



**ASSEMBLY INSTRUCTIONS  
For The  
TC-35 TRANSFER CASE  
( 769-1279 )  
INPUT SHAFT REPLACEMENT KIT**

**465-0274**

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**ASSEMBLY INSTRUCTIONS**  
**FOR THE TC-35 TRANSFER CASE INPUT SHAFT REPLACEMENT KIT CONT'D.**

Part Number 769-1279

<u>NEW PARTS</u>	<u>DESCRIPTION</u>	<u>OLD PARTS</u>
367-0294	Shift Fork (Input Shaft)	367-0259
432-0556	Clutch Gear (Input Shaft)	432-0236
769-0469	Input Shaft	769-0279

1. Disassemble the shifter shaft and input shaft per the instruction in the TC-35 Transfer Case Service and Parts Manual, pages #12 and 13. Note the position of the shift forks before disassembly.
2. Place the direct drive gear, without bearings and spacer, in the housing against the back wall. The gear will mesh with the gear on the intermediate shaft and rest against the inside wall of the transfer case housing.
3. Insert the new input shaft clutch gear (432-0556) in the direct drive gear already in housing.
4. Place the underdrive pin ion gear in the housing against the front wall, the small projecting hub should face forward. The gear will mesh with the gear on the intermediate shaft and rest against the housing bearing bore.
5. Remove the snap ring from one of the direct drive gear bearings.
6. Assemble the bearing without snap ring onto the new input shaft (769-0469). The snap ring groove side of bearing should face forward and be assembled on the rear (non-threaded end) of the input shaft.
7. Insert the front (threaded end) of the new input shaft and bearing into the transfer case housing from the rear of the case. Slide the new input shaft through the direct drive gear, new clutch gear, and underdrive pin ion gear. When the bearing contacts the direct drive gear tap the bearing into the gear with a suitable driver. When splines come into contact with gears, align splines and continue shaft installation. Push the new input shaft as far forward as possible.
8. Slide the new clutch gear forward and the direct drive gear rearward against the housing wall.
9. Install the snap ring in the bearing groove that should now be exposed.
10. Push the new input shaft as far to the rear as possible. Push the underdrive pinion gear toward the front of the housing.
11. Install the split retaining ring in the half round shaft groove that should now be exposed.
12. Slide the bearing spacer, bearing with snap ring, spacer washer (.06 thick), and double row ball bearing onto the rear of the shaft. Tap into place with a suitable driver.
13. Slide the double row ball bearing, with snap ring, onto the front of the shaft. Tap into place with a suitable driver.
14. For the remaining instructions refer to the TC-35 Transfer Case Service & Parts Manual, page #22, notes 9 and 10 and pages #23 and 24. The new input shaft shift fork (367-0294, fork opening 2.94) replaces the existing shift fork (367-0259, fork opening 2.81).

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## C. Shift Shaft Disassembly

### Air Shift Cases

1. Remove bolts and lockwashers from cover plate. Tap cover plate to loosen and remove.

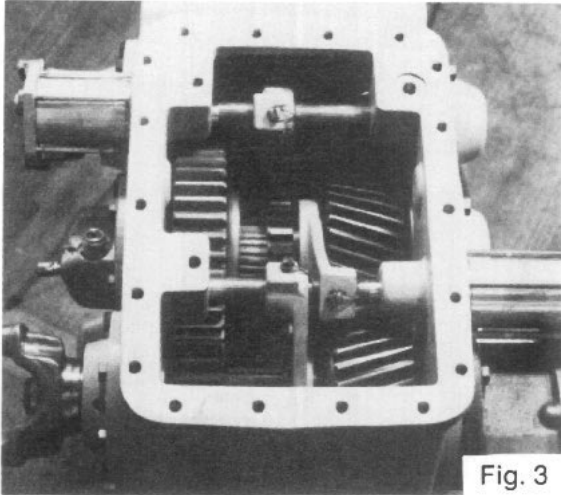


Fig. 3

2. Unscrew indicator light switch from the housing and remove spacer washers (Note amount of spacers removed). Remove plunger from inside housing using a magnet.
3. Cut the lockwires from the shift fork set screws on each shift fork. Remove the set screws from each shift fork.
4. Remove four bolts from the shift cylinder cap and remove cap from shift cylinder. Discard o-ring from cylinder cap, if replacement is necessary.
5. Remove shift cylinder tube from the shift cylinder adapter tube located in the housing, exposing piston (See fig. 4).

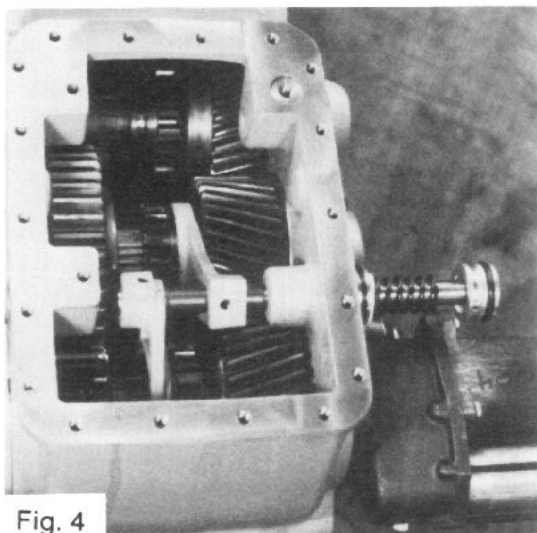


Fig. 4

6. Withdraw shift piston and shift shaft housing. As the shift shaft is withdrawn from the housing, remove each shift fork from the shaft.
7. Remove shift shaft spring and plastic stop ring from the shift shaft or from the shift cylinder adapter tube located in the housing.
8. Disassemble shift piston from the shift shaft (if necessary) and discard o-ring and felt wiper, if replacement is necessary.
9. Remove shift cylinder adapter tube from housing. Discard o-rings from the adapter, if replacement is necessary.
10. Remove shift forks from inside of housing.

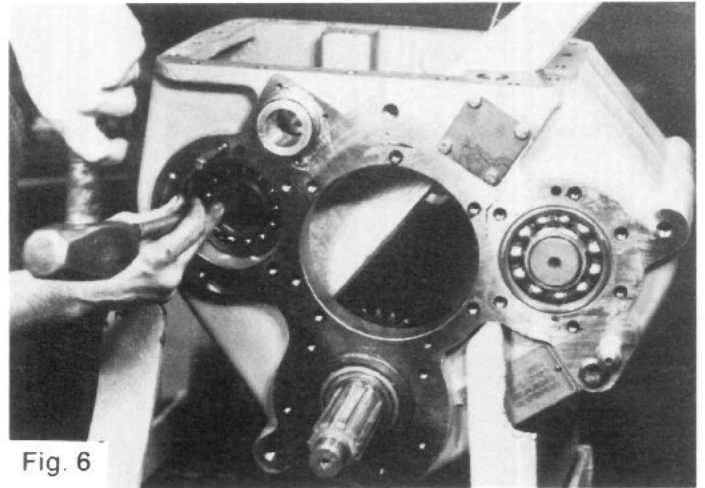
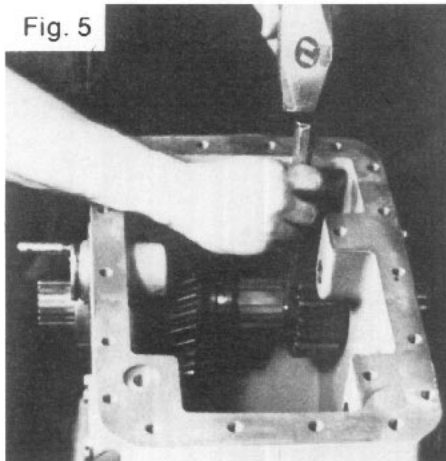
### Manual Shift Cases

1. Remove bolts and lockwashers from cover plate. Tap cover plate to loosen and remove (See fig. 3).
2. Unscrew indicator light switch from housing and remove spacer washers (Note the amount of spacers removed). Remove plunger from inside housing using a magnet.
3. Cut the lockwires from the shift fork set screws on each shift fork. Remove the set screws from each shift fork.
4. Remove each detent set screw from housing. Discard set screws and replace for reassembly. Remove each detent spring and each detent ball. Detent balls are removed by using a magnet.
5. Remove four bolts from each shift shaft seal carrier and remove seal carriers from housing.
6. Withdraw each shift shaft from housing. As the shift shaft is withdrawn from the housing, remove each shift fork from the shaft.
7. Remove seal from each seal carrier, if replacement is necessary.
8. Remove shift forks from inside of housing (Labeling the shift forks according to their position in the transfer case will aid in reassembly).

## D. Input Shaft Disassembly

— Refer to Page PM2 and PM6

1. Remove the rear cover (item 25) or, if so equipped, the PTO assembly.
2. Remove the front seal carrier (Item 5 or 6).
3. Use a brass rod or aluminum bar to protect the end of the shaft, tap threaded end enough to place the direct drive gear (Item 22) just against the inside back wall of the transfer case housing. Slide the underdrive pinion gear (Item 19) toward the front of the case. This will expose the split retaining ring (Item 20 — See Fig. 5). Use a drift to drive the retaining ring from the shaft.
4. Tap on the rear end of the shaft (See Fig. 6) and remove the shaft and the front bearing (Item 18) at the front of the case. Since the bearings (Item 11 and Item 24) are press fitted on the shaft, the shaft will not “just slip out”.
5. Items 19, 10, 22, 23 and 24 can now be removed from inside the case.



## E. Intermediate Shaft Removal

— Refer to Page PM2 and PM5.

1. Remove the capscrews from the front (Item 29) and rear (Item 45) caps. Remove the front (speedo) cap. Remove nut, speedo drive gear and spacer (Items 31, 32, and 33). Screw alignment tool (See Fig. 20 and 21) on to the end of the shaft. Place alignment studs (Fig. 28) in two holes of the rear cap (Item 45).
2. Drive on end of alignment tool until the rear cap is clear of the case housing. Remove the cap along with the outer race and roller assembly of Item 42.
3. Block between the underdrive gear (Item 36) and the rear of the case, continue driving the alignment tool until the shaft is free of the gear and the transfer case. Remove the gear (Item 36 with Item 35 still in place) and the spacer ring (Item 34) from the inside of the case.

## F. Rear Output Shaft Removal

— Refer to Page PM2 and PM4

1. Remove the front (Item 17) and rear (Item 56 or 57) covers. Tap the output (rear) end of the shaft with a suitable tool. Remove bearing cup (Item 47) from the front of the case. Block between the gear (Item 50) and the case while continuing to drive the shaft out the front of the case.
2. Remove the gear, spacer ring (Item 51), bearing cone (Item 52) from inside the case.
3. Remove the split ring (Item 39) from the shaft only if it is being replaced.

## G. Input Shaft Assembly

Refer to Page PM2 and Page PM6

1. Place the direct drive gear (Item 22), with bearings (Item 11) and spacer (Item 13) previously installed, in the housing against the back wall. The gear will mesh with the gear on the intermediate shaft and rest against the side wall of the case housing.
2. Insert the direct drive gear clutch (Item 10) in the direct drive gear (Item 22).
3. Insert the non-threaded end of the input shaft (Item 21) into the case housing from the front of the case. The shaft should project into the case between  $\frac{3}{4}$ " and 2" and the shaft may rest against the bottom of the input bearing bore of the housing.
4. Slip the underdrive pinion gear (Item 19), with projecting face toward the shaft, onto the end of the shaft.
5. Slide input shaft through the underdrive pinion gear and into the direct drive sliding clutch (Item 10). When splines come into contact with the pinion gear, align splines, continue shaft installation, align splines with splines in underdrive gear sliding clutch (See Fig. 30), and again continue sliding shaft into place through the bearings (Item 11) and gear (Item 22). Slip spacer washer (Item 23) (.06 thick) over rear end of input shaft.
6. Slide input shaft front (Item 18) and rear (Item 24) bearings onto the input shaft. Tap into the case housing bores and into place on the shaft with a suitable driver.
7. Push the input shaft as far to the rear of the case housing as it will go. Push the underdrive pinion gear toward the front of the case.
8. Install the split retaining ring (Item 20) in place in the half round groove that should now be exposed (See Fig. 31).
9. Install the input seal carrier gasket in place on the front of the case housing and install the input seal carrier assembly in place. Permatex the mounting screws and tighten to the specified torque (See Fig. 32).
10. Apply Lubriplate to the seal area and the splines of the input yoke. Install the yoke on the front of the input shaft. Put yoke retaining washer (Item 2) onto the shaft with the side that faces the input yoke lightly coated with Permatex. Install the input yoke retaining nut (Item 1) and tighten to specifications.

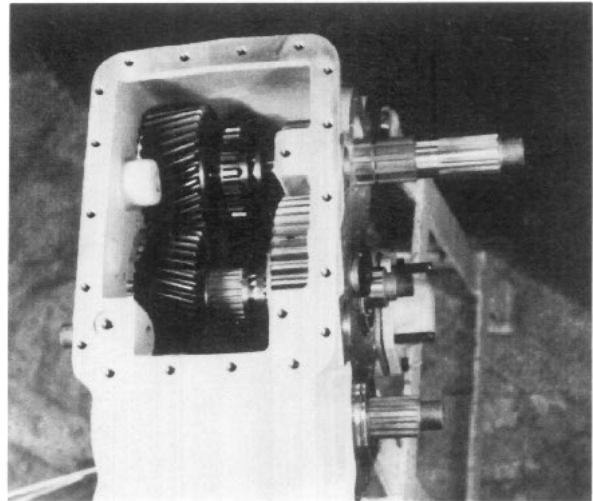


Fig. 30

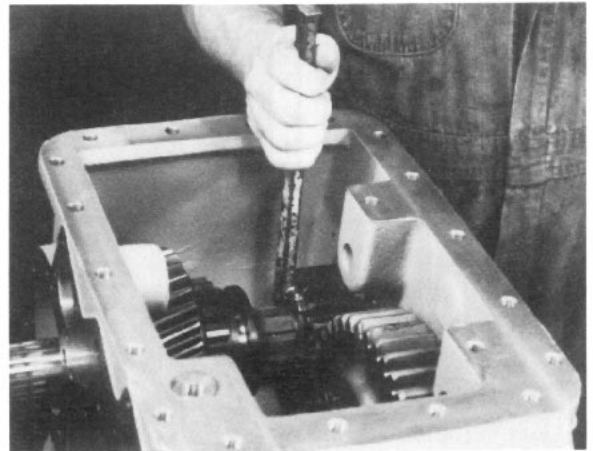


Fig. 31

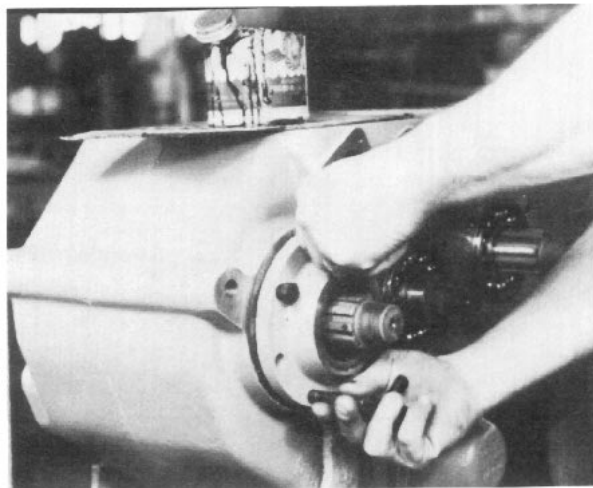


Fig. 32

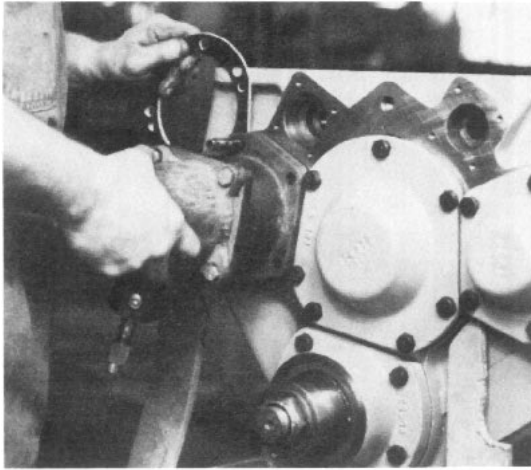


Fig. 33

11. Check fit between the split ring, underdrive pinion gear and the input shaft split ring groove.
12. Temporarily fasten the input shaft rear cover (Item 25) or the PTO assembly (See Section J for instructions on proper assembly of the PTO unit) in place with the mounting bolts torqued to 25 lb. in.
13. Use feeler gauges to measure the distance between the input shaft rear cap (or PTO assembly) and the case housing (See Fig. 33). Add .005" to this dimension and make a shim pack (Item 16) equal to the dimension thus calculated, or at a maximum, .005" larger than the calculated dimension.
14. Remove cap (or PTO), position shims, install cap (or PTO) attaching with screws that have been coated on the threads with Permatex. When installing the PTO unit, lightly coat under the heads of the two long cap screws.

## H. Air Shifter Shaft Installation

Refer to Page PM7 and Page PM10

1. Install two o-rings (Item 3) into the grooves on the outside of the shift cylinder adaptor tubes (Item 15). Coat adaptors with gear lubricant or Lubriplate and install in the counterbored shift shaft holes, on the front of the case housing for the front drive shift and on the rear of the case housing for the high-underdrive or high neutral-underdrive-shift.

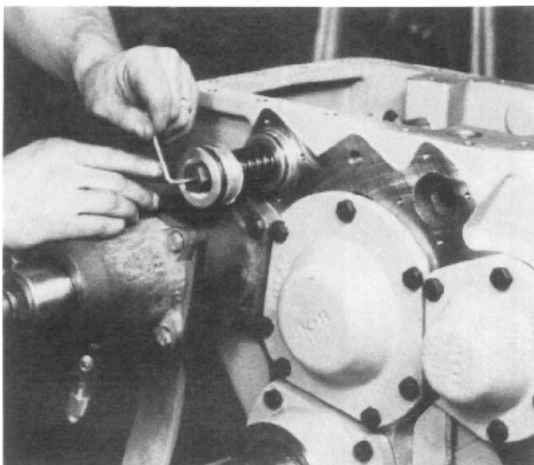


Fig. 34

2. Place a small (piston-to-shift-shaft sealing) o-ring (Item 11) over the threaded end of each shift shaft. The shallow counterbore in the piston (Item 9) should be toward the shoulder on the shift shaft; the deep counterbore provides room for the retaining nut. Install the piston retaining washers (Item 7) in the deep counterbore of the piston over the end of the shift shaft. Install piston retaining nut (Item 6 or 39). The nut used on the two groove shift shaft will be a special oversized nut (Item 39) if the transfer case is equipped with a PTO unit. Tighten nut to specification and tighten the nut locking set screw (Item 40) into the end of the special nut (Item 39 — if case has a PTO unit). See Fig. 34.
3. Install a spring on the two main or longer shift shafts (Item 12 and 36) against the piston. Place a nylon stop ring (Item 13) over the end of each shift shaft.
4. Start the set screws into the shift forks. Put them in as far as possible and still allow the shift shaft to slide through the hole.

5. Install the 7<sup>5</sup>/<sub>8</sub>" overall length underdrive shift fork (Item 35); it should fit into the groove of the underdrive shift clutch (on the intermediate shaft) the long hub section should be facing the rear of the case. Insert the two-groove shift shaft (Item 36) into the adaptor tube (Item 15) at the rear of the case housing (see 1 of this section). Slide end of shift shaft into underdrive shift fork (Item 35). Put 5<sup>7</sup>/<sub>8</sub>" overall length shift fork (direct drive shift fork— Item 34) long hub toward front of the case, into the case with the forks in the groove in the direct drive clutch on the input shaft. Push shift shaft through this fork (See Fig. 35) and into the hole in the front wall of the case housing. Push on the end of the piston and compress the spring until the piston butts against the nylon stop ring and the adaptor. This will allow the set screw in the underdrive shift fork (Item 35) to be tightened into the proper groove on the shift shaft. Rotate both shift forks in either direction but *in the same* direction and, with the second fork in the proper place longitudinally, tighten set screws to specified torque and install the lockwire.

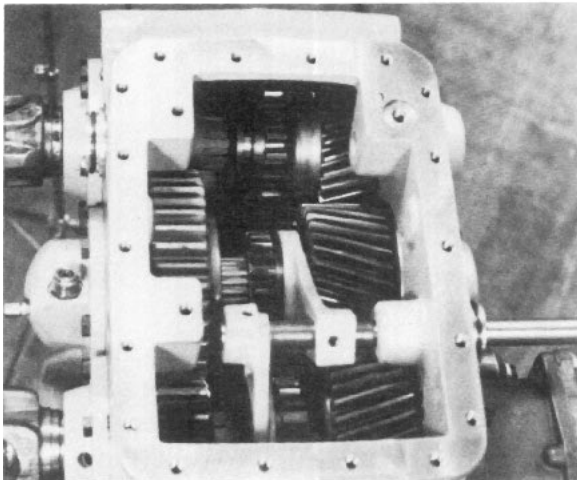


Fig. 35

6. Place the forks of the front drive shift fork (6<sup>3</sup>/<sub>4</sub>" long overall—Item 16) in the groove in the front drive clutch. Insert the front drive shift shaft (shaft with a single groove for the single shift fork — Item 12), spring (Item 14) and nylon stop ring (Item 13) into the shift cylinder adaptor previously installed in the front of the case housing. Pass the shaft (Item 12) through the shift fork and into the hole at the back of the case. Rotate the shaft to position the longitudinal groove away from the indicator light switch hole. Push on the piston enough to put the groove in the shaft under the set screw in the shift fork. Tighten the set screw to specifications and lockwire.
7. Soak the air shift piston felt washers (Item 10) with gear oil and install in the shallow groove of the piston (shift shaft side of piston). Install the shift piston o-ring (Item 8) in the deeper groove on the pistons (Item 9). Oil the rings.

8. The shift cylinder tubes are of differing lengths. The shortest tube (Item 4 which is 3-<sup>1</sup>/<sub>16</sub>" long) should be slipped over the front axle shift piston on the front of the case. The longest shift cylinder tube (Item 37 which is 3-<sup>13</sup>/<sub>16</sub>" long) should be fitted over the high-underdrive shift piston on the rear of the case.
9. If the transfer case is equipped with a PTO unit, the case must have a neutral position. Neutral is obtained through the use of a "piggy-back" cylinder mounted on the high-neutral cylinder (see Page PM7). This "piggy-back" cylinder, when actuated by properly connected air valves, provides this neutral position. The "piggy-back" cylinder consists of an adaptor (Item 41) into the grooves of which are installed oiled o-rings the adaptor may be put either end first (it is symmetrical) into the end of the high-neutral shift cylinder tube (See Fig. 36). The air inlet connection should point in the same direction as when removed. The "piggy-back" shift shaft piston assembly (with nylon stop ring over the end of the shaft) should now be inserted into the "piggy-back" adaptor. Slip the "piggy-back" shift cylinder tube (Item 43 which is 3<sup>1</sup>/<sub>8</sub>" long) over this piston.
10. Insert o-rings in cylinder caps, install cylinder caps on cylinder tube open ends. Fasten to case housing with the appropriate bolts (Item 5 or 38) or studs (Item 44) and nuts (Item 45).
11. Install plunger (Item 22) into the front drive switch hole with the rounded end toward the shaft. Install the shift indicator switch (Item 20) with one copper washer (Item 21). Test switch operation with a circuit tester while shifting into and out of front drive. Add washers as necessary to make the switch operate properly.
12. Cover exposed end of shifter shafts with the gaskets (Item 23) and covers (Item 24) provided. Secure with 4 bolts (Item 25) each tightened to specifications.

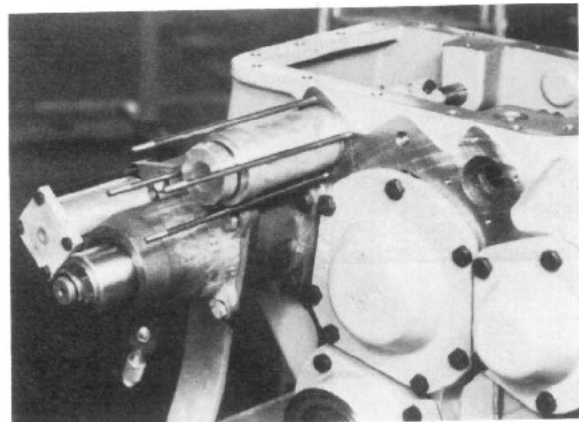


Fig. 36