FORM NO. L-20307-B-1099

nexen
formerly Horton Industrial Products
"Air Champ"®

MULTIPLE DISC CLUTCH (WET)
MODEL 4HW
INSTALLATION, OPERATION, AND MAINTENANCE INSTRUCTIONS

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.

CONTENTS

INSTALLATION

NOTE

Nexen Model 4HW clutches have been designed to operate as a wet or oil lubricated clutch. For optimum facing life and torque output, the clutch facings must have an oil film on them. Nexen recommends operating 4HW Clutches in a clean oil mist or clean oil splash environment. Contact Nexen Technical Services for applications which require total submersion of 4HW Clutches.

Nexen does not recommend dry (unlubricated) operation of 4HW Clutches. If dry operation is desired, a standard Nexen 4H/4HP Clutch should be used.

1. Secure a sheave or flywheel to the Driving Shell (Item 17) of the Multiple Disc Clutch (See Figure 1).
2. Insert the customer supplied key into the machine shaft (See Figure 1).
3. Slide the Multiple Disc Clutch onto the machine shaft (See Figure 1).
4. Install and tighten the four Set Screws (Item 18) securing the Multiple Disc Clutch to the machine shaft (See Figure 1).
5. Lightly lubricate the friction interfaces with the same lubricant intended for use during operation.

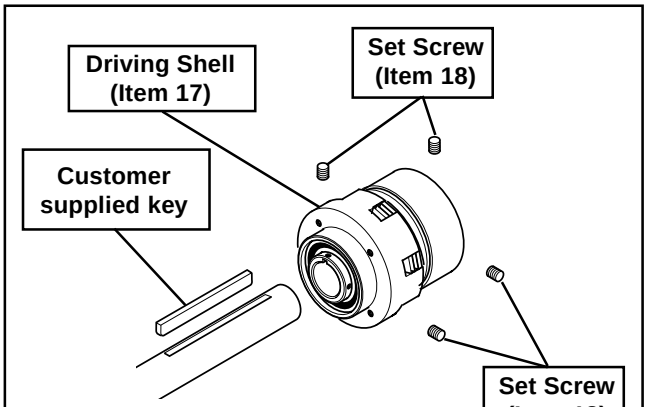

FIGURE 1

AIR CONNECTIONS

For quick response, locate the control valve ideally one foot or closer to the Multiple Disc Clutch. Nexen recommends air controls having 1/8" ports along with a quick exhaust valve to ensure rapid disengagement where long air lines are required.

Align the air inlet to the six o'clock down position to allow condensation in the air chamber to drain out of the exhaust port.

To prevent air line breakage, rest the air line against a support mounted parallel to the Multiple Disc Clutch.

NOTE

Rigid pipe or tubing when connected directly to the Multiple Disc Clutch will prevent proper actuation of the Multiple Disc Clutch. Use only flexible hose or tubing when making air line connections.

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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 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.

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 clockwise 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 counterclockwise until closed.
7. Turn the Lubricator Adjustment Knob clockwise one-third turn.
8. Open the air line to the unit.

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	SOLUTION
Failure to engage.	Worn Facing Assemblies.	Replace Facing Assemblies.
	Air not getting to the Multiple Disc Clutch.	Check for a control valve malfunction or low air pressure and replace the control valve if necessary.
	Air leaks around the O-ring Seals.	Replace the O-ring Seals.
Failure to disengage.	Broken or weak Waved Springs.	Replace the Waved Springs.
Excessive drag.	Defective Ball Bearings.	Replace the Ball Bearings.

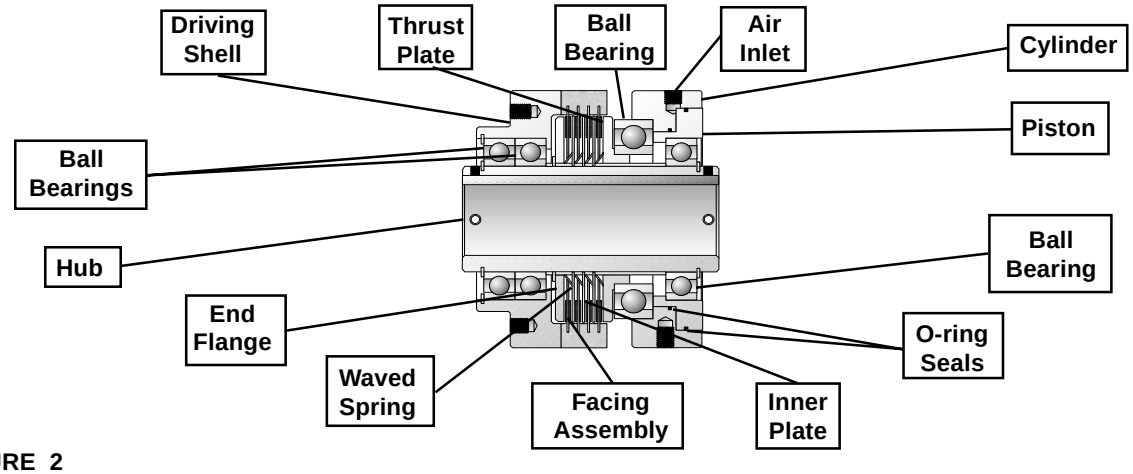

FIGURE 2

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PARTS REPLACEMENT

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 13) (See Figure 3).
2. Press the Driving Shell (Item 17) off the Multiple Disc Clutch (See Figure 3).
3. Remove the Retaining Ring (Item 12) from the Hub (Item 1) (See Figure 3).
4. Slide the End Flange (Item 8), Waved Springs (Item 7), Facing Assemblies (Item 5), and Inner Plates (Item 6) off the Hub (Item 1) (See Figure 3).
5. Remove the Retaining Ring (Item 13) (See Figure 4).
6. Press the Hub (Item 1) out of the Ball Bearing (Item 11) and Thrust Plate (Item 4) (See Figure 4).
7. Separate the Piston (Item 3) and Ball Bearing (Item 11) from the Cylinder (Item 2) and Ball Bearing (Item 10) (See Figure 4).
8. Remove and discard the old O-ring Seals (Items 14 and 15) (See Figure 4).
9. Press the old Ball Bearing (Item 10) and Thrust Plate (Item 4) out of the Cylinder (Item 2) (See Figure 4).
10. Clean the threads of the three access holes and thread three customer supplied 1/4-20 UNF x 1.00" socket head cap screws into the three access holes in the Thrust Plate (Item 4); then, alternately and evenly tighten the three socket head cap screws to press the Thrust Plate (Item 4) out of the Ball Bearing (Item 10) (See Figure 5).
11. Press the old Ball Bearing (Item 11) out of the Piston (Item 3) (See Figure 4).
12. Clean the bearing bore of the Piston (Item 3) and Cylinder (Item 2) with fresh safety solvent, making sure all old Loctite® residue is removed (See Figure 4).
13. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Ball Bearings (Items 10 and 11) (See Figure 4).
14. Press the new Ball Bearing (Item 10) into the Cylinder (Item 2) and the new Ball Bearing (Item 11) into the Piston (Item 3) (See Figure 4).
15. Press the Thrust Plate (Item 4) into the Ball Bearing (Item 10) and Cylinder (Item 2) (See Figure 4).
16. Coat the new O-ring Seals (Items 14 and 15) and the o-ring contact surfaces of the Piston (Item 3) and Cylinder (Item 2) with a thin film of o-ring lubricant; then, install the new O-ring Seals into the Cylinder and Piston (See Figure 4).
17. Slide the Piston (Item 3) into the Cylinder (Item 2) (See Figure 4).

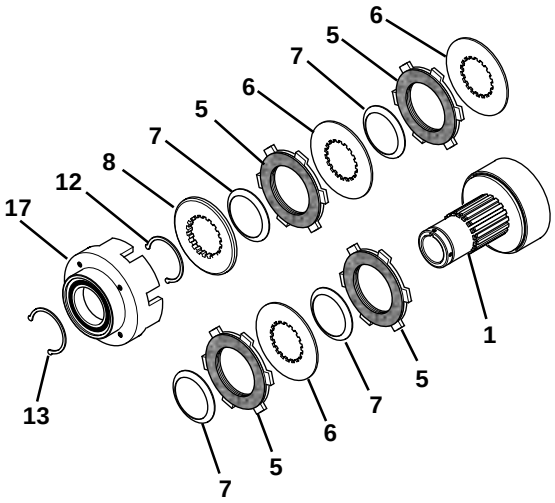

FIGURE 3

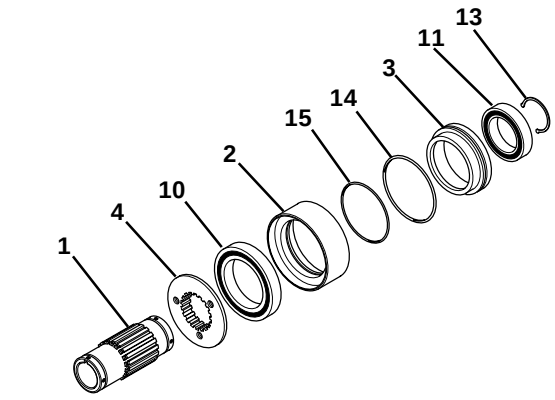

FIGURE 4

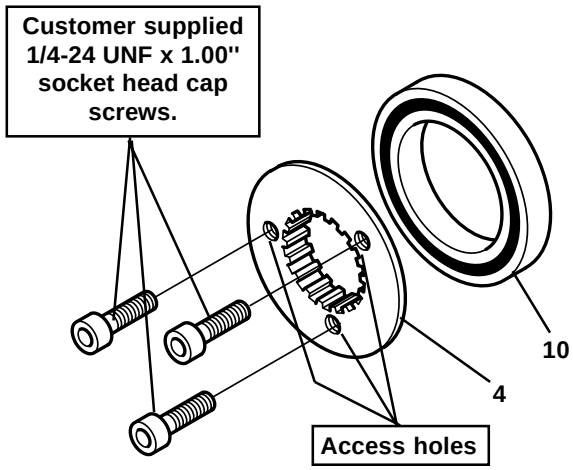

FIGURE 5

18. Press the Hub (Item 1) into the Cylinder (Item 2) and Piston (Item 3) (See Figure 4).

19. Reinstall the Retaining Ring (Item 13) (See Figure 4).

20. Slide the new Waved Springs (Item 7), Facing Assemblies (Item 5), and Inner Plates (Item 6) onto the Hub (Item 1) (See Figure 3).

21. Slide the End Flange (Item 8) onto the Hub (Item 1) (See Figure 3).

22. Reinstall the Retaining Ring (Item 12) (See Figure 3).

23. Remove the Retaining Ring (Item 19) (See Figure 6).

24. Press the old Ball Bearings (Item 11) out of the Driving Shell (Item 17) (See Figure 6).

25. Clean the bearing bore of the Driving Shell (Item 17) with fresh safety solvent, making sure all old Loctite® residue is removed (See Figure 6).

26. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Ball Bearings (Item 11) (See Figure 6).

27. Press the new Ball Bearings (Item 11) into the Driving Shell (Item 17) (See Figure 6).

28. Reinstall the Retaining Ring (Item 19) (See Figure 6).

29. Press the Driving Shell (Item 17) onto the Multiple Disc Clutch (See Figure 3).

30. Reinstall the Retaining Ring (Item 13) (See Figure 3).

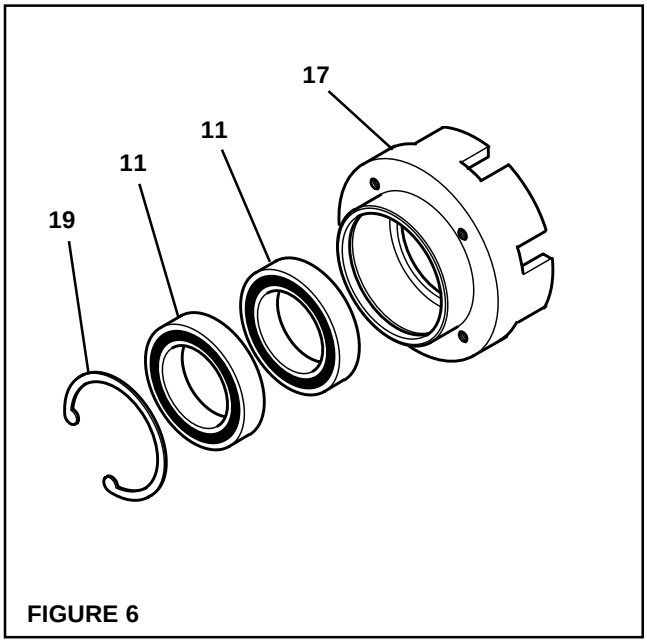

FIGURE 6

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

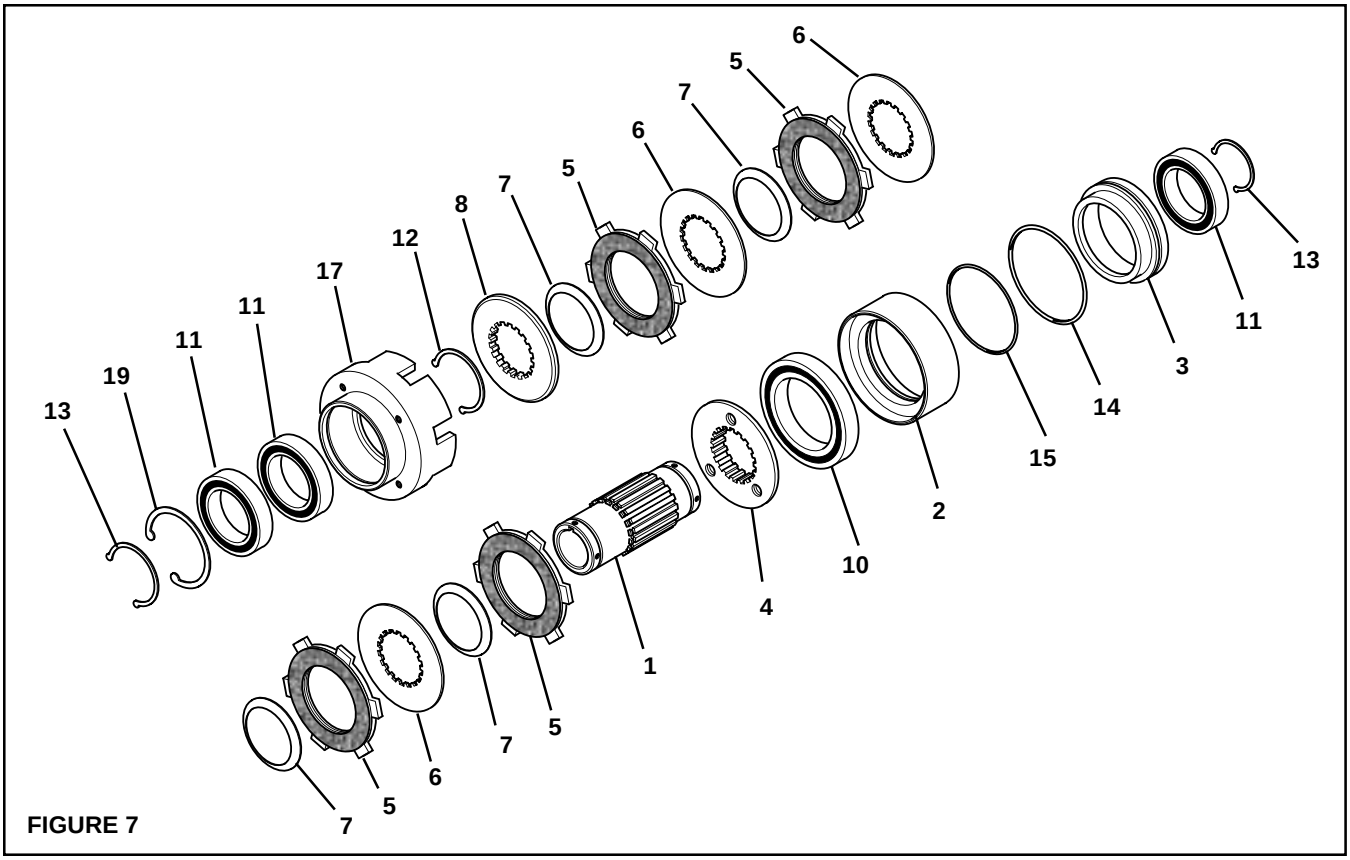

FIGURE 7

ITEM	DESCRIPTION	QTY
1	Hub	1
2	Cylinder	1
3	Piston	1
4[1]	Thrust Plate	1
5[1,2]	Facing Assembly	4
6[1,2]	Inner Plate	3
7[1,2]	Waved Spring	4
8	End Flange	1
10[1]	Ball Bearing	1

ITEM	DESCRIPTION	QTY
11[1]	Ball Bearing	3
12[1]	Retaining Ring (Ext.)	1
13[1]	Retaining Ring (Int.)	2
14[1]	O-ring Seal (Large)	1
15[1]	O-ring Seal (Small)	1
16	Air Line (Not Shown)	1
17	Driving Shell	1
18	Set Screw (Not Shown)	4
19[1]	Retaining Ring (Int.)	1

[1] Denotes Repair Kit items. Repair Kit No. 923806.
[2] Denotes Disc Pack Kit items. Disc Pack Kit No. 923808.

WARRANTY

Nexen Group, Inc. (Nexen) warrants its product(s) [the Product(s)] will be free from defects in materials and workmanship under normal use and service conditions for a period of 12 months from the date of shipment. NO OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY, OR OF FITNESS FOR A PARTICULAR PURPOSE, ARE GIVEN, AND ALL SUCH OTHER WARRANTIES ARE HEREBY EXPRESSLY DISCLAIMED.

Conditions
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) the claimant has complied with the warranty claim procedures set out below in Warranty Claim Procedures.

Exclusive Remedy
The sole and exclusive remedy for a breach of this warrant shall be, at Nexen's sole election, repair or replacement with new, serviceably used or reconditioned Product, or issuance of a credit in the amount of the current Nexen discounted price for the Product.

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 Nexen and deliver the Product to Nexen within one year of the date on which the alleged defect first became apparent.

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