nexen®

AIR CHAMP® PRODUCTS

User Manual

LWCB

FORM NO. L-20246-B-0501

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

WARNING

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

TABLE OF CONTENTS

INTRODUCTION

Read this manual carefully, making full use of its explanations and instructions. The “Know How” of safe, continuous, trouble-free operation depends on the degree of your understanding of the system and your willingness to keep all components in proper operating condition. Pay particular attention to all NOTES, CAUTIONS, and WARNINGS to avoid the risk of personal injury or property damage. It is important to understand that these NOTES, CAUTIONS, and WARNINGS are not exhaustive. Nexen cannot possibly know or evaluate all conceivable methods in which service may be performed, or the possible hazardous consequences of each method. Accordingly, anyone who uses a procedure that is not recommended by Nexen must first satisfy themselves that neither their safety or the safety of the product will be jeopardized by the service method selected.

INSTALLATION

1. Using four 1/4-20 bolts, secure a customer supplied sheave or sprocket to the LWCB (See Figure 1).

2. Insert the first Key (Item 30) into the shaft (See Figure 1).

3. Slide the LWCB onto the shaft and Key (See Figure 1).

4. Insert the second Key (Item 30) into the shaft and LWCB (See Figure 1).

5. Tighten the Socket Head Set Screw (Item 27) to 20 In. Lbs. [2.3 N•m] torque (See Figure 1).

6. Tighten the Socket Head Set Screw (Item 28) to 20 In. Lbs. [2.3 N•m] torque (See Figure 1).

   NOTE: If bushings for smaller diameter shafts are required, use a bushing on both ends of the LWCB.

7. Align the air inlet ports in a down position to allow condensation to drain out of the exhaust port.

8. Fasten one of the ears of the LWCB to a fixed member of the machine (See Figure 1).

   NOTE: The Air Chamber Piston (Item 7) floats axially approximately 1/16 inch [1.59 mm] during operation. Make sure securing pin allows 1/16 inch to 1/8 inch [1.59 mm to 3.18 mm] movement of Air Chamber Piston.

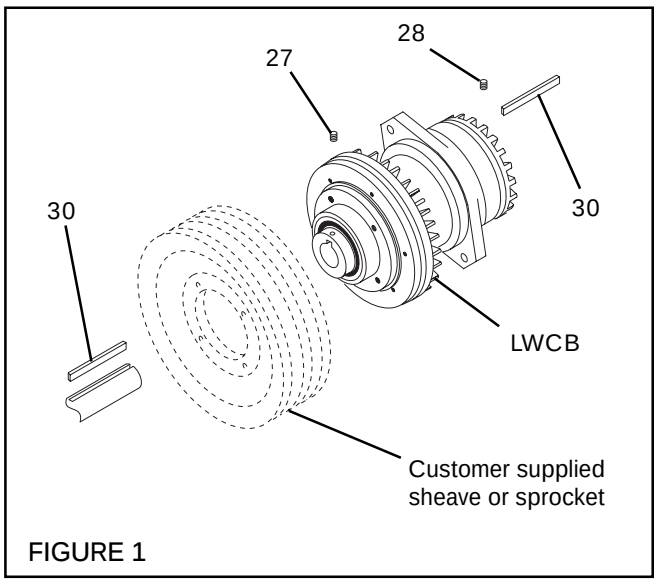

FIGURE 1

AIR CONNECTIONS

NOTE: For quick response, Nexen recommends a quick exhaust valve and short air lines between the Control Valves and the clutch/brake. Align the inlet ports to a down position to allow condensation to drain out of the air chambers.

4-WAY CONTROL VALVE

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 (See Figure 2).

2. Connect the air supply line to the inlet port marked 1 (See Figure 2).

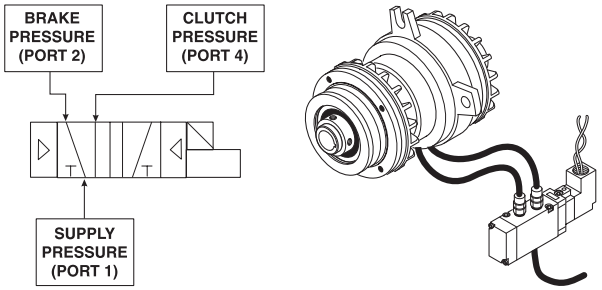

FIGURE 2

5-WAY CONTROL VALVE

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 (See Figure 3).

2. Connect the brake air supply line to the port marked 5 and the clutch air supply line to the port marked 3 (See Figure 3).

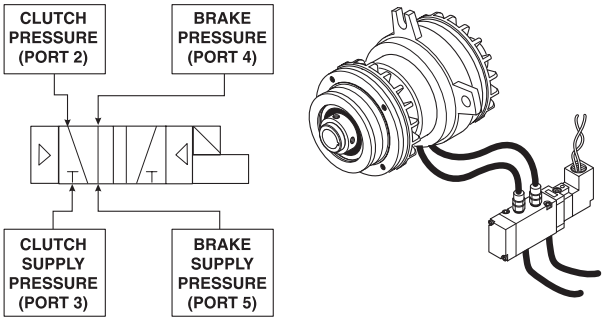

FIGURE 3

LUBRICATION

NOTE: Pneumatically actuated devices require clean, pressure regulated, and lubricated air for maximum performance and long life. The most effective and economical way to lubricate the LWCB 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 LWCB, and use a low viscosity oil such as SAE-10.

Synthetic lubricants are not recommended.

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 control valve malfunction and replace valve if necessary.
	Air leaks.	Replace air lines.
	Lack of lubrication on the hub spline or in the air chamber.	Lubricate hub spline and/or air chamber.
	Rigid piping instead of flexible air lines.	Replace rigid piping with flexible air lines.
Failure to disengage.	Unexhausted air due to a control valve malfunction.	Check for control valve malfunction and replace valve if necessary.
	Friction lock due to a lack of lubrication on the hub spline or in the air chamber.	Lubricate hub spline and/or air chamber.
	Rigid piping instead of flexible air lines.	Replace air lines with flexible air line tubing.
	Weak or broken springs.	Replace springs.
Loss of torque.	Air leaks.	Replace air lines.
	Overheating (fading).	Check manufacturing specifications to be certain clutch-brake is suitable for the application.
Overlap or simultaneous engagement of the clutch and brake when switching. Overlap can be verified by motor amperage readings when cycling with the clutch-brake versus clutch only (brake disconnected). Higher draw with the clutch-brake indicates overlap.	Inadequate controls.	Install controls meeting the specifications of clutch-brake.
	Air line too long between the valve and the clutch-brake.	Shorten air line between the valve and clutch-brake.
	Air pressure too high.	Reduce the air pressure.
	Lack of quick exhaust valves.	Install quick exhaust valves.

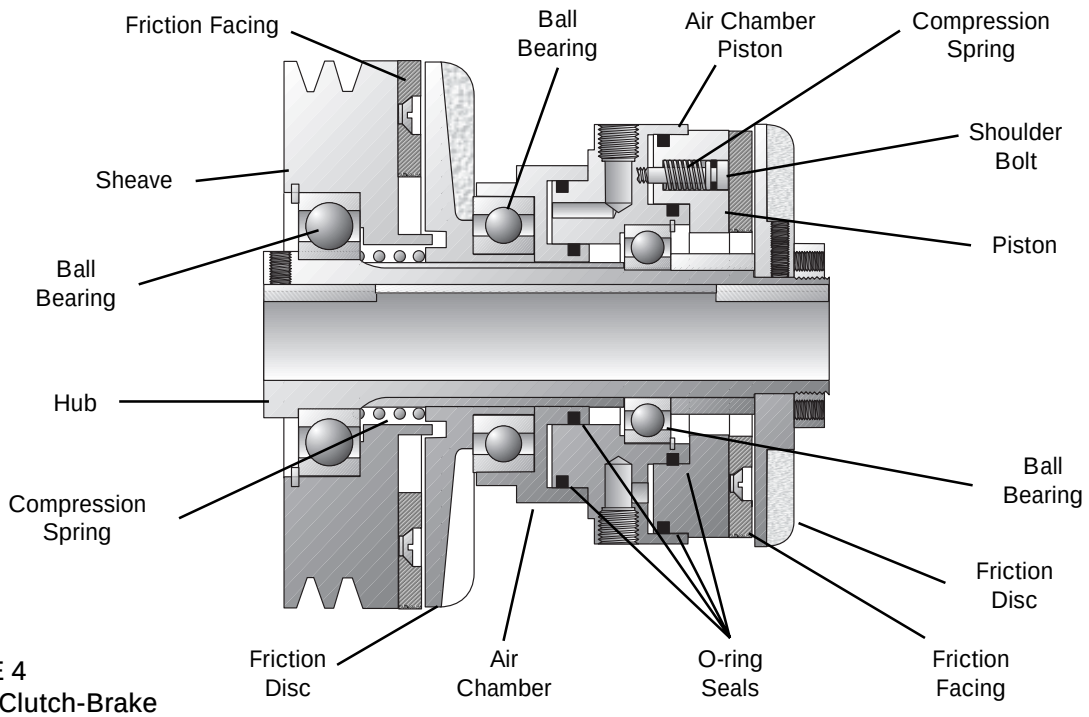

FIGURE 4
Typical Clutch-Brake

PARTS REPLACEMENT

DISASSEMBLY

1. Loosen the two Socket Head Set Screws (Items 28 and 29); then, remove the Locking Nut (Item 26) and the Brake Friction Disc (Item 2) (See Figure 5).

2. Remove the Spacer (Item 16) (See Figure 5).

3. Press the Brake Assembly off the Hub (Item 1) (See Figure 6).

4. Slide the Clutch Assembly off of the Hub (Item 1) (See Figure 6).

5 Remove the Compression Spring (Item 11) (See Figure 6).

6. Press the Pilot Mount Drive Disc (Item 33) and the Bearing (Item 34) off of the Hub (Item 1) (See Figure 6).

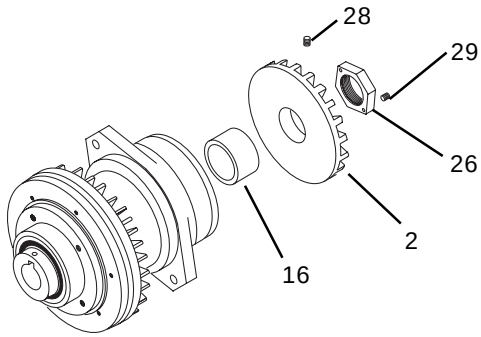

FIGURE 5

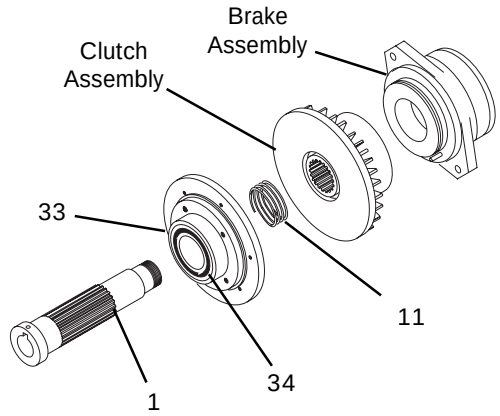

FIGURE 6

PILOT MOUNT DRIVE DISC BEARING AND FRICTION FACING

WARNING

Special attention should be exercised when working with retaining rings. Always wear safety goggles when working with spring or tension loaded fasteners or devices.

1. Remove the Retaining Ring (Item 41) (See Figure 7).

2. Press the Bearing (Item 34) out of the Pilot Mount Drive Disc (Item 33) (See Figure 7).

3. Clean the bearing bore of the Pilot Mount Drive Disc (Item 33) with fresh safety solvent, making sure all old Loctite® residue has been removed (See Figure 7).

4. Apply Loctite® 680 to the outer race of the new Bearing (Item 34) (See Figure 7).

5. Carefully align the outer race of the new Bearing (Item 34) with the bore of the Pilot Mount Drive Disc (Item 33) (See Figure 7).

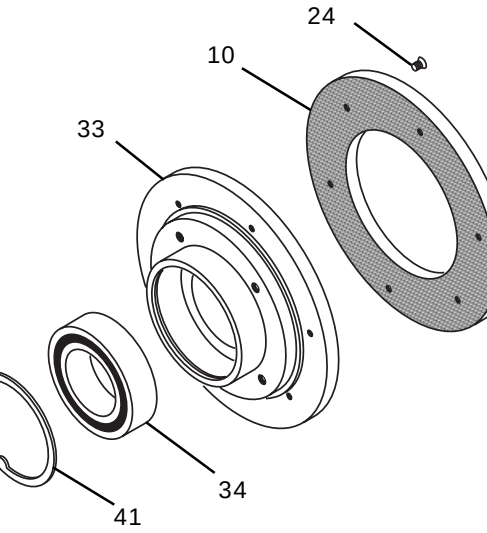

FIGURE 7

6. Supporting the Pilot Mount Drive Disc (Item 33) and pressing on the outer race of the new Bearing (Item 34), press the new Bearing into the Pilot Mount Drive Disc (See Figure 7).

7. Reinstall the Retaining Ring (Item 41) (See Figure 7).

8. Remove the six Flat Head Machine Screws (Item 24) that secure the Friction Facing (Item 10) to the Pilot Mount Drive Disc (Item 33) (See Figure 7).

9. Remove the old Friction Facing (Item 10) (See Figure 7).

10. Using six new Flat Head Machine Screws (Item 24), install a new Friction Facing (Item 10) (See Figure 7).

11. Tighten the six Flat Head Machine Screws (Item 24) to 19 In. Lbs. [2.1 N•m] torque.

FRICTION DISC AND AIR CHAMBER BEARING

1. Supporting the Air Chamber (Item 8), press the Friction Disc (Item 9) out of the Bearing (Item 14) and Air Chamber (See Figure 8).

2. Using a bearing puller, remove the Bearing (Item 14) from the Air Chamber (Item 8) (See Figure 8).

3. Clean the bearing bore of the Air Chamber (Item 8) with fresh safety solvent, making sure all old Loctite® residue has been removed (See Figure 8).

4. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Bearing (Item 14) (See Figure 8).

5. Carefully align the outer race of the new Bearing (Item 14) with the bore of the Air Chamber (Item 8) (See Figure 8).

6. Supporting the Air Chamber (Item 8) and pressing on the outer race of the new Bearing (Item 14), press the new Bearing into the Air Chamber (See Figure 8).

7. Carefully align the hub of the Friction Disc (Item 9) with the bearing bore of the new Bearing (Item 14) and press the Friction Disc into the new Bearing and the Air Chamber (See Figure 8).

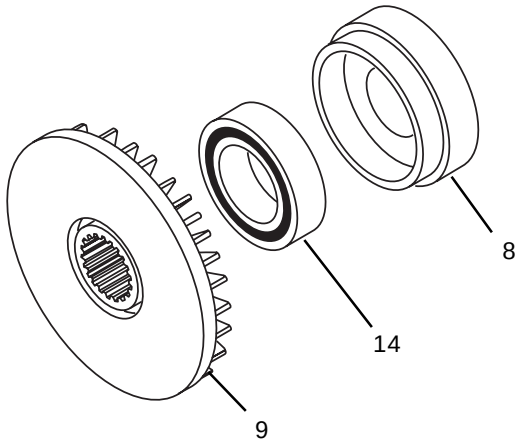

FIGURE 8

AIR CHAMBER PISTON BEARING, O-RING SEALS, AND PISTON FRICTION FACING

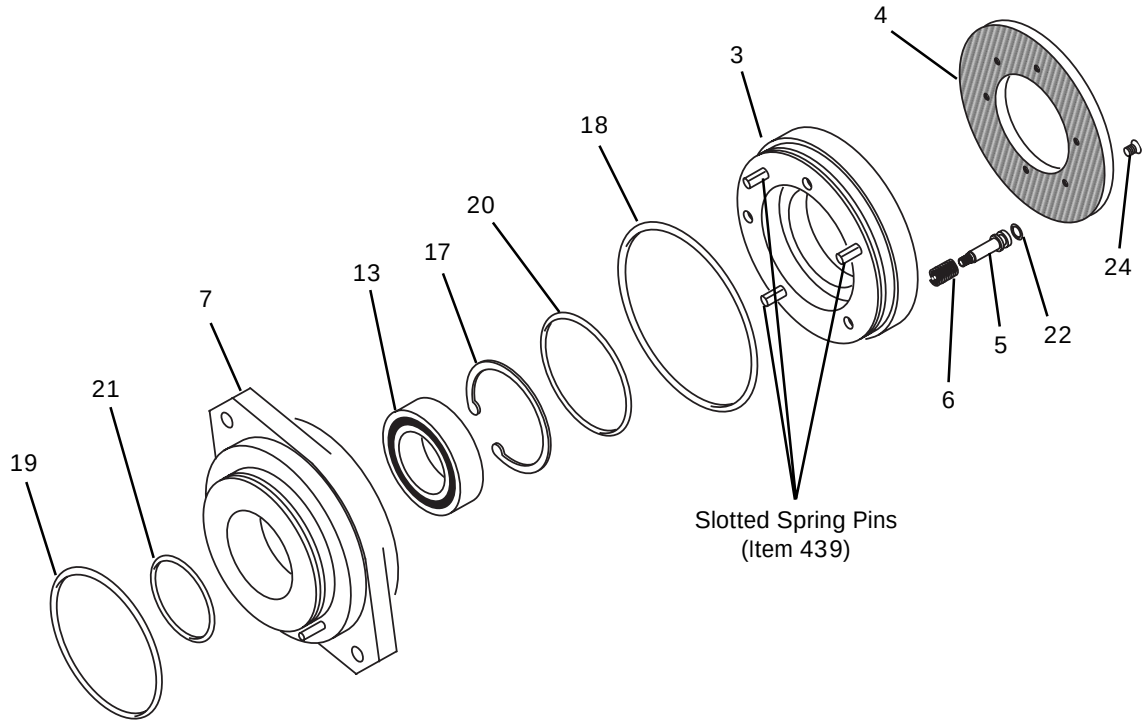

FIGURE 9

1. Remove the six Flat Head Machine Screws (Item 24) and the old Friction Facing (Item 4) (See Figure 9).

2. Remove the three Shoulder Bolts (Item 5), Shoulder Bolt O-ring Seals (Item 22), and the Shoulder Bolt Compression Springs (Item 6) (See Figure 9).

3. Separate the Air Chamber Piston (Item 7) from the Piston (Item 3) (See Figure 9).

WARNING

Special attention should be exercised when working with retaining rings. Always wear safety goggles when working with spring or tension loaded fasteners or devices.

4. Remove the Retaining Ring (Item 17) from the Air Chamber Piston (Item 7) (See Figure 9).

5. Press the Bearing (Item 13) out of the Air Chamber Piston (Item 7) (See Figure 9).

6. Clean the bearing bore of the Air Chamber Piston (Item 7) with fresh safety solvent, making sure all old Loctite® residue has been removed (See Figure 9).

7. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Bearing (Item 13) (See Figure 9).

8. Carefully align the outer race of the new Bearing (Item 13) with the bore of the Air Chamber Piston (Item 7) (See Figure 9).

9. Supporting the Air Chamber Piston (Item 7) and pressing on the outer race of the new Bearing (Item 13), press the new Bearing into the Air Chamber Piston (See Figure 9).

10. Install the Retaining Ring (Item 17) (See Figure 9).

11. Remove O-ring Seals (Items 19 and 21) (See Figure 9).

12. Remove O-ring Seals (Items 18 and 20) (See Figure 9).

13. Clean the o-ring contact surfaces with fresh safety solvent.

14. Coat the o-ring contact surfaces with fresh o-ring lubricant, then wipe off any excess lubricant.

15. Coat the new O-ring Seals (Items 18 and 20) with fresh o-ring lubricant (See Figure 9).

16. Install the new O-ring Seals (Items 18 and 20) (See Figure 9).

17. Align the Slotted Spring Pins (Item 49) of the Piston (Item 3) with the holes in the Air Chamber Piston (Item 7) (See Figure 9).

18. Press the Piston (Item 3) into the Air Chamber Piston (Item 7) (See Figure 9).

19. Remove the old O-ring Seals (Item 22) from the Shoulder Bolts (Item 5) (See Figure 9).

20. Coat the new O-ring Seals (Item 22) with fresh o-ring lubricant (See Figure 9).

21. Install the new O-ring Seals (Item 22) (See Figure 9).

22. Apply a drop of Loctite® 242 to the threads of the Shoulder Bolts (Item 5) (See Figure 9).

23. Install the Shoulder Bolts (Item 5) and Shoulder Bolt Compression Springs (Item 6) (See Figure 9).

24. Alternately and evenly tighten the Shoulder Bolts (Item 5) to 43 In. Lbs. [4.9 N•m] torque (See Figure 9).

25. Using six new Flat Head Machine Screws (Item 24), install a new Friction Facing (Item 4) (See Figure 9).

26. Tighten the six Flat Head Machine Screws (Item 24) to 19 In. Lbs. [2.1 N•m] torque (See Figure 9).

REASSEMBLY

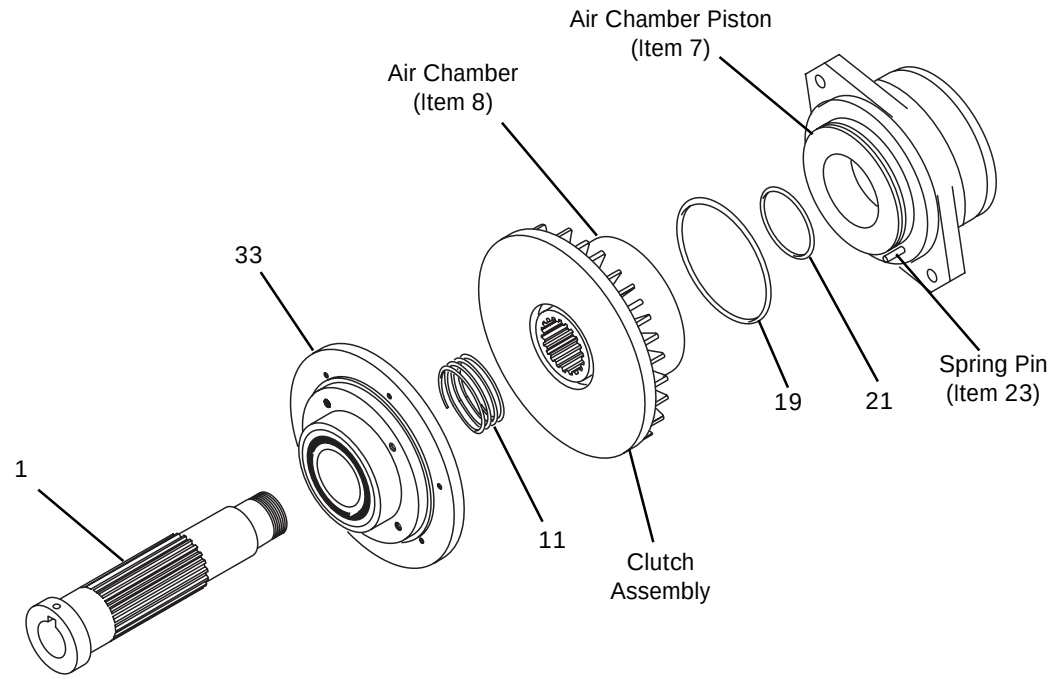

FIGURE 10

1. Align the Hub (Item 1) with the bearing bore and press the Hub into Drive Disc (Item 33) (See Figure 10).

2. Coat the splines of the Hub (Item 1) with a thin film of Never-Seez® (See Figure 10).

3. Install the Compression Spring (Item 11) (See Figure 10).

4. Slide the Clutch Assembly onto the Hub (Item 1) (See Figure 10).

5. Coat the o-ring contact surfaces of the Air Chamber Piston (Item 7) and Air Chamber (Item 8) with fresh o-ring lubricant, then wipe off any excess lubricant (See Figure 10).

6. Coat the new O-ring Seals (Items 19 and 21) with fresh o-ring lubricant (See Figure 10).

7. Install the new O-ring Seal (Item 21) into the groove in the Air Chamber (Item 8) (See Figure 10).

8. Install the new O-ring Seal (Item 19) into the groove in the Air Chamber Piston (Item 7) (See Figure 10).

9. Align the Slotted Spring Pin (Item 23) with the hole in the Air Chamber (Item 8) and press the Air Chamber Piston (Item 7) into the Air Chamber (See Figure 10).

10. Slide the Spacer (Item 16) onto the Hub (Item 1); then, align the three holes in the Brake Friction Disc (Item 2) with the three holes in the Hub and slide the Brake Friction Disc onto the Hub (See Figure 11).

11. Reinstall the Locking Nut (Item 26) and tighten the Socket Head Set Screws (Items 28 and 29) (See Figure 11).

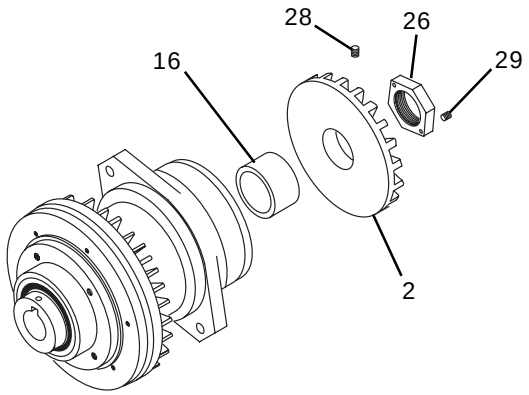

FIGURE 11

REPLACEMENT PARTS

The item or balloon number for all Nexen products is used for part identification on all product parts lists, product price lists, unit assembly drawings, bills of materials, and instruction manuals.

When ordering replacement parts, specify model designation, item number, part description, and quantity. Purchase replacement parts through your local Nexen Distributor.

PARTS LIST

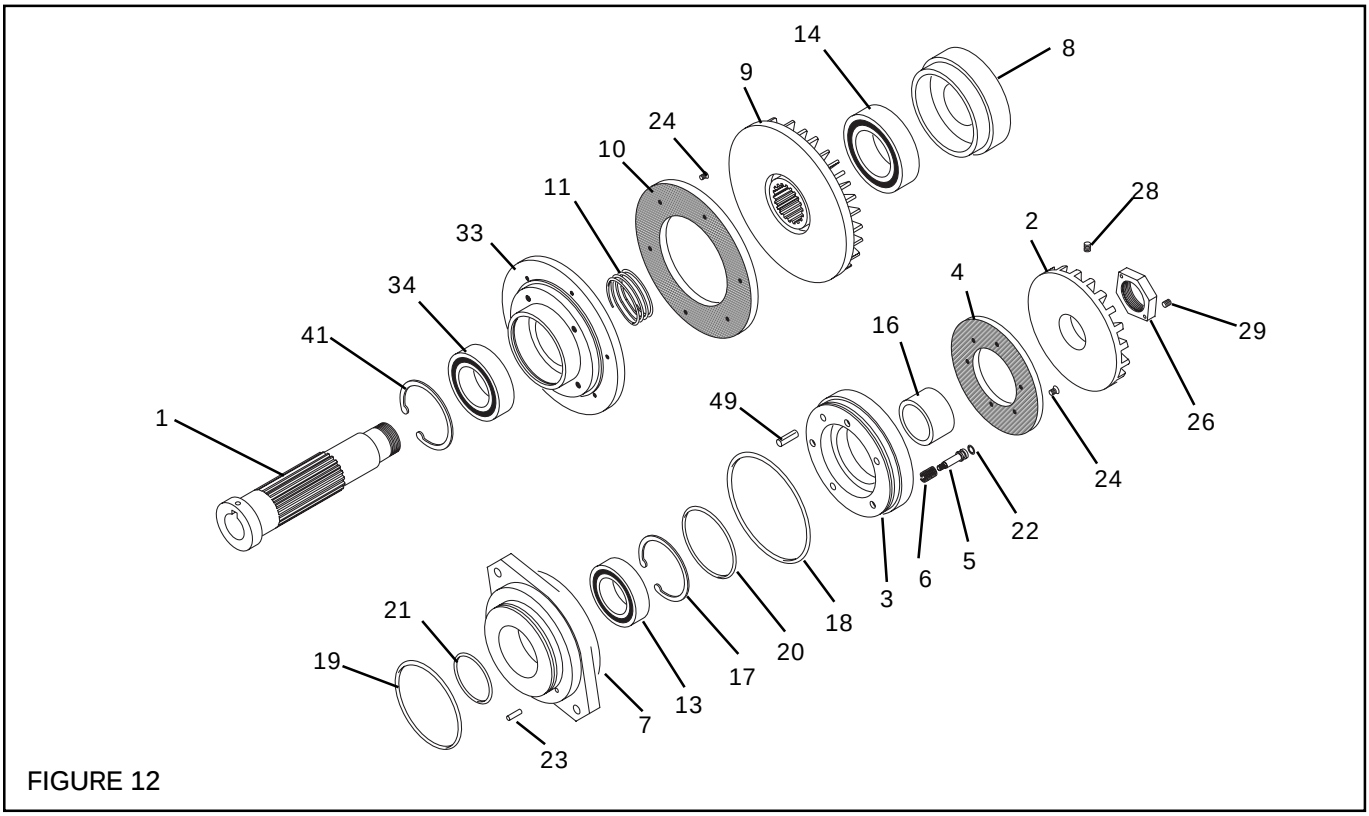

FIGURE 12

ITEM	DESCRIPTION	QTY
1	Hub	1
2	Friction Disc	1
3	Piston	1
4[1]	Friction Facing	1
5[1]	Shoulder Bolt	3
6	Compression Spring	3
7	Air Chamber Piston	1
8	Air Chamber	1
9	Friction Disc	1
10[1]	Friction Facing	1
11[1]	Compression Spring	1
13[1]	Bearing	1
14[1]	Bearing	1
16	Spacer	1
17	Retaining Ring (Int.)	1
18[1]	O-ring Seal	1

ITEM	DESCRIPTION	QTY
19[1]	O-ring Seal	1
20[1]	O-ring Seal	1
21[1]	O-ring Seal	1
22[1]	O-ring Seal	3
23	Slotted Spring Pin	1
24[1]	Flat Head Machine Screw	12
26	Locking Nut	1
27	Socket Head Set Screw (Not Shown)	2
28	Socket Head Set Screw	3
29	Socket Head Set Screw	2
30	Key (Not Shown)	2
32	Air Hose 8.25" (Not Shown)	2
33	Pilot Mount Drive Disc	1
34[1]	Bearing	1
41	Retaining Ring (Int.)	1
49	Slotted Spring Pin	3

[1] Denotes items included in Repair Kit.
Repair Kit Product No. 847900.

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.

nexen

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

800.843.7445
Fax: 651.286.1099
www.nexengroup.com

ISO 9001 Certified