nexen

AIR CHAMP® PRODUCTS

User Manual

FCB-450, LCB-600, MCB-800 Clutch-Brakes

FORM NO. L-21082-C-0602

In accordance with Nexen's established policy of constant product improvement, the specifications contained in this manual are subject to change without notice. Technical data listed in this manual are based on the latest information available at the time of printing and are also subject to change without notice.

Technical Support: 800-843-7445
(651) 484-5900

www.nexengroup.com

DANGER

Read this manual carefully before installation and operation.

Follow Nexen's instructions and integrate this unit into your system with care.

This unit should be installed, operated and maintained by qualified personnel ONLY.

Improper installation can damage your system or cause injury or death.

Comply with all applicable codes.

Nexen Group, Inc.
560 Oak Grove Parkway
Vadnais Heights, Minnesota 55127

ISO 9001 Certified

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SHEAVE MOUNT CLUTCH/BRAKE

NOTE: Refer to Figure 1.

1. Insert the Key (Item 22) into the machine shaft. Align the Keyway on the Clutch/Brake with the Key on the machine shaft. Slide the Clutch/Brake onto the machine shaft and Key.

2. Install and tighten the Set Screws (Item 20).

3. Align the Clutch/Brake air inlet ports to the six o'clock down position to allow condensation to drain out of the ports.

4. Using the tapped holes provided on the back of the Air Chamber (See Figure 2), secure the air chamber housing in the direction of rotation only. Do not rigidly mount the air chamber housing.

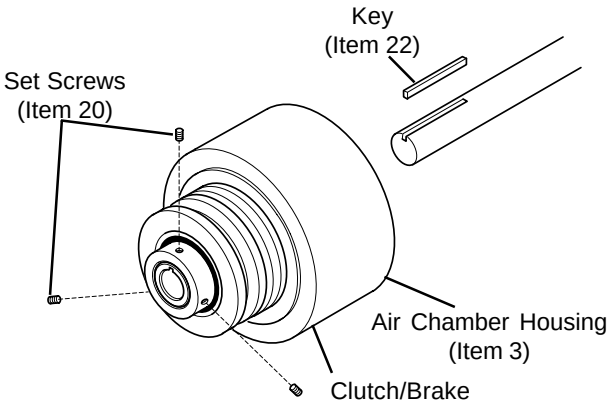


FIGURE 1

TABLE 1

Unit	Anti-Rotation Hole Thread	B.C. Ø	Pilot Ø
FCB-450	0.312-18	4.750	3.750
LCB-600	0.375-16	5.875	4.500
MCB-800	0.375-16	7.500	5.500

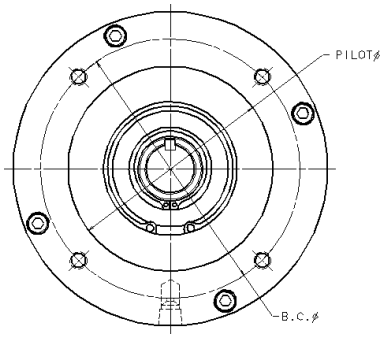


FIGURE 2

PILOT MOUNT CLUTCH/BRAKE

NOTE: Refer to Figure 3.

1. Secure a customer supplied sheave or sprocket to the Clutch/Brake using the threaded holes in the Pilot Mount Drive Disc (Item 7).

2. Insert the Key (Item 22) into the machine shaft; then, slide the Clutch/Brake onto the machine shaft and Key.

3. Install and tighten the Set Screws (Item 20).

4. Align the Clutch/Brake air inlet ports to the six o-clock down position to allow condensation to drain out of the ports.

5. Using the tapped holes provided on the back of the Air Chamber (See Figure 2), secure the air chamber housing in the direction of rotation only. Do not rigidly mount the air chamber housing.

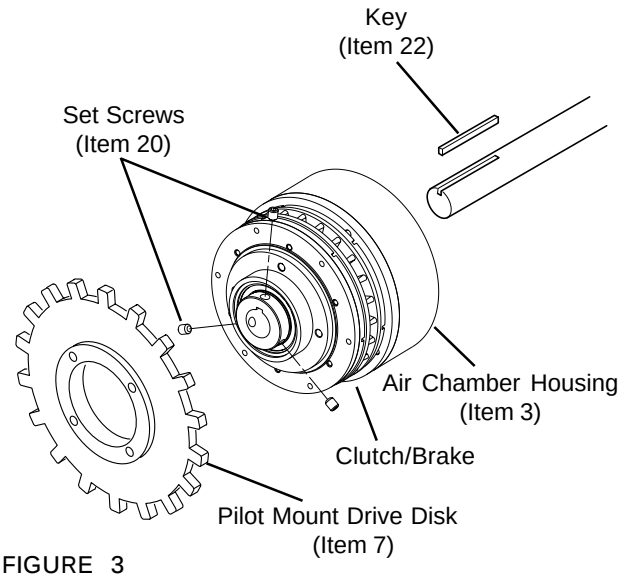


FIGURE 3

AIR CONNECTIONS

For quick response, Nexen recommends a quick exhaust valve on the unit and short air lines between the Clutch/ Brake and control valves.

4-WAY CONTROL VALVE

NOTE: Refer to Figure 4.

1. If the brake is to be set when the solenoid is de-energized, connect the port marked 2 to the brake and the port marked 4 to the clutch.

2. Connect the air supply line to the inlet port marked 1.

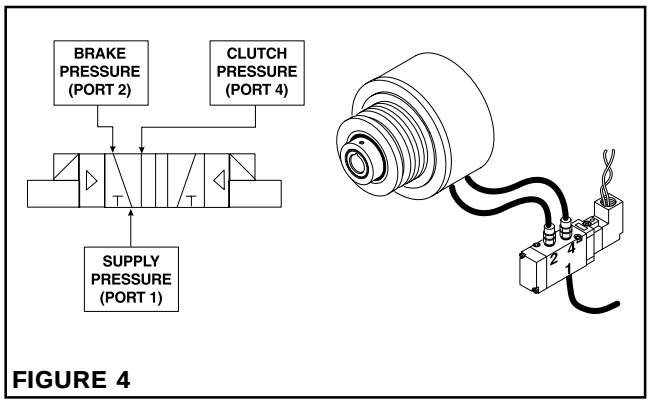


FIGURE 4

5-WAY CONTROL VALVE

NOTE: Refer to Figure 5.

1. If the brake is to be set and the clutch is to be OFF when the solenoid is de-energized, connect the port marked 4 to the brake and the port marked 2 to the clutch.

2. Connect the brake air supply line to the port marked 5 and the clutch air supply line to the port marked 3.

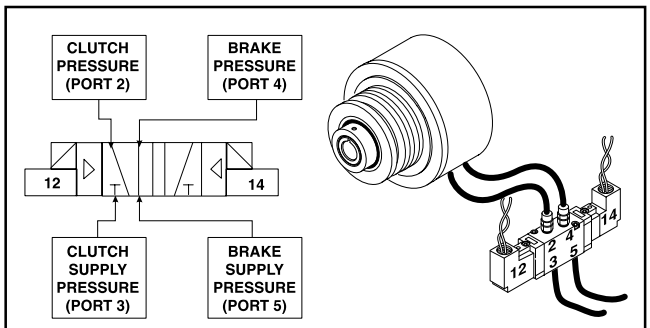


FIGURE 5

LUBRICATION

For maximum performance and long life always use clean, pressure regulated, and lubricated air in pneumatically-actuated devices. The most effective and economical way to lubricate Nexen Clutches and Brakes is with an Air Line Lubricator, which injects oil into the pressurized air, forcing an oil mist into the air chamber.

Locate the lubricator above and within ten feet of the Clutch or Brake, and use a low viscosity oil such as SAE-10.

Synthetic lubricants are not recommended. Nexen clutches and brakes can be operated without lubricated air.

LUBRICATOR DRIP RATE SETTINGS

NOTE: These settings are for Nexen supplied lubricators. If you are not using a Nexen lubricator, calibration must replicate the following procedure.

1. Close and disconnect the air line from the unit.
2. Turn the Lubricator Adjustment Knob counterclockwise three complete turns.
3. Open the air line.
4. Close the air line to the unit when a drop of oil forms in the Lubricator Sight Gage.
5. Connect the air line to the unit.
6. Turn the Lubricator Adjustment Knob clockwise until closed.
7. Turn the Lubricator Adjustment Knob counterclockwise one-third turn.
8. Open the air line to the unit.

TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	SOLUTION
Failure to engage	Air not getting to the Clutch/Brake due to a control valve malfunction	Check for a control valve malfunction and replace the control valve if necessary.
	Air leaks at the air lines or O-ring Seals	Replace the air lines and/or O-ring Seals.
Failure to disengage	Unexhausted air due to a control valve malfunction	Check for a control valve malfunction and replace the control valve if necessary.
	Air leaks at the air lines or O-ring Seals	Replace the air lines and/or O-ring Seals.
Loss of torque	Air leaks at the air lines or O-ring Seals	Replace the air lines and/or O-ring Seals.
	Worn Friction Facing	Replace the Friction Facing.

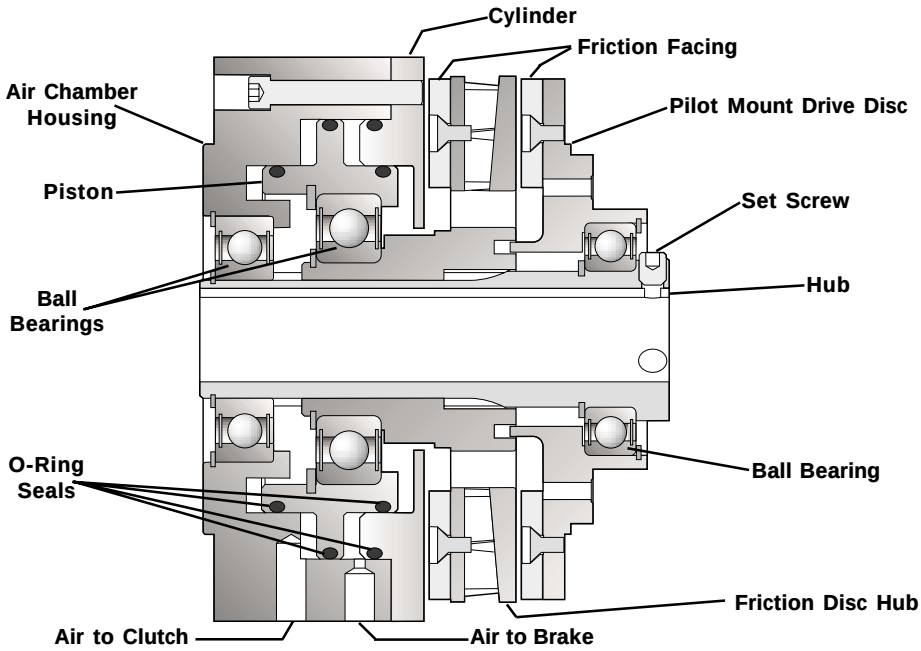


FIGURE 6

NOTE: Refer to Figures 7 and 8 for steps 1-13.

1. Remove the Retaining Ring (Item 11) and press the Air Chamber Assembly off the Hub (Item 1).

NOTE: Step two refers only to FCB-450 models; for all other models, go directly to step three.

2. Remove the Set Screws (Item 20), Hub Collar (Item 25), and Retaining Ring (Item 11b) from the Hub (Item 1).

3. Press the Pilot Mount Drive Disc (Item 7) or Sheave (Item 30) off the Hub (Item 1).

4. Remove the Retaining Ring (Item 15) from the Pilot Mount Drive Disc (Item 7) or Sheave (Item 30).

5. Press the old Ball Bearing (Item 8) out of the Pilot Mount Drive Disc (Item 7) or Sheave (Item 30).

6. Clean the bearing bore of the Pilot Mount Drive Disc (Item 7) or Sheave (Item 30) with fresh safety solvent, making sure all old Loctite® (or equivalent) residue is removed.

7. Apply an adequate amount of Loctite® 680 (or equivalent) to evenly coat the outer race of the new Ball Bearing (Item 8).

8. Supporting the Pilot Mount Drive Disc (Item 7) or the Sheave (Item 30) and pressing on the outer race of the new Ball Bearing (Item 8), press the new Ball Bearing into the Pilot Mount Drive Disc or Sheave.

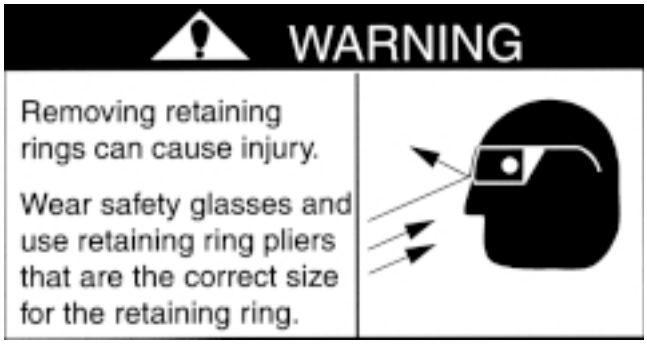
9. Reinstall the Retaining Ring (Item 15) into the Pilot Mount Drive Disc (Item 7) or Sheave (Item 30).

10. Remove the six Flat Head Screws (Item 24) and the old Friction Facing (Item 23) from the Pilot Mount Drive Disc (Item 7) or Sheave (Item 30).

11. Using six new Flat Head Screws (Item 24), secure the new Friction Facing (Item 23) to the Pilot Mount Drive Disc (Item 7) or Sheave (Item 30).

12. Alternately and evenly tighten the six flat head screws (Item 24) to the recommended torque. (See Table 2.)

13. Supporting the inner race of the new ball bearing, press the new Ball Bearing (Item 8) and Pilot Mount Drive Disc (Item 7) or Sheave (Item 30) onto the Hub (Item 1).



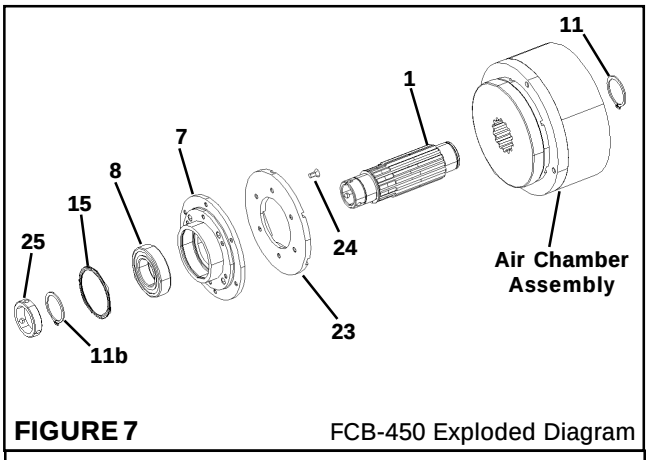


FIGURE 7 FCB-450 Exploded Diagram

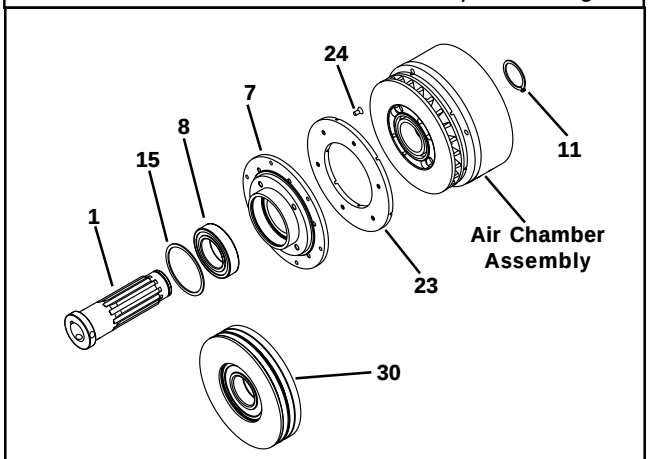


FIGURE 8 LCB-600 & MCB-800 Exploded Diagram

TABLE 2

Model	Item No.	Description	Torque
FCB-450	24	Flat Head Screw	16 - 22 in-lbs [1.8 - 2.5 Nm]
LCB-600	24	Flat Head Screw	16 - 22 in-lb [1.8 - 2.5 Nm]
MCB-800	24	Flat Head Screw	62-81 in-lb [7.0-9.2 Nm]

(continued...)

NOTE: Refer to Figure 9.

14. Remove the four Socket Head Cap Screws (Item 19); then, slide the Friction Disc Hub (Item 5), Cylinder (Item 4), and Piston (Item 2) out of the Air Chamber Housing (Item 3).

NOTE: Refer to Figure 10.

15. Remove the Retaining Ring (Item 12) and press the Friction Disc Hub (Item 5) out of the Cylinder (Item 4) and Piston (Item 2).

16. Slide the Piston (Item 2) out of the Cylinder (Item 4); then, remove the old O-ring Seals (Items 17 & 18) from the Piston and Cylinder.

17. Remove the Retaining Ring (Item 14) from the Piston (Item 2); then, press the old Ball Bearing (Item 9) out of the Piston.

18. Clean the bearing bore of the Piston (Item 2) with fresh safety solvent, making sure all old Loctite® (or equivalent) residue is removed.

19. Apply an adequate amount of Loctite® 680 (or equivalent) to evenly coat the outer race of the new Ball Bearing (Item 9).

20. Supporting the Piston (Item 2) and pressing on the outer race of the new Ball Bearing (Item 9), press the new Ball Bearing into the Piston.

21. Reinstall the Retaining Ring (Item 14).

22. Clean the o-ring grooves and o-ring contact surfaces of the Piston (Item 2), Cylinder (Item 4), and Air Chamber with fresh safety solvent and lubricate the o-ring grooves and contact surfaces with fresh o-ring lubricant.

23. Lubricate the new O-ring Seals (Items 17 & 18) and install the new O-ring Seals onto the Piston (Item 2) and Cylinder (Item 4); then, slide the Piston back into the Cylinder.

24. Remove the six Flat Head Screws (Item 24) and the old Friction Facing (Item 23) from the Friction Disc Hub (Item 5).

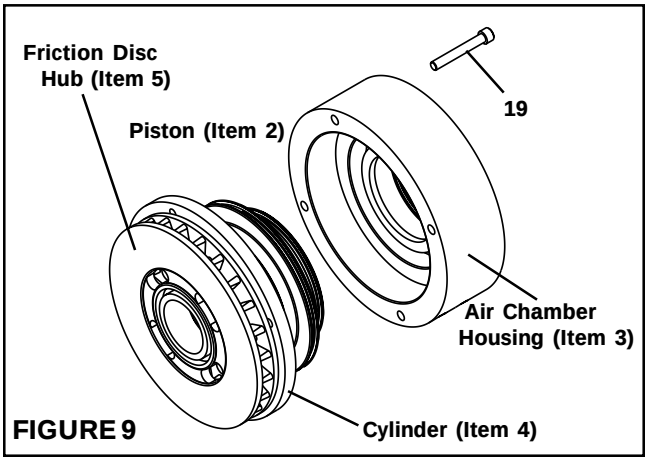


FIGURE 9

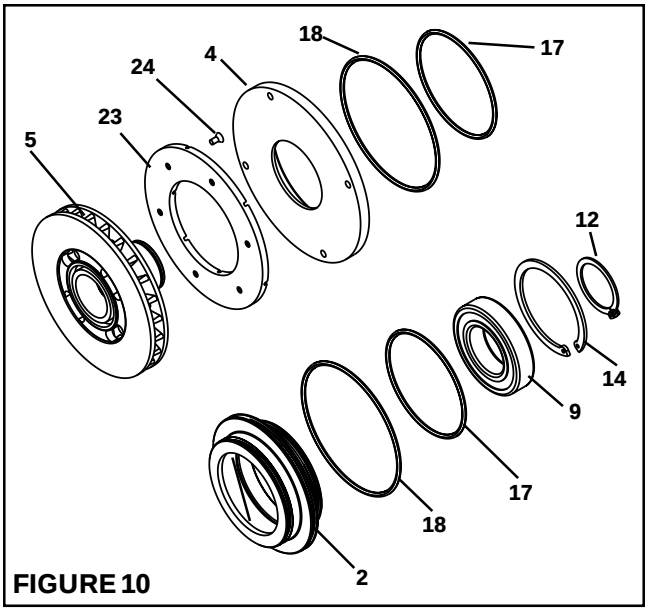


FIGURE 10

25. Using six new Flat Head Screws (Item 24), secure the new Friction Facing (Item 23) to the Friction Disc Hub (Item 5).

26. Alternately and evenly tighten the six flat head screws (Item 24) to the recommended torque. (See Table 2).

27. Support the inner race of the new Ball Bearing (Item 9) and press the Friction Disc Hub (Item 5) into the Cylinder (Item 4), Piston (Item 2), and new Ball Bearing (Item 9).

28. Reinstall the Retaining Ring (Item 12).

(continued...)

NOTE: Refer to Figure 11.

29. Remove the Retaining Ring (Item 13) from the Air Chamber Housing (Item 3).

30. Press the old Ball Bearing (Item 10) out of the Air Chamber Housing (Item 3).

31. Clean the bearing bore of the Air Chamber Housing (Item 3) with fresh safety solvent, making sure all old Loctite® (or equivalent) residue is removed.

32. Apply an adequate amount of Loctite® 680 (or equivalent) to evenly coat the outer race of the new Ball Bearing (Item 10).

33. Supporting the Air Chamber Housing (Item 3) and pressing on the outer race of the new Ball Bearing (Item 10), press the new Ball Bearing into the Air Chamber Housing.

34. Reinstall the Retaining Ring (Item 13).

NOTE: Refer to Figure 12.

35. Slide the Friction Disc Hub (Item 5), Cylinder (Item 4), and Piston (Item 2) into the Air Chamber Housing (Item 3).

36. Apply a drop of Loctite® 242 (or equivalent) to the threads of the four Socket Head Cap Screws (Item 19); then, using the four Socket Head Cap Screws, secure the Friction Disc Hub (Item 5), Cylinder (Item 4), and Piston (Item 2) to the Air Chamber Housing (Item 3).

37. Alternately and evenly tighten the four Socket Head Cap Screws (Item 19) to the recommended torque (See Table 3).

NOTE: Refer to Figure 13.

38. Press the Hub (Item 1) and Pilot Mount Drive Disc (Item 7) or Sheave (Item 30) back into the Friction Disc Hub (Item 5), Cylinder (Item 4), Piston (Item 2), and Air Chamber Housing (Item 3).

39. Reinstall the Retaining Ring (Item 11) onto the Hub (Item 1).

NOTE: Step 40 & 41 refers only to the FCB-450; models LCB-600 & MCB-800 are complete after step 39.

40. Reinstall the Retaining Ring (Item 11b) onto the Hub (Item 1).

41. Attach the Hub Collar (Item 25) to the Hub (Item 1) using the three Set Screws (Item 20).

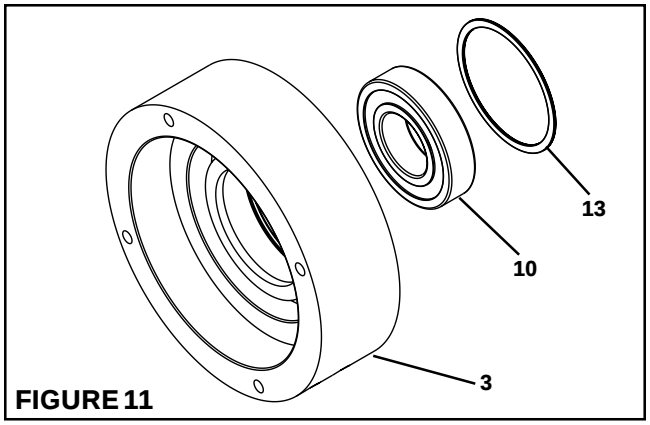


FIGURE 11

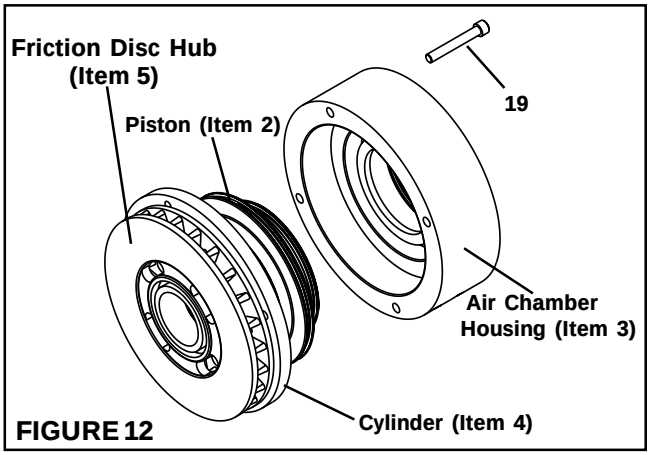


FIGURE 12

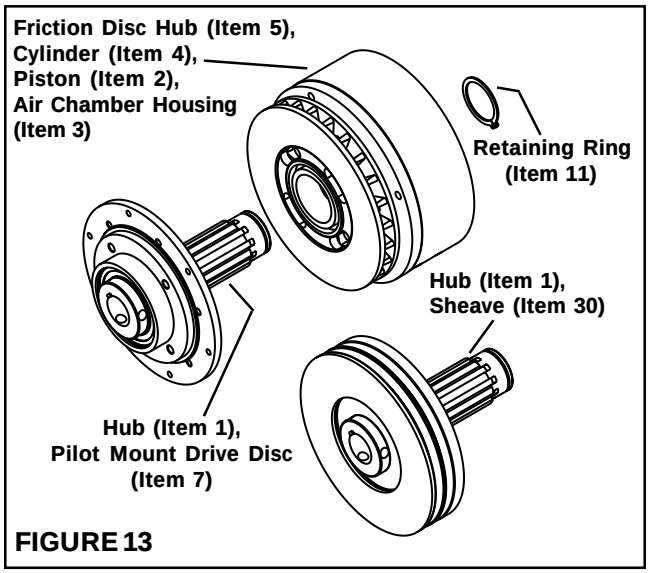


FIGURE 13

TABLE 3

Model	Item No.	Description	Torque
FCB-450	19	cap screw	81 - 105 in-lb [9.2 - 11.8 Nm]
LCB-600	19	cap screw	81 - 105 in-lb [9.2 - 11.8 Nm]
MCB-800	19	cap screw	301-392 in-lb [34.0-44.3 Nm]

REPLACEMENT PARTS LIST

To order replacement parts, indicate model size, item number, item description, and quantity. Replacement parts are available through your local Nexen Distributor.

FCB-450

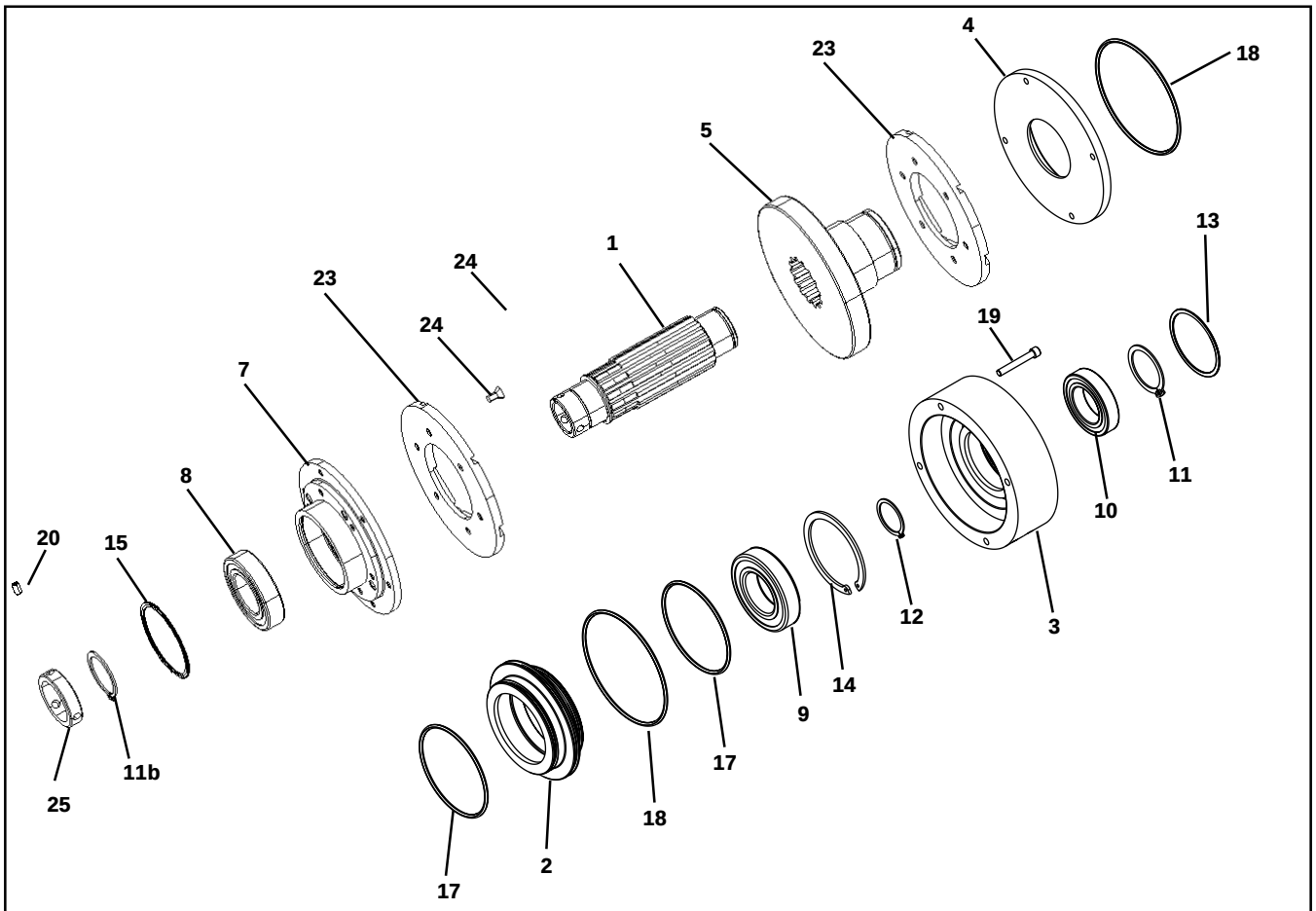


FIGURE 14

ITEM	DESCRIPTION	QTY
1	Hub	1
2	Piston	1
3	Air Chamber Housing	1
4	Cylinder	1
5	Friction Disc Hub	1
7	Pilot Mount Drive Disc (Pilot Mount Only)	1
8[2]	Ball Bearing	1
9[1]	Ball Bearing	1
10[1]	Ball Bearing	1
11	Retaining Ring (Ext.)	1
11b	Retaining Ring (Ext.)	1
12	Retaining Ring (Ext.)	1

ITEM	DESCRIPTION	QTY
13	Retaining Ring (Int.)	1
14	Retaining Ring (Int.)	1
15	Retaining Ring (Int.)	1
17[1]	O-ring Seal (Small)	2
18[1]	O-ring Seal (Large)	2
19	Socket Head Cap Screw	4
20	Set Screw	3
22	Key (Not Shown)	1
23[1]	Facing, Friction	2
24[1]	Screw, Flat Head	12
25	Hub Collar	1
30	Sheave (Sheave Mount Only)	1

[1] Denotes Repair Kit item.
Repair Kit Product Number for FCB-450: 827151
[2] Order Pilot or Sheave Bearings separately.

REPLACEMENT PARTS LIST

To order replacement parts, indicate model size, item number, item description, and quantity. Replacement parts are available through your local Nexen Distributor.

LCB-600 & MCB-800

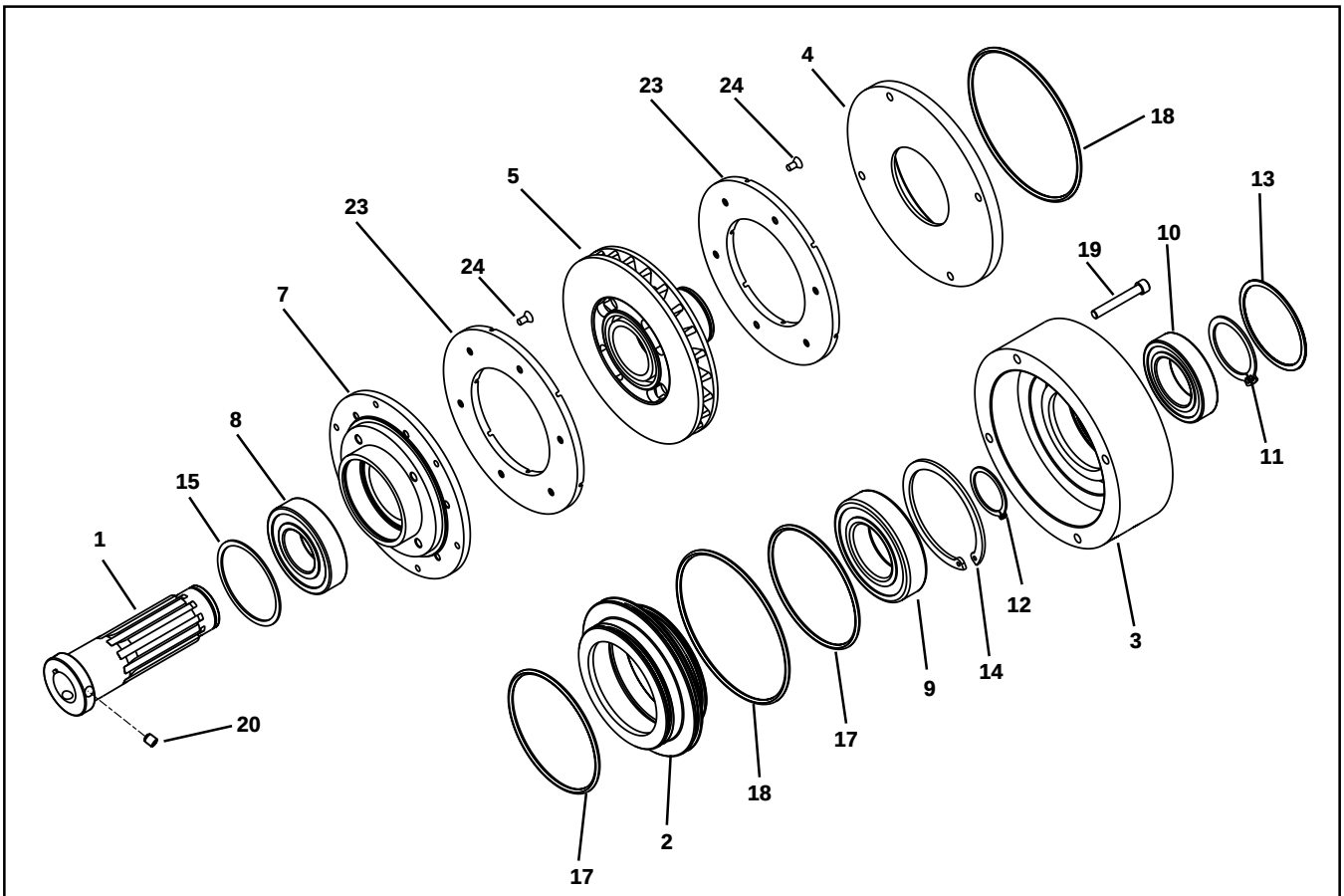


FIGURE 15

ITEM	DESCRIPTION	QTY
1	Hub	1
2	Piston	1
3	Air Chamber Housing	1
4	Cylinder	1
5	Friction Disc Hub	1
7	Pilot Mount Drive Disc (Pilot Mount Only)	1
8[2]	Ball Bearing	1
9[1]	Ball Bearing	1
10[1]	Ball Bearing	1
11	Retaining Ring (Ext.)	1
12	Retaining Ring (Ext.)	1

ITEM	DESCRIPTION	QTY
13	Retaining Ring (Int.)	1
14	Retaining Ring (Int.)	1
15	Retaining Ring (Int.)	1
17[1]	O-ring Seal (Small)	2
18[1]	O-ring Seal (Large)	2
19	Socket Head Cap Screw	4
20	Set Screw	3
22	Key (Not Shown)	1
23[1]	Facing, Friction	2
24[1]	Screw, Flat Head	12
30	Sheave (Sheave Mount Only)	1

[1] Denotes Repair Kit item.
Repair Kit Product Numbers:
LCB-600: 828951
MCB-800: 830851
[2] Order Pilot or Sheave Bearings separately.

Warranties

Nexen warrants that the Products will be free from any defects in material or workmanship for a period of 12 months from the date of shipment. NEXEN MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. This warranty applies only if (a) the Product has been installed, used and maintained in accordance with any applicable Nexen installation or maintenance manual for the Product; (b) the alleged defect is not attributable to normal wear and tear; (c) the Product has not been altered, misused or used for purposes other than those for which it was intended; and (d) Buyer has given written notice of the alleged defect to Nexen, and delivered the allegedly defective Product to Nexen, within one year of the date of shipment.

Exclusive Remedy

The exclusive remedy of the Buyer for any breach of the warranties set out above will be, at the sole discretion of Nexen, a repair or replacement with new, serviceably used or reconditioned Product, or issuance of credit in the amount of the purchase price paid to Nexen by the Buyer for the Products.

Limitation of Nexen's Liability

TO THE EXTENT PERMITTED BY LAW NEXEN SHALL HAVE NO LIABILITY TO BUYER OR ANY OTHER PERSON FOR INCIDENTAL DAMAGES, SPECIAL DAMAGES, CONSEQUENTIAL DAMAGES OR OTHER DAMAGES OF ANY KIND OR NATURE WHATSOEVER, WHETHER ARISING OUT OF BREACH OF WARRANTY OR OTHER BREACH OF CONTRACT, NEGLIGENCE OR OTHER TORT, OR OTHERWISE, EVEN IF NEXEN SHALL HAVE BEEN ADVISED OF THE POSSIBILITY OR LIKELIHOOD OF SUCH POTENTIAL LOSS OR DAMAGE. For all of the purposes hereof, the term "consequential damages" shall include lost profits, penalties, delay images, liquidated damages or other damages and liabilities which Buyer shall be obligated to pay or which Buyer may incur based upon, related to or arising out of its contracts with its customers or other third parties. In no event shall Nexen be liable for any amount of damages in excess of amounts paid by Buyer for Products or services as to which a breach of contract has been determined to exist. The parties expressly agree that the price for the Products and the services was determined in consideration of the limitation on damages set forth herein and such limitation has been specifically bargained for and constitutes an agreed allocation of risk which shall survive the determination of any court of competent jurisdiction that any remedy herein fails of its essential purpose.

Limitation of Damages

In no event shall Nexen be liable for any consequential, indirect, incidental, or special damages of any nature whatsoever, including without limitation, lost profits arising from the sale or use of the Products.

Warranty Claim Procedures

To make a claim under this warranty, the claimant must give written notice of the alleged defect to whom the Product was purchased from and deliver the Product to same within one year of the date on which the alleged defect first became apparent.

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