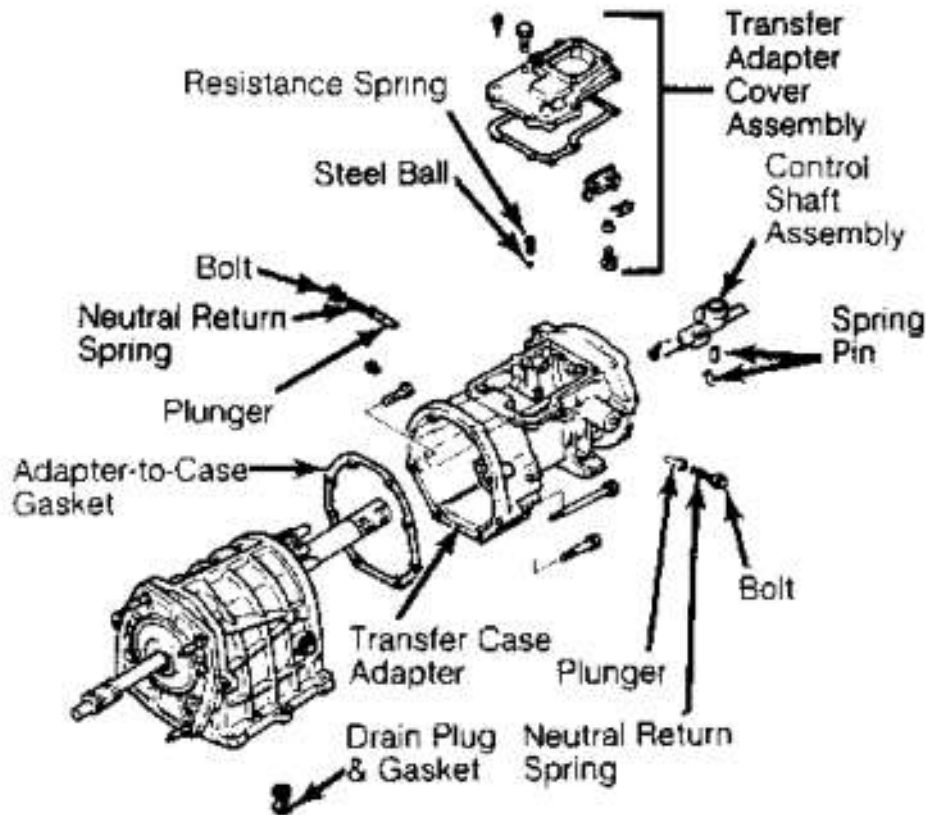


TRANSMISSION DISASSEMBLY

NOTE: During disassembly, all gaskets must be removed and discarded. Thoroughly clean all traces of gasket material from mating surfaces of transfer case adapter, input shaft front bearing retainer and transmission case.

1. With transmission removed from vehicle and in Neutral position, remove nuts retaining clutch bellhousing to transmission case. Remove bellhousing. Pull clutch slave cylinder from input shaft.
2. Remove back-up light switch and neutral position switch from transfer case adapter. Remove drain plug from transmission case pan and drain transmission fluid.
3. Remove transmission case pan from transmission case and discard gasket. Remove all traces of gasket from transmission case pan and case surfaces. With shift lever assembly removed, detach transfer cover assembly from top of transfer case adapter.
4. Remove transfer cover assembly (with reverse lockout bracket inside) and discard rubber gasket. Clean all traces of gasket from transfer cover assembly and adapter mating surfaces. Remove detent spring and ball from adapter.
5. Using a 6-mm Allen head wrench, remove 2 shift gate roll pin access plugs (one on side and one on bottom). Align roll pins with access hole. Using a punch, drive roll pins from shift gates.
6. From right side of adapter, remove bolt, neutral return spring and plunger. See **Fig. 2** . Note that plunger has a slot in center for detent ball.



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Fig. 2: Exploded View of Transfer Case Adapter & Components
 Courtesy of FORD MOTOR CO.

7. From left side of adapter, remove bolt, neutral return spring and plunger. Note that this plunger has no ball slot. From top of adapter, lift gate selector lever on control shaft assembly out of shift gates. Move lever as far to rear of adapter as it will go. This will allow clearance to remove adapter from case.
8. Remove bolts retaining transfer case adapter to transmission case. For reassembly reference, note position of 3 different bolt lengths that are used (35 mm, 55 mm and 110 mm). See **Fig. 13** . Remove adapter from case and discard gasket.

NOTE: **When removing adapter from case, ensure shift gates do not bind in adapter during removal. Rotate gates on rails as needed.**

9. Identify and mark each shift rail and gate. Remove gates from rails. From inside transmission case, drive out roll pins retaining 1st-2nd and 3rd-4th shift forks to rails. Remove 1st-2nd shift fork.

NOTE: Roll pin in switch actuator does not need to be removed to disassemble transmission.

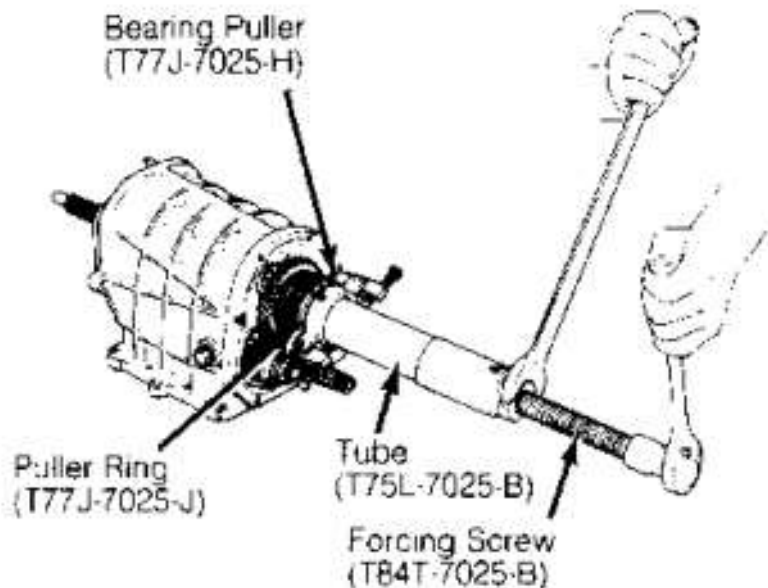
10. Drive out overdrive-reverse shift fork roll pin. Note installed depth of .24" (6 mm) of screw-in plug, toward top of case. Remove screw-in type plug along with poppet spring. Remove one poppet spring and one steel ball from bore. Remove the 2 bolt type plugs (on side of case). Remove one poppet spring and one steel ball from each bore.
11. Pull overdrive-reverse shift rail and 3rd-4th shift rail from case. Remove overdrive-reverse shift fork. When 2 shift rails are removed, the interlock pins can be removed from case.

CAUTION: Do not attempt to remove 1st-2nd shift rail at this time.

12. Using Mainshaft Lock Nut Staker (T77J-7025-F), unstack lock nuts on mainshaft and countershaft. To remove lock nuts, first position 2 synchronizers to engage transmission in 2 gears (to lockup gear sets).
13. Using a 30-mm socket, remove and discard countershaft lock nut. Using Mainshaft Lock Nut Wrench (T77J-7025-C), remove and discard mainshaft lock nut. Using Tube (T77J-7025-B), Forcing Screw (T84T-7025-B), Bearing Puller (T77J-7025-H) and Puller Ring (T77J-7025-J), pull rear bearing off mainshaft. Discard rear bearing.
14. Slide thrust washer off mainshaft. Using a magnet if necessary, remove lock ball from bore. Using Puller (T77J-4220-B1), with jaws of puller behind gear, turn forcing screw to remove countershaft overdrive gear and ball bearing from countershaft. While removing gear, pull 1st-2nd shift rail from case.
15. Remove 1st-2nd and 3rd-4th shift forks from case. Remove overdrive gear, caged needle bearing and synchronizer ring from mainshaft. Remove overdrive synchronizer sleeve from synchronizer hub on mainshaft. Note direction of synchronizer sleeve installation for reassembly reference.

NOTE: When separating synchronizer sleeve from hub, do not lose 3 keys (located in hub) and/or 2 springs (one on each side of hub).

16. Pull overdrive-reverse synchronizer hub and overdrive gear bearing sleeve from mainshaft with Tube (T75L-7025-B), previously used forcing screw, bearing puller and puller ring. See **Fig. 3**. Slide reverse gear and caged needle bearing assembly off mainshaft.



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Fig. 3: Removing Synchronizer Hub & O/D Gear Bearing Sleeve
 Courtesy of FORD MOTOR CO.

17. Slide countershaft reverse gear and distance spacer off countershaft. Remove cotter pin and nut from reverse idler shaft. Remove thrust washer, reverse idler gear and 2 sets of caged needle bearings. See **Fig. 5**.
18. Remove 6-mm Allen head bolts attaching mainshaft rear bearing retainer to case. Remove retainer and discard gasket. Clean gasket surfaces. Remove Allen head bolts retaining reverse idler gear shaft assembly to case.
19. Using Slide Hammer (T50T-100-A) and Reverse Idler Gear Shaft Remover (T85T-7140-A), pull reverse idler gear shaft out of case. Remove 4 studs retaining input shaft front bearing retainer to case.
20. Remove input shaft front bearing retainer from case. Remove and discard gasket. Clean gasket surfaces. Remove selective shim from inside of retainer. For reference during reassembly, **DO NOT** discard selective shim. Remove small selective snap ring retaining input shaft to bearing. For reference during reassembly, **DO NOT** discard selective snap ring.
21. Remove large selective snap ring retaining input shaft bearing to case. Remove bearing from input shaft using Tube (T75L-7025-B), Bearing Collets (T75L-7025-D), Bearing Collet Sleeve (T75L-7025-G) and Forcing Screw (T84T-7025-B). Remove and discard bearing.
22. Rotate input shaft so flats on shaft face countershaft (to provide clearance to remove input shaft). Remove input shaft. If necessary, pull mainshaft toward rear of case. Remove small caged needle bearing from inside of input gear.
23. Remove snap ring from mainshaft outer bearing race. Remove outer mainshaft bearing race, ball

bearing and bearing sleeve using Tube (T75L-7025-B), Mainshaft Bearing Collet Remover (T85T-7065-A), Bearing Collet Sleeve (T77F-7025-C) and forcing screw. Inner front bearing race will remain on mainshaft. Discard outer bearing race and ball bearing.

24. Remove countershaft front spacer and bearing race. Move mainshaft assembly slightly to side, if necessary, to allow clearance for countershaft assembly removal. Remove countershaft assembly, then mainshaft assembly, from bottom of case. See **CLEANING & INSPECTION** .