

COMPONENT DISASSEMBLY & REASSEMBLY

MAINSHAFT ASSEMBLY

Disassembly

1. Remove and discard selective snap ring retaining 3rd-4th synchronizer assembly to mainshaft (a new snap ring will be used during assembly). See Fig. 6 and Fig. 7 .

NOTE: Ensure position of synchronizer hub and sleeve is noted during disassembly for reassembly reference.

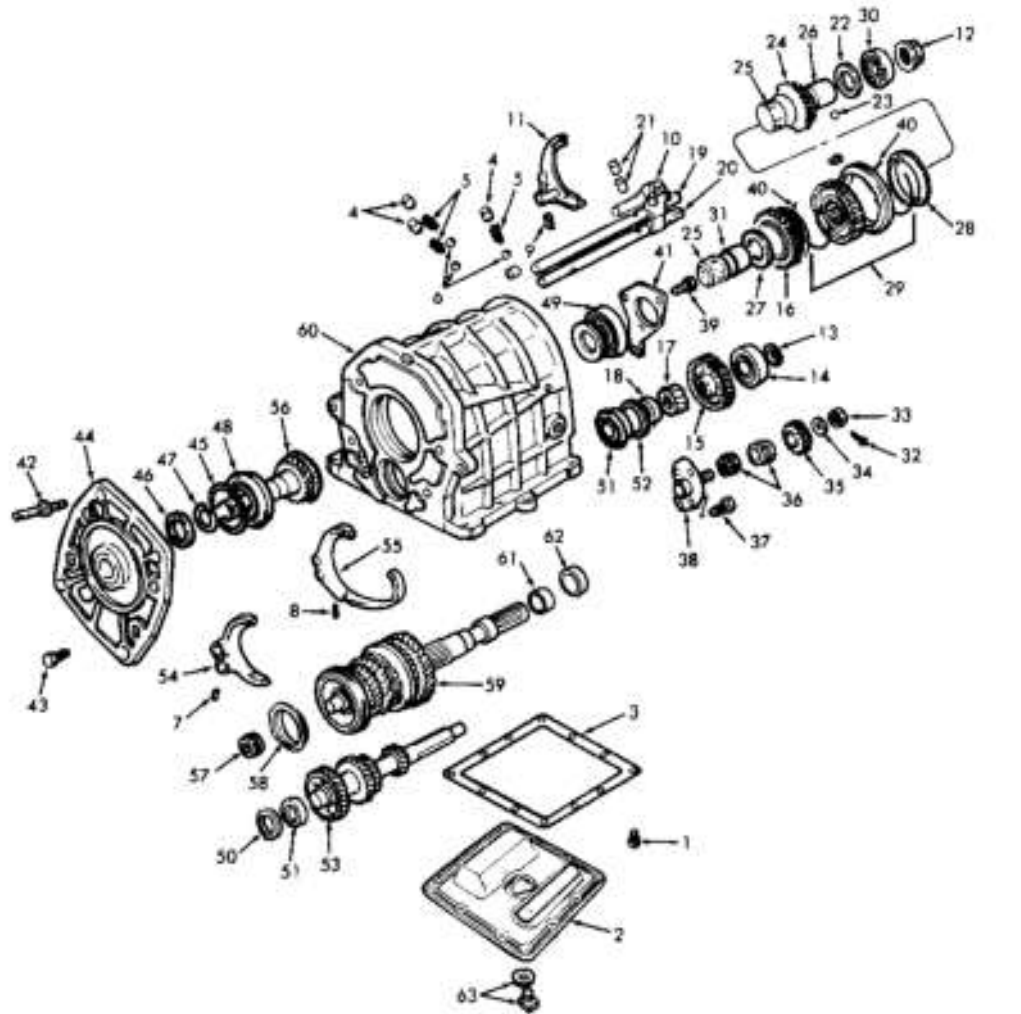
2. Remove 3rd-4th synchronizer assembly (hub, sleeve, springs and keys), synchronizer ring, 3rd gear and caged needle bearing from front of mainshaft. See Fig. 6 and Fig. 7 .
3. Position mainshaft assembly in press so 2nd gear is supported by press bed. Press mainshaft from 1st and 2nd gear assembly. Separate inner ball bearing, bearing sleeve, 1st gear, caged needle bearing, 1st-2nd synchronizer assembly (hub, sleeve, 2 rings and 3 keys), 2nd gear and caged needle bearing. See Fig. 7 . Discard inner ball bearing. See CLEANING & INSPECTION .

Reassembly

1. Check clearance between synchronizer rings and gears. Install ring on gear and insert feeler gauge between ring teeth and gear. If clearance is less than .009" (.23 mm), replace synchronizer ring and/or gear. See Fig. 8 .
2. Install caged needle bearing for 2nd gear (from rear of mainshaft). Position 2nd gear on mainshaft with synchronizer ring surface facing rear of shaft. Install synchronizer ring on 2nd gear.
3. Position 1st-2nd synchronizer assembly on rear of mainshaft. Ensure mainshaft and synchronizer splines are properly aligned. Rear of 1st-2nd hub is identified by machined ridge on rear surface. See Fig. 9 . Ridge must face front of mainshaft.
4. Install sleeve with small bevel angle facing front of mainshaft. Synchronizer sleeve has a tooth missing at 6 positions. Assemble hub to sleeve so single tooth, between 2 missing portions, will touch synchronizer key. When synchronizer keys and springs are properly installed, the open ends of spring do not face each other. See Fig. 9 .

NOTE: When synchronizer keys and springs are properly installed, the open ends of spring do not face each other.

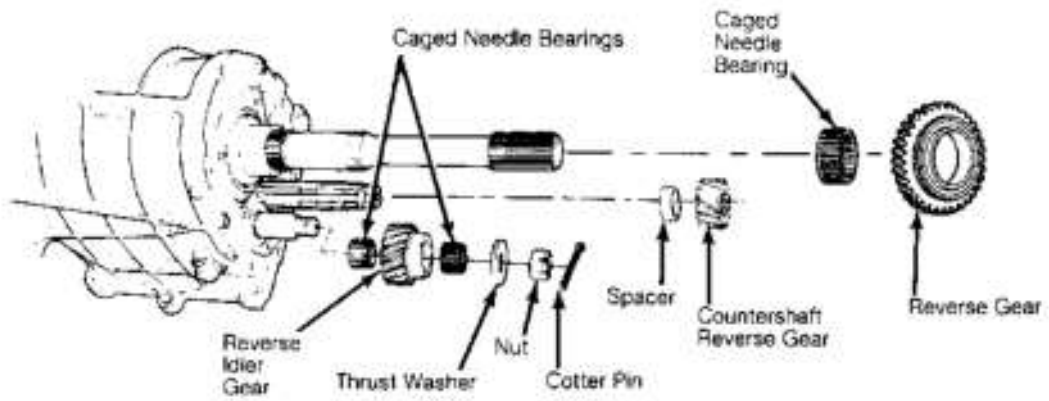
5. Press 1st-2nd synchronizer assembly into position on mainshaft using Shaft Sleeve Replacer (T75L-7025-K), Shaft Collar (T75L-7025-M) and Tube (T75L-7025-C). If properly installed, 2nd gear should rotate freely.
6. Position 1st gear bearing sleeve on mainshaft. Press sleeve on shaft using previously used tube, shaft sleeve replacer, shaft collar and Rack Bushing Holder (T81P-3504-D). When properly installed, sleeve should be against synchronizer hub. Ensure gears rotate freely.



- | | | | |
|----------------------------------|-------------------------------------|----------------------------|--------------------------------------|
| 1. Bolt With Washer (12) | 16. Reverse Gear | 32. Cotter Pin | 49. Angular Double Bearing |
| 2. Transmission Case Pan | 17. Countershaft Reverse Gear | 33. Nut | 50. Spacer |
| 3. Transmission Case Pan Gasket | 18. Spacer | 34. Thrust Washer | 51. Countershaft Rear Roller Bearing |
| 4. Screw Type Plug (1) | 19. 3rd-4th Shift Rail | 35. Reverse Idler Gear | 52. Shim |
| 5. Bolt Type Plug (2) | 20. 1st-2nd Shift Rail | 36. Needle Bearing (2) | 53. Countershaft Assembly |
| 6. Poppet Spring (3) | 21. Interlock Plunger | 38. Reverse Idler Shaft | 54. 3rd-4th Shift Fork |
| 7. Steel Ball (3) | 22. Thrust Washer | 39. Allen Bolt (4) | 55. 1st-2nd Shift Fork |
| 8. 3rd-4th Shift Fork Spring Pin | 23. Steel Ball | 40. Synchronizer Spring | 56. Mainshaft Drive Gear |
| 9. 1st-2nd Shift Fork Spring Pin | 24. Overdrive Gear | 41. Rear Bearing Retainer | 57. Needle Bearing |
| 10. Overdrive/Reverse Pin | 25. Needle Bearing | 42. Stud (4) | 58. Synchronizer Ring |
| 11. Overdrive/Reverse Shift Fork | 26. Overdrive Gear Sleeve | 43. Bolt (4) | 59. Mainshaft Assembly |
| 12. Mainshaft Lock Nut | 27. Bearing Spacer | 44. Front Bearing Retainer | 60. Transmission Case Assembly |
| 13. Countershaft Lock Nut | 28. Synchronizer Ring | 45. Spacer | 61. Sleeve For Oil Seal |
| 14. Ball Bearing | 29. Overdrive Synchronizer Assembly | 46. Oil Seal | 62. Seal |
| 15. Countershaft Overdrive Gear | 30. Ball Bearing | 47. Snap Ring | 63. Drain Plug & Magnetic Gasket |
| | 31. Sleeve | 48. Ball Bearing | |

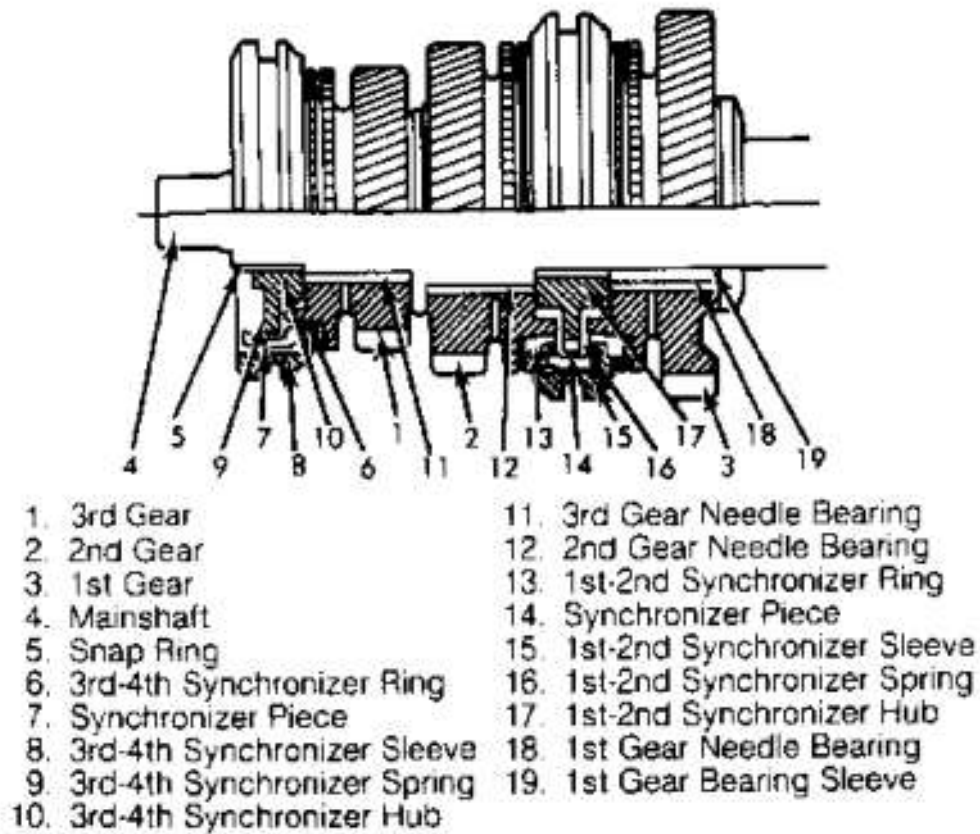
92C13898

Fig. 4: Exploded View of Transmission Case & Components
 Courtesy of FORD MOTOR CO.



92D13899

Fig. 5: Removing Reverse Gears, Reverse Idler Gear, Spacer & Bearings
Courtesy of FORD MOTOR CO.



92G13900

Fig. 6: Cut-Away View of Mainshaft Assembly
 Courtesy of FORD MOTOR CO.

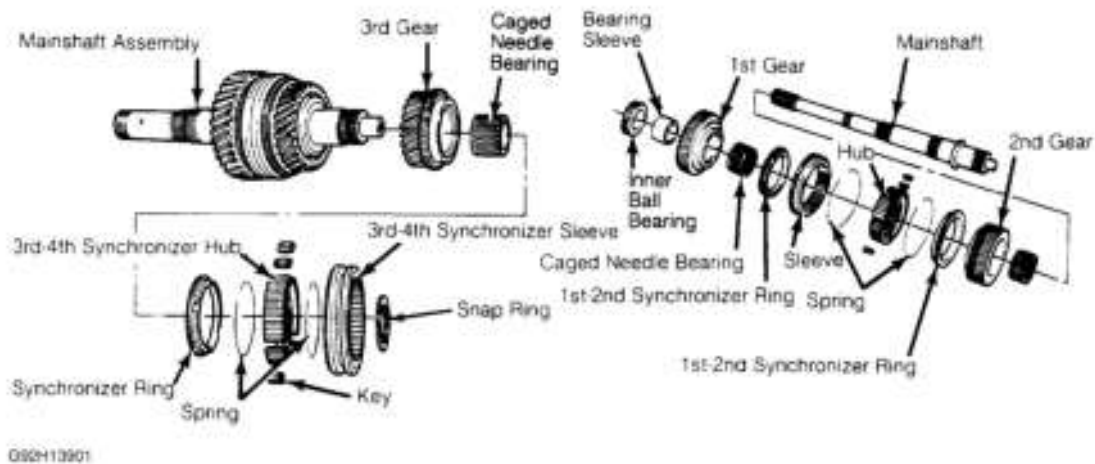
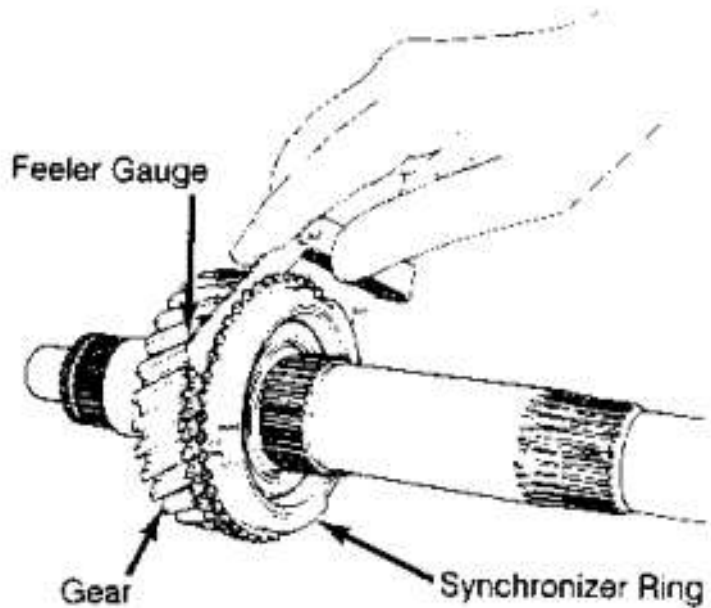


Fig. 7: Exploded View of Mainshaft Assembly
 Courtesy of FORD MOTOR CO.



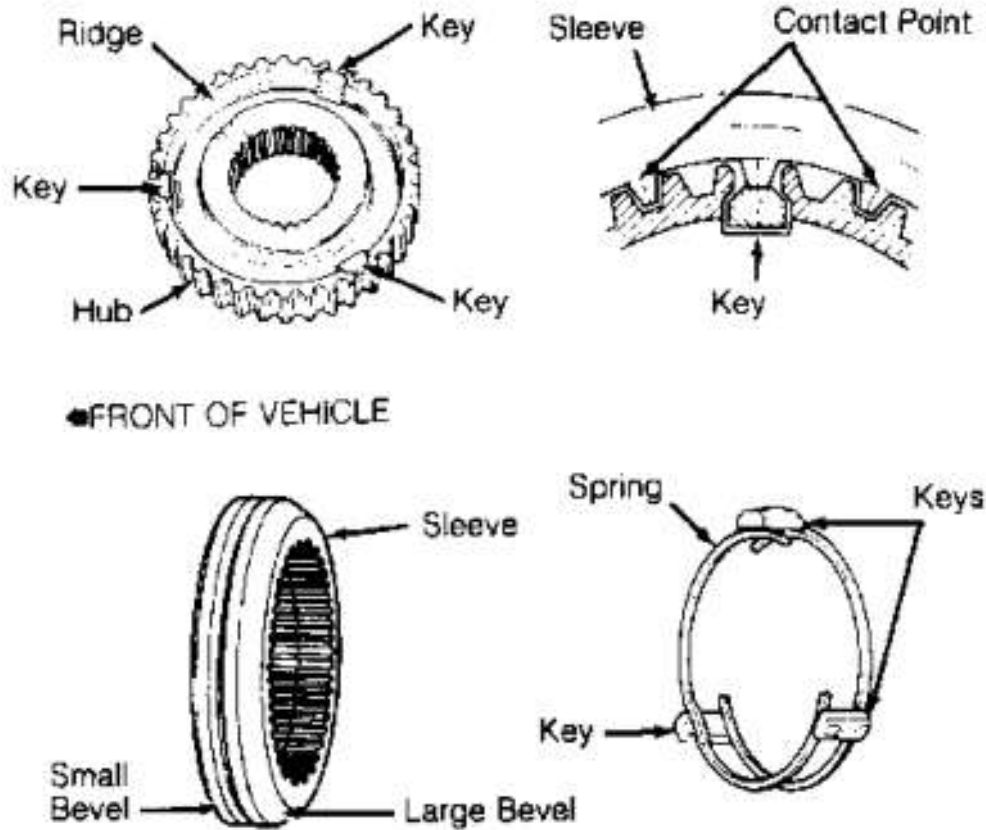
92T13902

Fig. 8: Checking Synchronizer Ring-To-Gear Clearance
 Courtesy of FORD MOTOR CO.

7. Install synchronizer ring on 1st-2nd synchronizer assembly. Install caged needle bearing and 1st gear.

Slide a NEW inner ball bearing into position on mainshaft. Press bearing onto mainshaft using previously used rack bushing holder, tube, shaft sleeve replacer and shaft collar. After installation, ensure gears rotate freely.

8. Install 3rd gear and caged needle bearing over front of mainshaft. Install synchronizer ring against 3rd gear. When installing 3rd-4th synchronizer assembly, ensure mainshaft splines and synchronizer are properly aligned. Small diameter hub boss and small bevel angle of sleeve faces front of mainshaft. See Fig. 9 and Fig. 10 .



●FRONT OF VEHICLE

92J13903

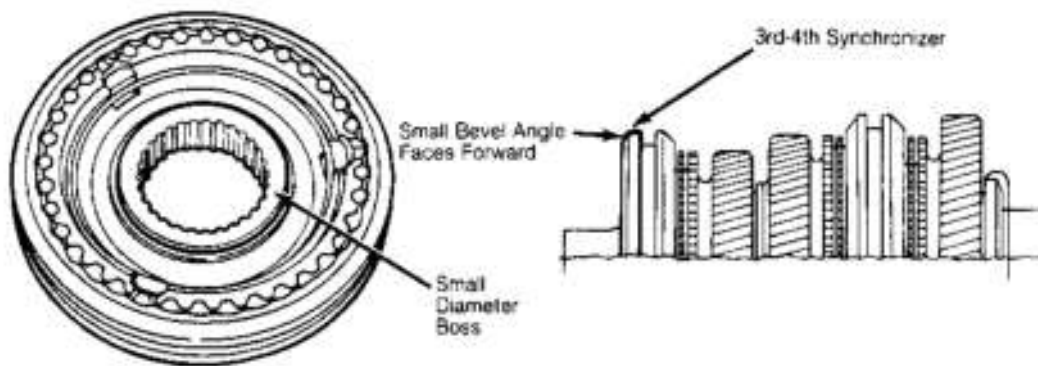
Fig. 9: Installing 1st-2nd/3rd-4th/OD-Reverse Synchronizer Assemblies Onto Mainshaft
Courtesy of FORD MOTOR CO.

NOTE: Synchronizer sleeve has a tooth missing at 6 positions. Assemble hub to sleeve so single tooth, between 2 missing portions, will touch synchronizer key. When synchronizer keys and springs are properly installed, the open ends of spring do not face each other.

9. Install 3rd-4th synchronizer assembly onto front of mainshaft. Install a NEW selective snap ring that retains 3rd-4th synchronizer assembly to mainshaft. Select thickest snap ring that will fit in groove. See **MAINSHAFT SELECTIVE SNAP RING** table.

MAINSHAFT SELECTIVE SNAP RING

Identification Color	Thickness: In. (mm)
White	.091 (2.30)
Brown	.093 (2.35)
None	.094 (2.40)
Blue	.096 (2.45)
Yellow	.098 (2.50)



92A13904

Fig. 10: Installing 3rd-4th Synchronizer Assembly On Mainshaft
 Courtesy of FORD MOTOR CO.

COUNTERSHAFT ASSEMBLY

Disassembly

Inspect front and rear countershaft bearings for excessive wear, roughness and/or damage. If bearings require replacement, press front and/or rear bearings off countershaft using Bearing Splitter (D84L-1123-A). Remove and discard bearing(s). See **CLEANING & INSPECTION** .

Reassembly

Install bearing splitter on end of countershaft opposite bearing being installed. Position countershaft assembly upright, with bearing splitter resting on press bed. Press new bearing onto countershaft using hydraulic press and Countershaft Bearing Replacer (T85T-7121-A).

INPUT SHAFT

Disassembly

Inspect input shaft bearing for excessive wear, roughness and/or damage. If bearing must be replaced, position Bearing Splitter (D84L-1123-A) behind bearing. Press input shaft out of bearing. Discard bearing. See **CLEANING & INSPECTION** .

Reassembly

Position new bearing on input shaft. Press bearing onto shaft using Tube (T75L-7025-B) with Shaft Sleeve Replacer (T75L-7025-K) and Shaft Collar (T75L-7025-M) inside tube and Rack Bushing Holder (T81P-3504-D) or an appropriate size washer against bearing.