TORQUE-HUB®

Final Drives

ASSEMBLY-DISASSEMBLY MANUAL

FOR THE

W3
"B"
DRIVE

UNIT

FAIRFIELD

THE FORCE BEHIND THE FUTURE

Introduction

This Service Manual is a step-by-step guide designed for the customer or shop mechanic who is servicing or repairing a particular model of Torque-Hub Final Drive. (The model covered by this copy of the Manual is specified on the Manual cover.)

Included are —

1. assembly and exploded view drawings
2. disassembly procedure
3. main assembly procedure (assuming all sub-assemblies to be intact)
4. sub-assembly procedures.

At the time of printing, this Manual was complete for the specific Torque-Hub model designated. However, Fairfield Manufacturing Co., Inc., reserves the right to update and improve its products at any time. All specifications and procedures are therefore subject to change without notice.

Safety

Standard safety practices should be followed during the disassembly and assembly procedures described. Safety glasses and safety shoes should be worn; heavy, heat resistant gloves should be used when heated components are handled. Be especially alert when you see a caution symbol (⚠). This symbol indicates that a particular operation could cause personal injury if not performed properly or if certain safety procedures are not followed.

W3B-W3C Disassembly Procedure

1. Loosen all 12 Cover Bolts and drain the oil from the unit.

2. Remove the 12 Cover Bolts and lift off the Cover Sub-Assembly. Discard the 'O' ring Seal from the Cover counterbore.

3. Lift out the Carrier Sub-Assembly and *Thrust Bearing Set. A Thrust Washer may stick inside the Cover.

4. Pry the Ring Gear loose and remove it. Discard the 'O' ring Seal from the Hub counterbore.

5. Remove the Input Shaft, Input Gear, and the Thrust Spacers that are on the Input Shaft.

6. Lift out the Internal Gear and Thrust *Bearing Set. A Thrust Washer may stick to the bottom of the Carrier.

7. Remove the Retaining Ring from the Spindle and discard; then lift the hub off the Spindle.
   Eye protection should be worn during Retaining Ring removal.

8. The inside Bearing Cone and the Bearing Shim can now be removed.

9. The Seal can be pried out of the Hub with a screw driver or pry bar. This will also allow the outside Bearing to be removed.

   Note: If bearing replacement is necessary, the Bearing Cups can be removed with a "slide hammer puller" or driven out with a punch.

10. To remove the Cluster Gears from the Carrier, drive the anti-roll pin into the Planet Shaft of the Cluster Gear. After the Planet Shaft is removed the roll pin should be driven out of the Planet Shaft.

WARNING: When rebuilding the unit, the 'O' rings and Retaining Rings should <u>always</u> be replaced.

Main Assembly Procedure

1. Using an arbor type press if available, (if not, a hammer may be used), install the wheel studs. The hub flange should be supported from the underside during this operation.

   Note: Wheel studs are optional.

2. Using an arbor type press if available, press Bearing Cups with large inside diameters facing out, into Hub counterbores. Cup #JM716610 will go into small end of Hub, and Cup #JM515610 will go into large end of Hub.

3. Place Bearing cone #JM716649 into Bearing Cup in small end of Hub

4. Press Seal into Hub counterbore with flat metal side facing in. Use a flat object to assure that Seal is pressed evenly and is flush with Hub face.

5. Lower Hub onto Spindle with large open end up.

6. Place Bearing cone #JM515649 over end of Spindle and into Bearing Cone.

7. Place Bearing Shim over end of Spindle and against Bearing Cone.

8. Secure Retaining Ring completely into Spindle groove and against Bearing Shim. Be sure that Retaining Ring is entirely in groove.

⚠ Eye protection should be worn during Retaining Ring installation.

9. The pipe plugs are installed in the Hub. The use of lub-seal is recommended on the pipe plug.

10. The disengage spacer and spring are installed into the co'bore of the Spindle

11. Another spacer and the correct Retaining Ring are installed into the Spindle co'bore and Retaining Ring groove provided

⚠ Eye protection should be worn during Retaining Ring installation.

12. The internal gear is installed matching the Bore Spline the Spindle Spline.

13. The thrust washer/thrust bearing set is installed on the portion of the Spindle which extends into the internal gear

14. The O'Ring is placed into the counterbore provided in the Hub. Slight stretching may be necessary. Use sufficient grease or petroleum jelly to hold in place.

15. Install retaining ring into input shaft retaining ring groove.

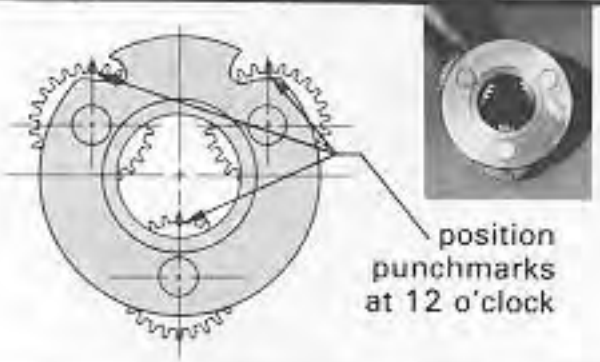
16. The input shaft is installed into the spindle.

    The action of the spring should be checked at this point.

17. The thrust spacer is installed on the input shaft.

18. Locating the four counter reamed holes in the face of the hub, mark them for later identification.

    These holes are reamed to accept the shoulder bolts.



19. Place Carrier Assembly on a flat surface with the large gears up and positioned as shown. Find the punch marked tooth on each large gear and locate at 12 o'clock (straight-up) from each planet pin. Marked tooth will be located just under the Carrier on upper two gears.

20. With shoulder side of Ring Gear facing down, place Ring Gear over (into mesh with) large gears. Be sure that punch marks remain in correct location during Ring Gear installation. The side of the Ring Gear with an "X" stamped on it should be up.

21. While holding Ring Gear and Cluster Gears in mesh, place small side of Cluster Gear into mesh with the Internal Gear. On the Ring Gear locate the hole marked "X" over one of the marked counterbored holes in Hub.

Note: If gears do not mesh easily or Carrier Assembly does not rotate freely, then remove the Carrier and Ring Gear and check the Cluster Gear timing.

22. The Input Gear is installed into this assembly meshing with the larger diameter Cluster Gear. The counterbored side of the Input Gear is installed down or to the inside of the unit.

23. After inserting at least one shoulder bolt in the proper location, rotate the carrier. This is to check freedom of rotation and recheck timing.

24. Another thrust washer/thrust bearing set is now installed into the counterbore in the face of the carrier.

25. Place O'Ring into cover assembly counterbore. Slight stretching may be necessary. Use sufficient grease or petroleum jelly to hold in place.

26. Place cover assembly on Ring Gear with oil level, check plug in cover located approximately 90° from oil fill plug in Hub.

27. Locate four shoulder bolts 90° apart into counterbored hole in Hub which were marked in step 17. Torque each bolt to 47 ft. lbs.

28. Install grade eight bolts into the remaining eight holes and torque all bolts to 47ft. lbs. Use the 180° to 90° method in torqueing all bolts.

29. Place Coupling into the Spindle and onto the Input Shaft.

Note: W3C units must have one external and one internal Snap Ring installed. All units with a "X" on the end of the model number must have two internal Snap Rings with a spacer between them installed in the Coupling.

This completes the assembly. The unit must be filled one-half full of EP 90 lubricant before operation.

Carrier Sub-Assembly

1. Apply a coat of grease or petroleum jelly to Cluster Gear bore.

2. Place fourteen Needle Rollers into Cluster Gear bore.

3. Place Spacer washer into opposite side of Cluster Gear and against Needle Rollers.

4. Place second set of fourteen Needle Rollers into Cluster Gear.

5. Apply grease or petroleum jelly to the tang side of two Thrust Washers. Place Thrust Washers against bosses in Carrier with washer tang fitting into slot in Carrier outside diameter.

   Note: Some old style Carriers will not have slots and tangs should be located inside boss relief.

6. While keeping Thrust Washers in place, slide Cluster Gear into Carrier with the larger gear on the side with the small pin hole.

7. Line up Cluster Gear and thrust Washers with hole in Carrier and slide Planet Shaft through. Line up chamfered side of hole in Planet Shaft with pin hole in Carrier.

8. Drive Anti-Roll Pin flush into Carrier hole, thereby locking Planet Shaft into place.

   Repeat these steps for remaining two Cluster Gears to complete Carrier Sub Assembly.

Cover Sub-Assembly

1. Screw Pipe Plug into Cover.

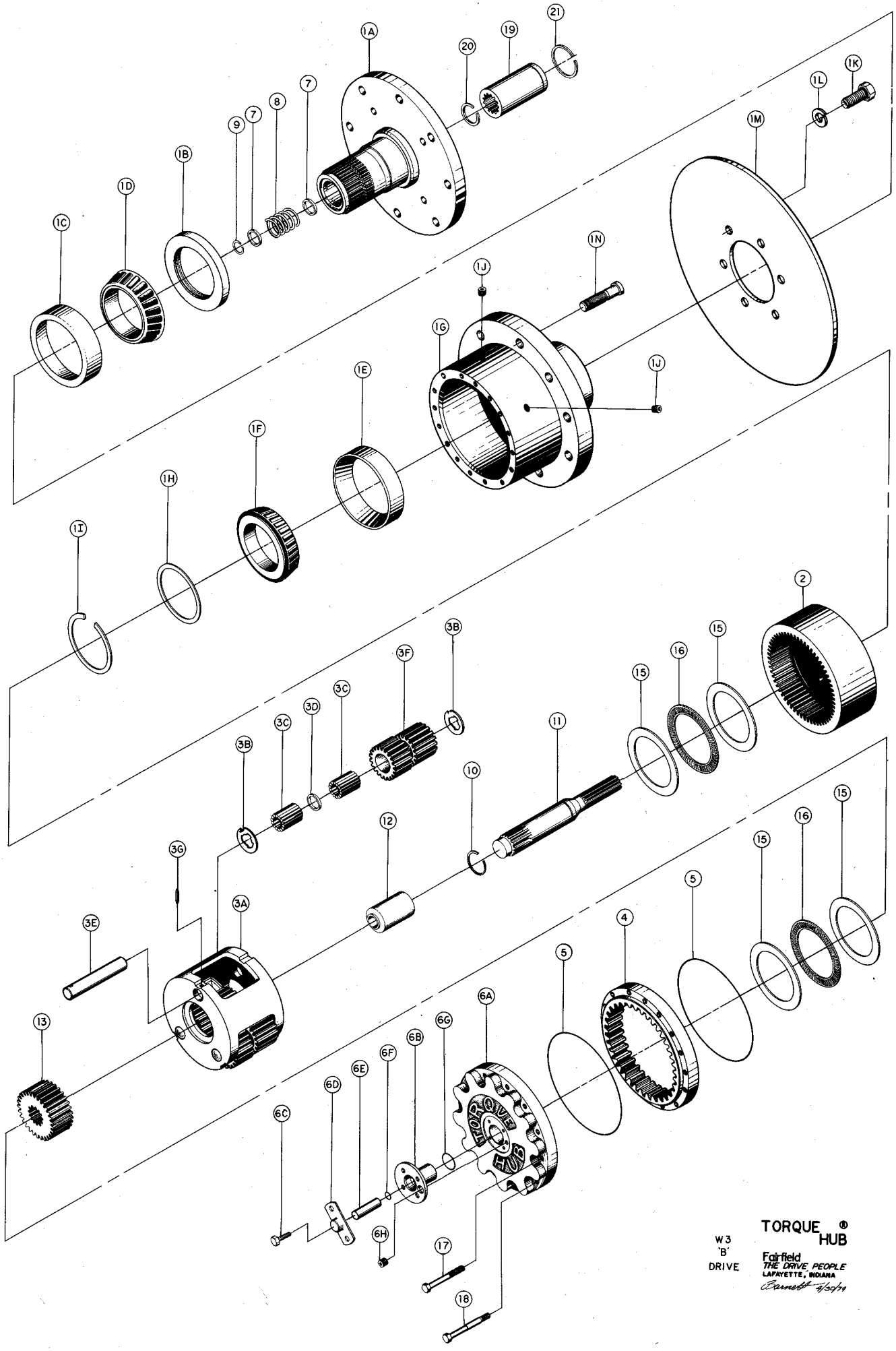
2. Place 'O' Ring into Cover Cap internal groove. The Disconnect Rd may be used to push 'O' Ring into groove. Rod will be held in place by friction from the 'O' Ring.

3. Slip 'O' Ring over Cover Cap and against face.

4. Place Cover Cap into Cover with large hole located over Pipe Plug.

5. Install two 1/4 × 20 × 3/4 bolts 180° apart and torque to 70 - 80 in. lbs.

6. Place disconnect cap over cover cap with nipple facing out and align with two open holes. Secure disconnect cap to cover with two 1/4 × 20 × 3/4 and 70 - 80 in. lbs.



W3
'B'
DRIVE

TORQUE® HUB

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