G360 TRANSMISSION OVERHAUL

INDEX

TRANSMISSION DISASSEMBLY

SHIFT COVER REMOVAL

(1) Shift transmission into neutral.

(2) Remove shift cover bolts.

(3) Loosen shift cover with two pry tools. Insert tools in cover slots and pry cover off alignment dowels (Fig. 1). **It is important to remove the cover evenly to avoid damage. Do not pry one side loose then the other. This practice could damage the forks and cover.**

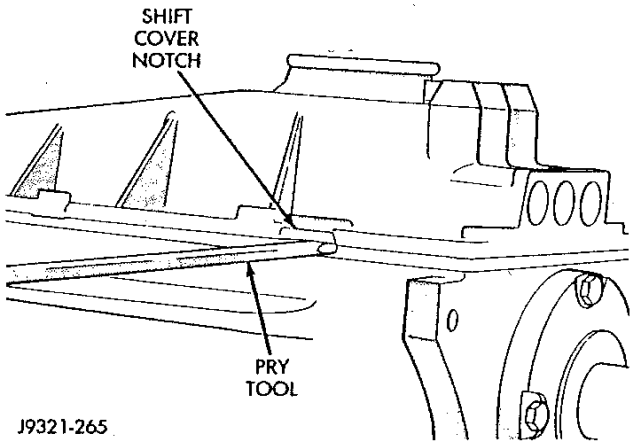

Fig. 1 Loosening Shift Cover

(4) Remove shift cover assembly (Fig. 2). Discard old shift cover gasket. **Note that a gasket was not used on early production transmissions. It is recommended that a gasket be used when shift cover is installed after overhaul.**

(5) Set shift cover assembly aside for inspection.

BEARING RETAINER AND SHAFT BEARING RACE REMOVAL

(1) Remove front bearing retainer bolts and remove retainer (Fig. 3). Tap retainer with rubber mallet to loosen it if necessary.

(2) On 2-wheel drive models, remove rear bearing retainer as follows (Fig. 4):

(a) Remove nut attaching yoke to output. **Torque on nut is quite high. Best way to remove nut is with 350-400 ft. lb. rated high capacity impact wrench.**

(b) Remove yoke from output shaft splines.

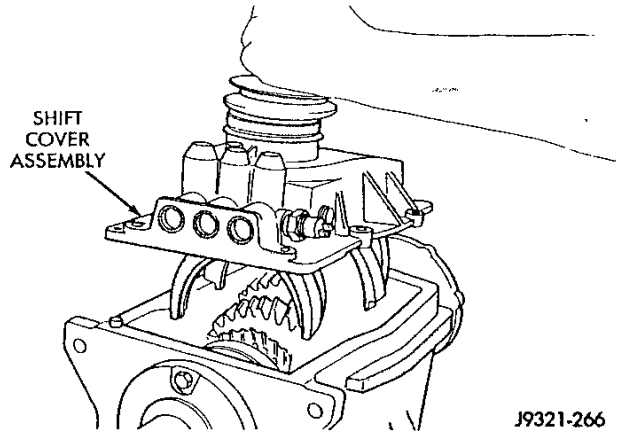

Fig. 2 Shift Cover Removal/Installation

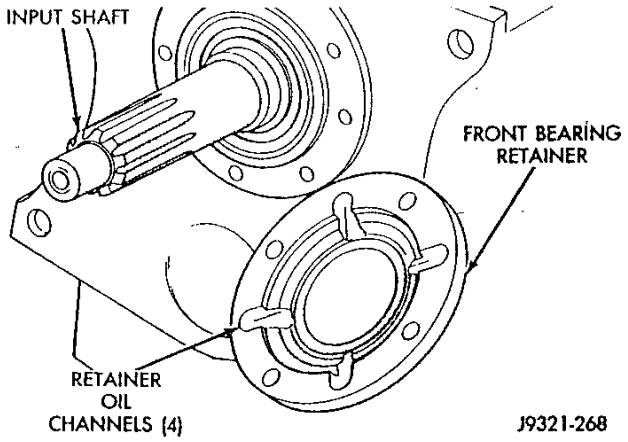

Fig. 3 Front Bearing Retainer Removal

(c) Remove bolts attaching rear bearing retainer to gear case and remove retainer. Use rubber mallet to loosen retainer if necessary.

(d) Remove speedometer gear and spacers from output shaft.

(e) Remove preload shims from rear retainer, or bearings.

(f) Remove yoke seal from retainer with suitable pry tool. Do not damage retainer surface while removing seal.

(3) On 4-wheel drive transmission, remove rear bearing retainer bolts and remove retainer from gear case (Fig. 5).

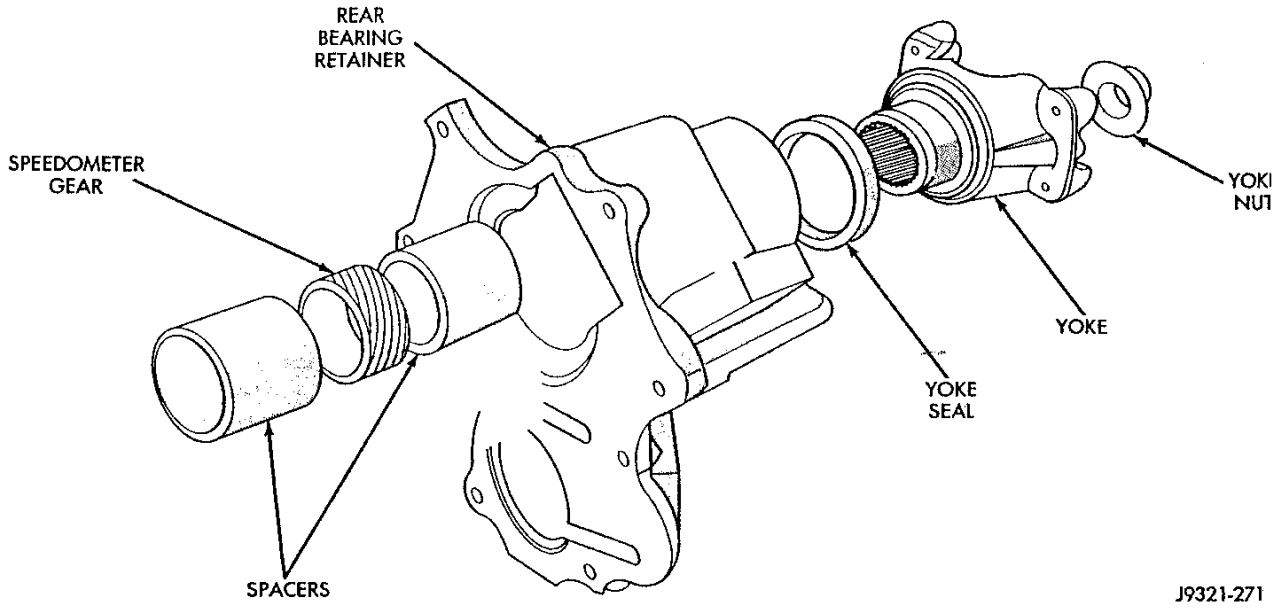

Fig. 4 Two Wheel Drive Rear Bearing Retainer And Speedometer Gear Removal

(4) On 4-wheel drive transmission, remove bearing preload shims from rear bearing retainer (Fig. 6). On 2-wheel drive transmissions, remove shims from retainer and slide output shaft rear bearing shims off shaft.

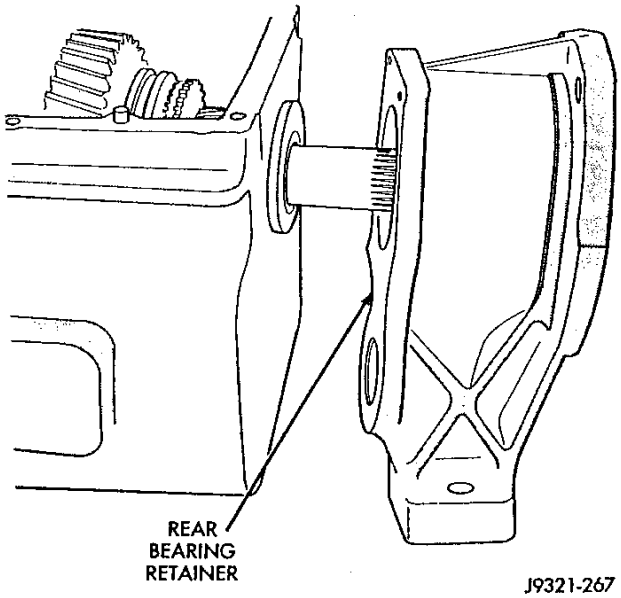

Fig. 5 Four Wheel Drive Rear Bearing Retainer Removal

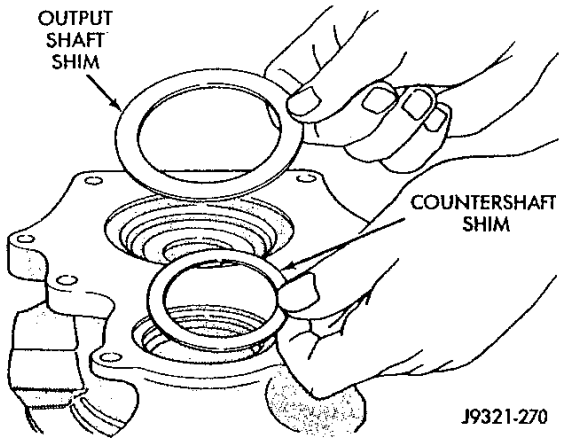

Fig. 6 Shim Locations In Rear Bearing Retainer

(5) Remove output shaft and countershaft bearing races (Fig. 7). Tap front and rear faces of gear case with large plastic mallet to loosen and remove races **Do not strike bearing races. Tap on case surfaces only.**

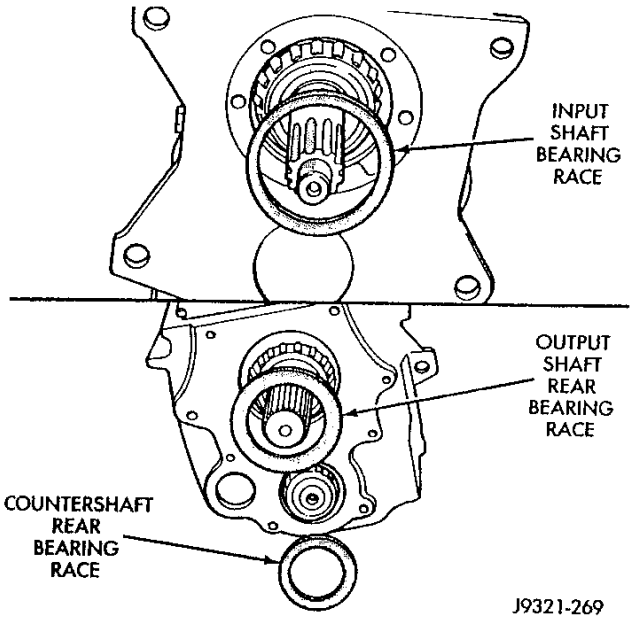

Fig. 7 Shaft Bearing Race Removal

INPUT SHAFT AND OUTPUT SHAFT REMOVAL

(1) Rotate input shaft until flats on shaft clutch teeth are facing downward toward countershaft (Fig. 8).

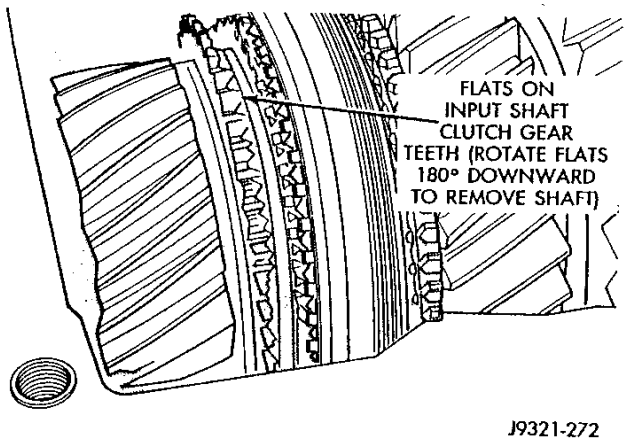

Fig. 8 Location Of Input Shaft Clutch Gear Flats

(2) Work input shaft forward until clear of output shaft.

(3) Remove output shaft and gears as assembly from case (Fig. 9).

(4) Remove input shaft from case (Fig. 9).

(5) If bearing on input shaft is damaged, press bearing from shaft. Use hydraulic shop press and standard bearing splitter type remover tool.

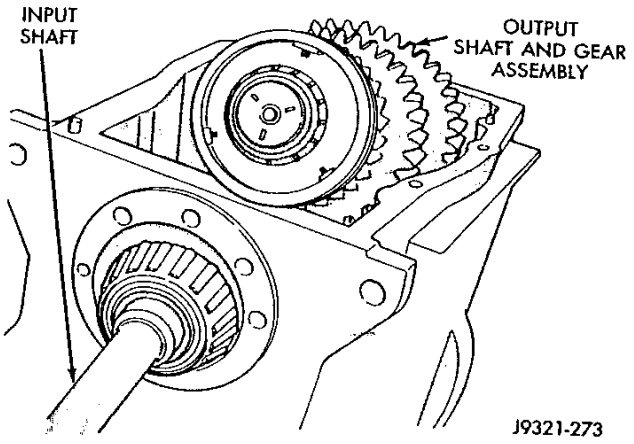

Fig. 9 Output Shaft And Gear Assembly Removal

COUNTER GEAR AND SHAFT REMOVAL

(1) Remove countershaft front bearing cap from case (Fig. 10). Strike cap with punch to unseat it. Exercise care as bearing could be damaged if punch penetrates cap and contacts bearing.

(2) Remove large snap ring retaining counter gear shaft front bearing race in gear case (Fig. 10).

(3) Remove counter gear shaft front bearing race from gear case (Fig. 10). If race proves difficult to remove, use a slide hammer and blind hole puller tool. Or, remove rear bearing snap ring and drive counter gear shaft (and front bearing) out front of case. Procedure is outlined in following steps.

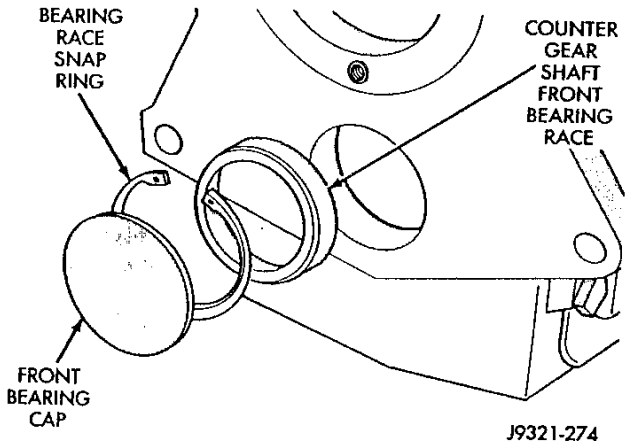

Fig. 10 Counter Gear Shaft Front Bearing Cap, Snap Ring And Race Removal

(4) Remove small snap ring retaining rear bearing on counter gear shaft (Fig. 11).

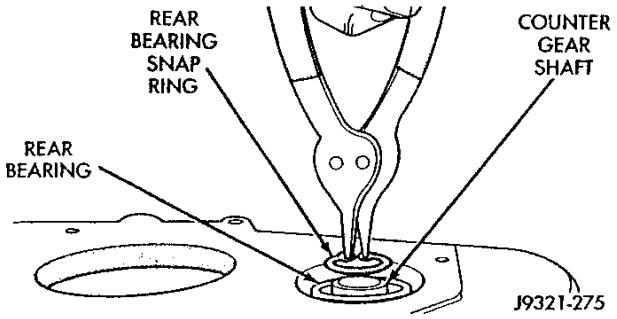

Fig. 11 Removing Counter Gear Shaft Front Bearing Snap Ring

(5) Tap countershaft out of forward end of gear case (Fig. 12). Use hammer and brass punch to remove shaft and front bearing.

(6) If countershaft rear bearing is damaged, remove snap ring and press bearing off shaft.

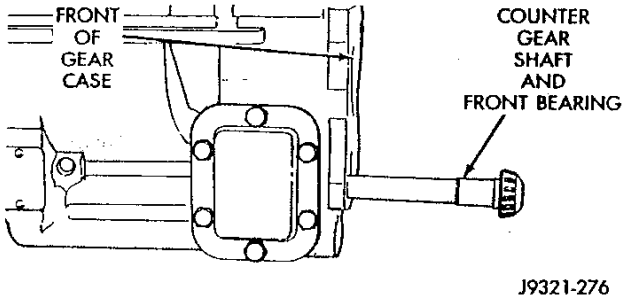

Fig. 12 Counter Gear Shaft And Front Bearing Removal

(7) Position gear case in upright position (Fig. 13).

(8) Remove counter gear from case as follows:

(a) On transmission with new style gear case, counter gear can be removed by rotating it past reverse idler gear and out of case (Fig. 13).

(b) **On transmission with early style gear case, it will be necessary to remove reverse idler gear before counter gear can be removed. Refer to following Reverse Idler Gear Removal procedures.**

REVERSE IDLER GEAR REMOVAL

Two styles of transmission case were used for the G360 transmission. Early style cases had a partial radius machined in the reverse idler area while later style cases had a full radius. The different machining required different methods for removing the reverse idler gear and shaft.

On early style gear cases, the idler gear must be removed before the counter gear can be removed.

On new style cases, the counter gear can be removed with the idler gear still in place.

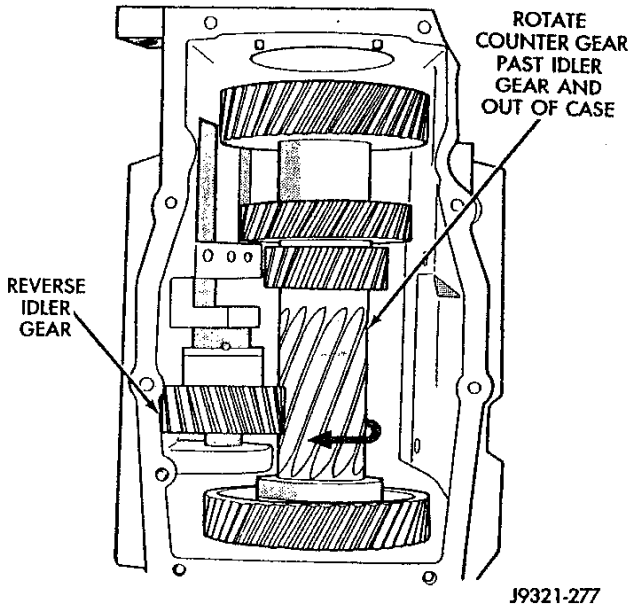

Fig. 13 Counter Gear Removal (With New Style Gear Case)

Reverse Idler Removal (New Style Gear Case)

(1) Remove idler shaft pins (Fig. 14). Use appropriate size pin punch only to remove pins. Discard pins after removal as they are not reusable.

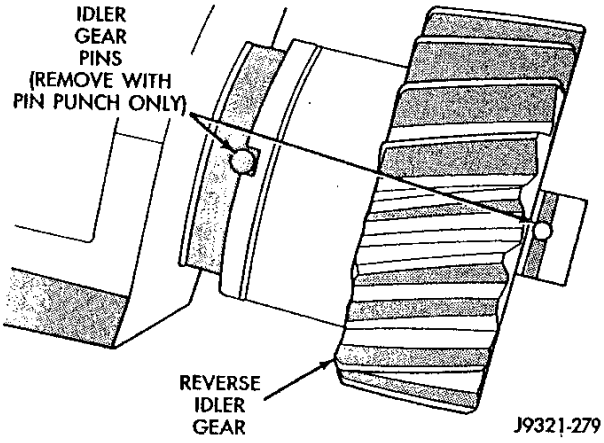

Fig. 14 Location Of Reverse Idler Shaft Pins

(2) Remove bolt that aligns and secures idler shaft in case (Fig. 15). **Keep bolt with idler gear components. Do not intermix it with other fasteners.**

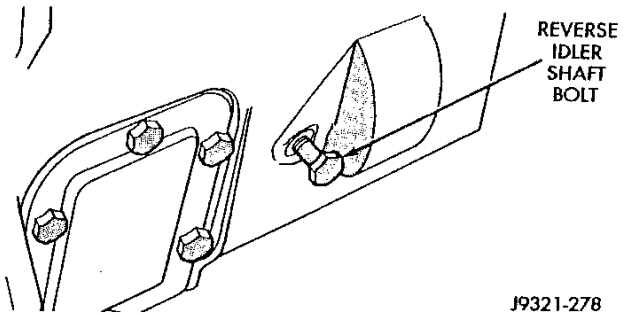

Fig. 15 Reverse Idler Shaft Bolt Removal

(3) Remove reverse idler shaft (Fig. 16)

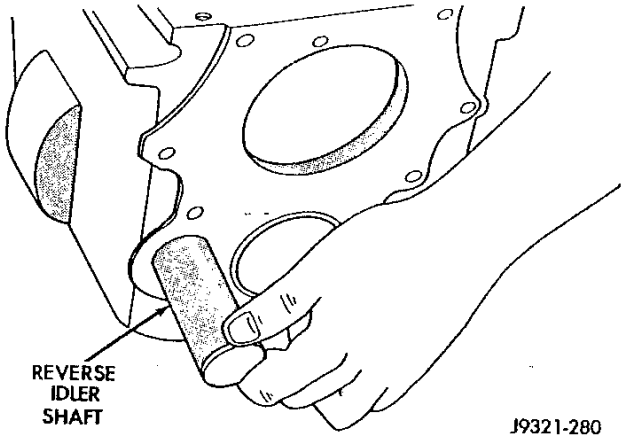

Fig. 16 Reverse Idler Shaft Removal (New Style Gear Case)

(4) Remove idler gear, thrust washers, bearings and spacer as assembly (Fig. 17).

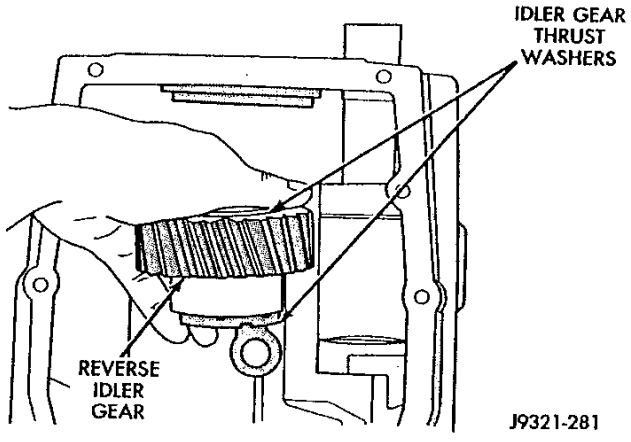

Fig. 17 Reverse Idler Gear Removal (New Style Gear Case)

Reverse Idler Removal (Early Style Gear Case)

(1) Remove front pin from idler shaft first.

(2) Slide gear and washer forward and remove rear pin.

(3) Remove bolt securing idler shaft in case.

(4) Slide idler shaft forward and remove gear and washer from case. Turn counter gear to help rotate idler gear out of case.

OUTPUT SHAFT DISASSEMBLY

Do not disassemble the 1-2, 3-4 and fifth-reverse synchros during overhaul. The component parts in each synchro are not available separately. The synchros are serviced as assemblies only.

CAUTION: The output shaft and geartrain are quite heavy. Have a helper support and hold the output shaft and gear assembly during all press operations. Do not allow the shaft and gear assembly to fall and strike the shop floor.

(1) Press fifth gear and rear bearing off output shaft. Use standard bearing splitter type remover tool and shop press to remove gear and bearing (Fig. 18).

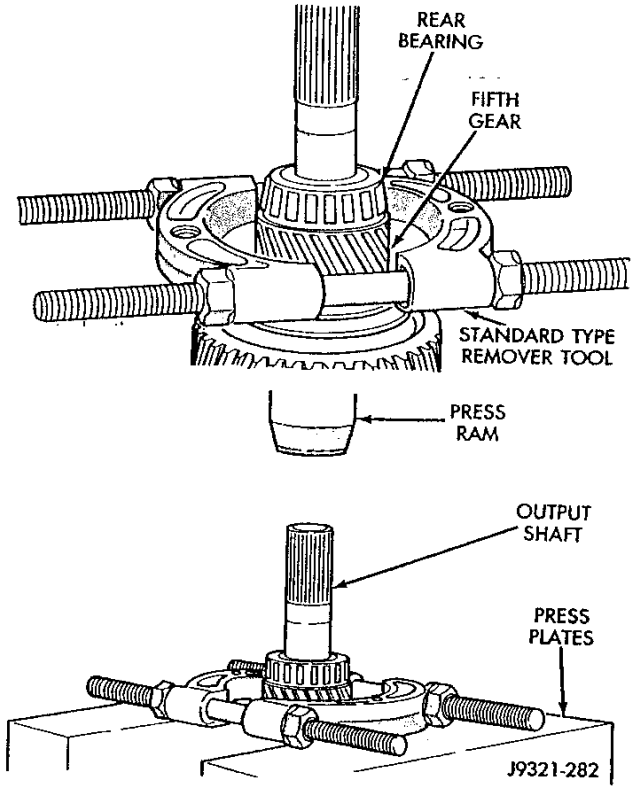

Fig. 18 Removing Fifth Gear And Rear Bearing

(2) Remove fifth-reverse snap ring and blocker ring (Fig. 19).

(3) Remove two halves of fifth gear bearing from output shaft (Fig. 20).

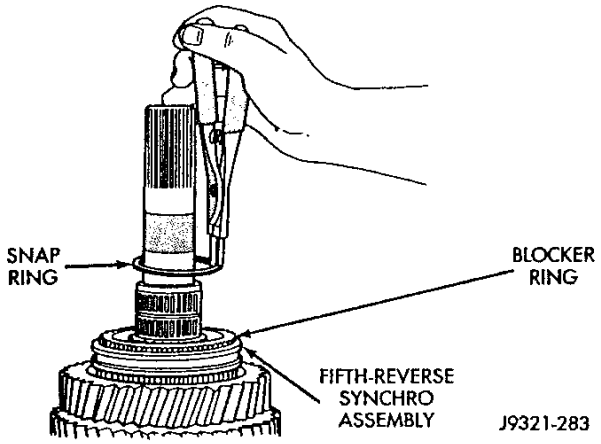

Fig. 19 Removing Fifth-Reverse Snap Ring And Blocker Ring

(4) Remove reverse gear and fifth-reverse synchro assembly (Fig. 20). Use two large, flat-blade screwdrivers to pry components up and off mainshaft splines (Fig. 20). If gear and synchro proves difficult to remove, use a press and bearing splitter for removal.

(5) Remove reverse gear bearing from gear or output shaft.

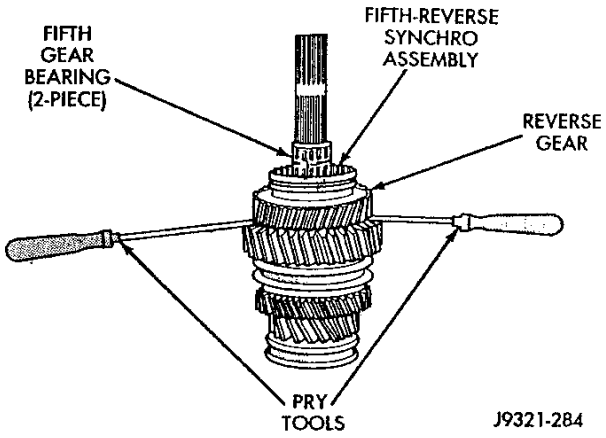

Fig. 20 Reverse Gear And Fifth-Reverse Synchro Removal

(6) Remove first gear snap ring (Fig. 21).

(7) Remove first gear (Fig. 22). Use shop press and two press plates to press gear off shaft. Have helper hold output shaft while removing gear.

(8) Remove first gear bearing from gear or output shaft.

(9) Mark position of 1-2 synchro assembly for installation reference. Then remove synchro assembly from output shaft (Fig. 23).

(10) Remove pilot bearing, 3-4 synchro assembly and third gear as a unit. Use suitable size bearing splitter type remover tool, press tool and hydraulic

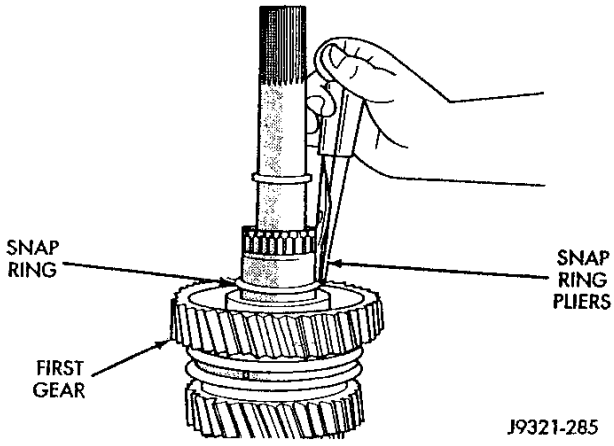

Fig. 21 First Gear Snap Ring Removal

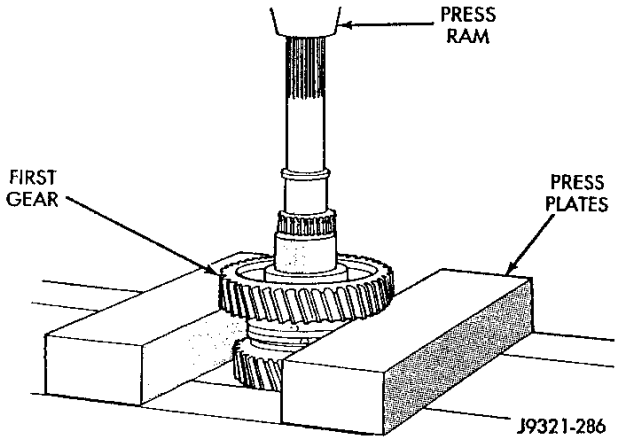

Fig. 22 First Gear Removal

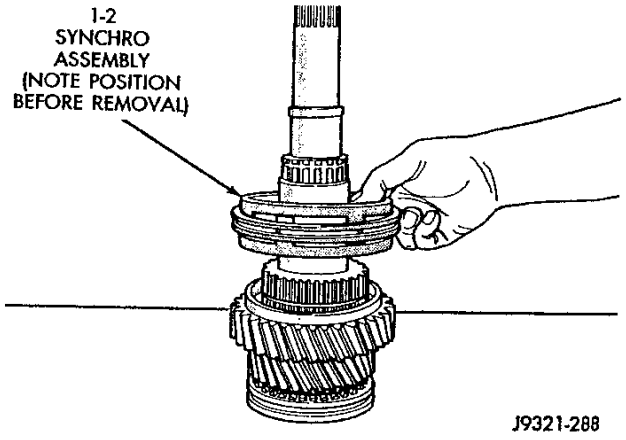

Fig. 23 Removing 1-2 Synchro Assembly

shop press to remove these components (Fig. 24). **Position remover tool jaws under third gear for removal purposes. Also have helper support and hold assembly during removal.**

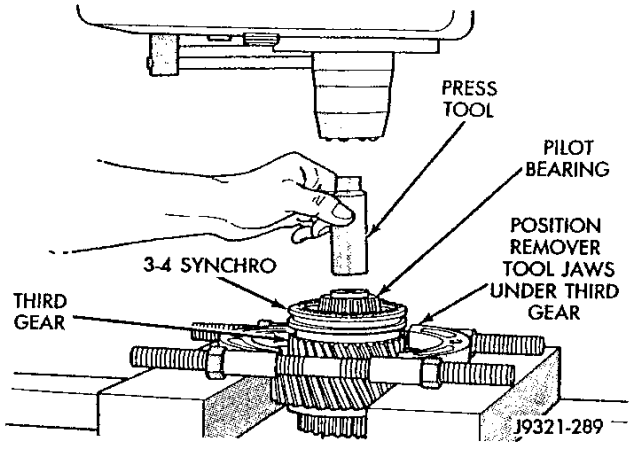

Fig. 24 Pilot Bearing, 3-4 Synchro And Third Gear Removal

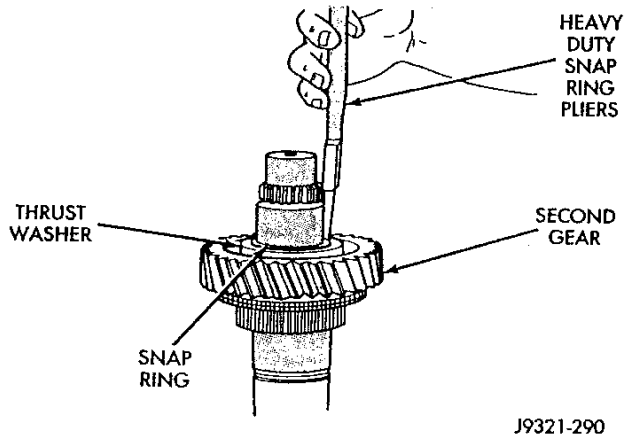

Fig. 25 Second Gear Snap Ring Removal

(11) Remove third gear bearing from gear or shaft.

(12) Remove second gear snap ring with heavy duty snap ring pliers (Fig. 25). Discard snap ring after removal as it is not reusable.

(13) Remove second gear and thrust washer from shaft with hydraulic shop press (Fig. 26). Have helper hold output shaft while gear and washer are being removed.

(14) Remove second gear bearing from gear or shaft.

FIRST AND SECOND GEAR BLOCKER RING REMOVAL

The blocker rings on the first and second gears are secured to the gear with roll pins.

The pins can either be removed completely, or simply tapped inward to allow blocker ring removal. An appropriate size pin punch and hammer, or locking pliers are the only tools required for removal (Fig. 27). Procedure is as follows:

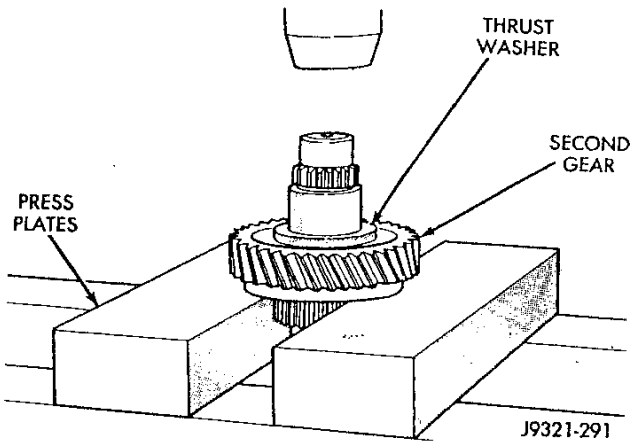

Fig. 26 Second Gear And Thrust Washer Removal

(1) On first gear, tap pins through blocker ring and remove ring from gear.

(2) On second gear, remove blocker ring as follows:

(a) Position gear on workbench so first roll pin to be removed extends over edge of bench (Fig. 27).

(b) Tap each roll pin about three quarters of way through blocker ring.

(c) Pry blocker ring off gear (Fig. 28). Discard ring if considerable force was required to remove ring from gear.

(d) Remove pins from gear with locking pliers (Fig. 29).

(3) Discard roll pins after removal. They should not be reused.

(4) Discard either gear if damaged.

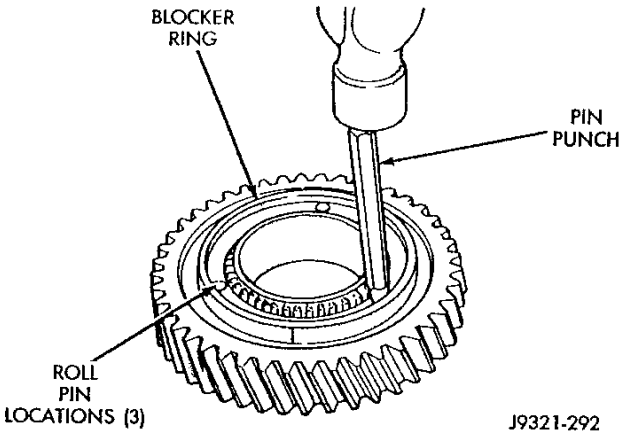

Fig. 27 Unseating Blocker Ring Roll Pins

TRANSMISSION CLEANING AND INSPECTION

Clean the transmission components with solvent. Use shop towels to dry bearings and bearing races. Compressed air can be used to dry the other transmission components.

Do not use compressed air to dry the bearings. This practice can result in abrading and brinnelling the bearing rollers and races.

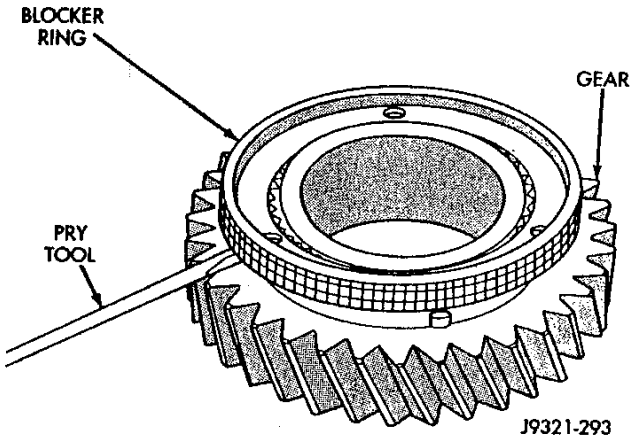

Fig. 28 Removing Blocker Ring From Gear

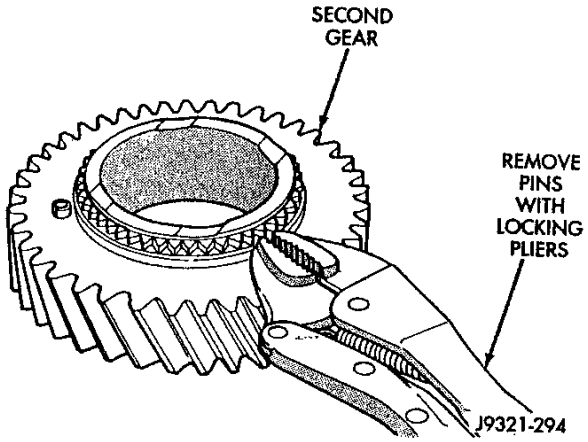

Fig. 29 Removing Roll Pins From Gear

Output Shaft And Gears

Inspect the shaft and gears for wear, or damage (Fig. 30). Check for broken, or chipped gear teeth, damaged synchro blocker rings, or worn galled bearings. Discoloration or shiny spots on gear teeth are a normal condition and do not indicate a need for replacement.

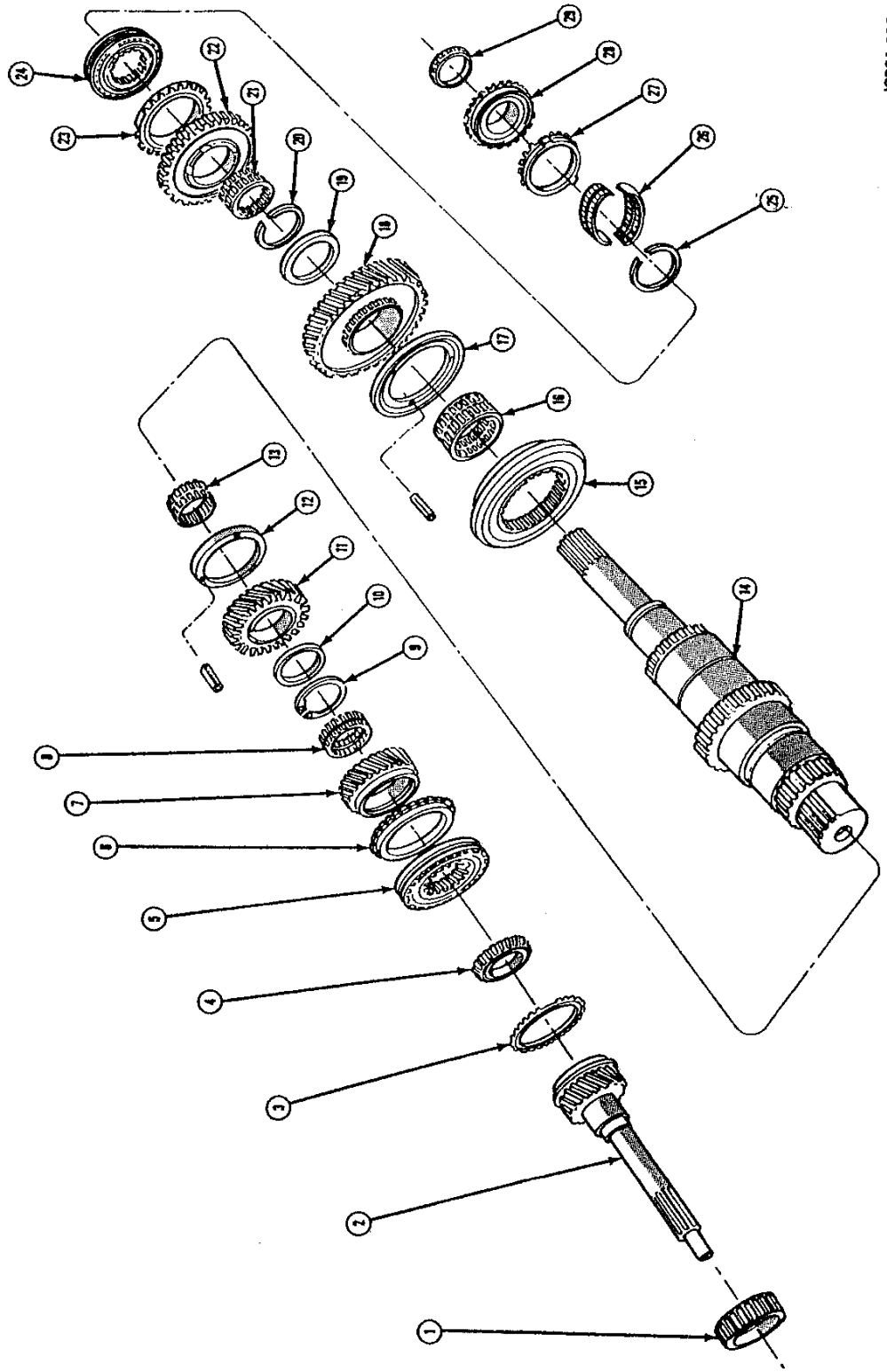

Fig. 30 Output Shaft And Geartrain

Synchronizers And Blocker Rings

LEGEND FOR OUTPUT SHAFT AND GEARTRAIN

(1) Front Bearing
(2) Input Shaft
(3) Blocker Ring (4th Gear)
(4) Output Shaft Pilot Bearing
(5) 3-4 Synchro Assembly
(6) Blocker Ring (3rd gear)
(7) Third Gear
(8) Third Gear Bearing
(9) Snap Ring
(10) Spacer
(11) Second Gear
(12) Second Gear Blocker Ring And Retaining Pins (3)
(13) Second Gear Bearing
(14) Output Shaft (2WD version shown)
(15) 1-2 Synchro Assembly
(16) First Gear Bearing
(17) First Blocker Ring And Retaining Pins (3)
(18) First Gear
(19) Spacer
(20) Snap Ring
(21) Reverse Gear Bearing
(22) Reverse Gear
(23) Blocker Ring (reverse gear)
(24) Fifth-Reverse Synchro Assembly
(25) Snap Ring
(26) Fifth Gear Bearing (2-piece)
(27) Blocker Ring (fifth gear)
(28) Fifth Gear
(29) Rear Bearing

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Inspect the synchro blocker rings (Fig. 30). Look for evidence of wear or damage to the clutch material on the rings. Also check the rings for cracks. Place the rings on a flat surface to check for distortion.

The 1-2, 3-4 and fifth-reverse synchro hubs, sleeves, struts and springs are serviced as assemblies. If wear or damage is evident, it will be necessary to replace the complete synchro assembly.

Counter Gear And Shaft

Check the gear, shaft and bearings for wear or damage (Fig. 31). Minor nicks or scratches on the gear teeth can be smoothed off with an oilstone. Minor nicks or scratches on the shaft can be reduced and smoothed off with 320/400 grit emery cloth.

The counter gear and shaft are not serviceable components. If either part is damaged, it will be necessary to replace the complete transmission assembly.

Reverse Idler Components

The reverse idler components consist of the gear, shaft, thrust washers, pins, bearings and the shaft bolt (Fig. 32).

Clean and inspect the idler components. Replace the gear if any teeth are chipped, or cracked. Replace the shaft and bearings if galled, brinnelled, or severely worn. The thrust washers can be reused but only if wear is not excessive and the washer notches are in good condition.

Replace the pins during overhaul. The pins should not be reused. Also be sure the shaft bolt and case threads are in good condition. The case threads can be cleaned up with a tap, or repaired with Heli-Coil stainless steel thread inserts if necessary. Replace the bolt if damaged.

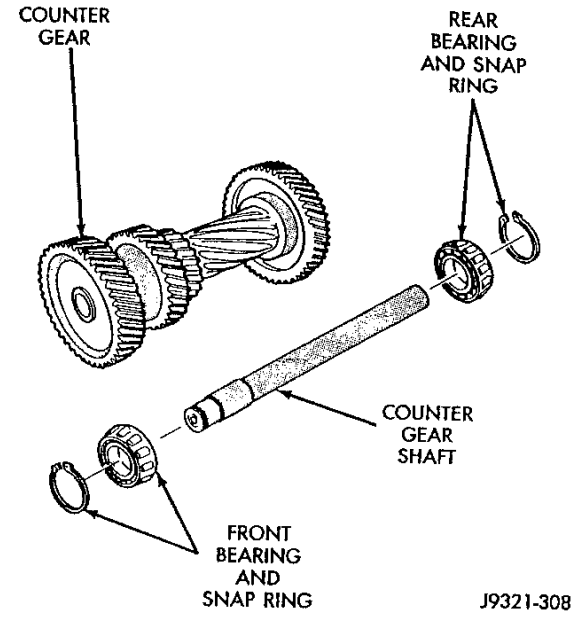

Fig. 31 Counter Gear Components

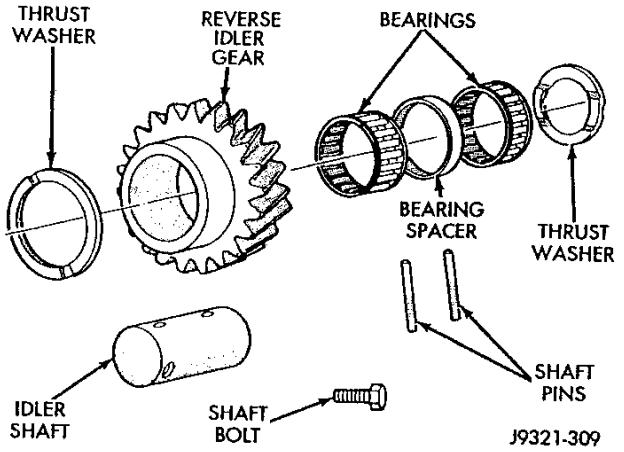

Fig. 32 Idler Gear Components

Bearings And Races

Inspect each bearing and race carefully. Check for such conditions as spalling, wear, cracks, distortion, or flat spotting of the rollers and races. Replace any bearing or race if doubt exists about its condition.

Seals And Snap Rings

Replace front and rear retainer seals and the countershaft front bearing cap. Do not reuse these parts.

The retainer seals have a small spring around the inner part of the seal. Be sure each seal is installed with this spring facing the case interior.

The snap rings should all be replaced. Reusing snap rings is not recommended.

Shift Cover

Inspect the shift cover components (Fig. 33). The only serviceable shift cover components are the shift lever, lever retainer ring, snap ring, boot and clamp, and backup light switch.

If any of the shift forks, shift rails, or shift rail detent parts are worn, or damaged, replace the shift cover assembly.

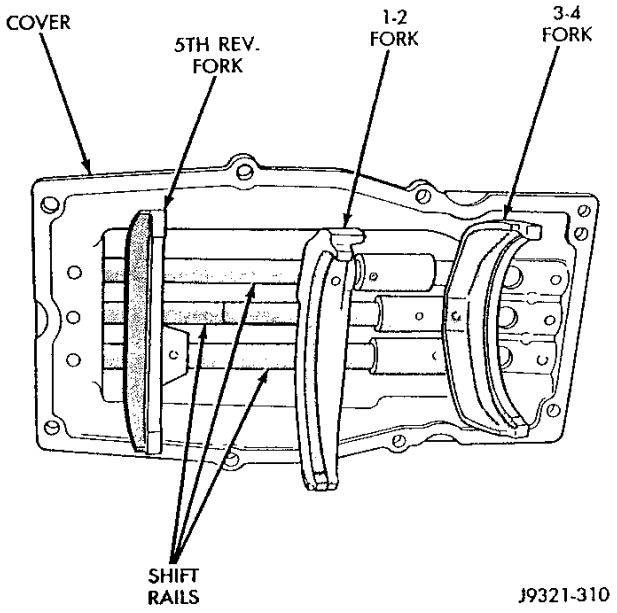

Fig. 33 Shift Cover Assembly

TRANSMISSION ASSEMBLY AND ADJUSTMENT

Assembly Information

The only gasket in current G360 transmissions is the shift cover gasket. All other sealing surfaces are to be sealed with a coating of Mopar Gasket Maker, or Loctite 518.

Prior production G360 transmissions with the early style gear case, were not equipped with a shift cover gasket. It is recommended that a gasket be used on these transmissions during overhaul or whenever the shift cover is removed during service. A gasket is available separately or as part of the basic overhaul kit.

Apply Mopar Lock N' Seal, or Loctite 242 to bolt threads before installation. These products will ensure proper fastener retention and sealing.

Lubricate the transmission components with Mopar 5W-30 engine oil or equivalent, during assembly. Petroleum jelly can be used to hold parts in place and prelubricate bearings and seal lips.

Do not use chassis grease, or similar products on any component during assembly. Heavy lubricating grease will plug the transmission oil passages resulting in failure.

Preload adjustments are required for the output shaft and countershaft bearings. Preload is accomplished by the use of select fit shims. An accurate vernier style depth gauge, depth micrometer, or dial indicator and suitable mounting stand are required for measurement and adjustment. The procedure is described in the Bearing Preload Adjustment section.

ASSEMBLING OUTPUT SHAFT AND GEARTRAIN

(1) Lubricate mainshaft, gears and synchro components with Mopar 5W-30 engine oil.

(2) Install blocker rings on first and second gears as follows:

(a) Start roll pins into blocker rings and gears with hammer (Fig. 34).

(b) Seat roll pins with pin punch (Fig. 35). Be sure roll pins are seated flush with surface of each blocker ring. Do not drive pins below surface of rings.

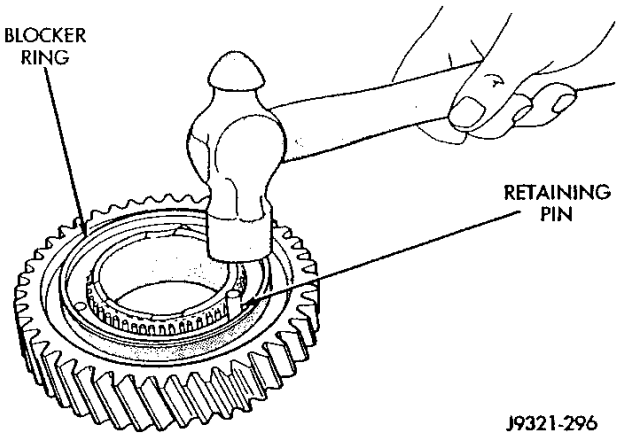

Fig. 34 Starting Roll Pins In First/Second Gear Blocker Rings

(3) Install bearing in second gear and install second gear on output shaft (Fig. 36).

(4) Install second gear thrust washer on output shaft (Fig. 37). **Washer is tight fit on shaft. Heat washer in oven or use suitable tool to seat washer on shaft.**If washer is heated to ease installation, heat washer for no more than 5 minutes at 200°F.

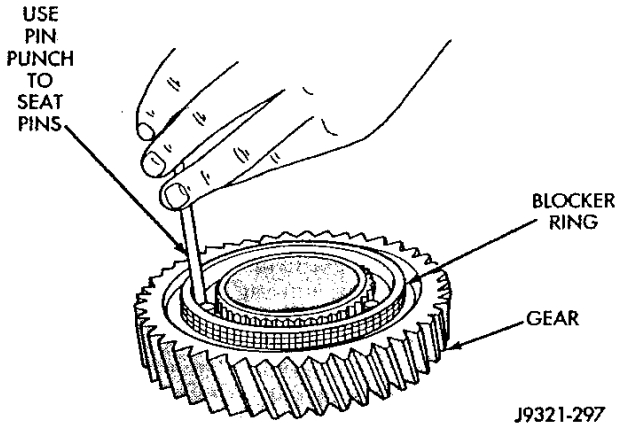

Fig. 35 Seating Roll Pins In First/Second Gear Blocker Rings

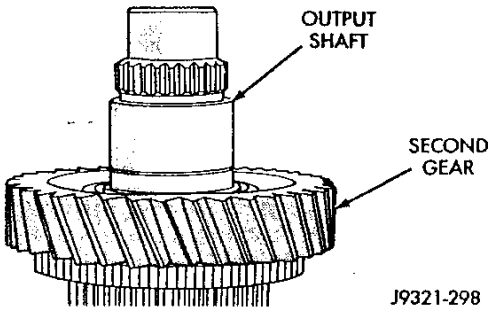

Fig. 36 Second Gear Installation

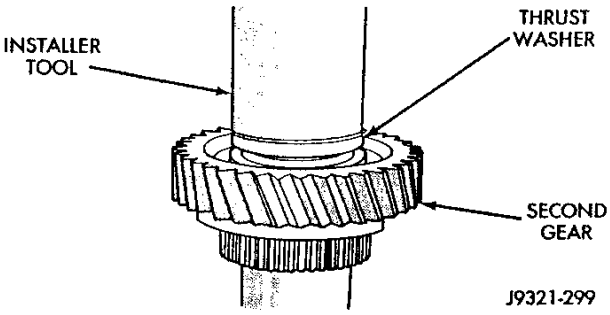

Fig. 37 Second Gear Thrust Washer Installation

(5) Install second gear snap ring (Fig. 38). **Snap ring is select fit part. Use thickest snap ring that will fit.**

(6) Install bearing in third gear. Then install gear on output shaft (Fig. 39).

(7) Install synchro ring in third gear (Fig. 39).

(8) Install 3-4 synchro assembly on output shaft (Fig. 40). **Side of synchro hub with long shoulder goes to front of shaft and fits inside third gear.** Use suitable size pipe style tool to tap or press synchro assembly into place.

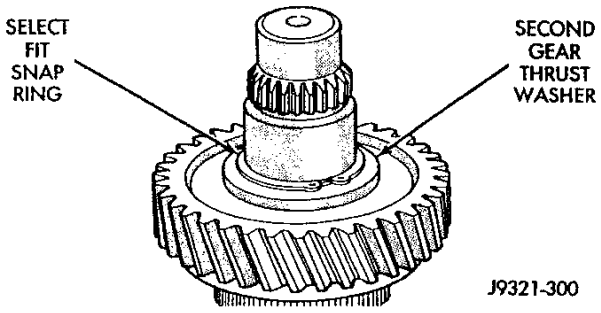

Fig. 38 Second Gear Snap Ring Installation

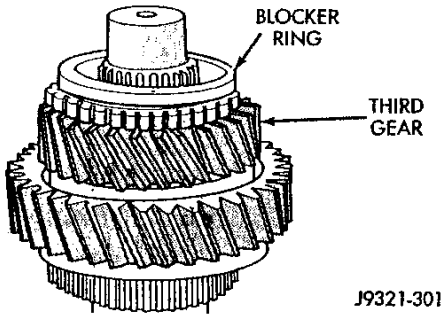

Fig. 39 Third Gear And Blocker Ring Installation

CAUTION: Be sure the third gear blocker ring is aligned with the synchro hub before seating the synchro assembly. Failure to align the ring could result in damage to the blocker ring.

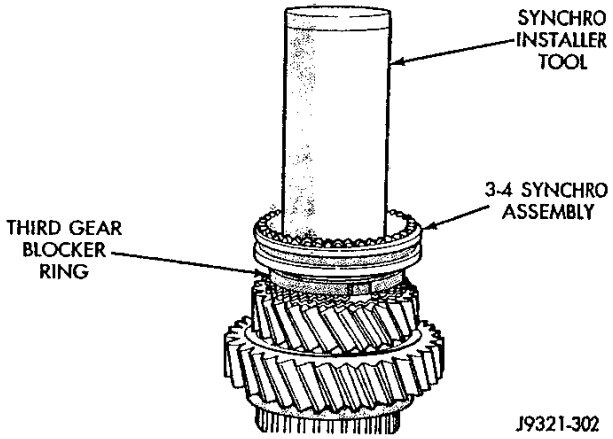

Fig. 40 Installing 3-4 Synchro Assembly

(9) Install pilot bearing on output shaft (Fig. 41). Heat bearing in oven to ease installation, or use suitable tool to tap bearing into place.

(10) Turn output shaft over so rear of shaft is facing upward.

(11) Install 1-2 synchro assembly (Fig. 42). **If new synchro is being installed, it can be installed ei-**

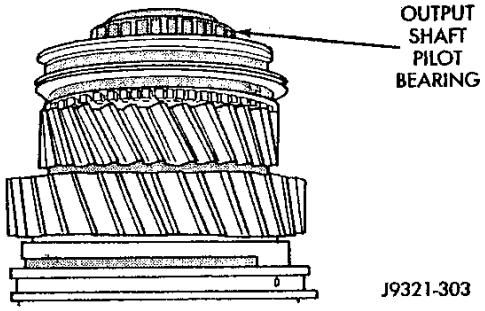

Fig. 41 Output Shaft Pilot Bearing Installation

ther way on shaft. If original synchro is being reused, install synchro in same position as when removed.

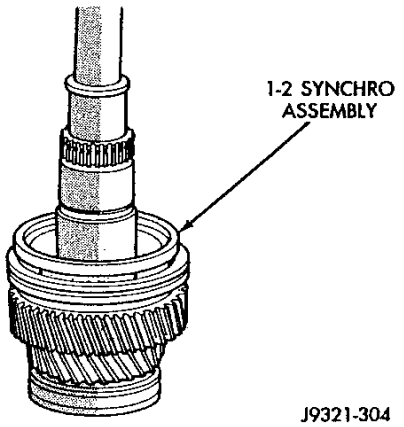

Fig. 42 Installing 1-2 Synchro Assembly

(12) Install first gear bearing on mainshaft (Fig. 43).

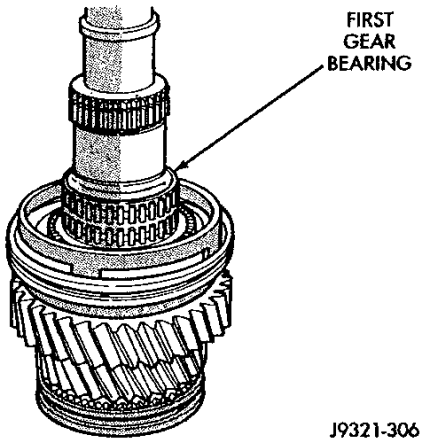

Fig. 43 First Gear Bearing Installation

(13) Install first gear on mainshaft (Fig. 44). Work gear back and forth until blocker ring seats in synchro assembly.

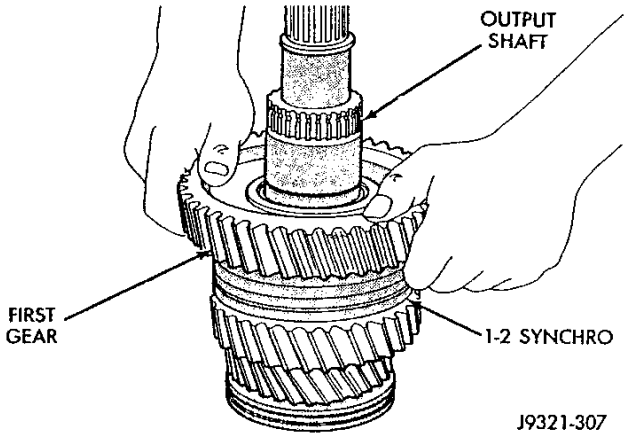

Fig. 44 First Gear Installation

(14) Install first gear thrust washer (Fig. 45). **Washer is tight fit on shaft. Either heat washer in oven to ease installation, or use pipe tool or brass drift to press washer onto shaft and against gear.**

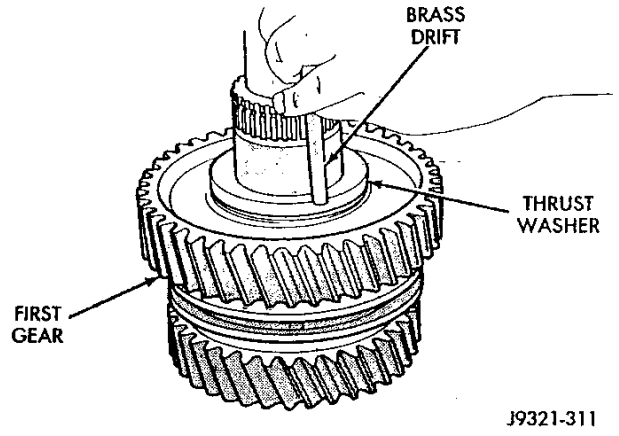

Fig. 45 First Gear Thrust Washer Installation

(15) Install first gear snap ring (Fig. 46). **Do not overspread snap ring to install it. Also be sure snap ring is fully seated in shaft groove.** Tap ring into place with punch if necessary.

(16) Install bearing in reverse gear.

(17) Install reverse gear on mainshaft (Fig. 47).

(18) Install blocker ring in reverse gear (Fig. 47).

(19) Install fifth-reverse synchro assembly (Fig. 48). Be sure reverse gear blocker ring is aligned in synchro before proceeding. Use pipe tool to press synchro into place if necessary.

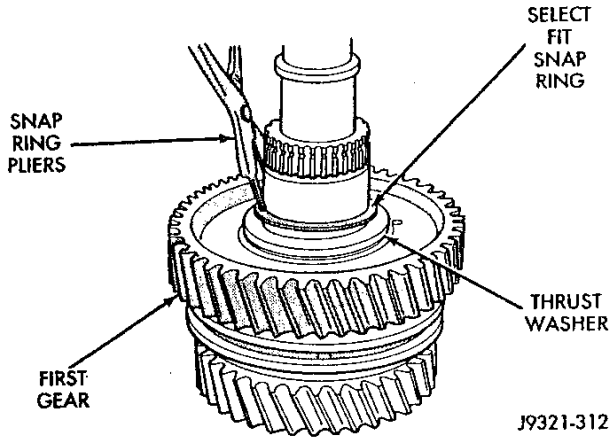

Fig. 46 Installing First Gear Snap Ring

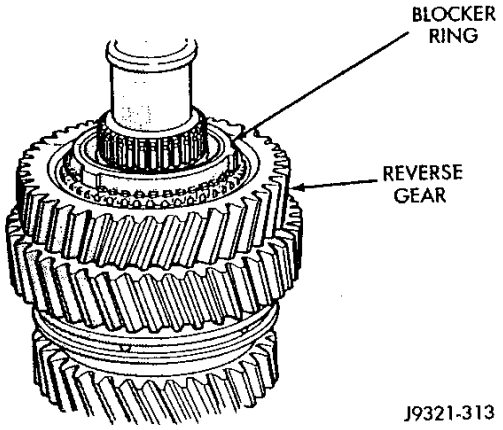

Fig. 47 Reverse Gear And Blocker Ring Installation

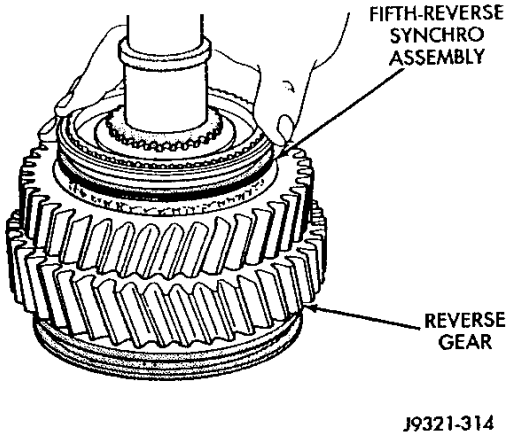

Fig. 48 Fifth-Reverse Synchro Installation

(20) Install fifth-reverse synchro snap ring (Fig. 49). **This is a select fit snap ring. Use thickest snap ring that will fit in shaft groove and be sure snap ring is fully seated in shaft groove.** Move synchro into reverse position for snap ring selection if necessary.

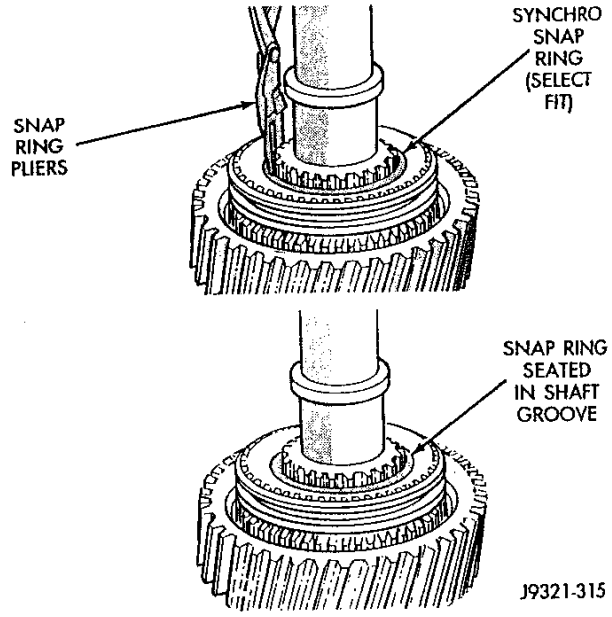

Fig. 49 Fifth-Reverse Synchro Snap Ring Installation

(21) Install fifth gear bearing halves on output shaft (Fig. 50). Use petroleum jelly to hold bearing halves in place.

(22) Install blocker ring in fifth-reverse synchro sleeve (Fig. 50).

(23) Install fifth gear (Fig. 50).

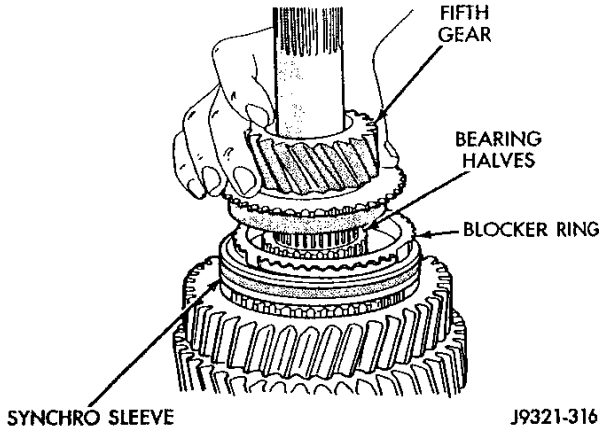

Fig. 50 Fifth Gear, Bearings And Blocker Ring Installation

(24) Install rear bearing on output shaft (Fig. 51) Use suitable tool to seat bearing on shaft.

(25) Verify correct gear installation. Refer to in stallation sequence shown in Figure 51.

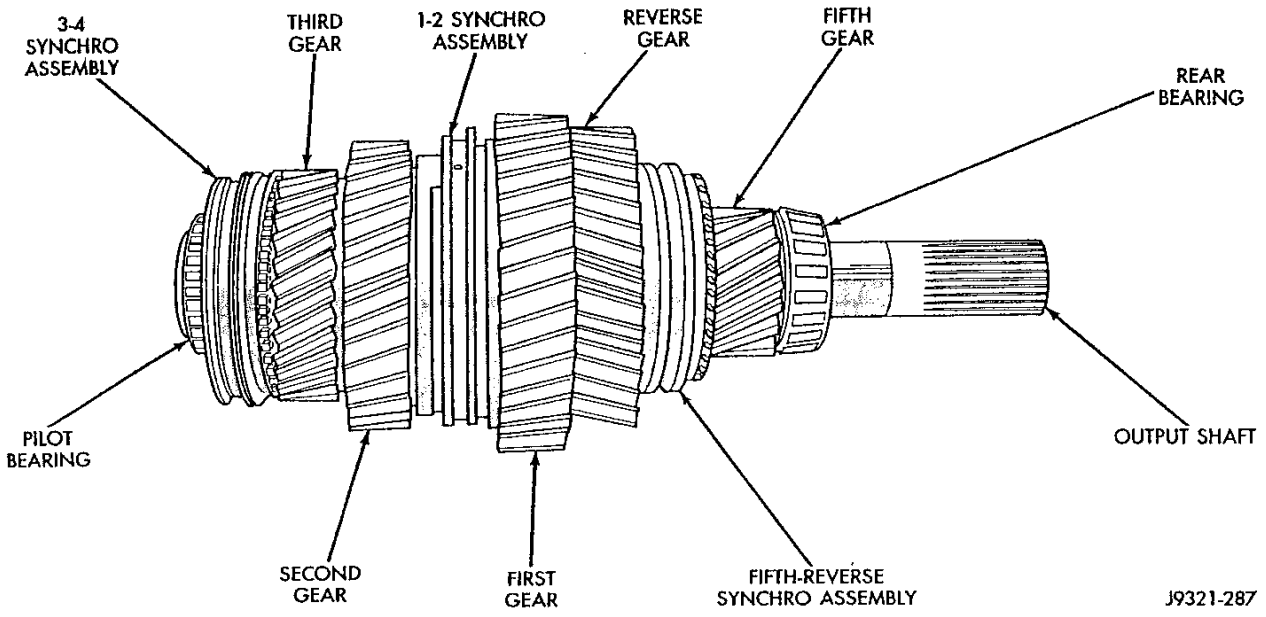

Fig. 51 Output Shaft Geartrain Installation Sequence

REVERSE IDLER GEAR INSTALLATION

Different procedures are required for installing the idler gear in early and new style gear cases.

The idler gear can be installed before installing the counter gear in a new style gear case. However, the counter gear must be installed before the idler gear in an early style gear case.

Refer to the appropriate idler gear installation procedure during reassembly.

Reverse Idler Installation (With New Style Gear Case)

(1) Install reverse idler shaft **part way** into case (Fig. 52).

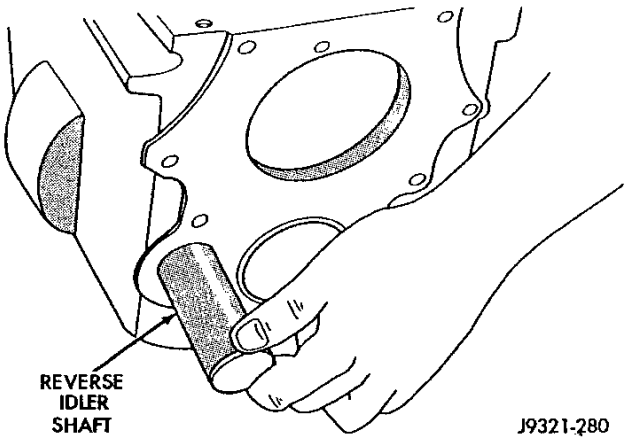

Fig. 52 Idler Shaft Installed Part Way In Case

(2) Install bearings and spacer in reverse idler gear (Fig. 32). Be sure spacer is installed between bearings.

(3) Position thrust washer at each end of idler gear and install gear assembly in case (Fig. 53). **Be sure slots in thrust washers face outward as idler gear roll pins fit in these slots.**

(4) Align idler shaft pin holes and push idler shaft into place in gear and washers.

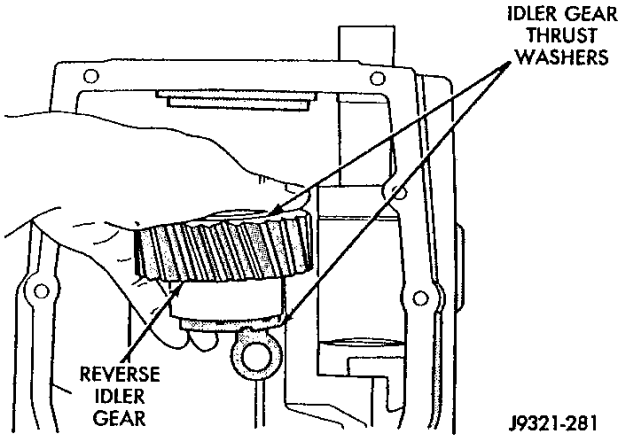

Fig. 53 Idler Gear And Thrust Washer Installation

(5) Partially install idler shaft pins. Insert pins only far enough to hold thrust washers in place.

(6) Check idler gear thrust washer clearance (Fig. 54) as follows:

(a) Check clearance between each thrust washer and idler gear with feeler gauge.

(b) Clearance should be 0.05 - 0.25 mm (0.002 - 0.010 in.).

(c) If clearance is not within specified limits, remove idler gear and replace thrust washers. Use new pins when gear and washers are reinstalled.

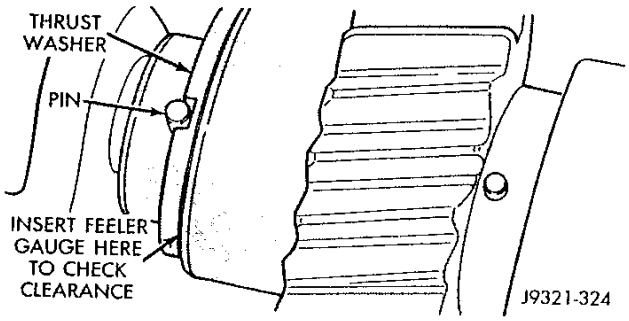

Fig. 54 Checking Idler Gear Thrust Washer Clearance

(7) Install idler shaft bolt (Fig. 55). Tighten bolt to 54 N•m (40 ft. lbs.) torque.

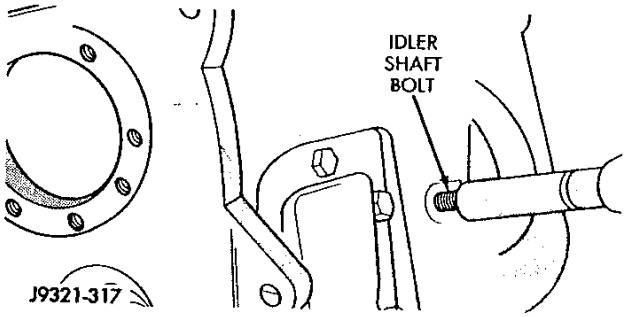

Fig. 55 Idler Shaft Bolt Installation

(8) Tap idler shaft pins into place (Fig. 56).

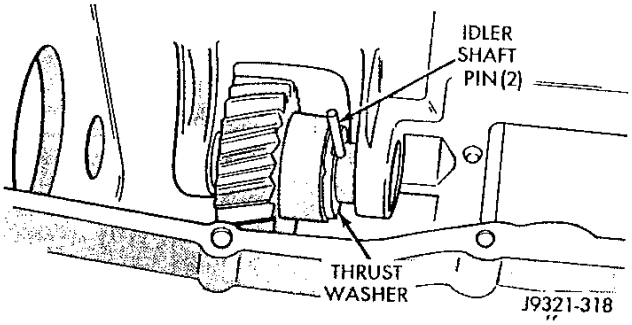

Fig. 56 Idler Shaft Pin Installation

REVERSE IDLER INSTALLATION (WITH EARLY STYLE GEAR CASE)

(1) Install counter gear and shaft in case. Refer to procedure in this section.

(2) Install idler shaft part way into case from front.

(3) Assemble and install reverse idler gear an thrust washers.

(4) Install rear pin in idler gear and shaft. Thei install front pin.

(5) Check idler gear thrust washer clearance (Fig 54) as follows:

(a) Check clearance between each thrust washei and idler gear with feeler gauge.

(b) Clearance should be 0.05 - 0.25 mm (0.002 - 0.010 in.).

(6) If clearance is not within specified limits, remove idler gear and replace thrust washers. Use new pins when gear and washers are reinstalled.

COUNTER GEAR AND SHAFT INSTALLATION

(1) Place gear case in upright position. Front bearing retainer/input shaft bore should be facing up (Fig. 57).

(2) Slide counter gear into position in case (Fig. 57).

(3) Install front bearing and bearing snap ring on countershaft (Fig. 57).

(4) Install countershaft in gear and seat shaft front bearing in case (Fig. 57).

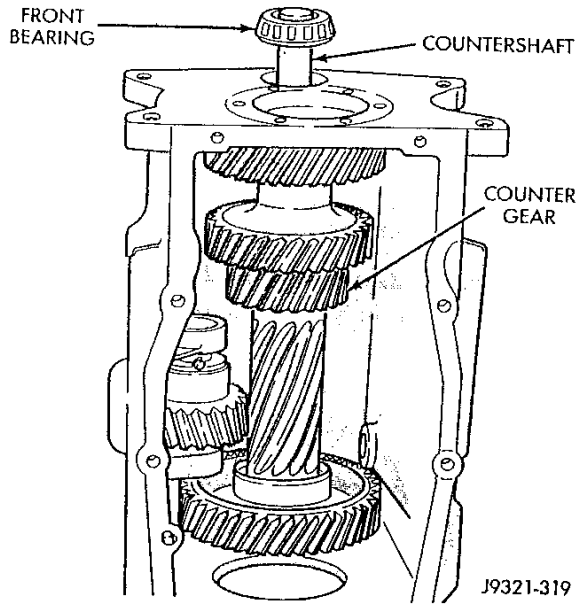

Fig. 57 Countershaft And Gear Installation

(5) Install countershaft front bearing race in case and on bearing (Fig. 58).

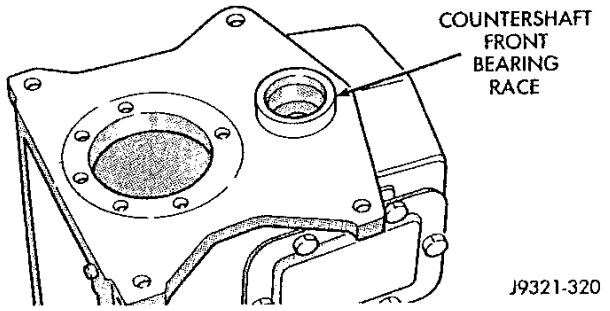

Fig. 58 Countershaft Front Bearing Race Installation

(6) Install snap ring that retains countershaft front bearing race in case bore (Fig. 59).

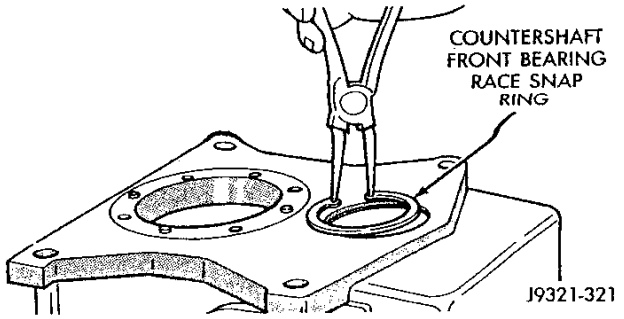

Fig. 59 Front Bearing Race Snap Ring Installation

(7) Install countershaft front bearing cap in case bore (Fig. 60). **Apply Mopar adhesive/sealant, or 3M industrial sealant #800 around outer edge of bearing cap before installation.**

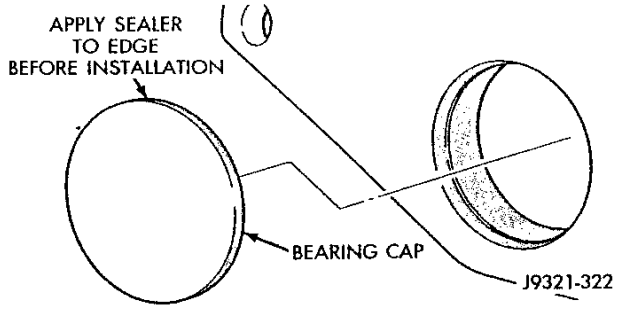

Fig. 60 Countershaft Front Bearing Cap Installation

(8) Install rear bearing on countershaft. Then install bearing retaining snap ring.

OUTPUT AND INPUT SHAFT INSTALLATION

(1) Install new seal in front bearing retainer (Fig. 61). Use socket or pipe tool to seat seal in retainer. **Be sure seal lip faces inward toward case interior.**

(2) Install new front bearing on input shaft if necessary. Use shop press to install bearing.

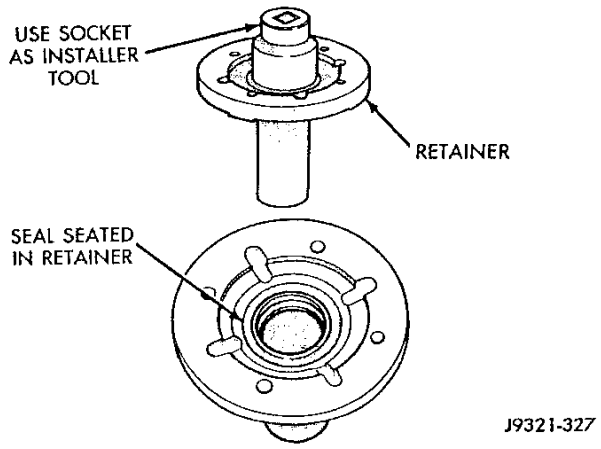

Fig. 61 Input Shaft Seal Installation

(3) Install input shaft. Rotate shaft so flats on clutch teeth are facing downward. Then install shaft in case.

(4) Install output shaft and geartrain assembly in case (Fig. 62).

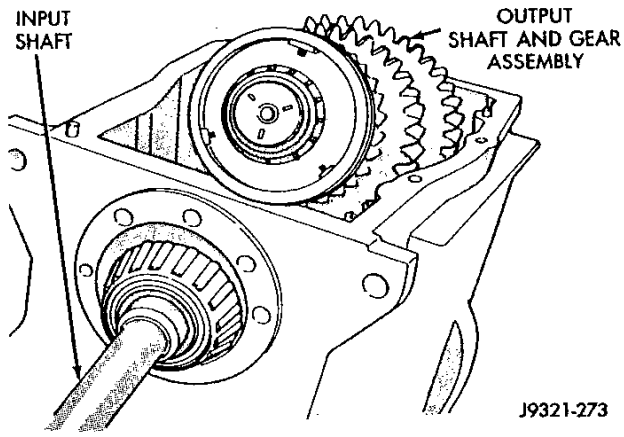

Fig. 62 Output Shaft And Geartrain Assembly Installation

(5) Install front bearing race in gear case.

(6) Apply recommended sealer to front bearing retainer flange surface. Then apply oil to lip of retainer oil seal.

(7) Install front bearing retainer on case (Fig. 63). **It is not necessary to align retainer in any special position. Oil channels and bolt holes in retainer are symmetrical and can be installed in any position.**

(8) Apply Mopar Lock N' Seal or Loctite 242 to front bearing retainer bolts. Then install and tighten bolts to 22-30 N·m (16-22 ft. lbs.) torque.

(9) Before proceeding, verify that countershaft front bearing cap has been installed (Fig. 64).

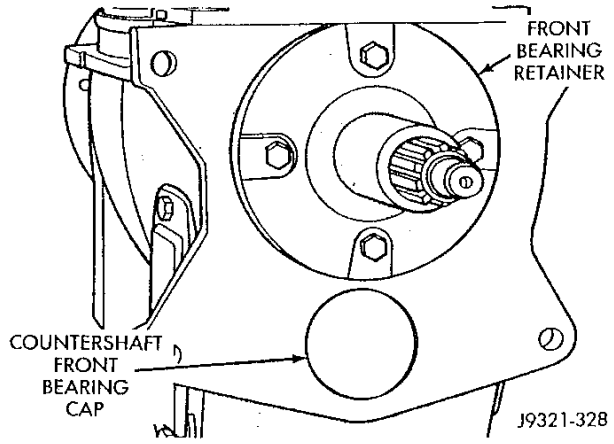

Fig. 63 Front Bearing Retainer Installation

(10) Install output shaft rear bearing race. Tap race into position with plastic mallet.

(11) Install countershaft rear bearing race in case (Fig. 64). Then position race on bearing and tap race into position with plastic mallet.

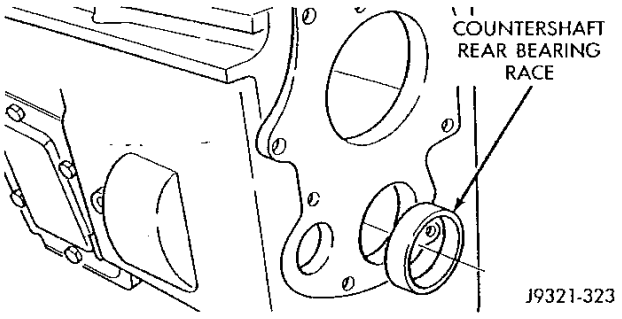

Fig. 64 Countershaft Rear Bearing Race Position

OUTPUT SHAFT AND COUNTERSHAFT BEARING PRELOAD ADJUSTMENT

Bearing preload adjustment is accomplished by the use of shims. The shims are installed in the shim bores machined into the rear retainer.

(1) Place transmission in upright position. Use wood blocks to support transmission on either side of front bearing retainer.

(2) Tap output shaft and countershaft rear bearing races into place. Be sure races are seated on bearings.

(3) Measure distance from top **each** of rear bearing race to case surface with depth gauge (Figs. 65 and 66). Measurements reflect amount of bearing race that extends above rear surface of case. Record these measurements as they will be needed for shim selection.

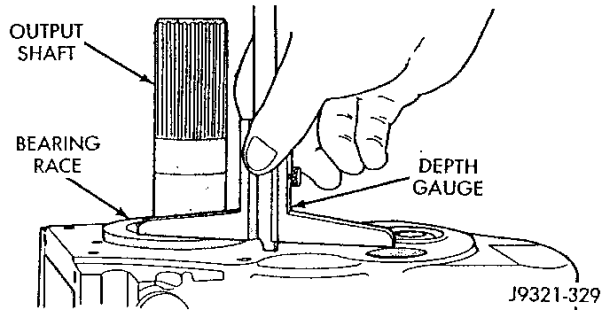

Fig. 65 Measuring Height Of Output Shaft Rear Bearing Race

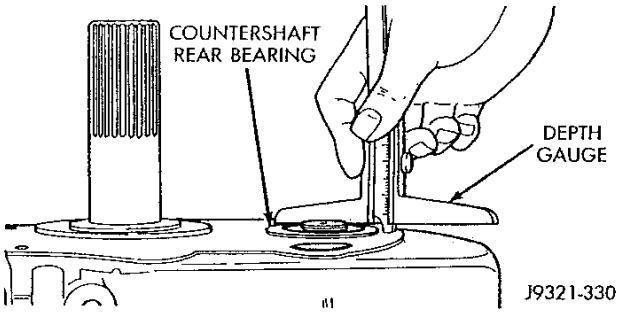

Fig. 66 Measuring Height Of Countershaft Rear Bearing Race

(4) Measure depth of shim bore in rear retainer with depth gauge (Figs. 67 and 68). Record this measurement also as it will be needed for shim selection.

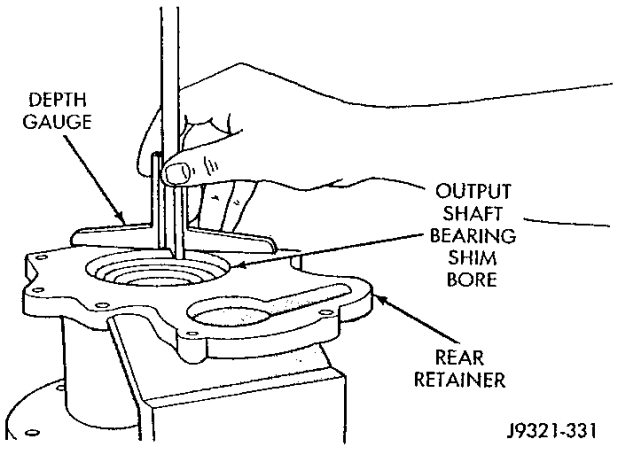

Fig. 67 Measuring Depth Of Output Shaft Bearing Shim Bore (In Rear Retainer)

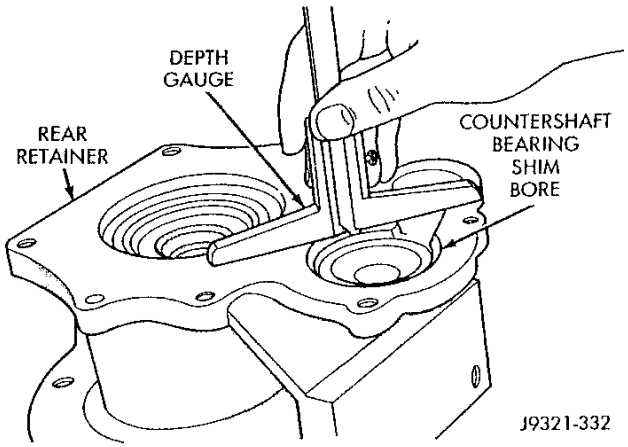

Fig. 68 Measuring Depth Of Countershaft Bearing Shim Bore (In Rear Retainer)

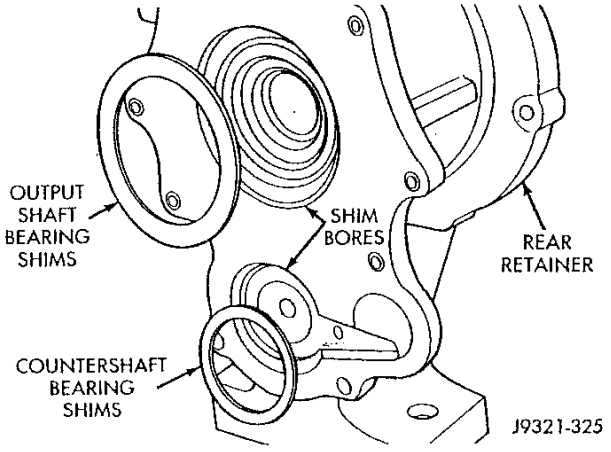

Fig. 69 Preload Shim Location

(5) Select preload shims for shaft bearings as follows: Subtract height of bearing from depth of shim bore. Then add extra shim thickness of 0.15 - 0.20 mm (0.006 - 0.008 in.) for correct preload.

(6) Assemble and install shim packs in rear retainer (Fig. 69). Use petroleum jelly to hold shim packs in place during installation. **Position thin shims at rear of pack where they will seat in rear retainer shim bore.**

TRANSMISSION FINAL ASSEMBLY

(1) Apply Mopar Gasket Maker, or Loctite 518 to rear retainer flange surface.

(2) On 2-wheel drive transmissions, install new output shaft seal in retainer. Then install speedometer gear and spacers on output shaft (Fig. 70).

(3) Install rear retainer on gear case. Do not displace preload shims when installing retainer.

(4) Apply Mopar or Loctite thread locker to rear retainer bolts. Then install and tighten bolts to 22-30 N•m (16-22 ft. lbs.) torque.

(5) On 2-wheel drive transmissions, lube propeller shaft yoke seal surface with petroleum jelly or engine oil and install yoke. Then install and tighten new yoke nut to 380 N•m (280 ft. lbs.) torque.

(6) Apply coat of Mopar Perfect Seal, or similar sealer to new shift cover gasket. Then position gasket on gear case. (Although early production trans-

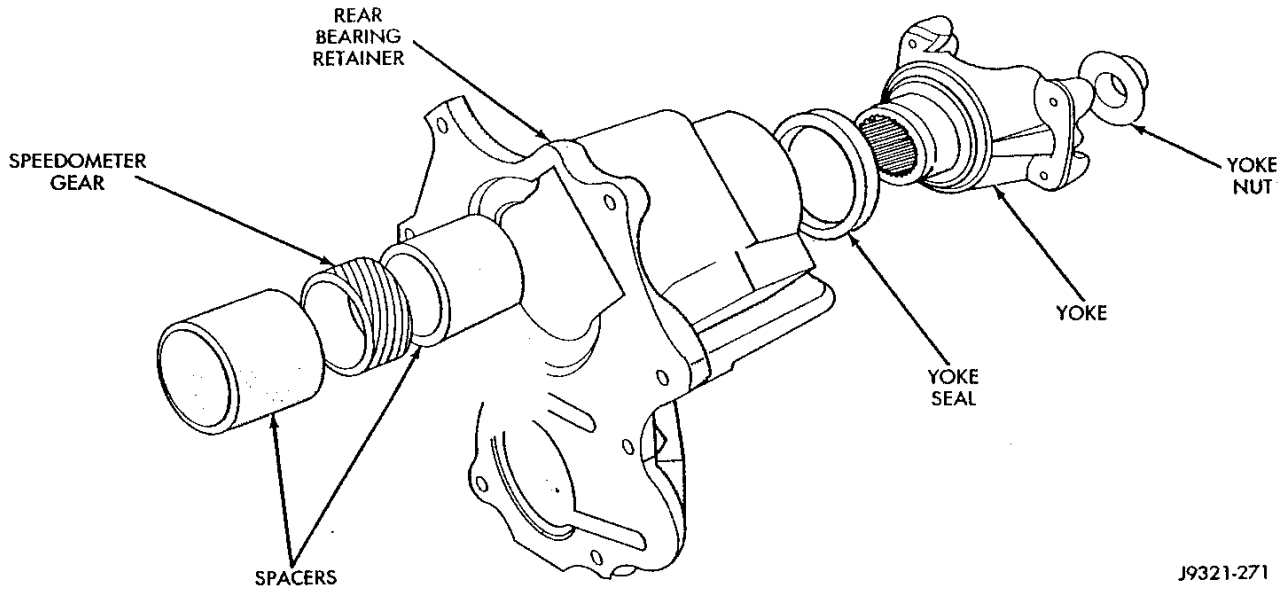

Fig. 70 Two Wheel Drive Rear Bearing Retainer And Speedometer Gear

missions were not originally equipped with a cover gasket, a gasket should be installed on these transmissions).

(7) Verify that synchronizer sleeves are in neutral position. Shift cover cannot be installed otherwise.

(8) Install shift cover. Align shift forks with synchro sleeves and alignment dowels and seat cover on case.

(9) Apply Mopar or Loctite thread locker to shift cover bolts. Then install and tighten bolts to 22-30 N•m (16-22 ft. lbs.) torque.

(10) Place transmission in level position and install drain plug. Tighten plug to 47 N•m (35 ft. lbs.)

(11) Fill transmission to bottom edge of fill plug hole with Mopar 5W-30 engine oil.

(12) Install and tighten fill plug to 47 N•m (35 ft. lbs.) torque.

(13) Install backup light switch in shift cover if removed.

(14) Mount transmission on jack for installation in vehicle.

(15) Secure transmission to jack with safety chains.

(16) Apply thin coat of Mopar high temperature or multi-purpose grease to pilot hub of input shaft.