

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

For Use With Seal Kit: 500444125

dimensions: mm [in]

**NOTES:** In December 2006, the 540 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 follow the appropriate instructions for that design.

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 "Q" below.

All internal seals on products manufactured after July 1, 2016 are o-ring seals. Prior to this date the internal seals were square cut seals. It is recommended that if the product being serviced has square seals to replace with the square seals in this kit, likewise if the product has o-ring seals, replace with the o-ring seals in this kit.

**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 41-44)**

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, however dust seal (45) is included in this kit in the event the bearing hub is disassembled despite the recommendation listed above.*

**Motor Section Disassembly (Same Instructions For Both Designs & Drive Options)**

- 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. Remove shaft (26) up through the housing.

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

- D)** 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 (21) 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).

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

- H) Position the housing (25) in vise and use a slide and hammer type bearing puller to remove the rear housing bearing (22). Remove the thrust washer (12) and thrust bearing (21) 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) Remove the housing from vise and turn over and pry the dust seal (1) from housing and discard.

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.

- J) Place housing (25) in vise with the seven bolt assembly holes facing up. Place metal shim (5) in the smallest diameter recess in the housing (25). Install the backup seal (6) into the housing (25) with the flat side down and the seal lip facing up. Insert shaft seal (7) down into housing (25) 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 (25), then place the thrust bearing (21) into housing.
- K) Place the rear housing bearing (22) onto the rear housing bore and press to a depth of 58,4 [2.3] from the rear surface of the housing (25) to the top of the bearing (22). Place the shaft (26) down into housing (25) and place thrust bearing (21) on top of shaft (26). If shaft seals are properly seated against the housing (25), thrust bearing (21) will be flush with rear surface of housing.

**Motor Section Assembly (Same Instructions For Both Designs & Drive Options)**

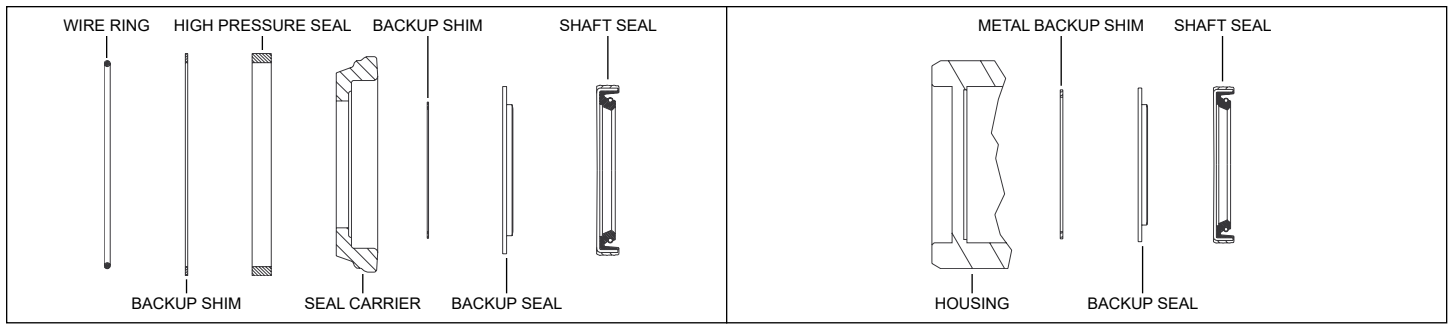
- L) Install housing seal (8) into groove in housing (25). Place manifold (28) onto housing (25) aligning bolt holes. (NOTE: Manifold side with only seven valving hole goes toward housing.)
- M) Install a body seal (9) into the seal groove in both sides of rotor assembly (30). Place rotor assembly (30) on manifold with side of rotor with chamfer in splines facing manifold (28). Turn rotor assembly (30) to align bolt holes and alignment marks.
- N) 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).
- O) 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 3, final torque all bolts to 69,8 ± 7,5 Nm [51.5 ± 5.5 ft. lb.].
- P) Turn motor over with hub end facing up. Reapply grease in housing pilot.

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

- Q) 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 ± 7,5 Nm [51.5 ± 5.5 ft. lb.] using the bolt torque sequence shown in Figure 4. If end cap (37) has grease fitting, apply grease.

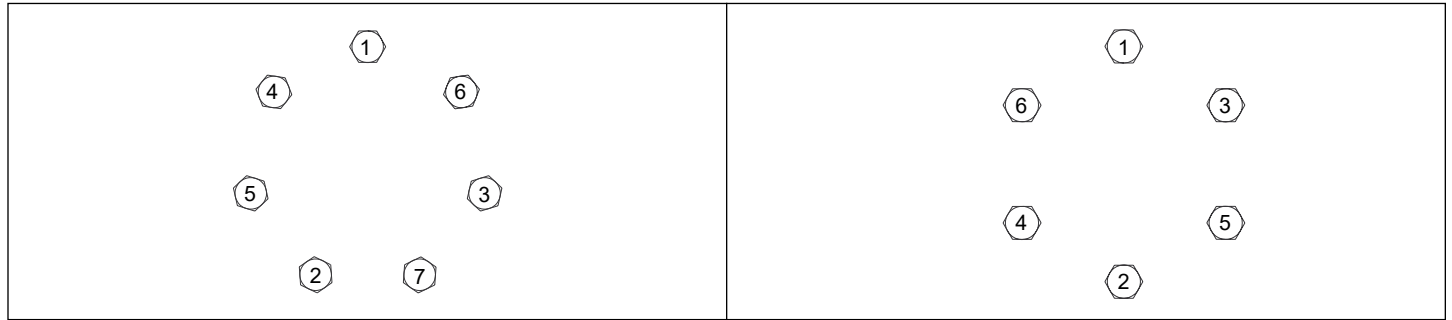
**LOCKING HUB OPTION (USES ITEMS 41-44)**

- R) 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 ± 0,2 Nm [29 ± 2 in. lb.].



**FIGURE 1**

**FIGURE 2**



**FIGURE 3**

**FIGURE 4**

**EXPLODED VIEW PARTS DESCRIPTION**

- |                         |                               |                                 |
|-------------------------|-------------------------------|---------------------------------|
| 1. * Flange Seal        | 17. 125mm Bearings (2)        | 33. Endcover                    |
| 2. * Wire Ring          | 18. Bearing Spacer            | 34. I.D. Tag Assembly           |
| 3. * Metal Backup Shim  | 19. Thrust Ring               | 35. Assembly Bolts (7)          |
| 4. * High Pressure Seal | 20. Bearing Hub               | 36. Driver Cover Screws (6)     |
| 5. * Metal Backup Shim  | 21. Thrust Bearings (2)       | 37. Driver Cover                |
| 6. * Backup Seal (2)    | 22. Rear Housing Bearing      | 38. * Paper Gasket              |
| 7. * Shaft Seal (2)     | 23. Planetary Mount Studs (4) | 39. Driver                      |
| 8. * Housing Seal       | 24. Mounting Nuts (4)         | 40. Spacer                      |
| 9. * Body Seals (2)     | 25. Housing                   | 41. Screws (6)                  |
| 10. * Endcover Seal     | 26. Shaft                     | 42. Locking Hub                 |
| 11. Seal Carrier        | 27. Drive Link                | 43. Wire Ring                   |
| 12. Thrust Washer       | 28. Manifold                  | 44. Locking Hub Spline Assembly |
| 13. Studs (6)           | 29. Drive Link Spacer         | 45. * Motor / Hub Seal          |
| 14. Lug Nuts (6)        | 30. Rotor Assembly            |                                 |
| 15. Capscrews (4)       | 31. Balance Plate             |                                 |
| 16. Wheel Flange        | 32. Steel Balls (3)           |                                 |

\* Contained in Seal Kit 500444125

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

