

FIG. 6 Transmission Disassembled F and B 500-700 LN-600, 700, C-600, 700

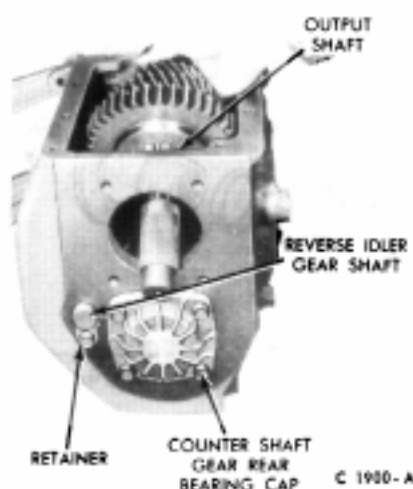


FIG. 7 Removing Output Shaft

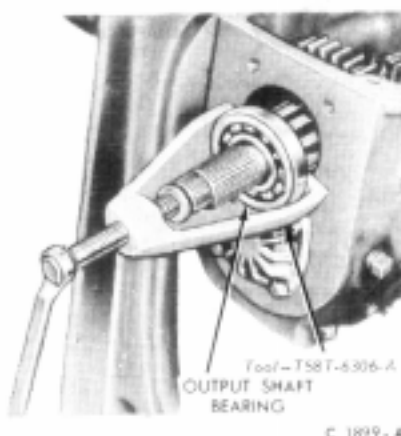


FIG. 8 Removing Output Shaft Bearing

4. Place the countershaft gear in the case.
5. Place the rear thrust bearing and then the bearing race on the rear of the countershaft gear (Fig. 9).
6. Install a new gasket on the bearing cap. Then coat the bore of the bearing cap with grease to retain the roller bearings and insert the bearings. Install the bearing cap on the rear of the case. Tighten the attaching bolts to specification.
7. Install the reverse idler gear in the case with the larger gear toward the rear of the case. Coat the rear of the reverse idler gear shaft with sealer before installing the retainer. Press idler shaft into position. Secure the idler shaft retainer with a bolt.
8. Position the output shaft assembly in the case.
9. Place a wood block in the front of the case as shown in Fig. 11. Drive the bearing onto the rear of the output

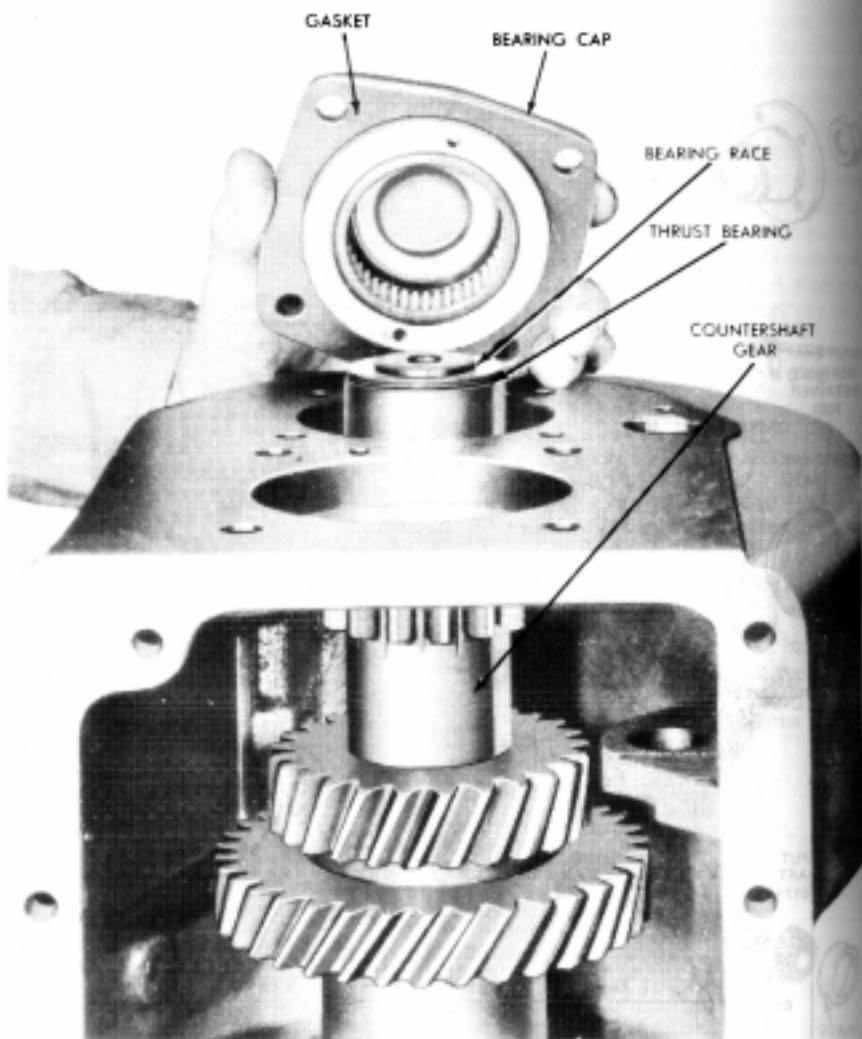


FIG. 9 Removing or Installing Countershaft Rear Bearing

- shaft while holding the front of the shaft against the block.
10. Install the rear extension housing on the transmission. Do not install the yoke until the output shaft end play has been checked. On transmissions equipped with a parking brake support, the yoke and retaining nut must be installed before the input shaft end play is checked.
11. With the cutaway portion of the clutch teeth in the downward position on the input shaft, install the gear in the case.
12. Install the input shaft bearing retainer with no gasket or cap screws. Using Tool T-64T-7000-A to hold the shaft and retainer concentric, measure the clearance between the retainer and the case (Fig. 12). Install a gasket shim pack 0.010 to 0.015 inch between the retainer and the case to obtain the required 0.007 to 0.017

inch input shaft end play. Tighten the front retainer bolts, then re-check the end play.

When the input shaft end play has been established, re-check the synchronizer clearance. It should be medium 0.050 to 0.070 inch or light 0.070-0.095 inch. Adjust, if required.

13. Install the parking brake shoes.
14. Lubricate the extension housing bushing and seal and U-joint flange with ball joint grease.
15. Install the speedometer drive gear, brake companion flange, brake drum, and the flange attaching nut. Lock the transmission in gear and tighten the nut to specification.
16. Place the transmission gears in neutral.
17. Install a new gasket and the gear shift housing.
18. Fill the transmission with lubricant, through the speedometer cable attachment opening in the rear

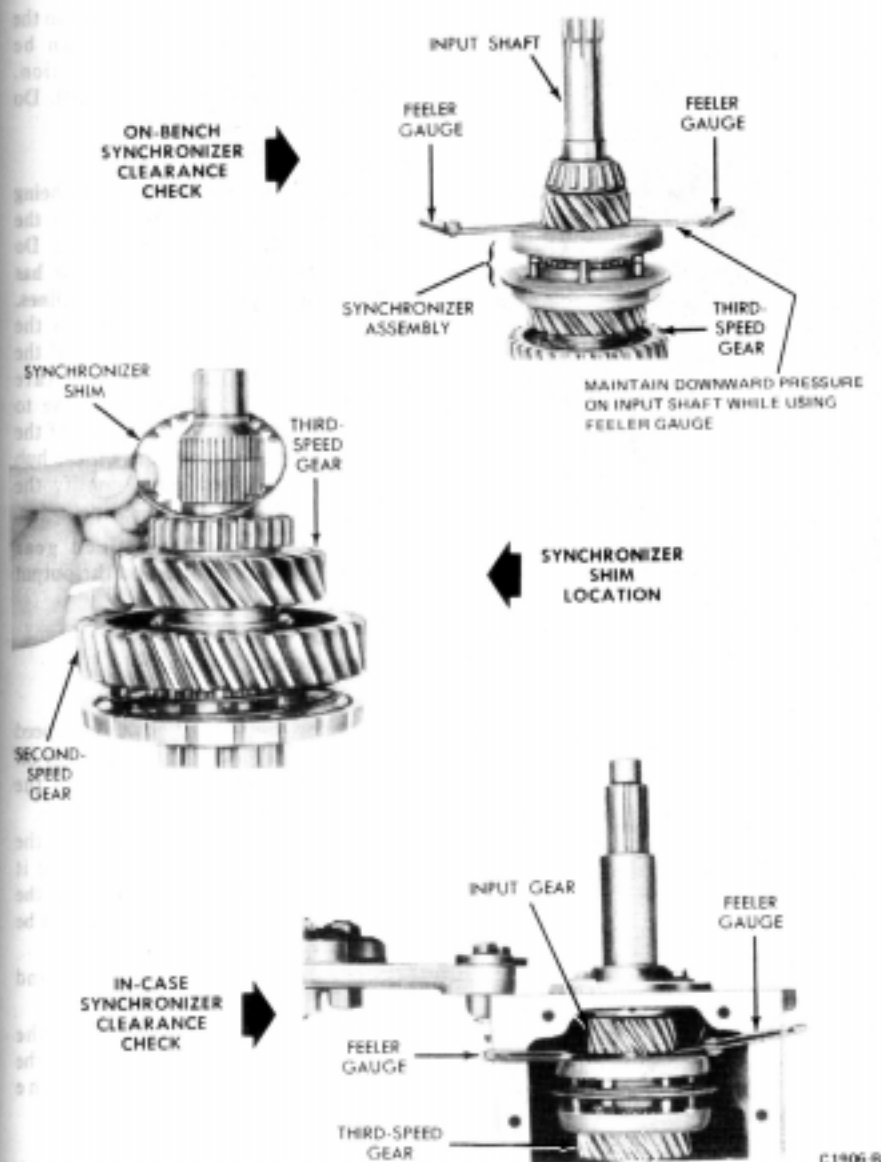


FIG. 10 Measuring Input Shaft-To-Synchronizer Clearance

bearing retainer, until the lubricant reaches the lower level of the regular filler opening (except F-250, 4x4).

SUB-ASSEMBLIES

Gearshift Housing

Disassembly

1. The gearshift housing should be disassembled only if it is necessary to replace a shift fork, shift rail, or the cover itself.
2. Slide the boot off the cap (if so equipped).
3. Using special Tool T73T-7220-A, turn the cap counterclockwise and remove the lever from the cover.
4. Remove the back-up lamp switch from the housing (Fig. 14).
5. Remove the spiral pin from the first- and second-speed shift fork and the gate with screw extractor shown in

Fig. 13. To insert the screw extractor into the spiral pin, tap lightly on fabricated handle while slowly turning counterclockwise. When extractor grips the pin, stop tapping and continue turning until spiral pin is removed.

6. Push the shifter shaft out through the rear to force the plug out of the housing. Cover the detent ball access hole to prevent the ball and the spring from flying out as the shaft clears the hole. Remove the shaft fork and the gate.
7. Remove the third- and fourth-speed shifter shaft in the same manner, then the reverse shifter shaft.
8. Compress the reverse gear plunger and remove the retaining clip. Remove the plunger and the spring from the gate (Fig. 14).

Assembly

1. Assemble the spring on the reverse gear plunger (Fig. 14) and hold it in the reverse shift gate. Compress it in the gate and install the retaining clip.
2. Enter the reverse shifter shaft in the cover and place the detent spring and ball in position. Depress the ball and slide the shifter shaft over it.
3. Install the gate and the fork on the shaft. Install new spiral pins in the gate and in the fork.
4. Apply a film of sealer in the plug seat at the rear of the cover. Install a new plug in the reverse shifter shaft bore.
5. Place the reverse fork in the neutral position.
6. Install the two interlock plungers in the bores (Fig. 14).
7. Insert the interlock pin in the third- and fourth-speed shifter shaft. Install the shaft in the same manner as the reverse shifter shaft mechanism.
8. Install the first- and second-speed shifter shaft in the same manner, making sure that the interlock plunger is in place.
9. Lubricate the spherical ball seat. Position the shift lever and cap in place.
10. Install the back-up lamp switch, and tighten to specification.

Countershaft Gear Front Bearing

Disassembly

Drive the countershaft gear front bearing cage from the case, being careful not to lose any of the roller bearings. The bearing can be driven out from the outside of the case.

Assembly

Carefully press the bearing cage into the case until it is flush with the front of the case. Retain the roller bearings in the bearing cage with grease.

Countershaft Gear Rear Bearing

1. Position the transmission so the front of the case is facing downward.
2. If uncaged bearings are re-used, the loose rollers (or needles) can be held in place with suitable grease. (This is not required with the caged-type bearing used for service replacement.) Position the bearings in the cap.
3. Position the race thrust bearing and the cap. Tighten the attaching bolts to specification.

Input Shaft Bearing Race

Disassembly

Pull the bearing race from the front bearing retainer with Puller T50T-100-A and OTC-943.

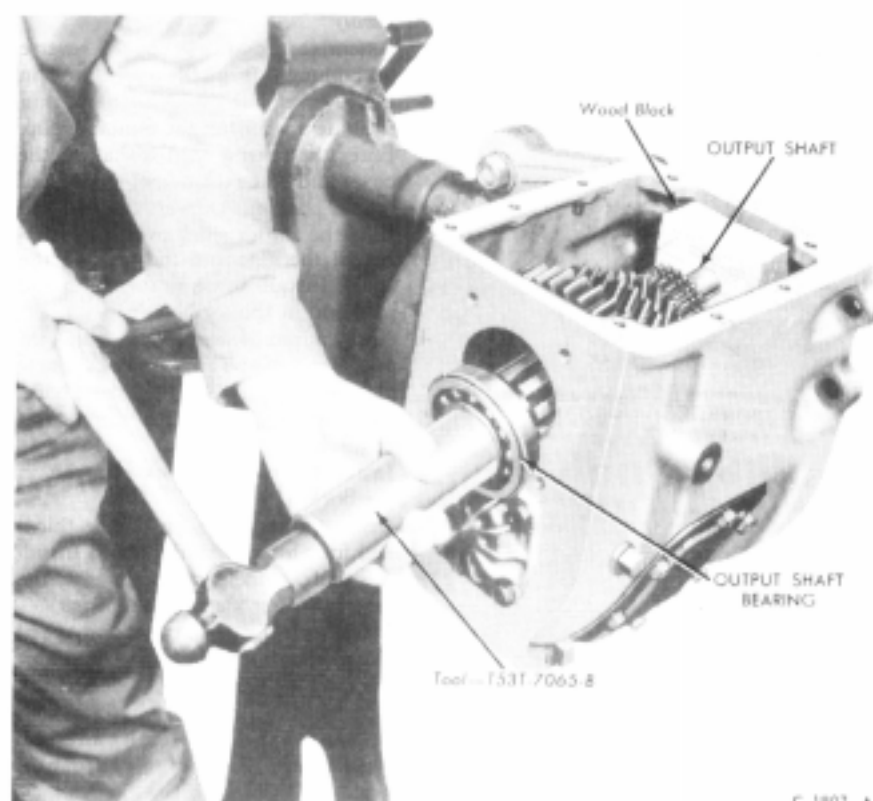


FIG. 11 Installing Output Shaft Rear Bearing

Assembly

Press a new race into the front bearing retainer with the tool shown in Fig. 15.

Input Shaft Seal

Disassembly

Pull the input shaft seal (Fig. 5) with Tool T58L-101-A and slide hammer T50T-100-A.

Assembly

Press a new seal into place in the retainer making sure that the lip of the seal is toward the mounting surface.

Input Shaft Bearing

Disassembly

Remove the tapered roller bearing from the input shaft with Tool T64T-7025-A and T54T-4625-B1.

Assembly

1. Position Tool 4261-BA in an arbor press as shown in Fig. 16. Place a wood block on the input gear and press the gear into the bearings until it contacts the bearing inner race.

Input Shaft Roller Bearings

Disassembly

1. Remove the snap ring and retaining washer from the shaft.

2. Remove the bearings from the input shaft bore.

Assembly

1. Coat the bore of the input shaft gear with a thin film of grease.
2. Install the 14 roller bearings in the bore of the input shaft. Slide the final roller axially into place. Secure the bearings with the retaining washer and the snap ring.

Reverse Idler Gear Bearings

On the F-100—F-350 and P-500 trucks and idler gear and an integral bronze bushing are used (Fig. 5). For service replacement of the reverse idler gear on these models, the gear and roller bearings are to be used as on other models. The service reverse idler gear and bearings are serviced only as an assembly. Once the bearing lock ring snaps into place, it cannot be removed without destroying either the gear or the bearing.

First Speed Gear

Disassembly

1. Remove both the sliding first-speed gear and the output shaft from the transmission.

2. Mark the gear and output shaft so the gear and shaft splines can be assembled in the same position. Remove gear from output shaft. Do not lose the spline springs.

Assembly

1. If a new gear and/or shaft is being installed, select-fit the gear to the shaft for the best sliding action. Do the same if the first-speed gear has been sticking on the shaft splines. Position the spline springs on the coast side of the spline teeth of the first speed gear. To facilitate assembly, use a daub of grease to retain the springs on the sides of the spline teeth. Two notches on the hub of the first speed gear identify the location of the relieved splines.
2. Place the new first speed gear assembly in its position on the output shaft.

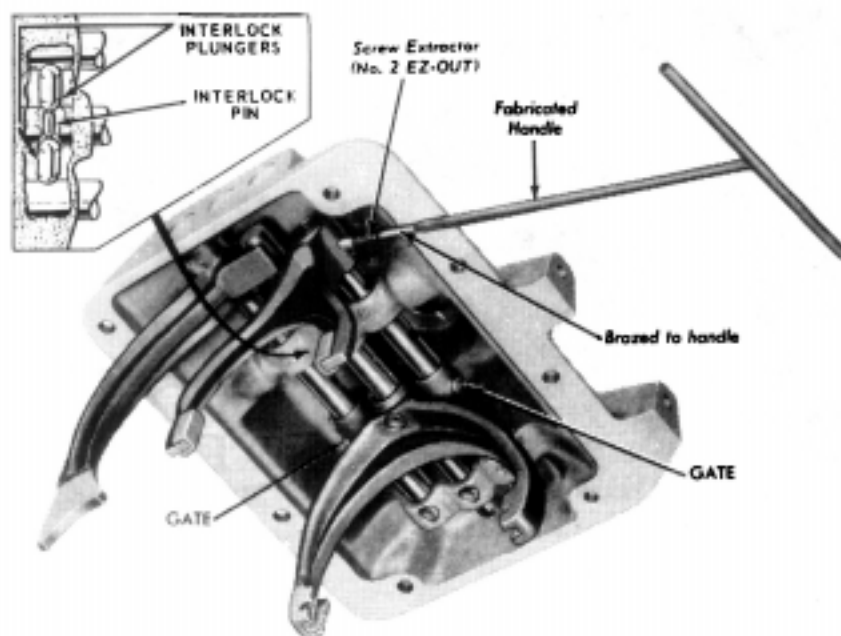
Second Speed Gear

Disassembly

1. Slide the third-speed gear, first-speed gear stop, and the first-speed gear off the output shaft. Do not lose the slider gear springs.
2. Carefully pry up on one end of the two-piece snap ring and remove it from the shaft. If any damage to the ring results from this, it should not be re-used.
3. Slide the second-speed gear and synchronizer brake off the shaft.
4. Remove the snap ring from the synchronizer brake pins. Separate the brake and spring from the second-speed gear.

Assembly

1. Assemble the spring and synchronizer brake to the second-speed gear. Secure the brake with the snap ring, making sure that the snap ring tangs are away from the gear.
2. Slide the second-speed gear onto the front of the output shaft, being sure that the synchronizer brake is toward the rear. Secure the gear to the shaft with the two-piece snap ring.
3. Slide the spring-loaded first-speed gear and the gear stop (Fig. 5) onto the rear of the shaft.
4. Slide the third-speed gear, synchronizer shim (if required), the third- and fourth-speed synchronizer, and the roller-type thrust bearing onto the front of the shaft.



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FIG. 13 Removing Shift Fork Spiral Pin

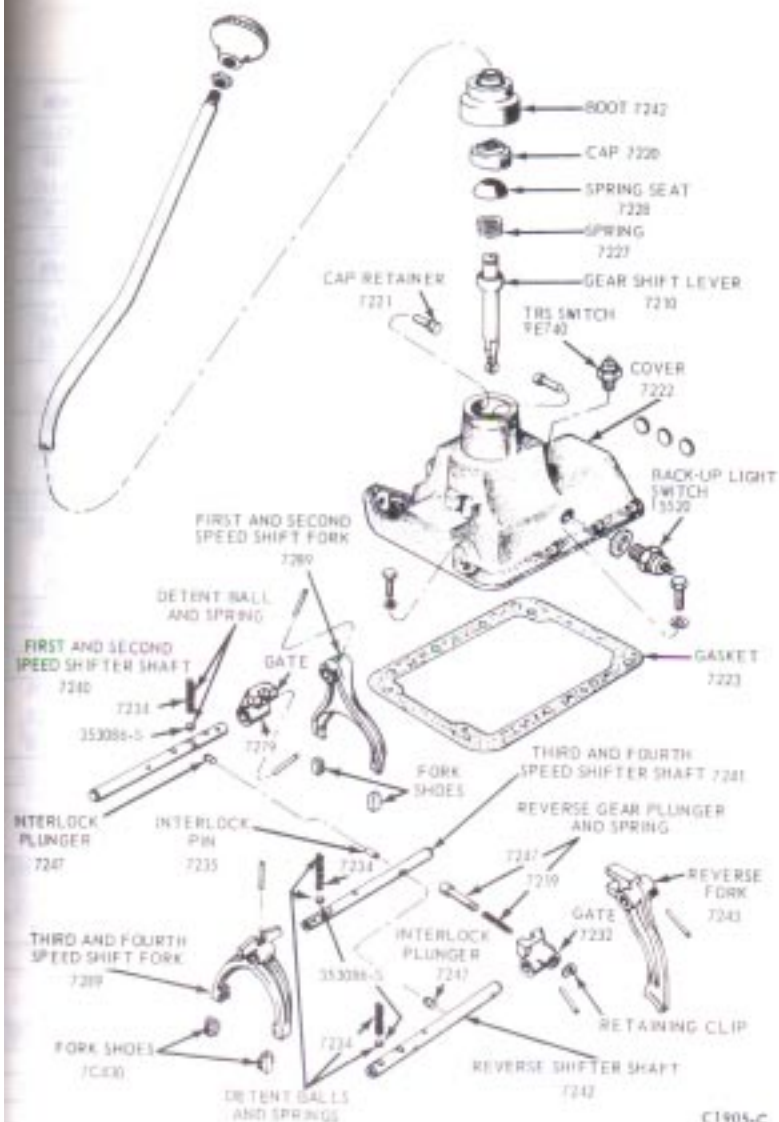


FIG. 14 Gearshift Housing Disassembled

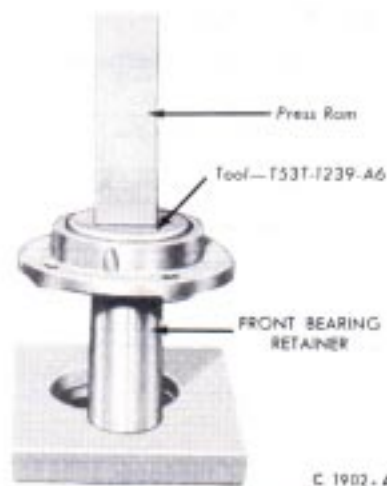


FIG. 15 Installing Front Bearing Race

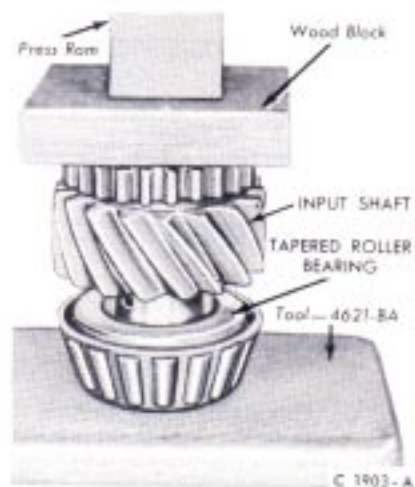


FIG. 16 Installing Input Shaft Bearing