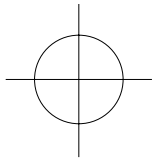


# AIR CHAMP® PRODUCTS

User Manual



## B275 Clutch Sheave, Pilot and Coupling Mount

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.

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# 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.  
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Vadnais Heights, Minnesota 55127

ISO 9001 Certified

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## INTRODUCTION

The B-275 Clutch is a member of Nexen's Air Champ® family. It is a pneumatically actuated clutch that is easy to install and service. Although the B-275 Clutch is best suited for power transmission applications, it can also be used for motion control and tension control applications. The tapped holes on the pilot mount makes it easy to mount in applications that use sheaves, sprockets or gears.

The B-275 Clutch and Brake has a maximum torque of 100 in-lbs at 80 psi. The B-275 Clutch and Brake has a maximum thermal horsepower rating of 0.05 at 1800 rpm. The B-275 Clutch and Brake can operate at speeds up to 3600 rpm.

## SPECIFICATIONS

Product Number	Bore Size	Mounting Configuration	Friction Facing Type
802870	0.625 inch [15.88 mm]	Pilot	Standard
802871	0.500 inch [12.70 mm]	Pilot	Standard
802872	0.625 inch [0.625 mm]	Sheave, 1 "A" 3.0 inch PD Groove	Standard
802873	0.625 inch [0.625 mm]	Sheave, 1 "3V" 2.75 inch OD Groove	Standard

## ACCESSORIES

DESCRIPTION	PROD. NO.
Repair Kit (all models) .....	802874
Brake Adapter .....	801200
Coupling Adapter (.500 Bore) .....	800300
Coupling Adapter (.500 Bore, Nickel Plated) .....	800307
Coupling Adapter (.625 Bore) .....	800400
Coupling Adapter (.750 Bore) .....	800500

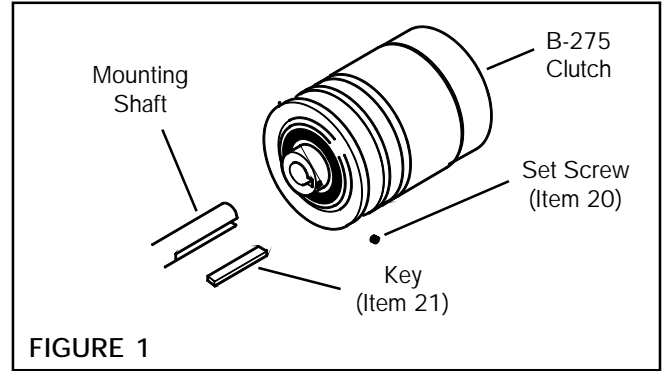


# INSTALLATION

## SHEAVE AND PILOT MOUNTING

**NOTE:** Refer to Figure 1.

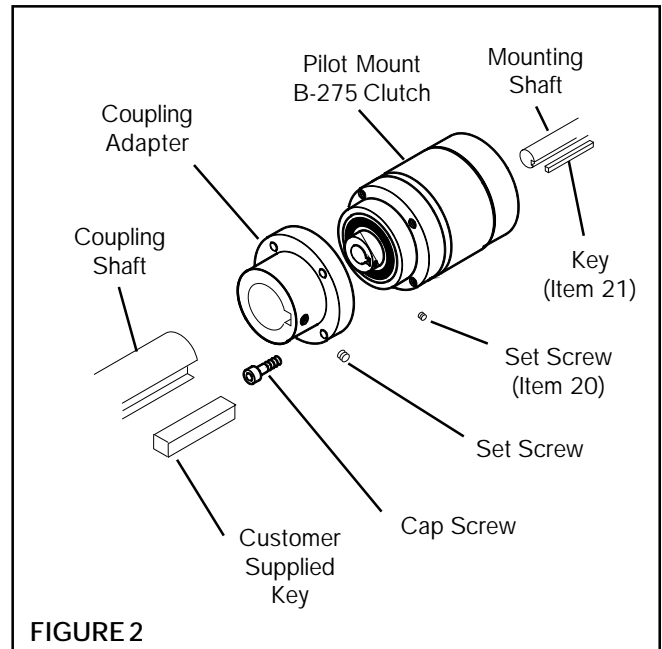
1. Insert the Key (Item 21) into the keyway of the mounting shaft.
2. Slide the B-275 Clutch onto the mounting shaft until the Key (Item 21) is seated in the B-275 Clutch.
3. Insert and tighten the two Set Screws (Item 20).



## COUPLING ADAPTER MOUNTING

**NOTE:** Refer to Figure 2.

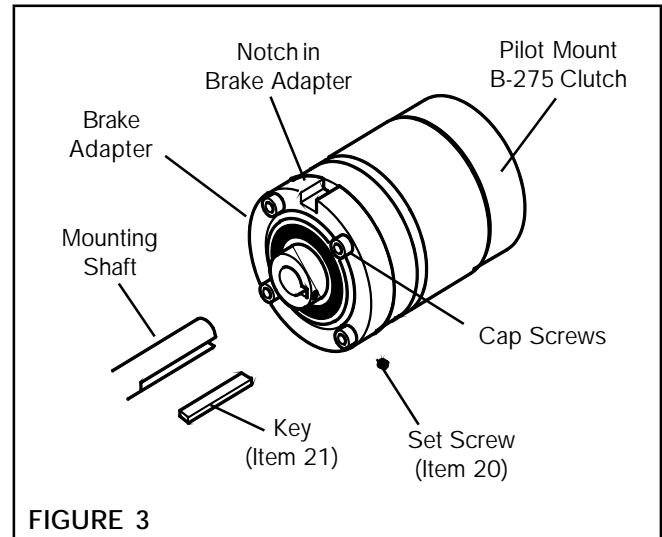
1. Insert the Key (Item 21) into the keyway of the mounting shaft.
2. Slide the Pilot Mount B-275 Clutch onto the mounting shaft until the Key (Item 21) is seated in the Pilot Mount B-275 Clutch.
3. Insert and tighten the two Set Screws (Item 20).
4. Insert the customer supplied key into the coupling shaft.
5. Slide the Coupling Adapter onto the coupling shaft.
6. Using the Cap Screws provided with the Coupling Adapter, secure the Coupling Adapter to the Pilot Mount B-275 Clutch.
7. Insert and tighten the Set Screws provided with the Coupling Adapter.



## BRAKE ADAPTER MOUNTING

**NOTE:** Refer to Figure 3.

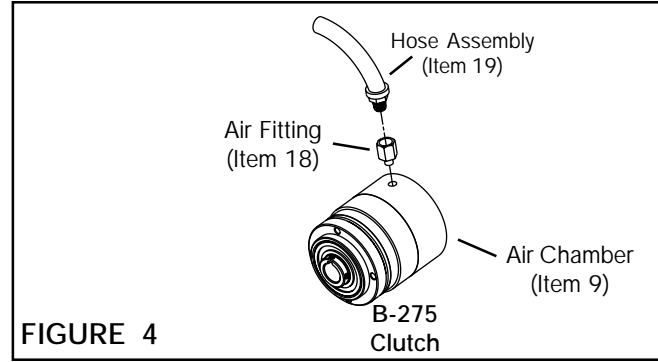
1. Using the Cap Screws provided with the Brake Adapter, secure the Brake Adapter to the Pilot Mount B-275 Clutch.
2. Insert the Key (Item 21) into the keyway of the mounting shaft.
3. Slide the Pilot Mount B-275 Clutch with the Brake Adapter onto the mounting shaft and Key.
4. Align the notch in the Brake Adapter with a torque pin or stop on the machine.
5. Insert and tighten the two Set Screws (Item 20).



## AIR LINE CONNECTIONS

Connect the Air Hose Assembly (Item 19) to the 1/8 NPT female Air Inlet Fitting (Item 18) in the Air Chamber (Item 9).

**NOTE:** To relieve bearing drag during operation, secure the air hose to a support.



### CAUTION

Use **ONLY** the supplied air hose assembly to connect the B-275 Clutch to the Air Chamber.

Do **NOT** use rigid pipe or tubing. Rigid pipe or tubing can cause the B-275 Clutch to fail.

## AIR PREPARATION

### LUBRICATED AIR

Nexen recommends one drop of oil for every 20 cubic feet of air.

### NON-LUBRICATED AIR

Nexen recommends the use of filtered, lubricated air to avoid premature seal wear and extend the life of the seal. However, because the seals are lubricated prior to product assembly, they can operate with clean, dry non-lubricated air, when conditions do not allow the use of lubricated air. The preparation of the air is critical to the life of clutch-brake seals. To prepare the air; filter the air to 5 microns or better. The dew point specification should be 40°F or lower.

### LUBRICATOR DRIP RATE SETTINGS

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

- |                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Close and disconnect the air line from the unit.</li> <li>2. Turn the Lubricator Adjustment Knob <b>clockwise</b> three complete turns.</li> <li>3. Open the air line.</li> <li>4. When a drop of oil forms in the Lubricator Sight Gage, close the air line to the unit.</li> </ol> | <ol style="list-style-type: none"> <li>5. Connect the air line to the unit.</li> <li>6. Turn the Lubricator Adjustment Knob <b>counterclockwise</b> until it is closed.</li> <li>7. Turn the Lubricator Adjustment Knob <b>clockwise</b> one-third turn.</li> <li>8. Open the air line to the unit.</li> </ol> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## CLUTCH ASSEMBLY

**NOTE:** Refer to Figures 5, 6, 7 and 8

1. Remove the Retaining Ring (item 2) from the pilot end of the clutch.
2. Use a bearing puller tool to remove the Pilot Mount Disc (item 15) and Ball Bearing (item 3) from the Hub (item 1).

**NOTE:** A Sheave (Item 4-not shown) may be used instead of the Pilot Mount Disc (item 15) when B-275 model #802872 or B-275 model #802873 is used.

3. Remove the Spring Retaining Washer (item 23) and Wave Spring (item 5).
4. Fully support the Pilot Mount Disc (item 15) and press the Ball Bearing (item 3) out of the Pilot Mount Disc (item 15).

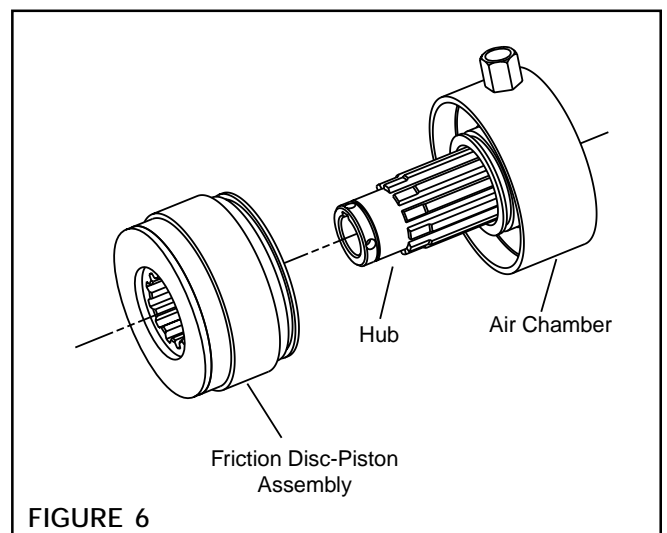
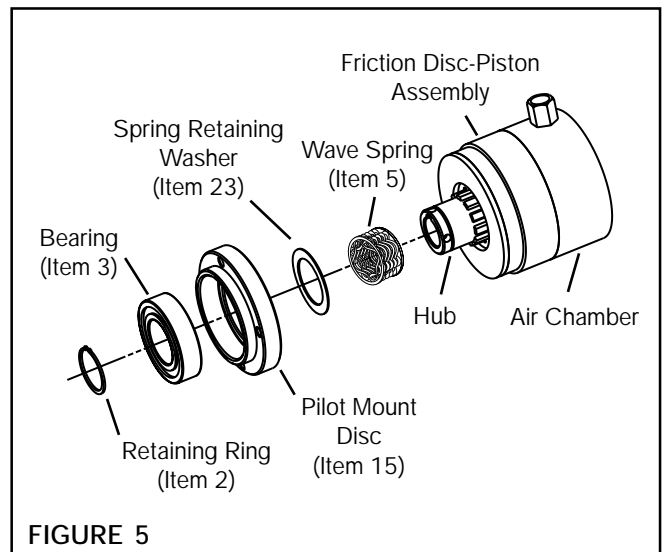
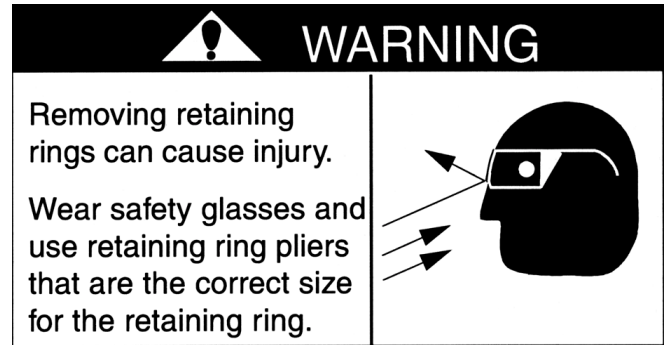
**NOTE:** Do not reuse this bearing. The force required to press the bearing out of the Pilot Mount Disc damages the bearing.

5. Clean the bearing bore of the Pilot Mount Disc (item 15) with fresh safety solvent, removing all old Loctite® residue.
6. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Bearing (item 3).
7. Carefully align the outer race of the new Ball Bearing (item 3) with the bore of the Pilot Mount Disc (item 15).
8. Support the Pilot Mount Disc (item 15). Press the new Ball Bearing (item 3) into the Pilot Mount Disc by pressing on the outer race of the Ball Bearing.

**NOTE:** Use only a new bearing. Do not reuse the old bearing. The force required to press the old bearing out of the Pilot Mount Disc damages the bearing.

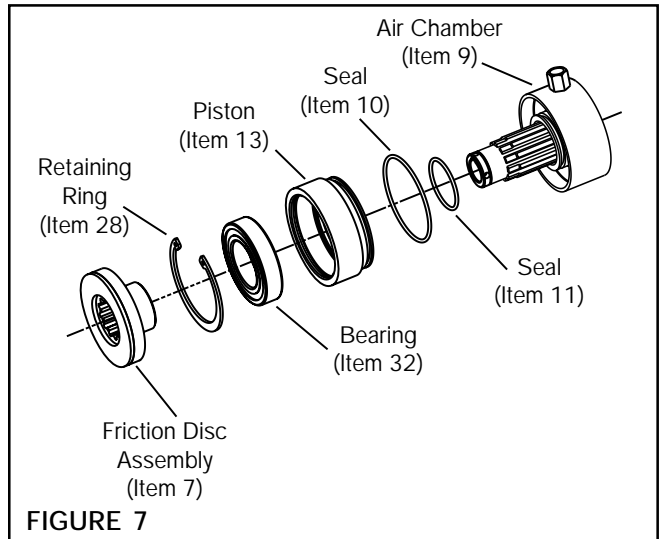
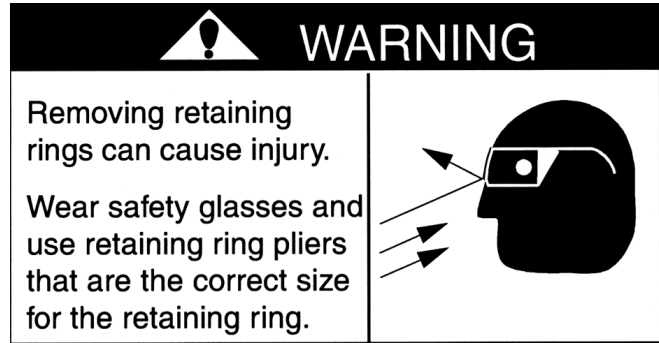
9. Slide the Friction Disc - Piston sub assembly from the Hub (item 1).
10. Remove the O-ring Seal (item 10) from the Piston (item 13).
11. Remove the O-ring Seal (item 11) from the Air Chamber (item 9).
12. Fully support the Piston (item 13) and press the Friction Disc Assembly (item 7) out of the Ball Bearing (item 32).

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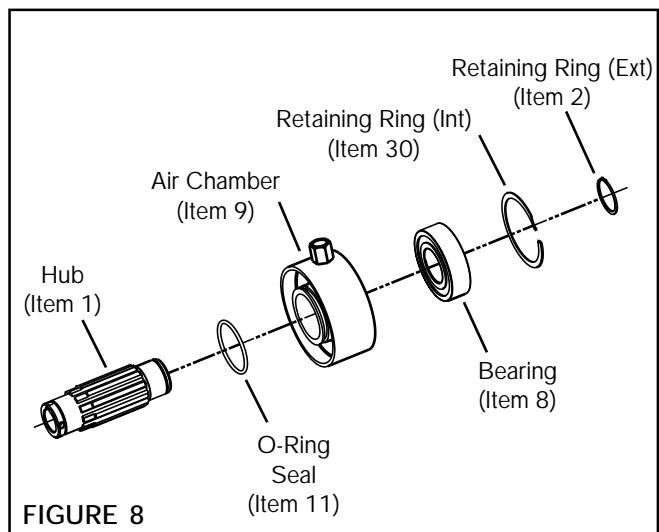


**CLUTCH ASSEMBLY** (continued...)

13. Remove the Retaining Ring (item 28) from the Piston (item 13).
14. Fully support the Piston (item 13) and press the Ball Bearing (item 32) out of the Piston (item 13).
15. Clean the bearing bore of the Piston (item 13) with fresh safety solvent, removing all old Loctite residue.
16. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Ball Bearing (item 32).
17. Carefully align the outer race of the new Ball Bearing (item 32) with the bore of the Piston (item 13).
18. Support the Piston (item 13). Press the new Ball Bearing (item 32) into the Piston by pressing on the outer race of the Bearing.
19. Install the Retaining Ring (item 28) in the Piston (item 13).
20. Fully support the inner race of the Ball Bearing (item 32) and press the new Friction Disc (item 7) into the Bearing bore.
21. Remove the Retaining Ring (item 2) from the Hub (item 1) at the end where it meets the Air Chamber.
22. Fully Support the Air Chamber (item 9) and press the Hub (item 1) out of the Air Chamber.
23. Remove the Retaining Ring (item 30) from the Air Chamber (item 9).
24. Fully support the Air Chamber (item 9) and press the Ball Bearing (item 8) out of the Air Chamber.
25. Clean bearing bore of the Air Chamber (item 9) with fresh safety solvent, removing all old Loctite residue.
26. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Ball Bearing (item 8).
27. Carefully align the outer race of the new Ball Bearing (item 8) with the bore of the Air Chamber (item 9).
28. Support the Air Chamber (item 9). Press the new Ball Bearing (item 8) into the Air Chamber by pressing on the outer race of the Bearing.



**FIGURE 7**



**FIGURE 8**

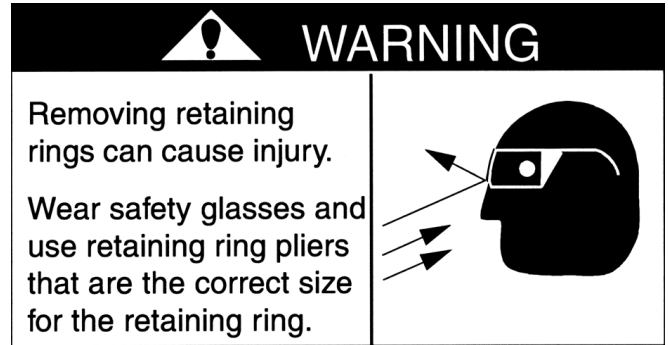
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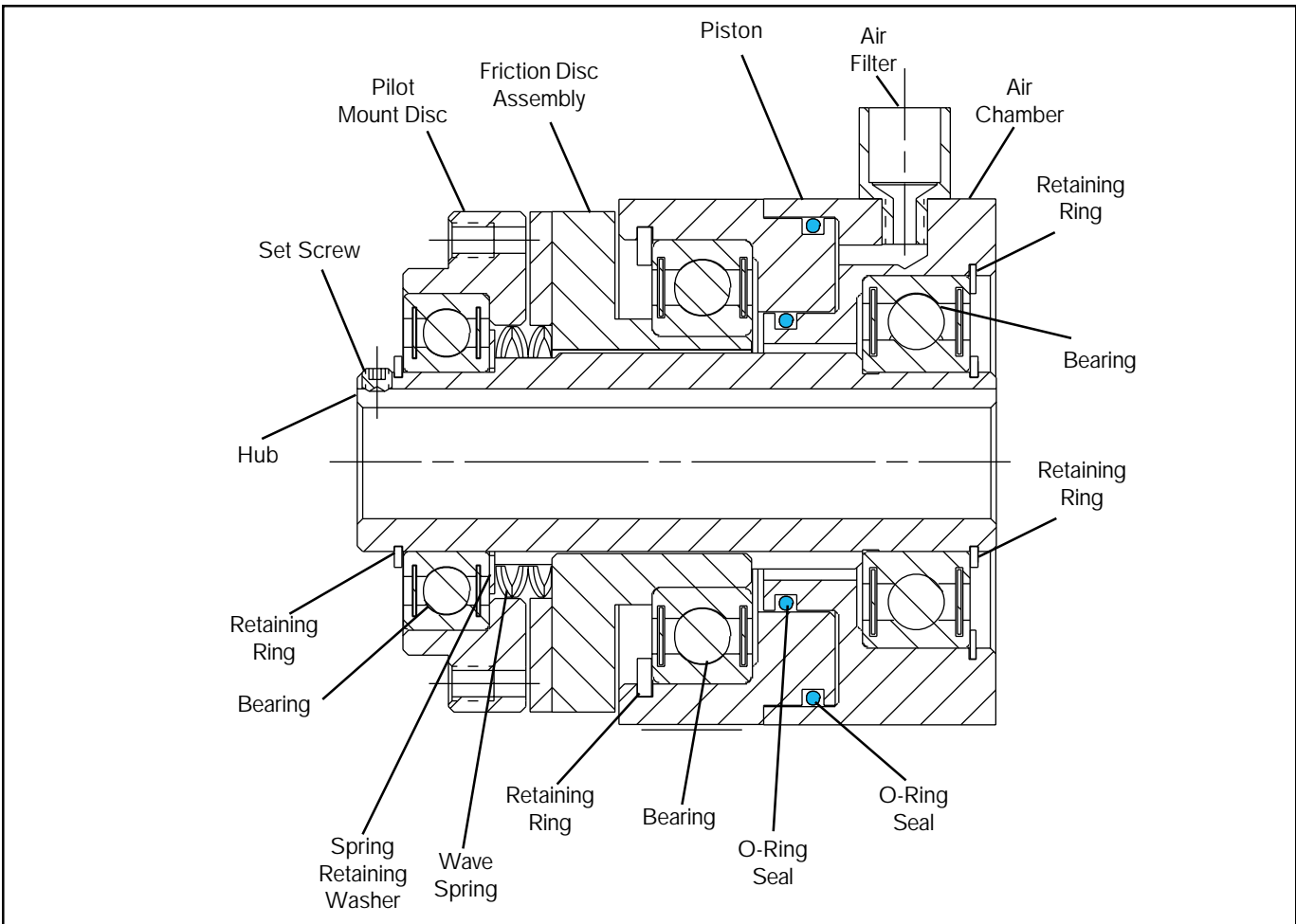
## CLUTCH ASSEMBLY (continued...)

29. Install the Retaining Ring (item 30) in the Air Chamber (item 9).
30. Remove all old lubricant residue on the O-ring contact surfaces of the Air Chamber (item 9) and Piston (item 13) with fresh safety solvent.
31. Coat the O-ring contact surfaces of the Air Chamber (item 9) and Piston (item 13) with fresh O-ring lubricant.
32. Coat the new O-ring Seals (items 10 and 11) with fresh O-ring lubricant.
33. Install the O-ring Seal (item 10) into the Piston (item 13). Install the O-ring Seal (item 11) into the Air Chamber (item 9).
34. Fully support the inner race of the Ball Bearing (item 8) and press the Hub (item 1) into the Bearing-Air Chamber assembly.
35. Install the Retaining Ring (item 2) into the Hub (item 1) at the end where it meets the Air Chamber.
36. Slide the Friction Disc-Piston assembly onto the Hub (item 1). Press the Piston (item 13) into the Air Chamber (item 9).
37. Slide a new Spring (item 5) and Spring Retaining Washer (item 23) onto the hub.
38. Support the Hub (item 1) Press the Bearing-Pilot Mount Disc assembly onto the Hub by pressing on the inner race of the Ball Bearing (item 3).
39. Install the Retaining Ring (item 2) to the Hub (Item 1) at the end where it meets the Pilot.

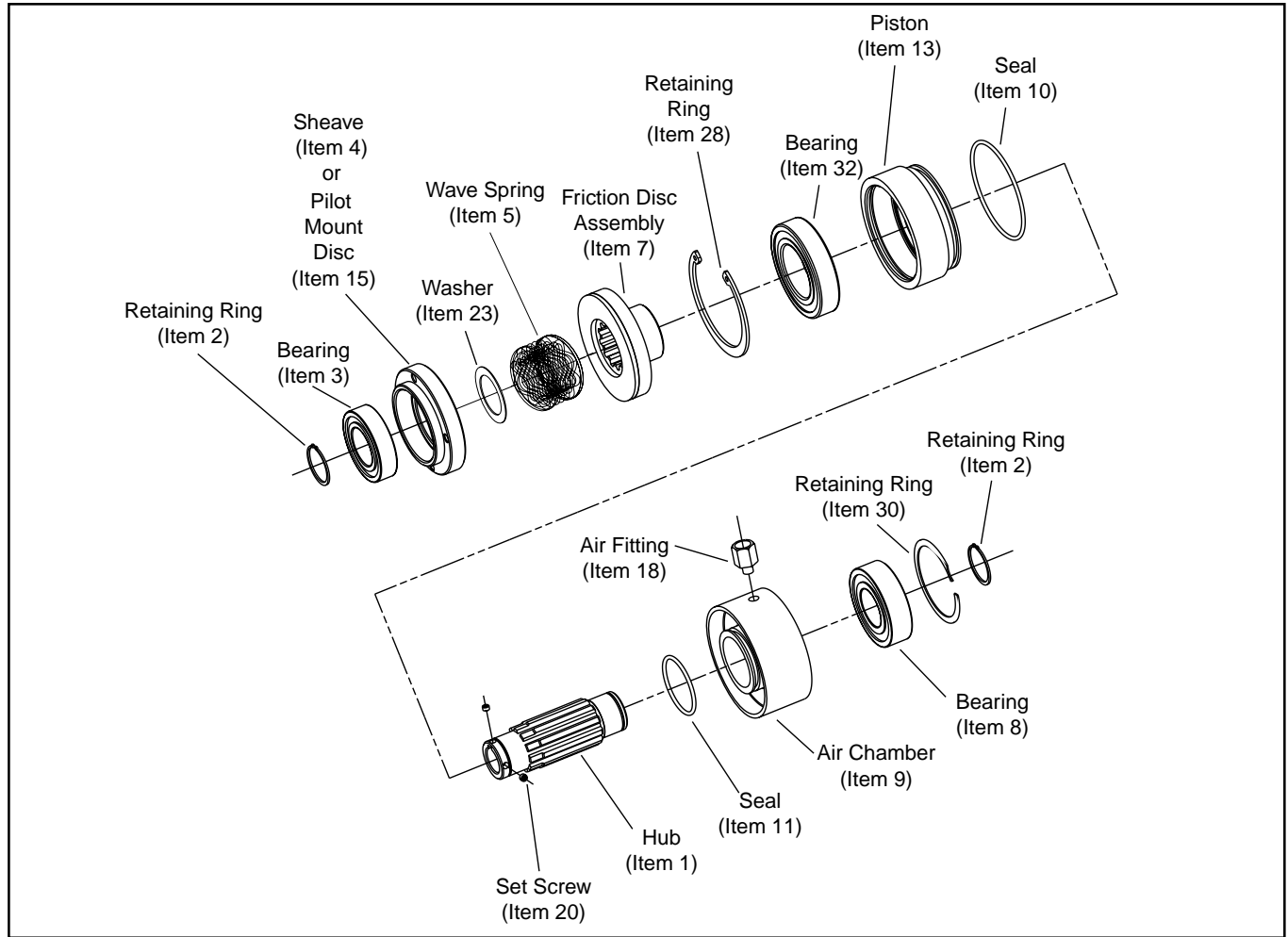


## TROUBLESHOOTING

Symptom	Probable Cause	Solution
Failure to engage	Air not getting to teh B-275 due to a control valve malfunction	Check for a control vlave malfunction or low air pressure nad replace the control valve if necessary.
	Air leaks around the O-ring Seals	Replace the O-ring Seals.
	Lack of lubrication on the Hub spline or in the Air Chamber	Lubricate the Hub spline with a thin film of Never Seezfi or check the air line lubricator settings.
Failure to disengage	Unexhausted air due to control valve malfunction	Check for a control valve malfunction and replace the control valve if necessary.
	Lack of lubrication on the hub spline or in the Air Chamber	Lubricate the Hub spline with a thin film of Never Seezfi or check the air line lubricator settings.
	Broken Wave Spring	Replace Wave Spring.
Loss of torque	Air leaks around the O-ring Seals	Replace the O-ring Seals.
	Worn or contaminated Friction Facings	Replace the Friction Disc.
Excessive drag on the air line	Defective Ball Bearings	Replace Ball Bearings.
	Air line not properly supported	Position the air line against a suppoert that is parallel to the centerline of the B-275.



## REPLACEMENT PARTS LIST



ITEM	DESCRIPTION	QTY
1	Hub	1
2	Retaining Ring (Ext.)	2
3*	Ball Bearing	1
4	Sheave (sheave model only)	1
5*	Wave Spring	1
7*	Friction Disc Assembly	1
8*	Ball Bearing	1
9	Air Chamber	1
10*	O-ring Seal (large)	1
11*	O-ring Seal (small)	1

ITEM	DESCRIPTION	QTY
13	Piston	1
15	Pilot Mount Disc (pilot mount model only)	1
18	Air Inlet Fitting	1
19	Hose Assembly (not shown)	1
20	Set Screw	2
21	Square Key (not shown)	1
23*	Spring Retaining Washer	1
28	Retaining Ring (Int.)	1
30	Retaining Ring (Int.)	1
32*	Ball Bearing	1

\* Denotes Repair Kit Item



## WARRANTIES

### 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 damages, 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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