



T.A. Installation

Instruction Guide

Warranty Card must be completely filled out and returned within 7 days of installation. Warranty card must be on file to validate warranty. Incomplete or non-returned cards do not qualify for warranty

1. **LOWER GEAR:** The lower gear that came with the T.A. Assembly must be used with the T.A. T.A.'s that are shipped UPS or Parcel Post will have the lower gear shipped in a separate box due to weight considerations
2. **T.A. SPECIFICATIONS:** Direct Drive Clutch Pressure..... 250-300 PSI
T.A. Clutch Pressure..... 250-300 PSI
Lubrication Circuits..... 15-28 PSI
T.A. Shaft End Play..... .005" - .025"
(Use 831532 shims behind quill housing to obtain this measurement)

NOTICE: In instances where .100" or more end play is to be removed, please call before any further installation is continued. Torque Amplifiers produced by our company are assembled to specific lengths. This promotes minimal shiming. In some instances T.A. may become preloaded. Please call out Tech Service Department.

3. ADJUSTMENTS

- a. **DUMP SPOOL:** With clutch pedal held 1" from the bottom; adjust bolt until Tell-lite goes out
- b. **SELECTOR SPOOL:** Full up travel 1-1/8" and full down travel – no variation allowable
- c. **CLUTCH REGULATOR VALVE:** Plug located above dump valve. To increase pressure shim or replace inner spring.
- d. **CHARGING PUMP:** Pick up pressure by turning steering wheel to the left at 1200-1800 RPM

4. SHOP HINTS:

- a. **LOWER SHAFT HEX NUT:** Tighten to remove all clearance. Back off and then snug up. Nut must be drilled through lower shaft and keyed with 1/8" x 1/2" roll pin
- b. **SUMP CHECK PLUG:** Used as a tool to insure that loss of lubrication pressure is not due to leakage of the OEM sump check valve
- c. **REMEMBER THE DIRECT DRIVE CLUTCH PACK** has 4 discs in the HD and Super T.A.'s. Be sure the quill gear is engaged in all four discs or the T.A. will not turn freely when bolted in the tub
- d. **INSPECT** all associated parts (gears, bearings, etc.) for signs of abnormal wear or roughness
- e. **QUILL SHAFT:** Before installing quill into T.A. make sure road gear coupler will go over quill shaft

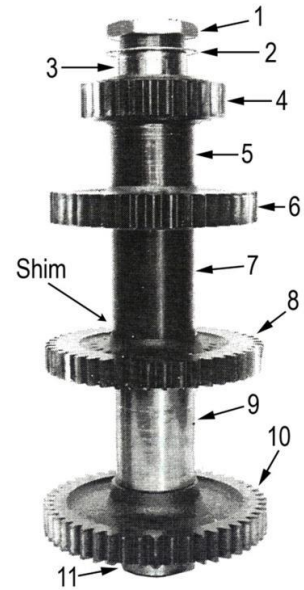
5. TROUBLESHOOTING

- a. **LOW CLUTCH PRESSURE IN T.A. CIRCUIT:** Gasket between T.A. drum and carrier is blown. MCV gasket blown.
- b. **LOW CLUTCH PRESSURE IN DD CIRCUIT:** Direct Drive Clutch Pack worn or drum bolts broken. MCV gasket blown
- c. **SLOWSHIFT IN DIRECT DRIVE:**
 - i. Shaft pushes front snap ring out of position. If pressure returns with the Separator Spool in the middle position, the problem is in the T.A., not MCV
 - ii. Possible sump check leak. Insert special sump check tool to test for leak
- d. **LOSS OF LUBE PRESSURE:**
 - i. Shaft pushes front snap ring out of position. If pressure returns with the Selector Spool in the middle position, the problem is in the T.A., not MCV
 - ii. Possible sump check leak. Insert special sump check tool to test for leak
- e. **LOSS OF STEERING, BRAKE, CLUTCH PRESSURE:**
 - i. Check to see if PTO is operable (PTO Gear Failure)
 - ii. Pump Failure
 - iii. Oil filter needs to be changed
- f. **LARGE RISE IN CLUTCH PRESSURE WITH STEERING WHEEL CRAMPED TO THE LEFT:** Normal pressure rise is 20-30 PSI. Large pressure rise indicates relief valve malfunction in steering circuit

SPEED TRANSMISSION REASSEMBLY

COUNTERSHAFT

1. Lock Nut
2. Lock Nut Washer
3. Countershaft
4. 1st Speed Drive Gear
5. Spacer – 50.8mm (2")
6. 2nd Speed Drive Gear
7. 3rd Speed Drive Gear
8. Spacer – 56mm (2-13/64")
9. Constant Mesh Gear
10. Spacer – 97mm (3-13/16")
11. Driven Gear
12. Splined Spacer (not shown)



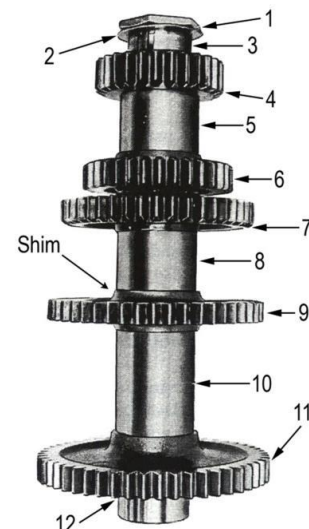
**3 Speed Countershaft
(1566, 1568, 3788, 6788)**

Installation procedure for proper placement of Countershaft Lower Gears.

Kit consists of .024 shims and .048 shims

1. When shimming the T.A., consideration should be given to also shimming the Countershaft. This is the preventative measure to avoid noise problems in speed transmissions, as well as preventing gears from hitting, from being off center. Use the illustration for proper placement
2. Use approximately the same amount of Countershaft shims as T.A. shims. Always use caution to make sure the gears are centered and to not preload the Countershaft

1. Lock Nut
2. Lock Nut Washer
3. Countershaft
4. 1st Speed Drive Gear
5. Spacer – 56mm (2-13/64")
6. 2nd Speed Drive Gear
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8. Spacer – 56mm (2-13/64")
9. Constant Mesh Gear
10. Spacer – 97mm (3-13/16")
11. Driven Gear
12. Splined Spacer (not shown)



4 Speed Countershaft