

in place on the reverse idler sliding gear and install the shift rail from the rear of the case. Secure the fork to the rail with the Allen head set screw.

11. Install the first and second-speed synchronizer (Fig. 19) into the front of the output shaft, making sure that the shift fork groove is toward the rear of the shaft. The first and reverse synchronizer hub is a slip fit on the output shaft. Install the synchronizer hub with the teeth end of the gear facing toward the rear of the shaft.
12. Position the blocking ring on the second-speed gear.
13. Slide the second-speed gear onto the front of the shaft, making sure that the inserts in the synchronizer engage the notches in the blocker ring.
14. Install the second-speed gear thrust washer and snap ring.
15. Slide the overdrive gear onto the shaft with the synchronizer coned surface toward the front.
16. Place a blocking ring on the overdrive gear.
17. Slide the third and overdrive gear synchronizer onto the shaft making sure that the inserts in the synchronizer engage the notches in the blocking ring and the thrust surface is toward the overdrive gear.
18. Install the snap ring on the front of the output shaft.
19. Position the blocking ring on the first-speed gear.
20. Slide the first-speed gear onto the rear of the output shaft making sure that the notches in the blocking ring engage the synchronizer inserts.
21. Install the heavy thrust washer on the rear of the output shaft.
22. Support the thrust washer and first-speed gear to prevent them from sliding off the shaft and carefully lower the output shaft assembly into the case as shown in Fig. 9.
23. Position the first and second-speed shift fork and the third and overdrive shift fork in place on their respective gears and rotate them into place.
24. Place a spring and a detent plug (Fig. 5) in the detent bore. Place the reverse shift rail into neutral position.
25. Coat the third and overdrive shift rail interlock pin (tapered ends) with grease and position it in the shift rail.
26. Align the third and overdrive shift fork with the shift rail bores and slide the shift rail into place making sure that the three detents are facing toward the outside of the case. Place the front synchronizer into overdrive position and install the set screw in the third and overdrive shift fork. Move the synchronizer to the neutral position. Install the third and overdrive shift rail detent plug, spring and bolt in the left side of the transmission case (Fig. 5). Place the detent plug (tapered ends) in the detent bore in the case.
27. Align the first and second-speed shift fork with the case bores and slide the shift rail into place. Secure the fork with the set screw.
28. Coat the input gear bore with a thin film of grease, then install the 15 roller bearings in the bore. **A**

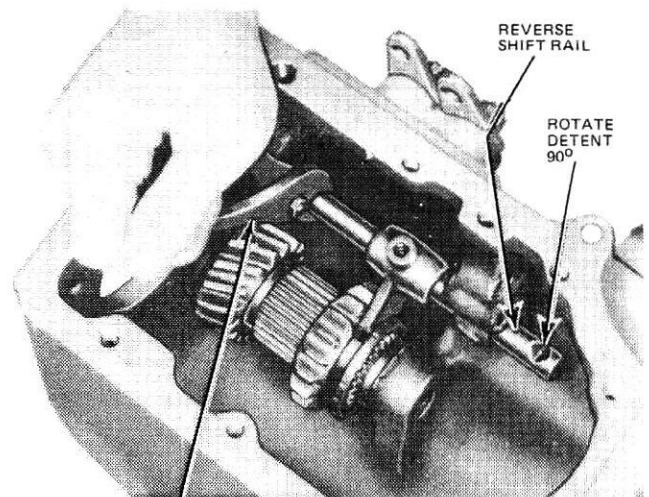


FIG. 10 Rotating Reverse Shift Rail

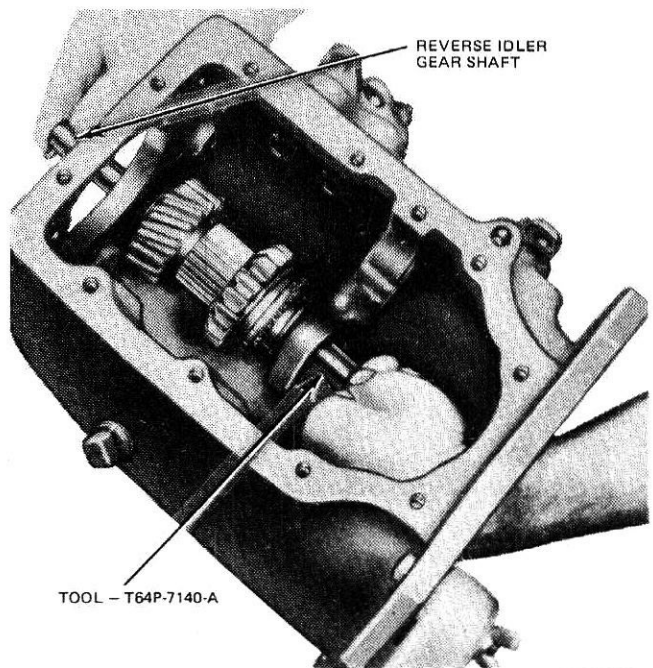
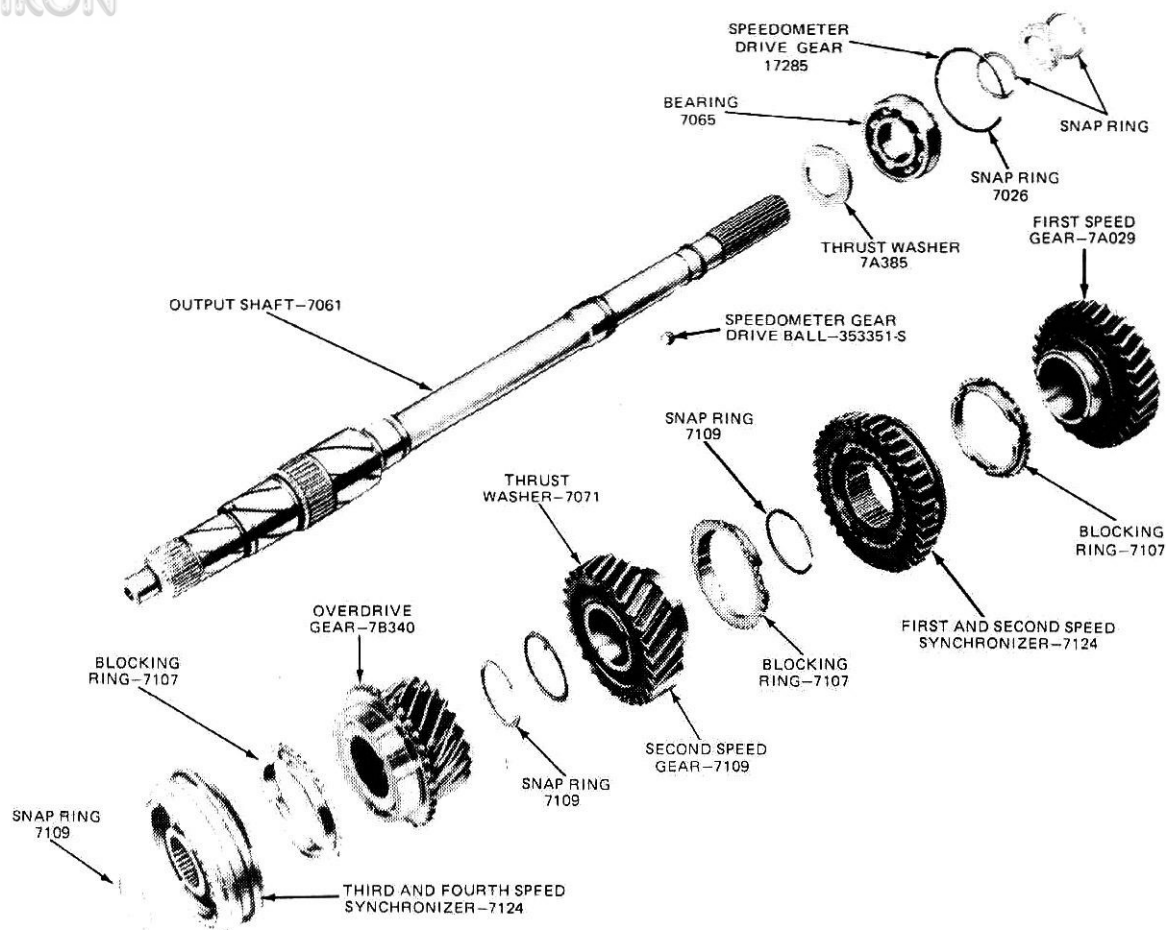


FIG. 11 Removing Reverse Idler Gear Shaft

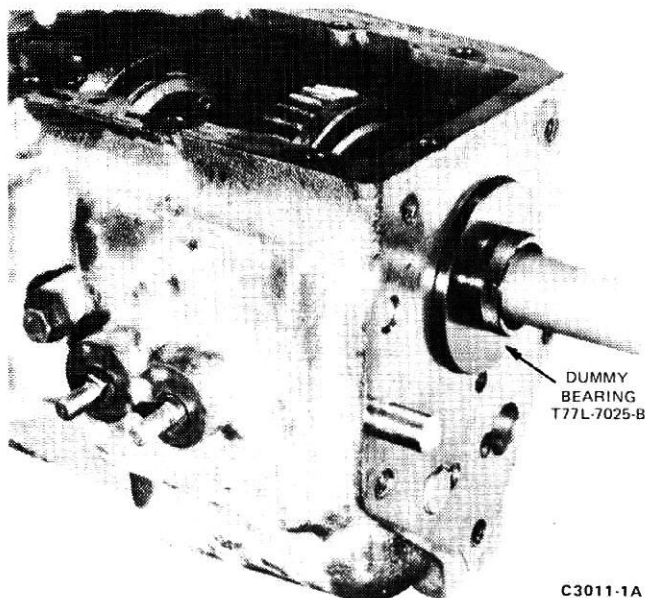
thick film of grease could plug the lubricant holes and restrict lubrication of the bearings.

29. Position the front blocking ring in the third and overdrive synchronizer.
30. Position the dummy bearing, Tool T77L-7025-B, on the output shaft to support and align the shaft assembly in the case (Fig. 13).
31. Place the input shaft gear into the transmission case, making sure that the output shaft pilot enters the roller bearings in the input gear pocket.
32. Position the input shaft bearing on the input shaft along with the Clamp, Tool T77L-7025-D, the Sleeve, Tool T75L-7225-K, and the bearing Replacer Tube, T77L-7025-C. Press the bearing onto the shaft and into the transmission case as shown in Fig. 14.



C1529-2D

FIG. 12 Output Shaft Disassembled



C3011-1A

FIG. 13 Dummy Bearing Installed

33. Remove the special service tools and install the snap rings on the input shaft and the input shaft bearing.
34. Place a new gasket on the input shaft bearing retainer. Dip the attaching bolts in sealer and install and tighten them to specifications.

35. Remove the dummy bearing from the output shaft. Assemble the special service tools to the output shaft as shown in Fig. 15. **Before pressing the bearing onto the output shaft, be sure that the output shaft bearing is aligned with the transmission case bore and that the countershaft is not interfering with the output shaft assembly.**
36. Install the output shaft bearing onto the output shaft and into the transmission case using the special service tools. Remove the special service tools and install the snap rings on the output shaft and the output shaft bearing.
37. Place the transmission in a vertical position as shown in Fig. 16. Align the countershaft gear bore and thrust washers with the bore and thrust washers with the bore in the case. Install the countershaft.
38. Use a new gasket and secure the extension housing to the case with the attaching screws. Use a sealer on the extension housing attaching screws. Torque the screws to specifications.
39. Install the filler plug in the case if it was removed.
40. Pour the specified lubricant over the entire gear train while rotating the input shaft.
41. Place each shift fork in all positions to make sure that it operates properly.

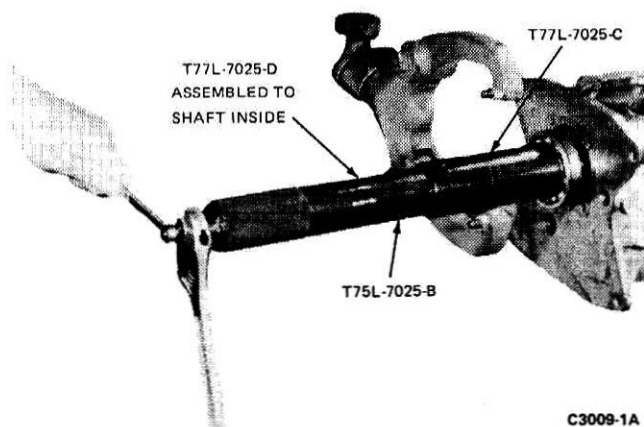


FIG. 14 Installing Input Shaft Bearing

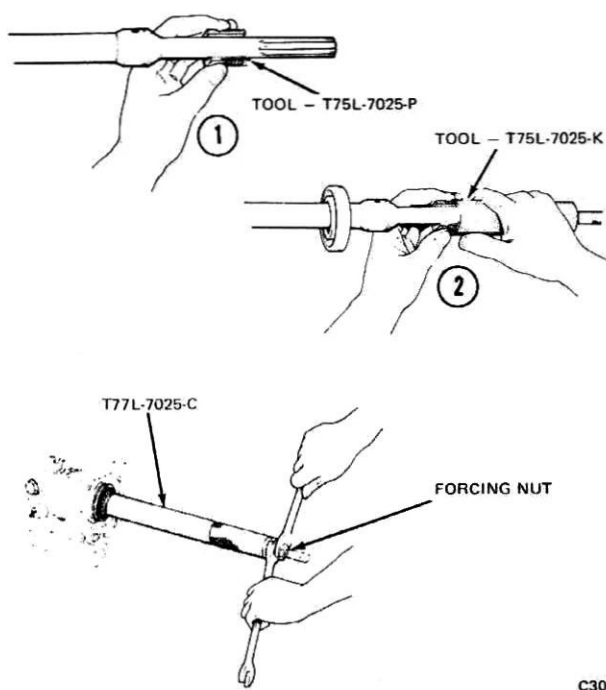


FIG. 15 Installing Output Shaft Bearing—Typical Transmission

42. Install the remaining detent plug in the case. Install the long spring (which is retained by the case) to secure the detent plug.
43. Use a new cover gasket and install the cover. Coat the cover attaching screws with sealer and install and tighten them to specifications.
44. Coat the third and overdrive shift rail plug bore with a sealer and install a new expansion plug.
45. If the extension housing bushing and seal are to be replaced, refer to Section 1.

SUB-ASSEMBLIES

CAM AND SHAFT SEALS

Removal

1. Remove the attaching nut, lockwasher and the flat washer from each shift lever and remove the three levers.

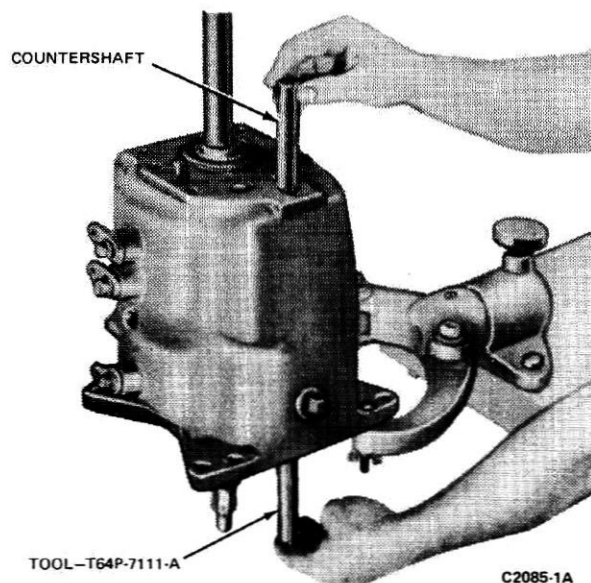


FIG. 16 Installing Countershaft

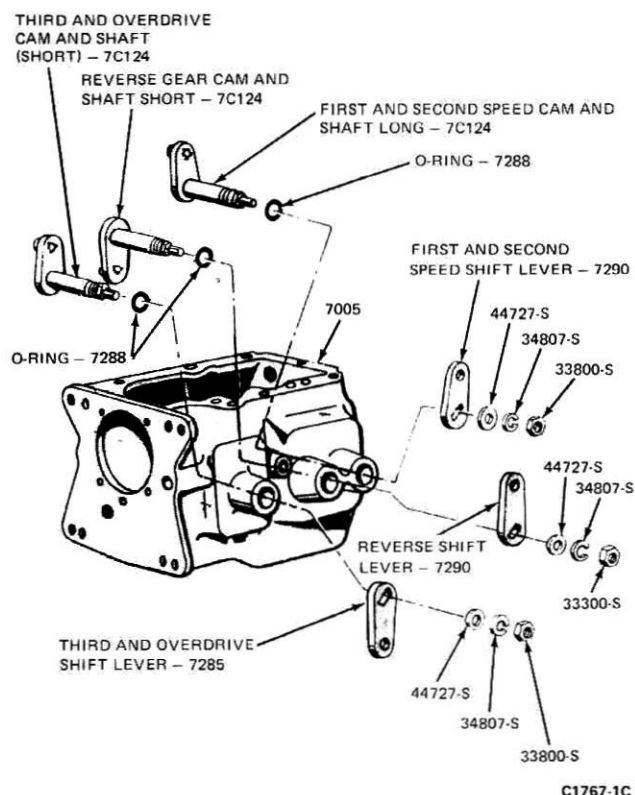


FIG. 17 Cam and Shafts and Shift Levers

2. Remove the three cam and shafts from inside the case.
3. Remove and discard the O-ring from each cam and shaft (Fig. 17).

Installation

1. Dip the new O-rings in gear lubricant and install them on the cam and shafts.
2. Slide each cam and shaft into its respective bore in the transmission case.