

**SERVICE INSTRUCTIONS FOR THE RE [500 & 501] SERIES MOTORS**

For Use With Seal Kits: 500444001, 500444002, 500444112

dimensions: mm [in]

NOTE: IN DECEMBER 2006, THE 500 SERIES INCORPORATED A DESIGN CHANGE. THIS SET OF INSTRUCTIONS WILL AID IN THE DISASSEMBLY AND ASSEMBLY FOR BOTH DESIGNS. MID 2010 A DESIGN CHANGE WAS IMPLEMENTED ON WHEEL MOUNTS TO REMOVE THE EXTERNAL DUST SEAL AND REPLACE IT WITH AN INTERNAL EXCLUDER SEAL. PLEASE REFER TO THE EXPLODED VIEW DRAWING ON PAGE 3 TO DETERMINE WHICH DESIGN IS BEING REPAIRED AND THEN FOLLOW THE APPROPRIATE INSTRUCTIONS FOR THAT DESIGN.

Motor Section Disassembly (Same Instructions For Both Designs)

- A) Remove all shaft related components from shaft (27) (i.e. keys, wire rings, nuts). To aid in reassembly of the motor, make a "V" shaped set of lines from the endcover (24) to the housing using either paint or a marker. With shaft facing down, secure motor in vise by clamping on to housing (15).
- B) Loosen and remove seven bolts (26) holding motor assembly together. Remove endcover (24) and endcover seal (10). Discard seal. Remove balance plate (22) taking care not to drop the three steel balls (23) located in the three holes in the balance plate (22). Remove rotor assembly (21), manifold (19), drive link spacer (20) (NOTE: Some motors do not use spacer), drive link (18) and thrust bearing (17). Remove body seals (9) from rotor assembly (21) and housing seal (8) from housing (15) and discard seals. (NOTE: Compare old housing seal (8) to the two housing seals included in kit to determine which one to use.) Gently tap shaft (27) upward from housing (15) and remove through rear of housing and lay aside.

Housing/Shaft Disassembly And Assembly (Design That Utilizes A Seal Carrier (11))

- C) Remove housing (15) from vise and turn over. Pry dust seal (1) from housing. Push the seal carrier (11), thrust washer (12) and thrust bearing (13) down until they make contact with the roller bearing (14) located in the housing bore.
- D) Remove wire ring (2), steel backup shim (3) and high pressure seal (4) from inner bore groove with a small screwdriver. Lift seal carrier (11), thrust washer (12) and thrust bearing (13) from the housing bore. Using a small screwdriver, carefully pry shaft seal (7), backup seal (6), and metal backup shim (5) from seal carrier (11) and discard. Lay seal carrier (11), thrust washer (12) and thrust bearing (13) aside. (NOTE: If a new thrust washer (12) and seal carrier (11) is included in kit, old items may be discarded).

At this point, all parts should be cleaned in an oil-base 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.

- E) Place shaft (27) on a clean flat surface with output end facing up. Place thrust bearing (13) (NOTE: If thrust bearing has integral washer, make sure washer surface faces down.) Then thrust washer (12) on shaft (See Technical Bulletin PI444004 to determine correct thrust washer to use). Lightly coat seal area of shaft with clean oil and place plastic installation sleeve with shaft seal (7) down onto shaft covering all splines, keyways and wire ring grooves. Slide shaft seal (7) down onto shaft (27) making sure that lip on seal faces down (See Figure 1 for correct seal orientation) until it contacts thrust washer (12). Remove plastic installation sleeve. Carefully install the backup seal (6) onto the shaft (27) with the flat side up and the seal lip facing the shaft seal (7). Place the metal backup shim (5) onto the shaft and against the backup seal (6). Place the seal carrier (11) onto the shaft (large end down) and carefully press the seal carrier (11) down onto the seal assembly using an arbor press and sleeve to compress the seal into the carrier.
- F) With pilot side facing up, place housing (15) on spacers to raise housing approximately 6 [.25] above work surface (NOTE: Spacers should allow shaft to contact work surface). Place shaft/seal carrier assembly into housing (15). Install high pressure seal (4) into groove in housing. Install metal backup shim (3) against high pressure seal (4) in groove in housing bore by squeezing the shim (3) between thumb and forefinger to bow shim. While maintaining bow in shim, start the shim into the groove and use a small screwdriver to push the shim into groove. Install wire ring (2) into the groove making sure that the ends are butted.
- G) While holding shaft into housing, place housing/shaft assembly in vise with shaft end down. Making sure that end of drive link (18) with crowned splines goes into shaft end, install drive link (18) into shaft and tap lightly to seat the seal carrier against the wire ring (2). Place thrust bearing (17) over drive link (18). If seal carrier (11) is properly seated against wire ring (2), thrust bearing (17) will be flush with rear surface of housing.

Housing/Shaft Disassembly And Assembly (Design That Does NOT Utilize A Seal Carrier (11))

- H) Position the housing (15) in vise and use a slide and hammer type bearing puller to remove the rear housing bearing (16). Then remove the bearing spacer (32). To remove the front housing bearing (14), flip the housing over and place a screwdriver or small chisel in between a roller in the bearing and rest it on the bottom of the bearing cage. Strike the chisel or screwdriver with a hammer just until the cage stretches or chips enough to allow the rollers to fall out. Clear away all rollers, then replace the housing in vise upside down and use the slide and hammer to remove bearing making sure that no finger of the puller is pulling on the weak point caused when removing the roller bearings. Remove the thrust washer (12) and thrust bearing (13) and set aside. Using a small screwdriver carefully pry the shaft seal (7), backup seal (6), and metal shim (5) from housing bore if present and discard. Also remove excluder seal (33) if the motor design uses this seal and discard. (See Figure 4 for additional information.)
- I) Remove the housing from vise and turn over and pry the dust seal (1) from housing and discard (external dust seal is not used on

models that use an internal excluder seal.

- J) At this point, all parts should be cleaned in an oil-base 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. Place housing (15) in vice with the seven bolt assembly holes facing up. If model uses an excluder seal (33), place it in the recess of housing, if not, place the metal shim (5) in recess. Install the backup seal (6) into the housing (15) with the flat side down and the seal lip facing up. Insert shaft seal (7) down into housing (15) making sure that lip on seal faces up (See Figure 2 for correct seal orientation). Install thrust washer (12) into housing and using an arbor press, seat the shaft seal (7) into housing (15), then place the thrust bearing (13) into housing.
- K) Place front housing bearing (14) onto housing and press bearing into housing to a depth of 60,1 [2.37] from the rear surface of the housing (15) to the top of the bearing. Insert the bearing spacer (32) into the housing. Place the rear housing bearing (16) onto the rear housing bore and press to a depth of 3,6 [14] from the rear surface of the housing (15) to the top of the bearing (16). Place the shaft (27) down into housing (15) and place thrust bearing (17) on top of shaft (27). If shaft seals are properly seated against the housing (15), thrust bearing (17) will be flush with rear surface of housing.

Motor Section Assembly (Same Instructions For Both Designs)

- L) Install housing seal (8) into groove in housing (15). Place manifold (19) onto housing, (15) side with only seven holes facing housing (15). Place body seals (9) in grooves in both sides of rotor (21). Place rotor (21) onto manifold (19) with side of rotor with chamfer in splines facing manifold (19).
- M) Install balance plate (22) onto rotor (21) making sure holes for steel balls (23) faces up. Install three steel balls (23) in holes in balance plate (22). Install endcover seal (10) into groove in endcover (24) and place endcover onto balance plate (22). Install seven assembly bolts (26) and pre-torque to 13,6 Nm [10 ft. lbs.] Using the bolt torque sequence shown in Figure 3, final torque all bolts to 67,8 Nm [50 ft. lbs.]
- N) Remove motor from vise and place on work surface with shaft (27) facing up. Making sure that lip on seal (1) faces up, place dust seal (1) over shaft (27). Using a sleeve and a hammer, carefully drive dust seal (1) into place.

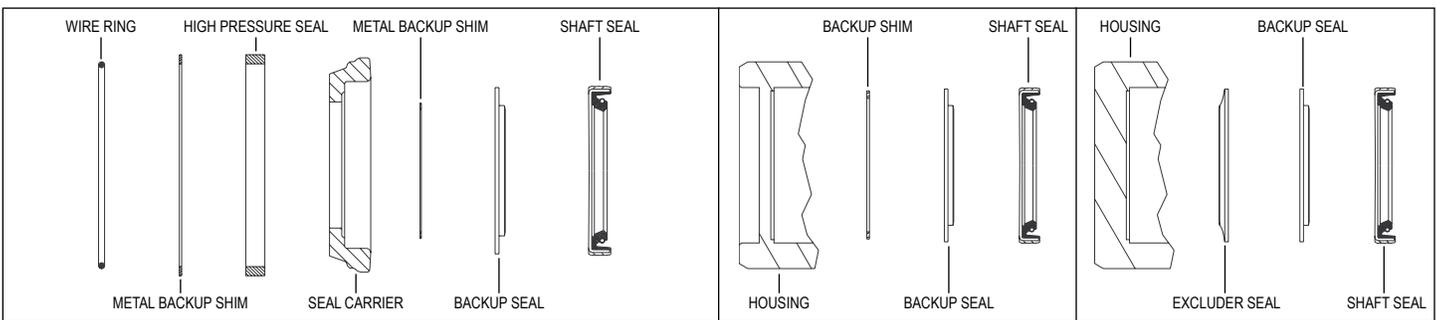


FIGURE 1

FIGURE 2

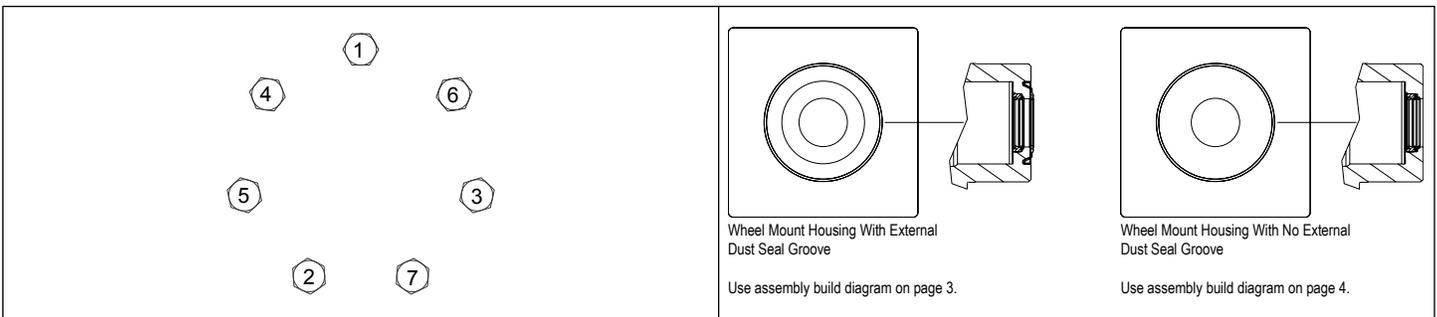


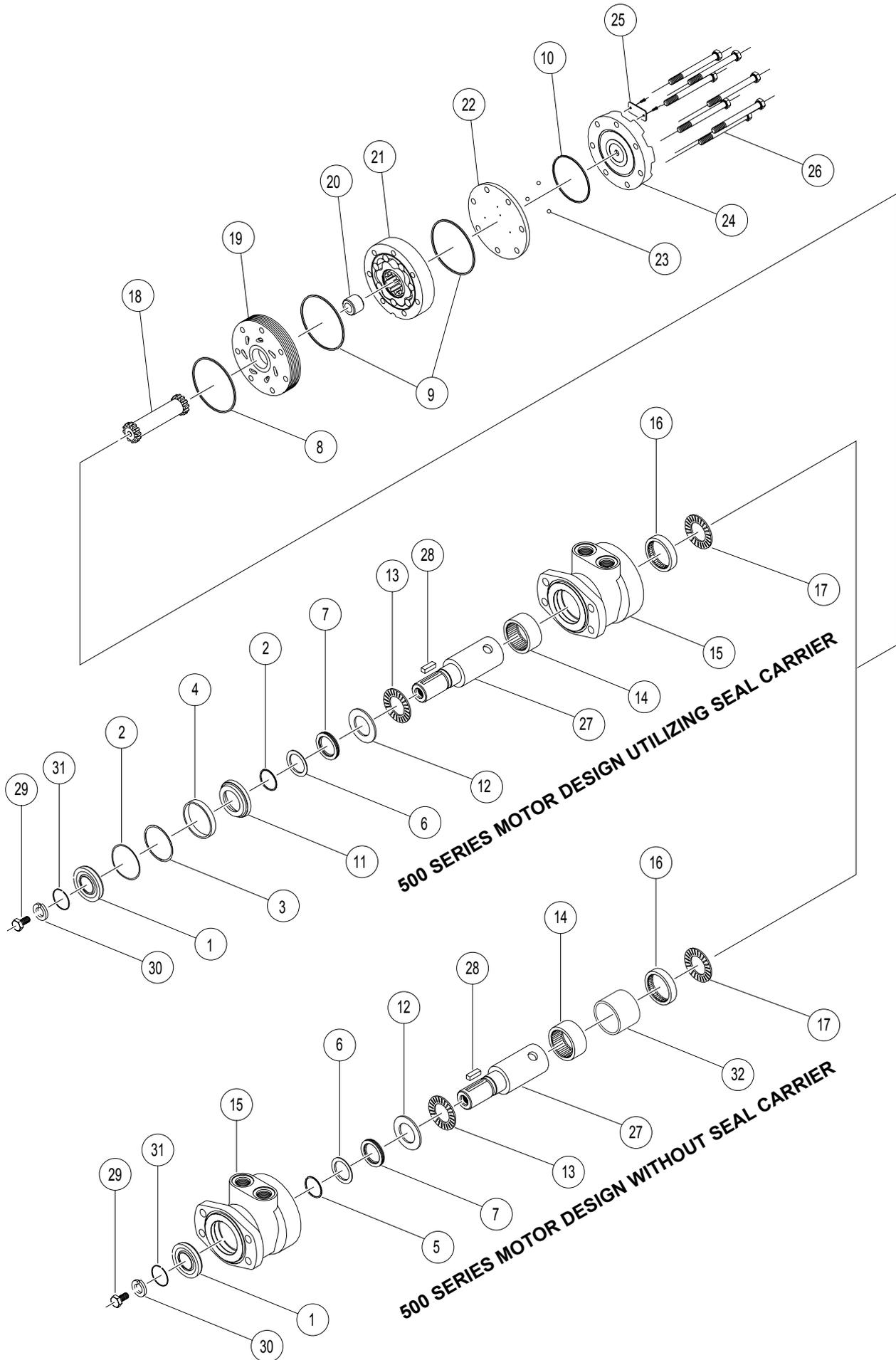
FIGURE 3

FIGURE 4

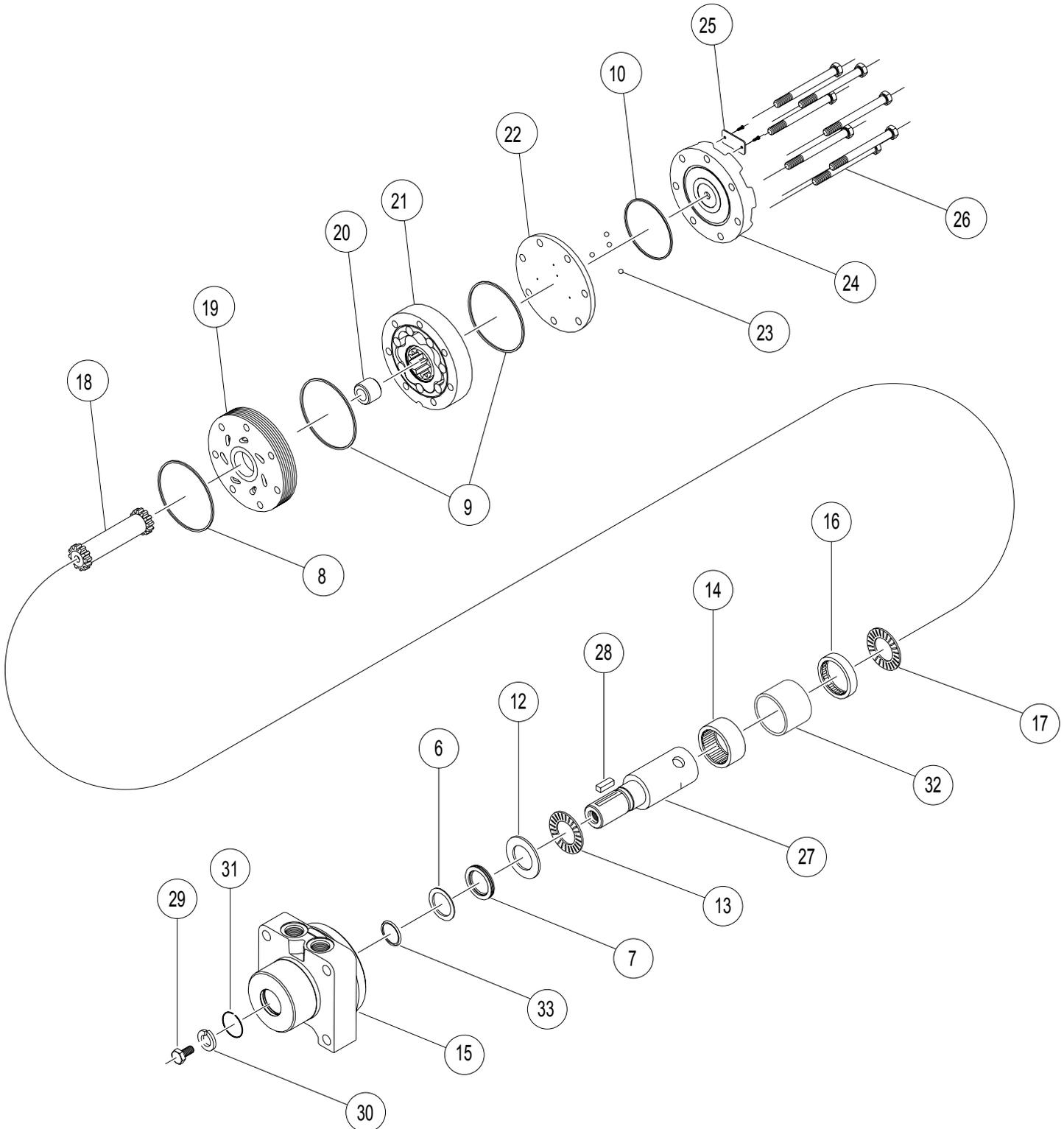
EXPLODED VIEW PARTS DESCRIPTION

- | | | | |
|------------------------------------|----------------------------------------|--------------------------------------|--------------------------------------------------------------------------|
| 1. ¹ Dust Seal | 12. ² Thrust Washer | 23. Steel Balls (3) | ¹ Included in seal kit(s):
500444001, 500444002, 500444112 |
| 2. ¹ Split Wire Ring | 13. Front Thrust Bearing | 24. Endcover | ² Included in seal kit(s):
500444001 |
| 3. ¹ Metal Backup Shim | 14. ³ Front Housing Bearing | 25. I.D. Tag Assembly | ³ Included in seal kit(s):
500444112 |
| 4. ¹ High Pressure Seal | 15. Housing | 26. Assembly Bolts (7) | ⁴ Included in seal kit(s):
500444002, 500444112 |
| 5. ¹ Metal Backup Shim | 16. ³ Rear Housing Bearing | 27. Shaft | |
| 6. ¹ Backup Seal (2) | 17. Rear Thrust Bearing | 28. Shaft Key | |
| 7. ¹ Shaft Seal (2) | 18. Drive Link | 29. Shaft Bolt | |
| 8. ¹ Housing Seal | 19. Manifold | 30. Lock Washer | |
| 9. ¹ Body Seals (2) | 20. Drive Link Spacer | 31. Wire Ring | |
| 10. ¹ Endcover Seal | 21. Rotor Assembly | 32. Bearing Spacer | |
| 11. ² Seal Carrier | 22. Balance Plate | 33. ⁴ Excluder Shaft Seal | |

Note: The motor design that utilizes a seal carrier will use the larger O.D. backup seal and shaft seal.



**500 SERIES MOTOR DESIGN WITH EXCLUDER SEAL
(REFER TO FIGURE 4)**



SERVICE INSTRUCTIONS FOR THE RE [520 & 521] SERIES MOTORS

For Use With Seal Kits: 500444001 & 500444002

dimensions: mm [in]

NOTE: IN DECEMBER 2006, THE 520 SERIES INCORPORATED A DESIGN CHANGE. THIS SET OF INSTRUCTIONS WILL AID IN THE DISASSEMBLY AND ASSEMBLY FOR BOTH DESIGNS. PLEASE REFER TO THE EXPLODED VIEW DRAWING TO DETERMINE WHICH DESIGN IS BEING REPAIRED AND THEN FOLLOW THE APPROPRIATE INSTRUCTIONS FOR THAT DESIGN.

A) Motor Section Disassembly (Same Instructions For Both Designs)

Remove all shaft related components from shaft (27) (i.e. keys, wire rings, nuts). To aid in reassembly of the motor, make a "V" shaped set of lines from the endcover (24) to the housing using either paint or a marker. With shaft facing down, secure motor in vise by clamping on to housing (16).

- B)** Loosen and remove seven bolts (26) holding motor assembly together. Remove endcover (24) and endcover seal (10). Discard seal. Remove balance plate (22) taking care not to drop the three steel balls (23) located in the three holes in the balance plate (22). Remove rotor assembly (21), manifold (20), drive link spacer (19) (NOTE: Some motors do not use spacer), drive link (18) and thrust bearing (15). Remove body seals (9) from rotor assembly (21) and housing seal (8) from housing (16) and discard seals. (NOTE: Compare old housing seal (8) to the two housing seals included in kit to determine which one to use.) Gently tap shaft (27) upward from housing (16) and remove through rear of housing and lay aside.

Housing/Shaft Disassembly And Assembly (Design That Utilizes A Seal Carrier (13))

- C)** Turn housing over and remove retaining snap ring (11) from inner core of housing. Turn housing over again. Using a drift punch through the rear of the housing, tap against the inner race of the 72mm bearing (12) to remove the bearing through the top of the housing. Pry dust seal (1) from bearing (12). Then turn housing over again and push the seal carrier (13), thrust washer (14) and thrust bearing (15) down until you can get to the wire ring (2).
- D)** Remove wire ring (2), steel backup shim (3) and high pressure seal (4) from inner bore groove with a small screwdriver. Lift the seal carrier (13), thrust washer (14) and thrust bearing (15) from the housing bore. Carefully pry shaft seal (7), backup seal (6), and metal backup shim (5) from seal carrier (13) and discard. Lay seal carrier (13), thrust washer (14) and thrust bearing (15) aside. (NOTE: If a new thrust washer (14) and seal carrier (13) is included in kit, old items may be discarded).

At this point, all parts should be cleaned in an oil-base 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.

- E)** Place shaft (27) on a clean flat surface with output end facing up. Place thrust bearing (15) (NOTE: If thrust bearing has integral washer, make sure washer surface faces down) over the shaft. Then thrust washer (14) on shaft (See Technical Bulletin PI444004 to determine correct thrust washer to use). Lightly coat seal area of shaft with clean oil and place plastic installation sleeve with shaft seal (7) down onto shaft covering all splines, keyways and wire ring grooves. Slide shaft seal (7) down onto shaft (27) making sure that lip on seal faces down (See Figure 1 for correct seal orientation) until it contacts thrust washer (12). Remove plastic installation sleeve. Carefully install the backup seal (6) onto the shaft (27) with the flat side up and the seal lip facing the shaft seal (7). Place the metal backup shim (5) onto the shaft and against the backup seal (6). Place the seal carrier (13) onto the shaft (large end down) and carefully press the seal carrier (13) down onto the seal assembly using an arbor press and sleeve to compress the seal into the carrier.
- F)** With pilot side facing up, place housing (16) on spacers to raise housing approximately 6,4 [.250] above work surface (NOTE: Spacers should allow shaft to contact work surface). Place shaft/seal carrier assembly into housing (16). Install high pressure seal (4) into groove in housing. Install metal backup shim (3) against high pressure seal (4) in groove in housing bore by squeezing the shim (3) between thumb and forefinger to bow shim. While maintaining bow in shim, start the shim into the groove and use a small screwdriver to push the shim into groove. Install wire ring (2) into the groove, making sure that the ends are butted.
- G)** While holding shaft into housing, place housing/shaft assembly in vise with shaft end down. Making sure that end of drive link (18) with crowned splines goes into shaft end, install drive link (18) into shaft and tap lightly to seat the seal carrier against the wire ring (2). Place thrust bearing (15) over drive link (18). If seal carrier (13) is properly seated against wire ring (2), thrust bearing (15) will be flush with rear surface of housing.

Housing/Shaft Disassembly And Assembly (Design That Does NOT Utilizes A Seal Carrier (13))

- H)** Position the housing (16) in vise and use a slide and hammer type bearing puller to remove the rear housing bearing (17). Remove the thrust washer (14) and thrust bearing (15) and set aside. Using a small screwdriver carefully pry the shaft seal (7), backup seal (6) and metal shim (5) from housing bore and discard.
- I)** Turn housing over and remove retaining snap ring (11) from inner core of housing. Turn housing over again. Using a drift punch through the rear of the housing, tap against the inner race of the 72mm bearing (12) to remove the bearing through the top of the housing. Pry dust seal (1) from bearing (12) and discard.

At this point, all parts should be cleaned in an oil-base 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.

- J) Place housing (16) in vice with the seven bolt assembly holes facing up. Place metal shim (5) in the smallest diameter recess in the housing (16). Install the backup seal (6) into the housing (16) with the flat side down and the seal lip facing up. Insert shaft seal (7) down into housing (16) making sure that lip on seal faces up (See Figure 2 for correct seal orientation). Install thrust washer (14) into housing and using an arbor press, seat the shaft seal (7) into housing (16), then place the thrust bearing (15) into housing.
- K) Place the rear housing bearing (17) onto the rear housing bore and press to a depth of 3,6 [.14] from the rear surface of the housing (16) to the top of the bearing (17). Place the shaft (27) down into housing (16) and place thrust bearing (15) on top of shaft (27). If shaft seals are properly seated against the housing (16), thrust bearing (15) will be flush with rear surface of housing.

Motor Section Assembly (Same Instructions For Both Designs)

- L) Install housing seal (8) into groove in housing (16). Place manifold (20) onto housing (16) with side with only seven holes facing housing (16). Place body seals (9) in grooves in both sides of rotor (21). Place rotor (21) onto manifold (20) with side of rotor with chamfer in splines facing manifold (20).
- M) Install balance plate (22) onto rotor (21) making sure holes for steel balls (23) faces up. Install three steel balls (23) in holes in balance plate (22). Install endcover seal (10) into groove in endcover (24) and place endcover onto balance plate (22). Install seven assembly bolts (26) and pre-torque to 10 ft. lbs. Using the bolt torque sequence shown in Figure 3, final torque all bolts to 67,8 Nm [50 ft. lbs.]
- N) Remove motor from vise and place on work surface with shaft (27) facing up. Place 72mm bearing (12)(Making sure that side of bearing with internal retaining ring faces down) over the shaft (27). Using a sleeve and hammer, carefully drive bearing into housing making sure the top of the bearing falls below the groove in the housing for retaining ring installation. **(Caution: Driving the bearing down with excessive force may cause seal carrier to interfere with bearing performance. This could lead to product overheating and may shorten the life of bearing and motor. Bearing only need be tapped into place.)** Install the retaining ring (11) in the groove in the housing, making sure that the ring snaps into place. Place dust seal (1) over shaft (27) making sure side with lip faces up. Using a sleeve and hammer, carefully drive dust seal into place.

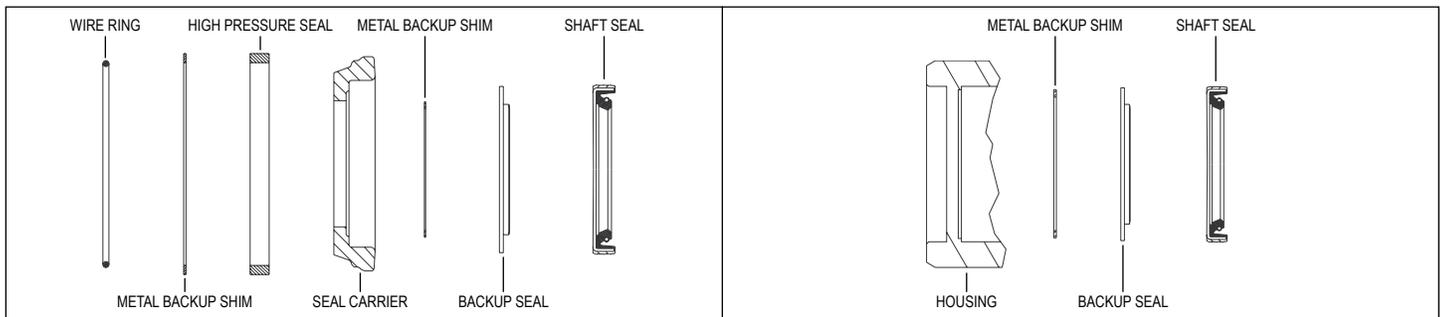


FIGURE 1

FIGURE 2

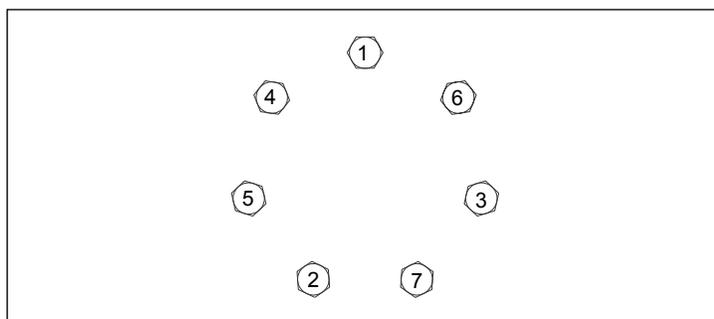
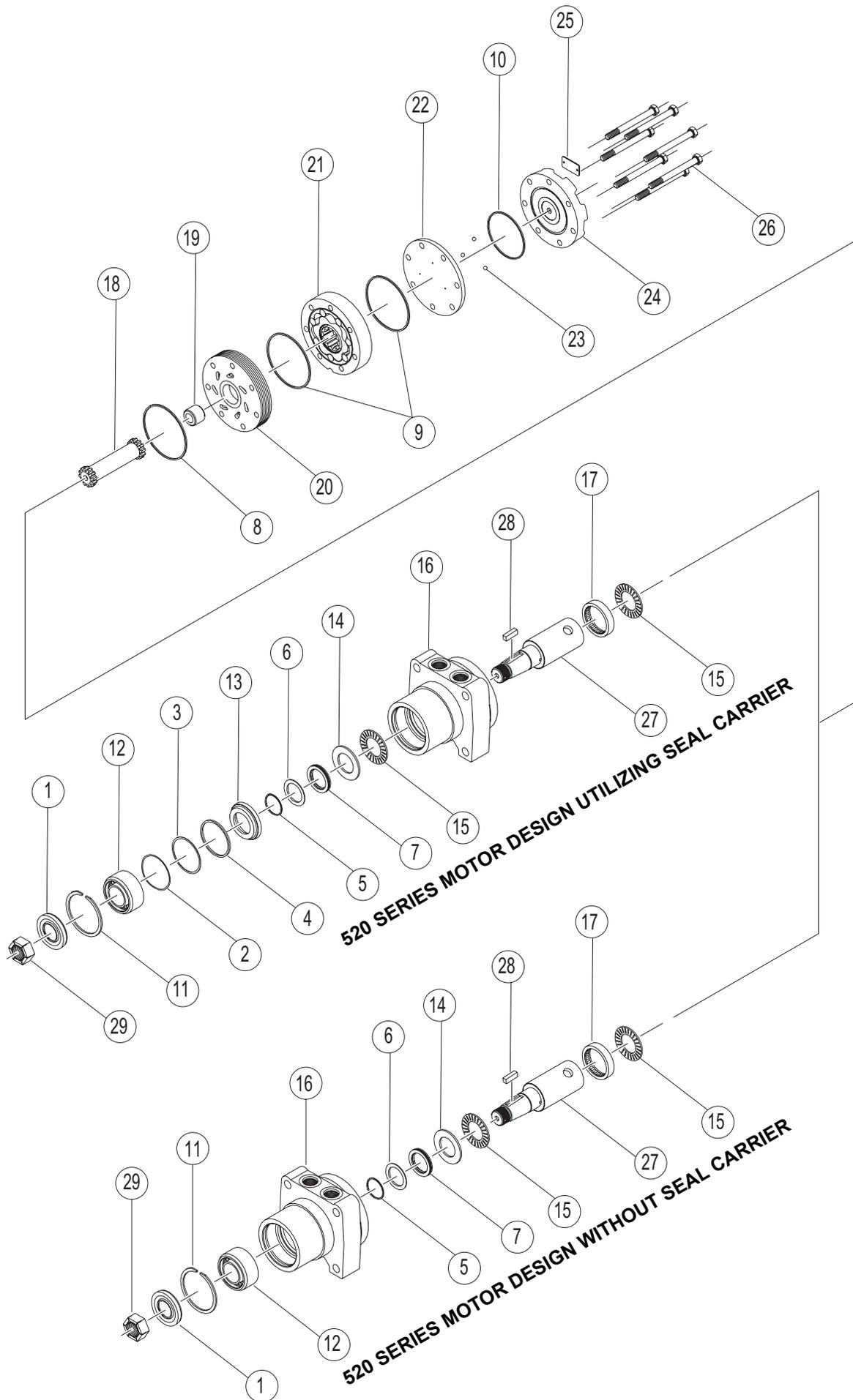


FIGURE 3

EXPLODED VIEW PARTS DESCRIPTION

- | | | |
|--------------------------|--------------------------|-----------------------------------|
| 1. *† Dust Seal | 12. 72mm Bearing | 23. Steel Balls (3) |
| 2. *† Split Wire Ring | 13. * Seal Carrier | 24. Endcover |
| 3. *† Metal Backup Shim | 14. * Thrust Washer | 25. I.D. Tag Assembly |
| 4. *† High Pressure Seal | 15. Thrust Bearing | 26. Assembly Bolts (7) |
| 5. *† Metal Backup Shim | 16. Housing | 27. Shaft |
| 6. *† Backup Seal (2) | 17. Rear Housing Bearing | 28. Shaft Key |
| 7. *† Shaft Seal (2) | 18. Drive Link | 29. Shaft Nut |
| 8. *† Housing Seal | 19. Drive Link Spacer | |
| 9. *† Body Seals (2) | 20. Manifold | |
| 10. *† Endcover Seal | 21. Rotor Assembly | * Contained in Seal Kit 500444001 |
| 11. Retaining Snap Ring | 22. Balance Plate | † Contained in Seal Kit 500444002 |

NOTE: The motor design that utilizes a seal carrier will use the larger O.D. backup seal and shaft seal.





SERVICE INSTRUCTIONS FOR THE RE [530 & 531] SERIES MOTORS

For Use With Seal Kits: 500444004 & 700666000

dimensions: mm [in]

Housing/shaft disassembly and assembly

NOTE - These instructions are intended to service all RE motors with 1.5" Bearings. However, there are slight differences in the bearing/seal assemblies of these motors. It is important that you determine which motor type you have before servicing so that you can turn to the appropriate section. The section headings list each housing flange type. The housing number is the 7th - 9th alpha-numeric digit in the model code, which is located on the tag on the rear of the motor. If the tag is missing, the exploded views may be used to determine which housing type you have.

SECTION 1. "R" FLANGE MOTORS (ex. 530300R3131AAAAA)

- A) Remove all shaft related components from shaft (26) (i.E. Keys, wire rings, nuts, etc.). Secure motor in vise by clamping onto housing. Remove retaining snap ring (9) from groove in pilot of housing (14). Lift shaft/bearing assembly from housing (14) then remove bearing spacer (10), bearing (11), thrust bearing (13) and two thrust washers (12) from shaft (26).
- B) Being careful not to drop any rolls from bearing (11), pry out shaft seal (5), backup seal (4), and dust seal (1) from bearing assembly (11). (Note: metal backup ring (3) may or may not come out of bearing (11). It is not necessary to remove the metal backup ring (3) from the bearing (11) to service the motor.) Remove high pressure seal (2) from groove in pilot of housing (14) discard shaft seal (5), backup seal (4) dust seal (1) and high pressure seal (2).

At this point, all parts should be cleaned in a 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.

- C) Install high pressure seal (2) into groove in pilot of housing (14). Place shaft (26) on a clean, flat surface with output end facing up. Place thrust washer (12), thrust bearing (13) and second thrust washer (12) over shaft (26). Being careful not to cut seal on keyway, place shaft seal (5) over shaft (26) making sure that lip on seal faces down (see figure 2). Repeat process for backup seal (4) making sure that lip faces down. If metal backup ring (3) came out of bearing (11), place over shaft (26) making sure that large O.D. side faces down. Lightly grease bearing (11) if needed. Place bearing (11) over shaft making sure that the large O.D. side faces down. Using an arbor press, carefully press bearing (11) down to press seal assembly (3-5) into bearing (11).
- D) Place shaft (26) assembly into housing (14). Install dust seal (1) over shaft (26) with lip facing up (see figure 1) and carefully press the seal down to seat it in the bearing (11). Place bearing spacer (10) over shaft (26) and push down until snap ring groove is visible. Install retaining snap ring (9) into groove in housing pilot (14). (Note: it may be necessary to lightly tap the retaining snap ring (9) and bearing spacer (10) to allow the retaining snap ring (9) to seat properly.) Replace all shaft related components (i.e. keys, wire rings, nuts).
- E) See section 4 for motor disassembly and assembly.

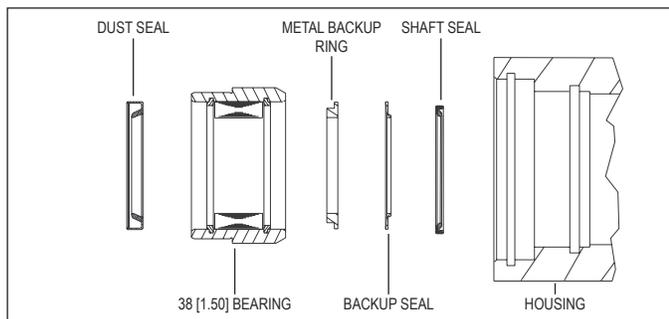
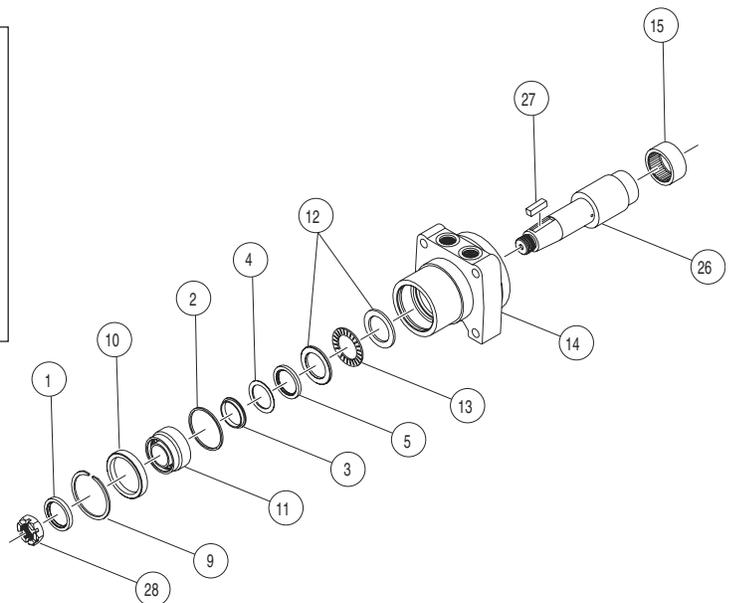


FIGURE 1

- | | |
|-------------------------|--------------------------|
| 1. * Dust Seal | 13. Thrust Bearing |
| 2. * High Pressure Seal | 14. Housing |
| 3. * Metal Backup Ring | 15. Rear Housing Bearing |
| 4. * Backup Seal | 26. Shaft |
| 5. * Shaft Seal | 27. Shaft Key |
| 9. Retaining Snap Ring | 28. Shaft Nut |
| 10. Bearing Spacer | |
| 11. 1.5" Bearing | |
| 12. Thrust Washers (2) | |
- * Contained in Seal Kit 700666000



SECTION 2. "A" FLANGE MOTORS (ex. 530300A5130AAAAA)

- A) Remove all shaft related components from shaft (26) (i.e. keys, wire rings, nuts, etc.). Secure motor in vise by clamping onto housing. Remove retaining snap ring (9) from groove in pilot of housing (14). Lift shaft/bearing assembly from housing (14) then remove bearing (10), seal carrier (11), thrust bearing (13) and two thrust washers (12) from shaft (26).
 - B) Using a small thin bladed screwdriver, pry out shaft seal (5), backup seal (4) and metal backup shim (3) from seal carrier (11). Also pry dust seal (1) from bearing (10). Remove high pressure seal (2) from groove in pilot of housing (14) discard shaft seal (5), backup seal (4), metal backup shim (3), dust seal (1) and high pressure seal (2).
- At this point, all parts should be cleaned in a oil-based solvent and dried using compressed air (for safety, observe all Osha Safety Guidelines). All new seal should be lightly coated with clean oil prior to installation.

- C) Install high pressure seal (2) into groove in pilot of housing (14). Place shaft on a clean, flat surface with output end facing up. Place thrust washer (12), thrust bearing (13) and second thrust washer (12) over shaft (26). Being careful not to cut seal on key-way, place shaft seal (5) over shaft (26) making sure that lip on seal faces down (see figure 2). Repeat process for backup seal (4) making sure that lip faces down. Place metal backup shim (3) over shaft (26). With flat side facing up, place seal carrier (11) down over shaft. Using an arbor press, carefully press down on seal carrier (11) to press seal assembly (3-5) into seal carrier (11). Lightly grease bearing (10) if needed. Place bearing (10) over shaft making sure that side of bearing with snap ring against bearing rolls faces down.
- D) Place shaft (26) assembly into housing (14). Install dust seal (1) over shaft (26) with lip facing up (see figure 2) and carefully press the seal down to seat it in the bearing (10). Install retaining snap ring (9) into groove in housing pilot (14). (Note: It may be necessary to lightly tap the retaining snap ring (9) to allow it to seat properly.) Replace all shaft related components (i.e. keys, wire rings, nuts).
- E) See section 4 for motor disassembly and assembly.

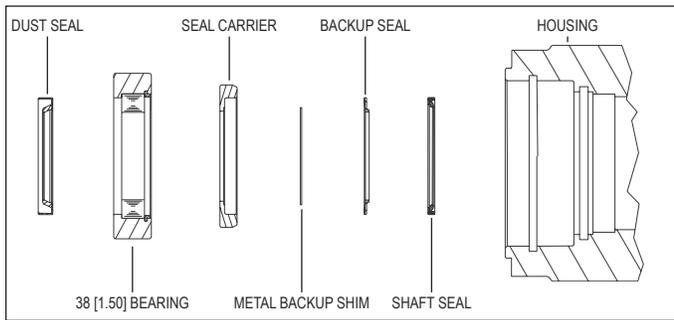
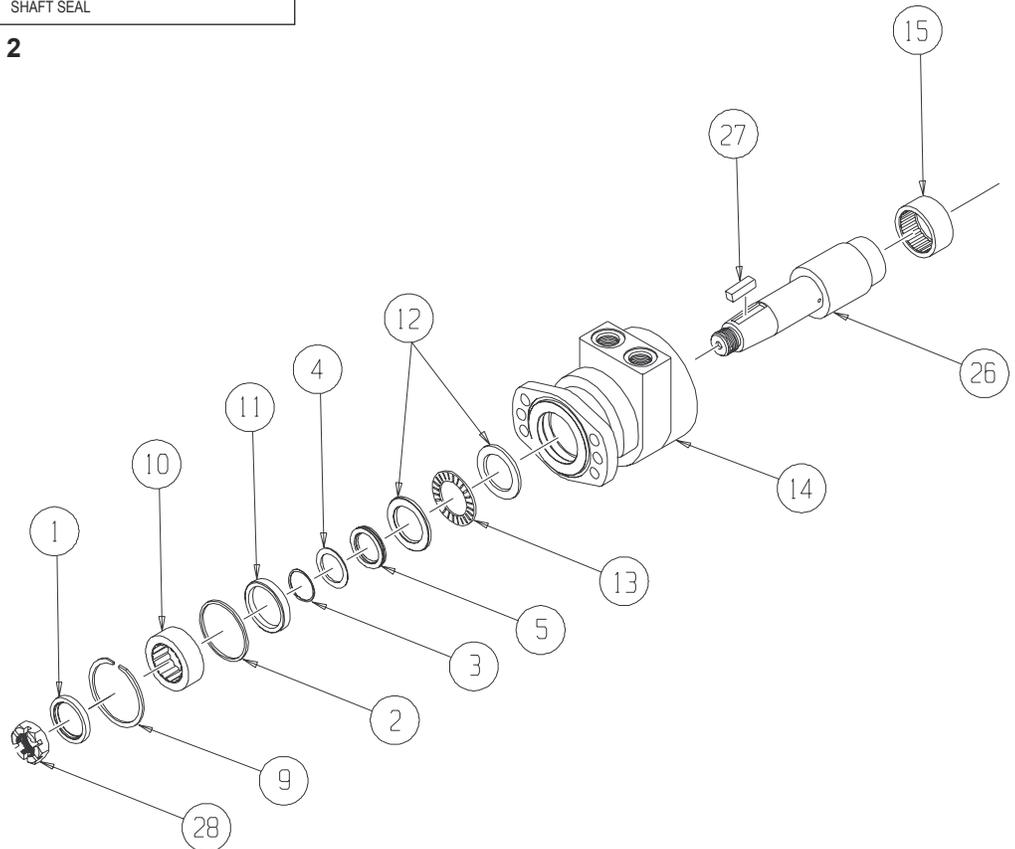


FIGURE 2

- 1. * Dust Seal
- 2. * High Pressure Seal
- 3. * Metal Backup Ring
- 4. * Teflon Backup Seal
- 5. * Shaft Seal
- 9. Retaining Snap Ring
- 10. 1.5" Bearing
- 11. Seal Carrier
- 12. Thrust Washers (2)
- 13. Thrust Bearing
- 14. Housing
- 15. Rear Housing Bearing
- 26. Shaft
- 27. Shaft Key
- 28. Shaft Nut

* Contained in Seal Kit 700666000



SECTION 3. "W" FLANGE MOTORS (ex. 530750W3131AAAAA)

A) Remove all shaft related components from shaft (28) (i.e. keys, wire rings, nuts, etc.). Secure motor in vise by clamping onto housing. Using a small thin blade screwdriver, pry dust seal (1) from housing (15) and discard. Remove retaining ring (9) from groove in pilot of housing (15). Lift shaft/bearing assembly from housing (15) then remove seal carrier assembly (10), bearing (11), bearing spacer (12), thrust bearing (14) and two thrust washers (13) from shaft (28).

B) Using a small thin bladed screwdriver, pry out shaft seal (5), backup seal (4) and metal backup shim (3) from seal carrier (10). Remove high pressure seal (2) from groove in pilot of housing (15) discard shaft seal (5), backup seal (4), metal backup shim (3) and high pressure seal (2).

At this point, all parts should be cleaned in a oil-based solvent and dried using compressed air (for safety, observe all Osha Safety Guidelines). All new seal should be lightly coated with clean oil prior to installation.

C) Install high pressure seal (2) into groove in pilot of housing (15). Place shaft on a clean, flat surface with output end facing up. Place thrust washer (13), thrust bearing (14) and second thrust washer (13) over shaft (28). Place bearing spacer (12) over shaft (26). Place seal carrier (10) on a clean flat surface with the flat side facing down. Install metal backup shim (3) into seal carrier (10). Making sure that lips on both seals face up (see figure 3), install backup seal (4) into seal carrier (10) followed by shaft seal (5). Using an arbor press, carefully press down on shaft seal (5) to press seal assembly (3-5) into seal carrier (10). With shaft seal (5) facing down, carefully lower seal carrier assembly down onto shaft making sure to not cut seal lip on keyway.

D) Place shaft (28) assembly into housing (15). Install retaining snap ring (9) into groove in housing pilot (15). (Note: it may be necessary to lightly tap the retaining snap ring (9) to allow it to seat properly.) Replace all shaft related components (i.e. keys, wire rings, nuts). Install dust seal (1) over shaft (25) with lip facing up (see figure 3) and carefully press the seal down to seat it in the housing (15).

E) See section 4 for motor disassembly and assembly.

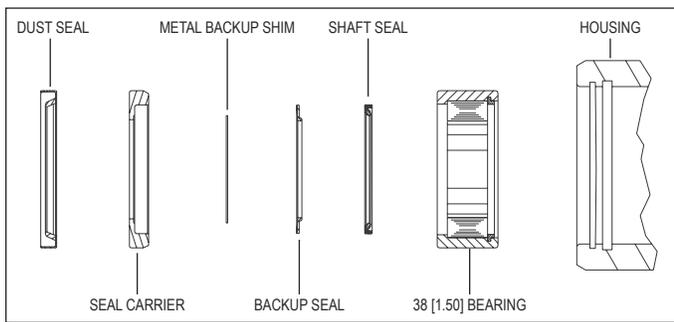
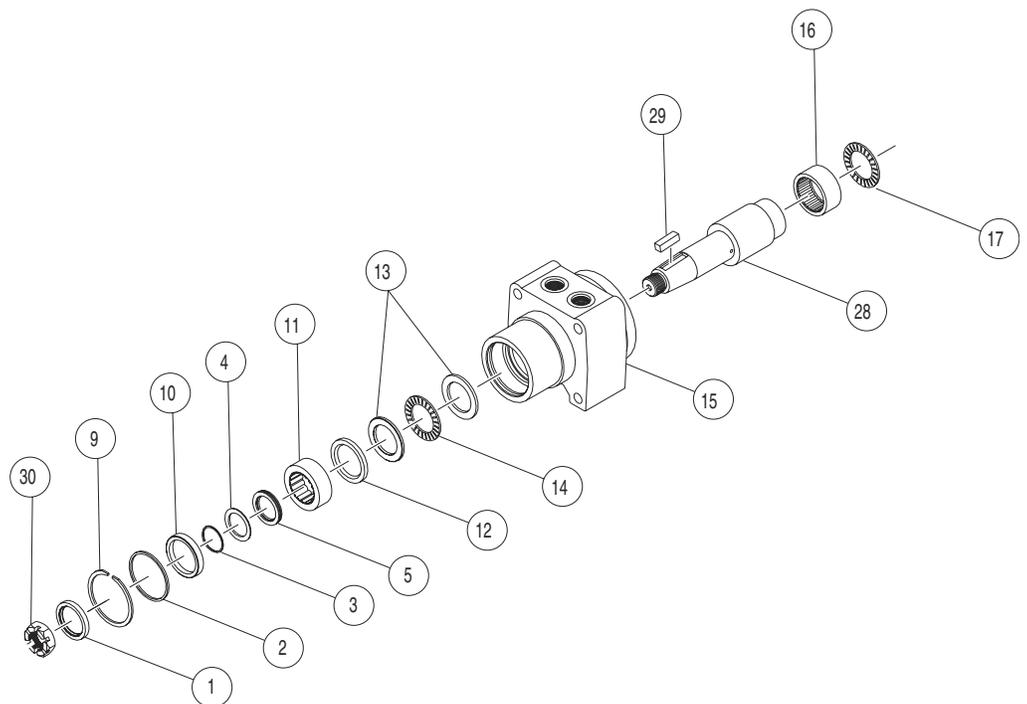


FIGURE 3

- 1. * Dust Seal
- 2. * High Pressure Seal
- 3. * Metal Backup Ring
- 4. * Backup Seal
- 5. * Shaft Seal
- 9. Retaining Snap Ring
- 10. Seal Carrier
- 11. 1.5" Bearing
- 12. Bearing Spacer
- 13. Thrust Washers (2)
- 14. Thrust Bearing
- 15. Housing
- 16. Rear Housing Bearing
- 17. Thrust Bearing
- 28. Shaft
- 29. Shaft Key
- 30. Shaft Nut

* Contained in Seal Kit 700666000



SECTION 4. MOTOR SECTION DISASSEMBLY & ASSEMBLY FOR “A”, “R”, & “W” FLANGE HOUSINGS

- A)** Loosen and remove seven bolts (31) holding motor assembly together. Remove end cover (22) and body seal (8). Discard seal. Remove balance plate (20) taking care not to drop the three steel balls (21) located in the three holes in the balance plate (20). Remove rotor assembly (19), manifold (17), drive link spacer (18) (note: some motors do not use spacer), and drive link (16). Remove body seals (7) from rotor assembly (19) and housing seal (6) from housing and discard seals.

At this point, all parts should be cleaned in a oil-based solvent and dried using compressed air (for safety, observe all osha safety guidelines). All new seal should be lightly coated with clean oil prior to installation.

- B)** If applicable, install thrust washer (17) onto end of shaft (Not shown in this Section. See the exploded view drawing in Section 3. Not all 530 Series motors use this thrust washer). Place drive link (16) into shaft making sure that end of drive link with crowned splines goes into shaft. Place manifold (17) onto housing aligning bolt holes. (Note: manifold side with only seven valving holes goes toward housing.)
- C)** Install a body seal (7) into the seal groove in both sides of rotor assembly (19). Making sure that side of rotor (19) with chamfer in splines faces down, place rotor assembly (19) on manifold (17) engaging drive link splines. Turn rotor assembly (19) to align bolt holes.
- D)** If motor came with spacer (18), place spacer on end of drive link (16). Place balance plate (20) onto the rotor assembly (19) with three holes for steel balls (21) facing up. Install three steel balls (21) into the holes in the balance plate (20).
- E)** Install endcover seal (8) into endcover (22). Place endcover (22) onto the balance plate (20) and align bolt holes. Insert seven bolts (31) into motor assembly. Pre-torque bolts to 13,6 Nm [10 ft. lb.]. Using the bolt pattern in Figure 4 final torque the bolts to 69,8 ± 7,5 Nm [51.5 ± 5.5 ft. lb.].

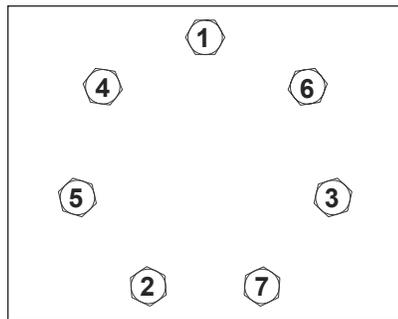
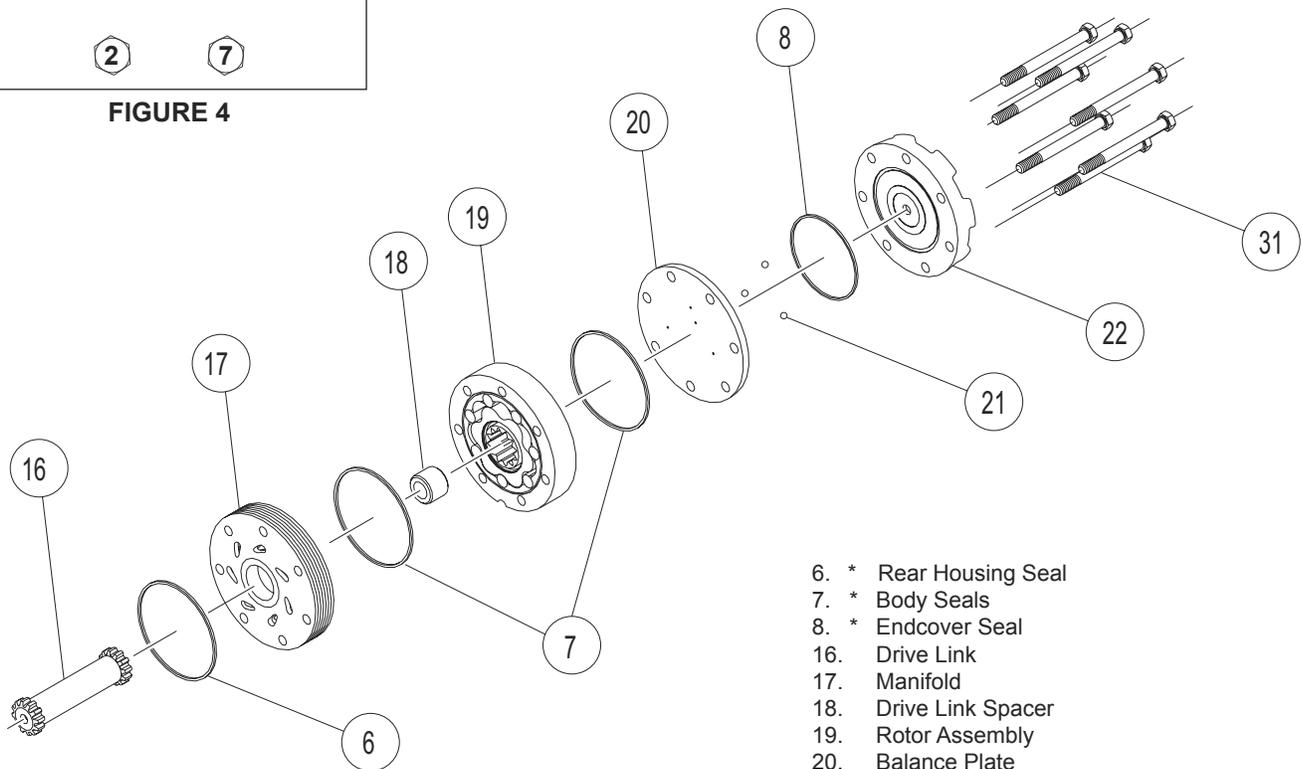


FIGURE 4



- 6. * Rear Housing Seal
- 7. * Body Seals
- 8. * Endcover Seal
- 16. Drive Link
- 17. Manifold
- 18. Drive Link Spacer
- 19. Rotor Assembly
- 20. Balance Plate
- 21. Steel Balls (3)
- 22. Endcover
- 31. Assembly Bolts (7)

* Contained in Seal Kit 700666000

SECTION 5. "T" FLANGE MOTORS (ex. 530540I3828AAAAA)

- A) Remove all shaft related components from shaft (23) (i.e. keys, nuts). To aid in reassembly of the motor, make a "V" shaped set of lines from the endcover (21) to the housing using either paint or a marker. With shaft facing down, secure motor in vise by clamping on to housing (10).
- B) Loosen and remove seven bolts (22) holding motor assembly together. Remove endcover (21) and endcover seal (7). Discard seal. Remove balance plate (19) taking care not to drop the three steel balls (20) located in the three holes in the balance plate (19). Remove rotor assembly (18), manifold (17), drive link spacer (16) (NOTE: Some motors do not use spacer), drive link (15) and thrust bearing (14). Remove body seals (6) from rotor assembly (18) and housing seal (2) from housing (10) and discard seals.
- C) Gently tap shaft (23) upward from housing (10) and remove through rear of housing and lay aside. Remove housing (10) from vise and turn over. Pry dust seal (1) from housing and discard.
- D) Using a slide and hammer bearing puller (see Figure 1) remove rear housing bearing (8) through rear of housing.
- E) Remove the thrust washer (13), front thrust bearing (12), front thrust washer (11), shaft seal (5), back-up seal (4), and back-up ring (3) from housing. Discard items (3, 4, & 5).

At this point, all parts should be cleaned in an oil-base 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) Place shaft (23) on a clean flat surface with output end facing up. Place on shaft, thrust washer (13), then thrust bearing (12), then front thrust washer (11). Lightly coat seal area of shaft with clean oil and place shaft seal (5) down onto shaft (23) making sure that lip on seal faces down (See Figure 2 for correct seal orientation) until it contacts thrust washer (11). Carefully install the back-up seal (4) onto the shaft (23) with the flat side up and the seal lip facing the shaft seal (5). Place the metal back-up ring (3) onto the shaft with the flat side against the backup seal (4).
- G) Place housing (10) onto shaft assembly. Place housing shaft assembly back in vise with output shaft facing down. Install rear housing bearing (8) into rear of housing until bearing (8) contacts the stop in the housing (flat side of bearing (8) should face upward away from housing).
- H) Install drive link (15) in shaft end (crowned splines goes into shaft end). Place thrust bearing (14) over drive link (15). If shaft assembly is properly seated in housing (10), thrust bearing (14) will be flush or countersunk with rear surface of housing (10).
- I) Install housing seal (2) into groove in housing (10). Place manifold (17) onto housing, (10) side with only seven holes facing housing (10). Place body seals (6) in grooves in both sides of rotor (18). Place rotor (18) onto manifold (17) with side of rotor with chamfer in splines facing manifold (17). If motor used a drive link spacer (16), place spacer (16) on top of drive link (15).
- J) Install balance plate (19) onto rotor (18) making sure holes for steel balls (20) faces up. Install three steel balls (20) in holes in balance plate (19). Install endcover seal (7) into groove in endcover (21) and place endcover onto balance plate (19). Install seven assembly bolts (22) and pre-torque to 10 ft. lbs. Using the bolt torque sequence shown in Figure 3, final torque all bolts to 50 ft. lbs.
- K) Remove motor from vise and place on work surface with shaft (23) facing up. Making sure that lip on seal (1) faces up, place dust seal (1) over shaft (23). Using a sleeve and a hammer, carefully drive dust seal (1) into place.

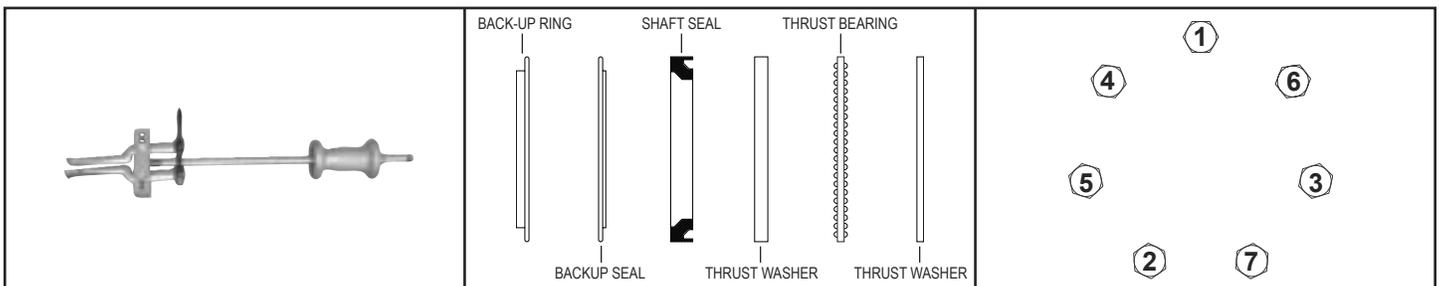


FIGURE 1

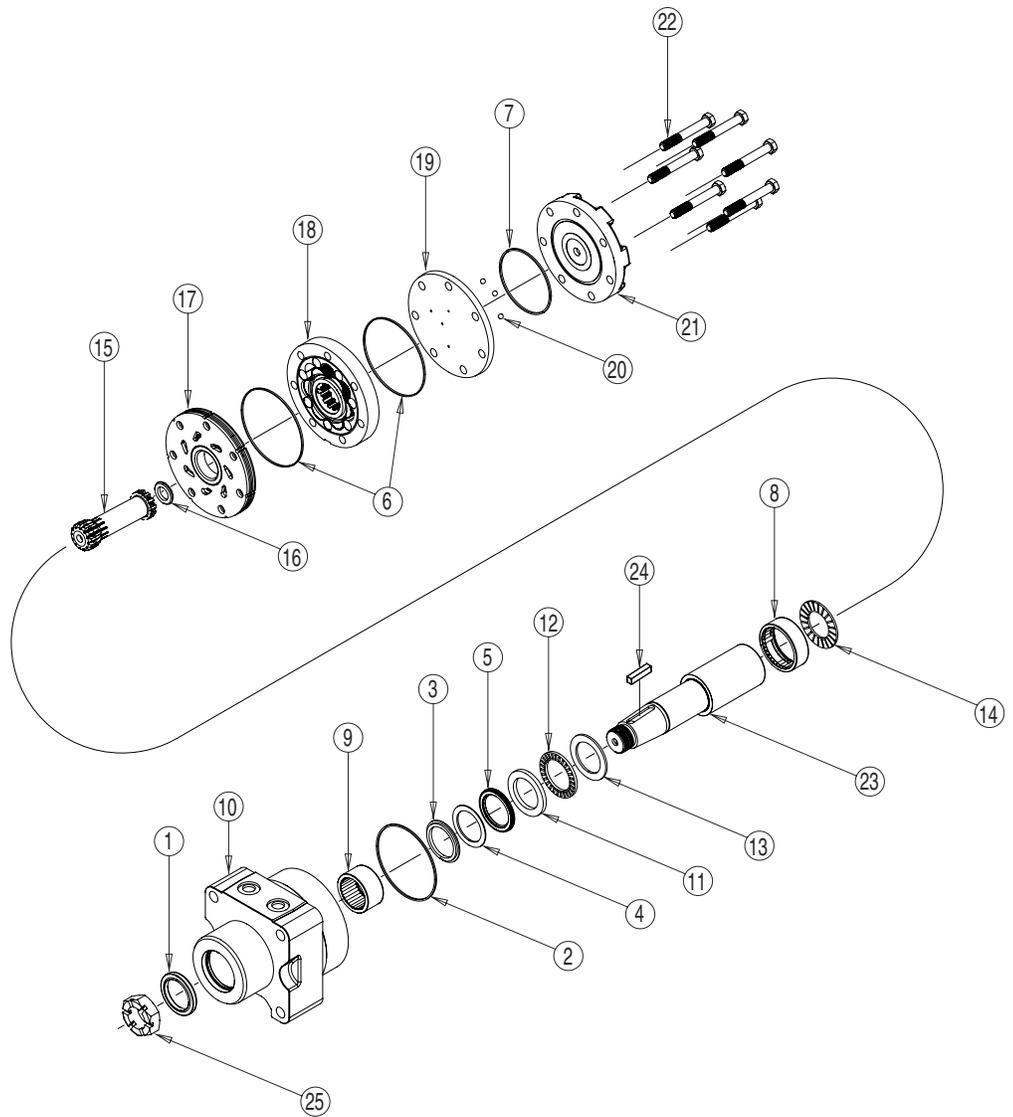
FIGURE 2

FIGURE 3

SECTION 5. "T" FLANGE MOTORS - continued

- 1. * Dust Seal
- 2. * Housing Seal
- 3. * Back Up Ring
- 4. * Back Up Seal
- 5. * Shaft Seal
- 6. * Body Seals (2)
- 7. * Endcover Seal
- 8. * Rear Housing Bearing
- 9. Front Housing Bearing
- 10. Housing
- 11. Front Thrust Washer
- 12. Front Thrust Bearing
- 13. Thrust Washer
- 14. Rear Thrust Bearing
- 15. Drive Link
- 16. Drive Link Spacer
- 17. Manifold
- 18. Rotor Assembly
- 19. Balance Plate
- 20. Steel Balls (3)
- 21. Endcover
- 22. Assembly Bolts (7)
- 23. Shaft
- 24. Shaft Key
- 25. Shaft Nut

* Contained in Seal Kit 500444004



**SERVICE INSTRUCTIONS FOR THE RE [540 & 541] SERIES MOTORS**

For Use With Seal Kit: 500444125

dimensions: mm [in]

NOTE: The 540 Series is available with either a direct drive option or a locking hub option. After determining which option you have, use the appropriate instruction in step "A" and "M" below.

A) DIRECT DRIVE OPTION (USES ITEMS 36-40)

Remove six bolts (36) from end cap (37). Lift end cap (37) off wheel flange (16). Peel or scrape paper gasket (38) off of end cap and/or wheel flange (16). If grease is between end cap (37) and driver (39), remove grease. Screw a 1/4-20 bolt (NOT INCLUDED) into one of the two threaded holes in the driver (39) and lift the driver out of the wheel flange (16). If grease is between driver (39) and housing pilot (25), remove grease. If spacer (40) did not come out with driver (39), remove it at this time and lay aside.

LOCKING HUB OPTION (USES ITEMS 42-44)

Remove six screws (41) from locking hub (42). Lift locking hub (42) off of wheel flange (16). Remove wire ring (43). Install two screws (41) in opposite holes in the locking hub splined assembly (44) and use to lift locking hub spline assembly (44) out of wheel flange (16). If grease is between locking hub spline assembly (44) and housing (25) pilot, remove grease. Lay parts aside.

NOTE: The two bearings (17) are Loc-Tited to bearing hub (20), wheel flange (16) and housing pilot (25). The four capscrews (15) are also Loc-Tited. It is not necessary to remove these components to install this seal kit in the motor. Unless the bearings are damaged, White Drive Products does not recommend disassembly of these components. If damage has occurred to the bearings, White Drive Products recommends returning the unit to the factory for service.

- B)** To aid in reassembly of motor, make a "V" shaped set of lines from the endcover (33) to the housing (25) using either paint or a marker. With shaft end facing down, secure motor in vise by clamping on to the housing (25). Loosen and remove seven bolts (35) holding motor assembly together. Remove end cover (33) and endcover seal (10). Discard seal.
- C)** Remove balance plate (31) taking care not to drop the three steel balls (32) located in the three holes in the balance plate (31). Remove rotor assembly (30), manifold (28), drive link spacer (29) (NOTE: Some motors do not use spacer), drive link (27) and thrust bearing (21). Remove body seals (9) from rotor assembly (30) and housing seal (8) from housing (25) and discard seals.
- D)** Remove shaft (26) up through the housing. Remove housing (25) from vise and place on a clean flat surface with hub end facing up. Using shaft (26) and rubber mallet, tap seal carrier (11) down to expose wire ring (2). Remove wire ring (2), steel backup shim (3) and high pressure seal (4) from inner bore groove with a long narrow screwdriver. Lift the seal carrier (11), thrust washer (12) and thrust bearing (13) from the housing bore. Using a small screwdriver, carefully pry shaft seal (7), backup seal (6), and metal backup shim (5) from seal carrier (11) and discard. Lay seal carrier (11), thrust washer (12) and thrust bearing (21) aside. (NOTE: If a new thrust washer (12) and seal carrier (11) is included in kit, old items may be discarded).

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.

- E)** Place shaft (26) on a clean surface with output end facing up. Place thrust bearing (21) over shaft (26) and then place thrust washer (12) over shaft (26). After thoroughly coating shaft seal (7) and backup seal (6) with clean oil, place plastic installation sleeve down over shaft making sure to cover all splines, keyways, etc. Making sure lip on shaft seal (7) faces down, push shaft seal down plastic installation sleeve until it contacts thrust washer (12). Remove installation sleeve. Install backup seal (6) making sure that lip faces shaft seal (See Figure 1 for correct seal positions). Install metal backup shim (5) down against backup seal (6). Place seal carrier (11) onto shaft with large end facing down. Using an arbor press, carefully press seal carrier down to seat shaft seal (7) in carrier.
- F)** Place hub/housing assembly on a clean flat surface with hub end facing up. Due to planetary mounting studs (23), a spacer should be placed under housing (25) to prevent shaft (26) from dropping to work surface. Spacer should allow shaft to be about 13 [.50] below rear surface of housing. Place shaft (26) assembly into housing (25). Install high pressure seal (4) in seal groove in housing pilot (25). Install metal backup shim (3) against high pressure seal (4) by squeezing the shim (3) between thumb and forefinger to bow shim. While maintaining bow in shim, start the shim into the groove and use a small screwdriver to push the shim into groove. Install wire ring (2) into groove making sure that the ends are butted.
- G)** Turn hub/housing assembly over, with hub facing down, and place drive link (27) into shaft (26) making sure that end of drive link with crowned splines goes into shaft (26). Using an arbor press, carefully press the shaft down to seat seal carrier against wire ring (2) install thrust bearing (21) onto end of shaft. If all pieces are seated properly, thrust bearing (21) will be flush with rear face of housing (25). Install housing seal (8) into groove in housing (25).
- H)** Place manifold (28) onto housing (25) aligning bolt holes. (NOTE: Manifold side with only seven valving hole goes toward housing.)

- I) Install a body seal (9) into the seal groove in both sides of rotor assembly (30). Place rotor assembly (30) on manifold with side of rotor with chamfer in splines facing manifold (28). Turn rotor assembly (30) to align bolt holes and alignment marks.
- J) If motor came with spacer (29), place spacer (29) on end of drive link (27). Using alignment marks as a guide, place balance plate (31) onto the rotor assembly (30) with three holes for steel balls (32) facing up. Install three steel balls (32) into the holes in the balance plate (31).
- K) Install endcover seal (10) into groove in endcover (33). Place endcover (33) onto the balance plate (31) and align bolt holes. Insert seven bolts (35) into motor assembly. Pre-torque bolts to 13,6 Nm [10 ft. lb.]. Using the bolt torque pattern in Figure 2, final torque all bolts to $69,8 \pm 7,5$ Nm [51.5 ± 5.5 ft. lb.].
- L) Turn motor over with hub end facing up. Reapply grease in housing pilot.

M) DIRECT DRIVE OPTION (USES ITEMS 36-40)

Place spacer (40) over shaft (26). Place driver (39) over shaft (26) while rotating wheel flange (16) slightly to allow splines to mate. Place paper gasket (38) onto wheel flange (16). Reapply grease between driver (39) and end cap (37) (Only if end cap (37) does not have grease fitting). Place end cap (37) onto wheel flange (16). Install six bolts (36) and torque to $69,8 \pm 7,5$ Nm [51.5 ± 5.5 ft. lb.] using the bolt torque sequence shown in Figure 3. If end cap (37) has grease fitting, apply grease.

LOCKING HUB OPTION (USES ITEMS 41-44)

Place locking hub spline assembly (44) into wheel flange (16) while rotating wheel flange (16) slightly to allow splines to mate. Install wire ring (43). Align screw holes of locking hub (42) with screw holes in locking hub spline assembly (44) and gently press together. Install six screws (41) into locking hub (42) and torque to $3,3 \pm 0,2$ Nm [29 ± 2 in. lb.].

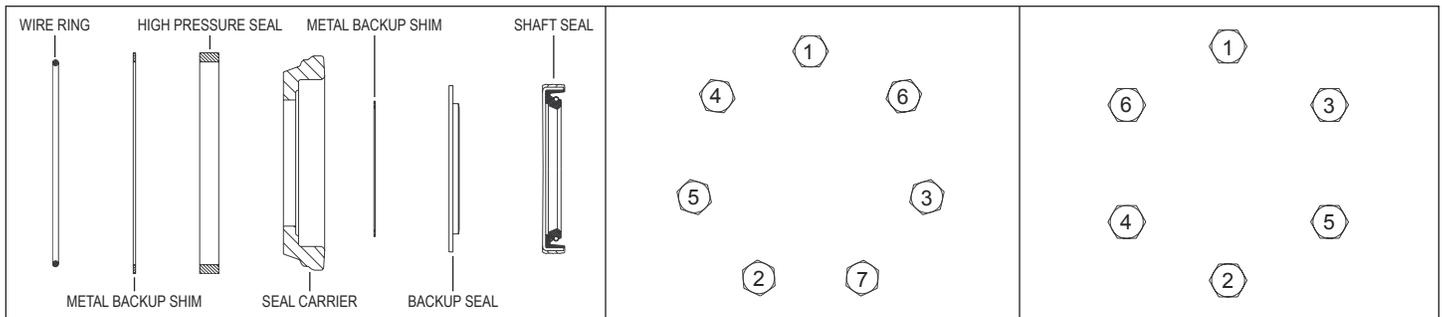
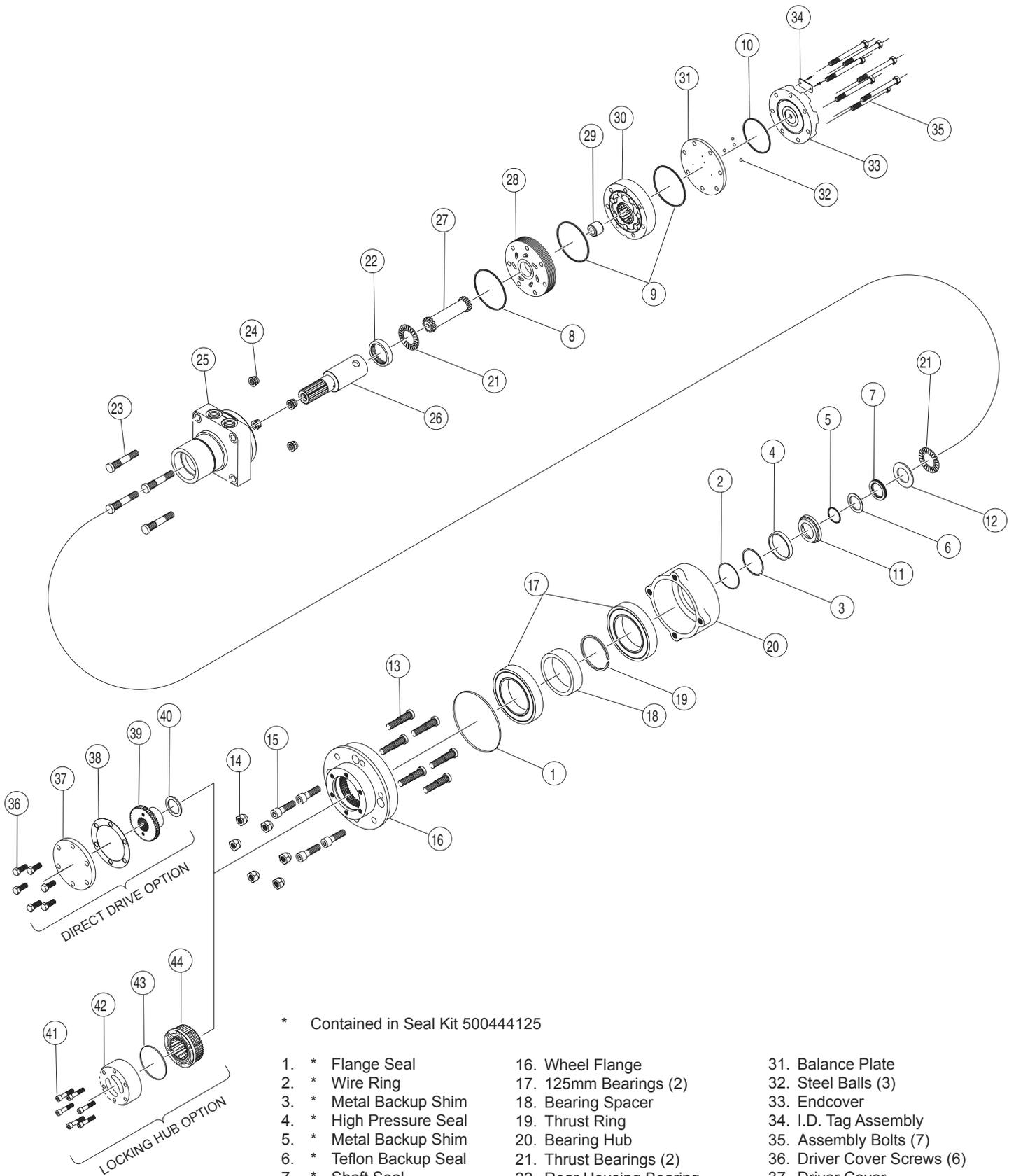


FIGURE 1

FIGURE 2

FIGURE 3



* Contained in Seal Kit 500444125

- | | | |
|-------------------------|-------------------------------|---------------------------------|
| 1. * Flange Seal | 16. Wheel Flange | 31. Balance Plate |
| 2. * Wire Ring | 17. 125mm Bearings (2) | 32. Steel Balls (3) |
| 3. * Metal Backup Shim | 18. Bearing Spacer | 33. Endcover |
| 4. * High Pressure Seal | 19. Thrust Ring | 34. I.D. Tag Assembly |
| 5. * Metal Backup Shim | 20. Bearing Hub | 35. Assembly Bolts (7) |
| 6. * Teflon Backup Seal | 21. Thrust Bearings (2) | 36. Driver Cover Screws (6) |
| 7. * Shaft Seal | 22. Rear Housing Bearing | 37. Driver Cover |
| 8. * Housing Seal | 23. Planetary Mount Studs (4) | 38. * Paper Gasket |
| 9. * Body Seals (2) | 24. Mounting Nuts (4) | 39. Driver |
| 10. * Endcover Seal | 25. Housing | 40. Spacer |
| 11. Seal Carrier | 26. Shaft | 41. Screws (6) |
| 12. Thrust Washer | 27. Drive Link | 42. Locking Hub |
| 13. Studs (6) | 28. Manifold | 43. Wire Ring |
| 14. Lug Nuts (6) | 29. Drive Link Spacer | 44. Locking Hub Spline Assembly |
| 15. Capscrews (4) | 30. Rotor Assembly | |