




Models DFC-1650 and DFC-2200



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

	<div data-bbox="625 556 917 609"> DANGER</div> <p>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, cause injury or death. Comply with all applicable codes.</p>	
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This document is the original, non-translated, version.

Conformity Declaration: In accordance with Appendix II B of CE Machinery Directive (2006/42/EC):

A Declaration of Incorporation of Partly Completed Machinery evaluation for the applicable EU directives was carried out for this product in accordance with the Machinery Directive. The declaration of incorporation is set out in writing in a separate document and can be requested if required.

This machinery is incomplete and must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the applicable provisions of the Directive.

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

ISO 9001 Certified

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GENERAL SPECIFICATIONS

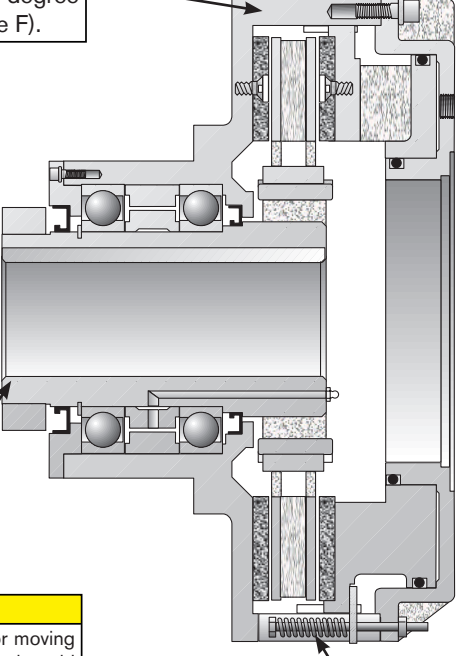
Specifications	
Torque	Up to 7547 Nm (66800 in-lbs)
Actuation Pressure	1 - 5.5 bar (14.5 - 80 psi)
Service Temperature	4.5 - 104 C (40 - 220 F)
Approximate Weight	Up to 227 kg (500 lbs)


GENERAL SAFETY PRECAUTIONS

	<p>CAUTION</p> <p>Use lifting aids and proper lifting techniques when installing, removing, or placing this product in service.</p>		<p>CAUTION</p> <p>Use appropriate guarding for moving components. Failure to guard could result in serious bodily injury.</p>
	<p>CAUTION</p> <p>Watch for sharp features when interacting with this product. The parts have complex shapes and machined edges.</p>		<p>CAUTION</p> <p>This product has possible pinch points. Care should be taken when interacting with this product.</p>
	<p>WARNING</p> <p>Ensure proper guarding of the product is used. Nexen recommends the machine builder design guarding in compliance with OSHA 29 CFR 1910 "Occupational Safety and Health Hazards".</p>		<p>WARNING</p> <p>This product is capable of emitting a spark if misused, therefore it is not recommended for use in any explosive environment.</p>


 **CAUTION**

The temperature limits for the product are 4.5-104 degree Celsius (40-220 degree F).



 **CAUTION**

This product has possible pinch points. Care should be taken when interacting with this product.

 **CAUTION**

Use appropriate guarding for moving components. Failure to guard could result in serious bodily injury.

INSTALLATION

NOTE

The Pilot Housing has a 1/2-13 UNC tapped hole on its outside diameter. A lifting ring may be threaded into this hole to aid in the mounting/dismounting of the clutch.

Refer to Figures 1-3.

1. Apply a drop of Loctite® 242 to the threads of the eight 0.500-13 x 1.500" customer supplied socket head cap screws and lock washers; then, secure the sheave to the clutch.
2. Alternately and evenly tighten the eight Socket Head Cap Screws to 114 Ft. Lbs. [153.83 Nm] torque.
3. Insert the customer supplied key into the motor shaft.

NOTE

The motor shaft must be the proper size to allow installation of the clutch onto the motor shaft. The shaft bore of the clutch is machined to nominal motor shaft sizes +0.001/-0.000". Refer to Figure 3 for maximum and minimum motor shaft insertions.

4. Slide the clutch onto the motor shaft.
5. Apply a drop of Loctite® 242 to the threads of the three Set Screws (Items 24 and 33); then, insert and tighten the three Set Screws.

NOTE

Properly align sheave and tension the belts (see belt and sheave manufacturer tightening and alignment specifications).



CAUTION

Failure to align the sheaves will adversely affect clutch and motor bearing life, compromise belt wear, and cause belt squeal and vibration which leads to belts turning over and/or being thrown from the drive.

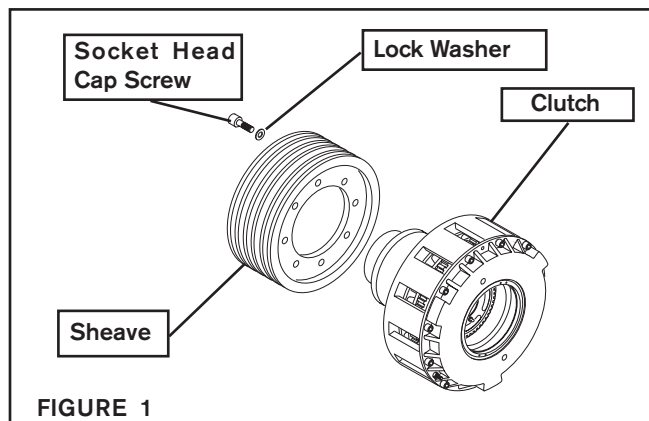


FIGURE 1

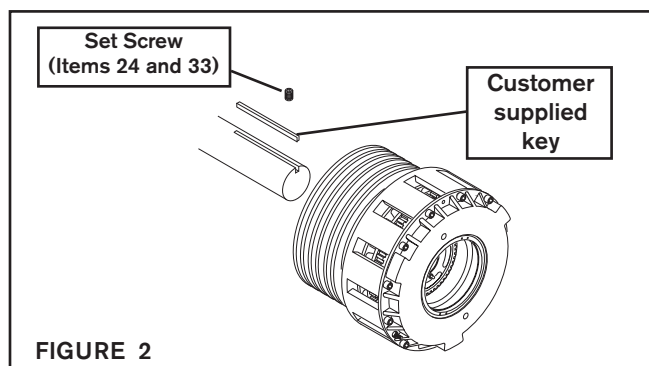


FIGURE 2

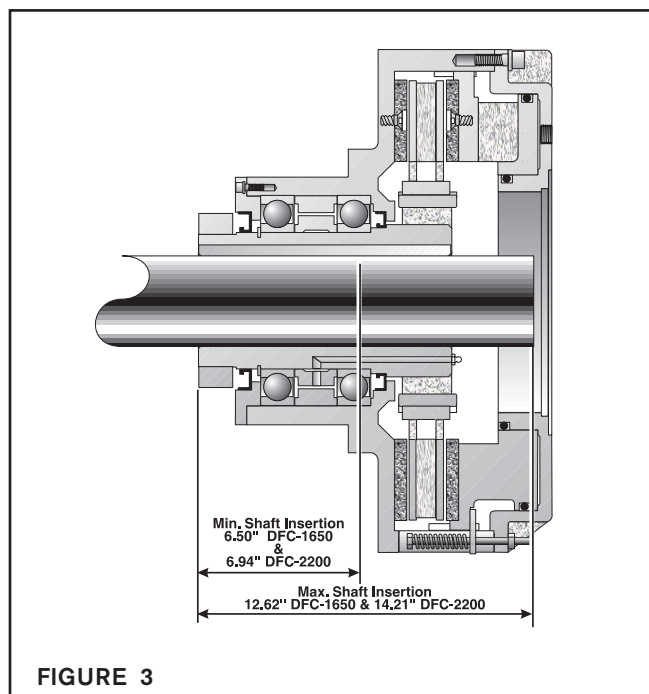


FIGURE 3

LUBRICATION

NOTE

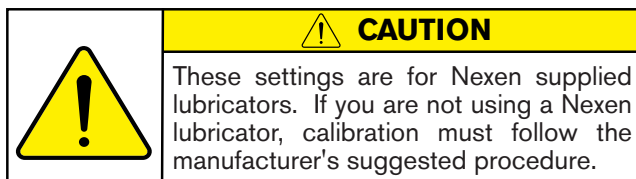
Nexen pneumatically actuated devices require clean, pressure regulated air for maximum performance and life. All seals in Nexen pneumatically operated devices are lubricated for life, and do not require additional lubrication.

However, some customers prefer to use an air line lubricator, which injects oil into the pressurized air, forcing an oil mist into the air chamber. This is acceptable, but care must be taken to ensure once an air mist lubrication system is used, it is continually used over the life of the product as the oil mist may wash free the factory installed lubrication.

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

Synthetic lubricants are not recommended.

LUBRICATOR DRIP RATE SETTINGS



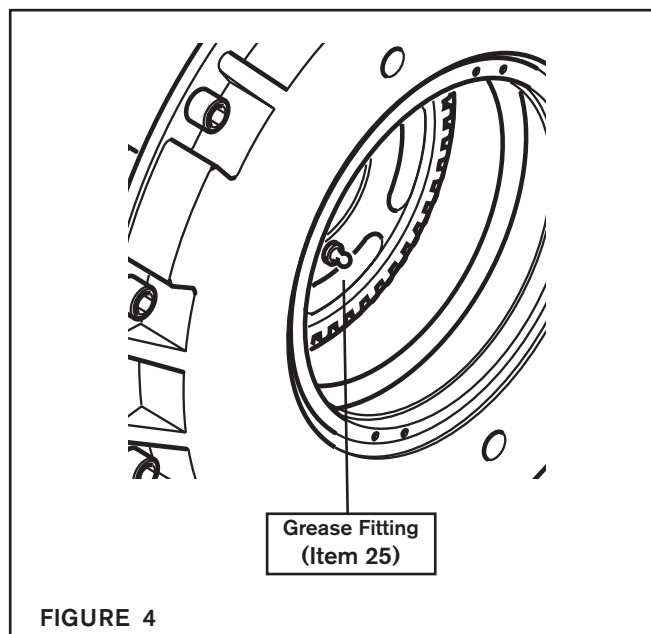
1. Close and disconnect the air line from the unit.
2. Turn the Lubricator Adjustment Knob counterclockwise three complete turns.
3. Open the air line.
4. Close the air line to the unit when a drop of oil forms in the Lubricator Sight Gage.
5. Connect the air line to the unit.
6. Turn the Lubricator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

BEARINGS

Lubricate the Bearings after every forty hours of operation by applying two to three strokes of grease with a hand grease gun (See Figure 4).

NOTE

Nexen recommends the use of Chevron SRI #2 or equivalent.



AIR CONNECTIONS

All Nexen pneumatically actuated devices require clean and dry air, which meet or exceeds ISO 8573.1:2001 Class 4.4.3 quality.

NOTE

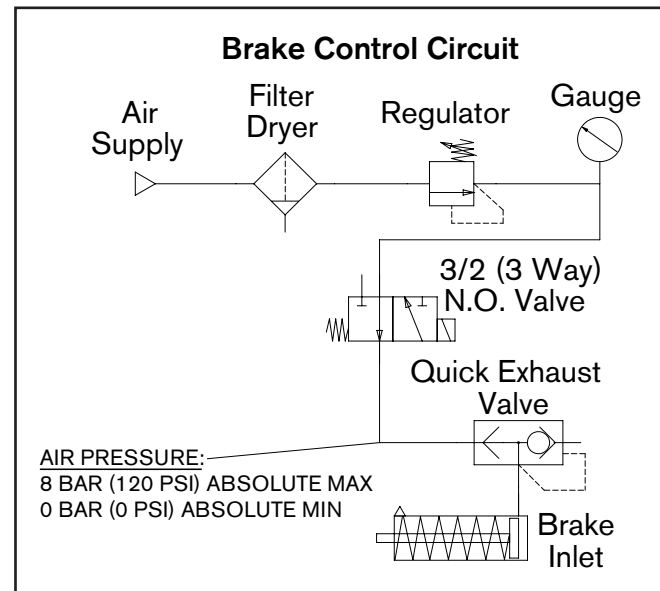
For quick response, Nexen recommends a quick exhaust valve and short air lines between the Control Valves and the product. Align the air inlet ports to a down position to allow condensation to drain out of the air chambers of the product.



CAUTION

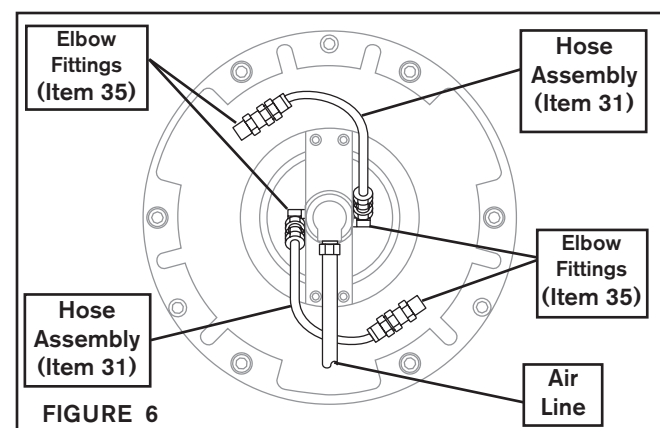
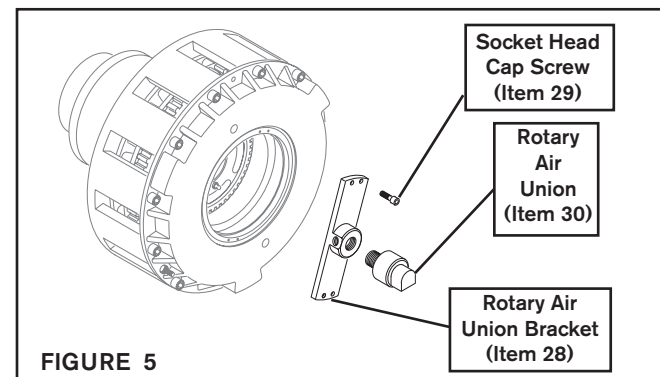
Low air pressure will cause slippage and overheating. Excessive air pressure will cause abrupt starts and stops, reducing product life.

The following is a common air supply scheme used with this product. This is an example and not an all-inclusive list. All air circuits to be used with this product must be designed following ISO 4414 guidelines.



Refer to Figures 5 & 6.

1. If the Rotary Air Union (Item 30) and Rotary Air Union Bracket (Item 28) are not assembled, apply pipe sealant to the threads of the Rotary Air Union and screw the Rotary Air Union into the Rotary Air Union Bracket.
2. Apply a drop of Loctite® 242 to the threads of the four Socket Head Cap Screws (Item 29) provided with the Rotary Air Union (Item 30) and Rotary Air Union Bracket (Item 28); then, secure the Rotary Air Union and Rotary Air Union Bracket to the clutch.
3. Tighten the four Socket Head Cap Screws (Item 29) to 5.5 Ft. Lbs. [7.45 Nm] torque.
4. Apply pipe sealant to the threads of the Elbow Fittings and install the Elbow Fittings into the Cylinder of the clutch and Rotary Air Union.
5. Connect the two Hose Assemblies (Item 31) to the four Elbow Fittings (Item 35).
6. Connect Air Line to the Rotary Air Union



OPERATION

	WARNING
	Never exceed maximum operating speeds listed for your product. (See Table 1).

	CAUTION
	Never exceed life of facing material. Facing life depends on the volume of material and the total energy over the life of the unit. Expected life (in hrs) can be found by: $\text{Time} = \text{Volume} / (\text{Power} * \text{Wear Rate})$.

	WARNING
	Ensure proper guarding of the product is used. Nexen recommends the machine builder design guarding in compliance with OSHA 29 CFR 1910 "Occupational Safety and Health Hazards".

TABLE 1

Size	Max RPM
DFC 1650	1,200
DFC 2200	900

	CAUTION
	The temperature limits for this product line are 4.5-104 Degree Celsius (40-220 Degree F).

FRICTION FACING INSPECTION

Visually inspect the Friction Facings after every forty hours of operation. Replace the friction facings when the remaining material is 5/16" thick. Use a scale to measure the thickness on the DFC-2200.

The DFC-1650 has steps in the friction facing which indicate 5/16" thickness. When the steps are no longer visible, the facings need to be replaced (See Figure 7).

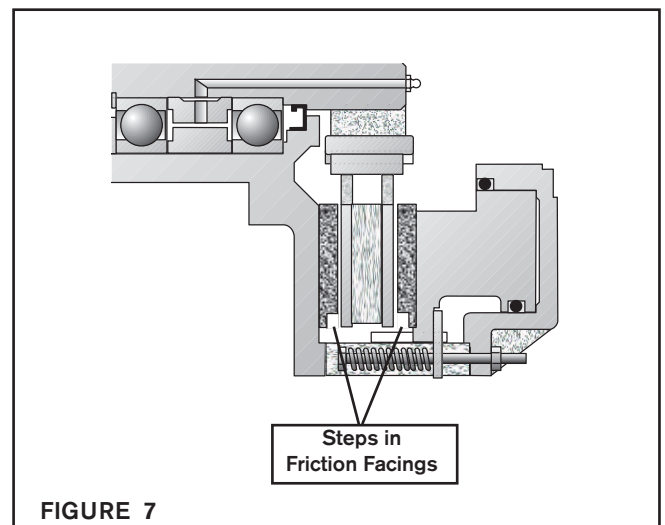


FIGURE 7

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	SOLUTION
Failure to disengage.	Unexhausted air due to a control valve malfunction.	Replace the control valve.
	Rigid piping or tubing used for air lines.	Use flexible tubing for air lines.
	Weak or broken Compression Springs.	Replace the Compression Springs.
Failure to engage.	Air not getting to clutch due to a control valve malfunction.	Replace the control valve.
	Friction lock due to a lack of lubrication in the air chamber.	Check air line lubricator.
Loss of torque.	Worn or contaminated Friction Facings.	Replace the Friction Facings.

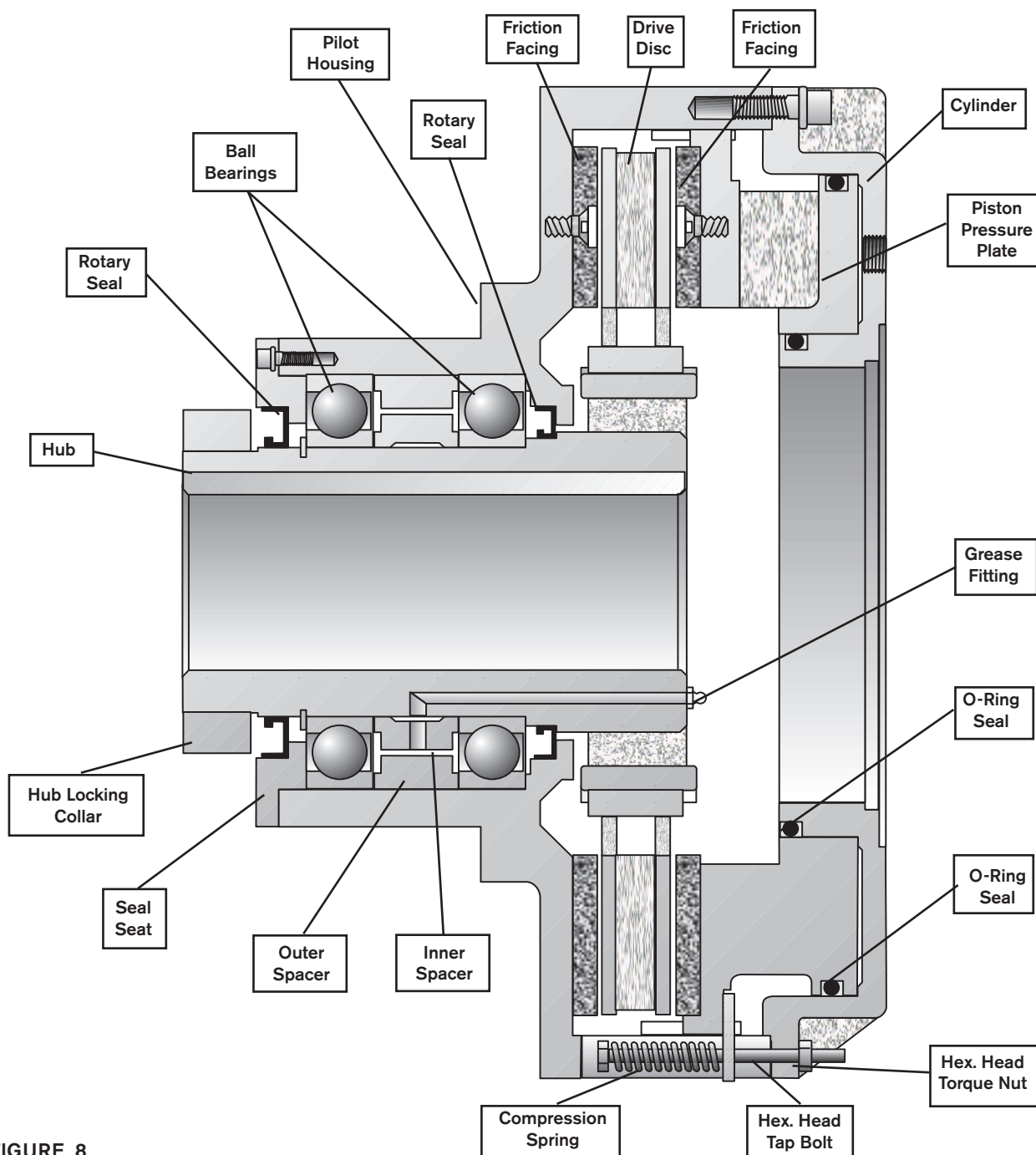


FIGURE 8

PARTS REPLACEMENT: FRICTION FACING AND O-RING SEAL REPLACEMENT

NOTE

The clutch does not have to be removed from the motor shaft to replace the Friction Facings and O-Ring Seals.

Refer to Figures 9 & 10.

1. Remove the Hex. Head Torque Nuts (Item 19).
2. Remove the twelve Socket Head Cap Screws (Item 14) and Lock Washers (Item 20).
3. Remove the Cylinder (Item 5).

NOTE

Applying low air pressure aids in the separation of the Cylinder (Item 5) from the Piston/Pressure Plate (Item 6).

4. Slide the Piston/Pressure Plate (Item 6) out of the Pilot Housing (Item 2).
5. Slide the Drive Disc (Item 4) off the Hub (Item 1).

NOTE

If the Ball Bearings (Item 12) and Rotary Seals (Items 7 and 27) are being replaced, proceed with BALL BEARING and ROTARY SEAL REPLACEMENT.

NOTE

The Flat Head Screws (Item 13) are assembled with an anaerobic thread locking compound. Inserting a properly fitting screwdriver into the head of the Flat Head Screw and striking the end of the screwdriver with a hammer will break the crystalline structure of the locking compound and allow removal of the Flat Head Screws. Never use an impact wrench to remove the Flat Head Screws.

6. Remove the old Flat Head Screws (Item 13) and the old Friction Facings (Item 3) from the Pilot Housing (Item 2).
7. Using new Flat Head Screws (Item 13), install the new Friction Facings (Item 3).
8. Tighten the new Flat Head Screws (Item 13) to 16 Ft. Lbs. [21.59 Nm] torque.
9. Slide the Drive Disc (Item 4) back onto the Hub (Item 1).
10. Remove the old Flat Head Screws (Item 13) and the old Friction Facings (Item 3) from the Piston/Pressure Plate (Item 6).

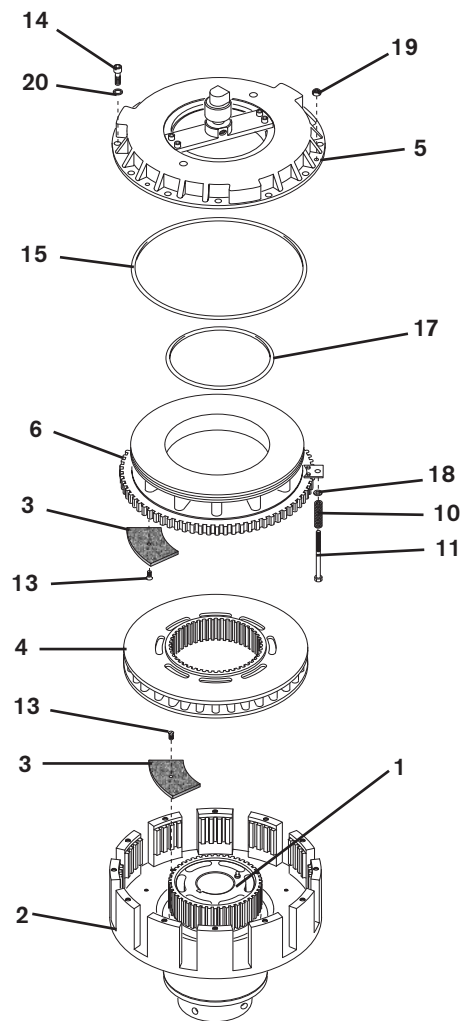


FIGURE 9

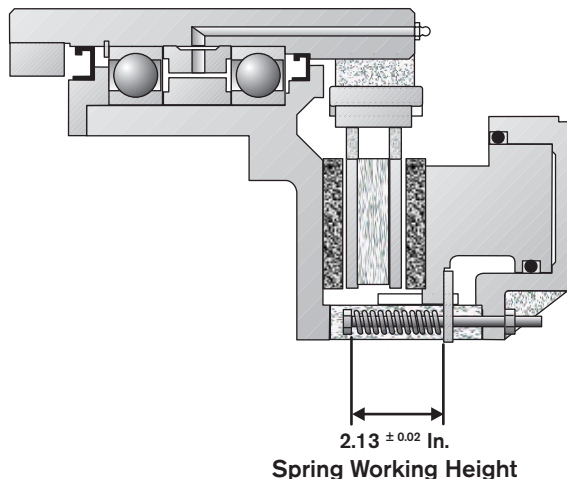


FIGURE 10

PARTS REPLACEMENT: FRICTION FACING AND O-RING SEAL REPLACEMENT (continued)

11. Using new Flat Head Screws (Item 13), install the new Friction Facings (Item 3).
12. Tighten the new Flat Head Screws (Item 13) to 16 Ft. Lbs. [21.59 Nm] torque.
13. Remove the old O-Ring Seal (Item 15) from the Piston/Pressure Plate (Item 6).
14. Coat the new O-Ring Seal (Item 15) with Parker® O-Ring lubricant and install the new O-Ring Seal on the Piston/Pressure Plate (Item 6).
15. Slide the Piston/Pressure Plate (Item 6) back into the Pilot Housing (Item 2).
16. Remove the old O-Ring Seal (Item 17) from the Cylinder (Item 5).
17. Coat the new O-Ring Seal (Item 17) with Parker® O-Ring lubricant and install the new O-Ring Seal on the Cylinder (Item 5).
18. Slide the Cylinder (Item 5) onto the Piston/Pressure Plate (Item 6) and Pilot Housing (Item 2).
19. Apply a drop of Loctite® 242 to the threads of the twelve Socket Head Cap Screws (Item 14).
20. Install the twelve Socket Head Cap Screws (Item 14) and Lock Washers (Item 20).
21. Alternately and evenly tighten the twelve Socket Head Cap Screws to 110 Ft. Lbs. [148.43 Nm] torque.
22. Install the Hex. Head Torque Nuts (Item 19).
23. Tighten the Hex. Head Torque Nuts (Item 19) until a spring working height of 2.13 In. [51.2 mm] is achieved.

PART REPLACEMENT: BALL BEARING AND ROTARY SEAL REPLACEMENT

NOTE

The clutch must be removed from the motor to replace the Ball Bearings and Rotary Seals. Two 1/2"-13 tapped holes are provided in the Hub to aid in removing the clutch from the motor shaft and lifting the Hub out of the Pilot Housing.

Refer to Figures 11 & 12.

1. Proceed with Steps 1-6 of FRICTION FACING and O-RING SEAL REPLACEMENT.
2. Remove the Socket Head Cap Screws securing the Sheave to the clutch and remove the Sheave.
3. Remove the three Set Screws (Items 24 and 33) and the Hub Locking Collar (Item 23).
4. Remove the six Socket Head Cap Screws (Item 26).
5. Remove the Seal Seat (Item 22) and the old Rotary Seal (Item 7).



CAUTION

Working with spring loaded or tension loaded fasteners and devices can cause injury. Wear safety glasses and take the appropriate safety precautions.

6. Remove the Retaining Ring (Item 21).
7. Press the Hub (Item 1) out of the Ball Bearings (Item 12) and Pilot Housing (Item 2).

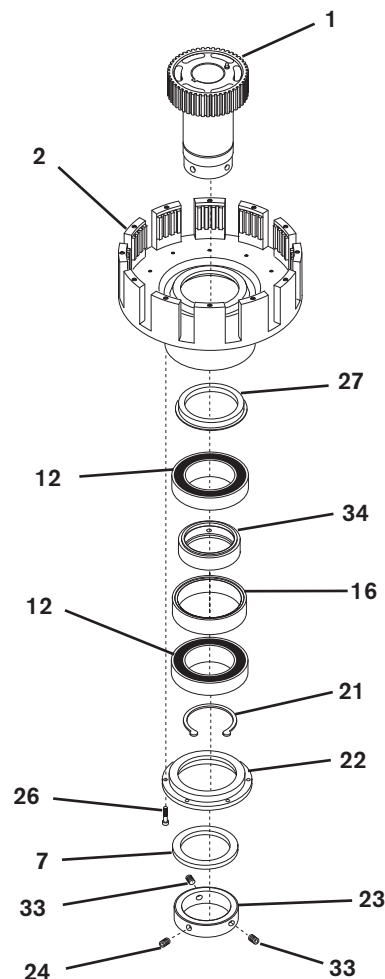


FIGURE 11

PART REPLACEMENT: BALL BEARING AND ROTARY SEAL REPLACEMENT (continued)

8. Press the two old Ball Bearings (Item 12) and Spacers (Items 16 and 34) out of the Pilot Housing (Item 2).
9. Press the old Rotary Seal (Item 27) out of the Pilot Housing (Item 2).

NOTE

The Pilot Housing bore must be $7.8740 +0.0012/-0.0000$ " for DFC 1650 and $9.0551 +0.0012/-0.0000$ " for DFC 2200. The Hub diameter must be $5.1189 +0.0000/-0.0007$ ".

10. Clean the bore of the Pilot Housing (Item 2) with fresh safety solvent, making sure all old Loctite® residue is removed; then, check the diameter of the bore of the Pilot Housing (Item 2) and the Hub (Item 1).
11. Press a new Rotary Seal (Item 27) into the Pilot Housing (Item 2).
12. Apply an adequate amount of Loctite® 680 to coat the outer race of the first new Ball Bearing (Item 12) and press it into the Pilot Housing (Item 2).
13. Reinstall the Spacers (Item 16 and 34).
14. Apply an adequate amount of Loctite® 680 to coat the outer race of the second new Ball Bearing (Item 12) and press it into the Pilot Housing (Item 2).
15. Support the inner and outer races of the Ball Bearings (Item 12) and press the Hub (Item 1) back into the Ball Bearings (Item 12) and Pilot Housing (Item 2).



CAUTION

Working with spring loaded or tension loaded fasteners and devices can cause injury. Wear safety glasses and take the appropriate safety precautions.

16. Reinstall the Retaining Ring (Item 21).
17. Reinstall the Seal Seat (Item 22).

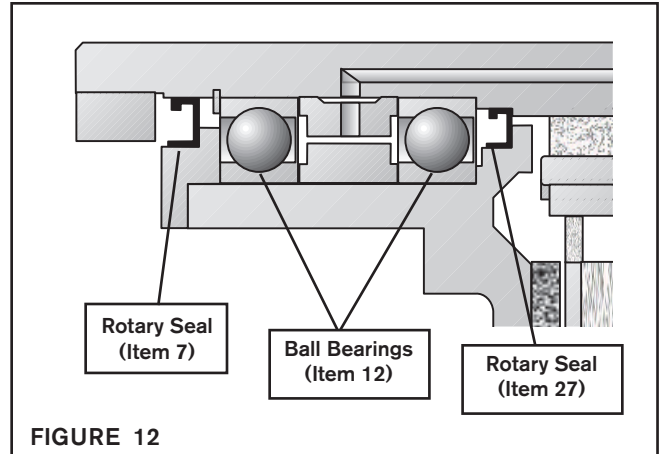


FIGURE 12

18. Apply a drop of Loctite® 242 to the threads of the Socket Head Cap Screw (Item 26); then, install the Socket Head Cap Screw (Item 26).
19. Tighten the Socket Head Cap Screw (Item 26) to 12 Ft. Lbs. [16.19 Nm] torque.
20. Press a new Rotary Seal (Item 7) into the Seal Seat (Item 22).

NOTE

Nexen recommends the use of Chevron SRI #2 or equivalent.

21. Lubricate the Ball Bearings (Item 12) until grease weeps past the Rotary Seal (Item 7).
22. Secure the Sheave to the clutch (See INSTALLATION).
23. Reinstall the Hub Locking Collar (Item 23) and Set Screws (Items 24 and 33).
24. Proceed with Steps 6-20 for FRICTION FACING and O-RING SEAL REPLACEMENT.

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.

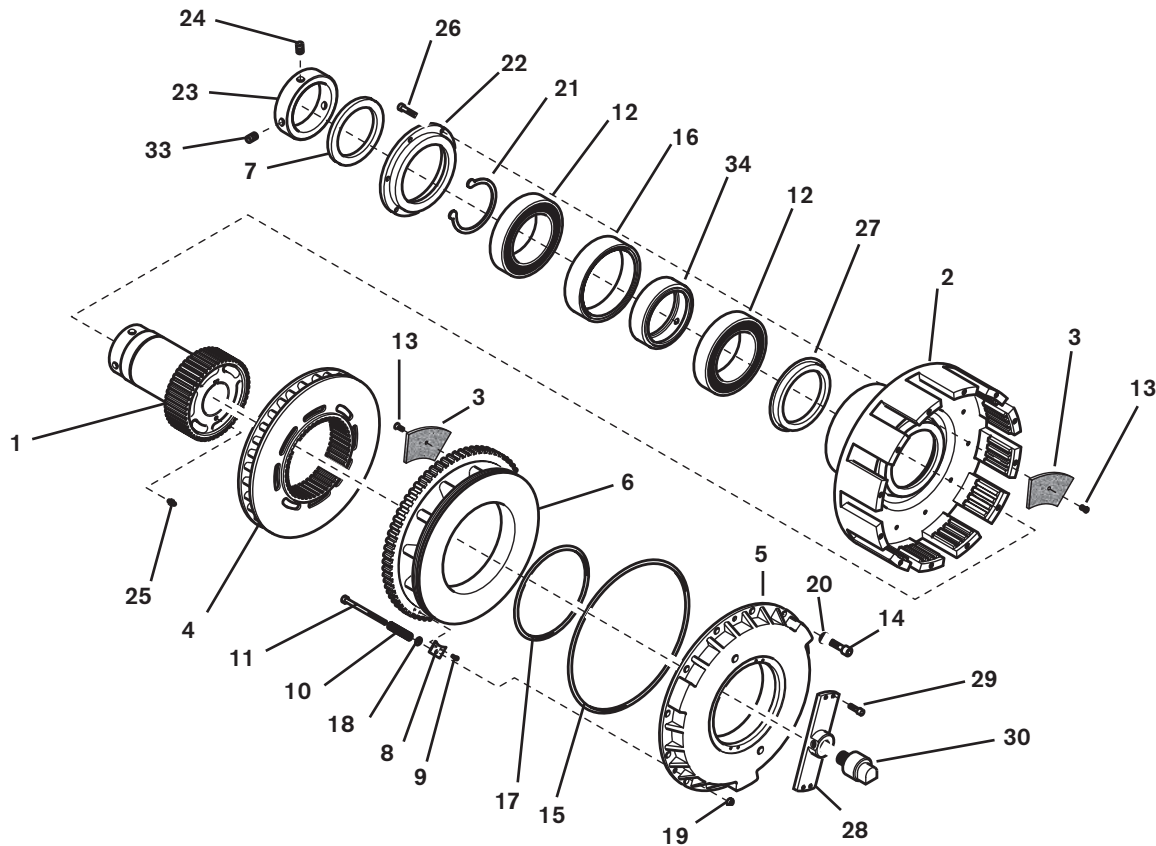


FIGURE 13
DFC-1650

ITEM	DESCRIPTION	QTY
1	Hub (3.375" Bore)	1
2	Pilot Housing	1
3 ²	Friction Facing	12
4	Drive Disc	1
5	Cylinder	1
6	Piston/Pressure Plate	1
7 ¹	Rotary Seal	1
8	Spring Retaining Bracket	3
9	Socket Head Cap Screw	6
10 ¹	Compression Spring	3
11	Hex. Head Tap Bolt	3
12 ¹	Ball Bearing	2
13 ²	Flat Head Screw	24
14	Socket Head Cap Screw	12
15 ¹	O-Ring Seal	1
16	Outer Spacer	1
17 ¹	O-Ring Seal	1

ITEM	DESCRIPTION	QTY
18	Flat Washer	3
19	Hex. Head Torque Nut	3
20	Lock Washer	12
21	Retaining Ring (Ext.)	1
22	Seal Seat	1
23	Hub Locking Collar	1
24	Set Screw	1
25	Grease Fitting	1
26	Socket Head Cap Screw	6
27 ¹	Rotary Seal	1
28	Rotary Air Union Bracket	1
29	Socket Head Cap Screw	4
30	Rotary Air Union	1
31	Hose Assembly (Not Shown)	2
33	Set Screw	2
34	Inner Spacer	1

¹ Denotes Rebuild Kit items.
DFC-1650 Rebuild Kit No. 964161.

² Denotes Facing Kit items.
DFC-1650 Facing Kit No. 964163.

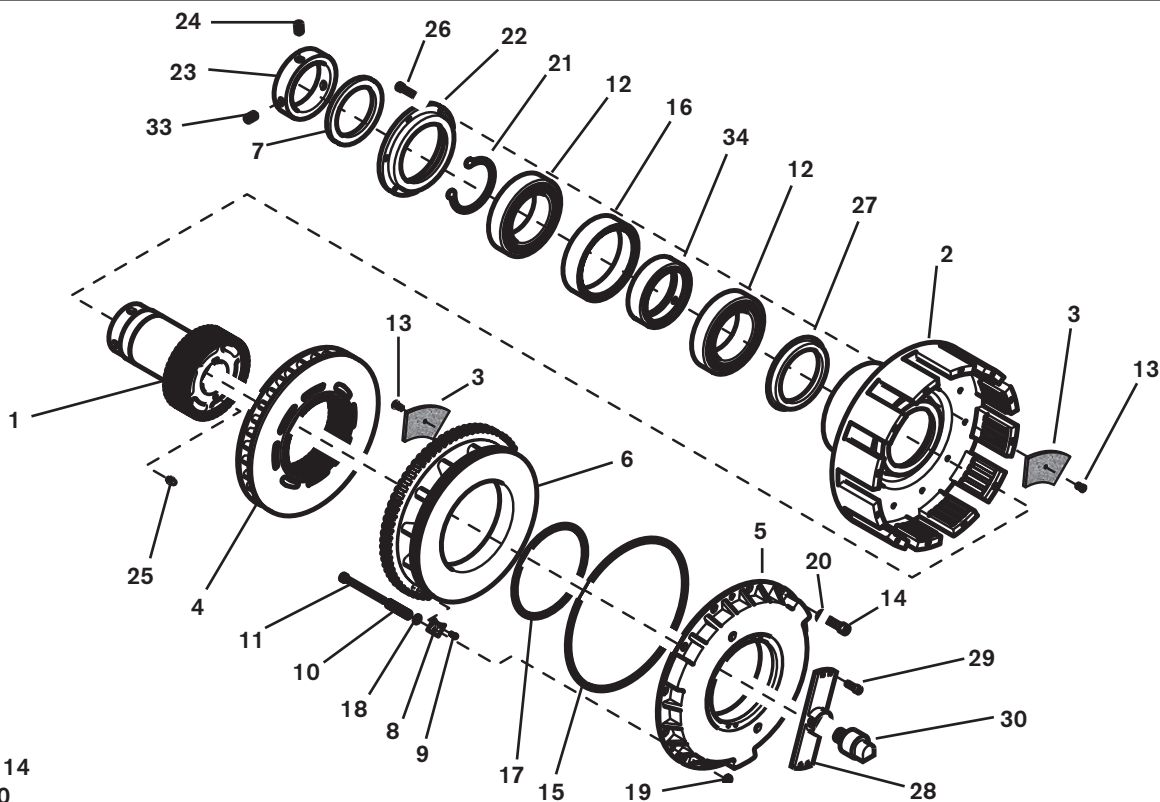


FIGURE 14
DFC-2200

ITEM	DESCRIPTION	QTY
1	Hub (3.375" Bore)	1
2	Pilot Housing	1
3 ²	Friction Facing	12
4	Drive Disc	1
5	Cylinder	1
6	Piston/Pressure Plate	1
7 ¹	Rotary Seal	1
8	Spring Retaining Bracket	6
9	Socket Head Cap Screw	12
10 ¹	Compression Spring	6
11	Hex. Head Tap Bolt	6
12 ¹	Ball Bearing	2
13 ²	Flat Head Screw	24
14	Socket Head Cap Screw	12
15 ¹	O-Ring Seal	1
16	Outer Spacer	1
17 ¹	O-Ring Seal	1

ITEM	DESCRIPTION	QTY
18	Flat Washer	6
19	Hex. Head Torque Nut	6
20	Lock Washer	12
21	Retaining Ring (Ext.)	1
22	Seal Seat	1
23	Hub Locking Collar	1
24	Set Screw	1
25	Grease Fitting	1
26	Socket Head Cap Screw	6
27 ¹	Rotary Seal	1
28	Rotary Air Union Bracket	1
29	Socket Head Cap Screw	4
30	Rotary Air Union	1
31	Hose Assembly (Not Shown)	2
33	Set Screw	2
34	Inner Spacer	1

¹ Denotes Rebuild Kit items.
DFC-2200 Rebuild Kit No. 964162.

² Denotes Facing Kit items.
DFC-2200 Facing Kit No. 964164.

WARRANTY

Warranties

Nexen warrants that the Products will (a) be free from any defects in material or workmanship for a period of 12 months from the date of shipment, and (b) will meet and perform in accordance with the specifications in any engineering drawing specifically for the Product that is in Nexen's current product catalogue, or that is accessible at the Nexen website, or that is attached to this Quotation and that specifically refers to this Quotation by its number, subject in all cases to any limitations and exclusions set out in the drawing. 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 for the Buyer for any breach of any warranties provided in connection with this agreement will be, at the election of Nexen: (a) repair or replacement with new, serviceably used, or reconditioned parts or products; or (b) issuance of credit in the amount of the purchase price paid to Nexen by the Buyer for the Products.

Agent's Authority

Buyer agrees that no agent, employee or representative of Nexen has authority to bind Nexen to any affirmation, representation, or warranty concerning the Products other than those warranties expressly set forth herein.

Limitation on 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.

Inspection

Buyer shall inspect all shipments of Products upon arrival and shall notify Nexen in writing, of any shortages or other failures to conform to these terms and conditions which are reasonably discoverable upon arrival without opening any carton or box in which the Products are contained. Such notice shall be sent within 14 days following arrival. All notifications shall be accompanied by packing slips, inspection reports and other documents necessary to support Buyer's claims. In addition to the foregoing obligations, in the event that Buyer receives Products that Buyer did not order, Buyer shall return the erroneously shipped Products to Nexen within thirty (30) days of the date of the invoice for such Products; Nexen will pay reasonable freight charges for the timely return of the erroneously shipped Products, and issue a credit to Buyer for the returned Products at the price Buyer paid for them, including any shipping expenses that Nexen charged Buyer. All shortages, overages and nonconformities not reported to Nexen as required by this section will be deemed waived.

Limitation on Actions

No action, regardless of form, arising out of any transaction to which these terms and conditions are applicable may be brought by the Buyer more than one year after the cause of action has accrued.

nexen®

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

800.843.7445
Fax: 651.286.1099
www.nexengroup.com

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