

NP231 TRANSFER CASE

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GENERAL INFORMATION

The NP231 is a part-time transfer case with a low range reduction gear system (Fig. 1). The NP231 has three operating ranges plus a Neutral position. A low range system provides a reduction ratio for increased low speed torque capability.

The NP231 is the Command Trac transfer case. It is used in XJ and YJ models. Two versions are used. One version retains the synchronizer components used in previous models. A newly introduced version is not equipped with synchro components.

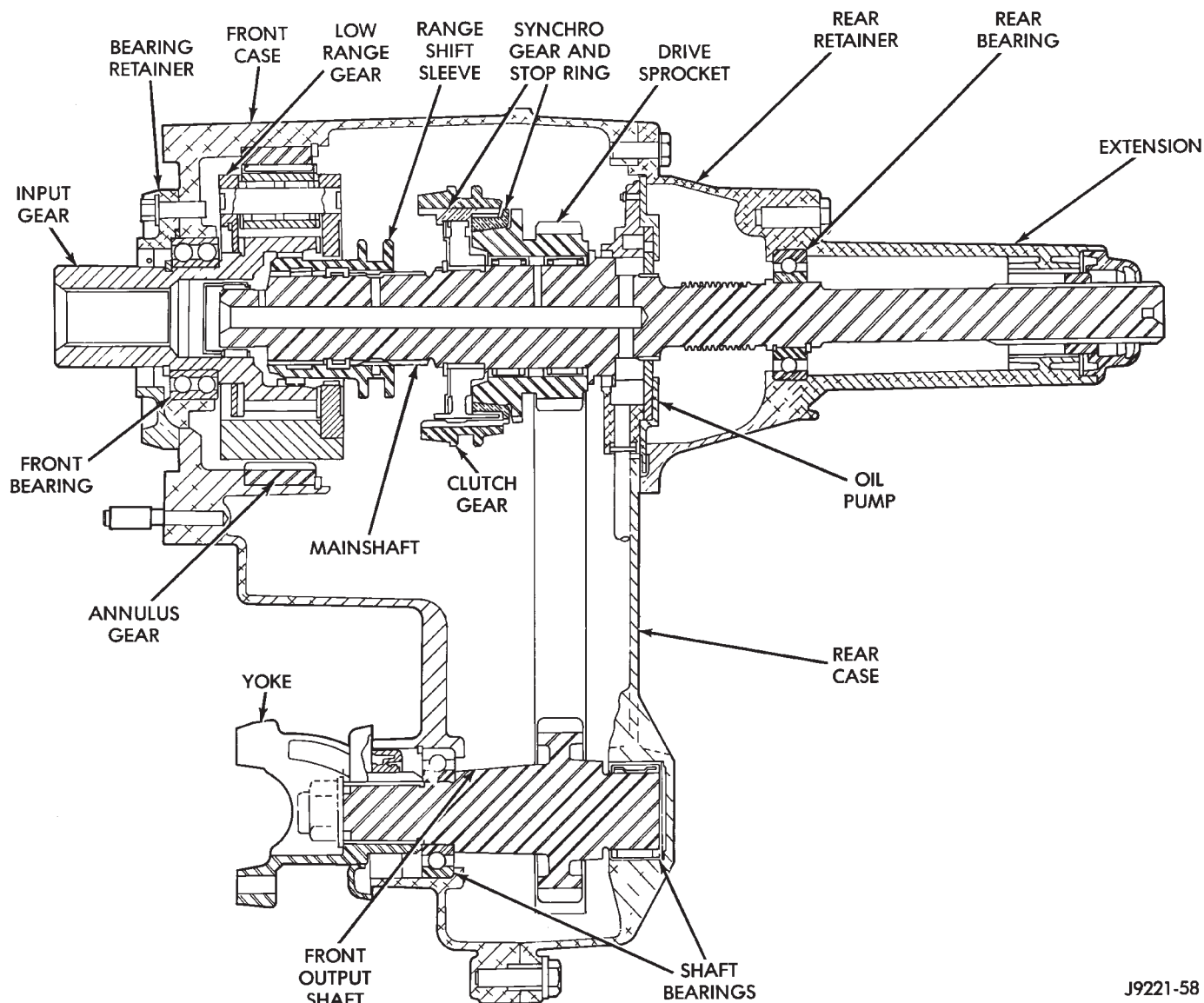


Fig. 1 NP231 Transfer Case

OPERATING RANGES

NP231 operating ranges are: 2-wheel drive high; 4-wheel drive high and 4-wheel drive low.

2-wheel drive range is for use on all road surfaces. The 4-wheel drive high and low ranges are undifferentiated and should only be used on unpaved, low traction surfaces only. The only exception being when hard surface roads are snow and ice covered.

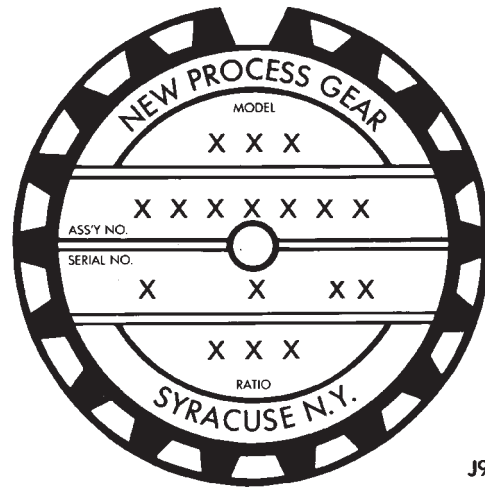
SHIFT MECHANISM

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 NP231 transfer case (Fig. 2). The ID tag provides the transfer case model number, assembly number, serial number and low range ratio.

The transfer case serial number also represents the date of build. For example, a serial number of 7-10-94 would represent July 10, 1994.



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Fig. 2 Transfer Case Identification Tag

TRANSFER CASE LUBRICANT AND FILL LEVEL

Recommended lubricant for the NP231 transfer case is Mopar Dexron II.

Approximate lubricant refill capacity is 1.54 liters (3.25 pints) for YJ and 1.04 liters (2.2 pints) for XJ.

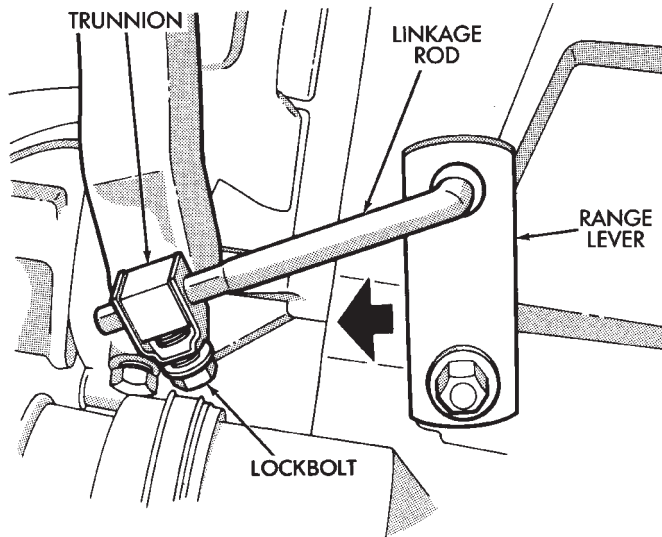
Correct fill level is to the bottom edge of the fill plug hole. Be sure the vehicle is level to ensure an accurate fluid level check.

NP231 SERVICE 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.

SHIFT LINKAGE ADJUSTMENT

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



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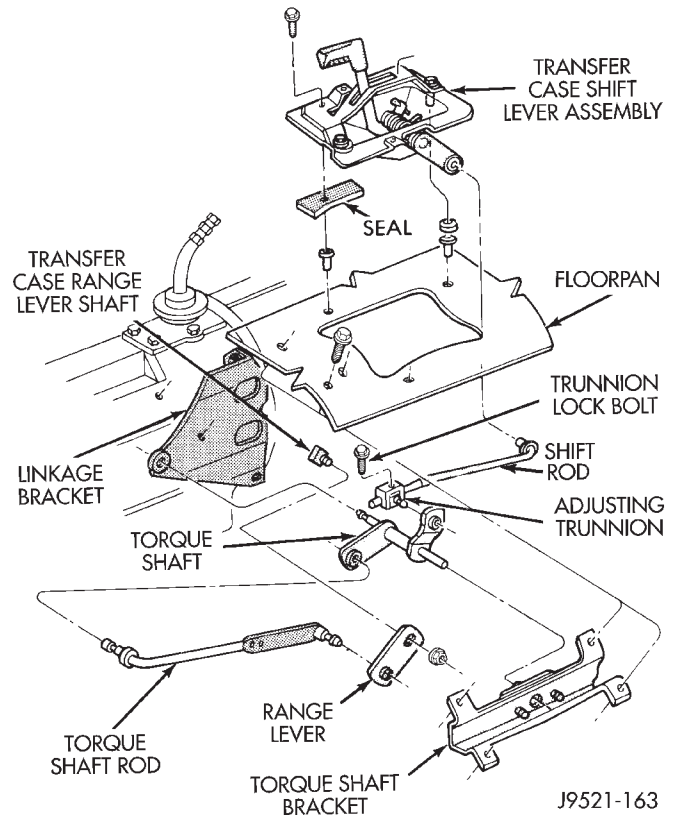
Fig. 3 Adjusting Trunnion And Lock Bolt (YJ)

SHIFT LEVER REMOVAL (XJ)

- (1) Shift transfer case into 4L.
- (2) Raise vehicle.
- (3) Loosen adjusting trunnion locknut and slide shift rod out of trunnion (Fig. 4). If rod lacks enough travel to come out of trunnion, push trunnion out of torque shaft.
- (4) Lower vehicle.
- (5) Remove console. Refer to 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).

SHIFT LEVER INSTALLATION (XJ)

- (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.



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Fig. 4 Shift Linkage (XJ)

- (6) Lower vehicle and check transfer case shift operation.

SHIFT LEVER REMOVAL (YJ)

- (1) Shift transfer case into neutral.
- (2) Remove shift lever knob and retaining nut. Then remove shift lever boot and bezel.
- (3) Raise vehicle.
- (4) Loosen lock bolt in adjusting trunnion and slide shift rod out of trunnion (Fig. 3).
- (5) Remove bolts/nuts attaching bracket and brace assembly to transmission (Fig. 5).
- (6) Remove shift lever and bracket as assembly.
- (7) YJ shift lever assembly is serviceable. If any assembly part must be replaced, remove pivot bolt, lever pin E-clip, and lever pin and spring. Then disassemble and replace necessary part (Fig. 6).

SHIFT LEVER INSTALLATION (YJ)

- (1) Assemble lever components, if necessary. Lube pivot bolt and pin with Mopar multi-mileage grease before installation.
- (2) Work shift lever upward into vehicle interior. Then position lever and bracket assembly on transmission and install attaching bolts/nuts.
- (3) Place transfer case range lever in 4L position. Then slide shift rod into trunnion and tighten lock bolt.

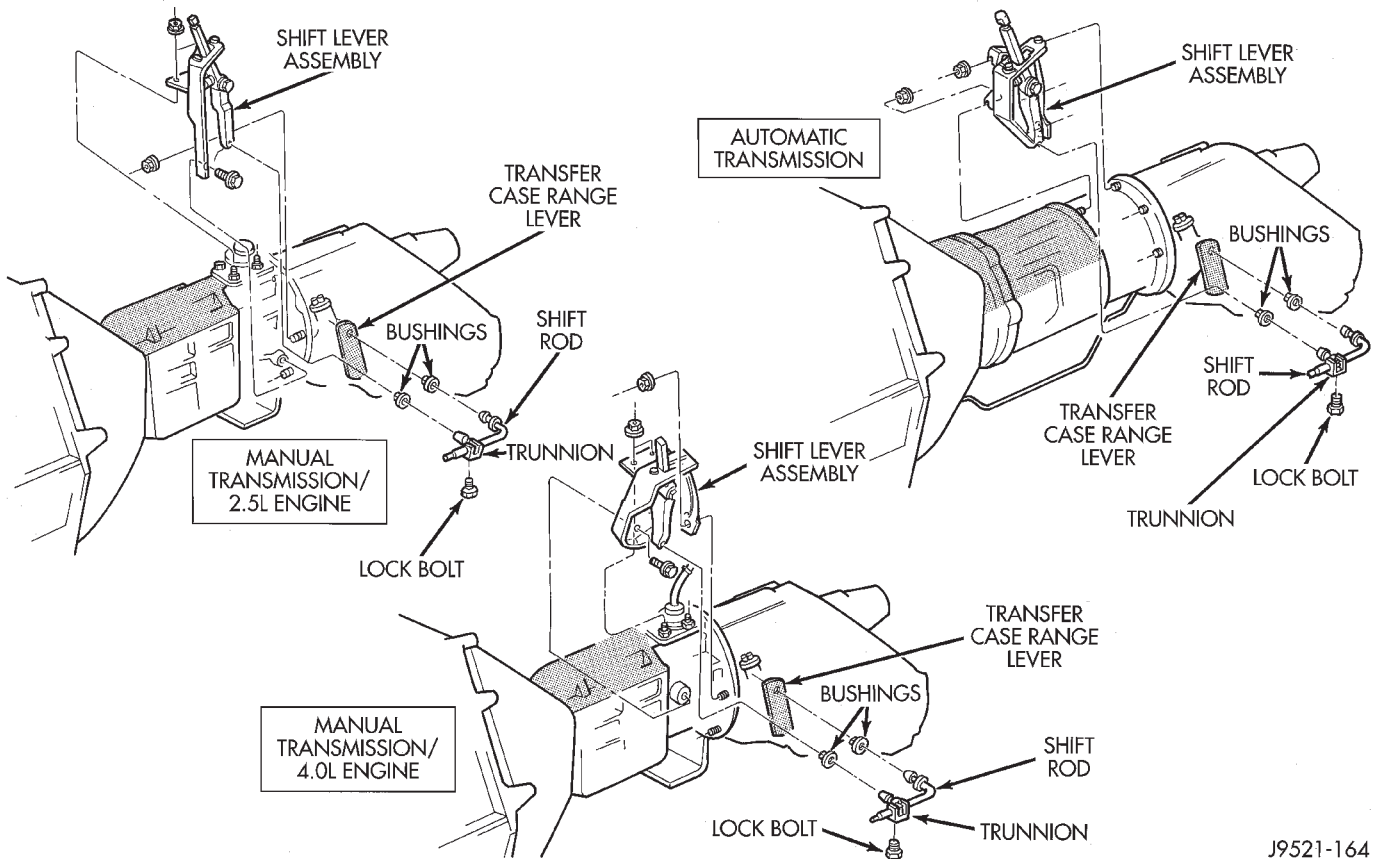
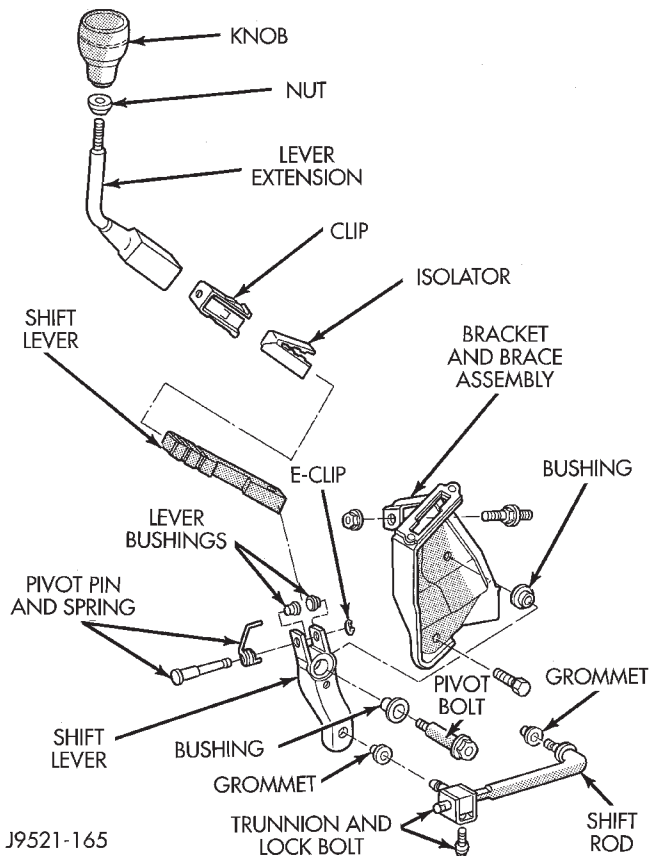


Fig. 5 Shift Linkage Mounting (YJ)

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Fig. 6 Shift Linkage (YJ)

(4) Lower vehicle.

(5) Install shift lever bezel and boot (Fig. 7). Then install retaining nut and shift knob on lever.

SPEEDOMETER SERVICE

Speedometer service is covered in the 30RH/32RH, or AW-4 automatic transmission sections in this group. Refer to the appropriate section as needed.

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.

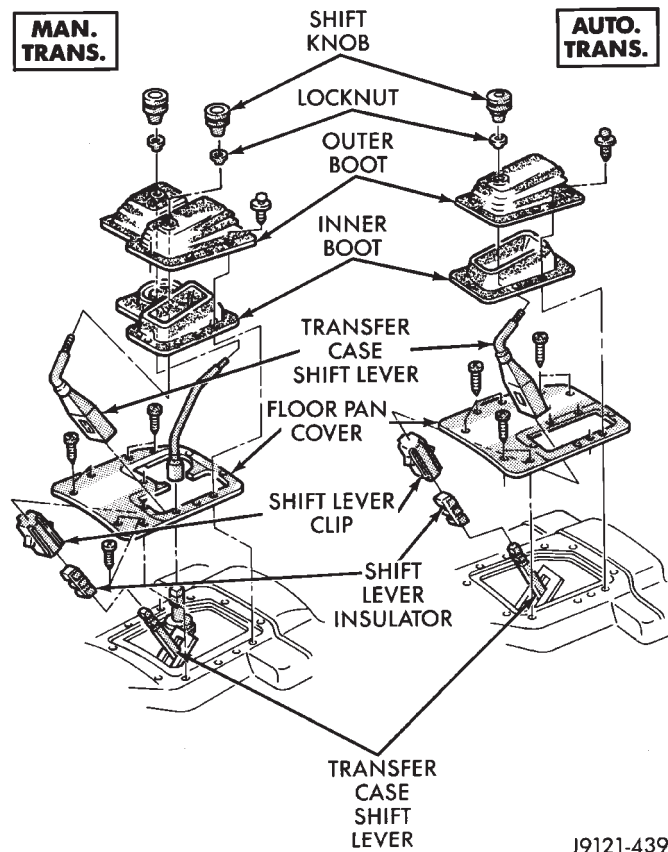


Fig. 7 Transfer Case Shift Lever And Boots (YJ)

- (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.

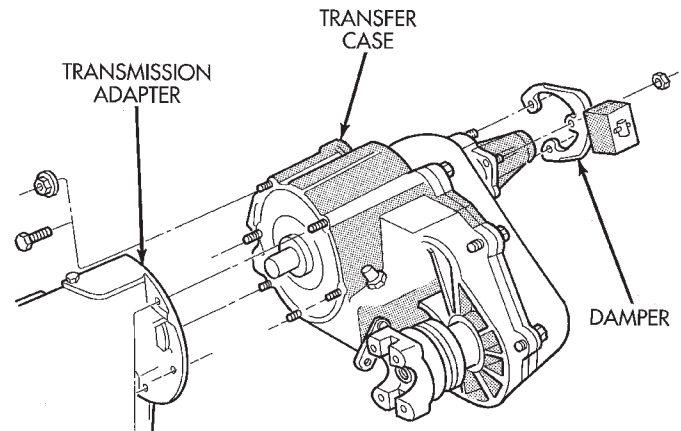
TRANSFER CASE INSTALLATION

- (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. 8). Tighten damper attaching nuts to 54 N m (40 ft. lbs.) torque.



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Fig. 8 Transfer Case Mounting

(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.

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

TRANSFER CASE DISASSEMBLY AND OVERHAUL

Two versions of the NP231 are used in current models. One version retains the synchronizer components used in previous years. A newly introduced version does not have synchro components. The non-synchro version is not equipped with a synchro gear, struts, springs, or stop ring. During overhaul, note which version is being serviced and order needed parts accordingly.

- (1) Remove fill and drain plugs. Also remove speedometer adapter and pinion if not previously removed.
- (2) Remove front yoke. Discard yoke seal washer and nut. They should not be reused.
- (3) Move transfer case range lever rearward to 4L position.
- (4) Remove extension housing attaching bolts.
- (5) Tap extension housing in clockwise direction to break sealer bead and remove housing (Fig. 1).

CAUTION: To avoid damaging the sealing surfaces of the extension housing and rear retainer, do not pry or wedge the housing off the retainer.

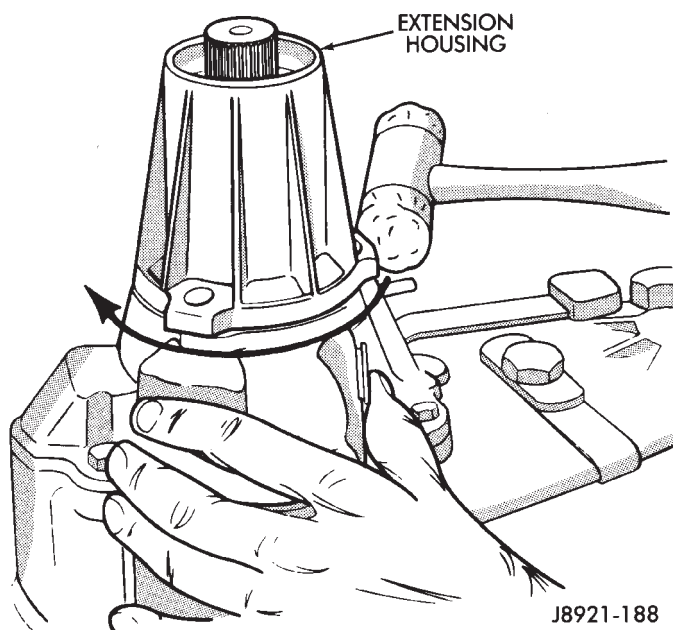


Fig. 1 Extension Housing Removal

- (6) Remove rear bearing snap ring (Fig. 2).
- (7) Remove rear retainer attaching bolts.
- (8) Remove rear retainer. Position screwdriver under each tab on retainer housing (Fig. 3). Then carefully pry retainer upward and off rear case.

CAUTION: Do not pry against the sealing surfaces of the retainer or rear case. The surfaces could be damaged.

- (9) Remove bolts attaching rear case to front case. Retain bolts and washers.

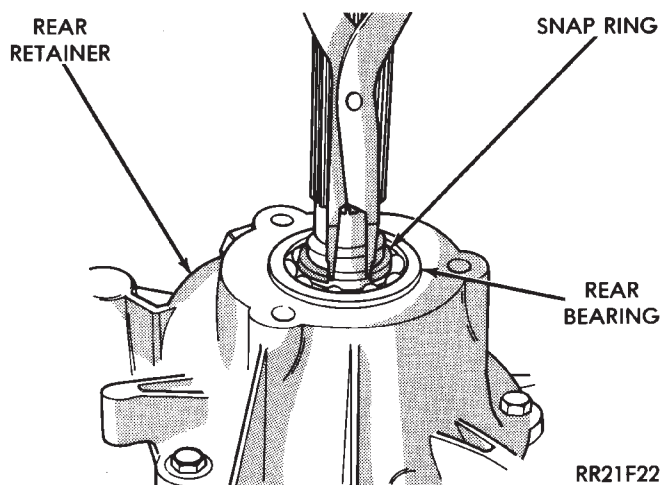


Fig. 2 Rear Bearing Snap Ring Removal

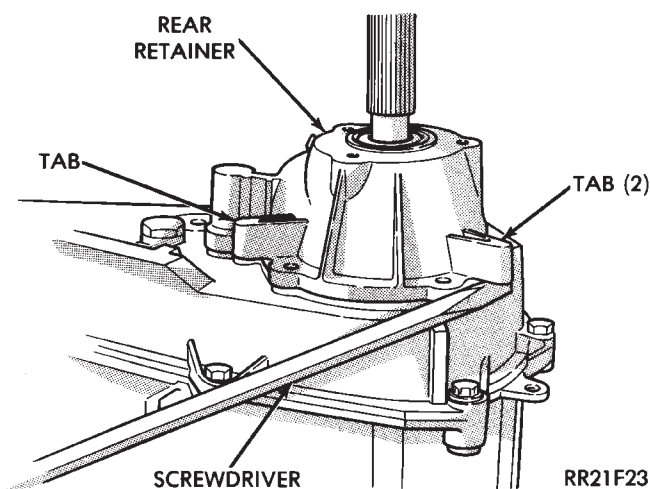


Fig. 3 Rear Retainer Removal

- (10) Separate rear case from front case (Fig. 4) Insert screwdrivers into slots cast in case ends. Then gently pry upward to break sealer bead and loosen rear case.

CAUTION: Do not pry against the sealing surfaces of the retainer or rear case. The surfaces could be damaged.

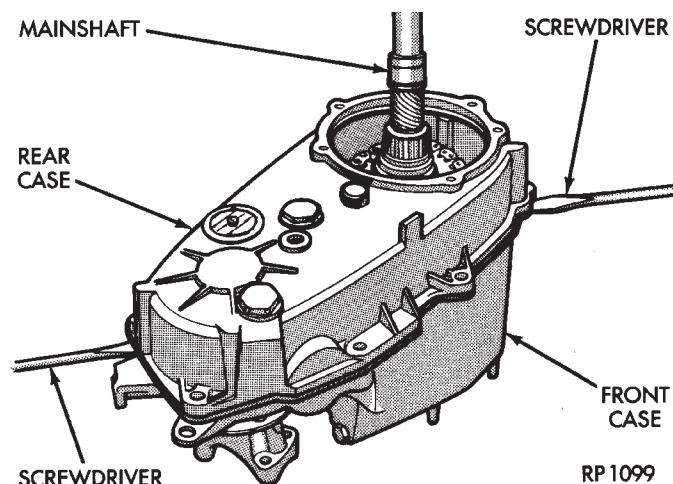


Fig. 4 Loosening Rear Case

(11) Remove oil pump and rear case as an assembly (Fig. 5).

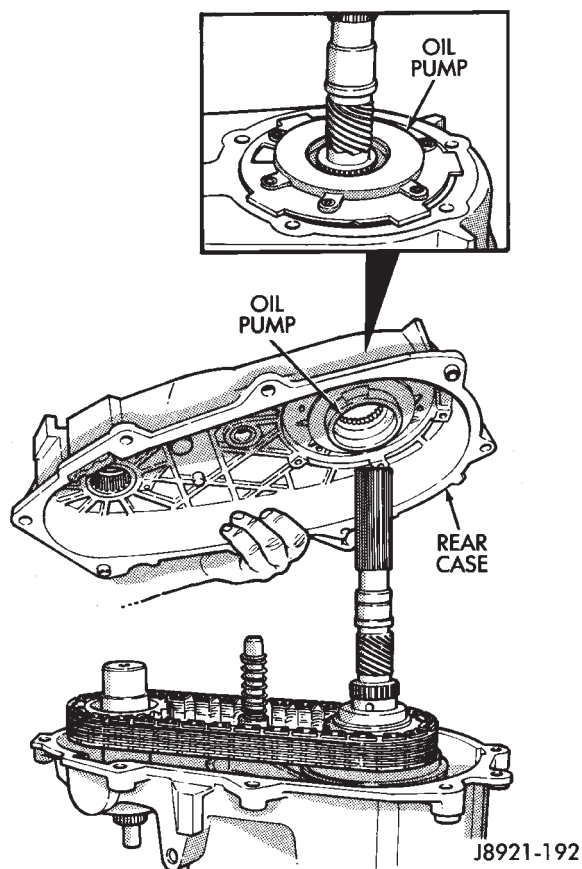


Fig. 5 Rear Case And Oil Pump Removal

(12) Slide oil pickup tube screen out of case pocket.
(13) Remove oil pump and pickup tube as assembly (Fig. 6).

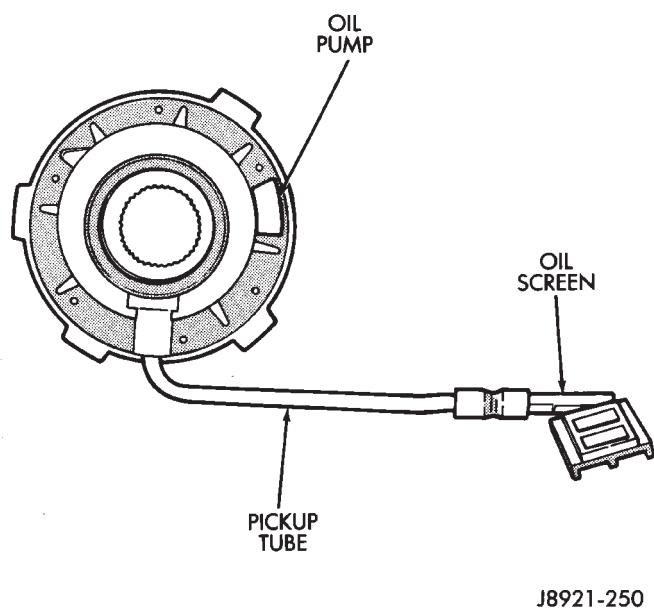


Fig. 6 Oil Pump And Pickup Tube Removal

(14) Disconnect screen from pickup tube and remove screen (Fig. 7).

(15) Remove pickup tube from oil pump (Fig. 7).

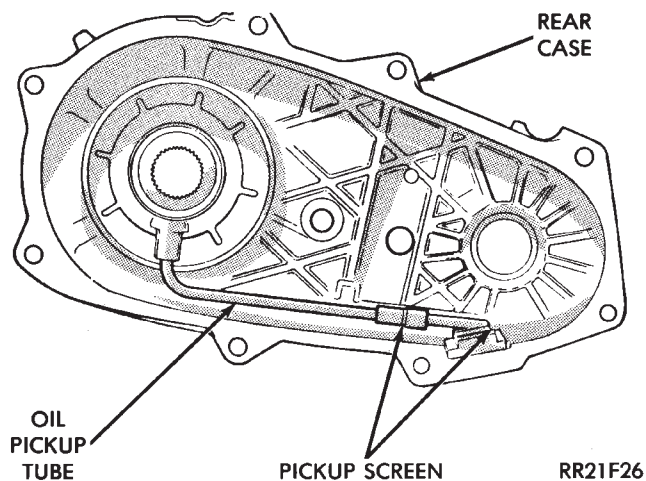


Fig. 7 Removing Oil Screen And Pickup Tube

(16) Remove pickup tube O-ring from oil pump (Fig. 8).

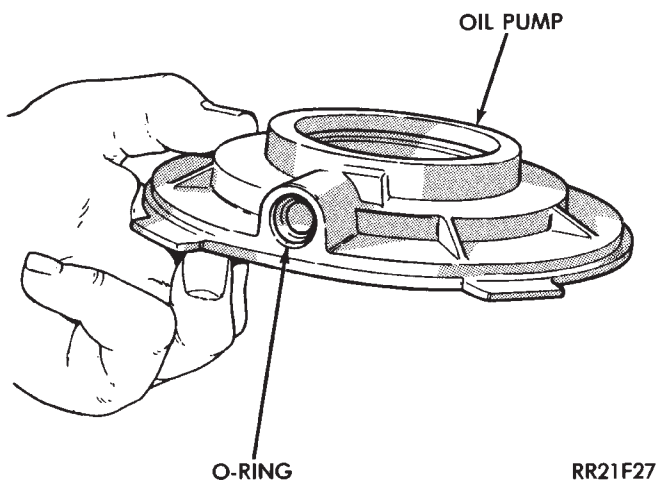


Fig. 8 Pickup Tube O-Ring Location

(17) Remove mode spring (Fig. 9).

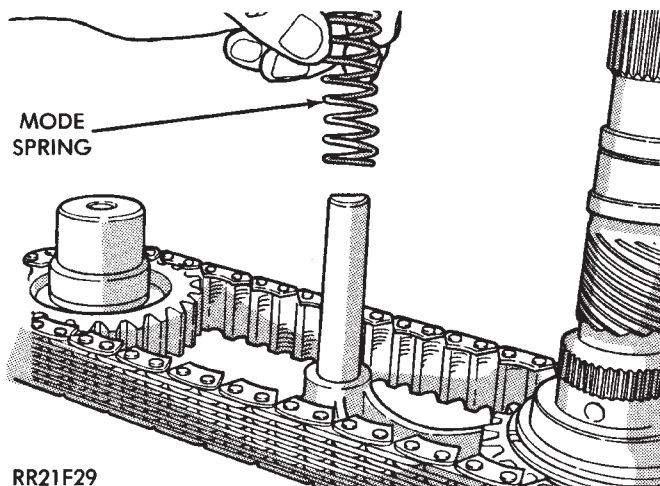


Fig. 9 Mode Spring Removal

(18) Tap front output shaft upward with rawhide mallet to free it from shaft bearing.

(19) Remove front output shaft and drive chain (Fig. 10).

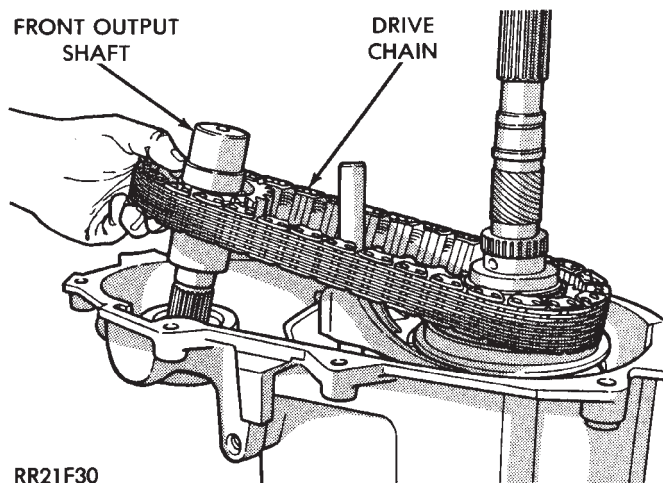


Fig. 10 Front Output Shaft And Drive Chain Removal

(20) Remove mainshaft, mode fork and shift rail as assembly d (Fig. 11).

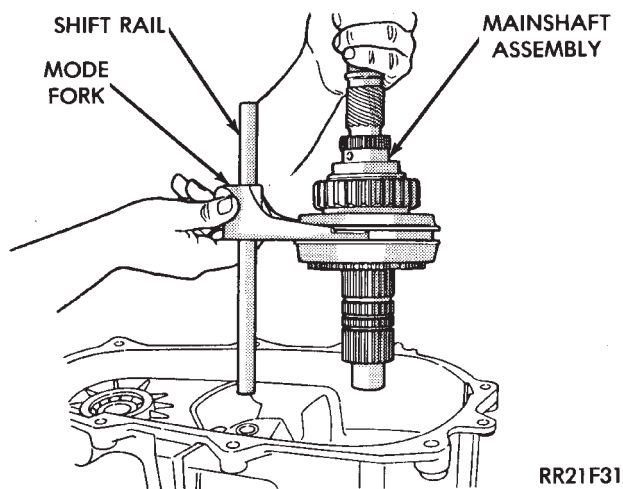


Fig. 11 Removing Mainshaft, Mode Fork And Shift Rail

(21) Remove mode fork and shift rail from synchro sleeve (Fig. 12).

(22) Remove hub snap ring and remove spacer if equipped (Fig. 13).

(23) Remove sleeve from hub (Fig. 14).

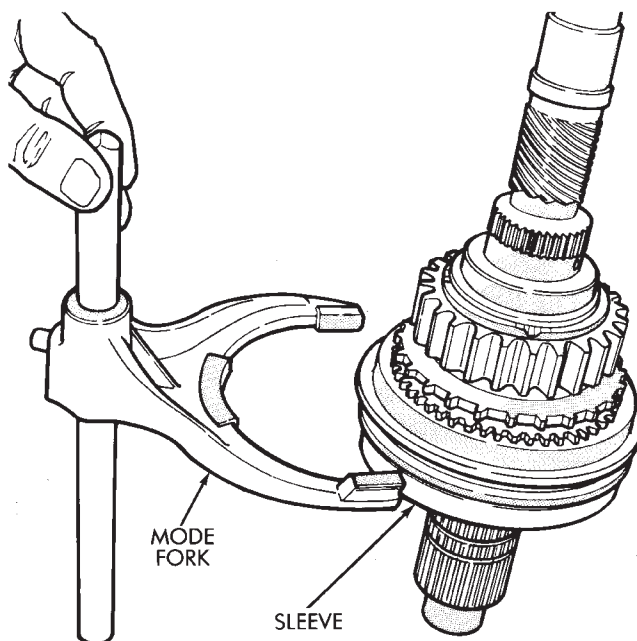


Fig. 12 Removing Mode Fork And Rail From Sleeve

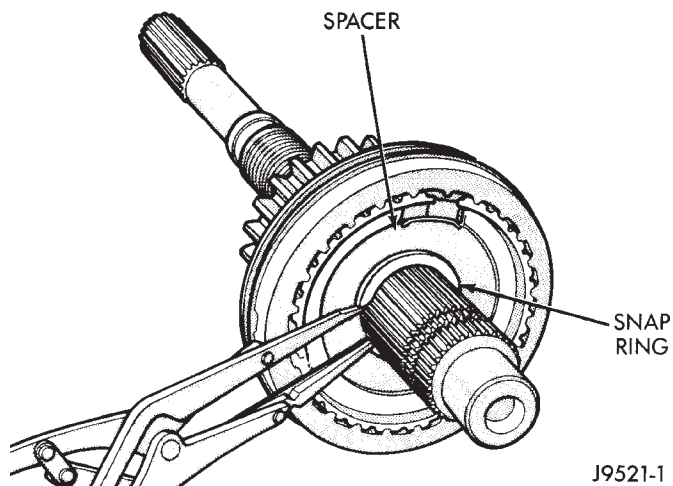


Fig. 13 Hub Snap Ring And Spacer Removal

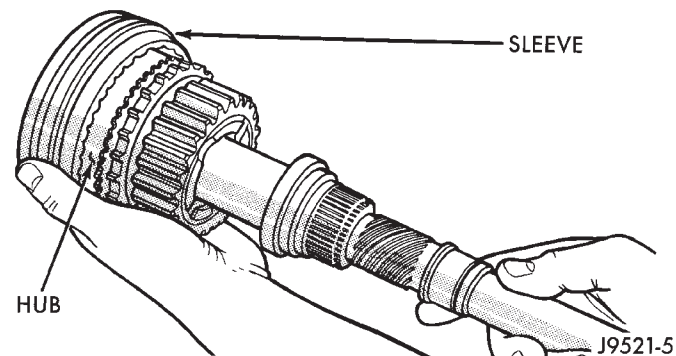


Fig. 14 Removing Sleeve From Hub

(24) Remove hub from mainshaft. On synchro models, also remove synchro stop ring (Fig. 15).

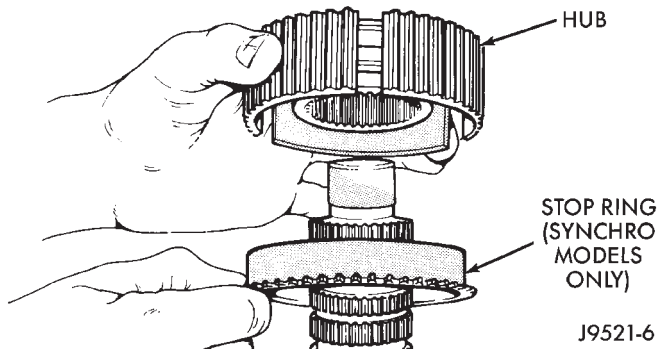


Fig. 15 Hub And Stop Ring Removal

(25) Remove drive sprocket (Fig. 16).

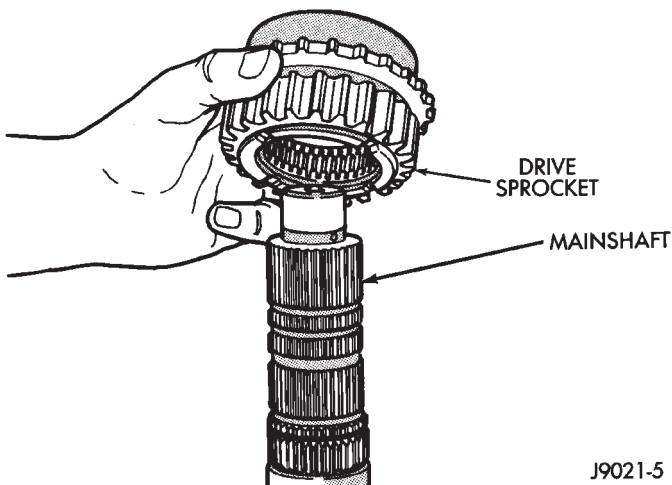


Fig. 16 Drive Sprocket Removal/Installation

(26) Slide range fork pin out of shift sector (Fig. 17).

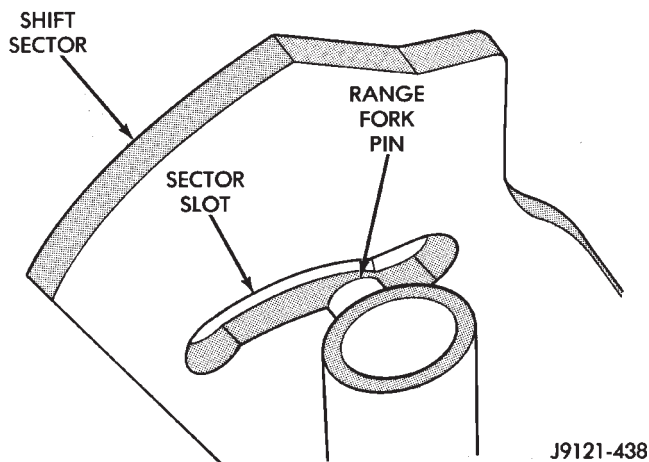


Fig. 17 Disengaging Range Fork

(27) Remove range fork and shift hub (Fig. 18).

(28) Remove range lever from sector shaft.

(29) Remove shift sector (Fig. 19).

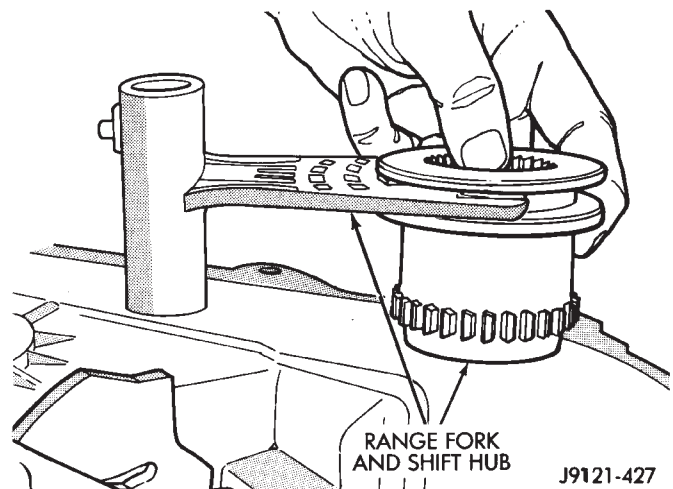


Fig. 18 Range Fork And Hub Removal/Installation

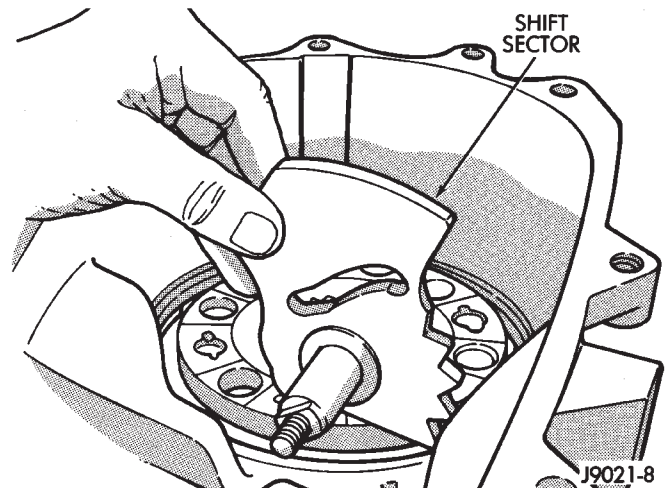


Fig. 19 Shift Sector Removal/Installation

(30) Remove sector shaft bushing and O-ring (Fig. 20).

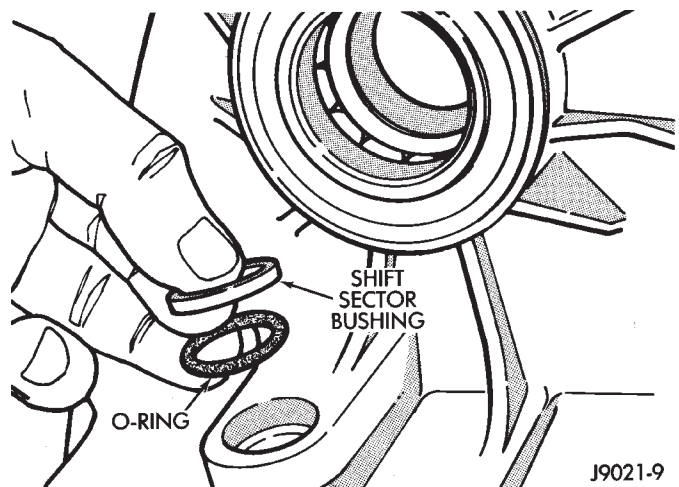


Fig. 20 Removing/Installing Sector Shaft Bushing And O-Ring

(31) Remove shift detent plunger, spring and plug (Fig. 21). Remove O-ring from plug after removal.

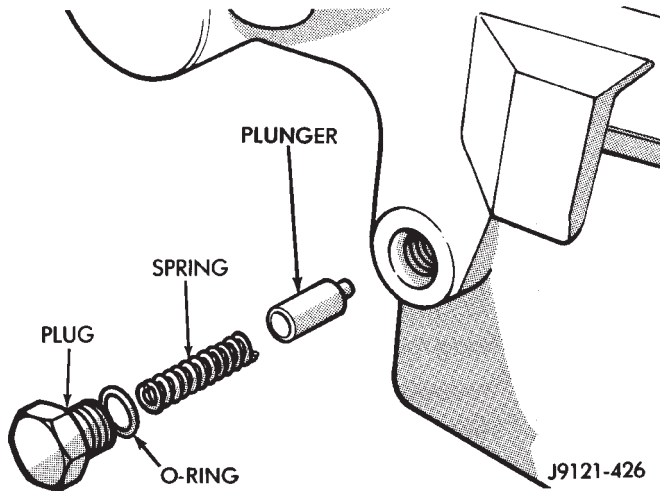


Fig. 21 Detent Component Removal

(32) Turn front case over and remove front bearing retainer bolts (Fig. 22).

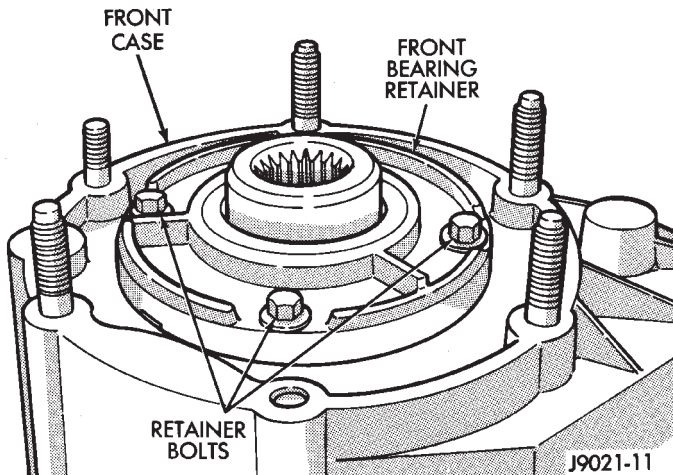


Fig. 22 Front Bearing Retainer Bolt Locations

(33) Remove front bearing retainer. Position screwdrivers in retainer slots and lift upward to loosen and remove retainer (Fig. 23).

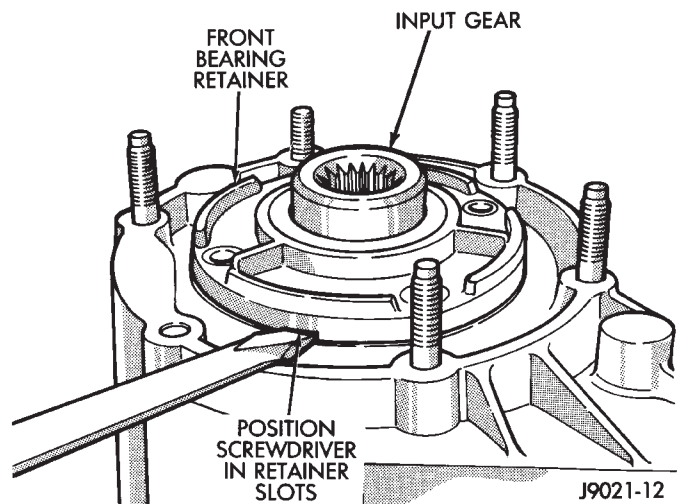


Fig. 23 Removing Front Bearing Retainer

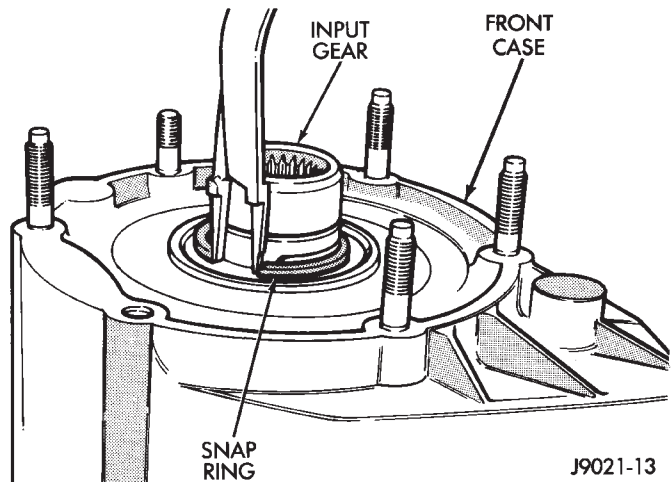


Fig. 24 Removing Input Gear Snap Ring

(34) Remove input gear snap ring (Fig. 24).

(35) Press input and low range gear assembly out of input gear bearing with shop press (Fig. 25).

(36) Remove low range gear snap ring (Fig. 26).

(37) Remove retainer, thrust washers and input gear from low range gear (Fig. 27).

(38) Remove oil seals from rear retainer, rear extension housing, oil pump feed housing and case halves.

(39) Remove magnet from pocket in front case.

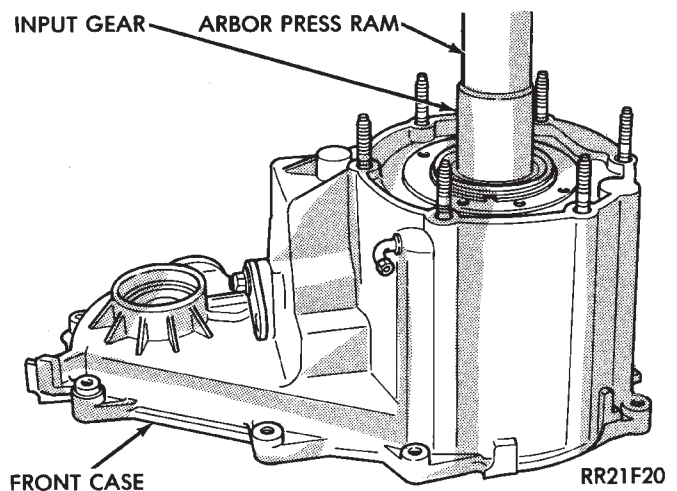


Fig. 25 Removing Input And Low Range Gear Assembly

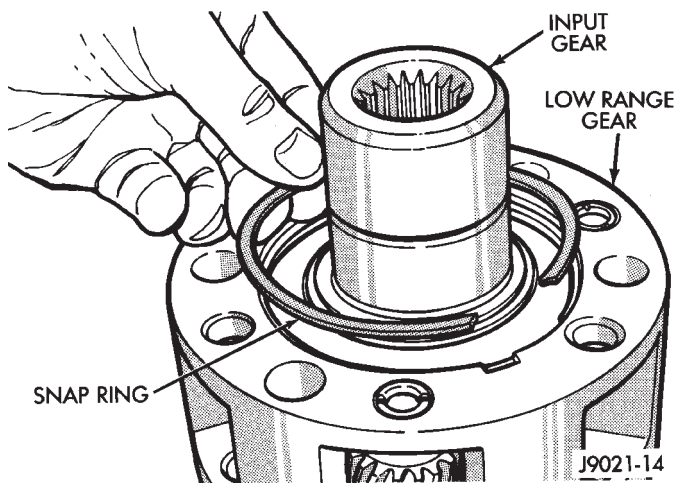


Fig. 26 Removing Low Range Gear Snap Ring

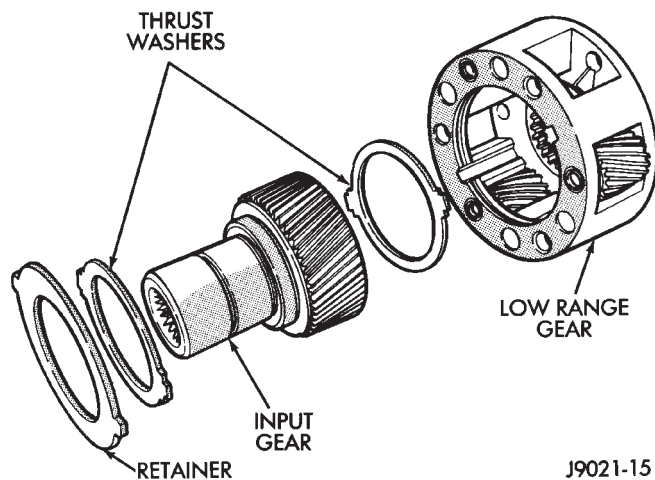


Fig. 27 Input And Low Range Gear Components

OVERHAUL CLEANING AND INSPECTION

Clean the transfer case components thoroughly with solvent. Remove all traces of sealer from the case and retainer seal surfaces.

Clean the oil pickup screen with solvent. Shake excess solvent from screen and allow it air dry. Use compressed air to remove solvent residue from all oil feed passages and channels in the case halves.

Inspect the splines and bearing surfaces on the both shafts. Replace either shaft as necessary if wear, or damage is evident.

Check condition of the shift forks, fork pads and shift rail. Minor scratches/nicks on the rail can be smoothed with 320/400 grit emery cloth. Replace the mode fork pads if worn. Replace the range fork if the pads are worn, missing, or damaged.

On synchro equipped models, inspect the synchro sleeve, hub, struts, springs, and the stop ring. Replace worn, or damaged parts as necessary.

Do not attempt to salvage and reuse snap rings that were bent, or distorted. It is recommended that all snap rings be replaced during overhaul.

Replace the front yoke nut as it should not be re-used. Also replace the rubber seal if worn, cut, or torn.

Inspect the low range annulus gear (Fig. 28). **If the gear is damaged, replace the gear and front case as an assembly. Do not attempt to remove the gear.**

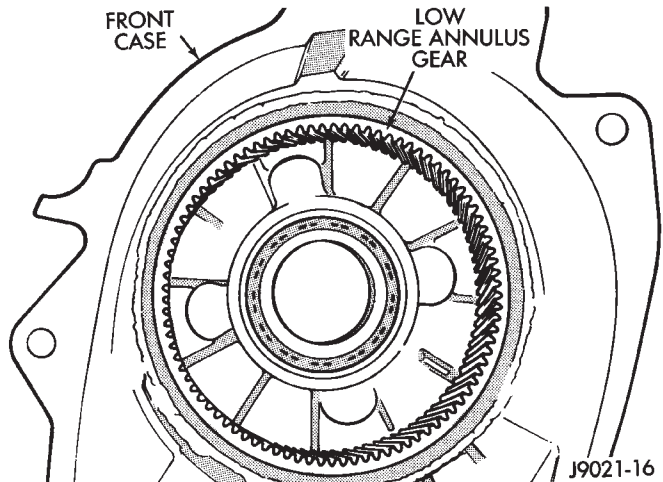


Fig. 28 Low Range Annulus Gear Location

Inspect the case halves, extension housing and retainers for cracks, porosity, or damaged sealing surfaces.

Inspect the drive sprockets and drive chain carefully. Replace the sprockets if worn, chipped, or cracked. Also replace the chain if distorted, binds at any point, or is stretched.

Replace the oil pump if any pump part is worn or damaged. Do not disassemble the pump as parts are not available separately. The pump is only available as an assembly.

Inspect all of the transfer case bearings for wear, roughness, pitting, or galling. Replace worn or damaged bearings as outlined in the transfer case assembly procedures.

Clean the sealing (mating) surfaces of the case halves, retainer and extension with a scraper, a wire brush and 3M All Purpose cleaning solvent. These surfaces must be clean in order for the sealer to adhere properly.

TRANSFER CASE ASSEMBLY

CAUTION: The bearing bores in various transfer case components contain oil feed holes. Be sure replacement bearings do not block these feed holes. In addition, the drive sprocket, synchro hub and sleeve are different for non-synchro and synchro models. Do not interchange these parts. Do not install synchro struts or a stop ring in a non-synchro model; this will cause the drive sprocket to bind on the shaft and hub.

FRONT CASE ASSEMBLY

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

(2) Remove front output shaft seal from front case with crowfoot style pry tool (Fig. 29).

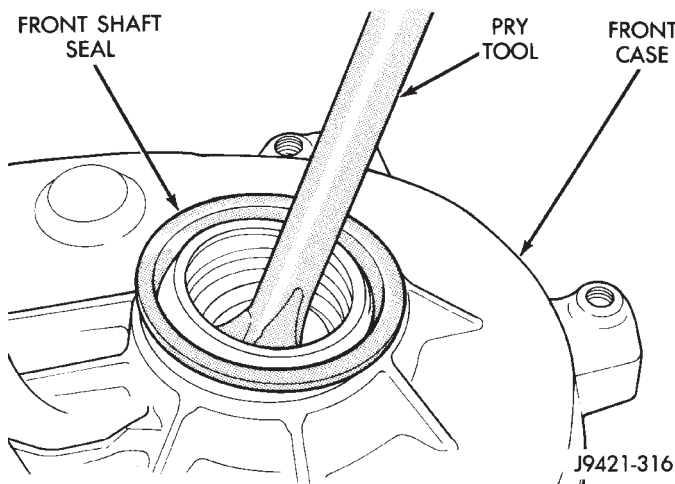


Fig. 29 Front Output Shaft Oil Seal Removal

(3) Remove snap ring retaining front output shaft front bearing in case (Fig. 30).

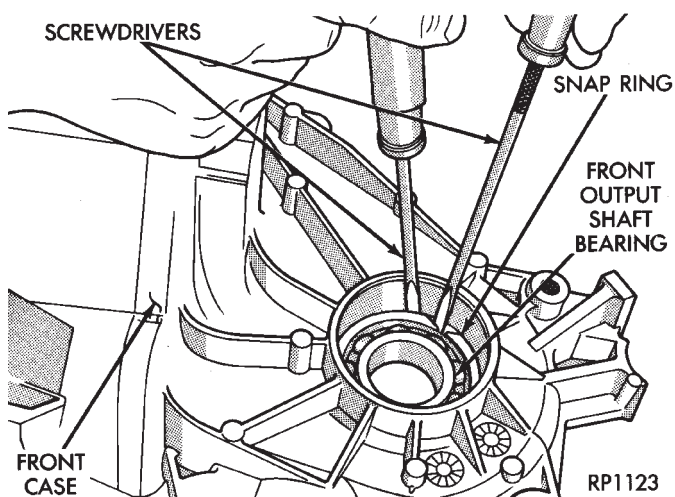


Fig. 30 Removing/Installing Front Output Shaft Bearing Snap Ring

(4) Tap old front output shaft bearing out of front case with plastic mallet. Install new bearing with Tool Handle C-4171 and Installer Tool 5064 (Fig. 31).

(5) Secure front output shaft bearing in front case with new snap ring (Fig. 30).

(6) Install new front output shaft seal in front case with suitable size socket or installer tool.

(7) If front output shaft rear bearing is to be replaced, install new bearing as follows:

(a) Remove bearing from rear case with Bearing Remover MD-998346 and two suitable size wrenches (Fig. 32).

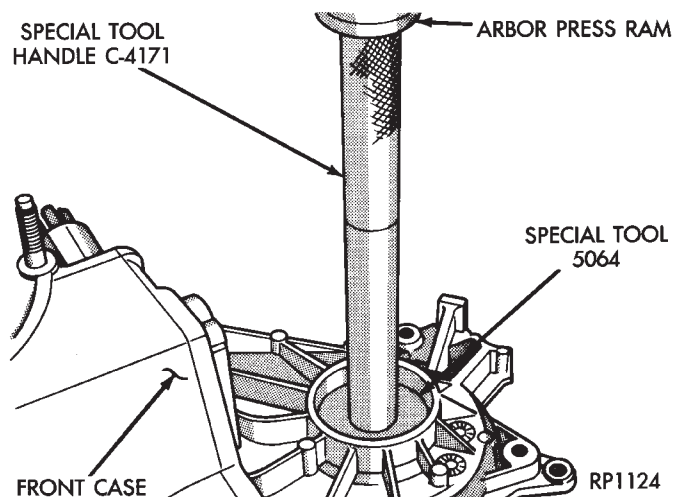


Fig. 31 Installing Front Output Shaft Front Bearing In Case

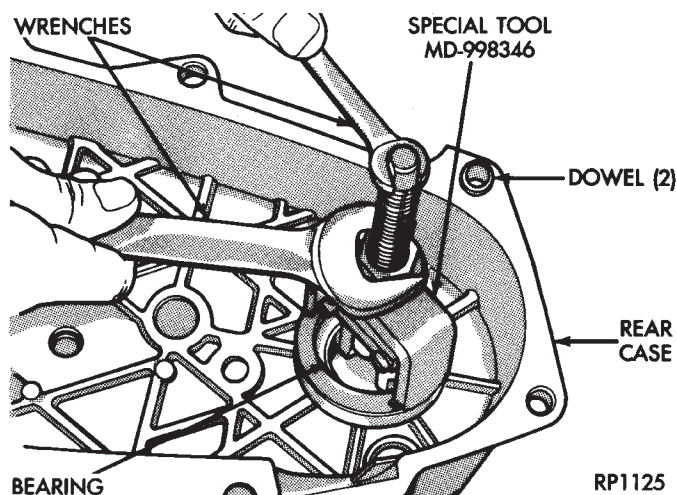


Fig. 32 Front Output Shaft Rear Bearing Removal

(b) Seat new bearing in rear case with Tool Handle C-4171 and Bearing Installer 5063 (Fig. 33).

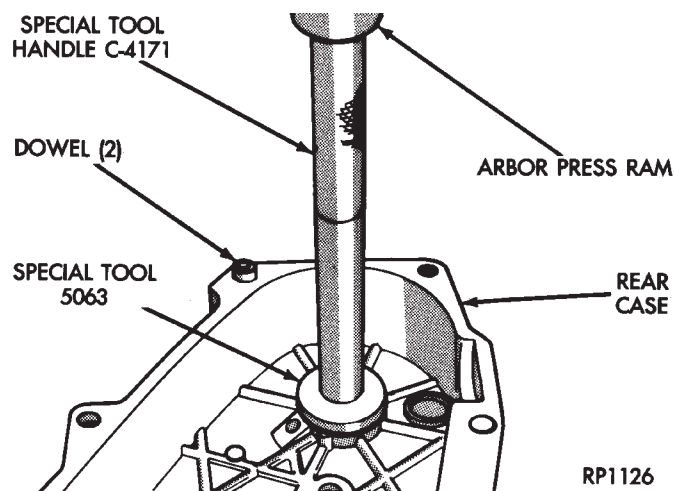


Fig. 33 Front Output Shaft Rear Bearing Installation

(8) Remove input gear bearing from front case with Tool Handle C-4171 and Tool C-4210, 7828, or 5062. Use tool that is best fit in bearing (Fig. 34).

(9) Turn front case over.

(10) Start bearing in case by hand. Then seat bearing with Tools C-4171 and C-4210, or 7828 until snap ring seats against case surface (Fig. 35).

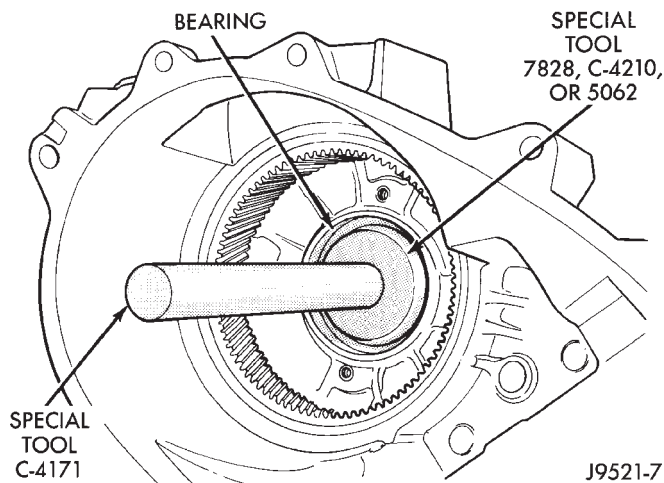


Fig. 34 Input Gear Bearing Removal

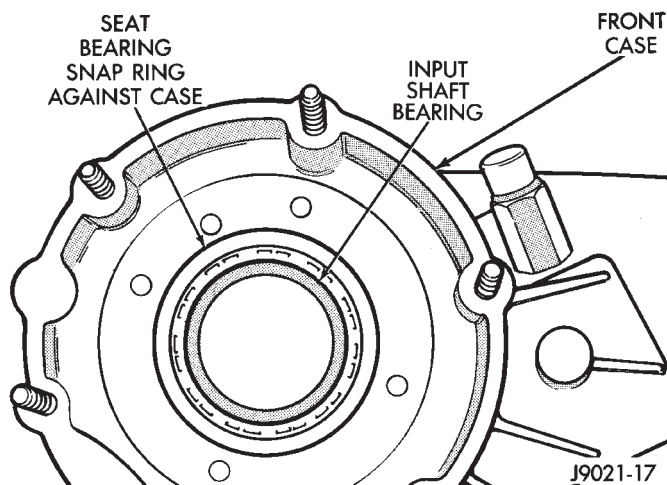


Fig. 35 Input Gear Bearing Installation

INPUT AND LOWRANGE GEAR ASSEMBLY AND INSTALLATION

(1) Remove mainshaft pilot bearing from input gear with Tool MD-998346, or similar tool as follows:

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

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

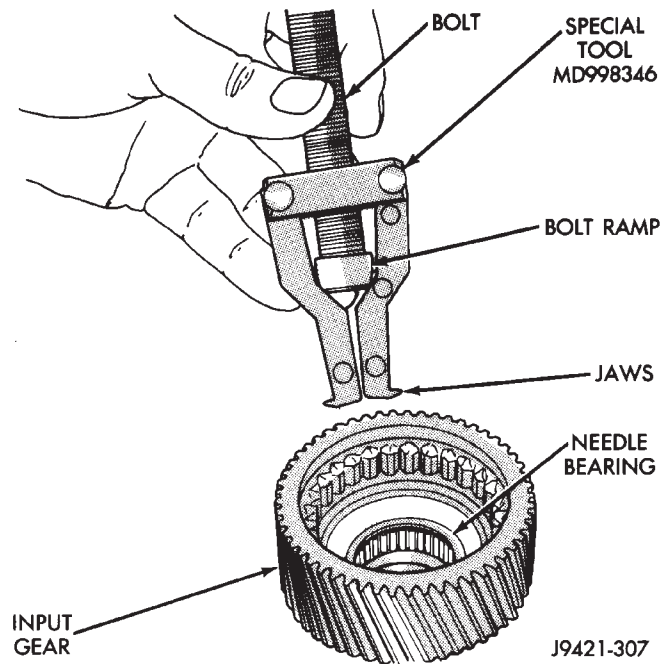


Fig. 36 Puller Jaws In Retracted Position

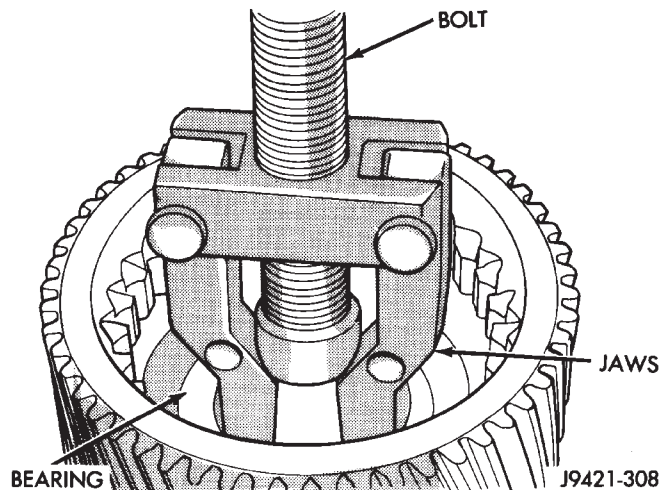


Fig. 37 Puller Bolt And Jaws Seated Under Needle Bearing

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

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

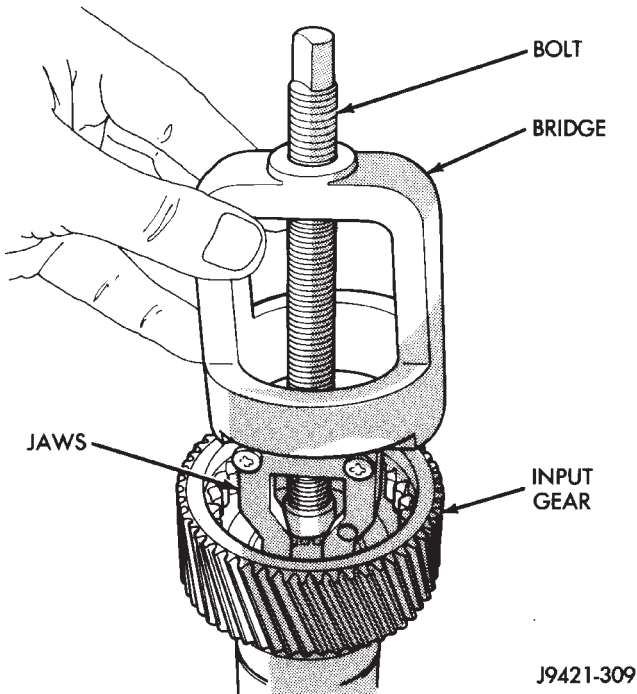


Fig. 38 Installing Puller Bridge

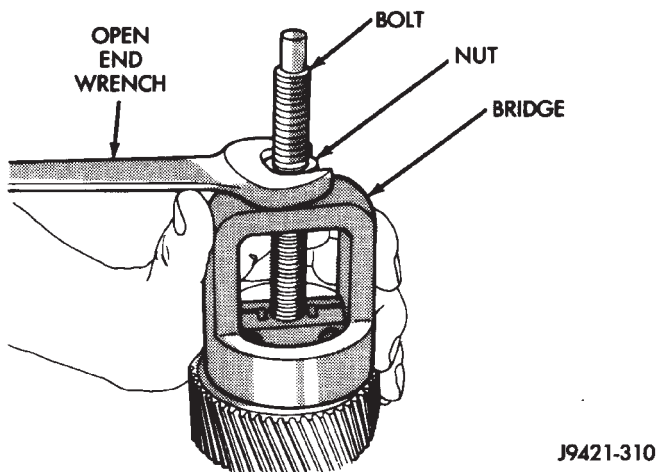


Fig. 39 Removing Mainshaft Pilot Bearing From Input Gear

(2) Install new needle bearing in input gear with Tool Handle C-4171 and Installer 5065 (Fig. 40).

(3) Lubricate and install thrust washers, input gear and retainer in low range gear (Fig. 41). Then install retainer snap ring. **Be sure snap ring is fully seated before proceeding.**

(4) Align and install input/low range gear assembly in case. Use hammer handle to tap low range gear into annulus and input gear into bearing if necessary.

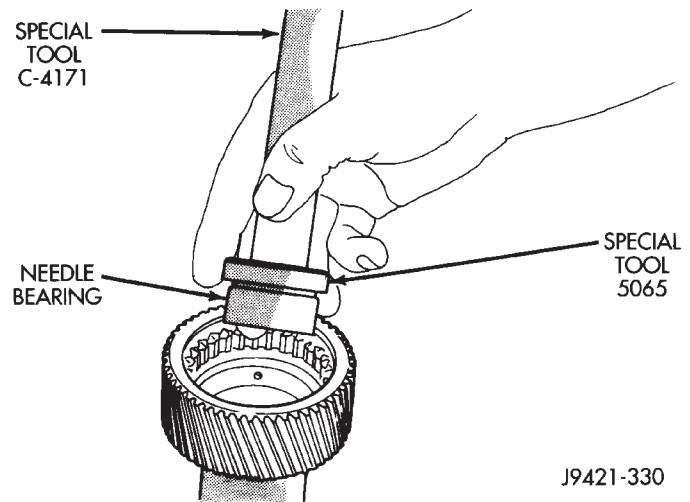


Fig. 40 Installing Mainshaft Pilot Bearing In Input Gear

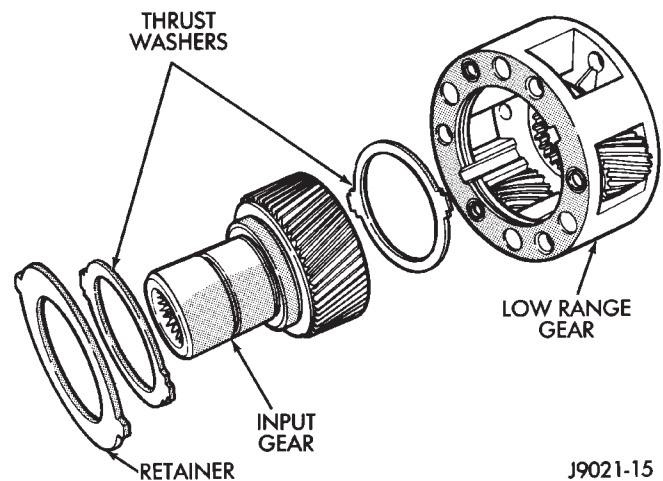


Fig. 41 Input And Low Range Gear Components

(5) Install input gear snap ring (Fig. 42).

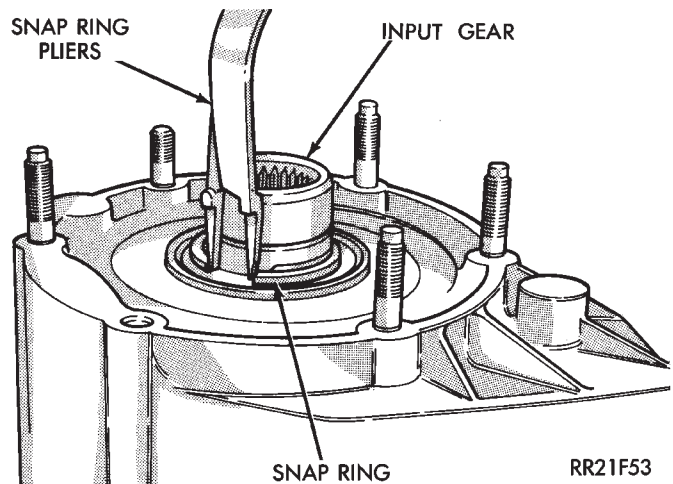


Fig. 42 Installing Input Gear Snap Ring

(6) Install new oil seal in input bearing retainer with suitable size installer tool (Fig. 43).

(7) Apply 3 mm (1/8 in.) wide bead of Mopar Gas-

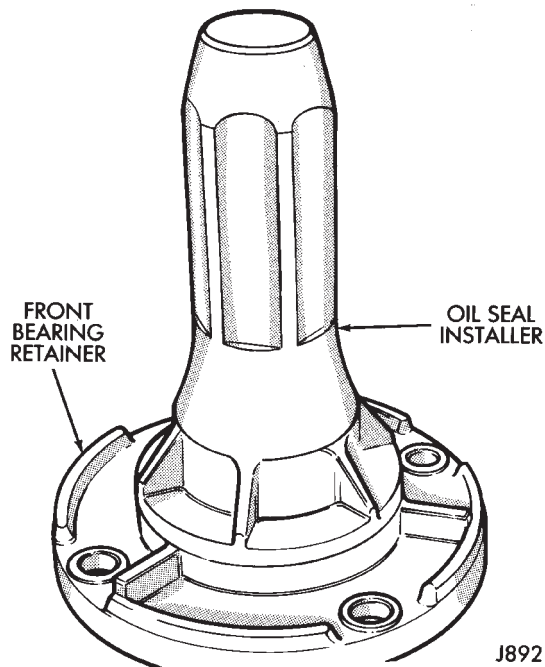


Fig. 43 Installing Input Bearing Retainer Oil Seal

ket Maker, silicone adhesive/sealer, or Loctite 518 to front bearing retainer seal surface (Fig. 44).

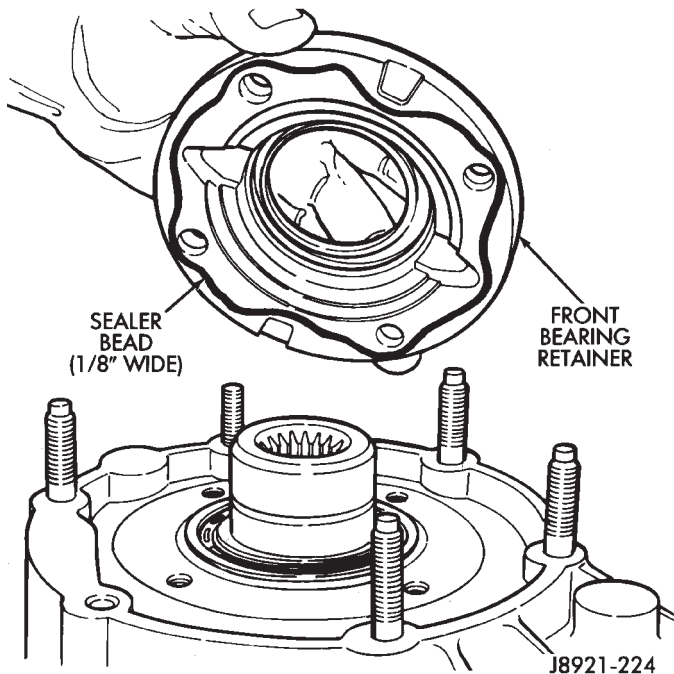


Fig. 44 Applying Sealer Bead To Bearing Retainer

(8) Align oil channel in retainer with oil feed hole in case (Fig. 45).

(9) Install input (front) bearing retainer on front case (Fig. 46). Tighten retainer bolts to 21 N m (16 ft. lbs.) torque.

SHIFT SECTOR RANGE FORK AND SLEEVE INSTALLATION

(1) Install new sector shaft O-ring and retainer bushing (Fig. 47).

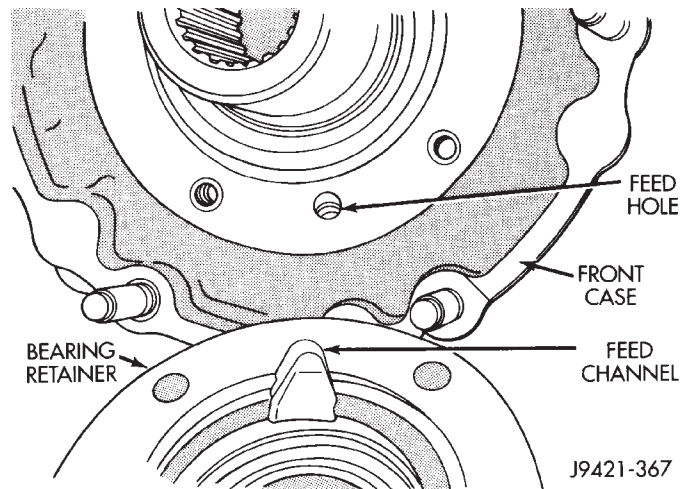


Fig. 45 Aligning Retainer Oil Channel With Feed Hole In Case

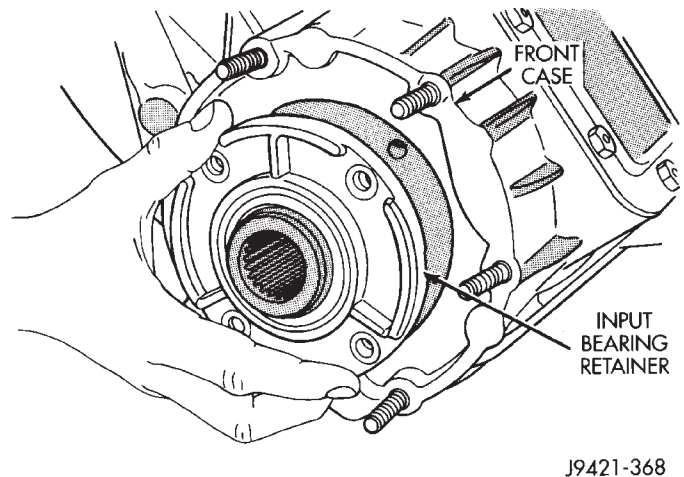


Fig. 46 Bearing Retainer Installation

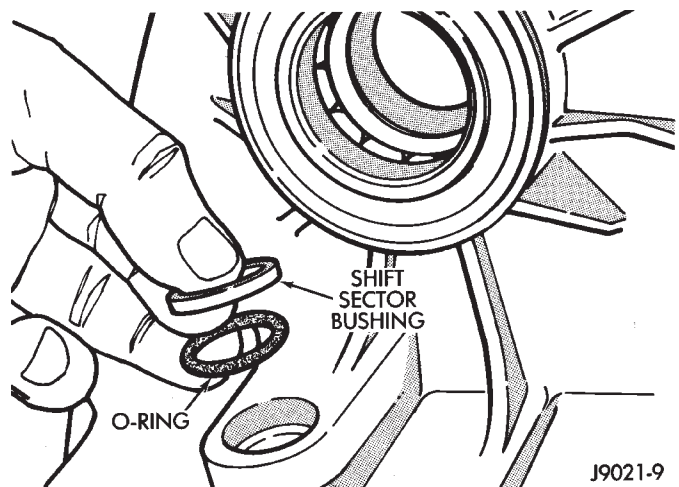


Fig. 47 Installing Sector O-Ring And Retainer Bushing

(2) Install shift sector in the case (Fig 48).

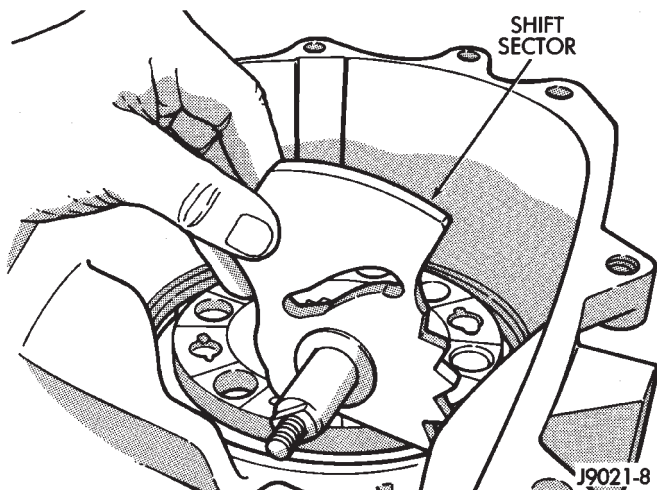


Fig. 48 Shift Sector Installation

(3) Install range lever and lever attaching nut on shift sector. Tighten attaching nut to 30 N m (22 ft. lbs.) torque.

(4) Install detent plunger, spring and plug (Fig 49). Tighten plug to 20 N m (15 ft. lbs.) torque.

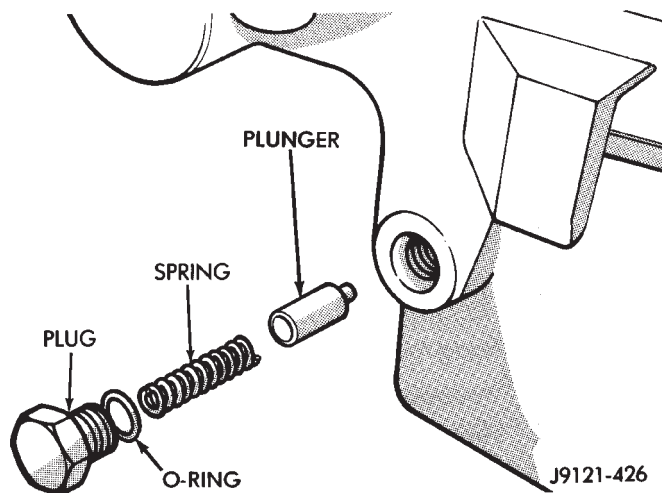


Fig. 49 Installing Detent Plunger, Spring And Plug

(5) Inspect pads on range fork (Fig 50). Be sure pads are secure and in position. Replace fork as an assembly if pads are worn through, or broken.

(6) Assemble range fork and shift hub (Fig 51).

(7) Engage range fork pin in shift sector slot (Fig 52).

(8) Insert shift hub in low range gear. Be sure hub is fully seated.

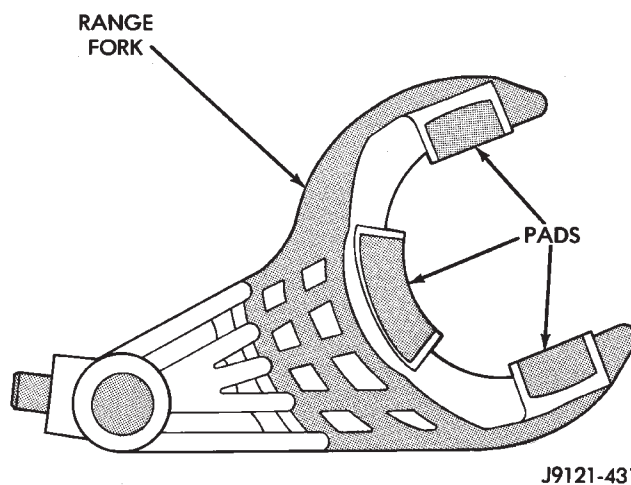


Fig. 50 Range Fork Pad Locations

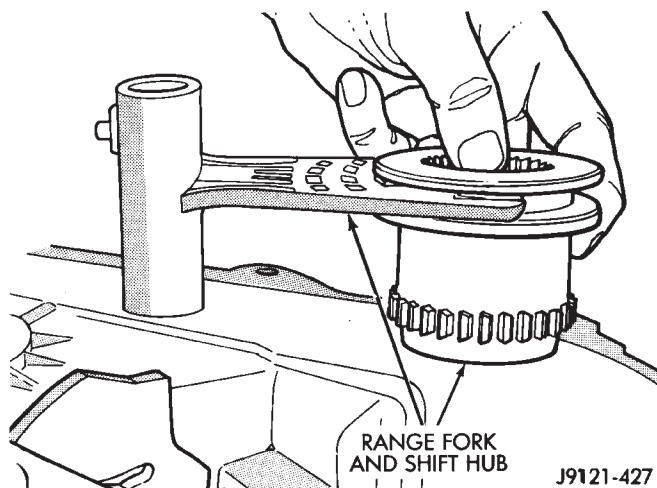


Fig. 51 Assembling Range Fork And Shift Hub

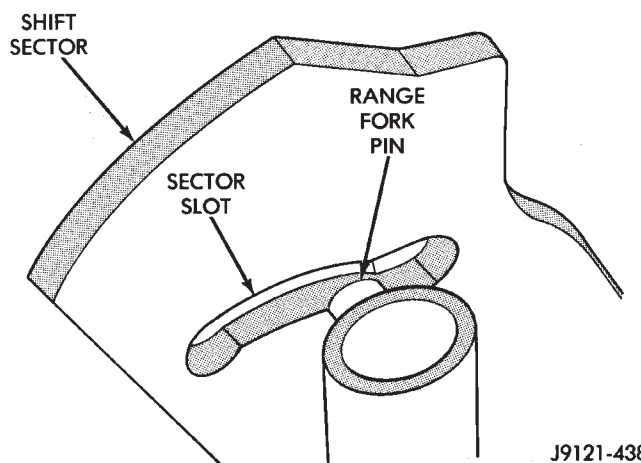


Fig. 52 Seating Range Fork Pin In Shift Sector Slot

MAINSHAFT ASSEMBLY

(1) If drive sprocket bearings are to be replaced, remove and install them as follows:

(a) Press both bearings out of sprocket simultaneously with Tool Handle C-4171 and Remover Tool C-4667, or 5066 (Fig. 53).

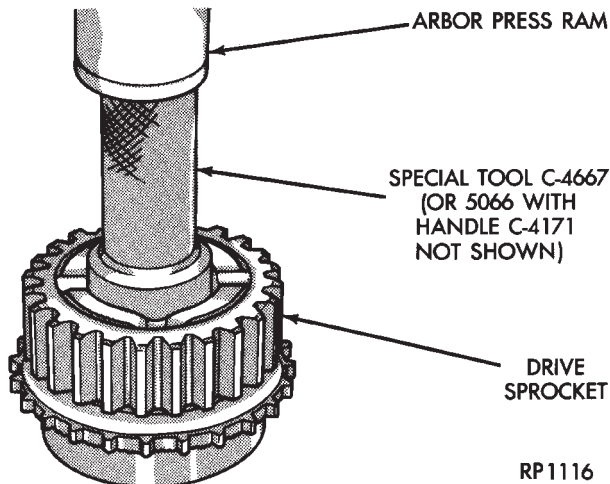
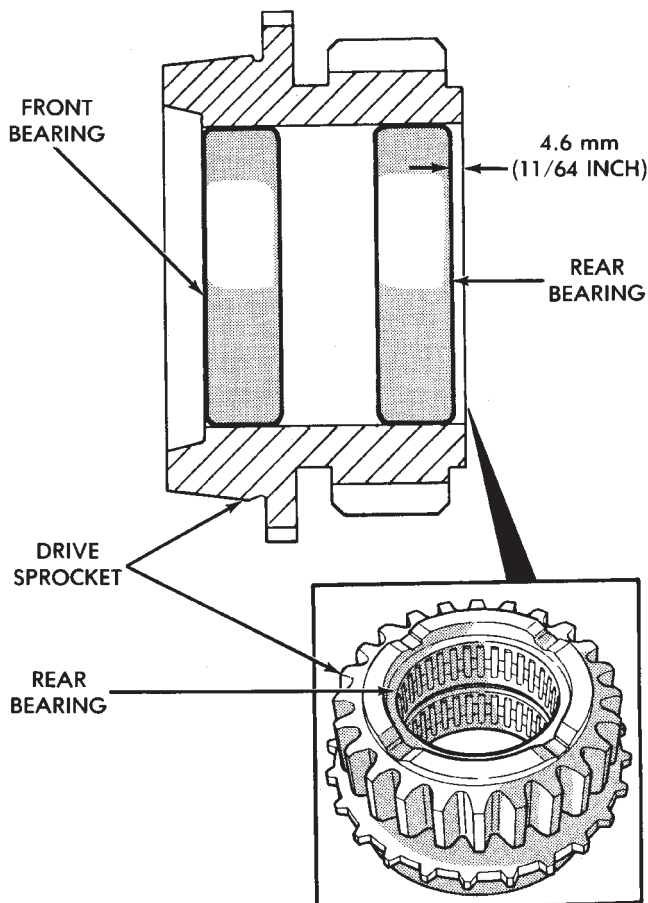


Fig. 53 Drive Sprocket Bearing Removal

(b) Before installing new bearings, refer to Figure 54 and note correct bearing position in sprocket. Bear-



RR21F32

Fig. 54 Correct Bearing Position In Drive Sprocket

ings must also be installed in proper sequence. Install front bearing first and rear bearing last.

CAUTION: Do not press the bearings any farther into the sprocket than indicated in Figure 54. The bearings could block the mainshaft oil feed hole if pressed too deeply into the sprocket.

(c) Install new **front** bearing first. Press bearing flush with edge of sprocket bore (Fig. 55).

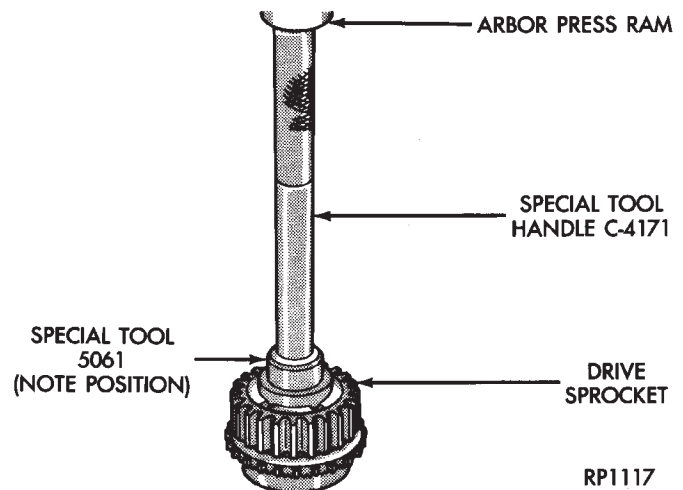


Fig. 55 Installing Drive Sprocket Front Bearing

(d) Install new **rear** bearing (Fig. 56). Press bearing in until 4.6 mm (3/16 in.) below edge of bore as shown in Figure 46.

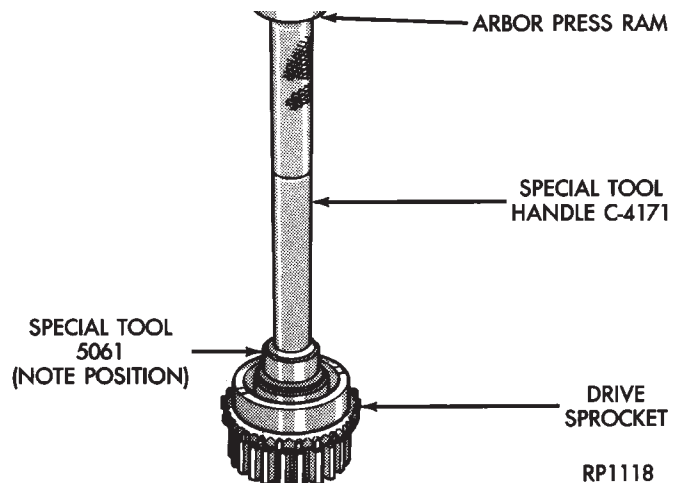


Fig. 56 Installing Drive Sprocket Rear Bearing

(2) On synchro models, install struts and spring(s) in hub (Fig. 57).

(3) Lubricate drive sprocket bearings, stop ring and hub with automatic transmission fluid. Bearings can also be lubricated with petrdum jelly if desired.

(4) Install sprocket, stop ring (synchro models only) and hub on mainshaft (Fig. 58). **Be sure to seat hub struts on stop ring lugs.**

(5) Install spacer washer on hub, if equipped.

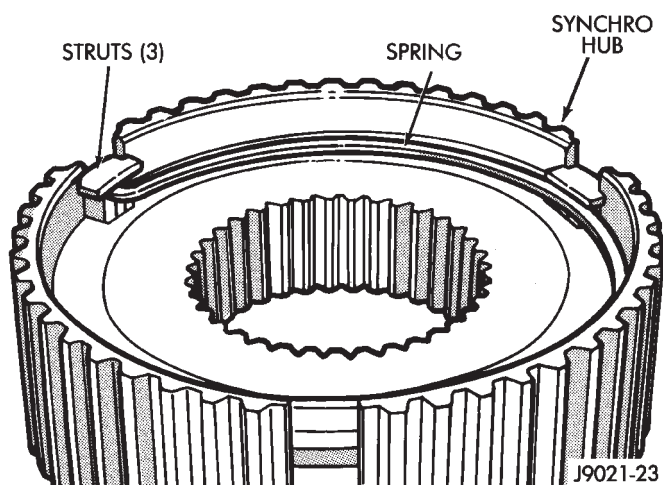


Fig. 57 Installing Synchro Springs And Struts In Hub

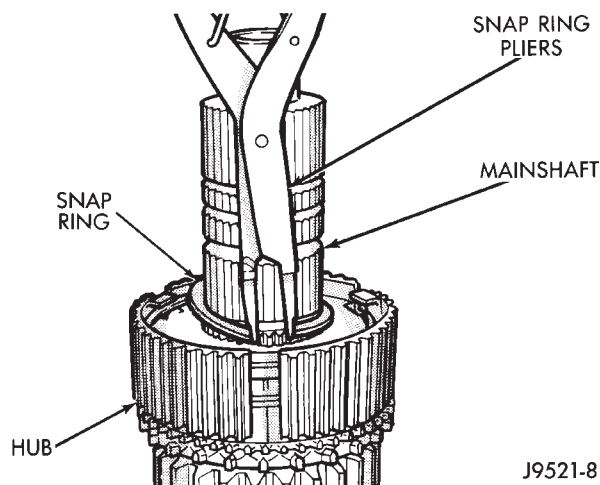


Fig. 59 Installing Hub Retaining Snap Ring

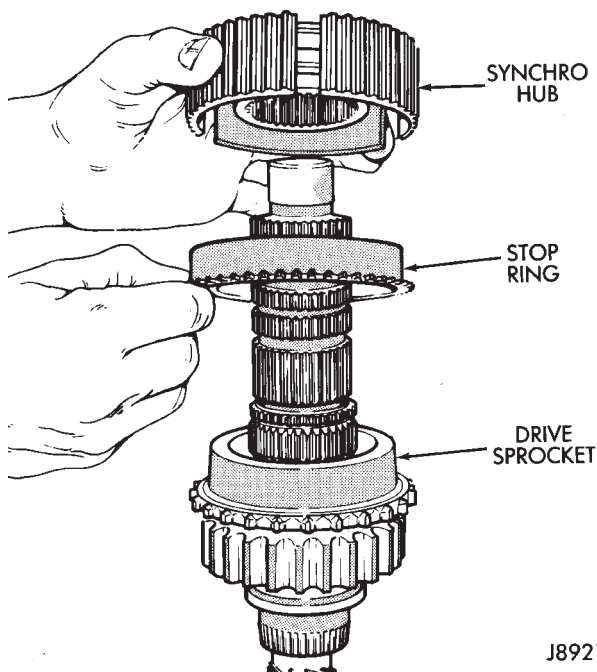


Fig. 58 Sprocket, Stop Ring And Hub Installation

(6) Install new hub retaining snap ring (Fig. 59).

MAINSHAFT AND MODE FORK INSTALLATION

(1) Install sleeve on hub. Be sure sleeve is installed with beveled spline ends facing stop ring and short end of sleeve toward rear of shaft. In addition, on synchro models, be sure a sleeve tooth is aligned with each synchro strut (Fig. 60).

CAUTION: Correct sleeve alignment is important to proper shifting on synchro models. Be sure a sleeve tooth is aligned (centered) over each synchro strut (Fig. 60). Gear clash will occur if the struts and sleeve teeth are misaligned.

(2) Install new pads on mode fork.

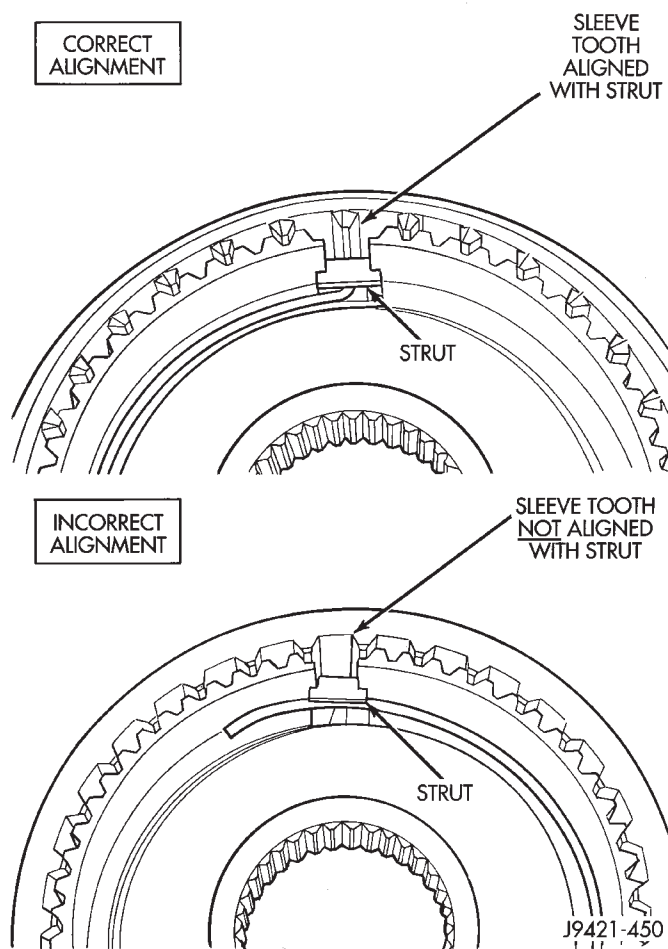


Fig. 60 Correct Synchro Strut And Sleeve Alignment (Synchro Models Only)

- (3) Engage mode fork in sleeve (Fig. 61).
- (4) Install mode fork-mainshaft assembly in case (Fig. 61). Be sure the mode fork rail is seated in case bore.
- (5) Lift mainshaft upward about 2.54 cm (1-inch).
- (6) Position front output shaft in drive chain.

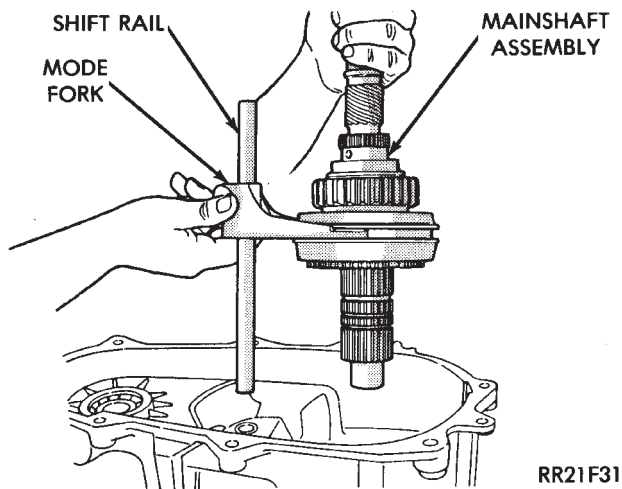


Fig. 61 Installing Mainshaft And Mode Fork Assembly

(7) Install chain on drive sprocket and start front shaft into front bearing at same time (Fig 62).

(8) Seat mainshaft and front output shaft (Fig 54). If front shaft is hard to seat, lift mainshaft slightly to allow front shaft to seat.

(9) Reseat mainshaft in input gear and seat sleeve on hub if necessary.

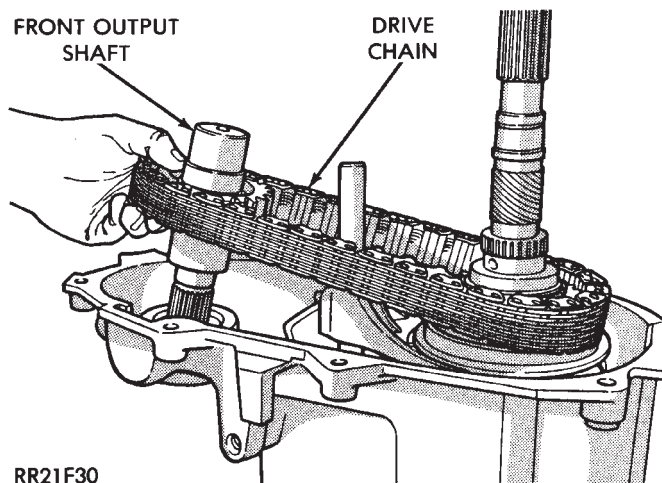


Fig. 62 Installing Drive Chain And Front Output Shaft

(10) Install mode spring on shift rail (Fig 63).

OIL PUMP, REAR CASE, REAR RETAINER AND EXTENSION INSTALLATION

(1) Install new seal in oil pump feed housing with Special Tool 7888 (Fig 64).

(2) Install new pickup tube O-ring in oil pump (Fig 65).

(3) Prime oil pump by pouring transmission fluid into pump through pickup tube opening

(4) Insert pickup tube in oil pump. Then attach oil screen and connecting hose to pickup tube (Fig 66).

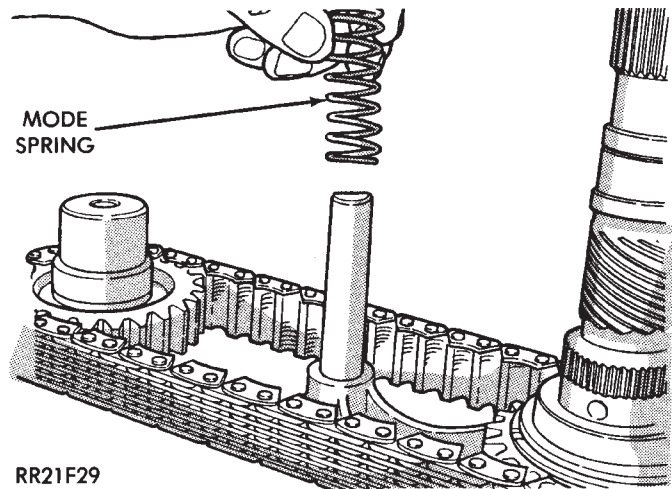


Fig. 63 Installing Mode Spring On Shift Rail

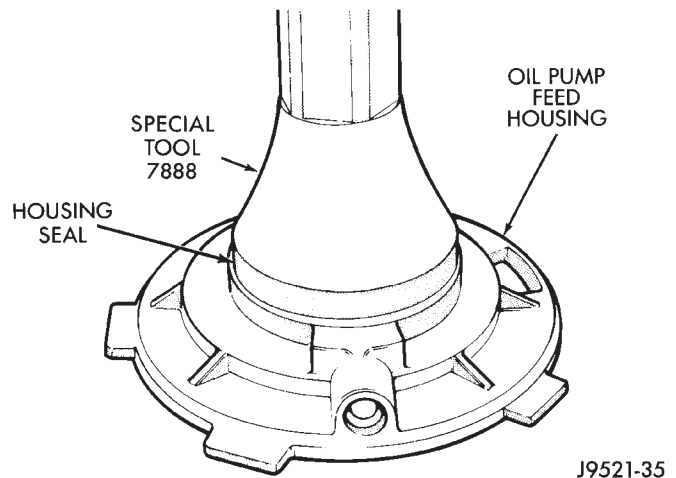


Fig. 64 Oil Pump Seal Installation

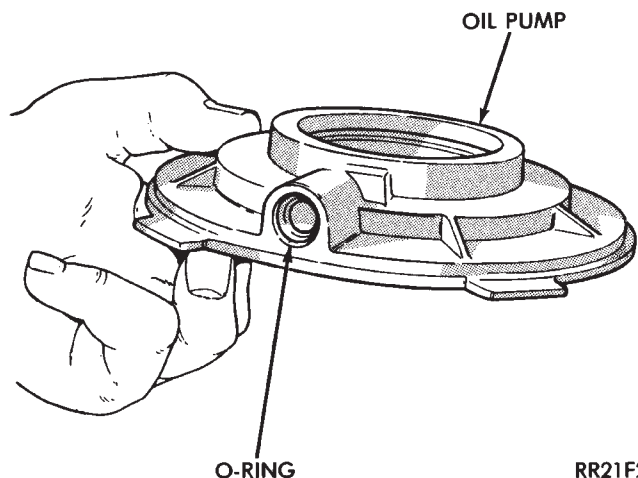


Fig. 65 Pickup Tube O-Ring Installation

(5) Install assembled pump, pickup tube and screen in rear case. Be sure screen is seated in case slot as shown (Fig 66).

(6) Install magnet in front case pocket.

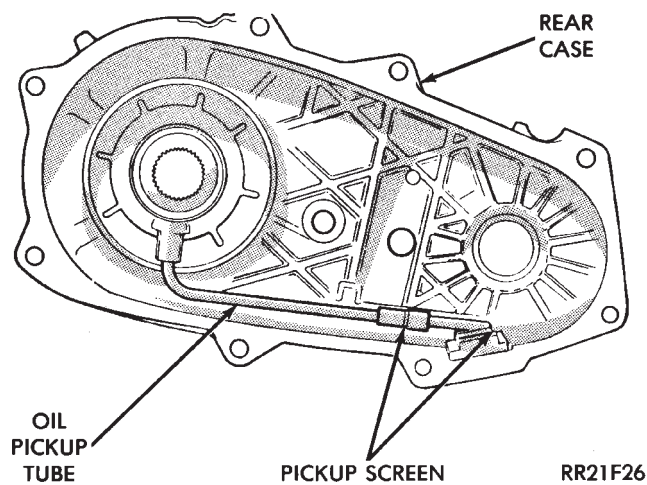


Fig. 66 Pickup Tube, Oil Screen And Pump Installation

(7) Clean sealing surfaces of rear case front case, retainer and extension. Use 3M all purpose cleaner or equivalent product.

(8) Apply 3 mm (1/8 in.) wide bead of Mopar gasket maker, silicone adhesive sealer, or Loctite 518 to sealing surface of front case.

(9) Align and install rear case/oil pump assembly on front case (Fig. 67). Be sure case locating dowels are in place and that mainshaft splines are engaged in oil pump inner gear.

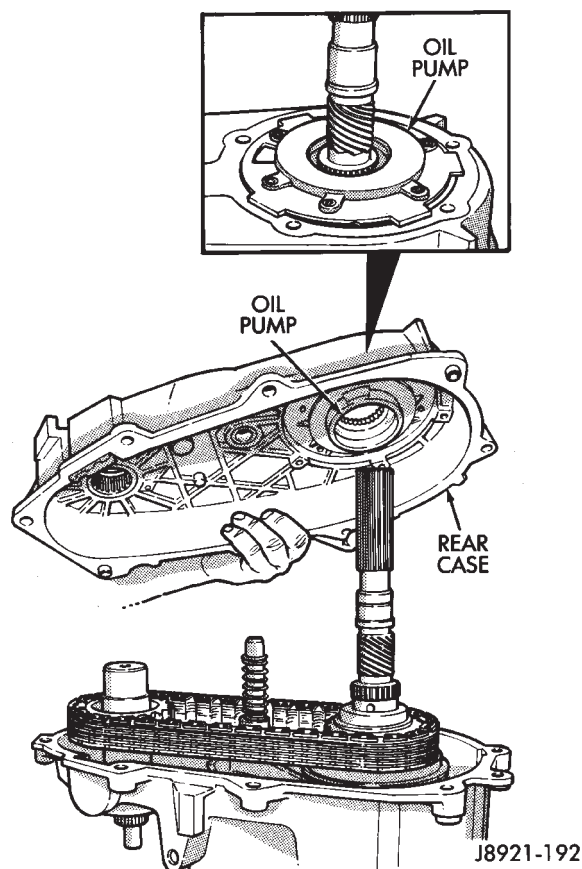


Fig. 67 Installing Rear Case On Front Case

(10) Install and tighten front case-to-rear case attaching bolts to 27-34 N m (20-25 ft. lbs.) torque. **Be sure to install a washer under each bolt used at case dowel locations.**

(11) Install output bearing in rear retainer. Tap old bearing out of retainer with hammer and brass drift. Then install new bearing with Tool Handle C-4171 and Installer 5064 (Fig. 68).

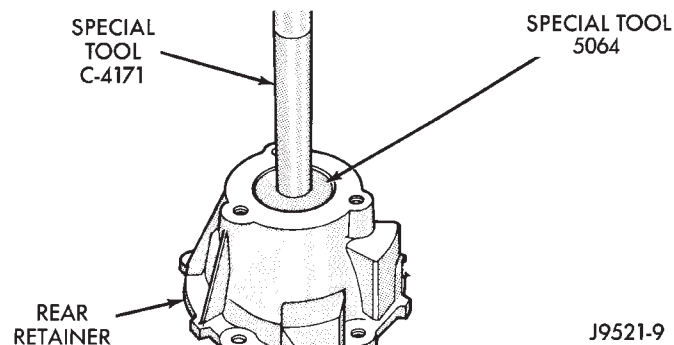


Fig. 68 Installing Mainshaft Rear Bearing In Rear Retainer

(12) Apply 3 mm (1/8 in.) wide bead of Mopar gasket maker, silicone adhesive sealer, or Loctite 518 to flange surface of rear retainer.

(13) Align and install rear retainer on rear case. Install and tighten retainer bolts to 27-34 N m (20-25 ft. lbs.) torque.

(14) Install new output bearing snap ring (Fig. 69). Lift mainshaft slightly to seat snap ring in shaft groove if necessary.

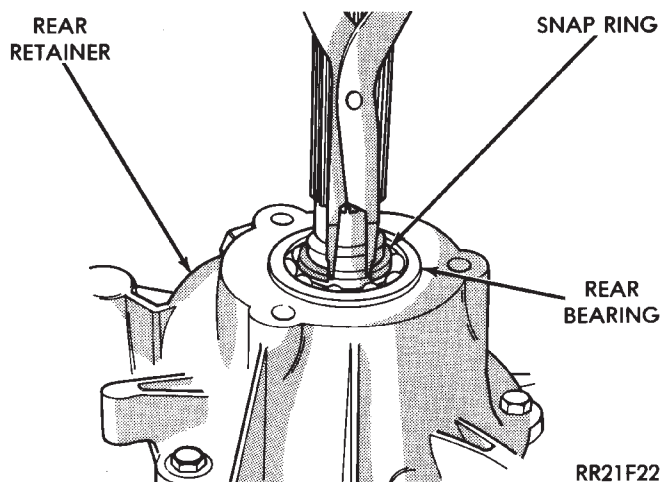


Fig. 69 Installing Output (Rear) Bearing Snap Ring

(15) Remove extension housing seal if not removed previously.

(16) Remove extension housing bushing with Bushing Installer Tools C-4171 and 7889-A (Fig. 70).

(17) Install new extension housing bushing with Installer Tools C-4171 and 5066 (Fig. 71).

(18) Install new seal in extension. Use suitable size socket, or installer tool to seat seal.

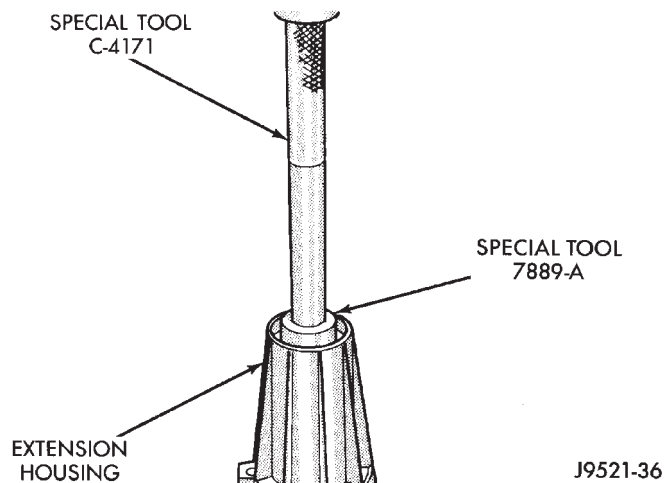


Fig. 70 Removing Extension Housing Bushing

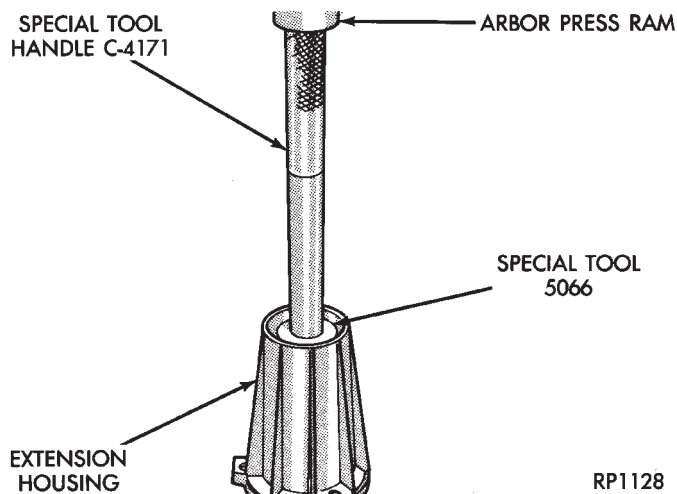


Fig. 71 Installing Extension Housing Bushing

(19) Apply 3 mm (1/8 in.) wide bead of Mopar gasket maker, silicone adhesive sealer, or Loctite 518 to mounting surface of extension housing

(20) Align and install extension on retainer. Then install and tighten extension bolts to 27-34 N m (20-25 ft. lbs.) torque.

(21) Install new seal on front output shaft (Fig 72).

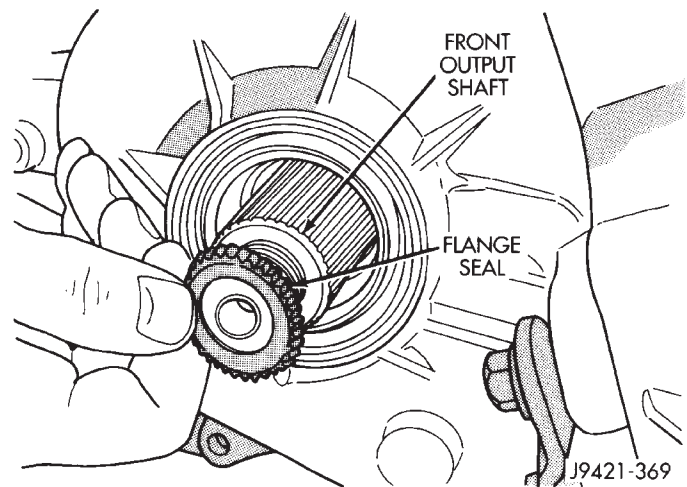


Fig. 72 Installing Seal On Front Shaft

(22) Install front yoke on front shaft. Secure yoke with replacement nut. Tighten nut to 149 N m (110 ft. lbs.) torque.

(23) Install replacement gasket on indicator switch and install switch in case.

(24) Install tighten drain plug to 47 N m (35 ft. lbs.) torque.

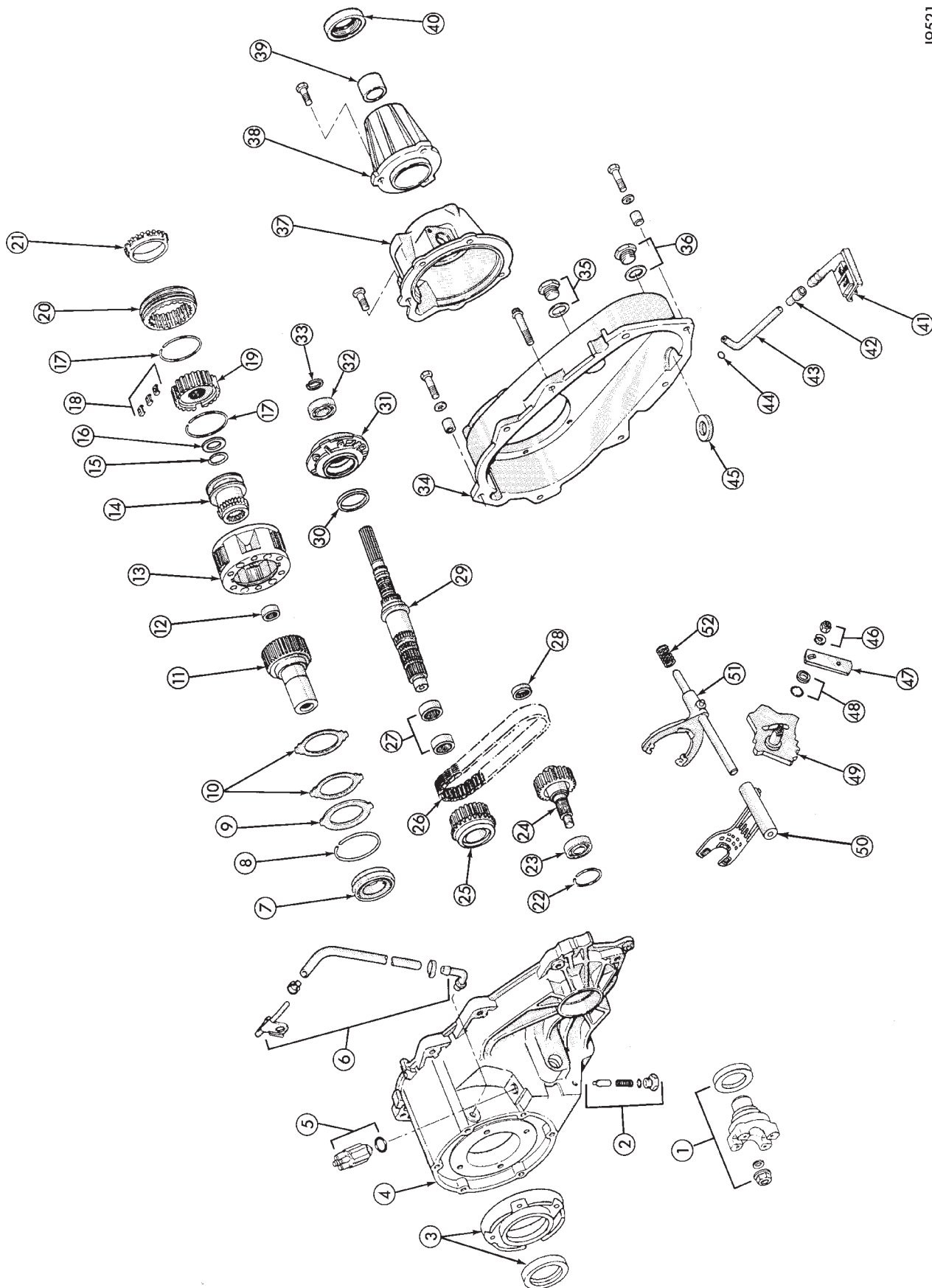
(25) Install indicator or vacuum switch in case. Tighten switch to 27-34 N m (20-25 ft. lbs.) torque.

(26) Install speedometer pinion and adapter.

(27) Fill transfer case with recommended lubricant.

(28) Install and tighten fill plug to 41 N m (35 ft. lbs.) torque.

J9521-2



NP231 TRANSFER CASE

LEGEND FOR NP231 TRANSFER CASE

- | | | |
|---|--------------------------------|--|
| 1. FRONT YOKE, NUT, SEAL WASHER, AND OIL SEAL | 16. SPACER WASHER | 36. DRAIN PLUG AND GASKET |
| 2. SHIFT DETENT PLUG, SPRING AND PIN | 17. SYNCHRO SPRINGS* | 37. REAR RETAINER |
| 3. FRONT RETAINER AND SEAL | 18. SYNCHRO STRUTS* | 38. EXTENSION |
| 4. FRONT CASE | 19. HUB | 39. BUSHING |
| 5. 4WD INDICATOR SWITCH | 20. SLEEVE | 40. OIL SEAL |
| 6. VENT ASSEMBLY | 21. STOP RING* | 41. OIL PICKUP SCREEN |
| 7. INPUT GEAR BEARING AND SNAP RING | 22. SNAP RING, FRONT BEARING | 42. TUBE CONNECTOR |
| 8. LOW RANGE GEAR SNAP RING | 23. OUTPUT SHAFT FRONT BEARING | 43. OIL PICKUP TUBE |
| 9. INPUT GEAR RETAINER | 24. FRONT OUTPUT SHAFT | 44. PICKUP TUBE O-RING |
| 10. LOW RANGE GEAR THRUST WASHERS | 25. DRIVE SPROCKET | 45. MAGNET |
| 11. INPUT GEAR | 26. DRIVE CHAIN | 46. RANGE LEVER NUT AND WASHER |
| 12. INPUT GEAR PILOT BEARING | 27. DRIVE SPROCKET BEARINGS | 47. RANGE LEVER |
| 13. LOW RANGE GEAR | 28. OUTPUT SHAFT REAR BEARING | 48. SECTOR O-RING AND RETAINER BUSHING |
| 14. RANGE FORK SHIFT HUB | 29. MAINSHAFT | 49. SECTOR |
| 15. HUB SNAP RING | 30. OIL SEAL | 50. MODE SPRING |
| | 31. OIL PUMP ASSEMBLY | 51. MODE FORK |
| | 32. MAINSHAFT REAR BEARING | 52. RANGE FORK |
| | 33. SNAP RING | |
| | 34. REAR CASE | |
| | 35. FILL PLUG AND GASKET | |

* SYNCHRO EQUIPPED MODELS ONLY.