

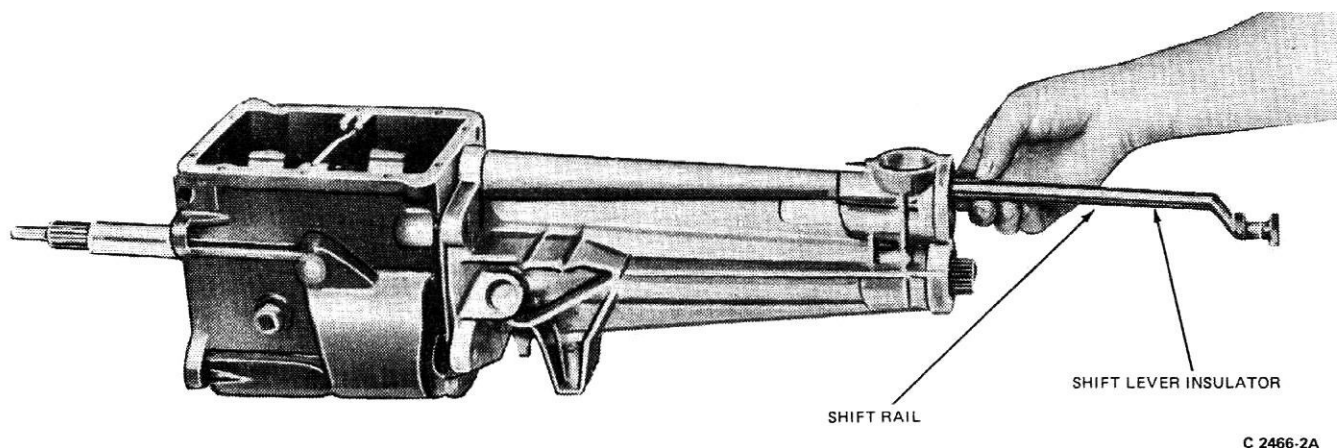


FIG. 16 Removing or Installing Shift Rail

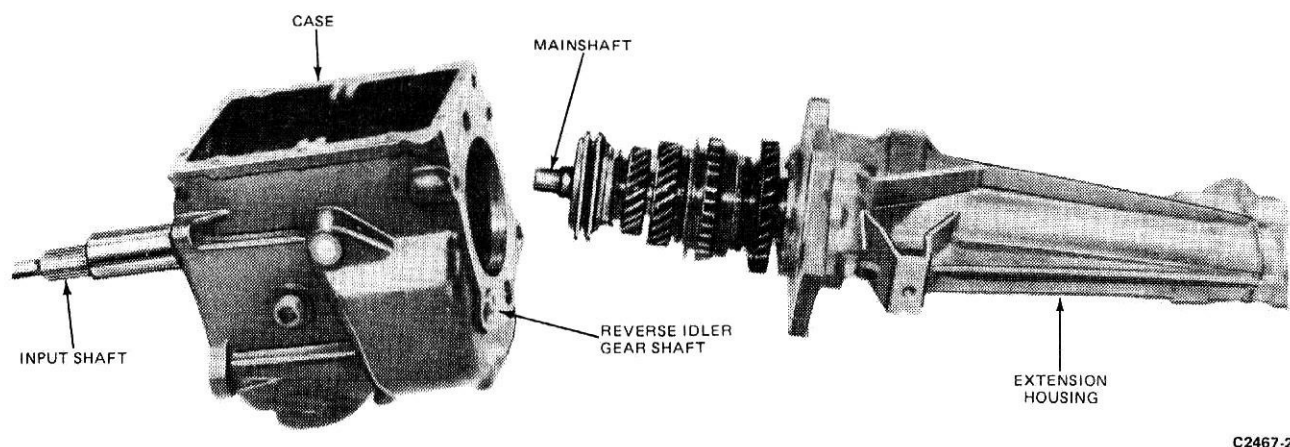


FIG. 17 Removing or Installing Extension Housing and Mainshaft

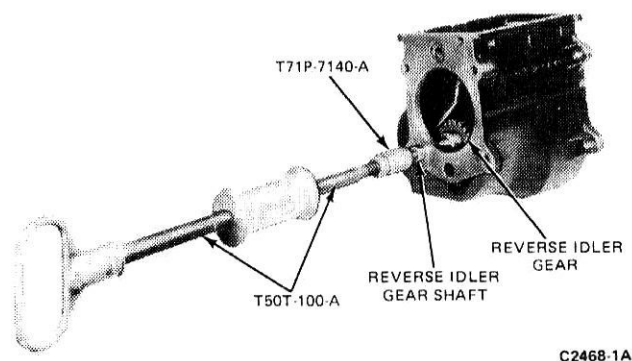
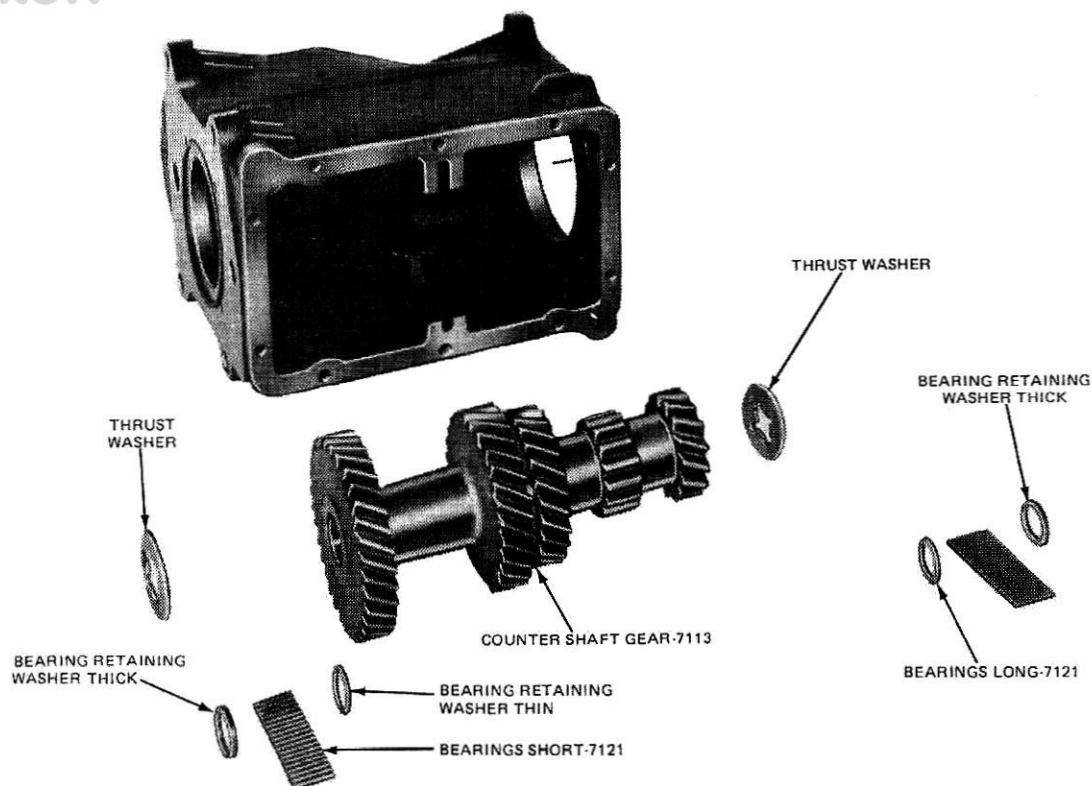


FIG. 18 Removing Reverse Idler Gear Shaft

13. Remove the reverse idler gear shaft from the rear of the case as shown in Fig. 18. Remove the reverse idler gear, and spacer.
14. Remove the countershaft gear. Remove the bearing retaining washers, (Fig. 19) bearings, and dummy shaft from the countershaft gear.
15. Remove the bearing retainer and the pilot bearing from the input shaft gear.
16. **Do not remove the ball bearing from the input shaft unless replacement is necessary.** To do

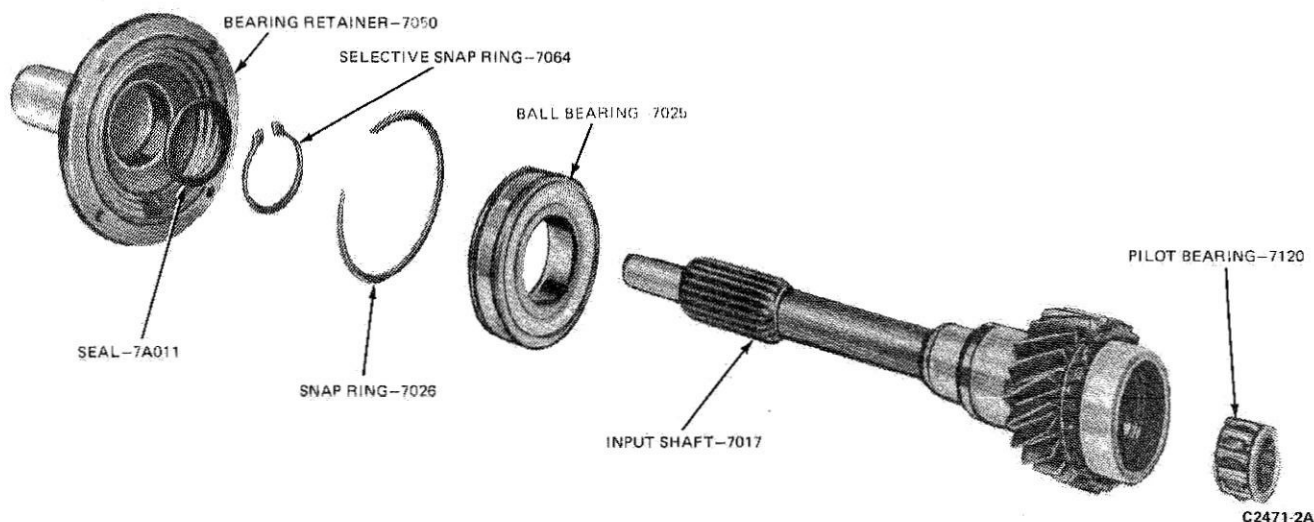
so, remove the snap ring from the input shaft (Fig. 20). Press the shaft out of the ball bearing as shown in Fig. 21.

17. Pry the input shaft seal (Fig. 20) out of the bearing retainer.
18. Lift the fourth gear blocker ring (Fig. 18) from the front of the output shaft.
19. Remove the snap ring from the forward end of the output shaft and discard it.
20. Slide the third-fourth speed synchronizer assembly and third gear off the output shaft. Remove the snap ring and washer, then slide the second gear and blocker ring off the output shaft. Discard the snap ring.
21. Scratch or etch alignment marks on the hub and sleeve of the synchronizer before disassembly. Disassemble the synchronizer assembly by pulling the sleeve off the hub and removing the inserts and springs.
22. Remove the snap ring that retains the output shaft bearing in the extension housing (Fig. 22).
23. Press or tap the output shaft assembly out of the extension housing with a plastic hammer.
24. Remove the snap ring retaining the output shaft bearing to the output shaft.



C2470-2C

FIG. 19 Countershaft Gear Disassembled



C2471-2A

FIG. 20 Input Shaft Disassembled

25. Press the speedometer gear off the shaft.
26. Position Tool T69P-4621-A behind the first gear, then place the assembly in a press.
27. Press the first gear, spacer, and output shaft bearing off the output shaft.
28. The first- and second-speed synchronizer and hub is serviced only as an assembly, with the output shaft. Therefore no attempt should be made to separate the hub from the shaft.

The sleeve, springs, and inserts may be removed from the hub after scratching or etching alignment

marks on the hub and sleeve. The only parts that can be serviced are the springs and inserts. If the hub or sleeve is worn or damaged, the shaft and synchronizer must be replaced as an assembly.

29. Drive the shift rail bushing from the rear of the extension housing with a 9/16-inch socket and extension. **Do not remove the bushing if serviceable.**
30. Pry the shift rail seal from the rear of the transmission case.
31. Remove the remaining shift linkage from the case.

Assembly

1. Seat the new shift rail seal in the rear of the transmission case as shown in Fig. 23.
2. If the shift rail bushing was removed from the extension housing, drive a new one into place with a 9/16-inch socket wrench and extension.
3. If the first- and second-speed synchronizer (Fig. 22) has been disassembled, slide the sleeve over the hub making sure that the shift fork groove is toward the front of the shaft. **The sleeve and hub are select fit and must be reassembled with the etch marks in the same relative location (Fig. 22).** Locate an insert in each of the three slots cut in the hub. If a new synchronizer and shaft is being used, clean all traces of preservative from the hub, sleeve, inserts and springs. Oil all parts at time of assembly. Install an insert spring inside the synchronizer sleeve beneath the inserts. The tab on the end of the spring must locate in the U-section of an insert. Fit the other spring to the opposite face

of the synchronizer unit, being sure that the spring tab locates in the same insert as the spring just installed and is in the opposite rotational direction (Fig. 24).

4. Assemble a blocker ring on the first gear side of the first- and second-speed synchronizer (Fig. 22). Apply C3RZ-19C547-B lubricant or equivalent to the cone surface of the first gear, and all output shaft gear journals before installing the gear on the shaft. Slide the first gear onto the output shaft so that the cone surface engages the blocker ring.
5. Position the spacer on the shaft making certain that the larger diameter is toward the rear of the shaft.
6. Place the master spacer Tool T70P-7154 in the output shaft bearing bore of the extension housing (Fig. 25). Determine the thickness of the snap ring required to remove all end play from the master gauge. Then measure the width of the output shaft bearing outer race with a micrometer. The difference in thickness between the master gauge and the bearing outer race will determine the thickness of the selective snap ring which will finally be used to eliminate end play. If the bearing race thickness is more than that stamped on the master gauge, the snap ring thickness must be decreased by that closest to the available snap ring (Fig. 26). If the thickness is less, the snap ring thickness must be increased. (Rings should be checked with a micrometer to verify thickness.)
7. Position the selected snap ring and the bearing on the output shaft. Position Tool T71P-4621-B on the shaft, then place the assembly in a press. Press the bearing into place. Secure the bearing with the thickest snap ring that will fit the groove in the output shaft.
8. Position the second gear and blocker ring on the output shaft so that the dog teeth face rearward. Install the washer and snap ring. Position the third gear on the output shaft so that the dog teeth face forward. Apply C3RZ-19C547-B lubricant or equivalent to the cones of the gears. Assemble the blocker ring on the third gear cone, making sure that lubricant has been applied to

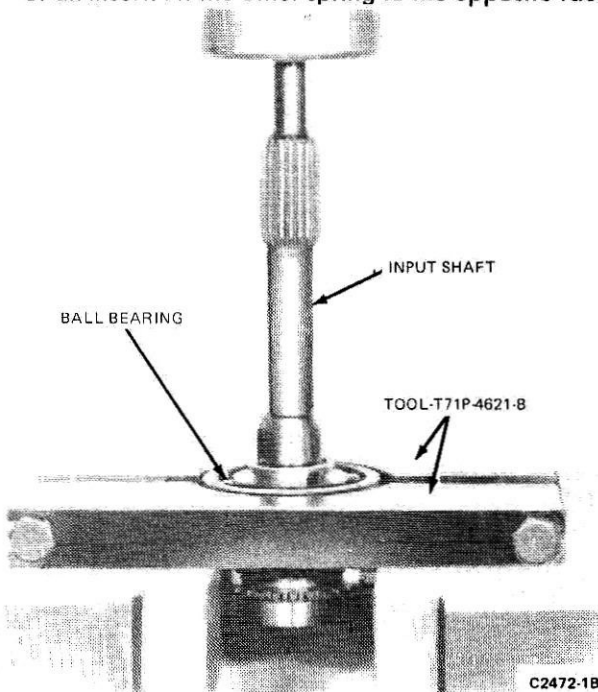


FIG. 21 Removing Input Shaft Bearing

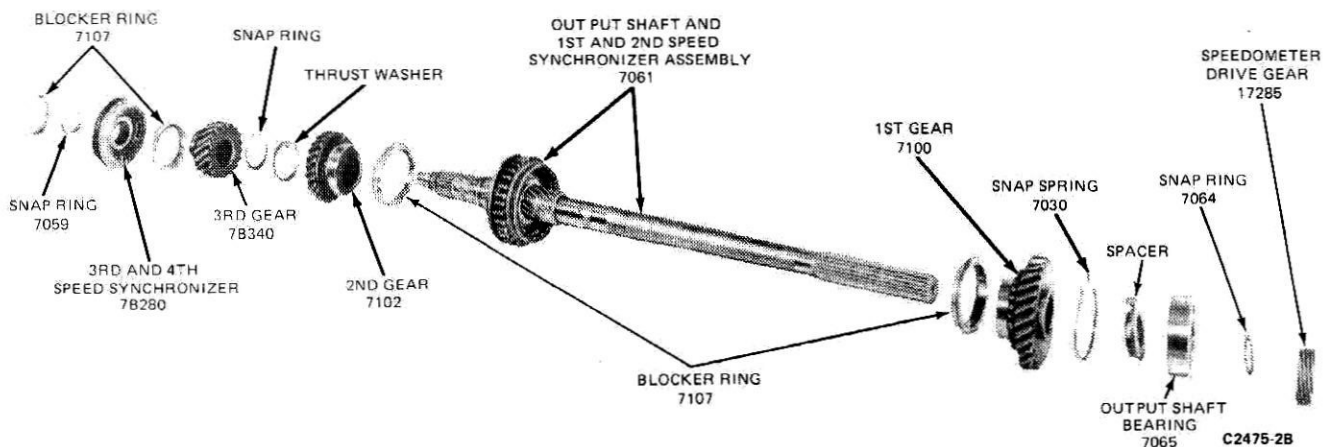


FIG. 22 Output Shaft Disassembled