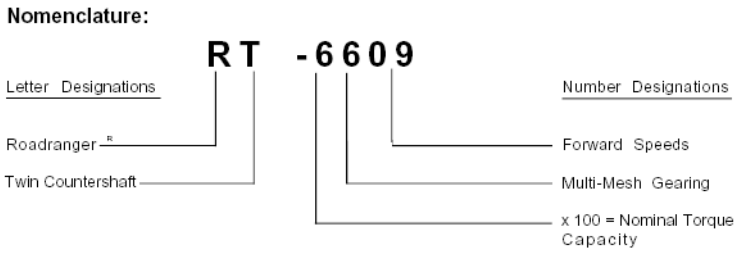
Model Designations and Specifications

Nomenclature



CAUTION: All Eaton Fuller Transmissions are identified by the model and serial number. This information is stamped on the transmission identification tag and affixed to the case. DO NOT REMOVE OR DESTROY THE TRANSMISSION IDENTIFICATION TAG.

Model	No. Speeds	GEAR RATIOS										
		LOW RANGE					HIGH RANGE				REVERSE	
		LO	1st	2nd	3rd	4th	5th	6th	7th	8th	LO	HI
RT-6609	9	12.72	8.61	6.27	4.66	3.42	2.52	1.83	1.36	1.00	12.08	3.53

Relative Speed PTO Gear to Input R.P.M.		Note 1 Length	Note 2 Weight	Note 3 Oil capacity
Right	Bottom	28.4 in	440 Lbs.	12 Pints
.720	.720	721.9 mm	199 Kgs	5.81 liters

Chart Note:

1. Lengths measured from clutch housing face to companion flange or yoke front bottoming surface.
2. Weights - Listed weights are without a clutch housing and include standard controls, which consist of gear shift lever housing and gear shift lever. Weight of standard controls is approximately 10 lbs. (4.5 kg). All weights are approximate.
3. Oil capacities are approximate, depending on inclination of engine and transmission. Always fill transmission, with proper grade and type of lubricant, to level of filler opening. See LUBRICATION.

Lubrication

Proper Lubrication… the Key to long transmission life
Proper lubrication procedures are the key to a good all around maintenance program. If the oil is not doing its job, or if the oil level is ignored, all the maintenance procedures in the world are not going to keep the transmission running or assure long transmission life.

Eaton Fuller Transmissions are designed so that the internal parts operate in an oil circulating bath by the motion of the gears and shafts.

Thus, all parts are amply lubricated if these procedures are closely followed:

1. Maintain oil level. Inspect regularly.
2. Change oil regularly.
3. Use the correct grade and type of oil.
4. Buy from a reputable dealer.

Lubrication Change and Inspection

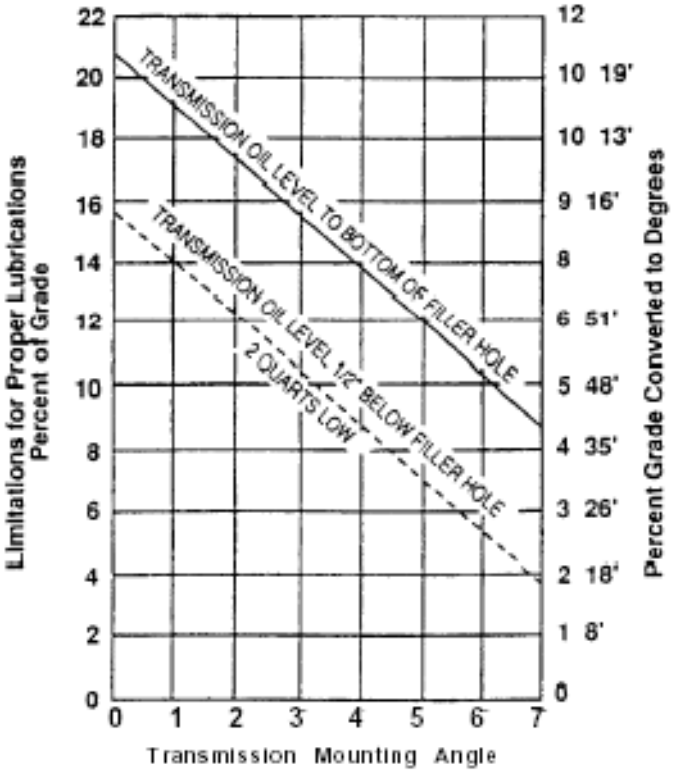
Eaton® Roadranger® CD50 Transmission Fluid	
HIGHWAY USE-Heavy Duty and Mid-Range Initial Fill with Eaton® Roadranger ®CD50 Transmission Fluid	
Every 10,000 miles (16090 Km)	Check fluid level. Check for leaks
Every 250,000 miles (402,336 Km)	Change transmission fluid
OFF-HIGHWAY USE	
Every 30 hours	Inspect lubricant level, Check for leaks
Every 500 hours	Change transmission fluid where severe dirt conditions exist.
Every 1,000 hours	Change transmission fluid (Normal off-highway use)
HIGHWAY USE-Heavy Duty and Mid-Range Initial Fill with Other Recommended Oil	
First 3,000 to 5,000 miles	Factory fill initial drain
(4827 to 8045 Km)	Refill with Eaton® Roadranger® CD50 Transmission oil;
	thereafter follow maintenance intervals above
HIGHWAY USE	
First 3,000 to 5,000 miles (4827 to 8045 Km)	Factory fill initial drain.
Every 10,000 miles (16090 Km)	Inspect lubricant level, Check for leaks
Every 50,000 miles (80,450 Km)	Change transmission lubricant.
OFF-HIGHWAY USE	
First 30 hours	Change transmission lubricant on new units
Every 40 hours	Inspect lubricant level. Check for leaks
Every 500 hours	Change transmission lubricant where severe dirt conditions exist
Every 1,000 hours	Change transmission lubricant (Normal off-highway use.)

Proper Lubrication Levels as Related to Transmission Operating Angles
If the transmission operating angle is more than 12 degrees, improper lubrication can occur. The operating angle is the transmission mounting angle in the chassis plus the percent of upgrade (expressed in degrees).

The chart below illustrates the safe percent of upgrade on which the transmission can be used with various chassis mounting angles. For example: if you have a 4 degree transmission mounting angle, then 8 degrees (or 14 percent of grade) is equal to the limit of 12 degrees. If you have a 0 degree mounting angle, the transmission can be operated on a 12 degree (21 percent) grade.

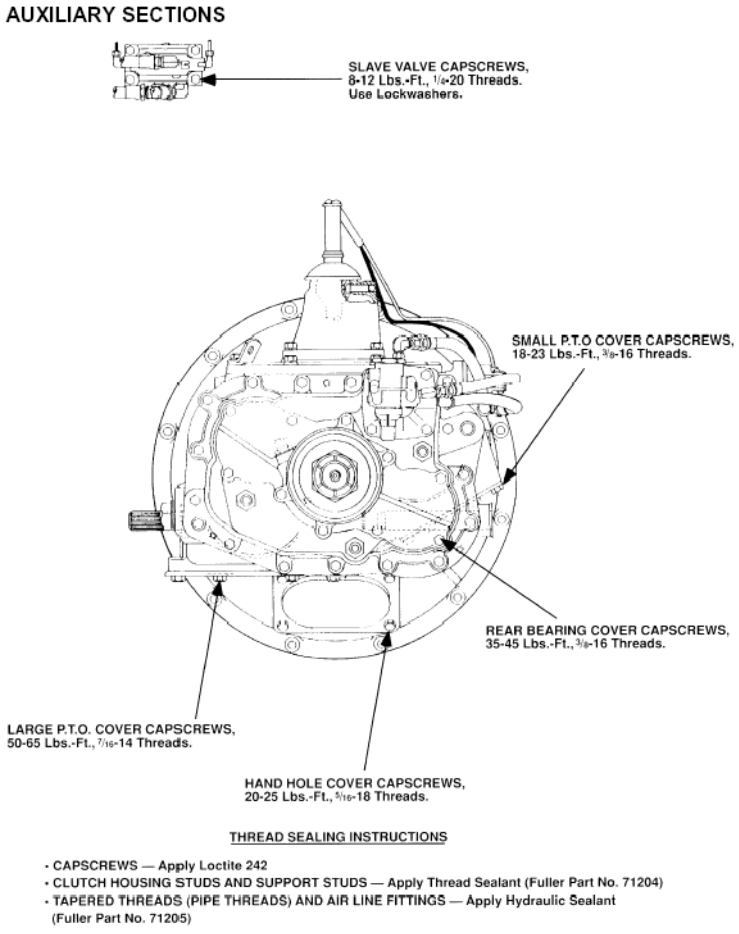
Anytime the transmission operating angle or 12 degrees is exceeded for an extended period of time the transmission should be equipped with an oil pump or cooler kit to insure proper lubrication.

Note on the chart the effect low oil levels can have on safe operating angles. Allowing the oil level to fall 1 1/2" below the filler plug hole reduces the degree of grade by approximately 3 degrees (5.5 percent).

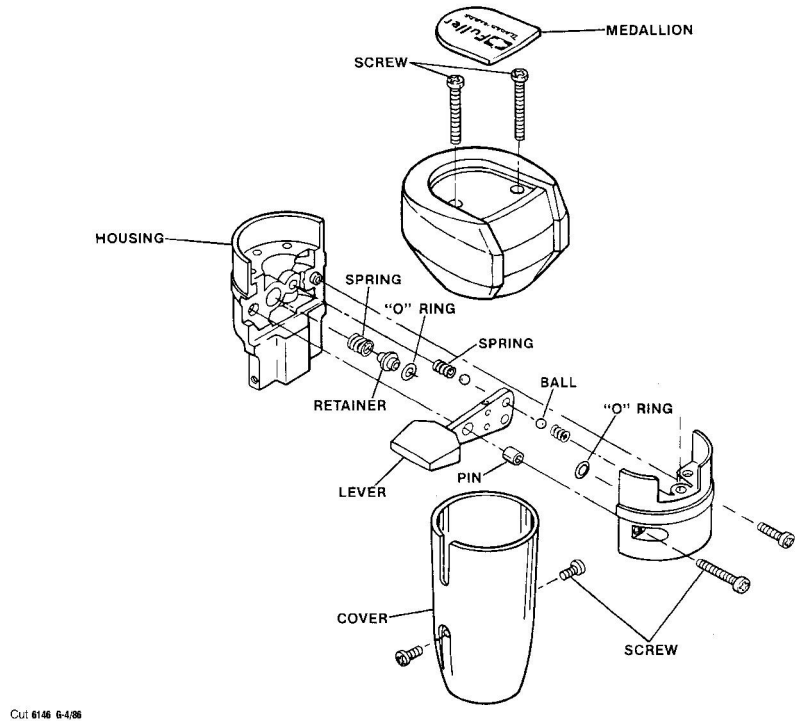


Dotted line showing "'2 Quarts Low" is for reference only. Not recommended

AUXILIARY SECTIONS



Roadranger Valve A-5010



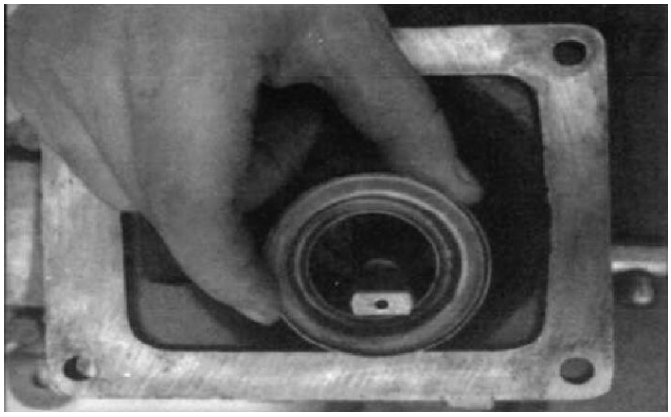
Removal and Disassembly

1. Remove two screws holding bottom cover to valve and slide cover down gearshift lever to expose air line fittings. Disconnect air lines.
2. Loosen jam nut and turn control valve from gear shift lever.
3. Pry medallion from recess in top cover.
4. Turn out the two screws to remove the top cover from valve housing.
5. Turn out the two screws in side of valve housing to separate the housing.
6. Remove the Range Preelection Lever from left housing and the position balls and guide from lever.
7. If necessary, remove spring and O-ring from bores in left housing.
8. If necessary, remove springs, O-ring and sleeve from bores in right housing.

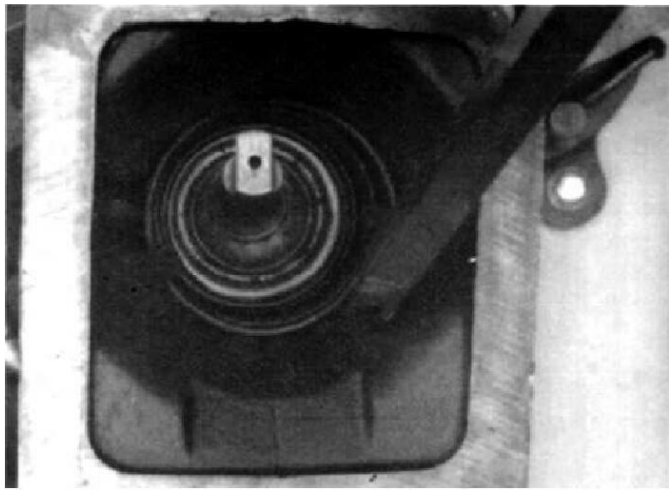
Reassembly and Installation

1. Refer to the drawing for proper reassembly. Use a VERY SMALL amount of silicone lubricant on the O-rings to avoid clogging ports. A small amount of grease on the position springs and balls will help to hold them in place during reassembly.
2. Reinstall control valve on gear shift lever and tighten jam nut.
3. Attach the air lines and reinstall bottom cover.

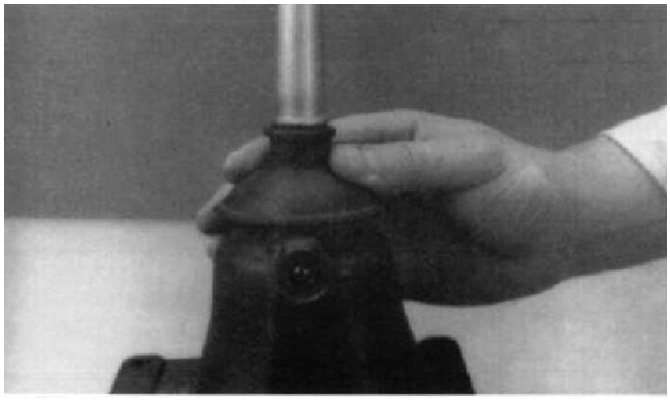
2. Position the gear shift lever in the housing with the spade pin in the lever ball slot. Install the tension spring washer over the ball, dished side



3. Remove the assembly from the vise. Install the rubber boot over the gear shift lever and against the housing.



4. Remove the assembly from the vise. Install the rubber boot over the gear shift lever and against the housing.



Removal and Disassembly of the Output Shaft and Rear Bearing Cover

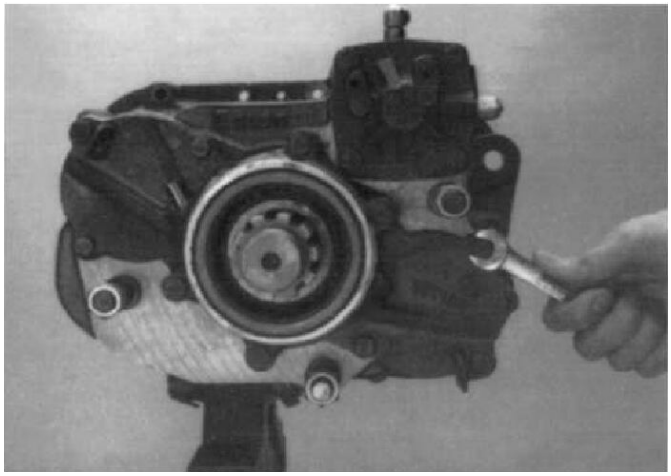
Special Instructions

None

Special Tools

- Typical Service Tools

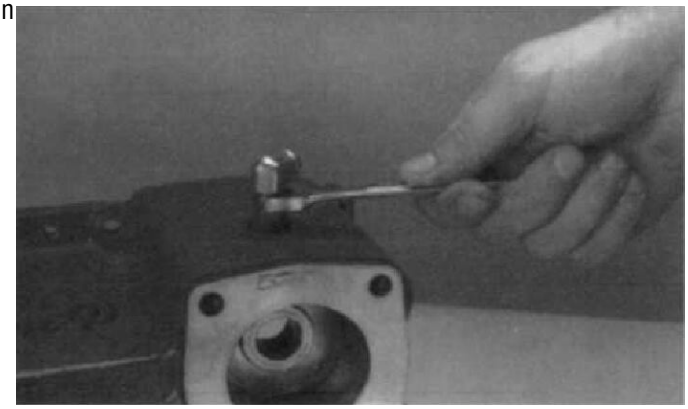
Procedure -



1. Remove the 12 cap screws and the rear bearing cover and gasket.

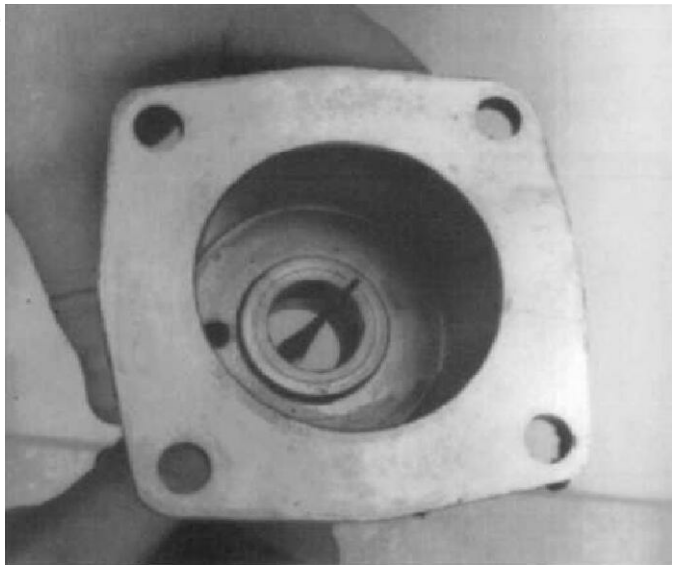
2. If necessary, remove the oil seal from the rear bearing cover.

9. IMPORTANT: Remove the dust seal and airport extension from the range cylinder housing top.



10. Remove the cylinder housing.

11. If necessary, remove the O-ring from the small bore in the cylinder.



Reassembly of the Range Cylinder

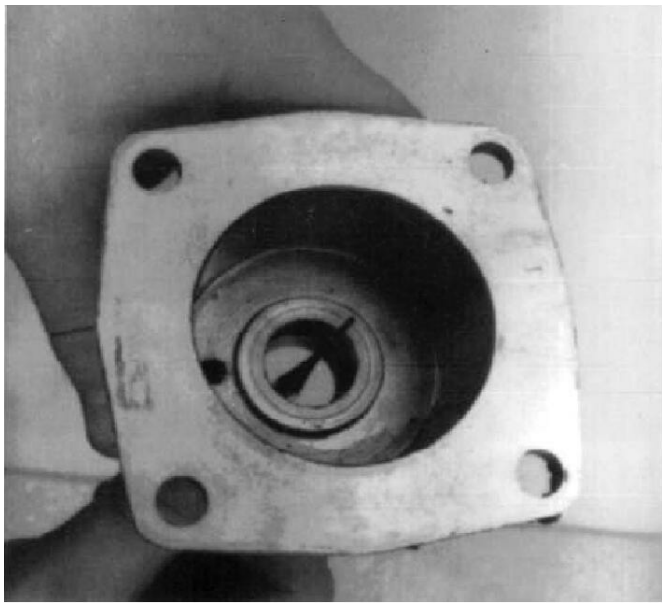
Special Instructions

None

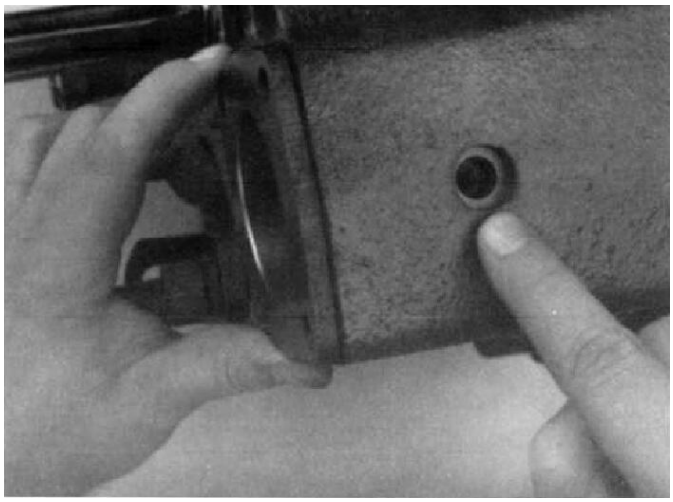
Special Tools

- Typical Service Tools

Procedure -



1. If removed, install the O-ring in the cylinder small bore slot. Lubricate the O-ring with silicone lubricant.



2. Install the range cylinder in the housing with the cylinder air port aligned with the air port in the auxiliary housing.

Reassembly of the Auxiliary Countershafts

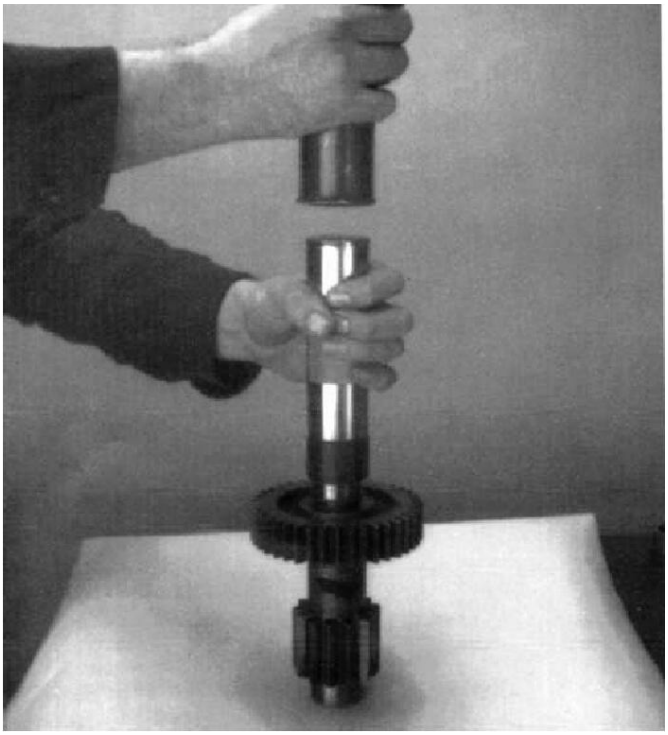
Special Instructions

Note: Countershaft gear teeth must be marked for timing the auxiliary section. Mark with a highly visible color of toolmakers' dye.

Special Tools

- Bearing Driver
- Toolmakers Dye
- Typical Service Tools

Procedure -



1. Install the bearing inner race on the countershaft front.

Removal of the Upper Countershaft Bearings

Special Instructions

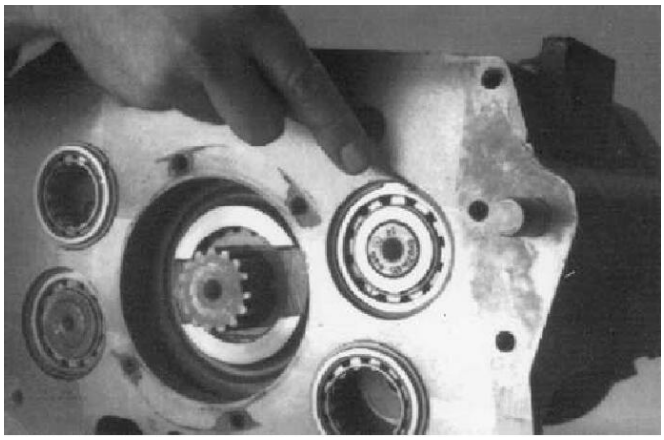
Note: Steps 4 and 5 may have to be repeated several times to unseat the front bearing.

Note: Removal procedure damages the bearings. Removal should not be attempted unless bearing replacement is planned.

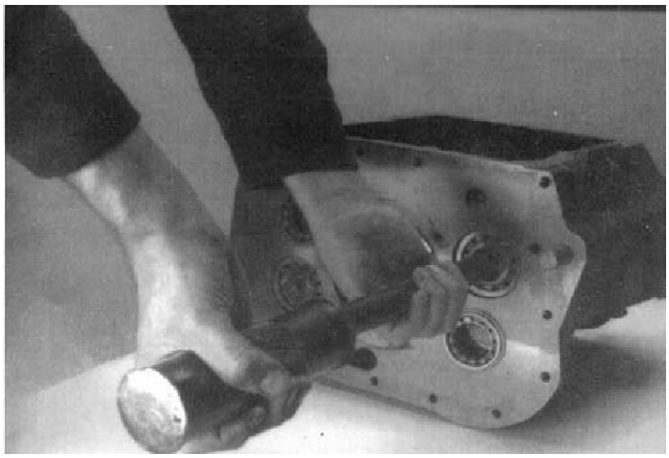
Special Tools

- Typical Service Tools

Procedure -



1. Remove the upper countershaft snap ring from the case rear bearing bore.



2. Use a soft bar and maul against the countershaft rear and move the countershaft assembly forward as far as possible until the snap ring groove in the front bearing is exposed.

Removal and Disassembly of the Mainshaft Assembly

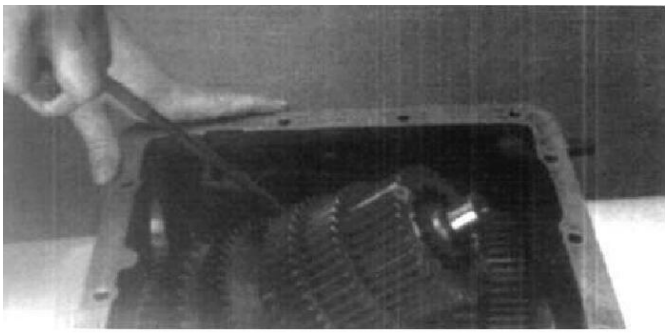
Special Instructions

WARNING: The drive gear is free and can fall from the mainshaft.

Special Tools

- Mainshaft Hook
- Vise with Jaw Protectors

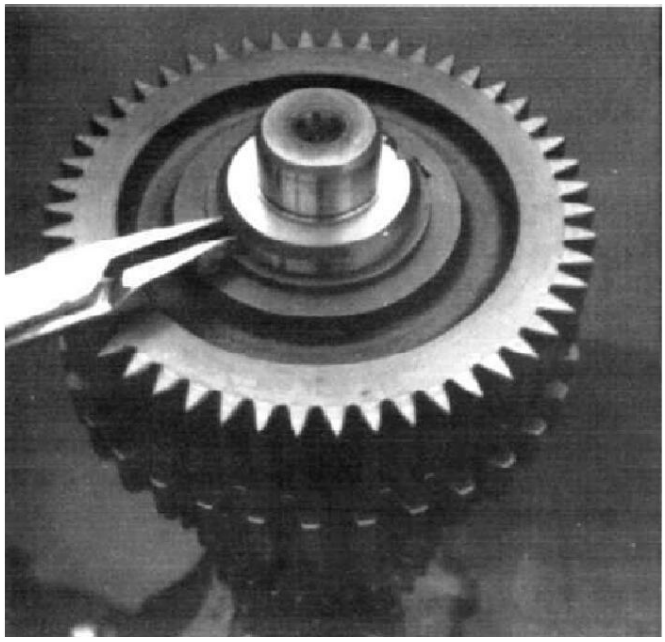
Procedure -



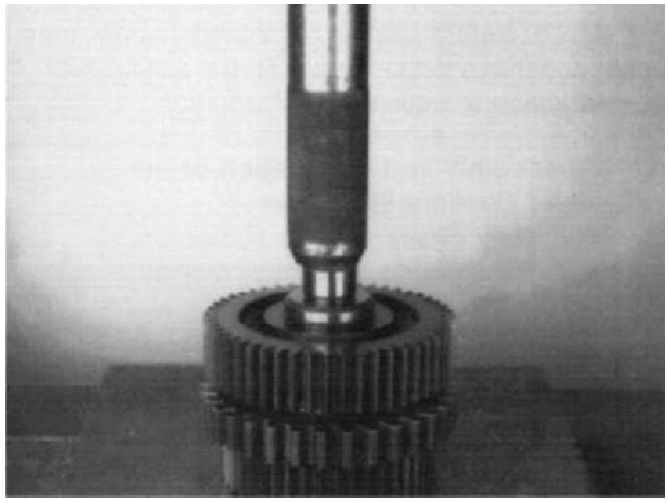
1. Block the right countershaft assembly against the case wall. Slide the drive gear to the rear and engage with the sliding clutch splines. Use a hook around 1st-2nd sliding clutch, tilt the mainshaft front up and lift the assembly from the case.

2. Secure the mainshaft, drive gear up, in a vise. Remove the drive gear and the 3rd-4th speed sliding clutch.

2. Remove the snap ring from the countershaft front.

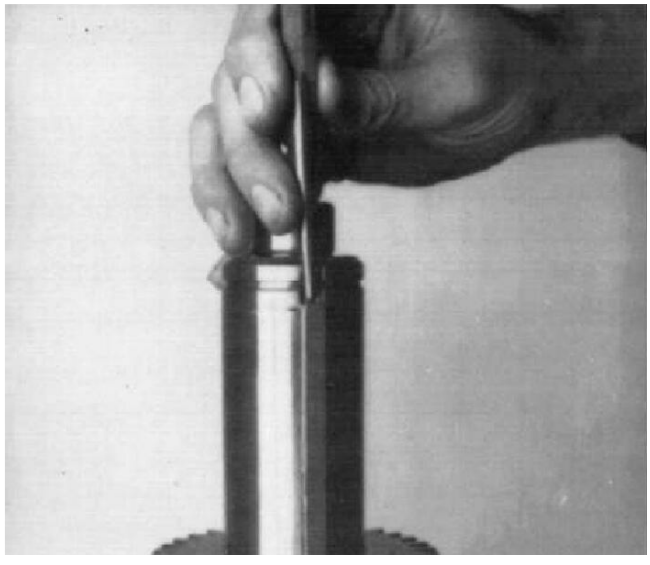


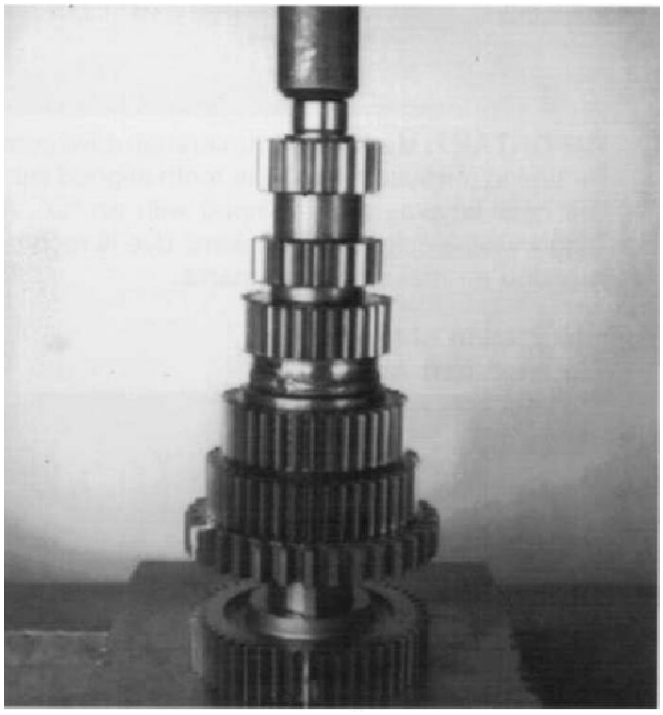
3. Remove countershaft drive gear, countershaft PTO gear, and countershaft 3rd speed gear together by pressing on the countershaft 3rd speed pear bottom face.



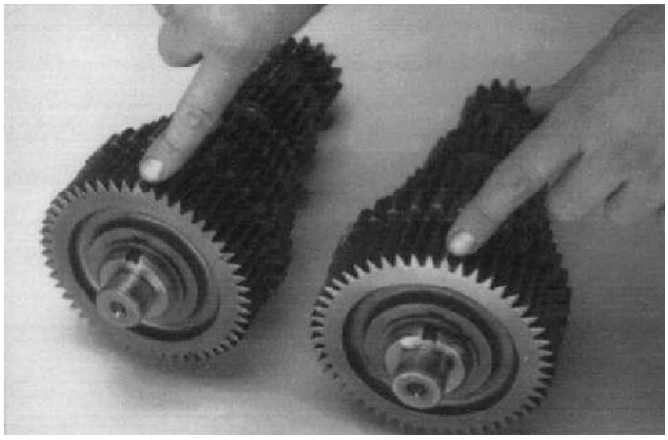
4. If necessary, remove the countershaft key.

   Note: You cannot remove any more gears from the countershaft.





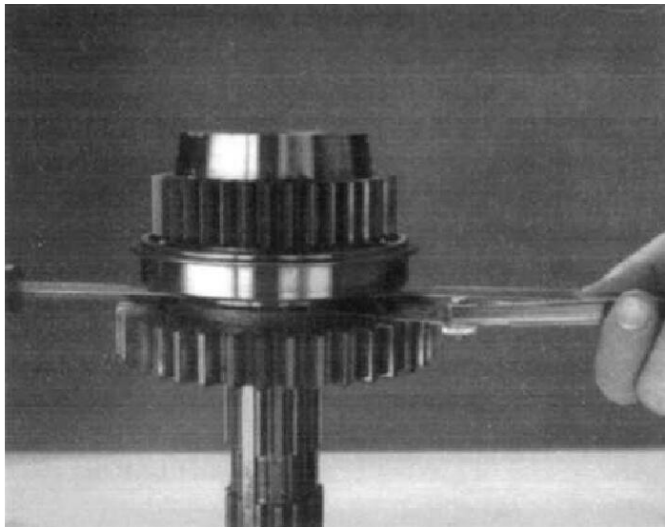
4. Align the countershaft drive gear keyway with countershaft key, press the countershaft drive gear onto the countershaft with gear long hub to the rear, (marked timing tooth to the front.)



5. Install the snap ring in each countershaft front groove.

Note: Mark each countershaft drive gear for timing purposes. Mark the tooth aligned with the gear keyway and stamped with an "O" A highly visible color of toolmakers' dye is recommended for making timing marks.

7. Insert two screwdrivers between the reverse gear hub and the auxiliary drive gear. Apply slight downward pressure on the screwdriver handles to spread the gears evenly apart. Make sure the gear hubs are parallel, insert a feeler gage between the hubs. Correct axial clearance should be from .005" to. 012". If the clearance is less than the minimum .005" tolerance, the tolerance washer in the reverse gear should be replaced by a thinner tolerance washer. This increases the axial clearance between gears. If the clearance checked is greater than the maximum .012" tolerance, a thicker tolerance washer should be installed in the reverse gear. This would decrease the axial clearance between the gears.



8. After proper reverse gear clearance has been set, remove the snap ring from the mainshaft rear, remove the auxiliary drive gear and the reverse gear from the mainshaft. The tolerance washer and key remain on the mainshaft. Reposition the mainshaft with the reverse gear minus its snap ring in the vise as shown, pilot end up, with the keyway accessible.