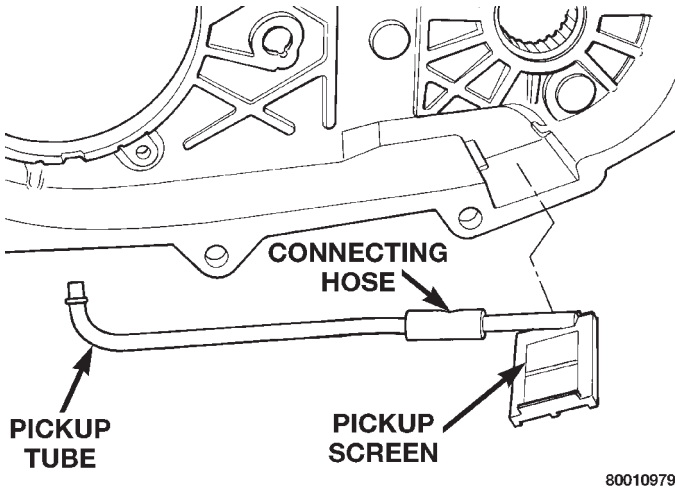


Fig. 18 Oil Pickup Screen, Hose And Tube Removal
FRONT SHAFT/DRIVE CHAIN/POPPET REMOVAL

(1) Remove poppet plug, spring and plunger (Fig. 19).

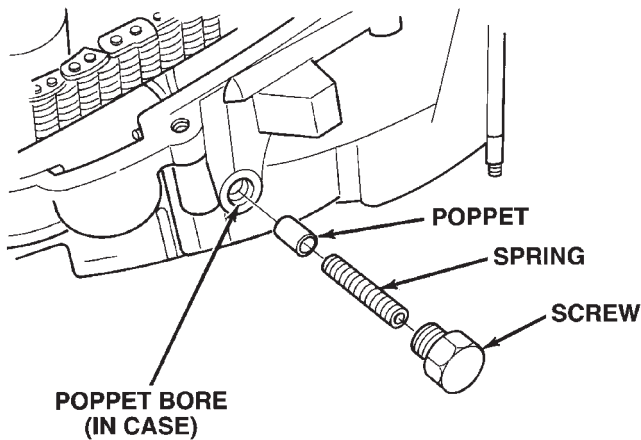


Fig. 19 Poppet Components

(2) Pull front output shaft upward and out of front bearing (Fig. 20).

(3) Slide drive chain off mainshaft sprocket and remove front output shaft and chain as assembly (Fig. 21).

MAINSHAFT REMOVAL AND DISASSEMBLY

(1) Grasp end of mainshaft and remove shaft, drive sprocket and mode hub as assembly (Fig. 22).

(2) Remove mode hub retaining ring with heavy duty snap ring pliers (Fig. 23).

(3) Slide mode hub off mainshaft (Fig. 24).

(4) Slide drive sprocket off mainshaft (Fig. 25).

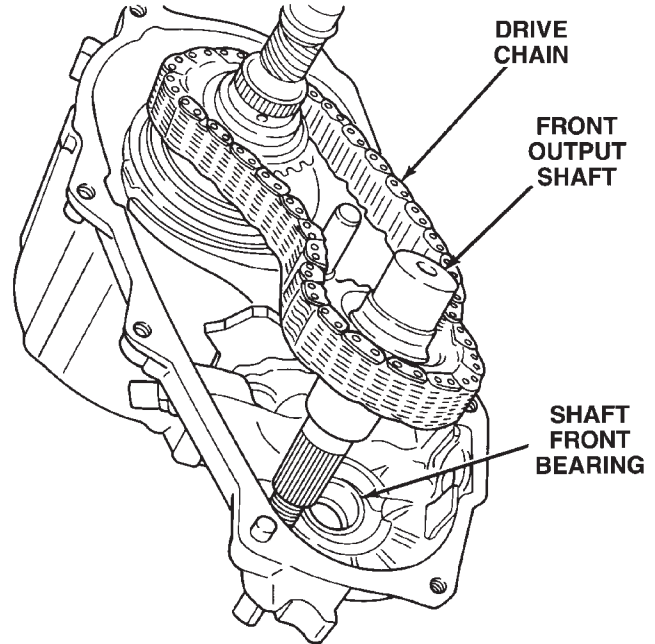


Fig. 20 Disengaging Front Output Shaft From Front Bearing

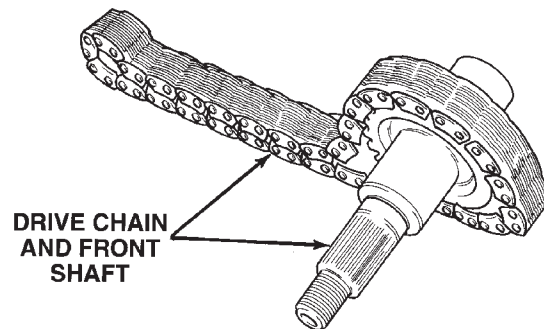


Fig. 21 Front Output Shaft And Drive Chain Removal

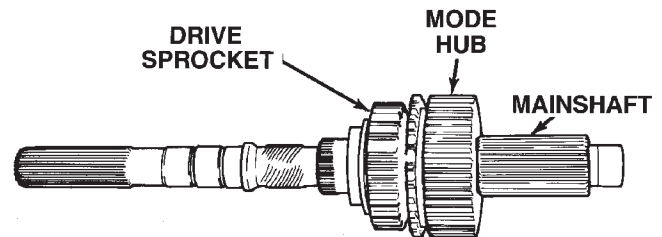


Fig. 22 Mainshaft Assembly Removal

SHIFT FORK/SLEEVE/HUB REMOVAL

(1) Remove mode spring from end of mode fork rail.

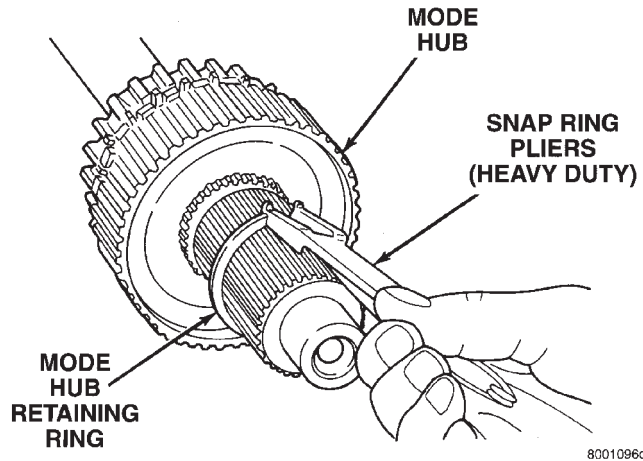


Fig. 23 Mode Hub retaining Ring Removal

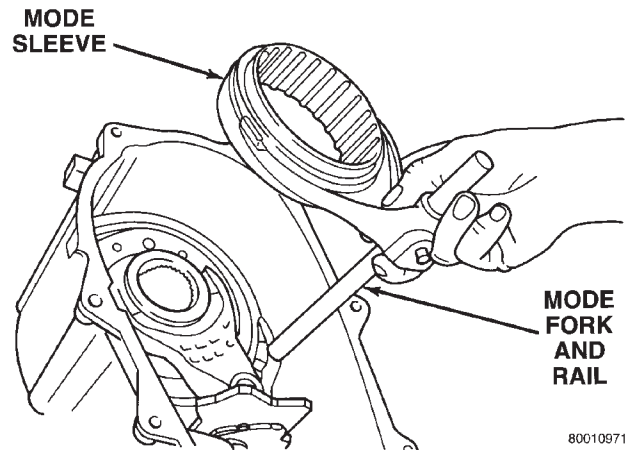


Fig. 26 Mode Fork And Sleeve Removal

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

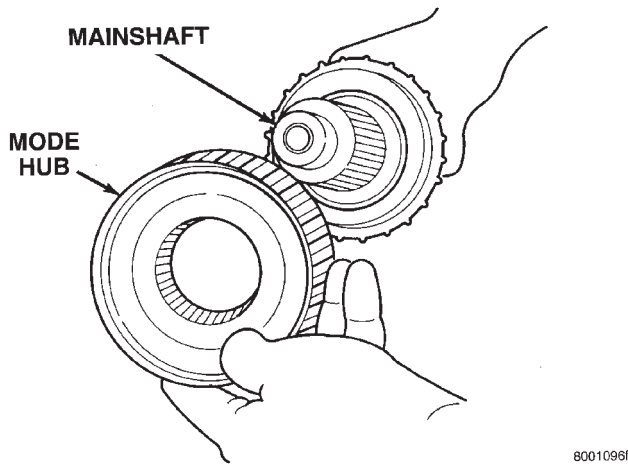


Fig. 24 Mode Hub Removal

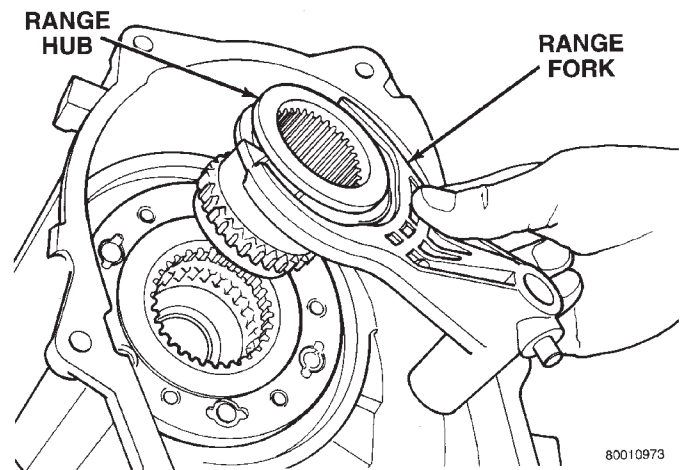


Fig. 27 Range Fork And Hub Removal

(4) Remove shift sector from front case (Fig. 28).

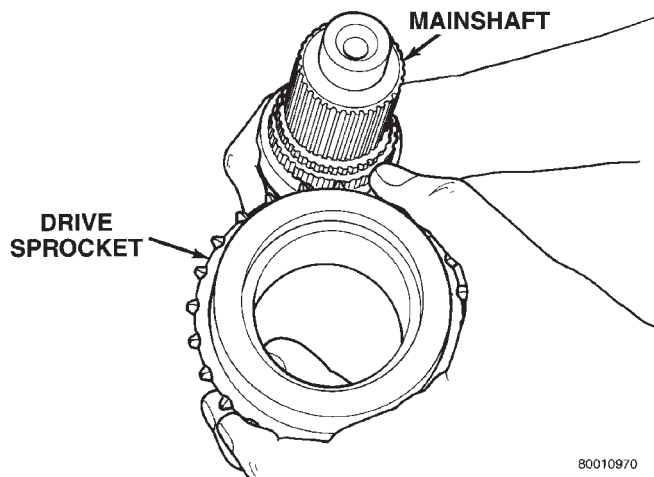


Fig. 25 Drive Sprocket Removal

(2) Remove mode fork and sleeve as assembly (Fig. 26). Note position of sleeve for assembly installation (short side of sleeve faces up).

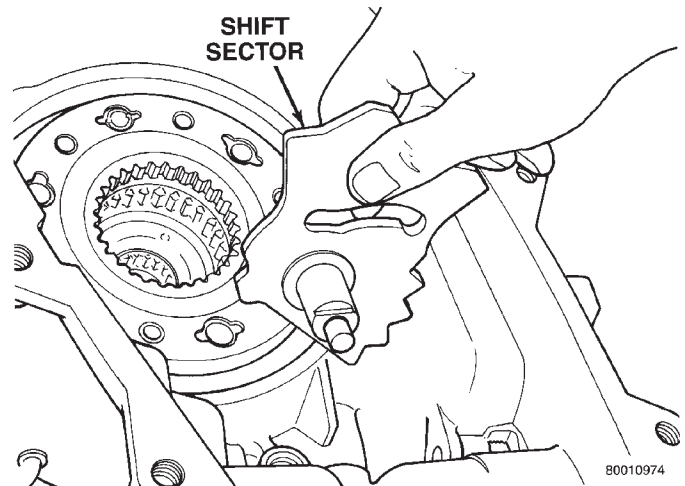


Fig. 28 Shift Sector Removal

DISASSEMBLY AND ASSEMBLY (Continued)

(5) Remove sector shaft O-ring seal and nylon retainer (Fig. 29)

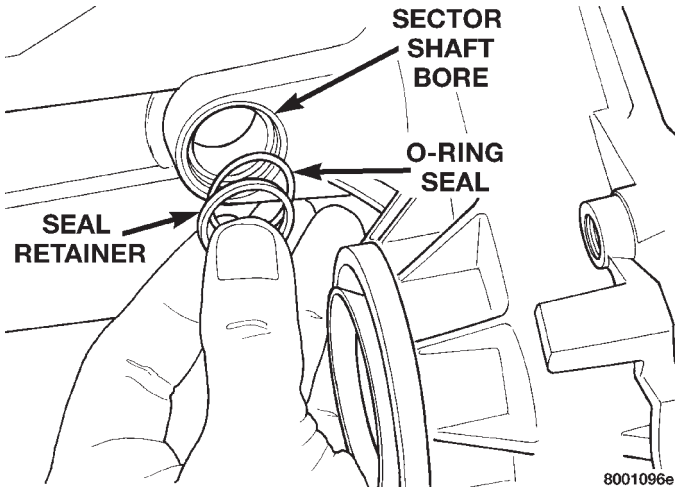


Fig. 29 Sector Shaft Seal And Retainer Removal

INPUT GEAR/PLANETARY CARRIER REMOVAL AND DISASSEMBLY

(1) Remove input retainer attaching bolts with 10mm socket and air ratchet.

(2) Remove input retainer. Pry retainer loose with screwdriver positioned in slots at each end of retainer (Fig. 30)

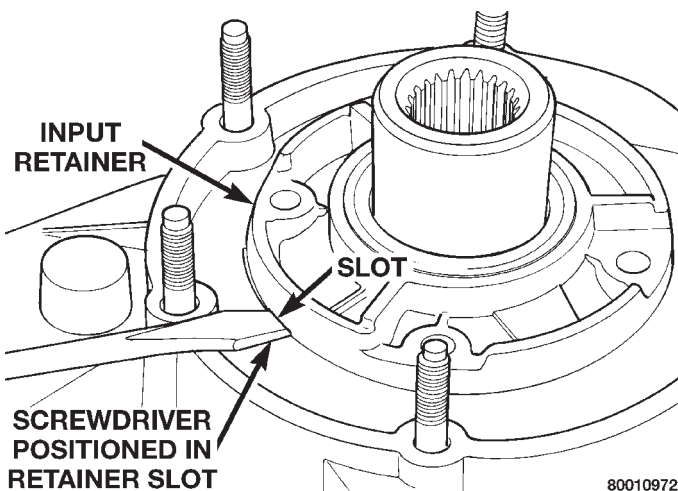


Fig. 30 Input Retainer Removal

(3) Remove input retainer seal. Position retainer upside down over front case bearing. Then tap seal out with drift and hammer.

(4) Remove input gear bearing retaining ring with heavy duty snap ring pliers (Fig. 31)

(5) Place front case in horizontal position. Then remove input gear and planetary carrier as assembly (Fig. 32). Tap gear out of bearing with plastic mallet if necessary.

(6) Remove carrier lock retaining ring (Fig. 33).

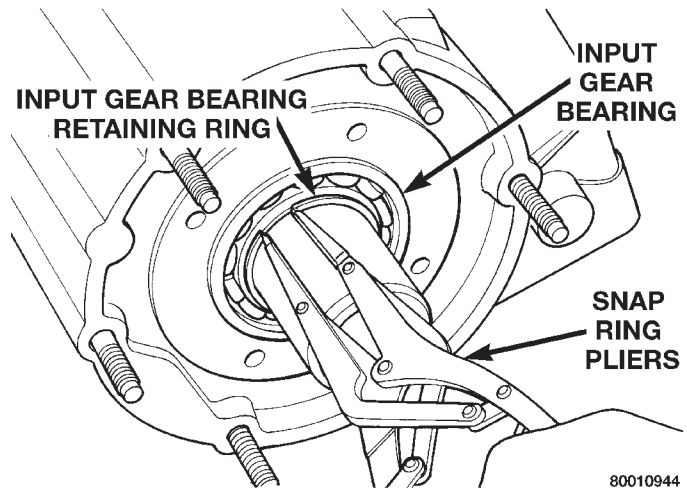


Fig. 31 Removing Input Bearing retaining ring

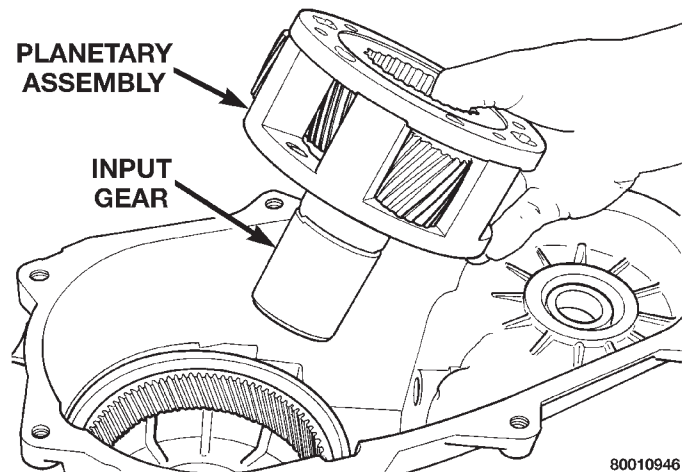


Fig. 32 Input Gear And Planetary Carrier Removal

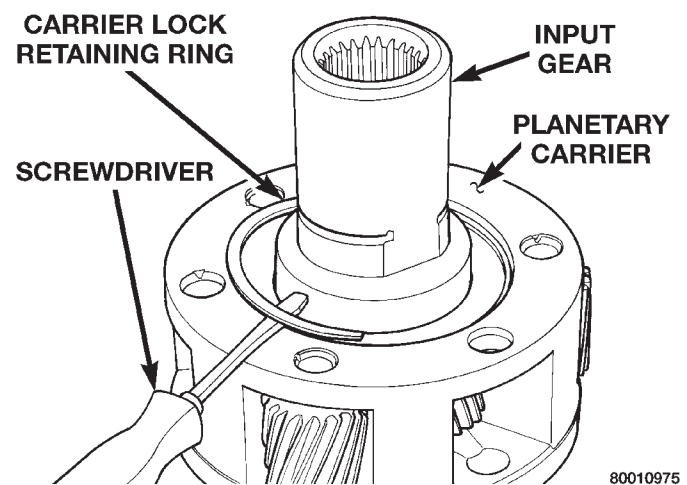


Fig. 33 Carrier Lock Retaining Ring Removal

DISASSEMBLY AND ASSEMBLY (Continued)

(7) Remove input gear, lock ring, and front thrust washer from planetary carrier (Fig. 34).

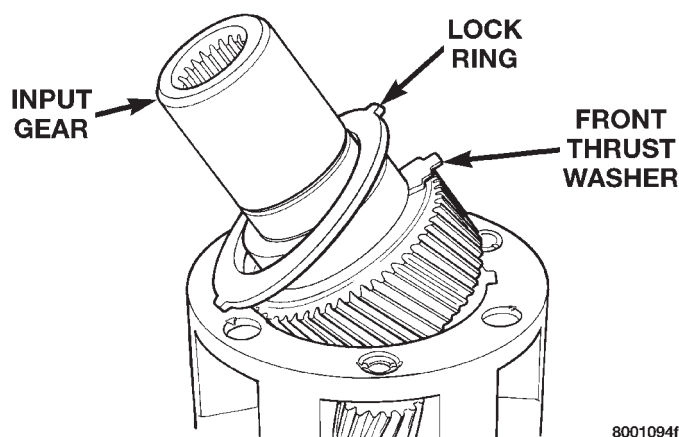


Fig. 34 Input Gear, Carrier Lock Ring, And Rear thrust Washer Removal

(8) Remove rear thrust washer from carrier (Fig. 35).

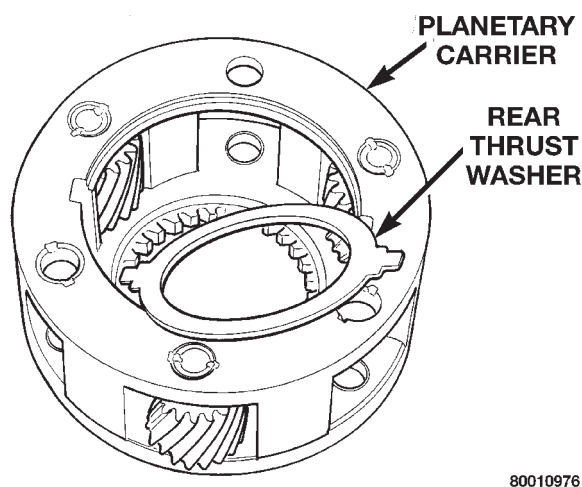


Fig. 35 Rear Thrust washer Removal

(9) Remove pilot bearing from input gear with Tool MD-998346 as follows:

(a) Turn puller tool bolt until jaws retract enough to fit into bearing (Fig. 36)

(b) .

(c) Insert puller bolt and jaws into bearing. Then turn puller bolt clockwise so ramp on bolt spreads jaws forcing them under bearing (Fig. 37).

(d) Install puller bridge over puller bolt (Fig. 38). Then install flat washer and nut on bolt.

(e) Hold puller bridge from turning with locking pliers. Then tighten nut on puller bolt in clockwise direction to draw bearing out of input gear (Fig. 39).

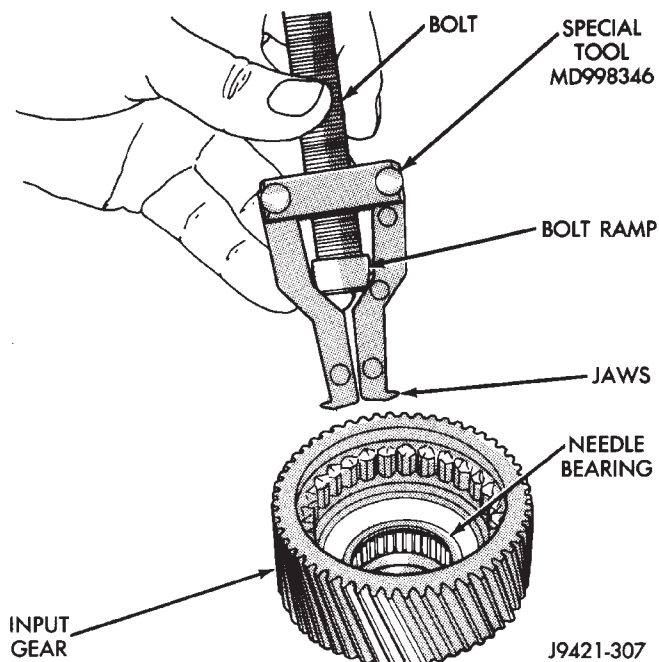


Fig. 36 Puller Jaws In Retracted Position

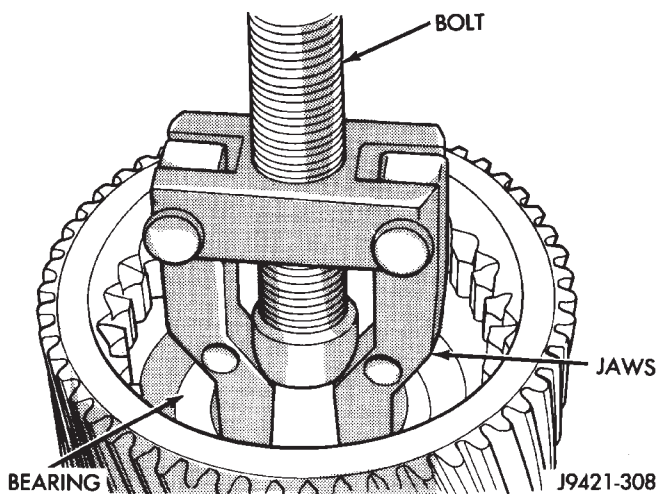


Fig. 37 Puller Bolt And Jaws Seated Under Pilot Bearing

FRONT/REAR CASE BEARING AND SEAL REMOVAL

(1) Remove front output shaft front bearing and seal as follows:

(a) Remove seal from case with pry tool (Fig. 40).

(b) Remove bearing retaining ring with screwdriver (Fig. 41).

(c) Remove bearing with Tool Handle C-4171 and Tool 5065 (Fig. 42).

(2) Remove front output shaft rear bearing from rear case with Tool MD-998346 (Fig. 43). Be sure tool jaws are seated under bearing before tightening puller nut.

DISASSEMBLY AND ASSEMBLY (Continued)

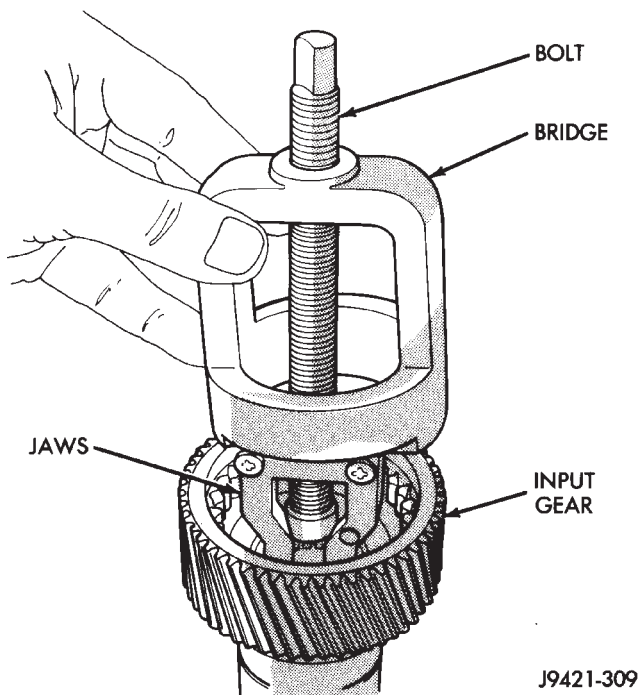


Fig. 38 Installing Puller Bridge

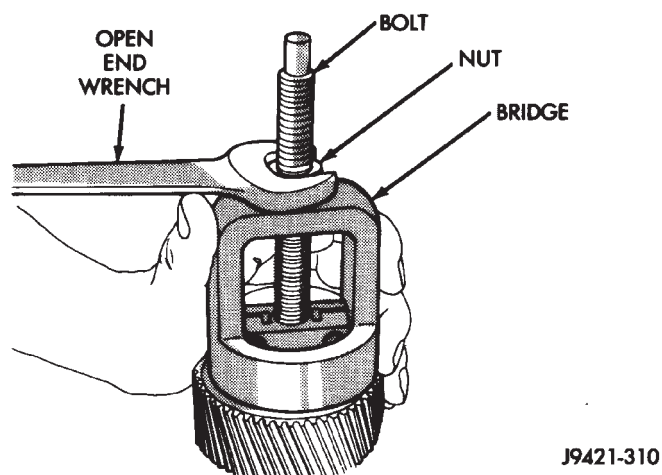


Fig. 39 Pilot Bearing Removal

(3) Remove input bearing from front case. Tap bearing out from inside of case with brass drift and hammer.

NV231 TRANSFER CASE ASSEMBLE

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

INPUT GEAR, PLANETARY CARRIER, AND INPUT RETAINER INSTALLATION

(1) Lubricate bearings, input gear, and planetary carrier with transmission fluid during installation.

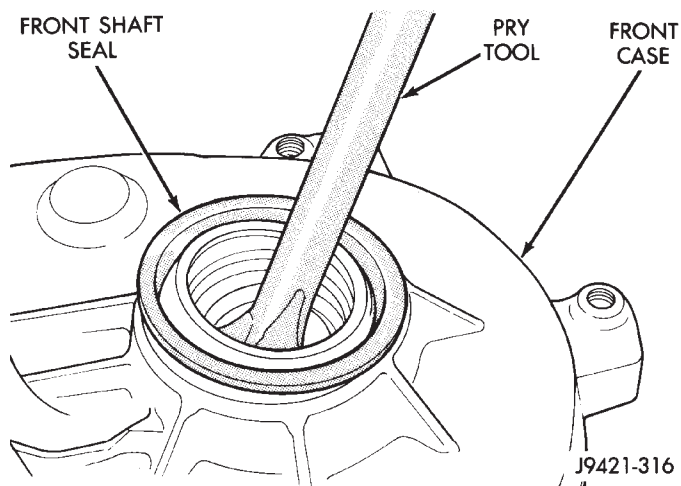


Fig. 40 Front Output Seal Removal

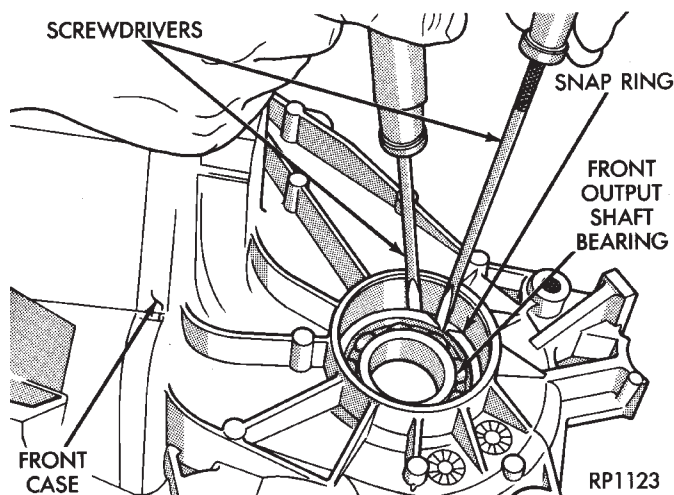


Fig. 41 Front Shaft Front Bearing Retaining Ring Removal

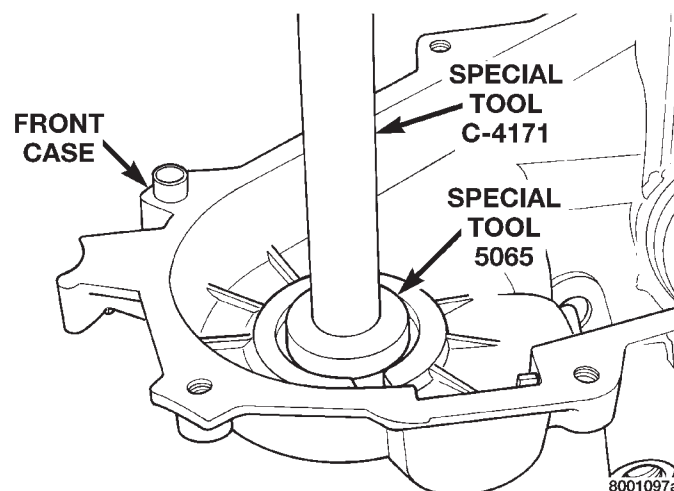
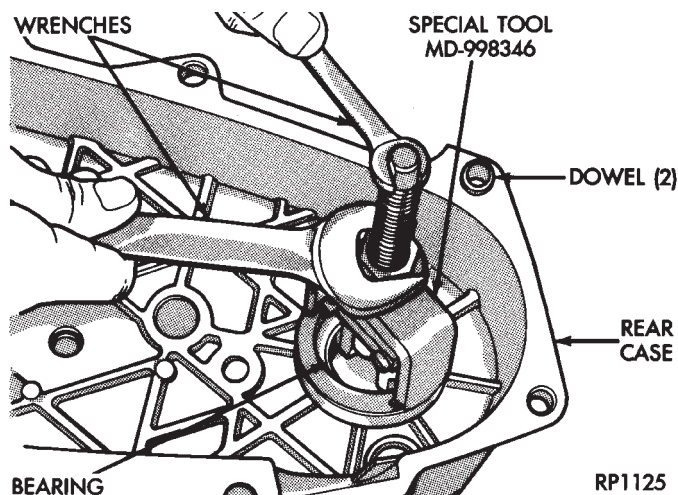


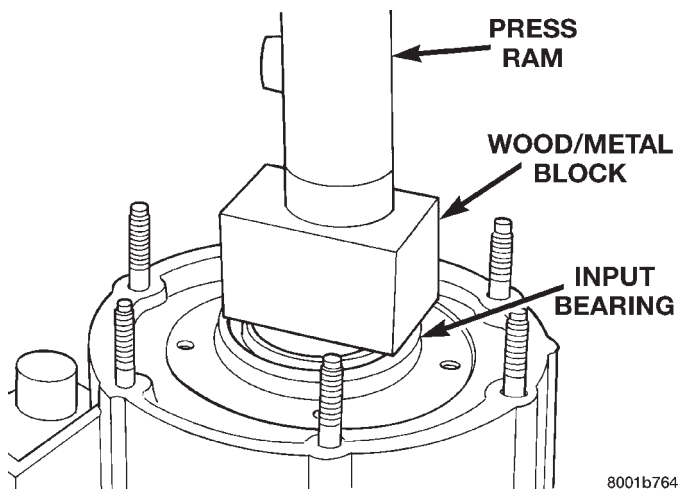
Fig. 42 Front Shaft Front Bearing Removal

Seals can be lubricated with transmission fluid, petrolatum, or Ru-Glyde if desired.

DISASSEMBLY AND ASSEMBLY (Continued)

**Fig. 43 Front Shaft Rear Bearing Removal**

(2) Install new input bearing in front case. Start bearing in bore with copper mallet. Tap bearing at 6-8 points around outer race to start it evenly. Mount case in shop press and seat bearing in case using hard wood block as press tool. Press bearing inward until bearing locating ring stops against case surface (Fig. 44).

**Fig. 44 Input Bearing Installation**

(3) Install front output shaft front bearing in case with Tool Handle C-4171 and Installer 5064 (Fig. 45).

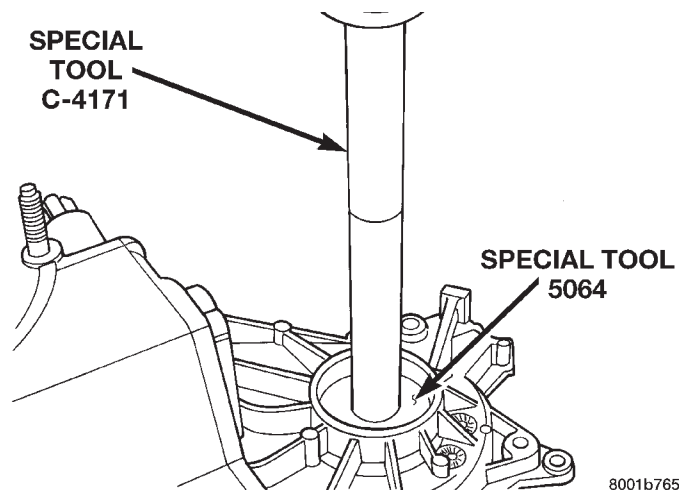
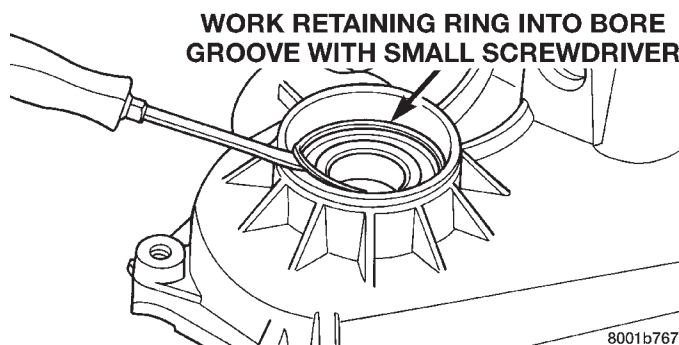
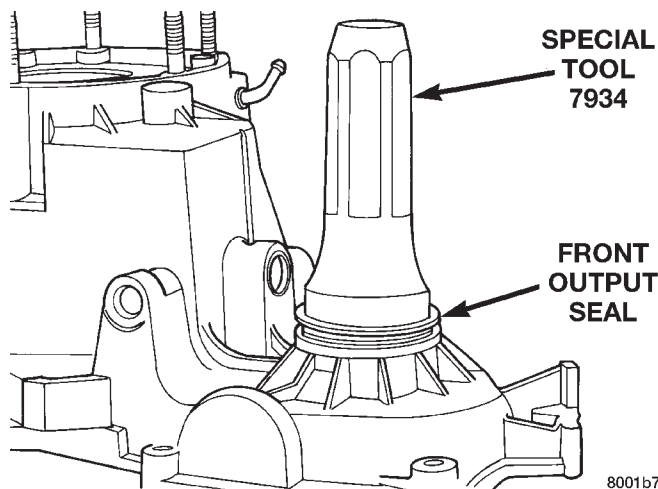
(4) Install shaft front bearing retaining ring (Fig. 46). Start ring into place by hand. Then use small screwdriver to work ring into case groove. Be sure ring is fully seated before proceeding.

(5) Install new front output seal in case bore with Tools C-4171 and 7934 (Fig. 47).

(6) Install pilot bearing in input gear with Tools C-4171 and 5065 (Fig. 48).

(7) Assemble input gear and planetary carrier as follows:

(a) Install rear thrust washer in carrier. Be sure washer tabs are aligned and seated in carrier slots

**Fig. 45 Front Shaft Front Bearing Installation****Fig. 46 Installing Front Bearing Retaining Ring****Fig. 47 Front output Seal Installation**

(Fig. 49). Also note that washers are the same and therefore interchangeable.

(b) Position front thrust washer and lock ring on input gear. Then install assembled parts in carrier (Fig. 50)

(c) Install carrier lock retaining ring. Use small screwdriver to work ring into place. Be sure ring is fully seated before proceeding (Fig. 51).

DISASSEMBLY AND ASSEMBLY (Continued)

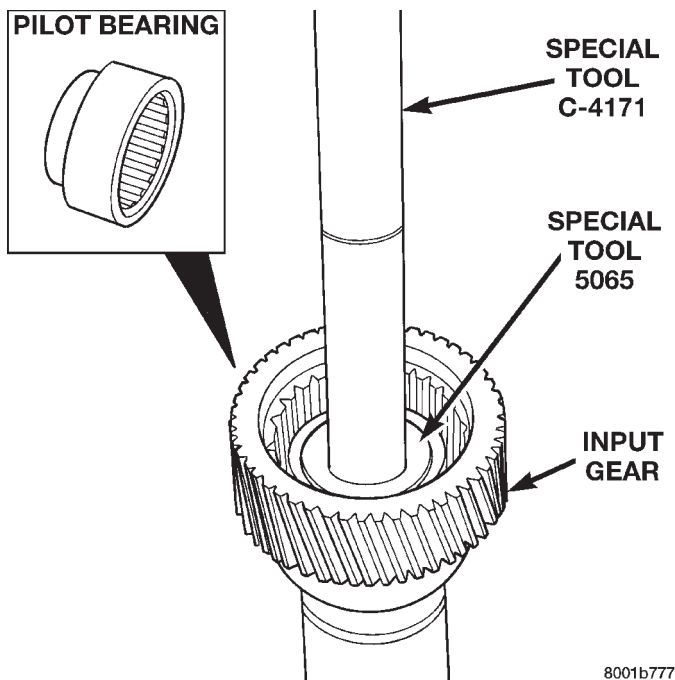


Fig. 48 Pilot Bearing Installation

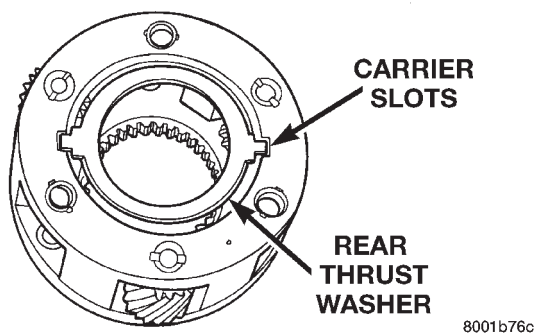


Fig. 49 Input Gear Rear Thrust Washer Installation

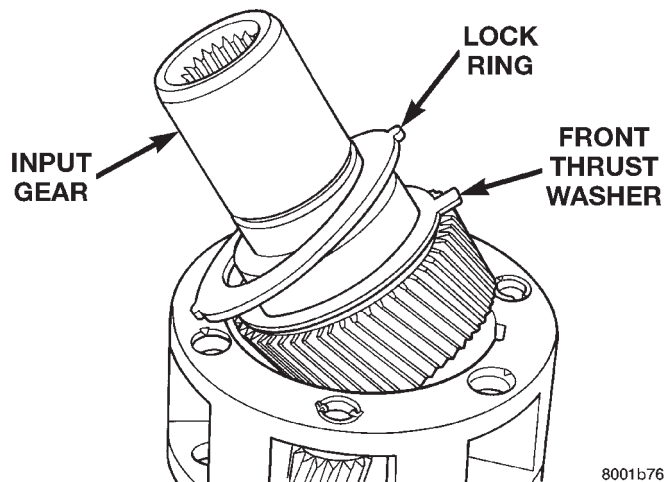


Fig. 50 Input Gear, Front Thrust Washer, And Carrier Lock Ring Installation

(8) Install assembled input gear/planetary carrier in front case (Fig. 52). Be sure to align carrier pin-

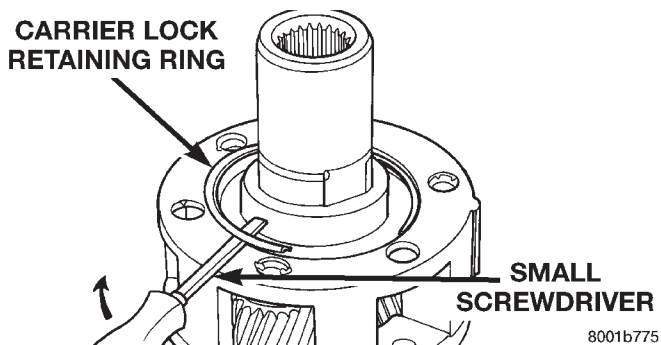


Fig. 51 Carrier Lock Retaining Ring Installation

ions in annulus gear. Use wood hammer handle or rawhide mallet to seat assembly if necessary.

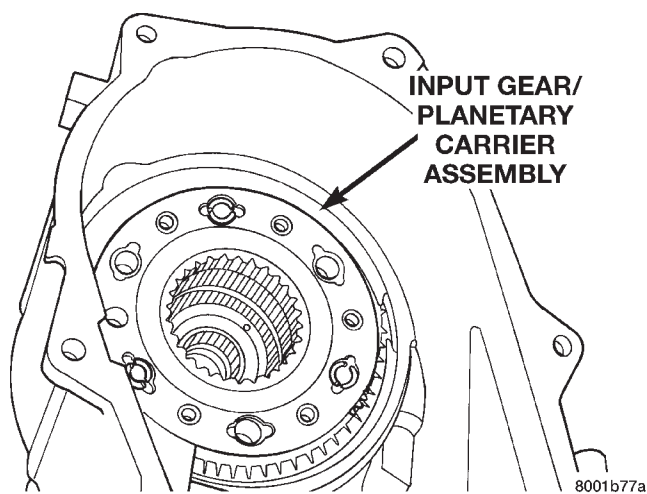


Fig. 52 Input Gear And Carrier Installation

(9) Install input gear retaining ring (Fig. 53). Be sure to install the correct retaining ring as the input gear and mode hub retaining rings are almost the same diameter. The difference is in ring thickness with the input gear retaining ring being substantially thicker.

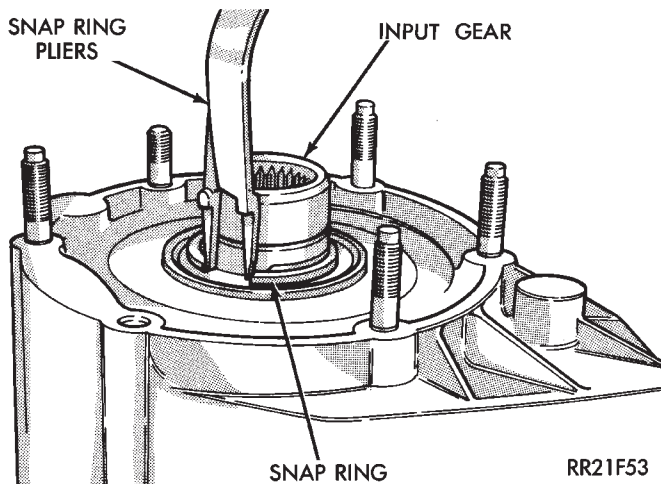
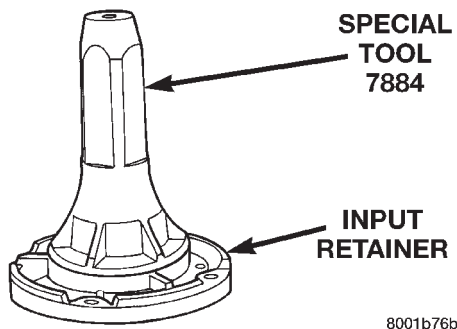


Fig. 53 Input Gear Retaining Ring Installation

DISASSEMBLY AND ASSEMBLY (Continued)

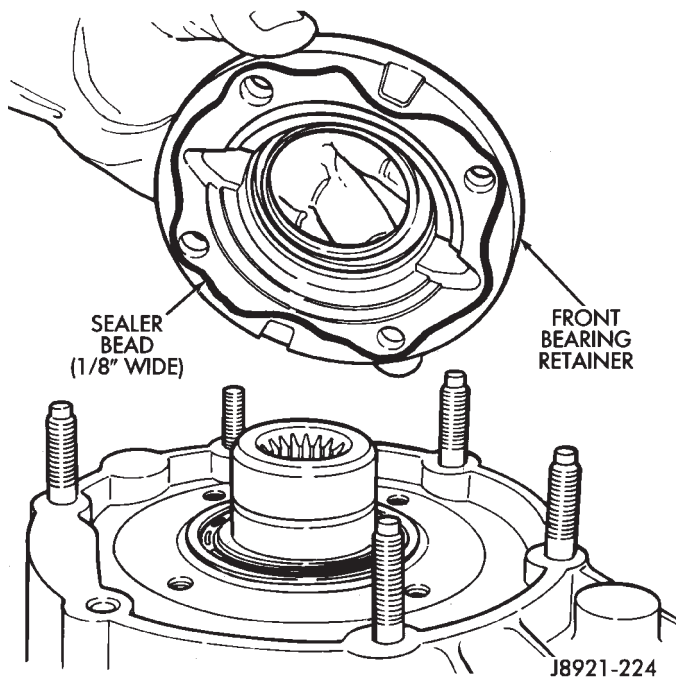
(10) Install new seal in input retainer with Tools C-4171 and 7884 (Fig. 54).



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Fig. 54 Input Retainer Seal Installation

(11) Apply 3 mm bead of Mopar Sealer P/N 82300234, or Loctite Ultra Gray to front bearing retainer seal surface (Fig. 55).



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Fig. 55 Applying Sealer Bead To Input Bearing Retainer

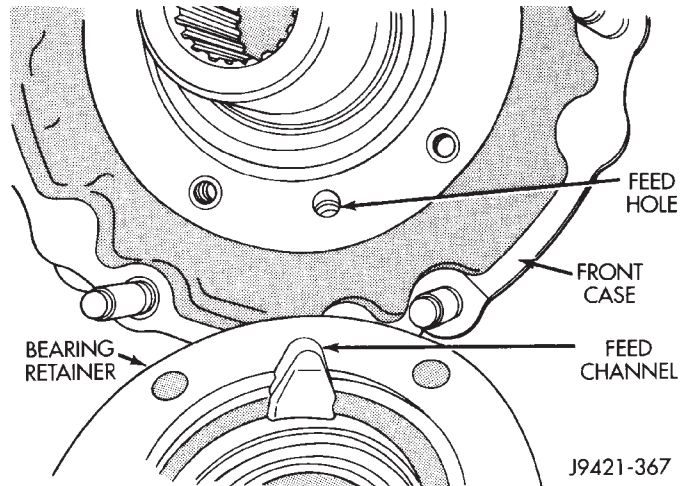
(12) Align oil channel in retainer with oil feed hole in front case (Fig. 56).

(13) Align and install input retainer on front case (Fig. 57).

(14) Install and tighten input retainer bolts to 16–24 N.m (12–18 ft. lbs.) torque.

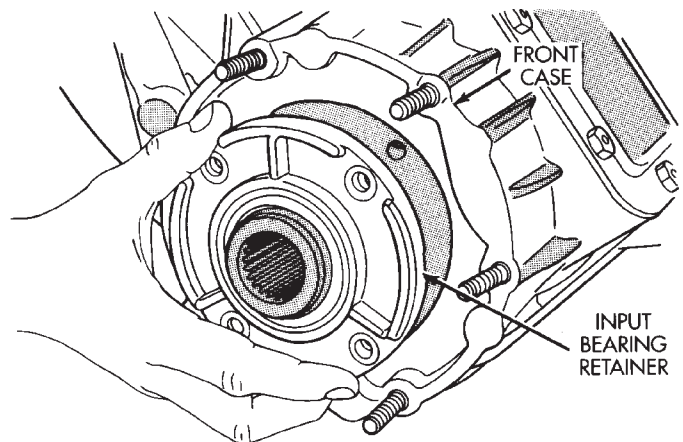
SHIFT SECTOR/POPPET/RANGE FORK/RANGE HUB INSTALLATION

(1) Install shift sector O-ring and nylon retainer in case bore. Note that one side of retainer is slightly rounded and that the opposite side has a shallow



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Fig. 56 Aligning Retainer Oil Channel With Feed Hole In Front Case

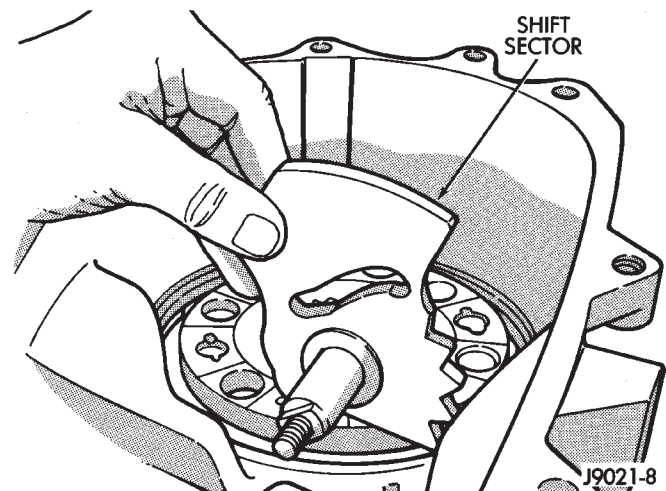


J9421-368

Fig. 57 Input Retainer Installation

groove. Groove side goes toward seal and rounded side faces out.

(2) Install shift sector in case (Fig. 58). Lubricate sector shaft with transmission fluid before installation.



J9021-8

Fig. 58 Shift Sector Installation

DISASSEMBLY AND ASSEMBLY (Continued)

(3) Install range lever, washer, and nut on sector shaft (Fig. 59). Tighten range lever nut to 27–34 N.m (20–25 ft. lbs.) torque.

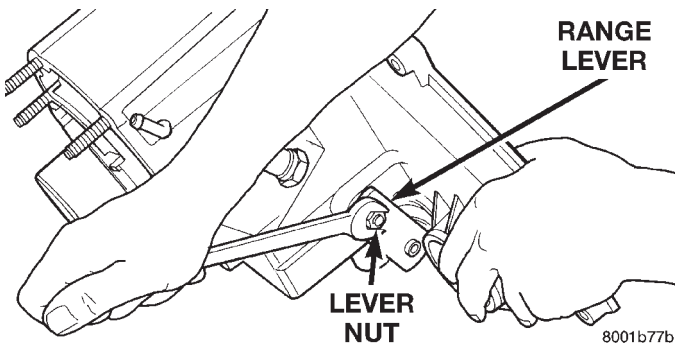


Fig. 59 Range Lever Installation

(4) Assemble and install range fork and hub (Fig. 60). Be sure hub is properly seated in planetary carrier and engaged with input gear.

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

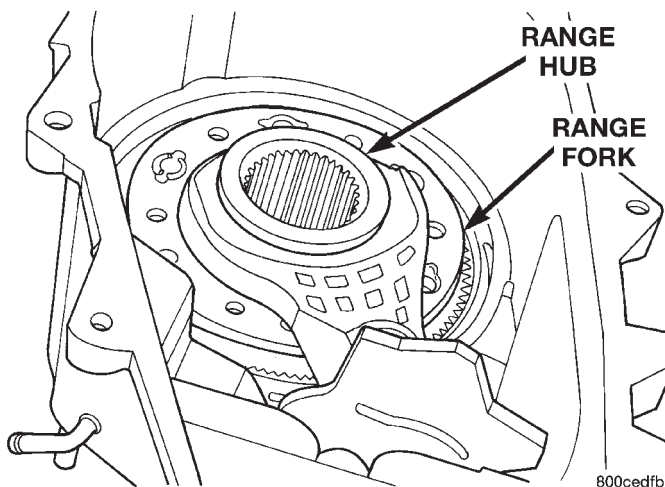


Fig. 60 Range Fork And Hub Assembly/Installation

(6) Install poppet plunger, spring, and screw plug (Fig. 19). Install new O-ring on screw plug if necessary. Tighten plug to 16–24 N.m (12–18 ft. lbs.) torque.

MAINSHAFT AND MODE FORK INSTALLATION

(1) Lubricate mainshaft and hub and sprocket bores with transmission fluid.

(2) Install drive sprocket on mainshaft.

(3) Install mode hub on mainshaft.

(4) Install mode hub retaining ring. Be sure ring is fully seated in shaft groove before proceeding.

(5) Install assembled mainshaft, sprocket and hub (Fig. 61). Be sure shaft is seated in pilot bearing, planetary, and range sleeve.

(6) Install new pads on mode fork if necessary.

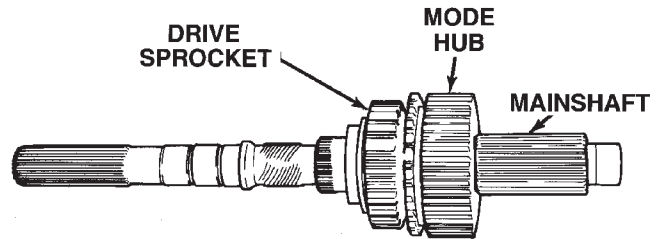


Fig. 61 Mainshaft Assembly Installation

(7) Insert mode sleeve in mode fork mode fork. Be sure long side of sleeve is toward long end of shift rail (Fig. 62).

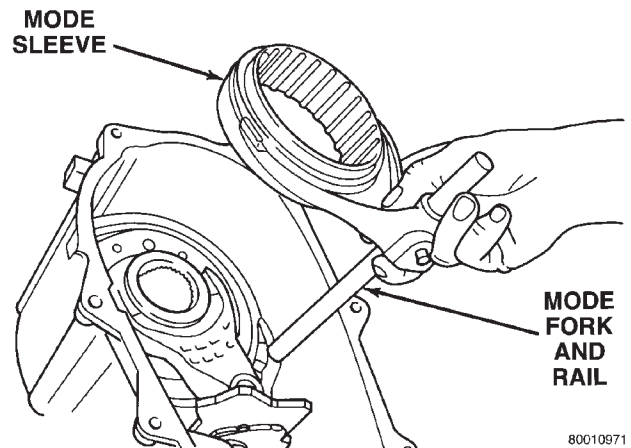


Fig. 62 Assembling Mode Fork And Sleeve

(8) Install assembled mode fork and sleeve (Fig. 63). Be sure fork rail goes through range fork and into case bore. Also be sure sleeve is aligned and seated on mainshaft hub.

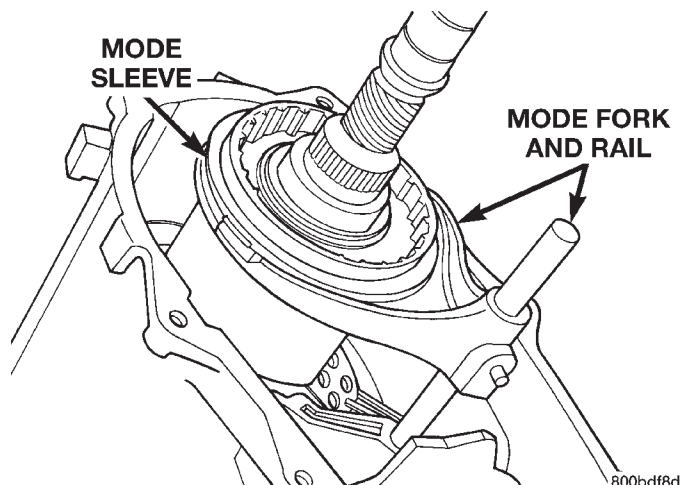


Fig. 63 Mode Fork And Sleeve Installation

DISASSEMBLY AND ASSEMBLY (Continued)

DRIVE CHAIN AND FRONT OUTPUT SHAFT INSTALLATION

- (1) Lubricate chain and front shaft with automatic transmission fluid.
- (2) Install drive chain on front output shaft.
- (3) Lift chain and shaft upward and start chain around mainshaft drive sprocket.
- (4) Install front output shaft. Tilt shaft and insert it into front bearing. Then work shaft and drive chain into place (Fig. 64).
- (5) Install mode spring on upper end of mode fork shift rail (Fig. 64).

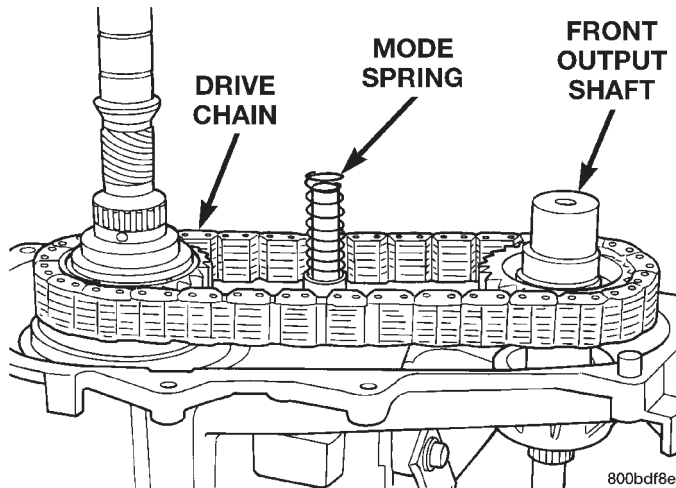


Fig. 64 Front Output Shaft And Drive Chain Installation

OIL PUMP AND REAR CASE ASSEMBLY/INSTALLATION

- (1) Assemble oil pickup screen, connecting hose, and tube.
- (2) Install new pickup tube O-ring in oil pump (Fig. 65).

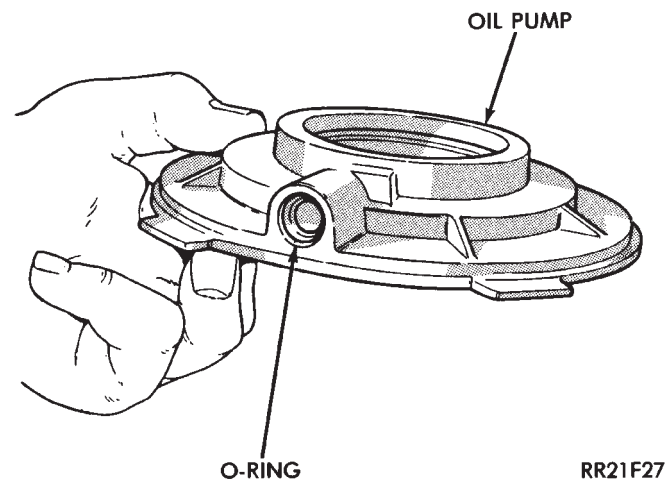


Fig. 65 Pickup Tube O-Ring Position

- (3) Install new seal in oil pump with Installer Tool 7588 (Fig. 66).
- (4) Insert oil pickup tube in oil pump inlet.

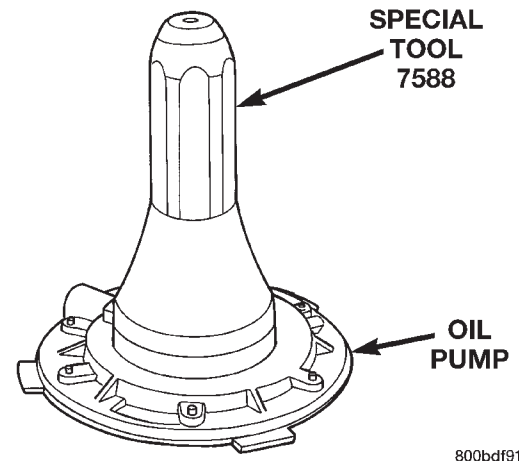


Fig. 66 Oil Pump Seal Installation

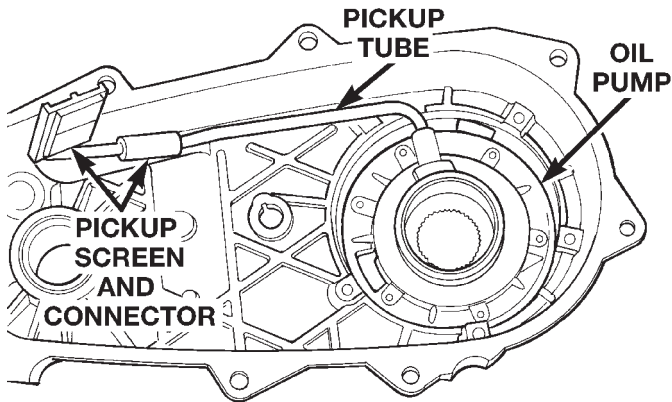
- (5) Position assembled oil pump and pickup tube in rear case. Be sure pickup screen is securely seated in case slot. Also be sure oil pump locating tabs are outside rear case (Fig. 67).

- (6) Apply bead of sealer to mating surface of front case. Use Mopar Sealer P/N 82300234, or Loctite Ultra Gray. Sealer bead should not exceed 3/16 in. in diameter.

- (7) Lift rear case and oil pump and carefully position assembly on front case. Be sure case dowels are aligned and that mode fork rail extends through rear case before seating rear case on front case.

- (8) Install bolts that attach rear case to front case. Be sure to use a washer with each of the two dowel bolts (Fig. 16). Tighten all bolts (including spline head bolt), to 27– 34 N.m (20–25 ft. lbs.) torque.

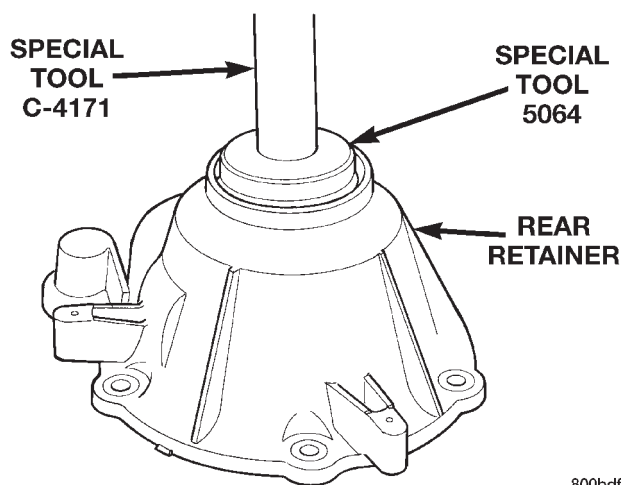
DISASSEMBLY AND ASSEMBLY (Continued)



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Fig. 67 Oil Pump And Pickup Tube Installation**REAR RETAINER ASSEMBLY AND INSTALLATION**

(1) Install rear bearing in retainer with Tools C-4171 and 5064 (Fig. 68).



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Fig. 68 Installing Rear Bearing In Retainer

(2) Install rear bearing O.D. retaining ring with snap ring pliers (Fig. 69). Be sure retaining ring is fully seated in retainer groove.

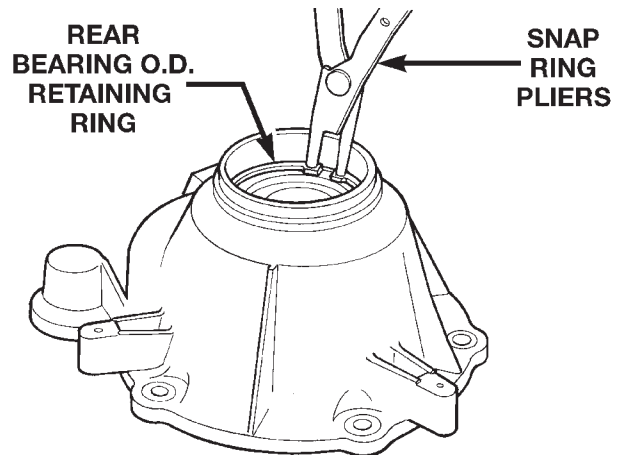
(3) Apply bead of Mopar Sealer P/N 82300234, or Loctite Ultra Gray to mating surface of rear retainer. Sealer bead should be a maximum of 3/16 in.

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

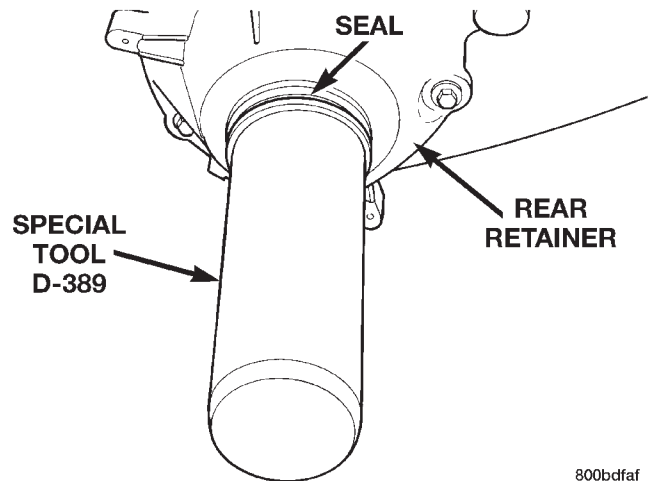
(5) Install rear bearing I.D. retaining ring and spacer on mainshaft.

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

(7) Slide new rear seal onto mainshaft and into place in rear retainer. Start seal in retainer by hand then carefully seat seal with hammer and Tool D-389 (Fig. 70).



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Fig. 69 Rear Bearing Retaining Ring Installation

800bdfaf

Fig. 70 Rear Seal Installation

(8) Install new rear slinger. Use suitable size pipe tool to tap slinger into place.

(9) Install boot on mainshaft and slinger. Secure boot to slinger with new band clamp.

FRONT YOKE AND SWITCH INSTALLATION

(1) Install vacuum or 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.

(3) Install new seal washer on front shaft.

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

CLEANING AND INSPECTION**NV231 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 3M

CLEANING AND INSPECTION (Continued)

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 (Fig. 71). Minor nicks and scratches can 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. 72). 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.

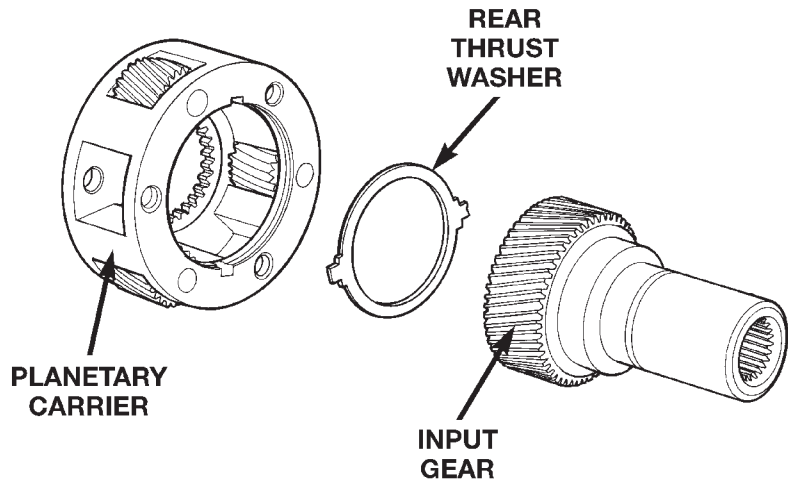


Fig. 72 Input Gear And Carrier Components

SHIFT FORKS/HUBS/SLEEVES

Check condition of the shift forks and mode fork shift rail (Fig. 73). Minor nicks on the shift rail can be smoothed with 320–400 grit emery cloth.

Inspect the shift fork wear pads (Fig. 74). The mode fork pads are serviceable and can be replaced if necessary. The range fork pads are not serviceable. The fork must be replaced as an assembly if the pads are worn or damaged.

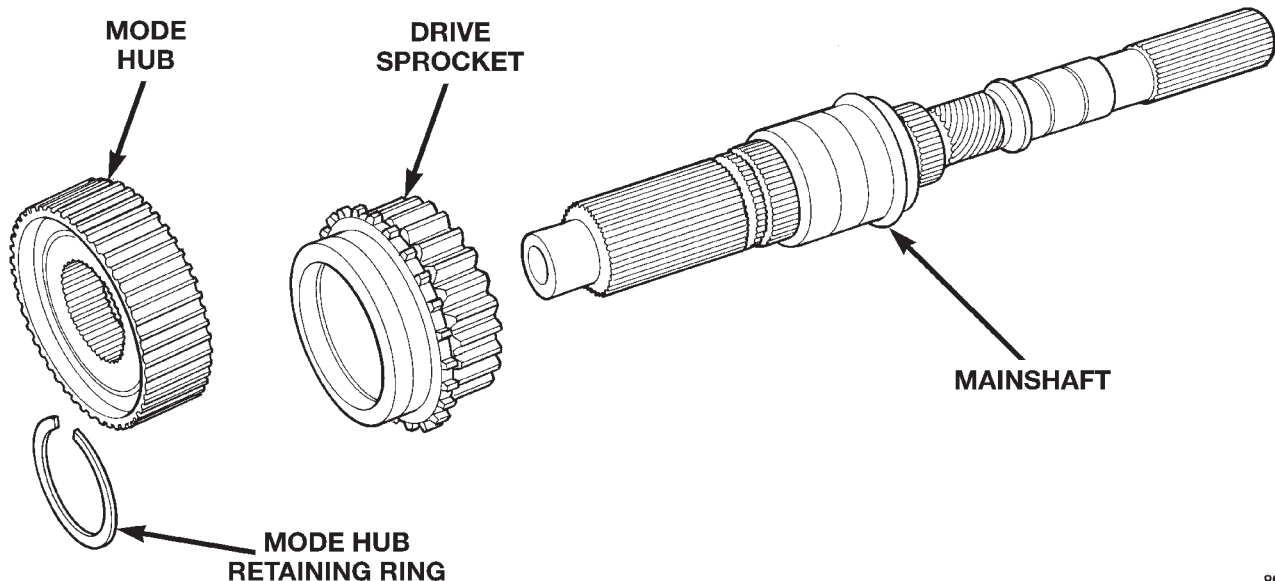
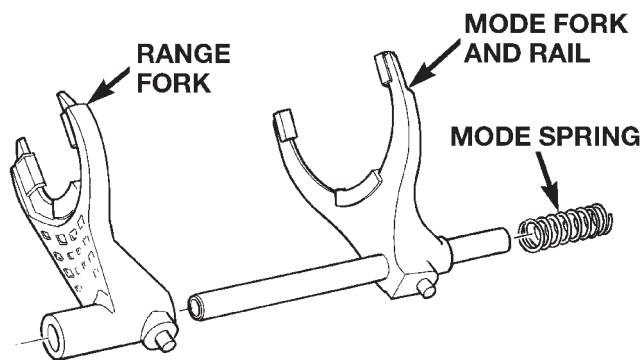


Fig. 71 Mainshaft, Mode Hub, And Drive Sprocket

CLEANING AND INSPECTION (Continued)



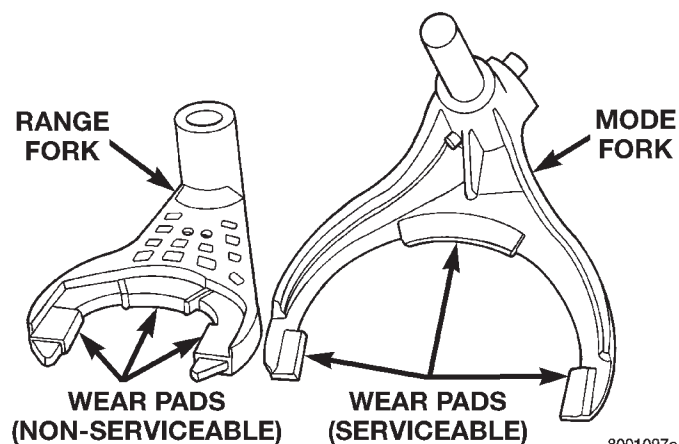
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Fig. 73 Shift forks

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

REAR RETAINER/BEARING/ SEAL/SLINGER/ BOOT

Inspect the retainer components (Fig. 75). Replace the bearing if rough or noisy. Check the retainer for cracks or wear in the bearing bore. Clean the



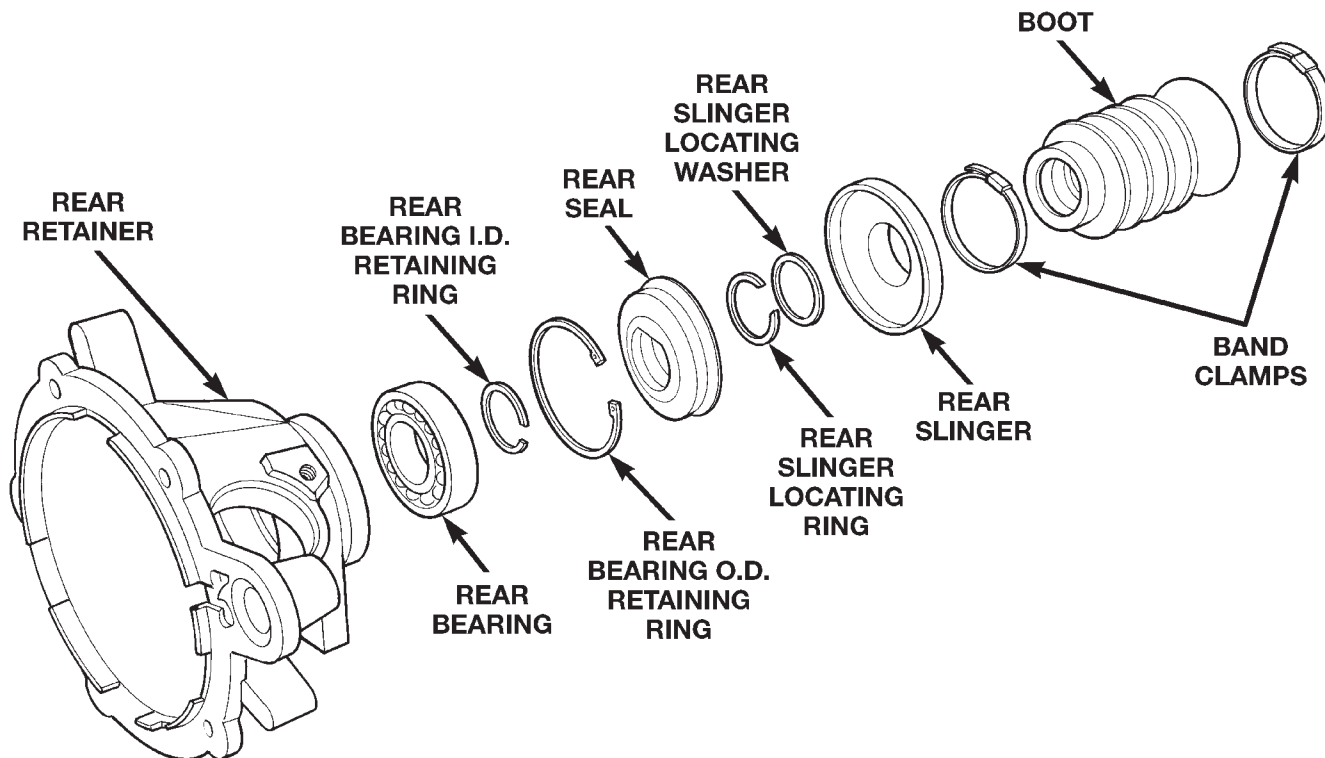
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Fig. 74 Shift Fork And Wear Pad Locations

retainer sealing surfaces with a scraper and 3M 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.



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Fig. 75 Rear Retainer Components

CLEANING AND INSPECTION (Continued)

REAR OUTPUT SHAFT/YOKE/DRIVE CHAIN

Check condition of the seal contact surfaces of the yoke slinger (Fig. 76). 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 if stretched, distorted, or if any of the links bind. Replace the bearings if rough, or noisy.

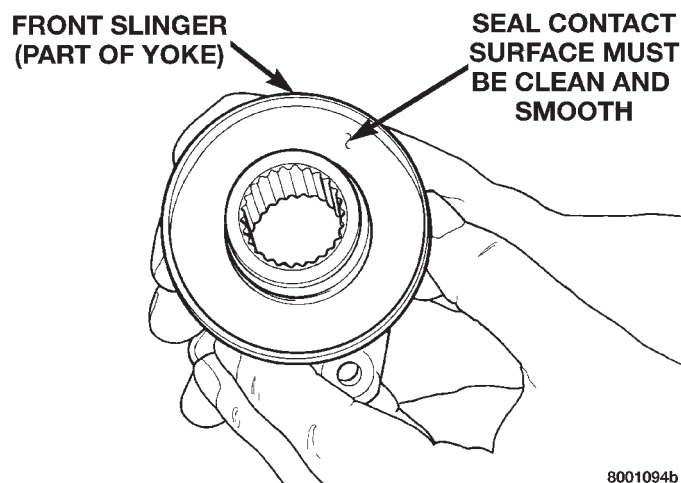


Fig. 76 Seal Contact Surface Of Yoke Slinger

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. 77)

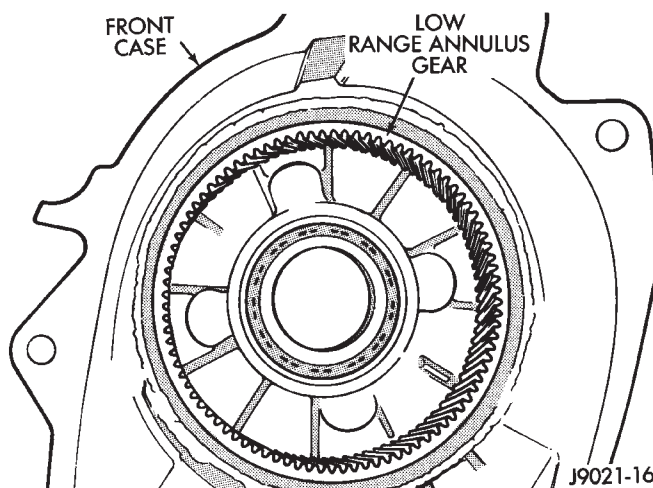


Fig. 77 Low Range Annulus Gear

FRONT-REAR CASES AND FRONT RETAINER

Inspect the cases and retainer for wear and damage. Clean the sealing surfaces with a scraper and 3M 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.

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.

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 | .40–45 N·m (30–40 ft. lbs.) |
| Bolt, Extension Housing . . | .35–46 N·m (26–34 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 | .35–47 N·m (26–35 ft. lbs.) |
| Bolts, U-Joint | .19 N·m (17 ft. lbs.) |
| Vacuum Switch | .20–34 N·m (15–25 ft. lbs.) |

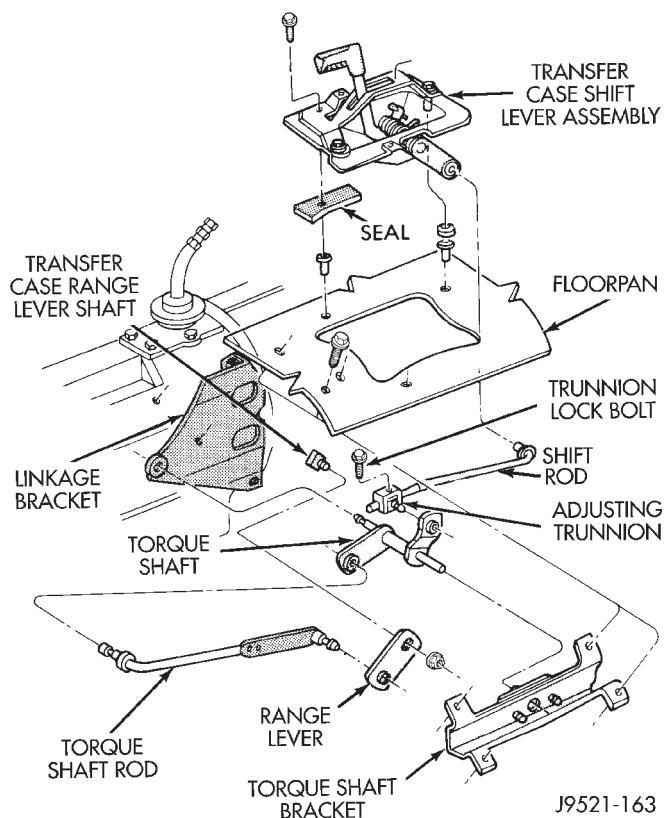
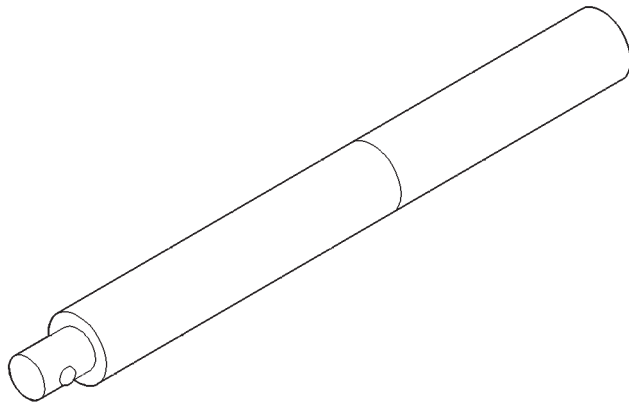


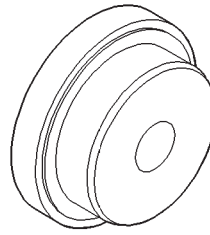
Fig. 78 Shift Linkage

SPECIAL TOOLS

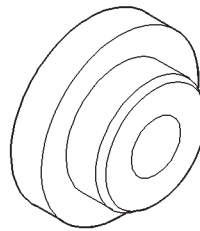
SPECIAL TOOLS—NV231



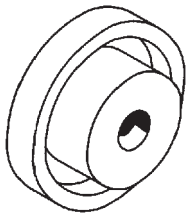
C-4171 Handle Universal (Non Threaded)



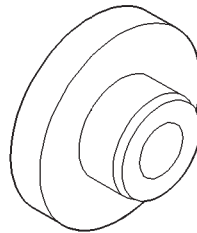
5062 Installer, Bearing



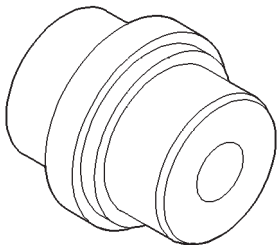
5063 Installer, Bearing



C-4210 Installer, Seal

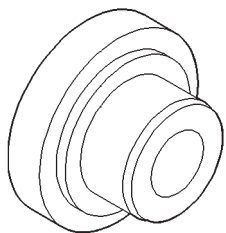


5064 Installer, Bearing

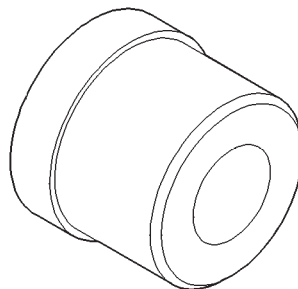


5061 Installer, Bearing

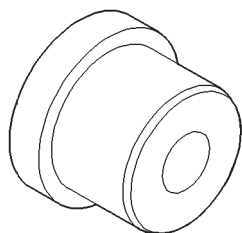
SPECIAL TOOLS (Continued)



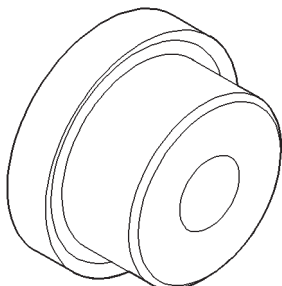
5065 Installer, Bearing



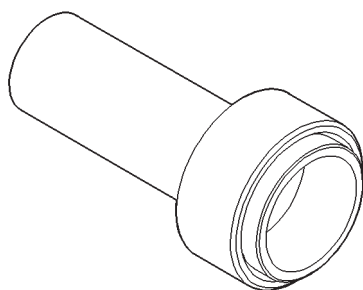
7889-A Remover, Rear Output Shaft Bushing



5066 Installer, Bushing



7828-A Installer, Input Gear Bearing



7888 Installer, Pump Housing Seal

NV249 TRANSFER CASE

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GENERAL INFORMATION

GENERAL INFORMATION

The NV249 is an all the time, 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. The NV249 low range is provided by a gear reduction system for increased low speed, off road torque capability.

Shift Mechanism

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.

SHIFT MECHANISM

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. 1). 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.

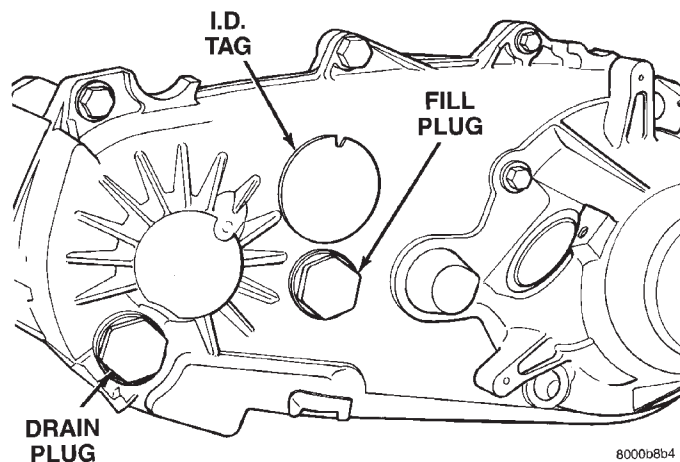


Fig. 1 Transfer Case I.D. Tag

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).

Correct fill level is to the bottom edge of the fill plug hole.

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.

SERVICE PROCEDURES

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).

Correct fill level is to the bottom edge of the fill plug hole.

REMOVAL AND INSTALLATION

SPEEDOMETER

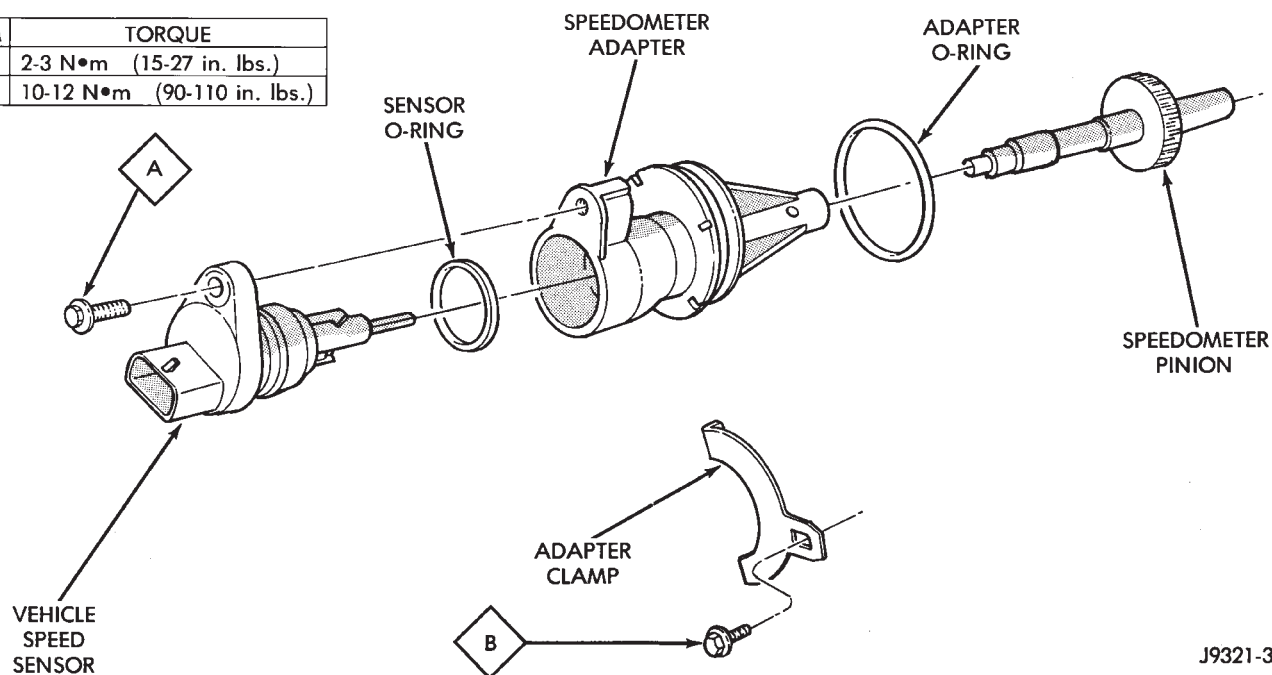
REMOVAL

- (1) Raise vehicle.
- (2) Disconnect wires from vehicle speed sensor.
- (3) Remove adapter clamp and screw (Fig. 2).
- (4) Remove speed sensor and speedometer adapter as assembly.
- (5) Remove speed sensor retaining screw and remove sensor from adapter.
- (6) Remove speedometer pinion from adapter. Replace pinion if chipped, cracked, worn.
- (7) Inspect sensor and adapter O-rings (Fig. 2). 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 pins are loose, severely corroded, or damaged.

SPEEDOMETER 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 if necessary (Fig. 2).
- (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. 3). 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.

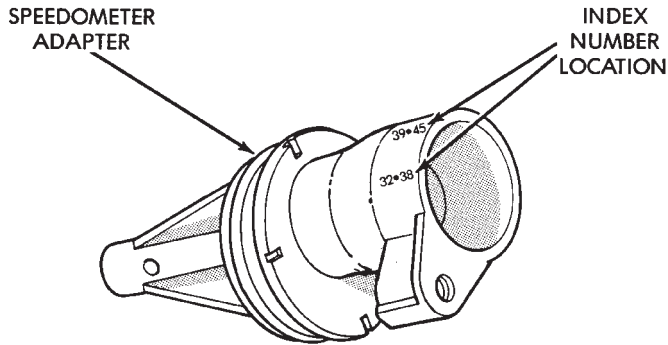
ITEM	TORQUE
A	2-3 N·m (15-27 in. lbs.)
B	10-12 N·m (90-110 in. lbs.)



J9321-385

Fig. 2 Speedometer Components

REMOVAL AND INSTALLATION (Continued)



J9321-386

Fig. 3 Location Of Index Numbers On Speedometer Adapter

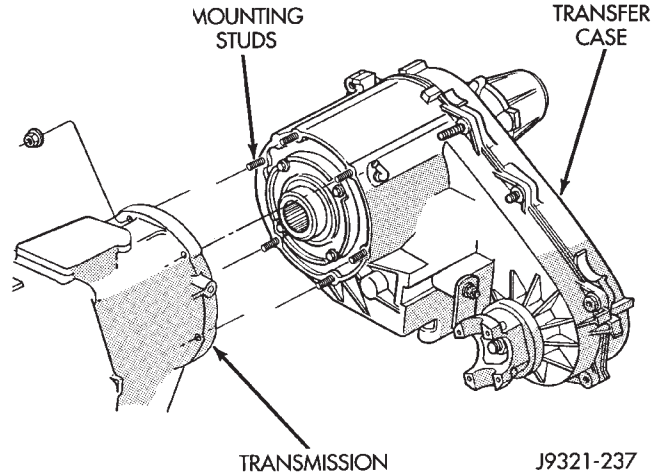
TRANSFER CASE

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) Place support stand under transmission.
- (6) Remove rear crossmember.
- (7) Then disconnect shafts at transfer case.
- (8) Disconnect speed sensor and remove speedometer adapter and sensor if necessary.
- (9) Disconnect transfer case shift lever from shift lever rod.
- (10) Disconnect vent hose and indicator switch. Remove hoses and wires from retainers on transfer case.
- (11) Support transfer case with transmission jack.
- (12) Remove nuts attaching transfer case to transmission adapter.
- (13) Secure transfer case to jack with safety chains.
- (14) Pull transfer case and jack rearward to disengage transfer case.
- (15) Remove transfer case from under vehicle.

TRANSFER CASE INSTALLATION

- (1) Mount transfer case on a transmission jack. Secure transfer case to jack with safety chains.
- (2) Position transfer case under vehicle.
- (3) Align transfer case and transmission shafts and install transfer case on transmission (Fig. 4).
- (4) Install and tighten transfer case attaching nuts (Fig. 4). Tighten 3/8 nuts to 41-47 N·m (30-35 ft. lbs.). Tighten 5/16 nuts to 30-35 N·m (22-26 ft. lbs.).
- (5) Install speedometer adapter if removed during service. Then index adapter and install speed sensor



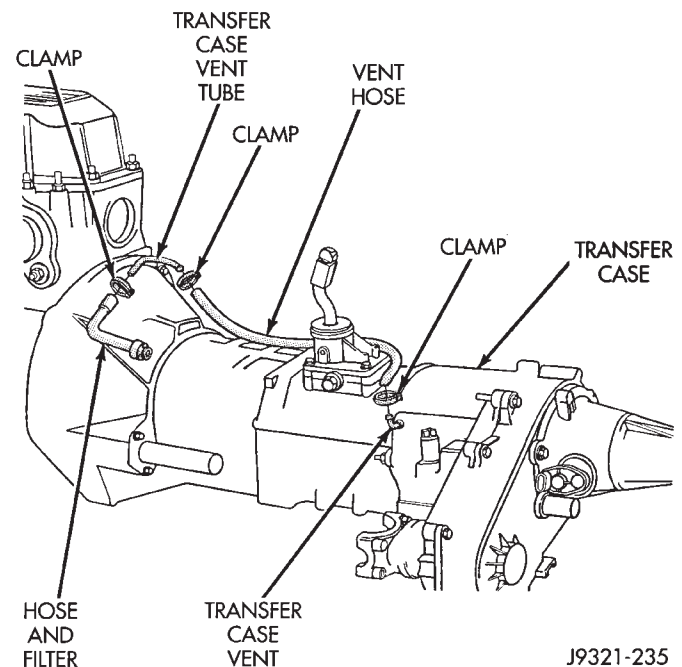
J9321-237

Fig. 4 Transfer Case Attachment

in adapter. Refer to Speedometer removal and installation for indexing procedure.

(6) Connect electrical wires to speed sensor and indicator switch.

(7) Connect vent hose to transfer case vent (Fig. 5).



J9321-235

Fig. 5 Transfer Case Vent Hose Routing

(8) Align and connect propeller shafts. Tighten shaft attaching bolts to 19 N·m (170 in. lbs.) torque.

(9) Fill transfer case with Dexron II. Correct level is to bottom edge of fill plug hole.

(10) Install rear crossmember if removed. Tighten crossmember bolts to 41 N·m (30 ft. lbs.) torque.

(11) Remove transmission jack and transmission support stand.

REMOVAL AND INSTALLATION (Continued)

- (12) Connect transfer case shift lever to shift lever rod.
- (13) Check and adjust transfer case shift linkage if necessary.
- (14) Lower vehicle.

TRANSFER CASE BEARINGS AND SEALS

OUTPUT SHAFT FRONT SEAL

- (1) Hoist vehicle and support on safety stands.
- (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. 6).

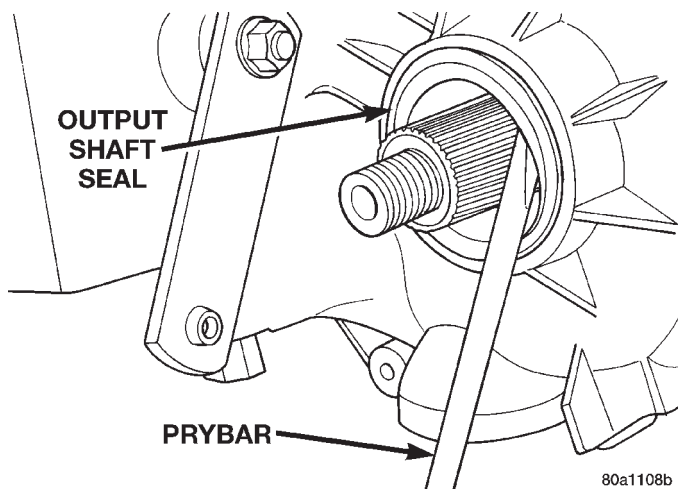


Fig. 6 Remove Front Output Shaft Seal

- (5) Install new front output seal in front case with Installer Tool 6952 and Tool Handle C-4171 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. 7). Once seal is started, continue tapping seal into bore until installer tool bottoms against case.

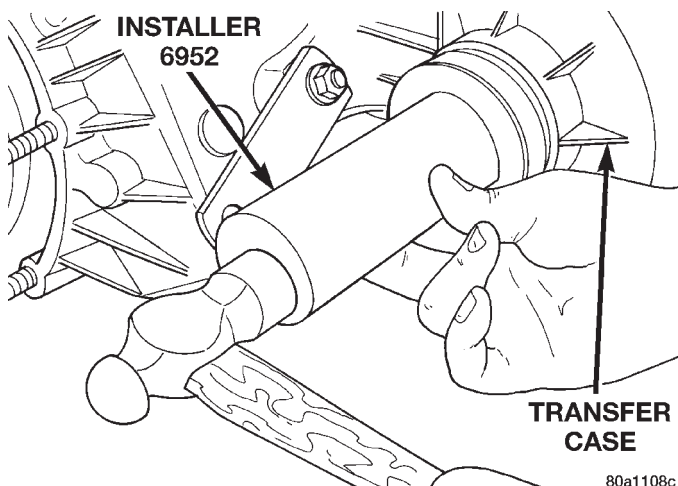


Fig. 7 Front Output Seal Installation

OUTPUT SHAFT FRONT BEARING

The transfer case housing must be disassembled to replace to output shaft front bearing (Fig. 8).

- (1) Remove snap ring that retains front bearing in front case (Fig. 9).

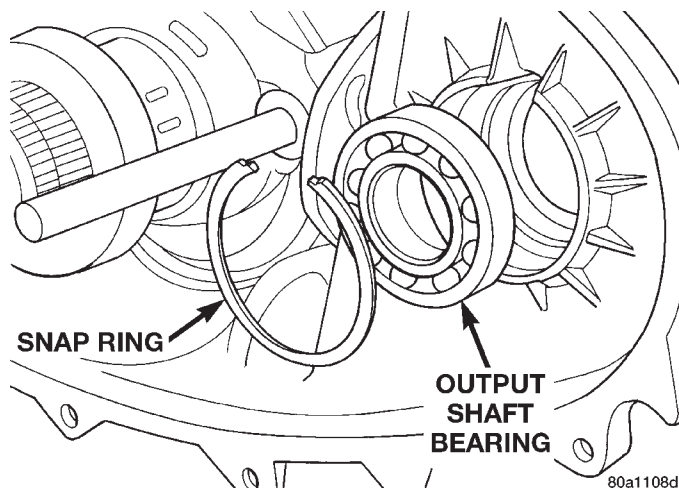


Fig. 8 Output Shaft Front Bearing

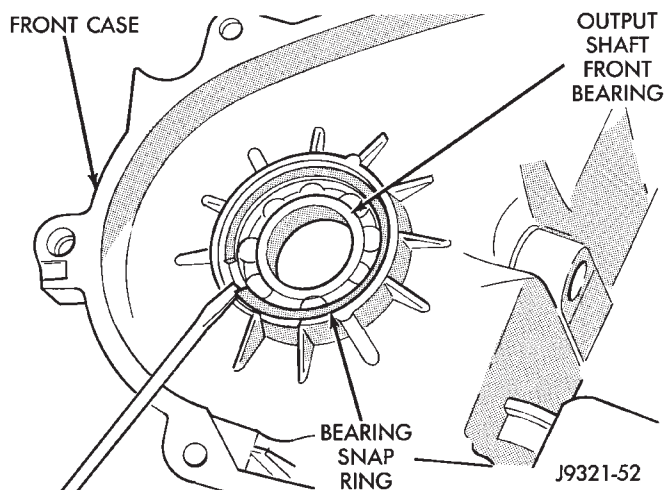


Fig. 9 Output Shaft Front Bearing Snap Ring Removal

- (2) Using tool 6953, remove bearing from front case (Fig. 10).

(3) Using tool 6953, install new bearing.

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

(5) Assemble transfer case.

REPLACING FRONT OUTPUT SHAFT REAR BEARING

The transfer case must be disassembled to replace the front output shaft rear bearing.

Using Puller 7794A and Slide Hammer C-637 with Adapter 7420-8, pull the output shaft rear bearing from the rear case (Fig. 12).

Using Tool Handle C-4171 and Installer 5066, install the new bearing with (Fig. 13). **The bearing**

REMOVAL AND INSTALLATION (Continued)

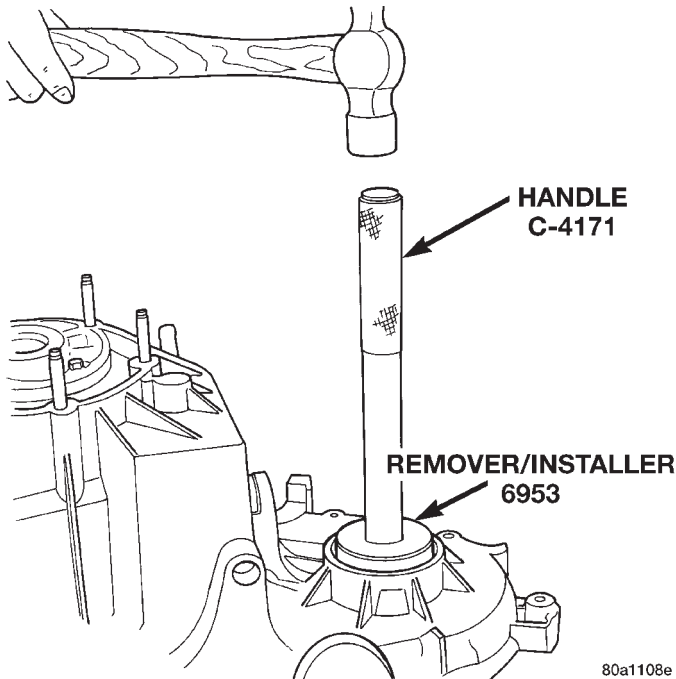


Fig. 10 Remove Output Shaft Front Bearing

bore is chamfered at the top. Install the bearing so it is flush with the lower edge of this chamfer (Fig. 14).

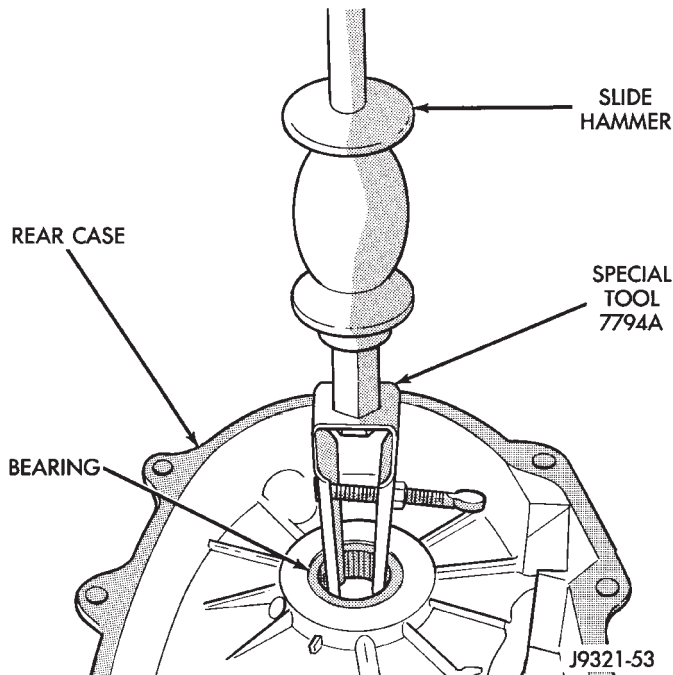


Fig. 12 Front Output Shaft Rear Bearing Removal

REPLACING FRONT BEARING

The transfer case must be disassembled to replace the front bearing. The same tool is used to remove and install the front bearing. Replace the bearing only as described to avoid damaging the front case.

- (1) Remove input gear from front bearing.

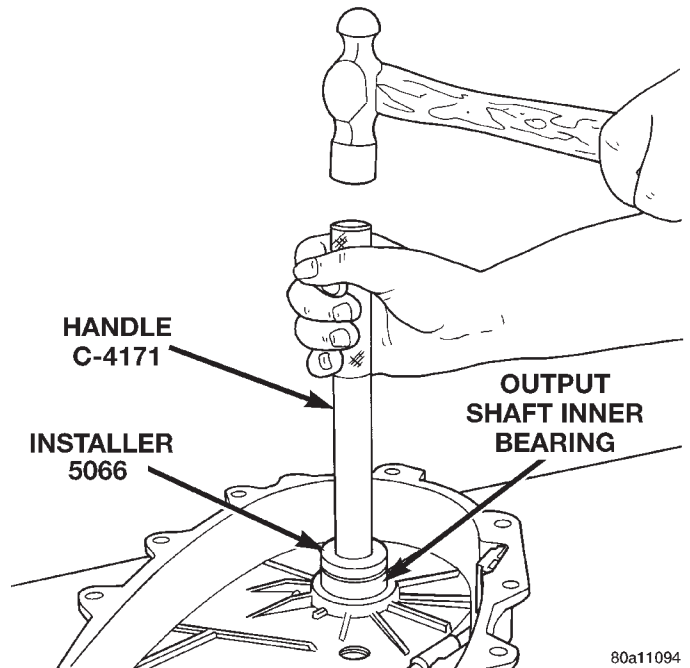


Fig. 13 Front Output Shaft Rear Bearing Installation

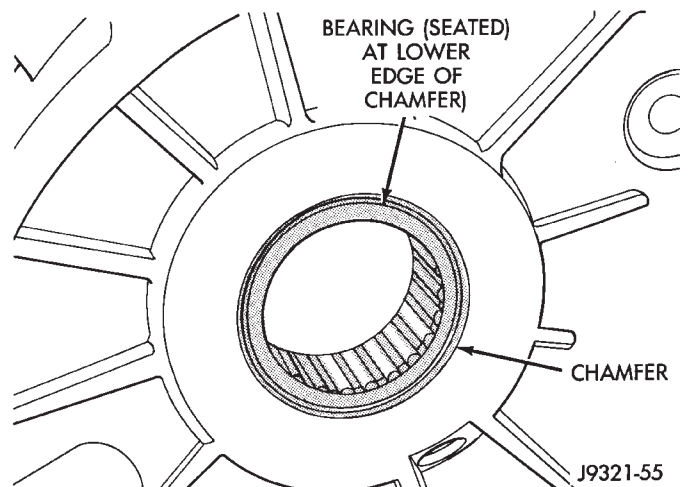
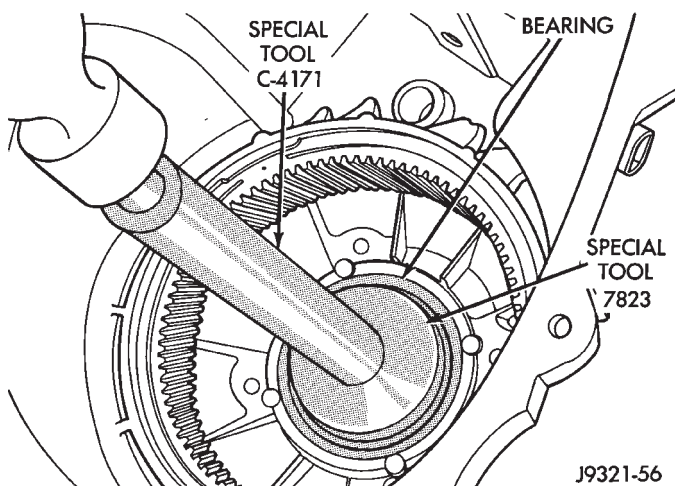
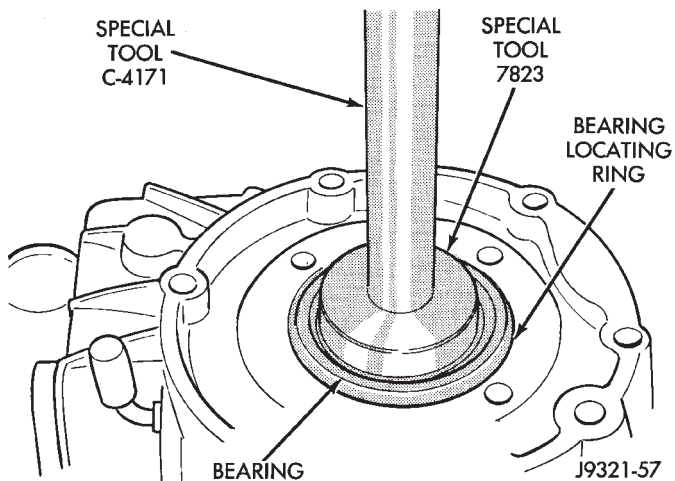


Fig. 14 Rear Bearing Installation Depth

- (2) Remove input gear front seal retainer.
- (3) Using Remover/Installer 7823 and Handle C-4171, drive front bearing from inside the annulus opening in the case. (Fig. 15).
- (4) If necessary, install locating ring on new bearing (Fig. 16).
- (5) Position case so forward end is facing upward.
- (6) Using Remover/Installer 7823 and Handle C-4171, drive front bearing into case (Fig. 16). The bearing locating ring must be fully seated against case surface.

REMOVAL AND INSTALLATION (Continued)

**Fig. 15 Front Bearing Removal****Fig. 16 Front Bearing Installation****REPLACING FRONT BEARING RETAINER SEAL**

If the front seal is the cause of a fluid leak, replace the seal and seal the retainer with Mopar, RTV Gasket Maker.

- (1) Remove front seal retainer.
- (2) Using a suitable driver, remove seal from retainer.
- (3) Clean gasket sealer residue from retainer and inspect retainer for cracks or other damage.
- (4) Using Installer 6952, install seal into the retainer.

CAUTION: Do not block fluid return cavity on sealing surface of retainer when applying RTV sealer. Seal failure and fluid leak can result.

(5) Apply a 3 mm (1/8 in.) bead of RTV sealer to sealing surface of retainer.

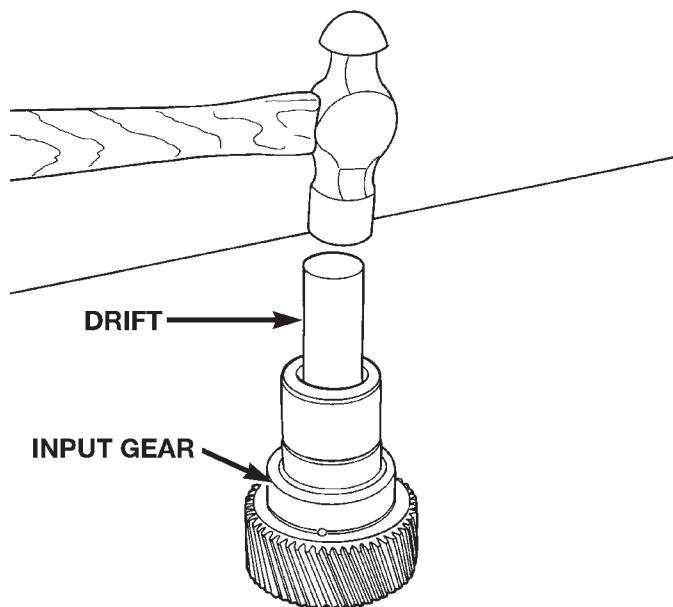
(6) Align cavity in seal retainer with fluid return hole in front of case.

(7) Install bolts to hold retainer to transfer case.

REPLACING INPUT GEAR PILOT BEARING

The input gear must be removed to replace the mainshaft pilot bearing.

(1) Using a suitable drift inserted into the splined end of the input gear, drive pilot bearing from input gear (Fig. 17).

**Fig. 17 Removing Input Gear Pilot Bearing**

(2) Wash input gear in solvent to remove fluid residue.

(3) Apply a thin coat of Mopar, Lock N'Seal sealer to outside surface of pilot bearing.

(4) Using Installer 6954 and Handle C-4171, drive pilot bearing into input gear until installer bottoms out (Fig. 18).

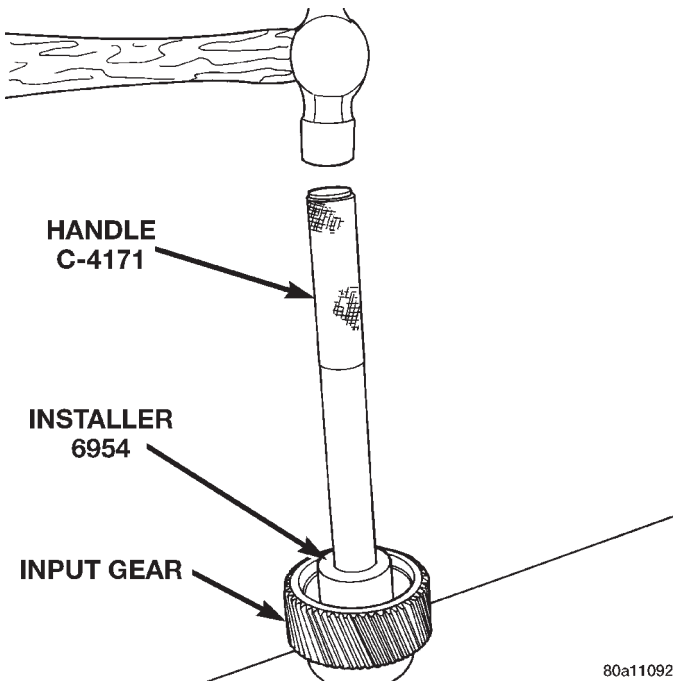
(5) Install input gear in transfer case.

REPLACING EXTENSION HOUSING SEAL

It is not necessary to remove the transfer case to replace the extension housing seal.

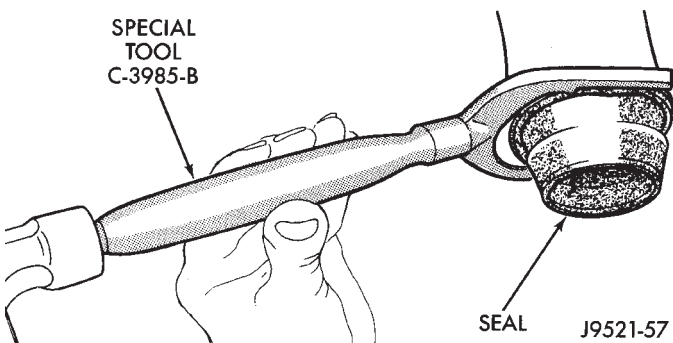
(1) Hoist and support vehicle on safety stands.

REMOVAL AND INSTALLATION (Continued)

**Fig. 18 Installing Input Gear Pilot Bearing**

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

(3) Using Remover C-3985B, remove seal from housing (Fig. 19).

**Fig. 19 Remove Extension Housing Seal**

(4) Clean fluid residue from sealing surface and inspect for defects. Replace housing if cracked.

(5) Using Installer C-3995A or C-3972A, install seal in extension housing (Fig. 20).

(6) Install propeller shaft.

(7) Verify proper fluid level.

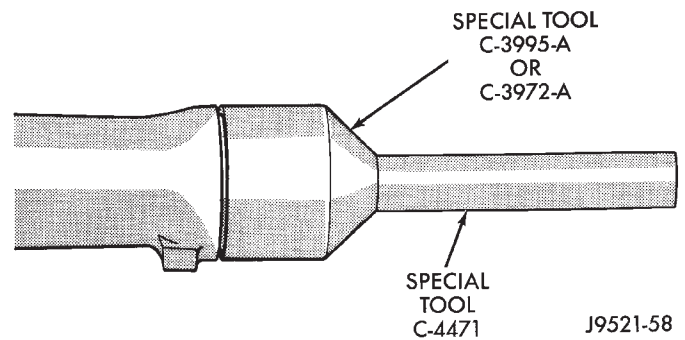
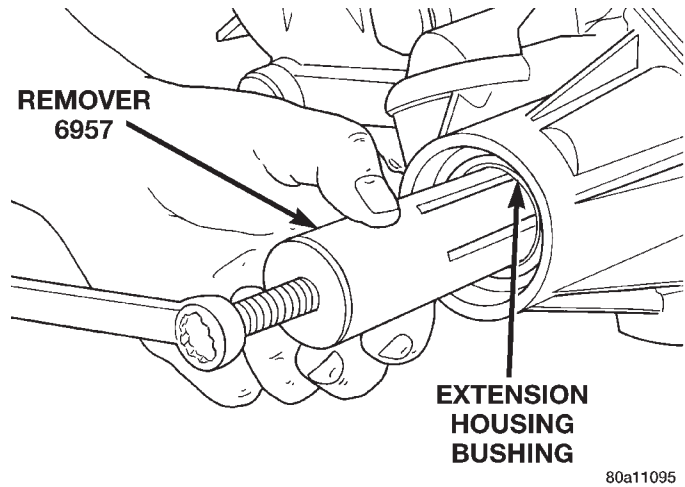
(8) Lower vehicle.

REPLACING REAR RETAINER SEAL AND BUSHING

(1) Remove extension housing seal.

(2) Using Remover 6957, remove bushing from extension housing (Fig. 21).

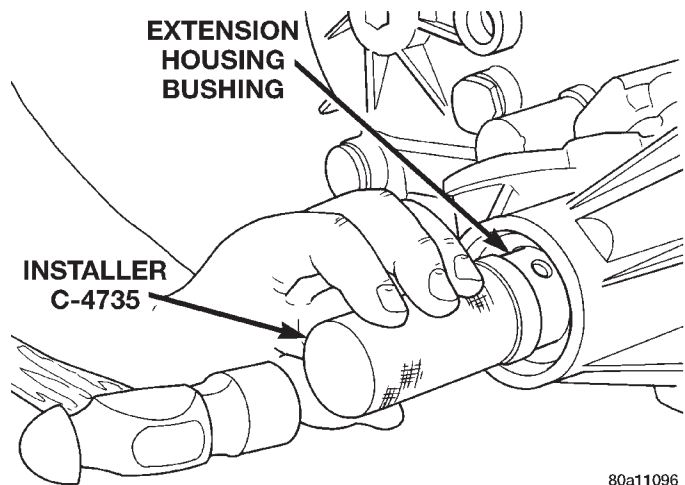
(3) Clean fluid residue from extension housing and inspect for cracks. Replace housing if damaged.

**Fig. 20 Install Extension Housing Seal****Fig. 21 Extension Housing Bushing Removal**

(4) Position replacement bushing in extension housing with fluid port in bushing aligned with slot in housing.

(5) Using Installer C-4735, drive bushing into housing until installer bottoms out (Fig. 22).

(6) Install extension housing seal.

**Fig. 22 Extension Housing Bushing Install**

DISASSEMBLY AND ASSEMBLY

TRANSFER CASE

TRANSFER CASE DISASSEMBLY

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

(2) Remove front yoke nut and remove yoke (Fig. 23).

(3) Remove yoke seal washer from front output shaft (Fig. 24).

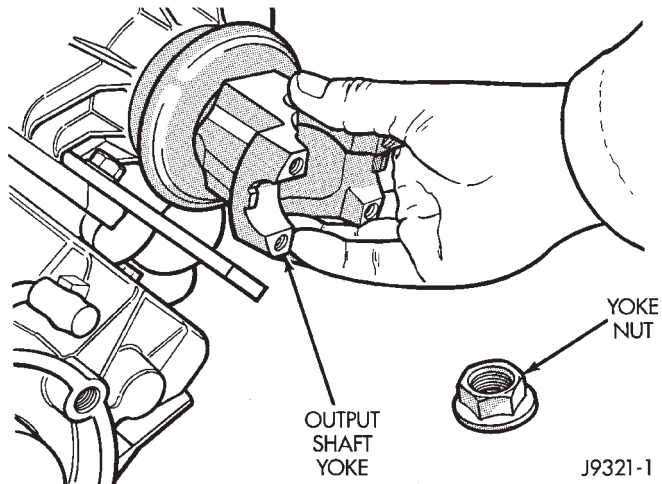


Fig. 23 Front Yoke Removal

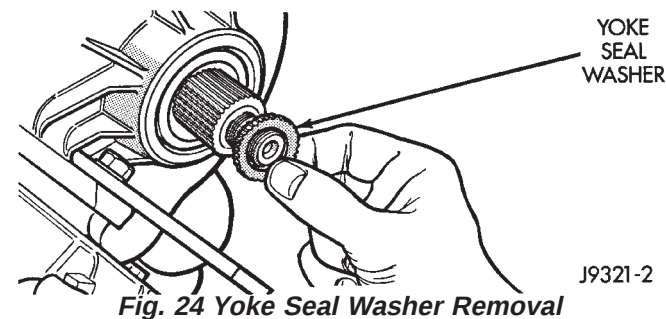


Fig. 24 Yoke Seal Washer Removal

(4) Remove rear retainer bolts (Fig. 25).

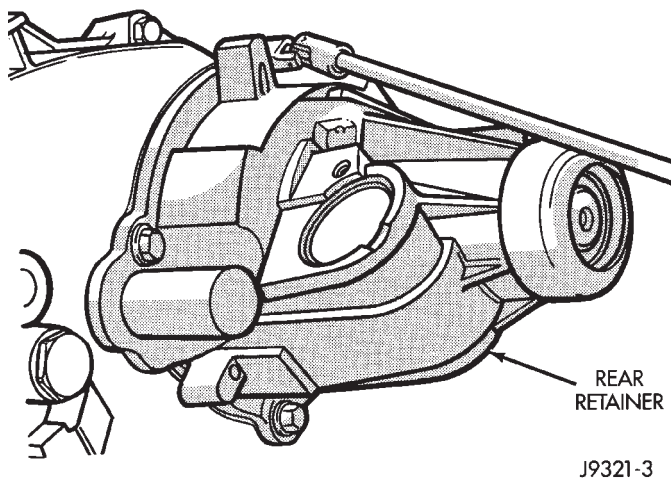


Fig. 25 Rear Retainer Bolt Removal

(5) Remove rear bearing locating ring access cover screws, cover and gasket (Fig. 26).

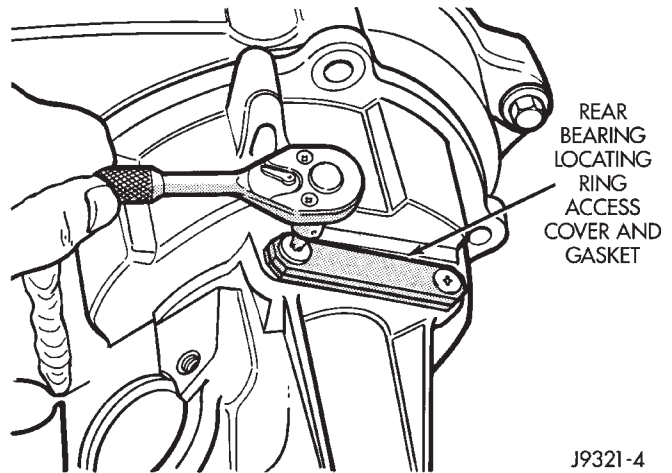


Fig. 26 Locating Ring Access Cover And Gasket Removal

(6) Loosen rear retainer with pry tool to break sealer bead. Pry only against retainer boss as shown (Fig. 27).

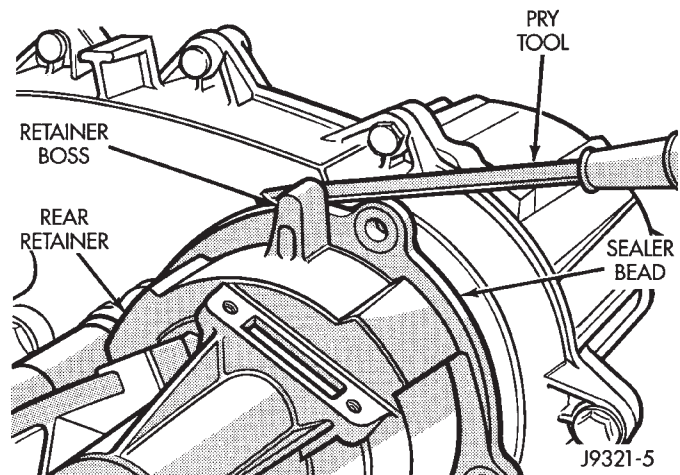


Fig. 27 Loosening Rear Retainer

DISASSEMBLY AND ASSEMBLY (Continued)

(7) Remove rear retainer as follows:

- Spread rear bearing locating ring with snap ring pliers (Fig. 28).

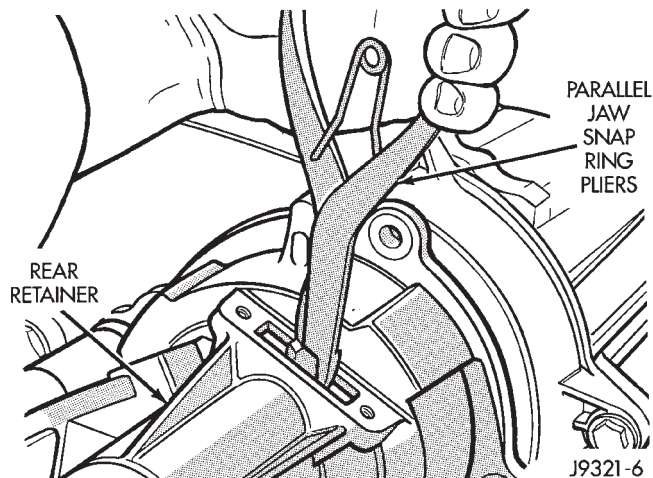


Fig. 28 Disengaging Rear Bearing Locating Ring

- Then slide retainer off mainshaft and rear bearing (Fig. 29).

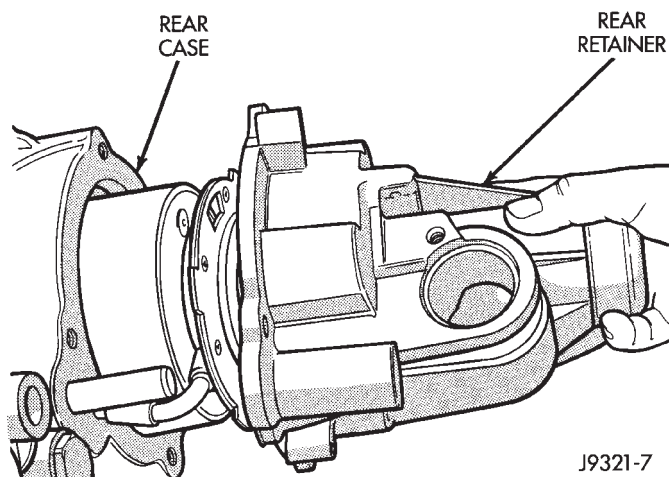


Fig. 29 Rear Retainer Removal

(8) Remove speedometer drive gear (Fig. 30).

(9) Remove rear bearing snap ring (Fig. 31).

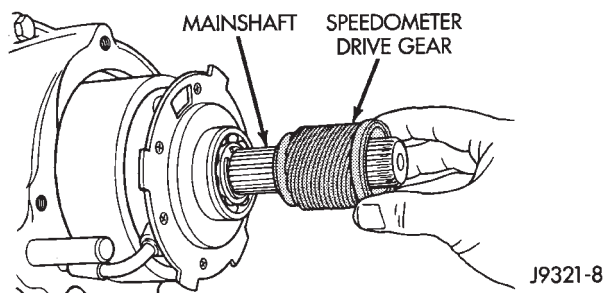


Fig. 30 Speedometer Drive Gear Removal

(10) Remove rear bearing (Fig. 31). Note position of bearing locating ring groove for assembly reference.

(11) Disengage oil pickup tube from oil pump and remove oil pump assembly (Fig. 31).

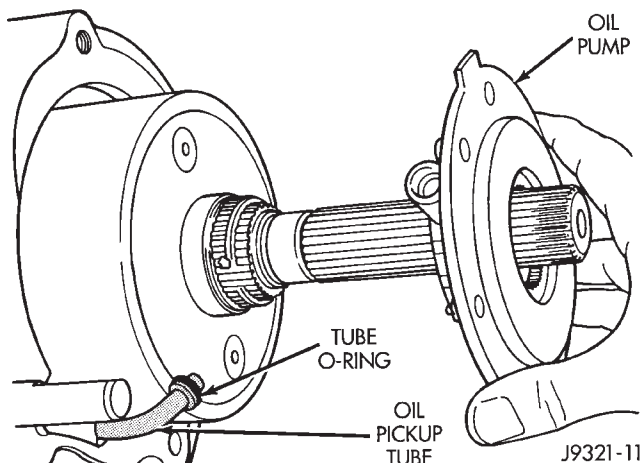


Fig. 31 Rear Bearing and Oil Pump Removal

(12) Mount transfer case on wood blocks so rear case is facing upward.

(13) Remove bolts holding front case to rear case. The case alignment bolt require flat washers (Fig. 32).

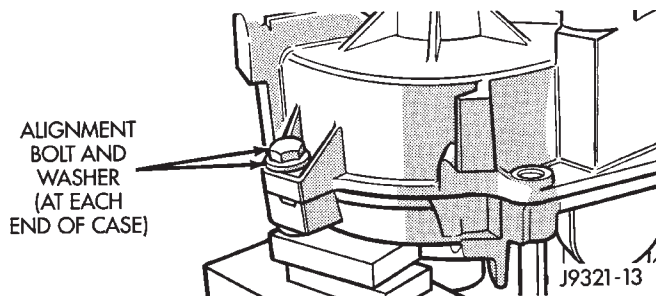


Fig. 32 Rear Case Alignment Bolt Locations

DISASSEMBLY AND ASSEMBLY (Continued)

(14) Loosen rear case with flat blade screwdriver to break sealer bead. Insert screwdriver blade only into notches provided at each end of case (Fig. 33).

(15) Remove rear case (Fig. 34).

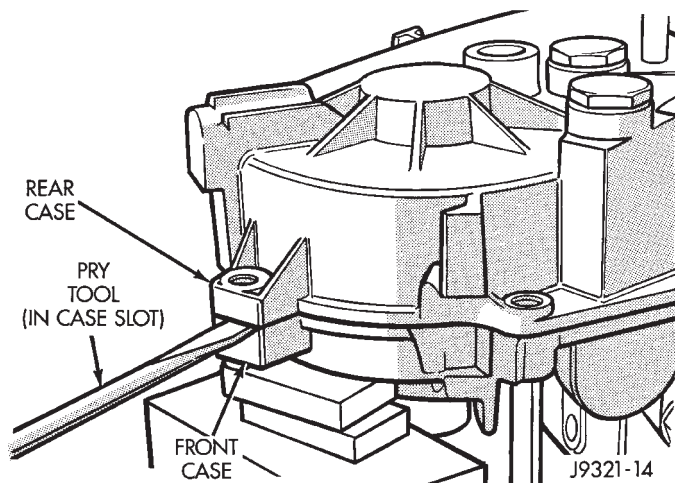


Fig. 33 Loosening Rear Case

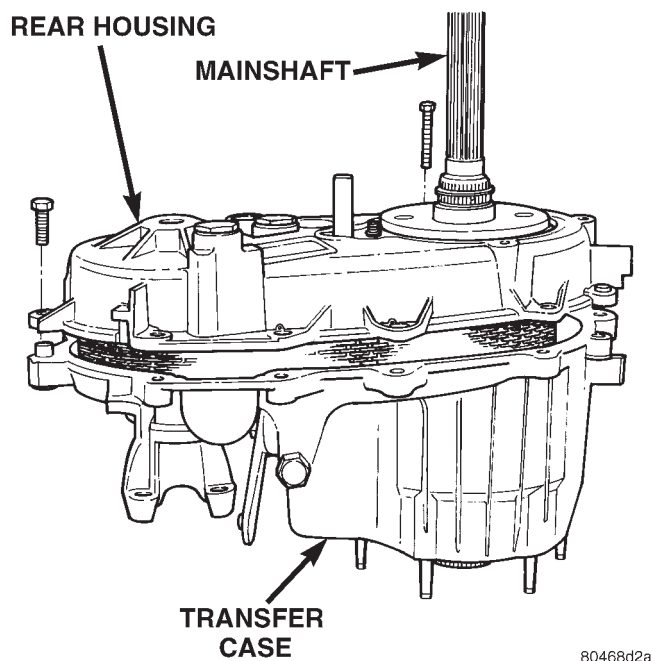


Fig. 34 Rear Case Removal

(16) Remove oil pickup tube from rear case (Fig. 35).

(17) Remove oil pump locating snap ring and viscous coupling snap ring from mainshaft (Fig. 36).

(18) Remove viscous coupling from mainshaft (Fig. 36).

(19) Remove drive gear snap ring (Fig. 37).

(20) Disengage drive gear (Fig. 37). Pry gear upward and off mainshaft as shown.

(21) Remove front output shaft, drive chain and drive gear as assembly (Fig. 37).

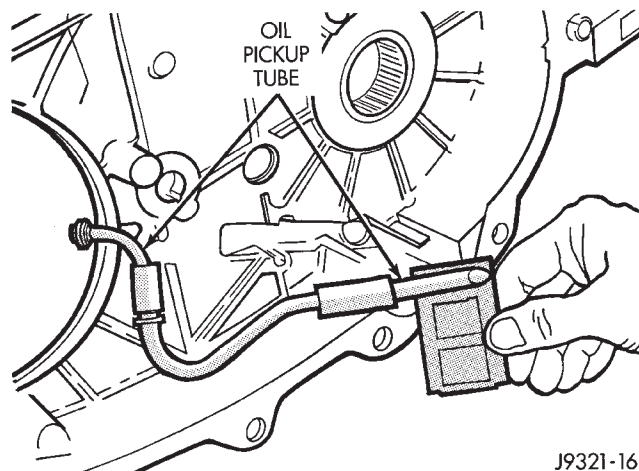


Fig. 35 Oil Pickup Tube Removal

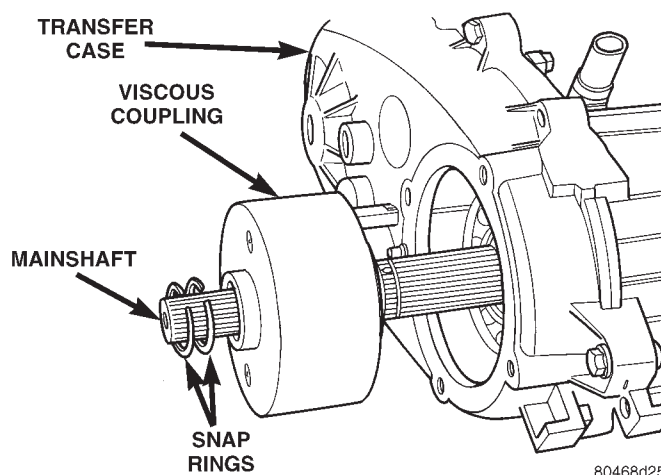


Fig. 36 Viscous Coupling Removal

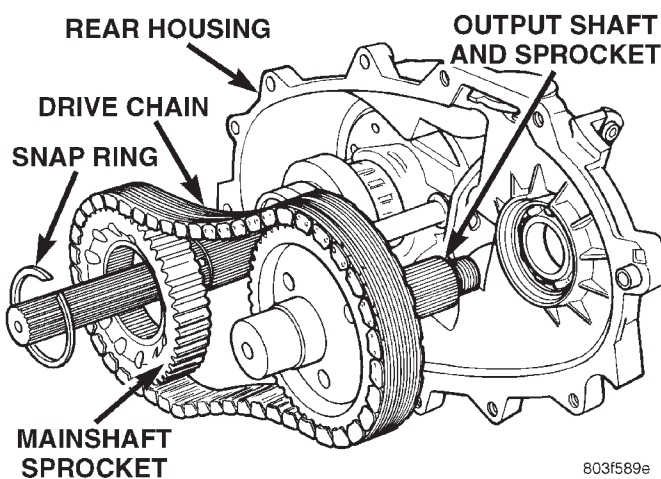


Fig. 37 Front Output Shaft, Drive Gear And Chain Removal

(22) Remove detent plug, O-ring, detent spring and detent plunger (Fig. 38).