



MOTORS

Repair Instructions

RE 510 Series



together in motion

White is a leading global provider of motor and steering solutions that power the evolution of mobile and industrial applications around the world.



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RE [510] SERIES MOTOR BRAKE (B MOUNT HOUSING)

For Use With Seal Kit(s): 500444500

dimensions: mm [in]

NOTE: When servicing the RE & DR series motor brakes, it is recommended that the brake section be serviced separately. Although the brake section of the RE and DR Series Motors are identical, the motor sections do differ. After determining which motor you have, follow the appropriate motor section service instructions 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.

RE BRAKE SECTION DISASSEMBLY

- A) Remove all shaft related components from shaft (40) (i.e. keys, wire rings, nuts). To aid in reassembly of the brake/motor assembly, make a "V" shaped set of lines from the endcover to the front housing section using either paint or a marker. With shaft end facing up, secure motor in vise by clamping onto rotor assembly (34). Loosen and remove bolts (15) and nuts (16). (**NOTE:** Depending on application, there may be two, four or six bolts and nuts to be removed. Make note of how many bolts are used and direction bolts are inserted in housing.)
- B) Carefully remove front housing section (18) and piston (24) from brake assembly and turn over with dust seal (1) side down. Re- move piston (24) from front housing section (18). Remove large piston seal (7) and large O-ring piston seal (8) from piston (24). Discard seals. Lay piston (24) aside. Remove the eleven outer springs (23) and the eleven inner springs (22) and lay aside. Re- move shaft seal (4), backup seal (3) and metal backup shim (2). Discard these seals and shim. Remove small piston seal (6) and small piston O-ring seal (5) and discard both. Lay front housing section (18) aside. (**NOTE:** "LB" option Brakes do not contain seal 5-8).
- C) Carefully remove shaft (40) with thrust bearing (21) and thrust washers (20) and brake disk assembly from center housing section (29). Remove thrust washers (20) and thrust bearing (21) from shaft (40). Remove disk stampings (25) and friction disks (26) from shaft (40). Lay parts aside. **NOTE: The brake disk stack up is different for the "LB" option brake motors. If you are unsure of which model you have, it is recommended that the disks be kept in order to insure correct stack up when reassembling the motor.**
- D) Remove housing seal (9) from center housing section (29). Remove center housing section (29) from rear housing section (30). Remove housing seal (9) from bottom of center housing section (29). Discard housing seals.
- E) At this point, all parts should be cleaned in an oil-based solvent and dried using compressed air (For safety, observe all OSHA guidelines). All new seals should be lightly coated in clean oil prior to installation.

RE BRAKE SECTION REASSEMBLY

- F) Place housing seal (9) in groove on both sides of center housing section (29). Using alignment marks for correct orientation, place center housing section (29) onto rear housing section (30). Place shaft (40) over drive link (31 or 51) and into assembled housing sections (29 & 30).

HOUSING DISK STACKUP

- G) Place one friction disk (26) over shaft (40), followed by one disk stamping (25). Continue alternating disks until all eight friction disks (26) and eight disk stampings (25) are on shaft (40). Place one thrust washer (20) over shaft, then thrust bearing (21) and remaining thrust washer (20).

"LB" HOUSING OPTION DISK STACKUP

- H) Place three friction disks (26) over shaft (40) followed by three disk stampings (25). Next, place two friction disks (26) over shaft (40) followed by two disk stampings (25). Place the remaining three friction disks (26) over shaft followed by one disk stamping (25). Lastly, place the remaining thick disk stamping (25) over shaft.
- I) With front housing section laying on work surface with dust seal (1) side down, place metal backup shim (2), backup seal (3) and shaft seal (4) in shaft seal container section of pilot using Figure 1 for correct seal orientation.
- J) **NOTE: "LB" housing option motors do not use piston O-Ring and piston seals (5-8). If repairing a "LB" housing option motor, skip to step K.** Place small O-Ring piston seal (5) in groove in front housing section (18) followed by small piston seal (6). To allow piston to be pressed into place, the small piston seal (6) must be compressed. **NOTE: An automotive hose clamp can be used to compress the small piston seal as long as care is taken not to damage the sealing surface with the clamp.** Place large O-Ring piston seal (7) and then large piston seal (8) in groove in piston (24).
- K) Place eleven outer springs (23) in front housing section and then one inner spring (22) inside each outer spring (23). **NOTE: The "LB" housing option motors do not use inner springs (22).** Place piston (24) in front housing section (18) with smaller end of piston (24) facing springs (22 & 23). While holding piston (24) in place, carefully pick up front housing assembly and turn it over with dust seal (1) side facing up. With a slight twisting motion, gently place front housing assembly over shaft (40). Once the front housing assembly (24) is seated on shaft (40), align bolt holes and check to make sure alignment line is correct. **(NOTE: Small port in front housing section (18) should face same direction as housing ports in rear housing section.)**
- L) Install bolts (15) and nuts (16) in same orientation and location as noted in step A. Tighten nuts by hand until snug. Using an arbor press and sleeve, carefully press down on front housing section until all three housing sections are compressed. Tighten nuts with wrench until snug. Remove motor from arbor press and torque all nuts to 136 Nm [100 ft. lbs.]
- M) Using a thin bladed screwdriver, carefully pry dust seal (1) from front of housings and replace with new dust seal (1). Replace all shaft related components (i.e., keys, wire rings, nuts, etc.) at this time.

RE MOTOR SECTION DISASSEMBLY

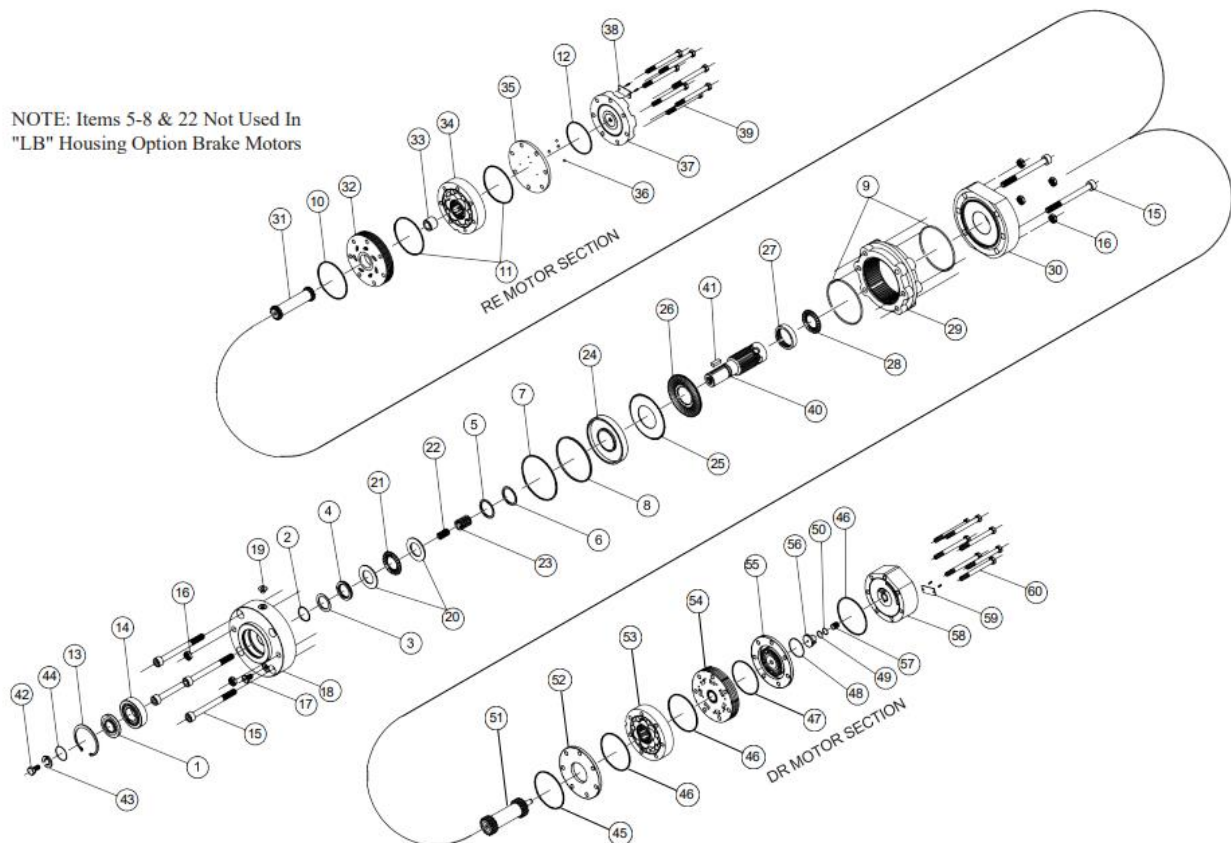
- N) If no alignment marks were made on motor section when servicing brake, make a "V" shaped set of lines from the endcover (37) to the rear housing section (30) using either paint or a marker. With shaft facing down, secure motor in vise by clamping onto housing (18, 29 & 30). Loosen and remove seven bolts (39) holding motor assembly together. Remove endcover (37). Remove endcover seal (12) and discard.
- O) Remove balance plate (35) and lay aside, taking care not to drop the three steel balls (36) located in the three holes in the balance plate. Remove rotor assembly (34), manifold (32), drive link (31), spacer (33) (if applicable) and thrust bearing (28). Remove body seals (11) from rotor assembly (34) and rear housing seal (10) from housing (30) and discard seals.

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.

RE MOTOR SECTION ASSEMBLY

- P) Place drive link (31) into shaft (40) making sure that end of drive link with crowned splines goes into shaft (40). Install thrust bearing (28) onto end of shaft. If all pieces are seated properly, thrust bearing (28) will be flush with rear face of housing (30). Install housing seal (10) into groove in rear housing section (30).
- Q) Place manifold (32) onto housing (30) aligning bolt holes. **(NOTE: Manifold side with only seven valving holes goes toward housing.)**

- R)** Install a body seal (11) into the seal groove in both sides of rotor assembly (34). Place rotor assembly (34) on manifold (32) engaging drive link splines. Turn rotor assembly (34) to align bolt holes and alignment marks.
- S)** If the motor came with spacer (33), place spacer on end of drive link (31). Using alignment marks as a guide, place balance plate (35) onto the rotor assembly (34) with three holes for steel balls (36) facing up. Install three steel balls (36) into the holes in the balance plate (35).
- T)** Install endcover seal (12) into endcover (37). Place endcover (37) onto the balance plate (35) and align bolt holes. Insert seven bolts (39) into motor assembly. Pre-torque bolts to 10 ft. lbs. Using the bolt torque pattern in Figure 2, final torque all bolts to 68 Nm [50 ft. lbs.]



EXPLODED VIEW PARTS DESCRIPTION

1.	* Dust Seal	16.	Nuts (6)	31.	Drive Link	47.	* Manifold Seal
2.	* Metal Backup Shim	17.	Port Plug	32.	Manifold	48.	* Commutator Seal
3.	* Backup Seal	18.	Front Housing Section	33.	Drive Link Spacer	49.	* O-Ring Seal
4.	* Shaft Seal	19.	Caplug	34.	Rotor Assembly	50.	* Backup Seal
5.	* Small Piston O-Ring Seal	20.	Thrust Washers (2)	35.	Balance Plate	51.	Drive Link
6.	* Small Piston Seal	21.	Front Thrust Bearing	36.	Steel Balls (3)	52.	Divider Plate
7.	* Large Piston O-Ring	22.	Inner Springs (11)	37.	Endcover	53.	Rotor Assembly
8.	* Large Piston Seal	23.	Outer Springs (11)	38.	I.D. Tag Assembly	54.	Manifold
9.	* Housing Seals (2)	24.	Piston	39.	Assembly Bolts (7)	55.	Commutator
10.	* Rear Housing Seal	25.	Disk Stamping (8)	40.	Shaft	56.	Endcover Piston
11.	* Body Seals (2)	26.	Friction Disks (8)	41.	Shaft Key	57.	Piston Spring
12.	* Endcover Seal	27.	Rear Shaft Bearing	42.	Shaft Bolt	58.	Endcover
13.	Retaining Snap Ring	28.	Rear Thrust Bearing	43.	Lock Washer	59.	I.D. Tag Assembly
14.	72mm Bearing	29.	Center Housing Section	44.	Wire Ring	60.	Assembly Bolts (7)
15.	Capscrews (6)	30.	Rear Housing Section	45.	* Rear Housing Seal	*	Contained in seal kit
				46.	* Body Seals (3)	500444500	



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