

# 110A Series

## LSHT Hydraulic Motor Main Shaft Seal Replacement



Triple C Part # PH-S2263

### Seal Kit

p/n SK000183

Bulletin 050052

Revised 04/03

Qty.	Description	p/n	Item
1	Lip Seal	2175	3
1	Dust Seal	2183	1
1	Snap Ring	2180	21
1	Snap Ring (Thick)	1296	7
1	Snap Ring (Thin) (Thru-Shaft only)	1135	7
3	Square Ring Seal	1046	8
1	Seal Kit Bulletin Instructions	050052	-

**Note:** Prior to any motor disassembly, plug all open ports and clean all dirt from the outside of the motor.  
If thru-shaft seal is to be replaced, the appropriate thru-seal kit will also be required.

Prior to assembly lightly oil all seals, rollers and threaded bolt ends.

\* P/N SK000183 (050052) replaces P/N 2263.

### Procedure

#### Motor Disassembly:

1. Mount the motor in a vise or other holding device with the shaft (12) facing down.
2. Remove the eight 5/16-24 bolts (10).
3. Remove the cover/bearing assembly (17) and square ring seal (8).
4. Remove the locating ring (6.1) and the [8] eight rollers (6.5).
5. Remove the two check valve balls (5). **Note:** That the check balls may fall into the bolt holes or into the commutator valve ports during disassembly. Be sure that both check balls are removed and accounted for.
6. Next remove the outer rotor (6.2) and the [7] seven sealing rolls (6.3) from the shaft.
7. The inner rotor (6.4) of the IGR set and rotary valve (4) are retained on the shaft by snap ring (7). Remove this snap ring with snap ring pliers and discard. Lift the inner rotor (6.4), rotary valve (4) and the commutator plate (22) off the shaft and body bearing assembly.
8. The body bearing assembly may now be removed from the holding device, and the shaft may be pulled (by hand) through the front of body (15) exposing and allowing access to the shaft seal system. **Note:** The shaft may slip from the body when removing the assembly from the holding device.
9. Remove the dust seal (1) using a blunt instrument such as a screwdriver. Do not use a sharp instrument such as a knife because the sealing surface in the body may be damaged. Next remove the snap ring (21) with snap ring pliers. With the snap ring removed the back up ring (2) and shaft seal (3) can be pried out using the same blunt instrument as before.
10. Inspect the IGR™ inner component, the rotary valve (4), and the shaft (12) for wear or other damage. Any damaged components must be replaced. The shaft should have smooth polished surfaces in the bearing and seal areas.
11. If the motor is equipped with the optional thru-shaft and if the thru-shaft seal has shown signs of leakage during operation refer to the appropriate thru cover seal kit instructions for replacing this seal.

Parker Hannifin Corporation  
Hydraulic Pump/Motor Division  
Greeneville, TN 37745 USA  
Tel. (423) 639-8151 Fax. (423) 787-2418  
[www.parker.com/pumpmotor](http://www.parker.com/pumpmotor)

## Motor Assembly

1. Insert the new lip seal, flat side facing out, into the body bore. Using a standard 1-inch socket as an insertion tool, tap the lip seal into place until it seats against the step in the gland.
2. Next place back-up ring (2) into the body bore so that it rests on top of the lip seal (3).
3. Lock the lip seal and back-up ring in place by inserting the snap ring (21) into the snap ring groove in the body bore.
4. Insert the new dust seal (1) into the body, flat edge facing in, until it seats against the snap ring. Tap gently into place if necessary.
5. Lubricate the inside diameter of the lip seal, back-up ring and dust seal with oil.
6. Prior to assembly of the remainder of the motor, all parts must be cleaned with a suitable solvent and be free of nicks and burrs.
7. Check the shaft for burrs and scratches. De-burr if necessary. The shaft must be free of burrs before it is reinstalled through the lip seal. Insert the shaft into the body through the output side of the body.
8. Mount the body and shaft in a vise or holding device with the pilot and output of the shaft facing down.
9. Lightly oil the square ring seal (8) and place in the body groove.
10. Place the commutator plate (22) over the body, with the square ring groove facing up. Align the eight bolt holes in the plate with the eight bolt holes in the body. (The holes will align in only one position). **Note:** Be sure not to dislodge the body square ring seal while positioning the commutator plate (22).
11. Place the valve plate (4) onto the shaft with the bell-shaped windows facing up.
12. Place the IGR™ Inner onto the shaft, snap ring groove up, with the semicircular roll pockets **between** the bell-shaped windows.
13. Now install the new snap ring (7) which holds the inner and valve plate on the shaft. Be sure not to overextend the snap ring during assembly. The snap ring should be snug in the groove when finally assembled. **Note:** Snap ring sits in counter bore of inner.
14. Place the outer rotor (6.2) of the IGR™ over the inner and insert the seven rolls into the inner pockets. (The difference between Rolls and Rollers is distinguishable by eye. Rolls have square ends and Rollers have domed ends.)
15. Lightly oil the square ring seal (8) and place in the commutator plate groove.
16. Place the check balls (5) over the two 1/8 inch diameter holes in the commutator plate. Be sure the check balls do not fall into the bolt holes.
17. Place the locating ring (6.1) onto the commutator plate with the check ball holes facing downward over the balls. Align the bolt holes. (The bolt holes will align in only one position). **Note:** Be sure not to dislodge the commutator plate square ring seal while positioning the locating ring.
18. Install the eight locating ring rollers into their pockets and oil lightly.
19. Insert the other lightly oiled square ring seal (8) into the groove in the cover. Place the cover over the shaft end, aligning the bolt holes.
20. Install the eight bolts with lightly oiled thread ends into the bolt holes. Tighten diagonally to 15 lb ft. Turn the shaft by hand through several rotations. Increase the torque of each bolt by 5 lb ft. in a diagonal pattern. Turn the shaft by hand through several rotations. Repeat this procedure until the torque of each bolt has reached  $27 \pm 1$  lb ft.

