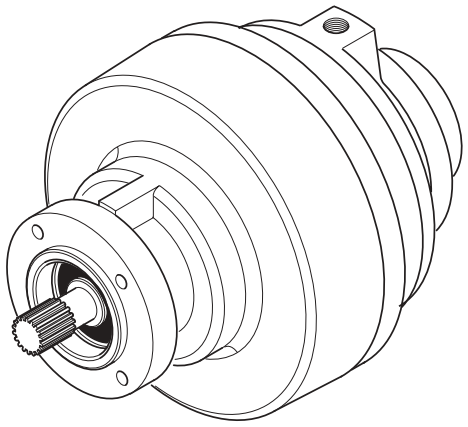
nexen®

AIR CHAMP® PRODUCTS

User Manual



Elgin Hydraulic Clutch-Brake

ECB-240, Product Number 964225

FORM NO. L-20283-F-0704

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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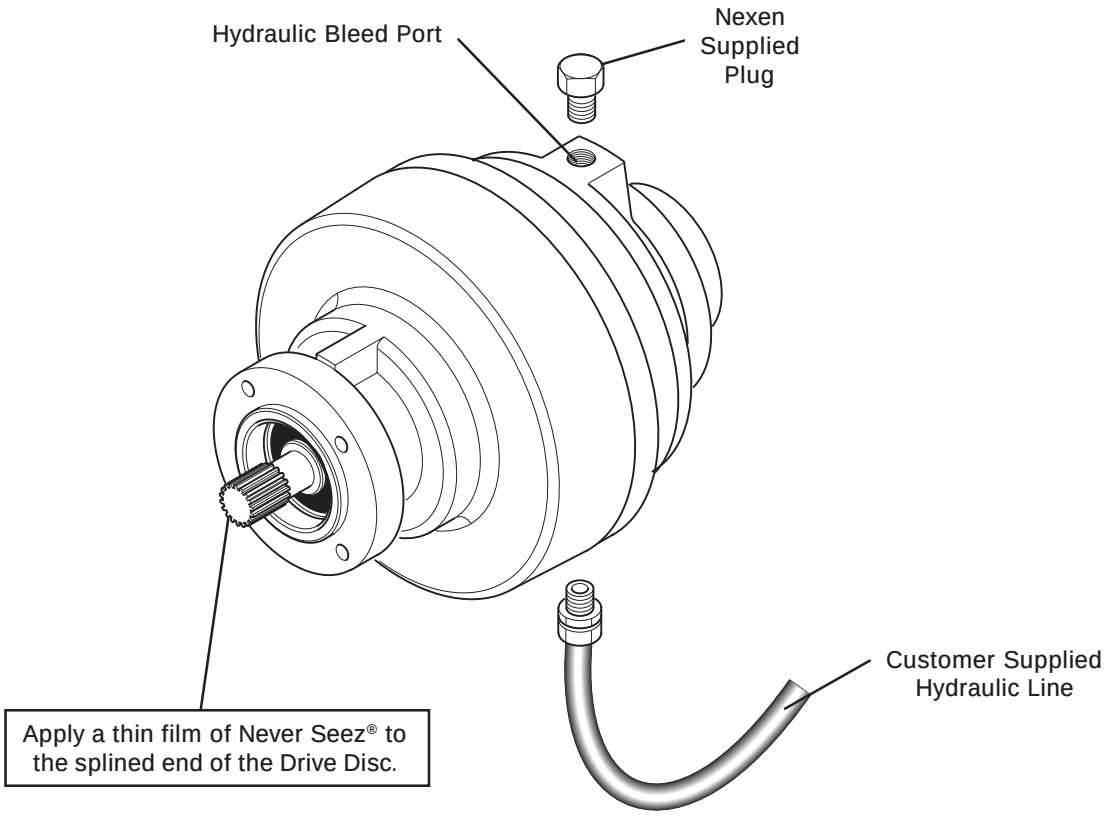


FIGURE 1

NOTE: Mount the Hydraulic Clutch/Brake with the Plug facing up and the hydraulic inlet port facing down.

1. Apply a thin film of Never Seez® to the splined end of the Drive Disc (See Figure 1).

2. Using customer supplied socket head cap screws, secure the Hydraulic Clutch/Brake to the transmission gear box.

NOTE: The driveline must be offset 3° to 5° to ensure proper lubrication of the driveline knuckles.

3. Attach the customer supplied driveline to the SAE flanged adapter.

4. Attach a customer supplied #6 or greater hydraulic pressure line to the hydraulic port of the Hydraulic Clutch/Brake (See Figure 1).

NOTE: The Hydraulic Clutch/Brake is rated for 270 to 280 psi [19.3 bar] with a recommended operating pressure of 280 psi [19.3 bar].

5. Remove the Plug (located in a vertical position on a properly mounted Hydraulic Clutch/Brake) (See Figure 1).

6. Turn the engine over until the hydraulic oil flows from the top port, bleeding the air from the Hydraulic Clutch Brake. Turning the engine over will activate the hydrostatic charge pump which also powers the Hydraulic Clutch/Brake.

7. Tighten the Plug after the air is bled from the Hydraulic Clutch/Brake.

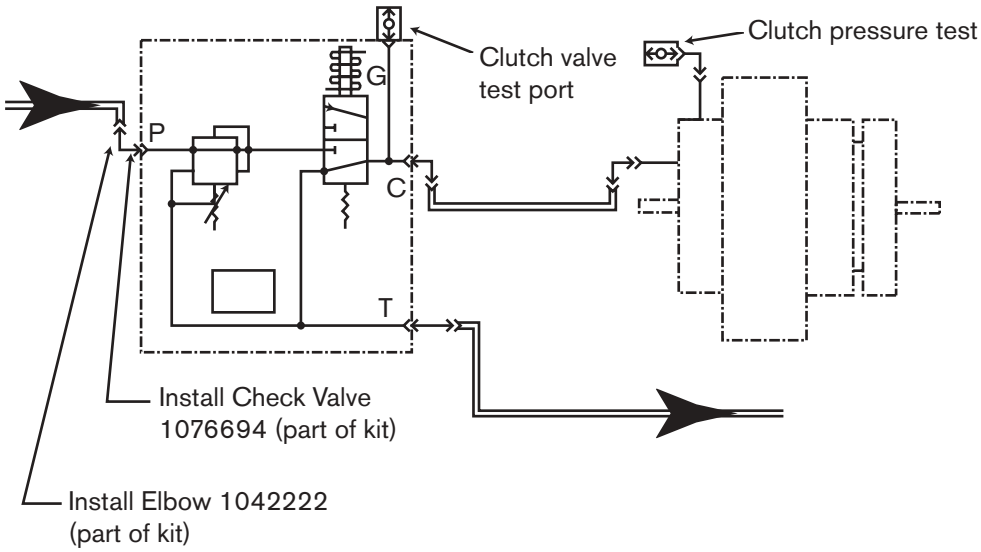
⚠ DANGER

Never use your hand to check the condition of hydraulic lines. If hydraulic fluid penetrates the skin, get medical help immediately. Failure to get proper medical help may result in loss of limb or life. The safest way to check hydraulic lines for leaks is by holding a piece of cardboard next to the hydraulic line.

The PTO drive system in a Pelican S is engaged by a hydraulically operated clutch. A spring applied friction brake is also incorporated in the clutch assembly to prevent the rotation of the brooms while the clutch is disengaged. Hydraulic pressure supplied by the hydrostatic-drive-charge-pump circuit is used to engage the clutch.

Pelican S model sweepers S8500 and higher use hydrostatic charge pressure regulated to 270 to 280 psi to engage the broom clutch. During operation, charge pressure can drop significantly for a short time. A Check Valve is used to prevent stalling during normal fluctuations of charge pressure. Pressure test ports are included on both the pressure regulating valve and the clutch housing. These ports can be used to check engagement and disengagement pressures when performing diagnostics on clutch problems.

Install Check Valve referencing the diagram below.



PELICAN S CLUTCH CIRCUIT

SYMPTOM	PROBABLE CAUSE	SOLUTION
Hydraulic Clutch/Brake slips	Low hydraulic pressure.	Check hydraulic pump pressure or system for leaks or malfunctioning charge pump and replace pump if necessary.
	Restricted hydraulic line or hydraulic line too small for application.	Check hydraulic line for restrictions or replace hydraulic line (#6 line minimum).
	Worn O-ring or Hydraulic Seals.	Replace O-ring and Hydraulic Seals.
	Wrong viscosity hydraulic fluid for ambient temperature conditions.	Replace hydraulic fluid with correct viscosity hydraulic fluid for ambient temperature conditions.
	Dirty or contaminated Facings.	Replace Friction Facings.
Hydraulic Clutch/Brake fails to engage	Worn O-ring or Hydraulic Seals.	Replace O-ring and Hydraulic Seals.
	Restricted hydraulic line or hydraulic line too small for application.	Check hydraulic line for restrictions or replace hydraulic line (#6 line minimum).
	Low hydraulic pressure.	Check hydraulic pump pressure or system for leaks or malfunctioning charge pump and replace pump if necessary.
	Faulty hydraulic control system.	Replace hydraulic control system and replace system if necessary.
Hydraulic Clutch/Brake fails to disengage	Oil from Hydraulic Clutch/Brake chamber does not drain to tank.	Check hydraulic circuit for a faulty control valve and replace valve if necessary.
	Restricted hydraulic line or hydraulic line too small for application.	Check hydraulic line for restrictions or replace hydraulic line (#6 line minimum).
	Faulty hydraulic control.	Replace hydraulic control system.
	Wrong viscosity hydraulic fluid for ambient temperature conditions.	Replace hydraulic fluid with correct viscosity hydraulic fluid for ambient temperature conditions.

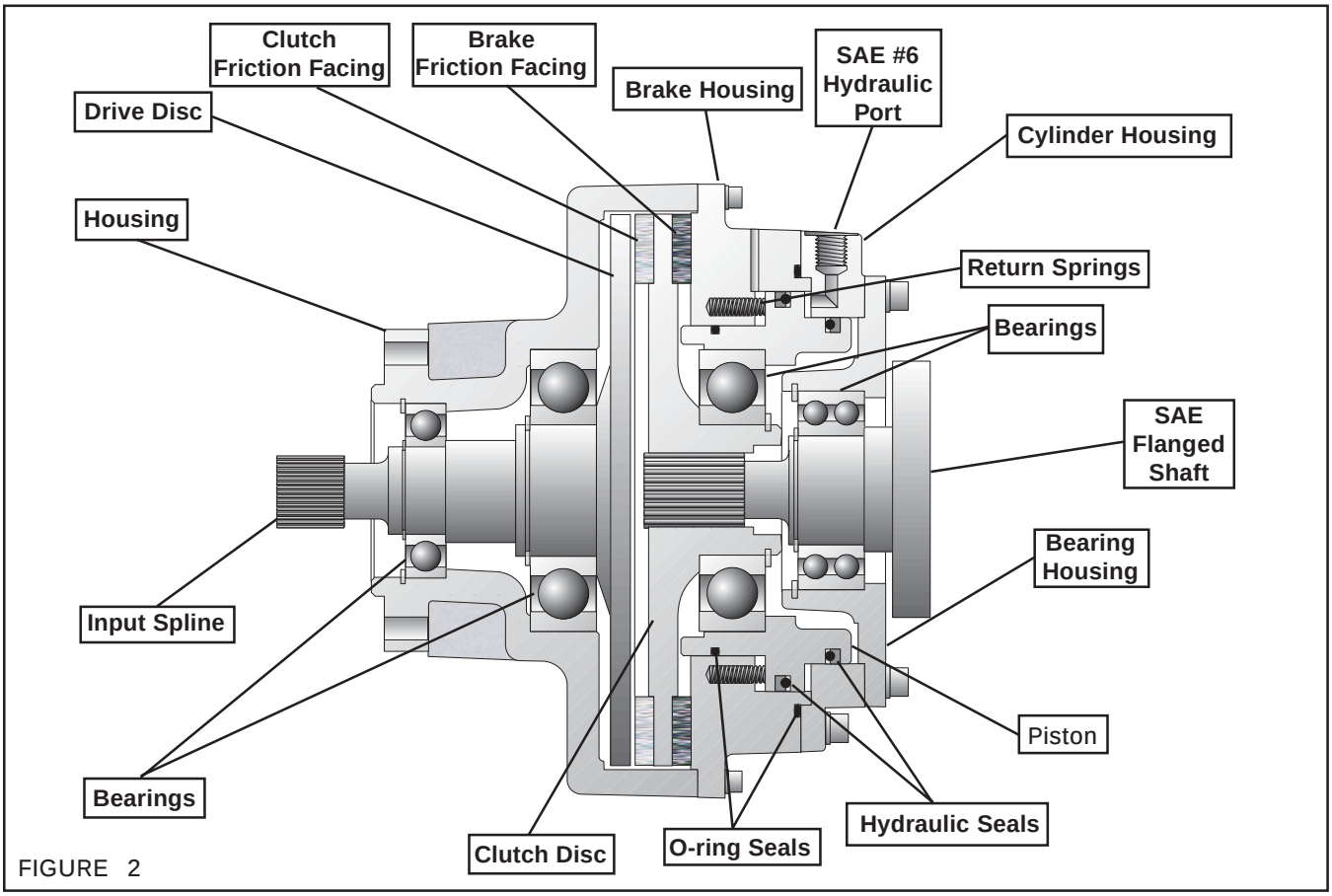


FIGURE 2

HOUSING

1. Remove the twelve Socket Head Cap Screws (Item 21) and Flat Washers (Item 27); then, remove the Housing (Item 1) (See Figure 3).

> **⚠ 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.

2. Remove the Retaining Ring (Item 13); then, press the Drive Disc (Item 2) and Bearing (Item 15) out of the Housing (Item 1) (See Figure 4).
3. Remove the Retaining Ring (Item 17) (See Figure 4).
4. Press the old Bearing (Item 12) out of the Housing (Item 1) (See Figure 4).
5. Remove the Retaining Ring (Item 16) from the Drive Disc (Item 2) (See Figure 4).
6. Using a bearing puller, remove the old Bearing (Item 15) from the Drive Disc (Item 2) (See Figure 4).
7. Clean both bearing bores of the Housing (Item 1) with fresh safety solvent, making sure all old Loctite® residue has been removed.

> **⚠ WARNING**
> Do not touch heated parts with bare hands. Use insulated gloves or tongs to handle heated parts.

8. Supporting the inner race of Bearing (Item 15), press the Drive Disc (Item 2) into the new Bearing (Item 15) (See Figure 4).
9. Reinstall the Retaining Ring (Item 16) (See Figure 4).
10. Heat the Housing (Item 1) to 200° F [93.2° C]; then, apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Bearing (Item 15) (See Figure 4).
11. Carefully align the outer race of the new Bearing (Item 15) with the bore of the Housing (Item 1), and press the new Bearing and Drive Disc (Item 2) into the Housing (See Figure 4).
12. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Bearing (Item 12) (See Figure 4).
13. Carefully align the outer race of the new Bearing (Item 12) with the bore of the Housing (Item 1) and, pressing on the inner and outer race, press the new Bearing into place (See Figure 4).
14. Reinstall the Retaining Rings (Items 17 and 13) (See Figure 4).

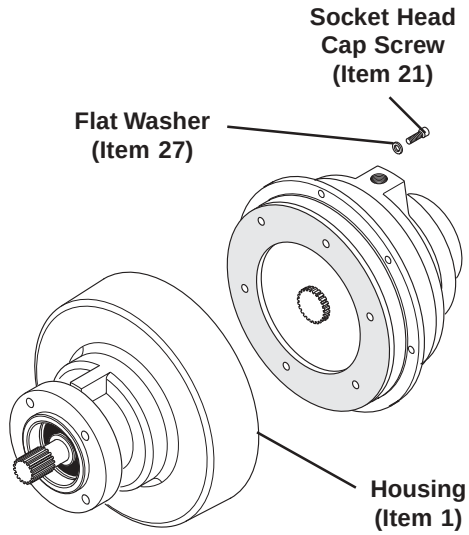


FIGURE 3

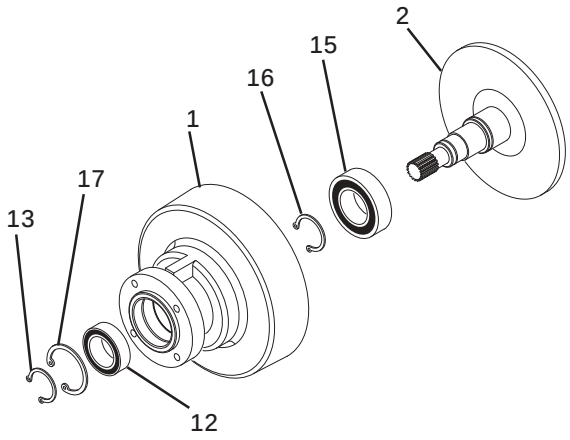


FIGURE 4

1. Remove the ten Socket Head Cap Screws (Item 22) and Flat Washers (Item 28); then, remove the Brake Housing (Item 4) (See Figure 5).

2. Remove the old O-ring Seal (Item 18) (See Figure 5).

> **⚠ 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.

3. Remove the Retaining Ring (Item 16) (See Figure 6).

4. Press the Clutch Disc (Item 3) out of the Piston (Item 5), Bearing (Item 15), and Brake Housing (Item 4) (See Figure 6).

NOTE: The Machine Screws are installed with an anaerobic locking compound. Inserting a properly fitting screwdriver into the head of the Machine Screw and striking the screwdriver with a hammer will break the locking compound crystalline structure and allow removal of the Machine Screws. Never use an impact wrench to remove the Machine Screws.

5. Remove the six old Brass Machine Screws (Item 19) and remove the Clutch Friction Facing (Item 32) from the Clutch Disc (Item 3) (See Figure 6).

6. Using six new Brass Machine Screws (Item 19) secure the new Clutch Friction Facing (Item 32) to the Clutch Disc (Item 3) (See Figure 6).

7. Tighten the six Brass Machine Screws (Item 19) to 86 In. Lbs. [9.71 N•m] torque.

8. Remove the six old Brass Machine Screws (Item 19) and remove the Brake Friction Facing (Item 8) from the Brake Housing (Item 4) (See Figure 6).

9. Using six new Brass Machine Screws (Item 19), secure the new Brake Friction Facing (Item 8) to the Brake Housing (Item 4) (See Figure 6).

10. Tighten the six Brass Machine Screws (Item 19) to 86 In. Lbs. [9.71 N•m] torque.

11. Slide the Piston (Item 5) and Bearing (Item 15) out of the Brake Housing (Item 4) (See Figure 7).

12. Remove the ten Springs (Item 20) from the Brake Housing (Item 4) (See Figure 7).

13. Remove the Retaining Ring (Item 14) from the Piston (Item 5) (See Figure 7).

14. Press the old Bearing (Item 15) out of the Piston (Item 5) (See Figure 7).

15. Clean the bearing bore of the Piston (Item 5) with fresh safety solvent, making sure all old Loctite® residue has been removed (See Figure 7).

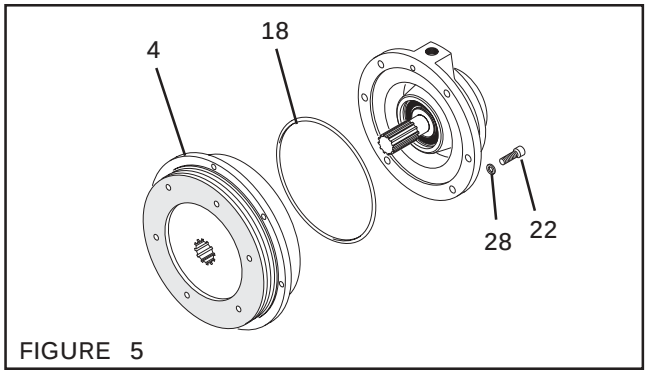


FIGURE 5

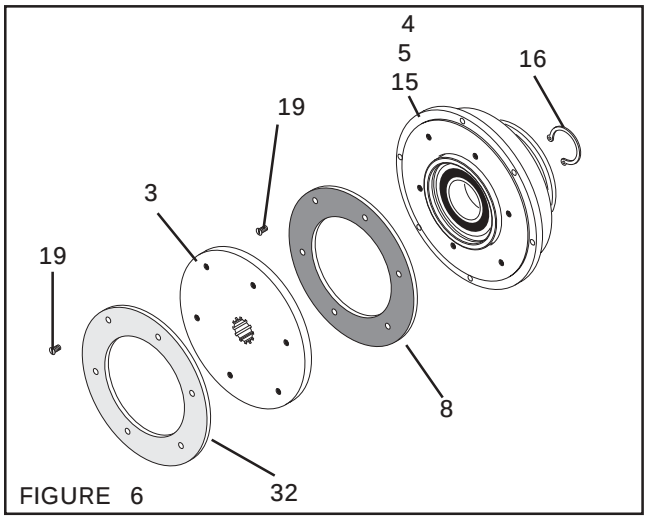


FIGURE 6

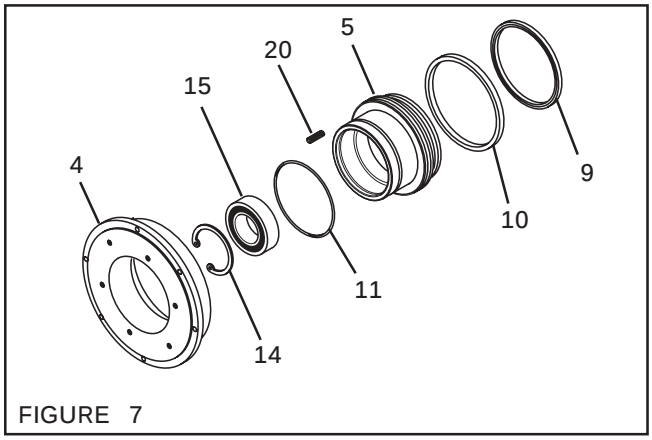


FIGURE 7

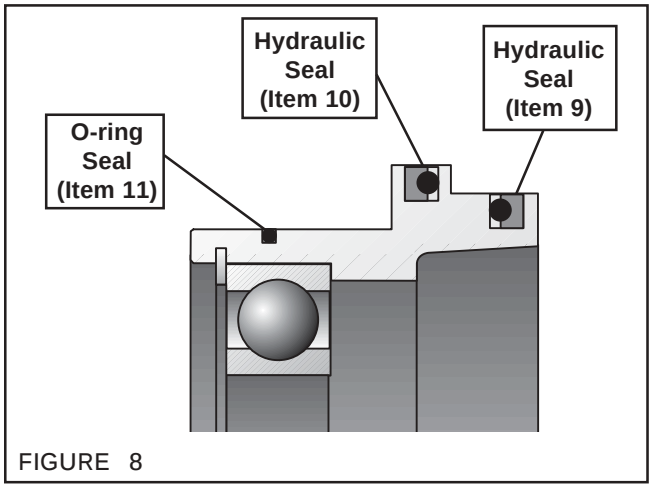


FIGURE 8

16. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Bearing (Item 15) (See Figure 7).

17. Carefully align the outer race of the new Bearing (Item 15) with the bore of the Piston (Item 5) and press the new Bearing into place (See Figure 7).

18. Reinstall the Retaining Ring (Item 14) (See Figure 7).

19. Remove the old O-ring Seal (Item 11) and the two old Hydraulic Seals (Items 9 and 10) from the Piston (Item 5) (See Figure 7).

20. Lubricate the new O-ring Seal (Item 11) and the two Hydraulic Seals (Items 9 and 10) with a thin film of Lubriplate® O-ring lubricant (See Figure 7).

NOTE: The two Hydraulic Seals (Items 9 and 10) must be aligned as shown (See Figure 8).

21. Install the new O-ring Seal (Item 11) and the two new Hydraulic Seals (Items 9 and 10) (See Figure 7).

22. Reinstall the ten Springs (Item 20).

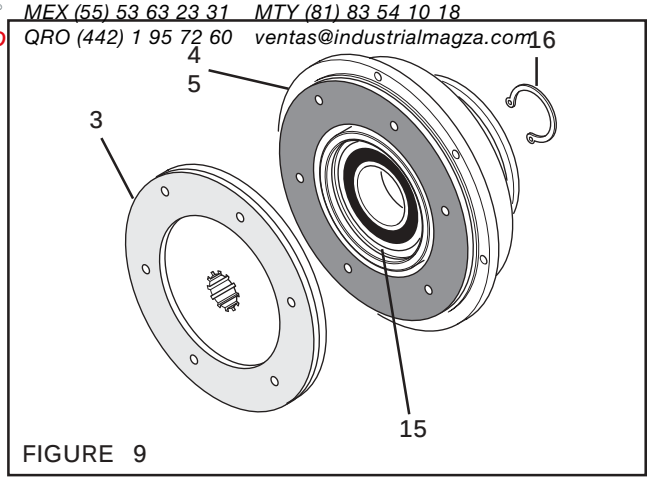


FIGURE 9

23. Slide the Piston (Item 5) and Bearing (Item 15) into the Brake Housing (Item 4) (See Figure 7).

24. Fully support the inner race of Bearing (Item 15) and press the Clutch Disc (Item 3) into the Brake Housing (Item 4) and Piston (Item 5) (See Figure 9).

25. Reinstall the Retaining Ring (Item 16) onto the Clutch Disc (Item 3) (See Figure 9).

CYLINDER HOUSING

1. Remove the six Socket Head Cap Screws (Item 30) and Flat Washers (Item 31); then, slide the Bearing Housing (Item 29) out of the Cylinder Housing (Item 6) (See Figure 10).

⚠ 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.

2. Remove the Retaining Ring (Item 25) from the Shaft (Item 7) (See Figure 10).

3. Press the Shaft (Item 7) out of the old Bearing (Item 23) and Bearing Housing (Item 29) (See Figure 10).

4. Remove the Retaining Ring (Item 24) from the Bearing Housing (Item 29); then, remove the old Bearing (Item 23) from the Bearing Housing (Item 29) (See Figure 10).

5. Clean the bearing bore of the Bearing Housing (Item 29) with fresh safety solvent, making sure all old Loctite® residue has been removed.

⚠ WARNING
Do not touch heated parts with bare hands. Use insulated gloves or tongs to handle heated parts.

6. Heat the Bearing Housing (Item 29) to 200° F [93.2° C]; then, apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Bearing (Item 23) (See Figure 10).

7. Carefully align the outer race of the new Bearing (Item 23) and with the bore of the Bearing Housing (Item 29) and press the new Bearing into place (See Figure 10).

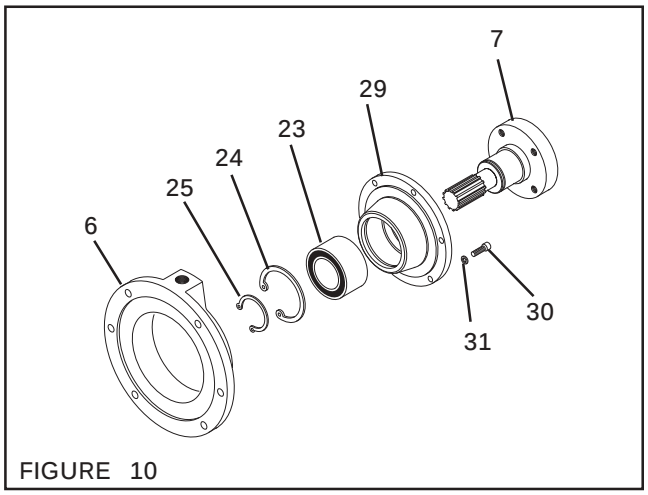


FIGURE 10

8. Reinstall the Retaining Ring (Item 24) to secure the new Bearing (Item 23) into the Bearing Housing (Item 29) (See Figure 10).

9. Fully support the inner race of the new Bearing (Item 23) installed in the Bearing Housing (Item 29) and press the Shaft (Item 7) into the new Bearing (See Figure 10).

10. Reinstall the Retaining Ring (Item 25) to secure the Shaft (Item 7) to the Bearing (Item 23) and Bearing Housing (Item 29) (See Figure 10).

11. Slide the Bearing Housing (Item 29) back into the Cylinder Housing (Item 6) (See Figure 10).

12. Apply a drop of Loctite® 242 to the threads of the six Socket Head Cap Screws (Item 30); then, reinstall the six Screws and Flat Washers (Item 31) (See Figure 10).

13. Alternately and evenly tighten the six Socket Head Cap Screws (Item 30) to 80 In. Lbs. [9 Nm] torque (See Figure 10).

1. Lubricate the new O-ring Seal (Item 18) with Lubriplate® O-ring lubricant (See Figure 11).

2. Press the new O-ring Seal into the seal groove in the Brake Housing (Item 4) (See Figure 11).

3. Slide the Cylinder Housing (Item 6), Bearing Housing (Item 29), and Shaft (Item 7) onto the Brake Housing (Item 4) and Clutch Disc (Item 3) (See Figure 11).

4. Apply a drop of Loctite® 242 to the threads of the ten Socket Head Cap Screws (Item 22) (See Figure 11).

5. Reinstall and tighten the ten Socket Head Cap Screws (Item 22) and Flat Washers (Item 28) to 143 In. Lbs. [16.02 N•m] torque.

6. Slide the assembled Brake Housing (Item 4) and Cylinder Housing (Item 6) onto the Housing (Item 1) (See Figure 12).

7. Apply a drop of Loctite® 242 to the threads of the twelve Socket Head Cap Screws (Item 21) (See Figure 12).

8. Reinstall and tighten the twelve Socket Head Cap Screws (Item 21) and Flat Washers (Item 27) to 45 In. Lbs. [5.04 N•m] torque.

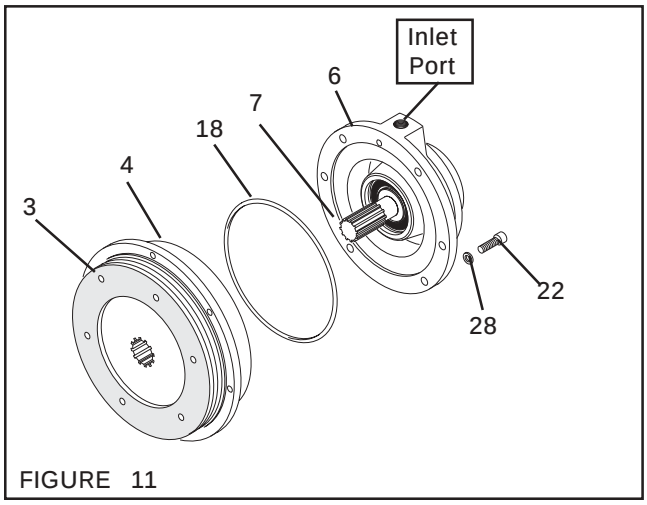


FIGURE 11

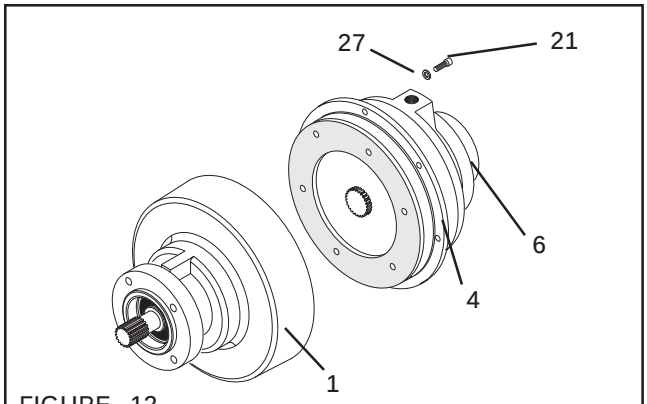


FIGURE 12

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.

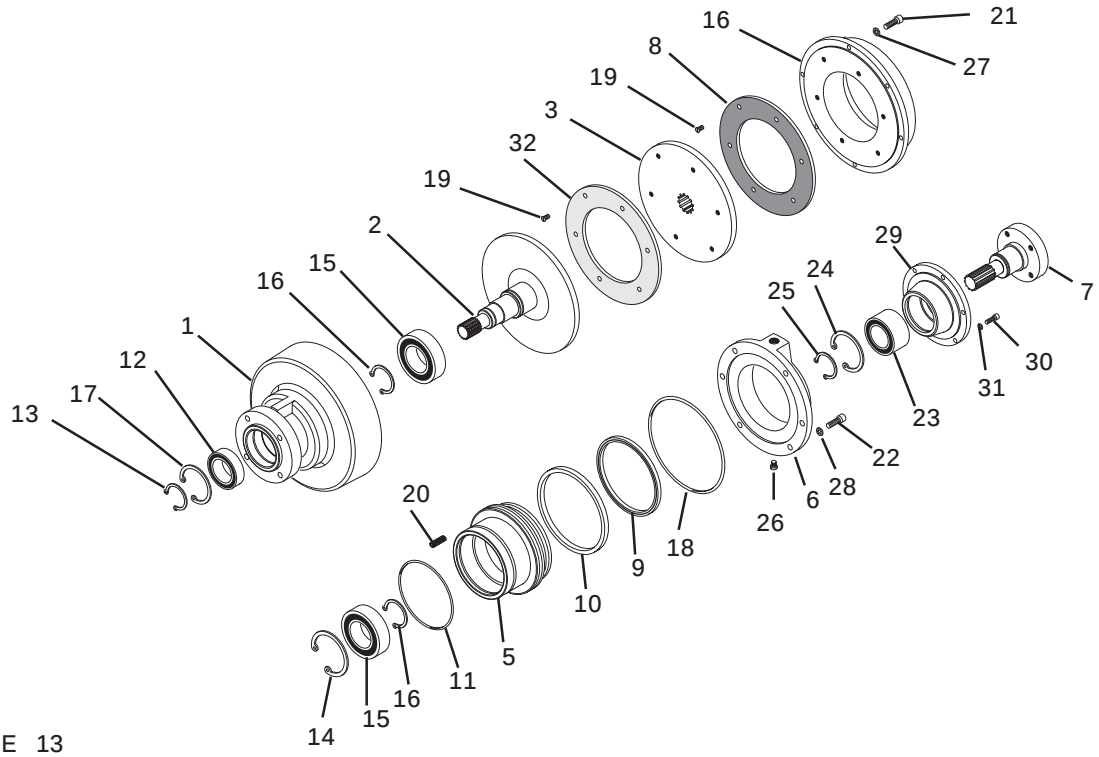


FIGURE 13

ITEM	DESCRIPTION	QTY
1	Housing	1
2	Drive Disc	1
3	Clutch Disc	1
4	Brake Housing	1
5	Piston	1
6	Cylinder Housing	1
7	Shaft	1
8[1]	Brake Friction Facing	1
9[1]	Hydraulic Seal	1
10[1]	Hydraulic Seal	1
11[1]	O-ring Seal	1
12[1]	Bearing	1
13	Retaining Ring	11
14	Retaining Ring	1
15[1]	Bearing	2
16	Retaining Ring	2

ITEM	DESCRIPTION	QTY
17	Retaining Ring	1
18[1]	O-Ring	1
19[1]	Brass Machine Screw	12
20	Spring	10
21	Socket Head Cap Screw	12
22	Socket Head Cap Screw	10
23[1]	Bearing	1
24	Retaining Ring	1
25	Retaining Ring	1
26	Plug	2
27	Flat Washer	12
28	Flat Washer	10
29	Bearing Housing	1
30	Socket Head Cap Screw	6
31	Flat Washer	6
32[1]	Clutch Friction Facing	1

[1] Denotes Rebuild Kit item.
Rebuild Kit Product No. 964226.

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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