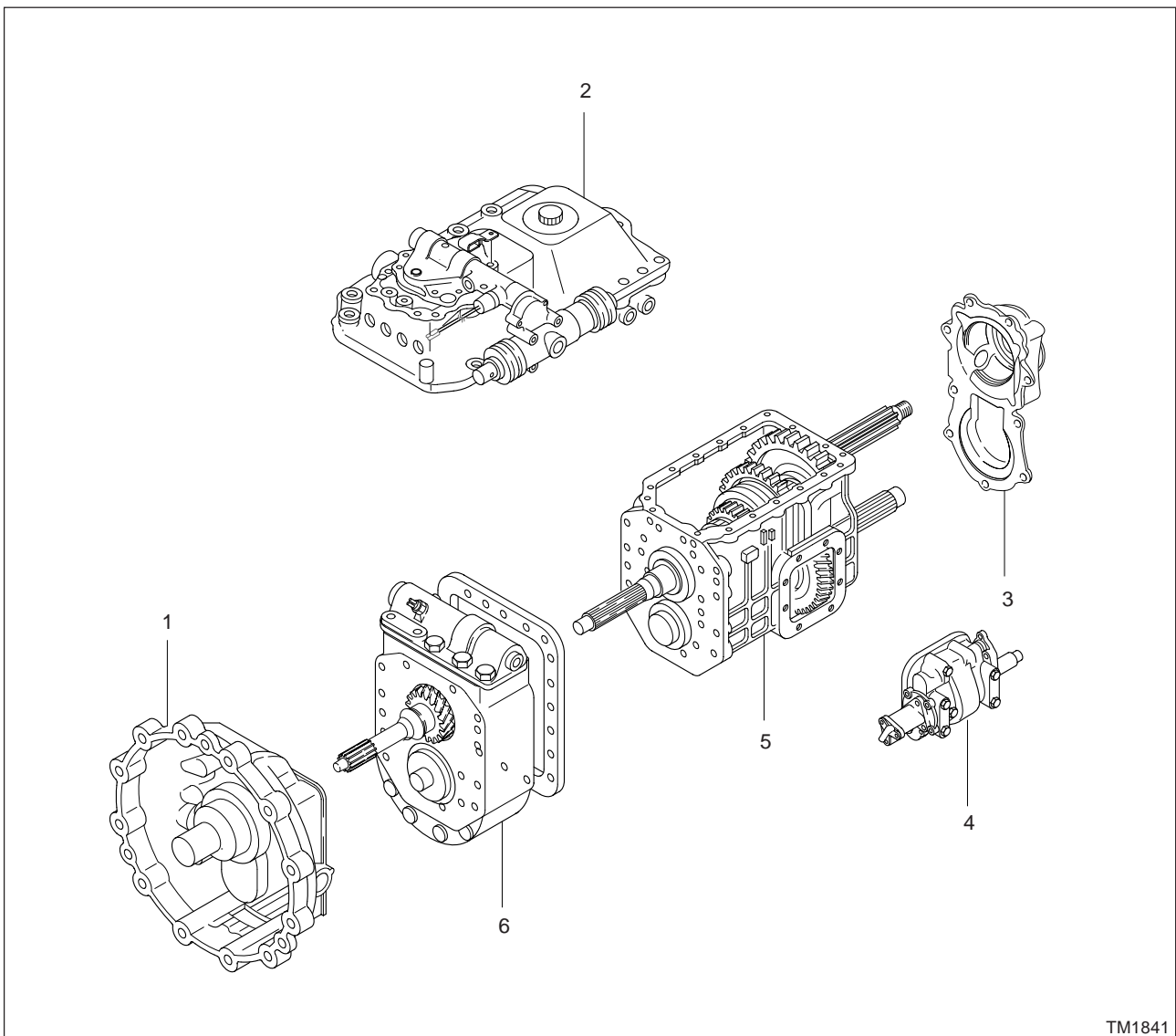


8. TRANSMISSION ASSEMBLY (T14S10)

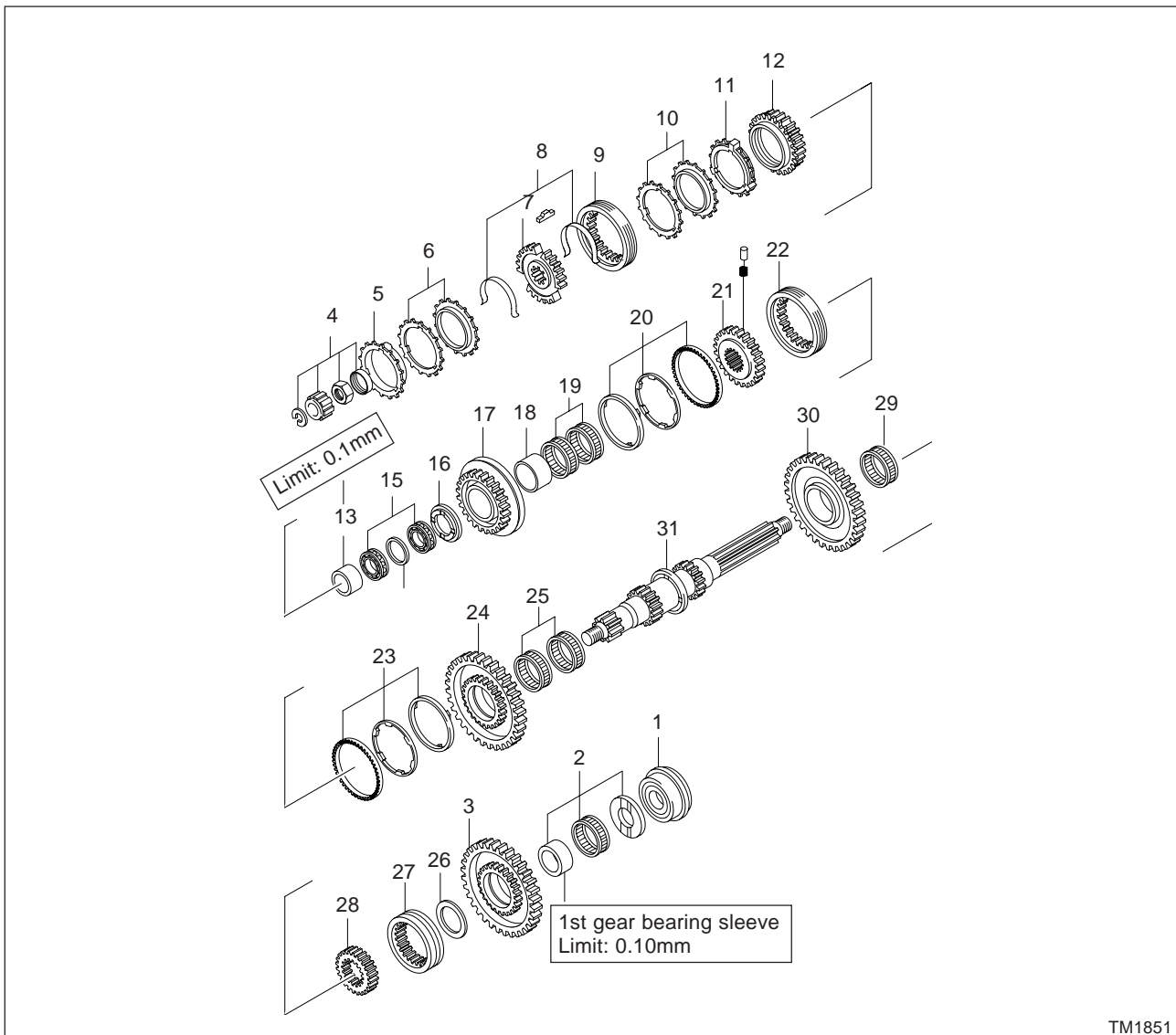
8-1. MAJOR COMPONENT DISASSEMBLY STEPS



TM1841

- | | |
|--------------------------------|--------------------------------|
| 1. Clutch housing | 4. PTO and Oil pump |
| 2. Gearshifts, Lower and Upper | 5. Transmission |
| 3. Rear cover | 6. Splitter and Splitter upper |

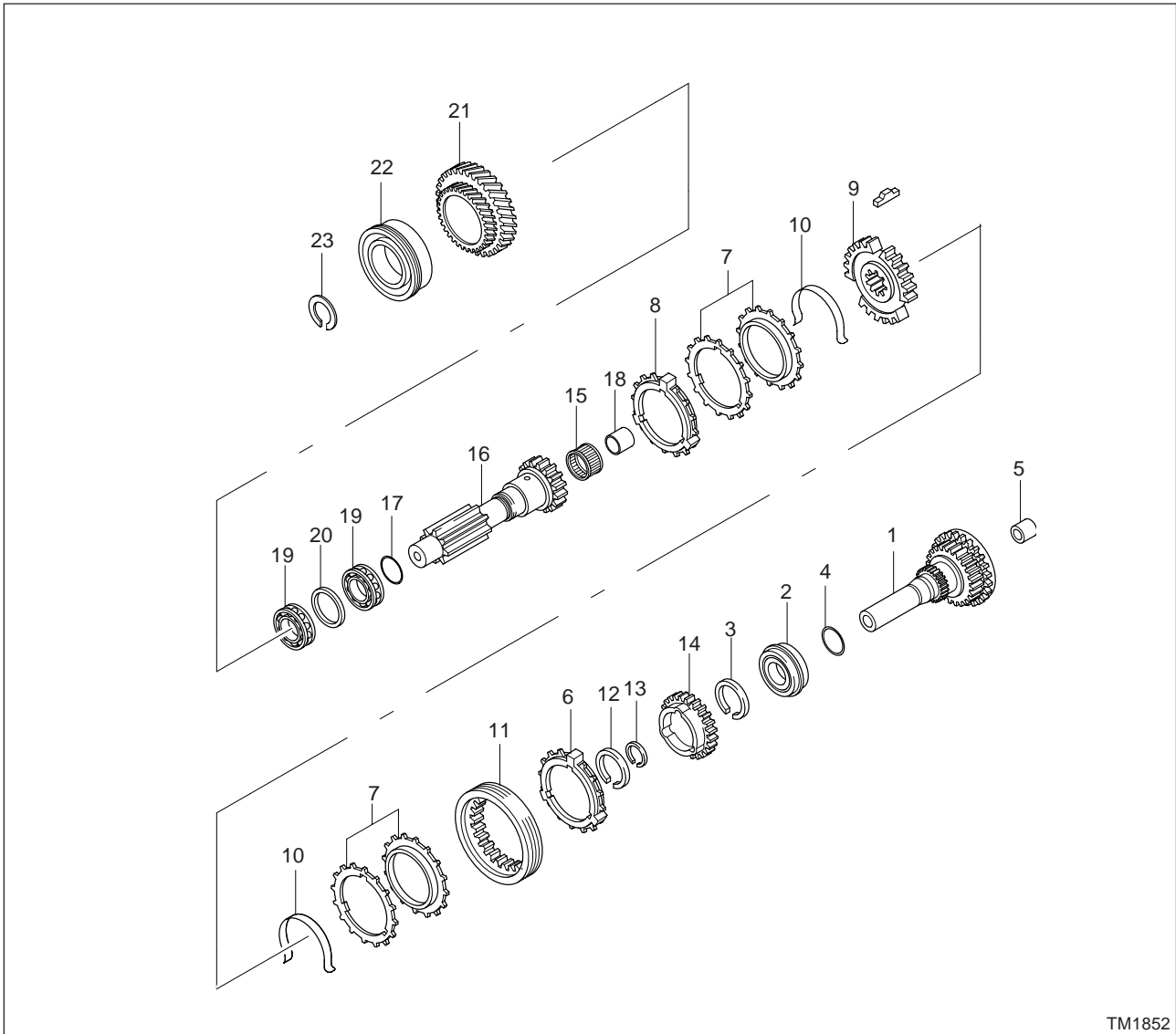
8-2. MAIN SHAFT GEAR DISASSEMBLY STEPS



TM1851

- | | |
|--|--|
| 1. Roller bearing | 18. 3rd needle bearing sleeve |
| 2. Needle roller bearing/ Sleeve/ Washer | 19. Needle roller bearing |
| 3. Main shaft 1st gear | 20. 2nd and 3rd synchro out ring/ Middle ring/ Inner ring |
| 4. Washer/ Nut/ Pilot bearing/ Snap ring | 21. 2nd and 3rd synchronizer hub |
| 5. 4th and overdrive synchro out ring | 22. 2nd and 3rd synchronizer sleeve |
| 6. 4th and overdrive synchro middle/ Inner ring | 23. 2nd and 3rd synchronizer out ring/ Middle ring/ Inner ring |
| 7. 4th and overdrive synchro hub | 24. 2nd gear assembly |
| 8. Detent spring | 25. Needle roller bearing |
| 9. 4th and overdrive synchro sleeve | 26. Sleeve bearing spacer |
| 10. 4th and overdrive synchro middle/ Inner ring | 27. 1st/ Reverse constant sleeve |
| 11. 4th and overdrive synchro out ring | 28. 1st/ Reverse constant hub |
| 12. 4th gear assembly | 29. Needle roller bearing |
| 13. 4th needle bearing sleeve | 30. Reverse gear |
| 14. 4th needle bearing spacer | 31. Main shaft |
| 15. Needle roller bearing | |
| 16. Thrust washer | |
| 17. 3rd gear assembly | |

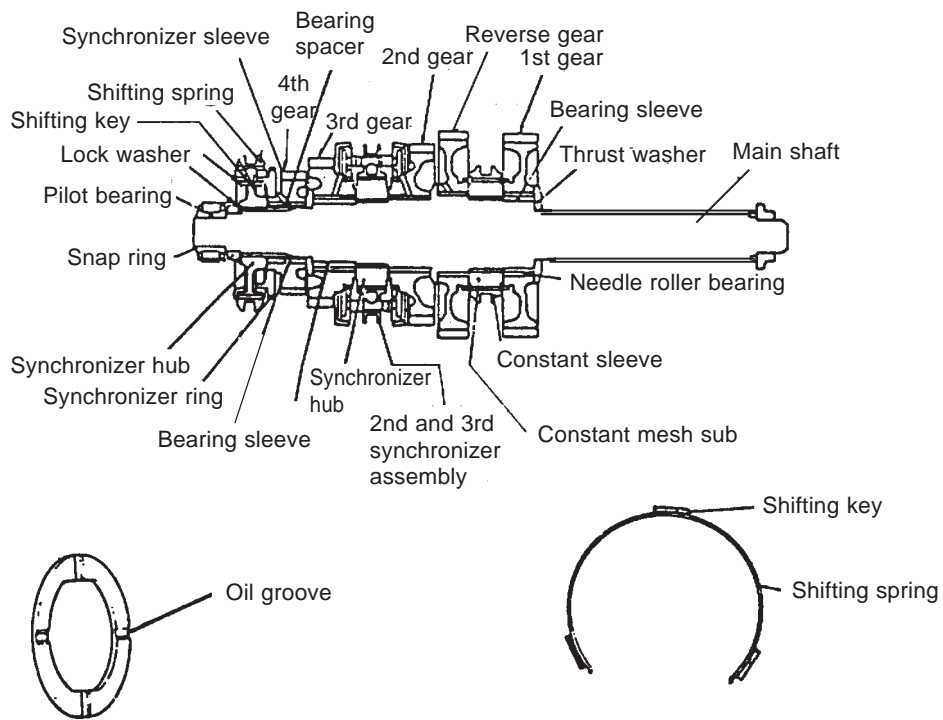
8-3. DRIVE PINION GEARMBLY



TM1852

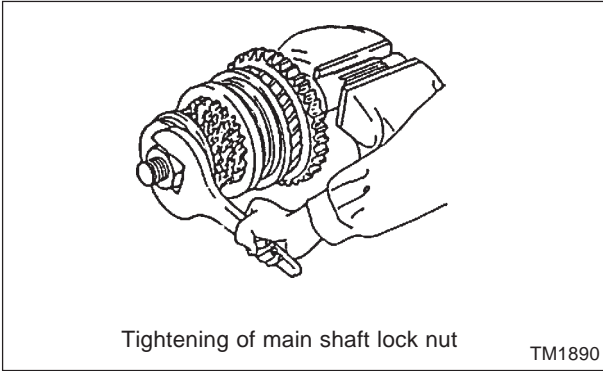
- | | |
|--|-----------------------------|
| 1. Drive pinion assembly | 12. Snap ring |
| 2. Roller bearing | 13. Snap ring |
| 3. Snap ring | 14. Spliter synchro cone |
| 4. Snap ring | 15. Roller bearing |
| 5. Oil feed adapter | 16. Input shaft |
| 6. Spliter synchro out ring | 17. Sealing |
| 7. Spliter synchro middle ring
/ Inner ring | 18. Oil feed adapter |
| 8. Spliter synchro out ring | 19. Needle roller bearing |
| 9. Spliter synchro hub | 20. Spliter bearing spacer |
| 10. Detent spring | 21. Spliter pinion assembly |
| 11. Spliter synchro sleeve | 22. Roller bearing |
| | 23. Snap ring |

8-4. MAIN SHAFT ASSEMBLY

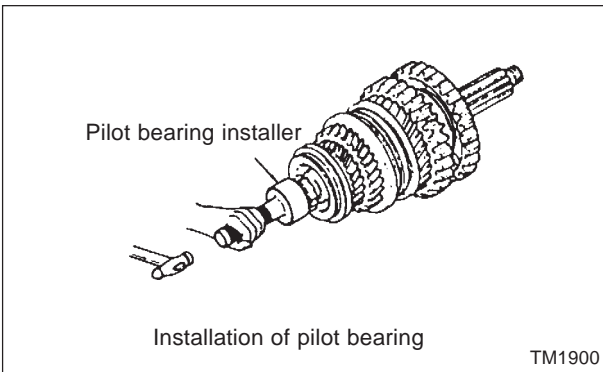


Thrust washer should be so assembled that its side and oil groove are directed toward gears.

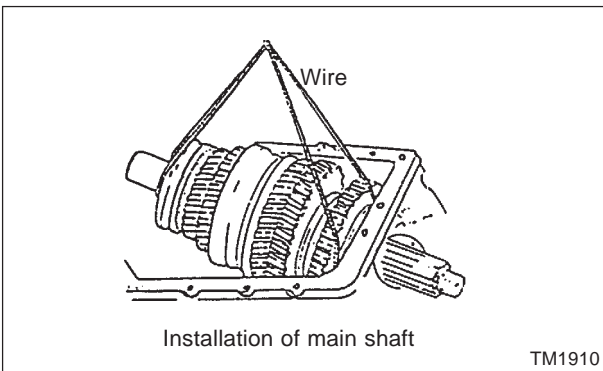
TM1880



- Tighten main shaft lock nut.



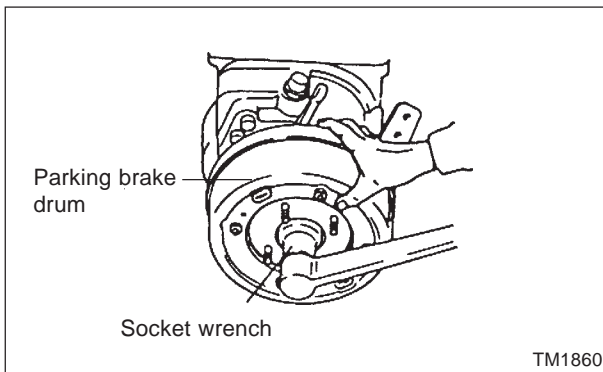
- Install pilot bearing.



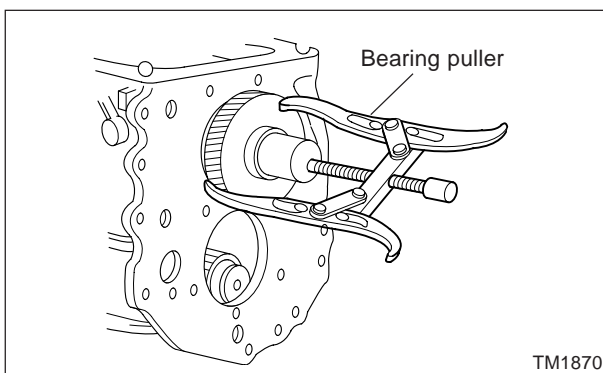
- Support front and rear end of main shaft with dummy bearing.(special tool:CA21051)
- Use dummy bearing retainer when installing rear bearing to avoid deflection of main shaft.

Caution

- After completing installation, ensure that each gear rotates smoothly.
- Main shaft front lock nut fixing torque: 4,000 ~ 6,000kgf·cm²

IMPORTANT OPERATIONS(DISASSEMBLY)

- 1) Remove lock nut from main shaft rear using special socket wrench.
- 2) Remove flange by using flange puller.
- 3) Remove rear cover.



- 4) Remove main shaft bearing using bearing puller.
(Special tool: CA21041 or CA21101)

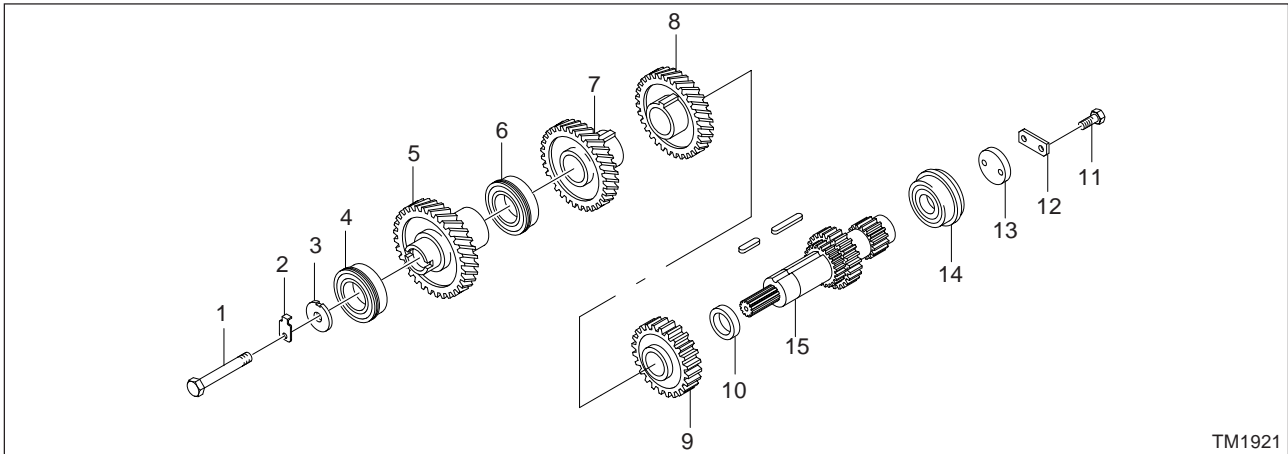
5) Synchronizer assembly

Warner-type synchronizer assembly can be disassembled. But pin-type synchronizer assembly cannot be disassembled because the stem has been inserted in synchronizer ring. When defect is found, replace synchronizer assembly as a complete set.

- 6) Remove washer, 1st gear, needle roller bearing, bearing sleeve, and spacer in the rear of main shaft. Position the front end of main shaft upward, pull out the gear using press, then remove the 1st gear and constant mesh hub, constant mesh sleeve, and needle roller bearing.
- 7) Use snap ring expander to remove pilot bearing snap ring from the front part of main shaft.
- 8) Flatten lock washer, loosen lock nut using special tool (hook wrench), then take out pilot bearing about half.
- 9) When lock nut is unscrewed up to threaded part of main shaft, either install puller set on the end of lock nut or tap and remove the lock nut.
- 10) Take out 4th/5th synchronizer hubs, synchronizer assembly, 4th gear bearing sleeve, needle roller bearing and washer.
- 11) Position the rear part of main shaft upward to take out 3rd gear using press, and all the remaining parts including synchronizer assembly will be disassembled.

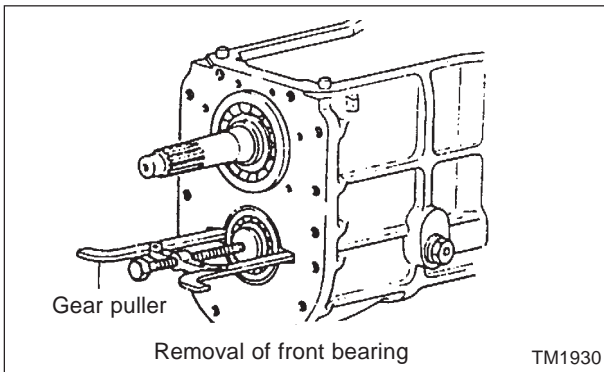
8-5. COUNTER SHAFT GEAR

DISASSEMBLY



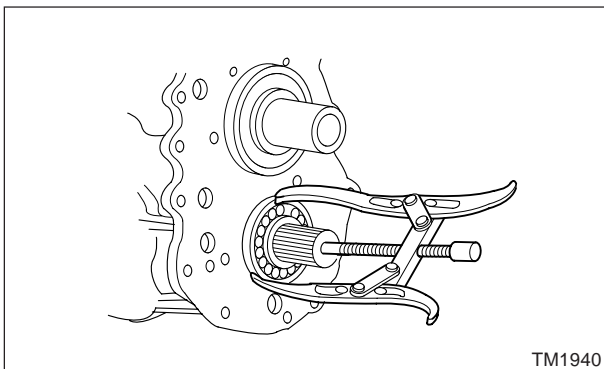
- | | | |
|-------------------|---------------------------|--------------------|
| 1. Bolt | 6. Roller bearing | 11. Bolt |
| 2. Lock washer | 7. Counter gear | 12. Lock sheet |
| 3. Lock plate | 8. Counter shaft 4th gear | 13. Lock plate |
| 4. Roller bearing | 9. Counter shaft 3rd gear | 14. Roller bearing |
| 5. Splitter gear | 10. Spacer | 15. Counter shaft |

Do not disassemble constant mesh gear, 4th gear and 3rd gear except where counter shaft gear should be replaced, because these parts have been assembled as one unit in a hot rolling method. When disassembling it, support the gear with counter shaft gear puller and press it with about 10 ton press. Do not disassemble sunk key except for the case of need.



4. Counter shaft front roller bearing

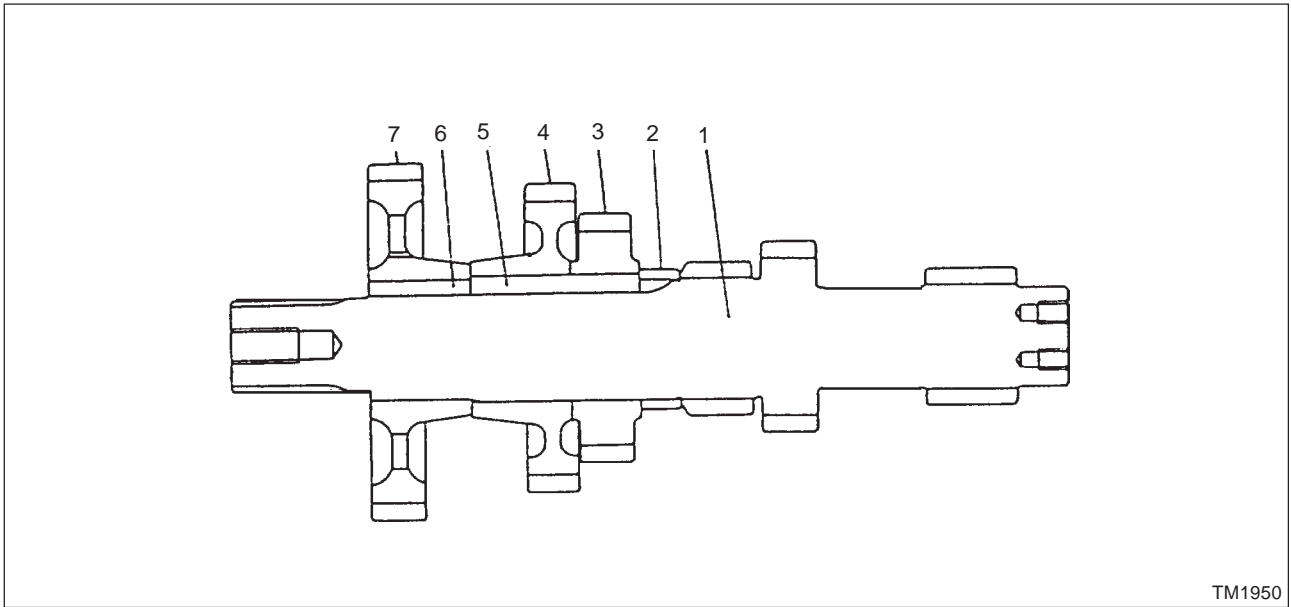
Remove front bearing using counter shaft bearing front gear puller.



6. Rear roller bearing

Remove the rear roller bearing by using gear puller.
(Special tool: CA21101 or CA21041)

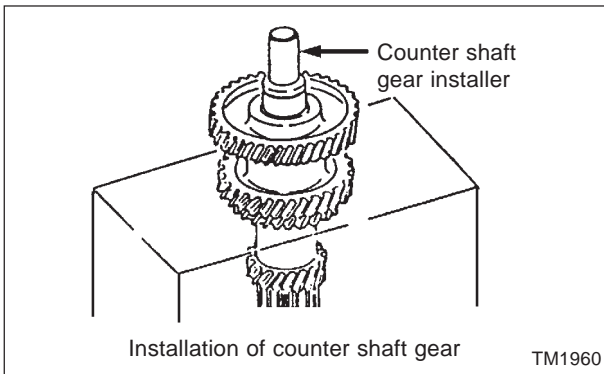
REASSEMBLY



TM1950

- 1. Counter shaft
- 2. Spacer
- 3. 3rd gear
- 4. 4th gear

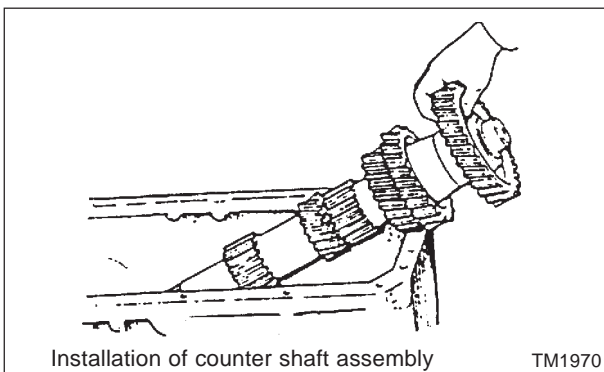
- 5. Sunk key
- 6. Counter shaft gear
- 7. Sunk key



Installation of counter shaft gear

TM1960

Install counter gear by using 10ton press or heating the gear to 110° C



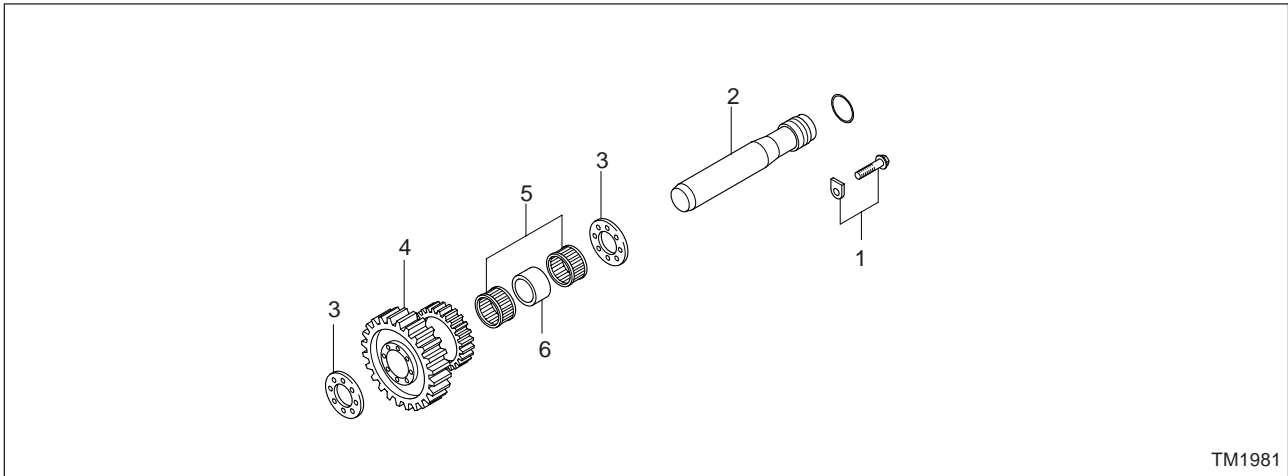
Installation of counter shaft assembly

TM1970

Insert the counter shaft assembly into the transmission case bearing hole and leave it in down position. After the main splitter pinion has been assembled, support the front end of the counter shaft by dummy bearing. Use counter bearing installer.

8-6. REVERSE GEAR

DISASSEMBLY

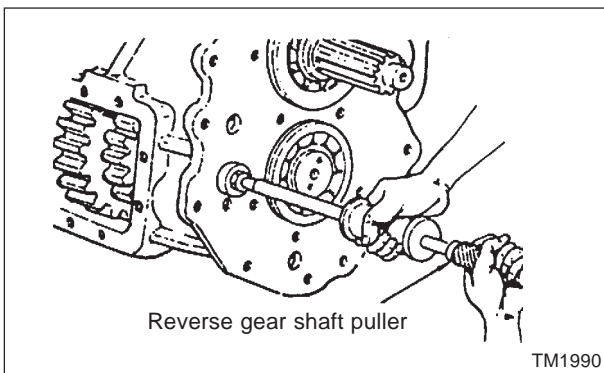


TM1981

- | | |
|-----------------------------|--------------------------|
| 1. Reverse shift lock piece | 4. Reverse gear |
| 2. Reverse gear shift | 5. Needle roller bearing |
| 3. Side washer | 6. Bearing spacer |

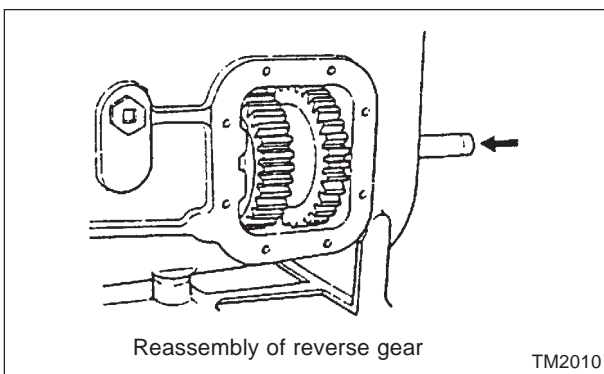
* Reassembly is inverse of disassembly.

IMPORTANT OPERATIONS (DISASSEMBLY)



Remove the PTO cover or PTO, then screw reverse gear shaft puller (special tool) into the rear end hole of the reverse gear shaft for disassembly and remove the shaft.
(Special tool: CA21021)

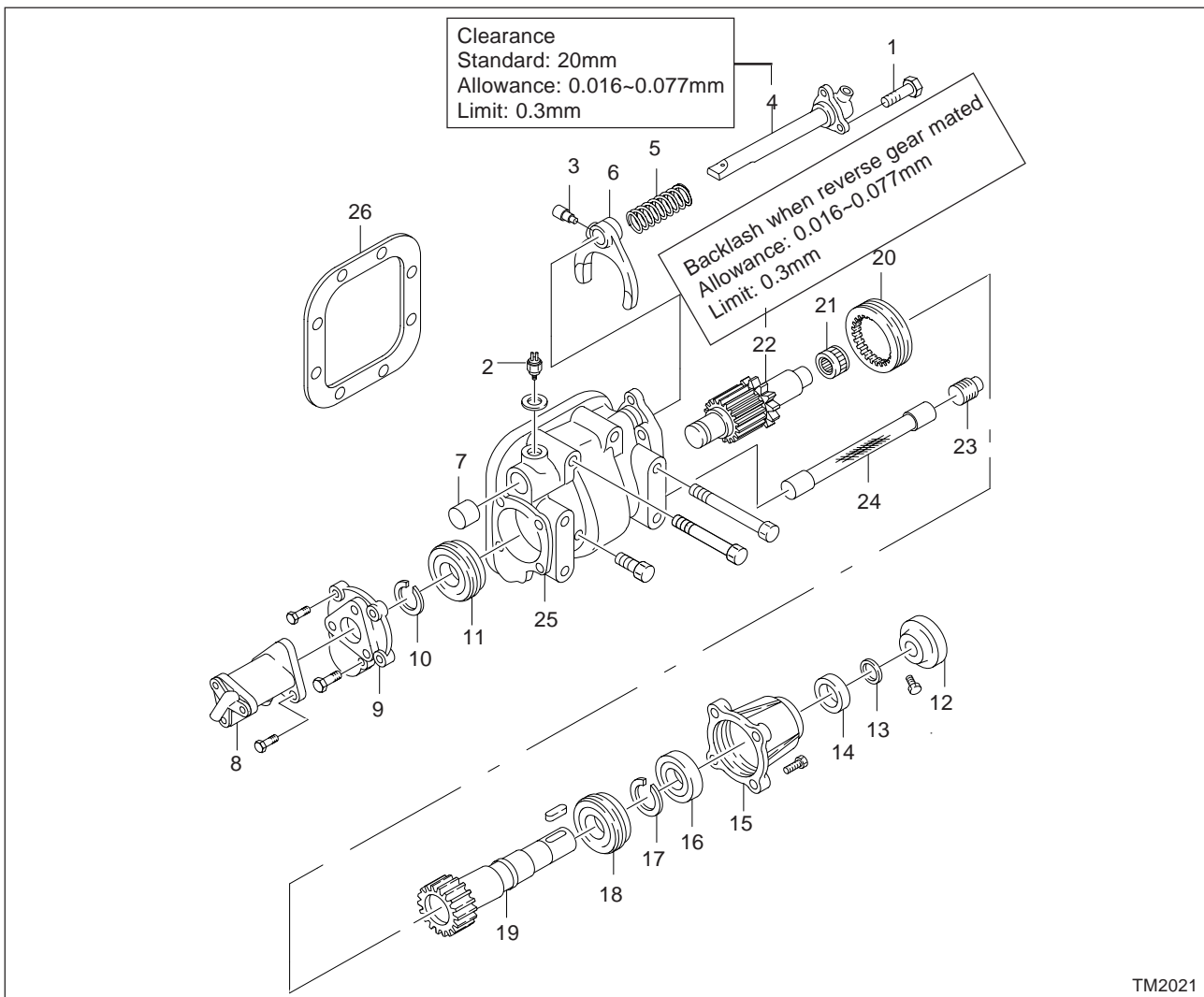
IMPORTANT OPERATIONS (REASSEMBLY)



Install the needle roller bearing and spacer onto the reverse gear.
Fit the reverse gears through the PTO opening with the gear with more teeth directed forward.
After the reverse shaft has been installed, secure the lock piece with the bolt.

8-7. TRANSMISSION PTO SYSTEM

8-7-a. DISASSEMBLY AND REASSEMBLY

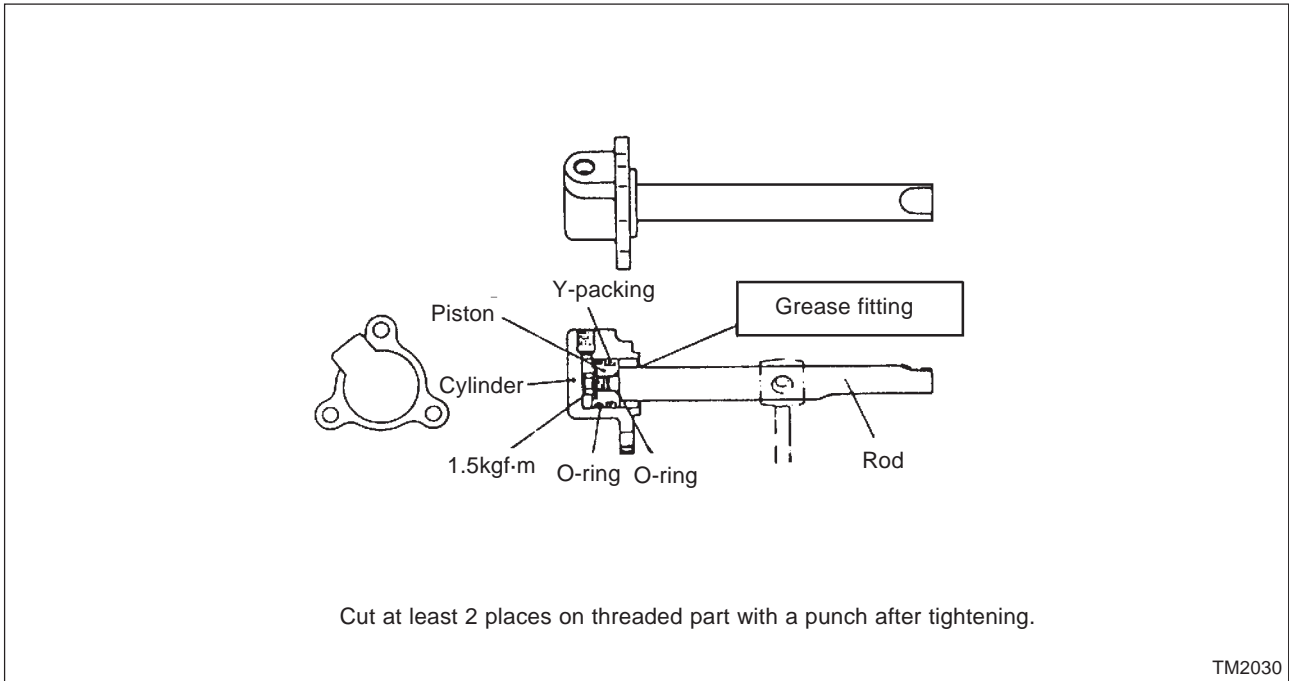


Disassembly steps

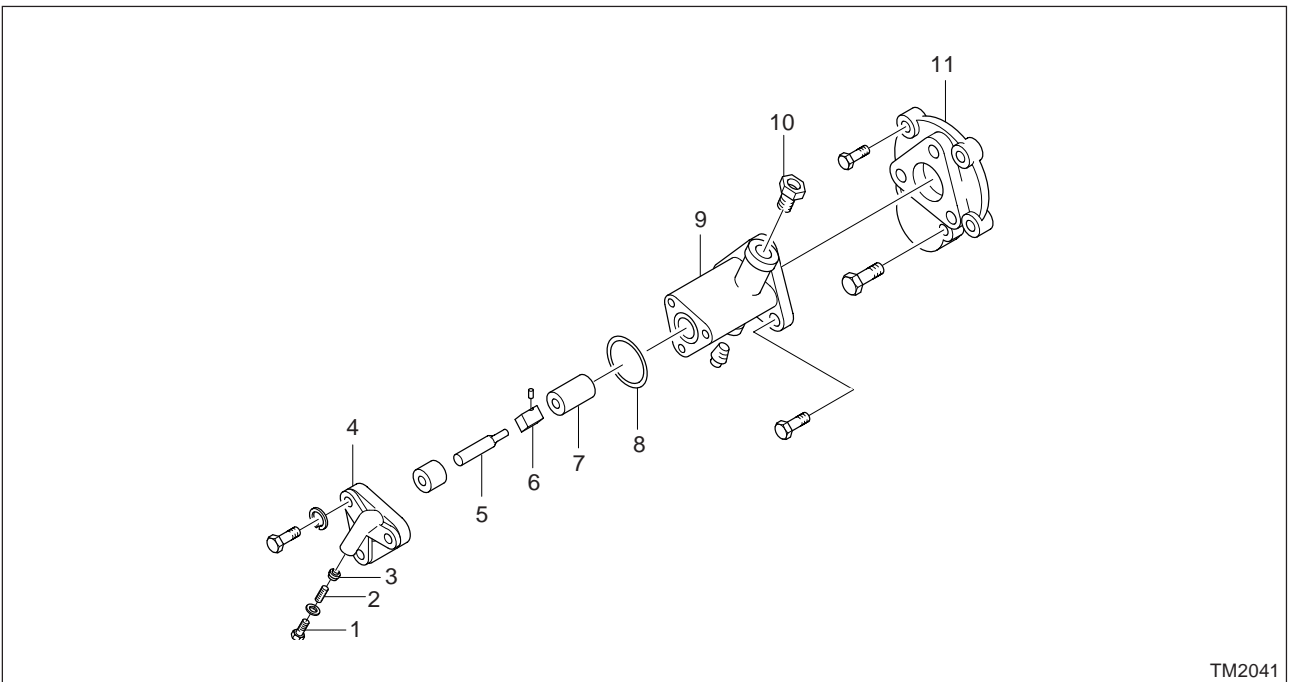
- | | |
|----------------------------|---------------------------|
| 1. Bolt | 15. Rear cover |
| 2. Plug | 16. Ball bearing |
| 3. Set bolt | 17. Snap ring |
| 4. Power cylinder assembly | 18. Roller bearing |
| 5. Return spring | 19. P.T.O Shaft |
| 6. Shift fork | 20. P.T.O sleeve |
| 7. Dust plug | 21. Needle roller bearing |
| 8. Oil pump assembly | 22. P.T.O Gear assembly |
| 9. Oil pump retainer | 23. Taper plug |
| 10. Snap ring | 24. Strainer |
| 11. Roller bearing | 25. P.T.O Case |
| 13. P.T.O Flange | 26. P.T.O Case gasket |
| 14. Oil seal | |

- For reassembly, reverse the above sequence.
- Do not disassemble oil seal of rear cover if lip has not been worn out, deformed, or damaged. If it is in normal condition, wipe out dust and grease it.

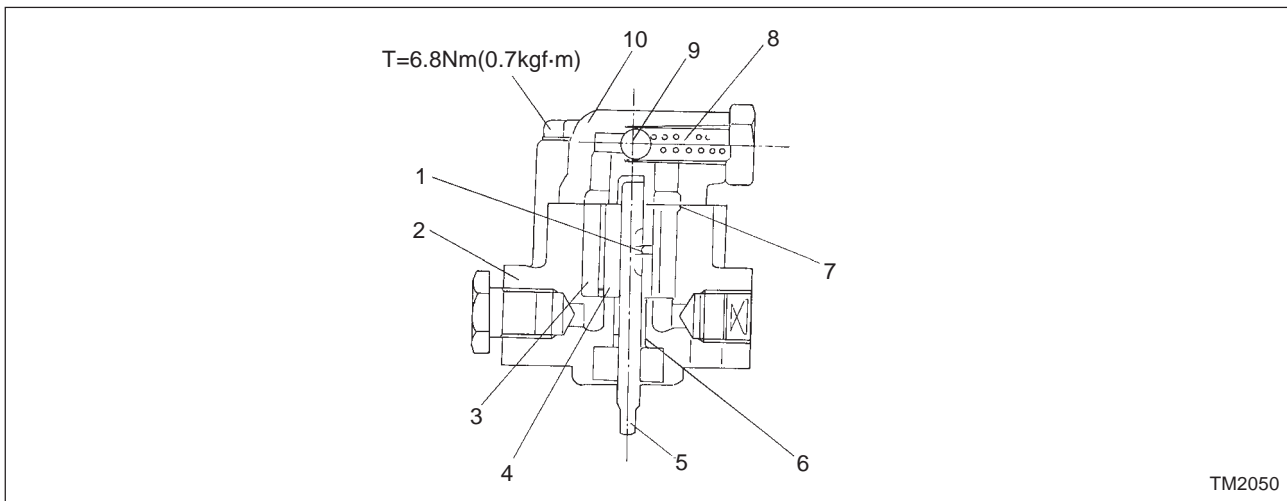
8-7-b. AIR CYLINDER



8-7-c. DISASSEMBLY OF OIL PUMP



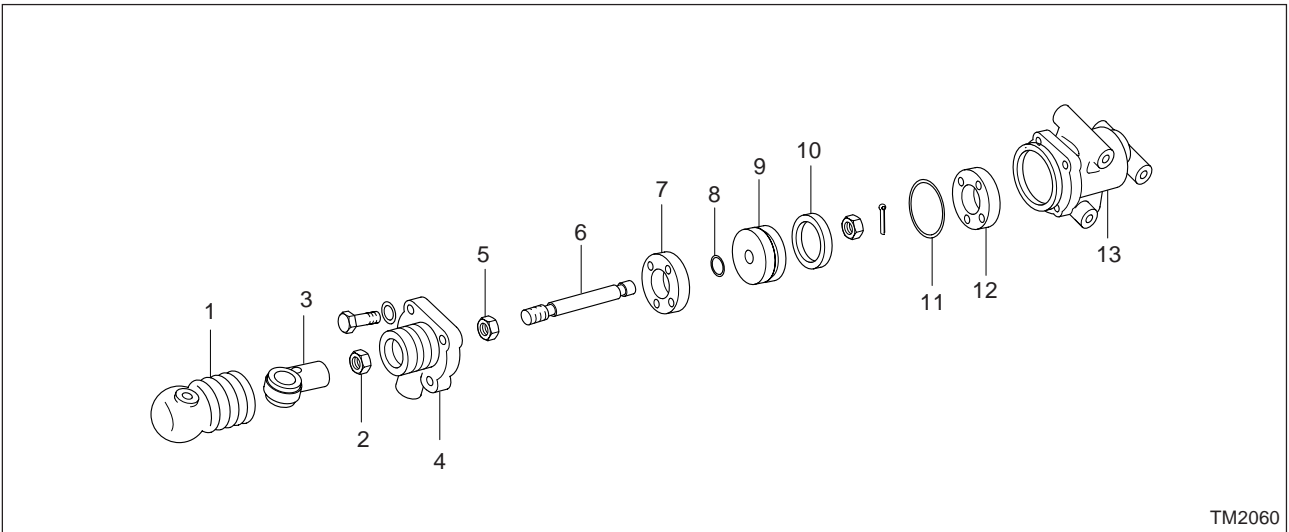
- | | |
|-------------------------|----------------|
| 1. Pulg | 6. Inner rotor |
| 2. Releaf valve spring | 7. Outer rotor |
| 3. Releaf valve plunger | 8. Bushing |
| 4. Release valve body | 9. O-ring |
| 5. Shaft | 10. Body |

8-7-d. REASSEMBLY OF OIL PUMP

- | | | |
|----------------|------------|-------------------------|
| 1. Rotor pin | 5. Shaft | 8. Release valve spring |
| 2. Body | 6. Bushing | 9. Steel ball |
| 3. Outer rotor | 7. O-ring | 10. Release valve body |
| 4. Inner rotor | | |

- 1) Insert roller bearing into the front end of P.T.O.
Use adaptor to tap the bearing at front end of P.T.O case.
- 2) Insert P.T.O sleeve and output shaft into P.T.O case, then install P.T.O gear mounted with needle roller bearing.
- 3) Insert roller bearing into rear end of output shaft and use adaptor to tap it at rear end of the case.
- 4) Grease oil seal and ball bearing, then install them in rear cover. Apply sealant three bond to the rear cover before installing it to the case. For the installation, apply lock tight to threaded part of each bolt.
- **Check if P.T.O gear and output shaft work smoothly.**
- 5) Air cylinder applied with three bond should be inserted through the right hole of P.T.O case. Tighten shift fork with set bolt. Apply lock tight to bolt before installing it to threaded part. Dust plug should be applied with lock tight before being installed.
- 6) Install strainer. Install tapered plug with its threaded part applied with three bond.
- 7) Install oil pump through the hole on the front face of P.T.O gear. When installing, apply three bond to oil pump facing and apply lock tight to threaded part of each bolt.
- 8) Install back-up lamp switch with its threads applied with three bond. Insert feather key into key way located at end of output shaft. Align key way with key to install P.T.O flange.
Wind wire round flange groove, then fix it with set bolt.
- 9) When mounting the assembly of P.T.O and oil cooler pump in transmission case, clean both contact surfaces and gaskets, apply three bond to them, and install gaskets(including adjusting gasket) to transmission installing surface. And then, with two three bond-applied bolts positioned in proper place, tighten the remaining bolts to install the assembly of P.T.O and oil cooler pump.

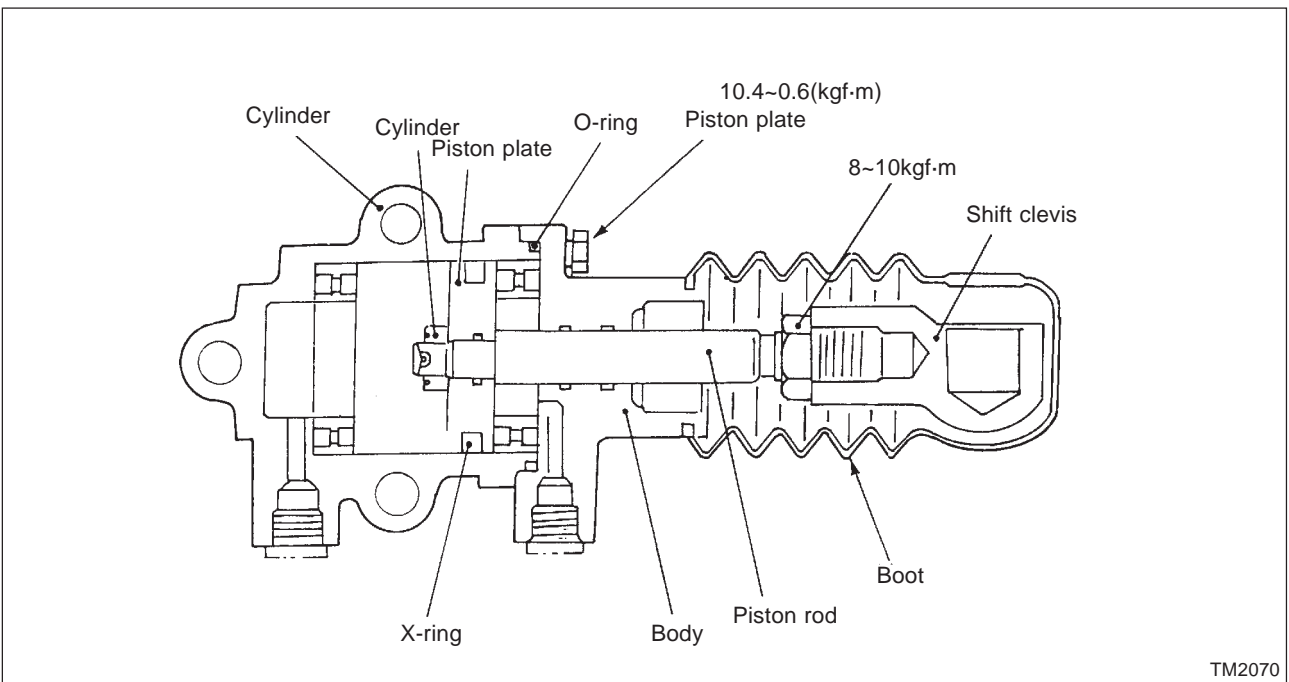
**8-7-e. POWER CYLINDER
DISASSEMBLY**



TM2060

- | | |
|---------------------------|-----------------------|
| 1. Boot | 8. O-ring |
| 2. Nut | 9. Piston plate |
| 3. Shift clevis | 10. X-ring |
| 4. Body and seat assembly | 11. O-ring |
| 5. X-ring | 12. Stopper |
| 6. Piston rod | 13. Cylinder assembly |
| 7. Stopper | |

REASSEMBLY



TM2070

After cleaning operation is completed, grease sliding surface of each part. Do not reuse the removed O-rings and X-rings. Replace them with new ones.