



**\*\*\*USE EXPLODED VIEW ON BACK FOR REFERENCE\*\*\***

**HOUSING/SHAFT DISASSEMBLY AND ASSEMBLY**

- A) Remove all shaft related components (i.e. keys, wire rings, nuts) from shaft (29). To aid in reassembly of the motor, make a "V" shaped set of lines from the endcover (26) to the housing (19) using either paint or a marker. With shaft facing up, secure motor in vise by clamping on to housing (19).
- B) Remove seven pilot ring bolts (10) and lay aside. If motor uses either a 2-1/4" straight shaft (#40 shaft) or 60mm tapered shaft (#45 shaft), the pilot ring must be removed from the rear of the shaft. Skip to step C for this disassembly procedure. If motor has any other shaft, remove pilot ring (11) by pushing down on shaft (29) to hold in housing and use an upward, twisting motion to pull pilot ring (11) off of shaft (29). It is not necessary to remove the shaft assembly from the motor unless component inspection is desired. To remove seals from pilot ring, go to step D.

**NOTE: The DT (700) Series motors have undergone various changes in the shaft/bearing design. Because of this, it is extremely important that the correct stackup of components be noted when servicing a 700 Series Motor. The best way to maintain the correct order of parts when disassembling the motor is to lay the parts out in the order that they came off of the shaft. When reassembling, simply installing the components in reverse order will assure correct component stackup.**

- C) Using a rag to grasp output end of shaft (29), lift shaft/bearing assembly from motor. Remove retaining washer (14) from motor end of shaft (29) (**NOTE:** Retaining washer (14) may remain in housing (19)). Using snap ring pliers, remove snap ring (15) from shaft (29). Remove two thrust washers (16) and thrust bearing (17) from shaft (29). Push second retaining washer (14) towards output end of shaft (29) until second snap ring (15) is visible. Using snap ring pliers, remove second snap ring (15) from shaft (29). If bearing spacer (13) is used, remove it and lay aside. Remove roller bearing (12) from shaft (29). Using a twisting motion, remove pilot ring (11) from rear of shaft (29).
- D) Using a small, thin screwdriver, carefully pry dust seal (1) and shaft seal (4) from pilot ring (11). (**NOTE:** some motors have a backup seal (3) and metal backup shim (2). If so, remove and discard at this time). Remove high pressure seal (5) from groove in front of housing (19) and discard.

**NOTE:** In January 1994, a change was made to the 700 Series motors with 2.5" bearing to change to a high pressure shaft seal. This change included the use of a backup seal (3), metal backup shim (2) and a revision to the pilot ring to allow use of the new seals. To allow conversion of low pressure shaft seal motors to high pressure shaft seal motors, three kits are available:

- 1.) PT018064- New revision pilot ring (can be used with this kit for conversion)
- 2.) PT666251P- Includes new revision pilot ring and complete seal kit.
- 3.) PT666251PY- Includes new revision 125mm pilot ring and complete seal kit.

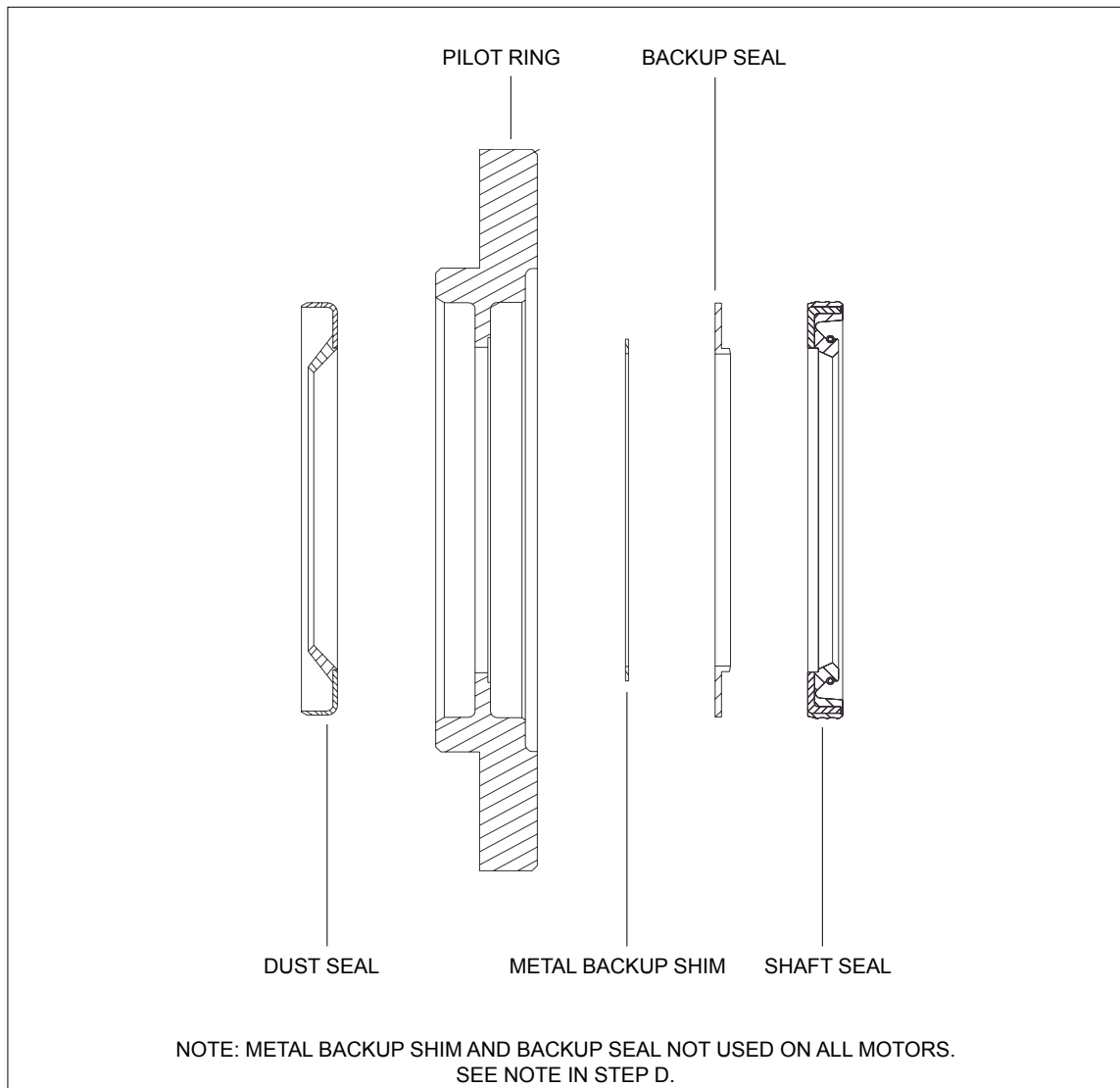
**CAUTION:** It is not possible to use the backup seal (3) and metal backup shim (2) with the old revision pilot ring (11). The new revision pilot ring is thicker and has a small groove to accept the metal backup shim (2). Use of the old revision pilot ring with the backup seal (3) and metal backup shim (2) could cause motor components to bind when assembled.

- E) At this point, all parts should be cleaned in an oil-based solvent and dried using compressed air (For safety, observe all OSHA safety guidelines). All new seals should be lightly coated with clean oil prior to installation.
- F) Place pilot ring on a clean, flat surface with large O.D. side facing down. Using Figure 1 as a reference, use a seal driver to install dust seal (1) into pilot ring making sure lip on seal faces up. Turn pilot ring (11) over. If repairing a motor with high pressure shaft seal or converting to high pressure shaft seal, the correct metal backup shim must be installed. If the motor has a 2-1/4" straight shaft (#40 shaft) or a 60mm

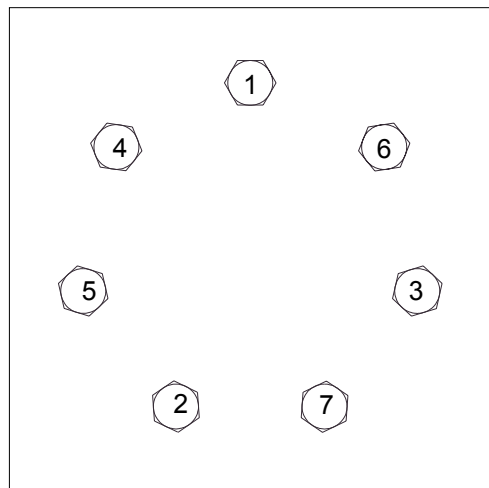
tapered shaft (#45 shaft), the split metal backup shim included in the kit must be used. If the motor uses any other shaft, the unsplit metal shim must be used. After determining which metal backup shim (2) to use, install in the groove in the pilot ring (11). Place backup seal (3) into pilot ring (11) making sure lip on seal faces up. Using a seal driver, install shaft seal (4) into pilot ring (11). Place a high pressure seal (5) into the groove in the front of the housing (19).

- G) If shaft assembly required disassembly to remove pilot ring (11), go to step I. To reassemble shaft components. If shaft assembly did not have to be disassembled to remove pilot ring (11), replace pilot ring (11) down over shaft (29) using a slight twisting motion until it contact housing (29). Align bolt holes and install seven pilot ring bolts (10). Using bolt torque sequence shown in Figure 2, torque bolts to 50 ft. lbs. Go to step J.
- H) To reassemble shaft assembly, place pilot ring (11) over rear of shaft (29) with large O.D. side facing rear of shaft (29). Using a slight twisting motion, push pilot ring (11) down over grooves in shaft (29) until it reaches step in shaft. (NOTE: It may be helpful to place tape over grooves in shaft and thoroughly coat shaft with oil to aid in installing pilot ring onto shaft).
- I) Reassemble shaft components in reverse order that components were removed from shaft (29). If shaft (29) used bearing spacer (13), it is necessary for spacer (13) to be replaced in correct position. After shaft components are assembled onto shaft (29), place retaining washer (14) in housing (19). Place high pressure seal (5) in groove in front of housing (19). Grasping output end of shaft (29), lower shaft assembly into housing (19). Rotate pilot ring (11) to align bolt holes and install seven pilot ring bolts (10). Pre-torque bolts to 10 ft. lbs. and use bolt torque sequence shown in Figure 2 to torque bolts to 50 ft. lbs.
- J) To aid in reassembly of the motor, make a "V" shaped set of lines from the endcover (26) to the housing (19) using either paint or a marker. With shaft facing down, secure motor in vise by clamping on to housing (19).
- K) Loosen and remove seven bolts (28) holding motor assembly together. Remove endcover (26) carefully as piston (24) and spring (25) may fall out. If piston does not come out, carefully pry piston (24) out of endcover (26) and lay aside. Remove O-Ring seal (9) and backup seal (8) from endcover and discard seals. Remove spring (25) and lay aside.
- L) Lift commutator container and commutator (23) from motor and lay aside. Place commutator on a flat, clean surface with the seal (7) facing up. Place the tip of a small screwdriver on the seal (7) and gently tap until opposite side of seal lifts from groove. Remove seal (7) and discard.
- M) Remove manifold (22) and rotor set (21). Remove all seals (5,6) from components and discard. (Caution - Do not allow rolls to drop from rotor assembly (21) when removing rotor assembly from motor.) Remove drive link (20) from motor and lay aside.
- N) At this point, all parts should be cleaned in an oil-based solvent and dried using compressed air (For safety, observe all OSHA safety guidelines). All new seals should be lightly coated in clean oil prior to installation.
- O) Install drive link (20) into end of shaft with tapered end facing up. Place body seals (6) in grooves in both sides of rotor (21). Place rotor (21) onto housing (19) with side of rotor with chamfer in splines facing housing (19). Place manifold (22) over rotor (21) with seal groove side up. Install manifold seal (5).
- P) Install the commutator seal (7) into the commutator (23) with the metal side facing up. Use finger pressure to press the seal down flush with the surface of the commutator. Place the commutator container onto the manifold (22) and then place the commutator onto the protruding end of the drive link (20) making sure that the seal side faces up.
- Q) Install the remaining body seal (6) in the groove in the face of the endcover (26). Install piston spring (25) into endcover (26), then the white backup seal (9) followed by the O-Ring seal (8). Lining up the alignment pin with the hole in the endcover, press piston (24) into the endcover (26). While holding the piston (24) in the endcover, lower the endcover assembly onto the motor. Check to make sure that the endcover ports are in their original position.
- R) Install the seven assembly bolts (28) into endcover (26) and pre-torque to 10 ft. lbs. Using the bolt torque sequence shown in Figure 2 torque all bolts to 50 ft. lbs.

# AUXILIARY VIEWS

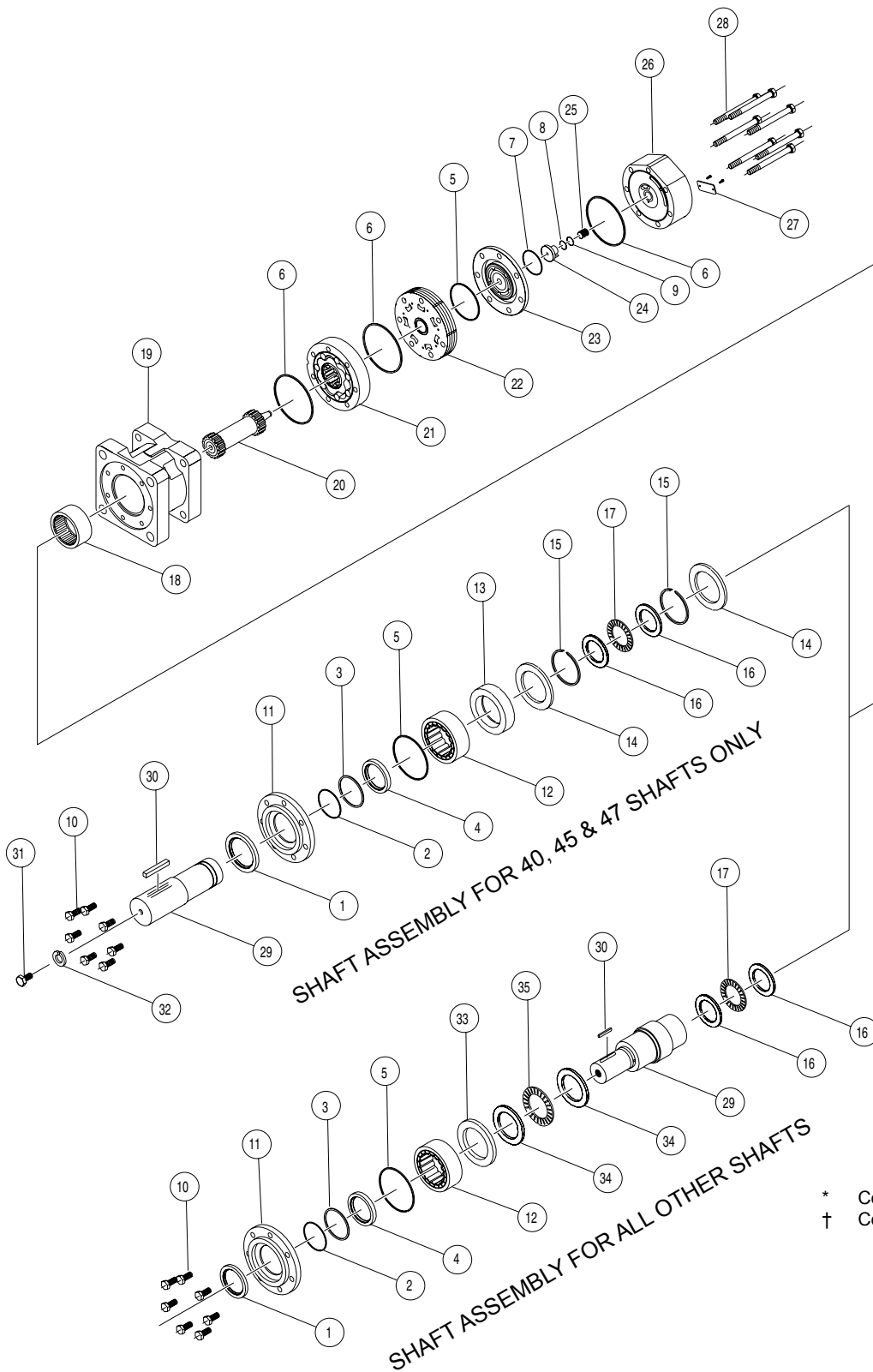


**FIGURE 1**



**FIGURE 2**

## DT (700) Motor Components



1. \*† Dust Seal
2. \*† Metal Backup Shim
3. \*† Backup Seal
4. \*† Shaft Seal
5. \*† High Pressure Seals (2)
6. \*† Body Seals (3)
7. \*† Commutator Seal
8. \*† O-Ring Seal
9. \*† Backup Seal
10. Pilot Ring Bolts (7)
11. † Pilot Ring
12. 2.5" Roller Bearing
13. Bearing Spacer
14. Retaining Washers (2)
15. Snap Rings (2)
16. Thrust Washers (2)
17. Thrust Bearing
18. Rear Housing Bearing
19. Housing
20. Drive Link
21. Rotor Assembly
22. Manifold
23. Commutator Assembly
24. Endcover Piston
25. Piston Spring
26. Endcover
27. I.D. Tag Assembly
28. Assembly Bolts (7)
29. Shaft
30. Shaft Key
31. Shaft Bolt
32. Lock Washer
33. Spacer
34. Front Thrust Washer
35. Front Thrust Bearing

\* Contained in seal kit 700666251  
 † Contained in seal kit 700666251P



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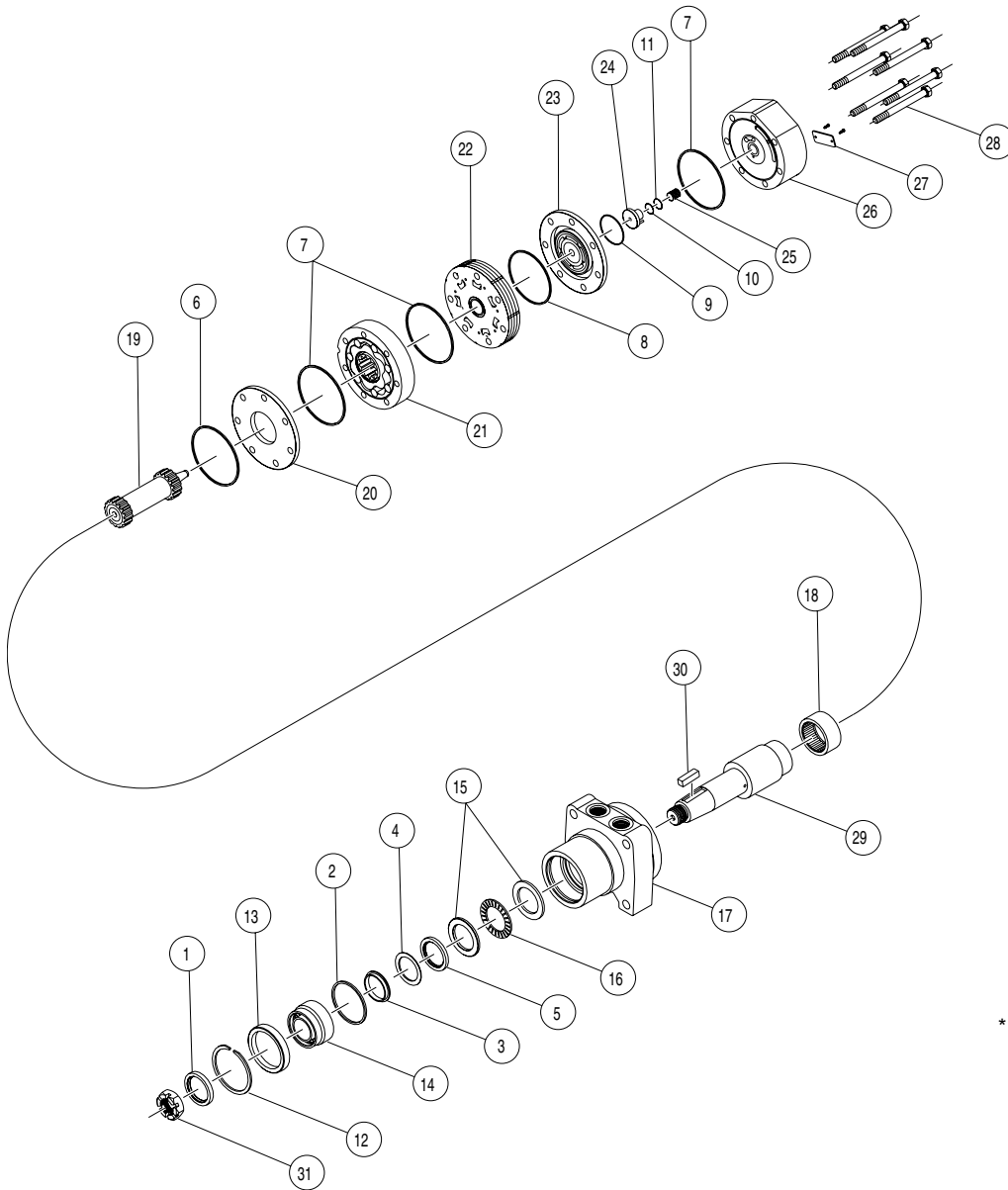
**HOUSING/SHAFT DISASSEMBLY AND ASSEMBLY**

- A) Remove all shaft related components from shaft (29) (i.e. keys, wire rings, nuts, etc.). Secure motor in vise by clamping on to housing. Remove retaining ring (12) from groove in pilot of housing (17). Remove spacer (13) from housing (17). Remove shaft (29) from housing (17) then remove bearing (14), thrust bearing (16) and two thrust washers (15) from shaft (29).
- B) Being careful not to drop any rolls from bearing (14), pry out shaft seal (5), backup seal (4), and dust seal (1) from bearing assembly (14). (NOTE: Metal backup ring (3) may or may not come out of bearing (14). It is not necessary to remove the metal backup ring (3) from the bearing (14) to service the motor.) Remove high pressure seal (2) from groove in pilot of housing (17) discard shaft seal (5), backup seal (4) and high pressure seal (2).
- C) At this point, all parts should be cleaned in an oil-based solvent and dried using compressed air (For safety, observe all OSHA safety guidelines). All new seals should be lightly coated with clean oil prior to installation.
- D) Install high pressure seal (2) in to groove in pilot of housing (17). Place shaft on a clean, flat surface with output end facing up. Place thrust washer (15), thrust bearing (16) and second thrust washer (15) over shaft (29). Using plastic installation sleeve, place shaft seal (5) over shaft (29) making sure that lip on seal faces down (See Figure 1). Repeat process for backup seal (4) making sure that lip faces down. If metal backup ring (3) came out of bearing (14), place over shaft (29) making sure that large O.D. side faces down. Lightly grease bearing (14) if needed. Place bearing (14) over shaft making sure that the large O.D. side faces down. Using an arbor press, careful press bearing (14) down to press seal assembly (3-5) into bearing (14).
- E) Place shaft (29) assembly into housing (17). Install dust seal (1) over shaft (29) with lip facing up (See Figure 1) and careful□ into groove in housing pilot (17). (NOTE: It may be necessary to lightly tap the snap ring (12) and bearing spacer (13) to allow the retaining ring (12) to seat properly.) Replace all shaft related components (i.e. keys, wire rings, nuts).

**MOTOR SECTION DISASSEMBLY AND ASSEMBLY**

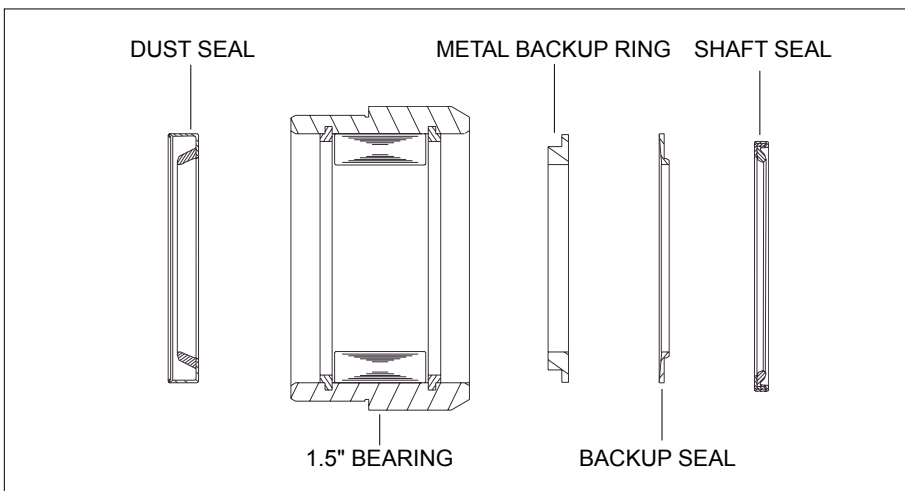
- F) To aid in reassembly of the motor, make a "V" shaped set of lines from the endcover (26) to the housing (17) using either paint or a marker. With shaft facing down, secure motor in vise by clamping on to housing (17).
- G) Loosen and remove seven bolts (28) holding motor assembly together. Remove endcover (26) carefully as piston (24) and spring (25) may fall out. If piston does not come out, carefully pry piston (24) out of endcover (26) and lay aside. Remove O-Ring seal (10) and white backup seal (11) from endcover and discard seals. Remove spring (25) and lay aside.
- H) Lift commutator container and commutator (23) from motor and lay aside. Place commutator on a flat, clean surface with the □ groove. Remove seal (9) and discard.
- I) Remove manifold (22), rotor set (21) and divider plate (20). Remove all seals (6-8) from components and discard. (**Cau-tion - Do not allow rolls to drop from rotor assembly (21) when removing rotor assembly from motor.**) Remove drive link (19) from motor and lay aside.
- J) At this point, all parts should be cleaned in an oil-based solvent and dried using compressed air (For safety, observe all OSHA safety guidelines). All new seals should be lightly coated in clean oil prior to installation.
- K) Install drive link (19) into end of shaft with tapered end facing up. Place rear housing seal (6) in groove in housing (17). Place body seals (7) in grooves in both sides of rotor (21). Place rotor (21) onto housing (17) with side of rotor with chamfer in splines facing housing (17). Place manifold (22) over rotor (21) with seal groove side up. Install manifold seal (8).
- L) Install the commutator seal (9) into the commutator (23) with the metal side facing up. Use finger pressure to press the seal down flush with the surface of the commutator. Place the commutator container onto the manifold (22) and then place the commutator onto the protruding end of the drive link (19), making sure that the seal side faces up.
- M) Install the remaining body seal (7) in the groove in the face of the endcover (26). Install piston spring (25) into endcover (26), then the white backup seal (11) followed by the O-Ring seal (10). Lining up the alignment pin with the hole in the end-cover, press piston (24) into the endcover (26). While holding the piston (24) in the endcover, lower the endcover assembly onto the motor. Check to make sure that the endcover ports are in their original position.
- N) Install the seven assembly bolts (28) and pre-torque to 10 ft. lbs. final torque all bolts to 50 ft. lbs. Using the bolt torque sequence shown in Figure 2.

## DT (701) Series Motor Components

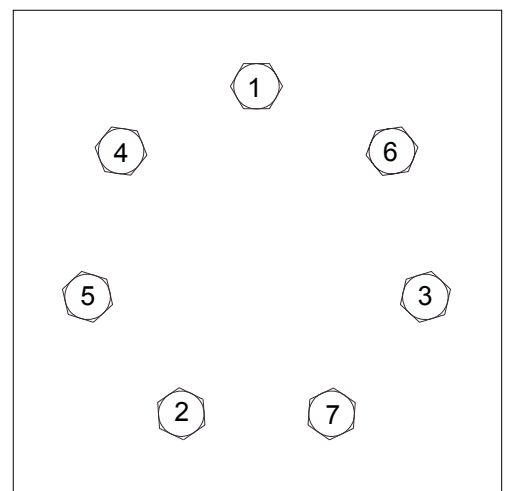


1. \* Dust Seal
2. \* High Pressure Seal
3. \* Metal Backup Shim
4. \* Backup Seal
5. \* Shaft Seal
6. \* Housing Seal
7. \* Body Seals (3)
8. \* Manifold Seal
9. \* Commutator Seal
10. \* O-Ring Seal
11. \* Backup Seal
12. Retaining Snap Ring
13. Bearing Spacer
14. 1.5" Bearing
15. Thrust Washers (2)
16. Thrust Bearing
17. Housing
18. Rear Housing Bearing
19. Drive Link
20. Divider Plate
21. Rotor Assembly
22. Manifold
23. Commutator Assembly
24. Endcover Piston
25. Piston Spring
26. Endcover
27. I.D. Tag Assembly
28. Assembly Bolts (7)
29. Shaft
30. Shaft Key
31. Shaft Nut

\* Contained in seal kit 700666250



**FIGURE 1**



**FIGURE 2**

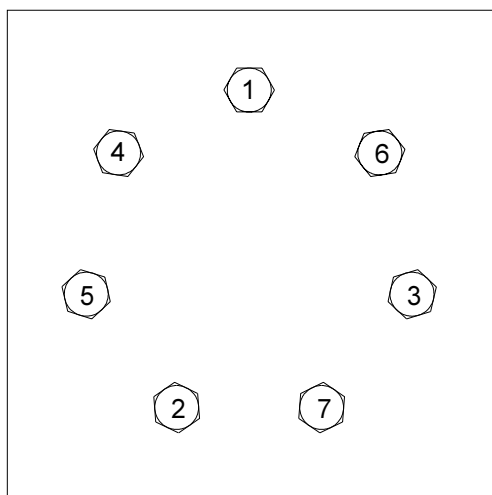
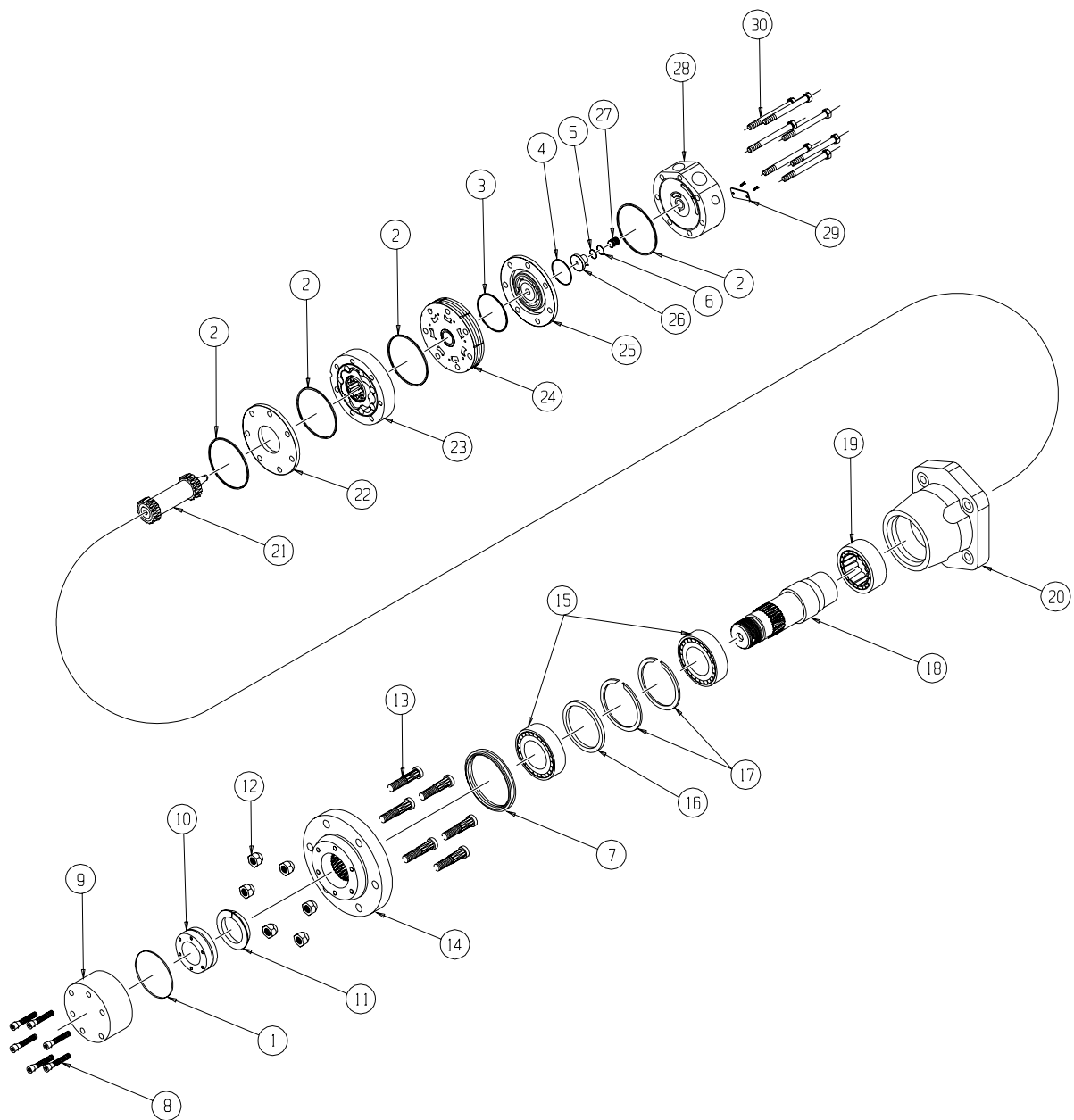


**\*\*\*USE EXPLODED VIEW ON BACK FOR REFERENCE\*\*\***

**Note: The special tools and fixtures required, the housing/hub assembly is not field serviceable. For repair work, the housing/hub assembly must be returned to the factory. To insure the fastest possible turn around time, please contact the White Hydraulics Technical Support Department at 800-323-7298 for return instructions. For breakdown situations requiring immediate repairs, new housing/hub assemblies are available for immediate shipment.**

#### **MOTOR SECTION DISASSEMBLY AND ASSEMBLY**

- A) To aid in reassembly of the motor, make a "V" shaped set of lines from the endcover (28) to the housing (20) using either paint or a marker. With wheel hub (14) facing down, secure motor in vise by clamping on to housing (20).
- B) Loosen and remove seven bolts (30) holding motor assembly together. Remove endcover (28) carefully as piston (26) and spring (27) may fall out. If piston does not come out, carefully pry piston (26) out of endcover (28) and lay aside. Remove O-ring seal (5) and backup seal (6) from endcover and discard seals. Remove spring (27) and lay aside.
- C) Lift commutator container and commutator (25) from motor and lay aside. Place commutator on a flat, clean surface with the seal (4) facing up. Place the tip of a small screwdriver on the seal (4) and gently tap until opposite side of seal lifts from groove. Remove seal (4) and discard.
- D) Remove manifold (24), rotor assembly (23) and divider plate (22). Remove all seals (2-3) from components and discard. (Caution- Do not allow rolls to drop from rotor assembly (23) when removing rotor assembly from motor.) Remove drive link (21) from motor and lay aside.
- E) At this point, all parts should be cleaned in an oil-based solvent and dried using compressed air (For safety, observe all OSHA safety guidelines). All new seals should be lightly coated in clean oil prior to installation.
- F) Install drive link (21) into end of shaft with tapered end facing up. Place rear housing seal (2) in groove in housing (20). Place body seals (2) in grooves in both sides of rotor assembly (23). Place rotor assembly (23) onto housing (20) with side of rotor assembly with chamfer in splines facing housing (20). Place manifold (24) over rotor assembly (23) with seal groove side up. Install manifold seal (3).
- G) Install the commutator seal (4) into the commutator (25) with the metal side facing up. Use finger pressure to press the seal down flush with the surface of the commutator. Place the commutator container onto the manifold (24) and then place the commutator onto the protruding end of the drive link (21) making sure that the seal side faces up.
- H) Install the remaining body seal (2) in the groove in the face of the endcover (28). Install piston spring (27) into endcover (28), then the white backup seal (6) followed by the O-ring seal (5). Lining up the alignment pin on the piston (26) with the hole in the endcover (28), press piston (26) into the endcover (28). While holding the piston (26) in the endcover, lower the endcover assembly onto the commutator assembly (25). Check to make sure that the endcover ports are in their original position.
- I) Install the seven assembly bolts (30) and pre-torque to 10 ft. lbs. Final torque all bolts to 50 ft. lbs. using the bolt torque sequence shown in Figure 1.



**FIGURE 1**

#### DT (740) Components

- |                                 |                         |
|---------------------------------|-------------------------|
| 1. Cap Seal                     | 16. Bearing Spacer      |
| 2. Body Seal (4)                | 17. Snap Rings (2)      |
| 3. Manifold Seal                | 18. Shaft               |
| 4. Commutator Seal              | 19. Roller Bearing      |
| 5. O-Ring Seal                  | 20. Housing             |
| 6. Backup Seal                  | 21. Drive Link          |
| 7. Flange Seal                  | 22. Divider Plate       |
| 8. Capscrews (6)                | 23. Rotor Assembly      |
| 9. Flange Cap                   | 24. Manifold            |
| 10. Locking Nut                 | 25. Commutator Assembly |
| 11. Hub Wedge                   | 26. Endcover Piston     |
| 12. Lug Nuts (6)                | 27. Piston Spring       |
| 13. Wheel Studs (6)             | 28. Endcover            |
| 14. Wheel Hub                   | 29. I.D. Tag Assembly   |
| 15. Tapered Roller Bearings (2) | 30. Assembly Bolts (7)  |