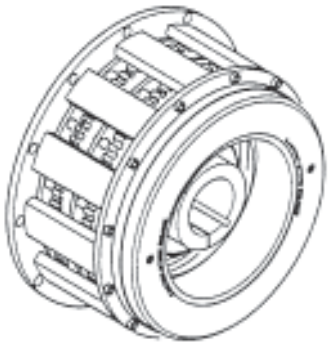
nexen®

AIR CHAMP® PRODUCTS

User Manual



Dual and Quad Faced Brakes

DFB and QFB Models 2200 and 2500

FORM NO. L-20297-C-0603

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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NOTE: Nexen's spring-engaged, air-disengaged Dual Faced Brakes (DFB) and Quad Faced Brakes (QFB) are designed for horizontal shaft mounting only.

1. Provide a piloting flange with a pilot diameter of 21.375 inches [542.9 mm] for the DFB/QFB 2200 or 24.375 inches [619 mm] for the DFB/QFB 2500.

2. Drill and tap twelve 5/8-11 holes on a bolt circle of 25.500 inches [647.7 mm] for the DFB/QFB 2200 or 28.750 inches [730.3 mm] for the DFB/QFB 2500 in the bearing supported device or machine component prior to installing either the DFB or QFB.

Note: Control perpendicularity between the shaft and housing mounting surface. Use a Deal Indicator for measurements. Perpendicularity should be less than 0.015 TIR (See Figure 1).

3. Install the customer supplied keys into the shaft.

4. Lubricate the splines of the Hub (Item 1) with Never-Seez or an equivalent high temperature, anti-seize lubricant (See Figures 2 and 3).

5. Slide Hub (Item 1) over keys and onto the shaft (See Figures 2 and 3).

Note: Axial location of the Hub is important. Refer to Figures 2 and 3 for the correct Hub location.

6. Secure the Hub (Item 1) to the machine shaft.
   a. On the DFB, use the two Set Screws (See Figure 2).
   b. On the QFB, use the two Socket Head Cap Screws and Lock Washers (See Figure 3).

7. Screw a 3/8-16 eye bolt into the top of the DFB or QFB and lift the DFB or QFB into position (See Figures 2 and 3).

8. Apply Loctite® 242 to the threads of twelve customer supplied 5/8-11 socket head cap screws and secure the DFB of QFB to the machine or mounting surface (See Figures 2 and 3).

9. Alternately and evenly tighten the twelve customer supplied socket head cap screws to 145 ft-lb [196.59 Nm] torque.

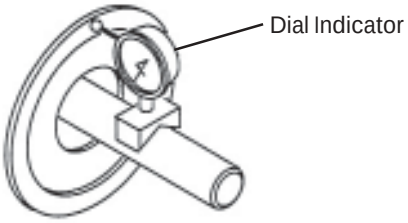

Figure 1

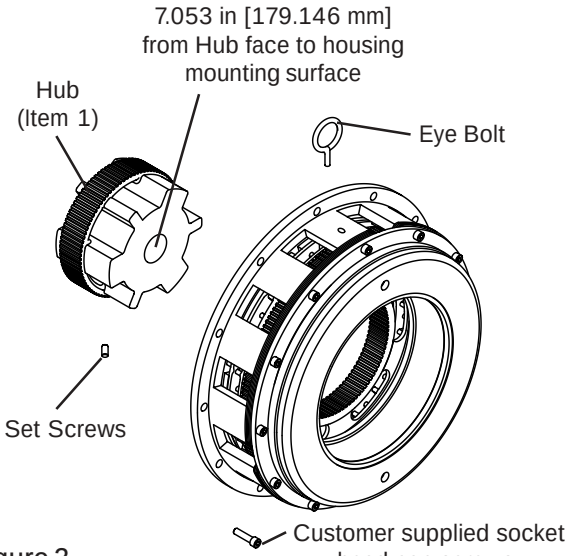

Figure 2
DFB

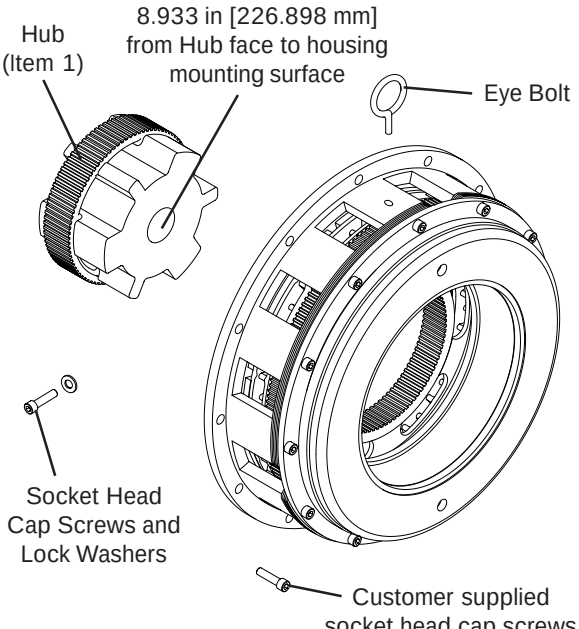

Figure 3
QFB

AIR CONNECTIONS

NOTE: For quick response, Nexen recommends a quick exhaust valve and short air lines between the Control Valves and the DFB/QFB.

CAUTION

To avoid damage and ensure proper actuation of the DFB/QFB, the Tube Assemblies (Item 21), Tube Fittings (Item 20), Tube Fitting (Item 22), and Reducer Fitting (Item 24) must be used (See Figure 4).

Note: Use flexible air line to connect from air source to Reducer Fitting (Item 24) to prevent release or engagement problems.

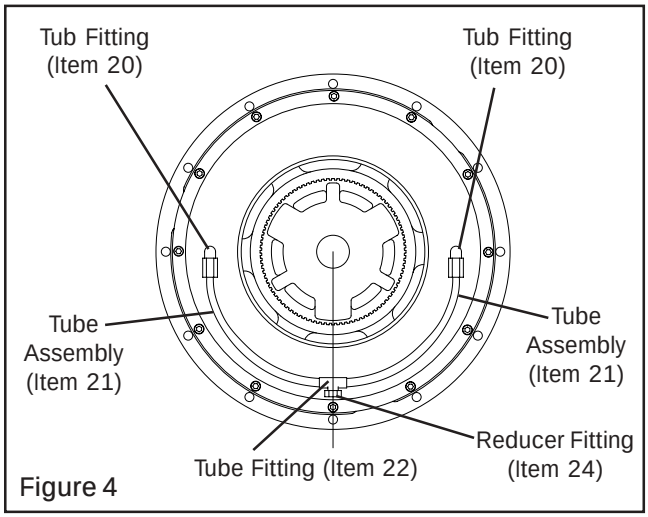

Figure 4

LUBRICATION

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 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 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	Unexhausted air due to control valve malfunction.	Replace control valve.
	Lack of lubrication on Hub spline or in air chamber.	Lubricate Hub spline and check air line lubricator
	Rigid piping or tubing.	Use flexible tubing.
	Hub not captured on shaft.	Be sure Set Screws are installed in Hub.
	Weak or broken Compression Springs.	Replace Compression Springs.
Failure to disengage	Air not getting to brake due to control valve malfunction.	Replace control valve.
	Hub not captured on shaft.	Be sure Set Screws are installed in Hub.
	Friction lock due to lack of lubrication on Hub spline or in air chamber.	Lubricate Hub spline and check air line lubricator.
Loss of torque	Weak or broken Compression Springs.	Replace Compression Springs.
	Worn or contaminated Friction Facings.	Replace Friction Facings.
	Incorrect Friction Facing wear adjustment (QFB only).	Perform Friction facing wear adjustment.

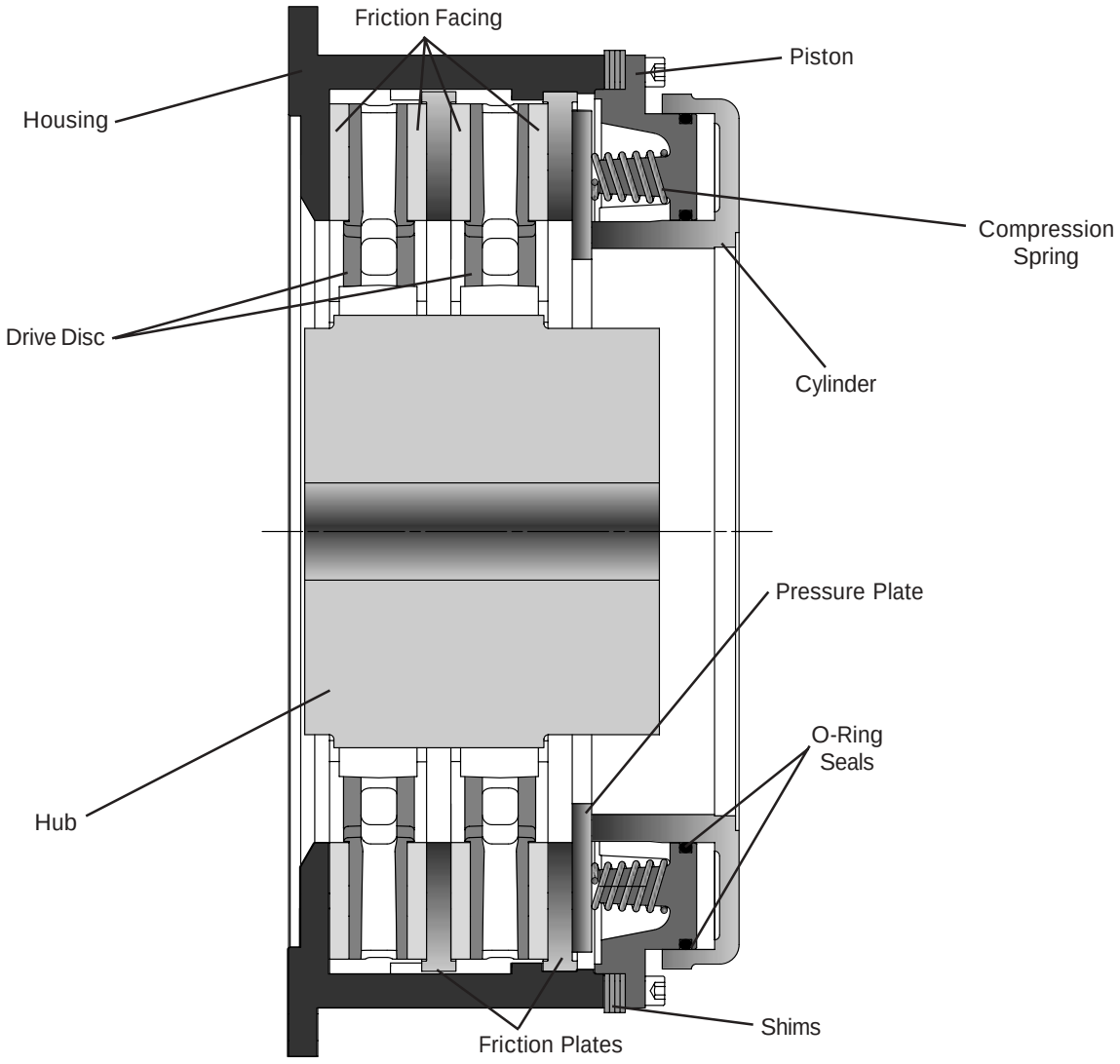

Figure 5

FRICTION FACING WEAR ADJUSTMENT

NOTE: Friction Facing wear adjustment is not required for the DFB.

NOTE: When the QFB Friction Facings are worn to the point of required adjustment, the gap between the Cylinder and Piston will close, preventing brake engagement.

1. Alternately and evenly remove the twelve Socket Head Cap Screws (Item 12) and Lock Washers (Item 15) (See Figure 6).

2. Remove the Piston (Item 6) to free the Shims (Item 16) (See Figure 6).

3. Remove one set of Shims (Item 16) (See Figure 6).

4. Measure the distance from the Shims (Item 16) to the inner face of the Friction Plate (Item 19) (See Figure 7).

NOTE: The distance between the face of the outer Shim (Item 16) and the inner face of the Friction Plate (Item 19) must be as close to 1.443" [36.652 mm] as possible (See Figure 7).

5. Repeat the previous step until the 1.443" [36.652 mm] distance is achieved (See Figures 6 and 7).

NOTE: Save the Shims (Item 16) that have been removed for use when new Friction Facings are installed.

6. Apply a drop of Loctite® 242 to the threads of the twelve Socket Head Cap Screws (Item 12) (See Figure 6).

7. Using the twelve Socket Head Cap Screws (Item 12) and Lock Washers (Item 15), secure the Piston (Item 6) to the Housing (Item 2) (See Figure 6).

8. Alternately and evenly tighten the twelve Socket Head Cap Screws (Item 12) to 89 ft-lb [120.67 Nm] torque (See Figure 6).

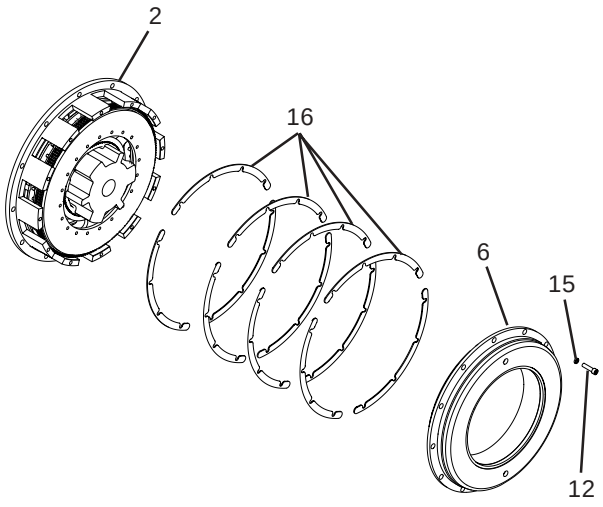

Figure 6

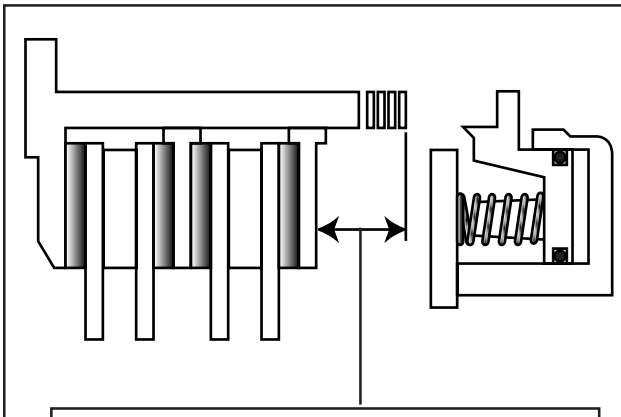
The distance between the face of the outer Shim (Item 16) and the inner face of the Friction Plate (Item 19) must be as close to 1.443 inches [36.652 mm] as possible.

Figure 7

FRICTION FACING REPLACEMENT

NOTE: Friction Facings (Item 3) must be replaced when the gap between the Cylinder (Item 5) and Piston (Item 6) is approximately 1/32" [0.794 mm] after the Friction Facing wear adjustment has been made (See Figure 8).

1. Alternately and evenly remove the twelve Socket Head Cap Screws (Item 12) and Lock Washers (Item 15) (See Figure 9).

2. Remove the Piston (Item 6) to free the Shims (Item 16) (See Figure 9).

3. Remove the Shims (Item 16) (See Figure 9).

4. Remove the Friction Plates (Item 19) and Drive Discs (Item 4) (See Figure 10 for the DFB and Figure 11 for the QFB).

NOTE: The DFB contains one Drive Disc (Item 4) and one Friction Plate (Item 19) (See Figure 10). The QFB contains two Drive Discs (Item 4) and two Friction Plates (Item 19) (See Figure 11).

5. Remove the old Flat Head Screws (Item 11) securing the old Friction Facings (Item 3) to the Friction Plates (Item 19) (See Figure 10 for the DFB and Figure 11 for the QFB).

6. Apply a drop of Loctite® 242 to the threads of the new Flat Head Screws (Item 11) and secure the new Friction Facings (Item 3) to the Friction Plates (Item 19) (See Figure 10 for the DFB and Figure 11 for the QFB).

7. Tighten the Flat Head Screws (Item 11) 60-65 in-lb [6.77-7.34 Nm] torque.

8. Remove the old Flat Head Screws (Item 11) securing the old Friction Facings (Item 3) to the Housing (Item 2) (See Figure 10 for the DFB and Figure 11 for the QFB).

9. Apply a drop of Loctite® 242 to the threads of the new Flat Head Screws (Item 11) and secure the new Friction Facings (Item 3) to the Housing (Item 2) (See Figure 10 for the DFB and Figure 11 for the QFB).

10. Tighten the new Flat Head Screws (Item 11) to 60-65 in-lb [6.77-7.34 Nm] torque.

11. Reassemble the brake, installing the Shims (Item 16) (See Figures 9, 10, and 11).

continued...

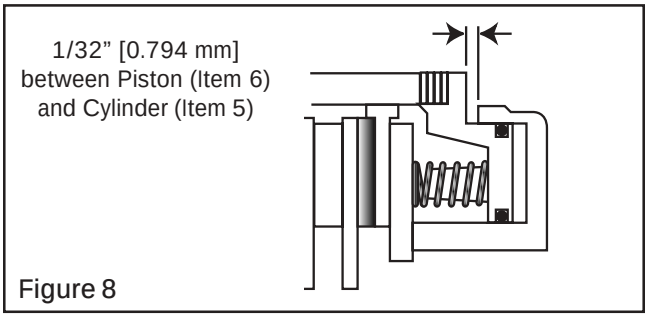

Figure 8

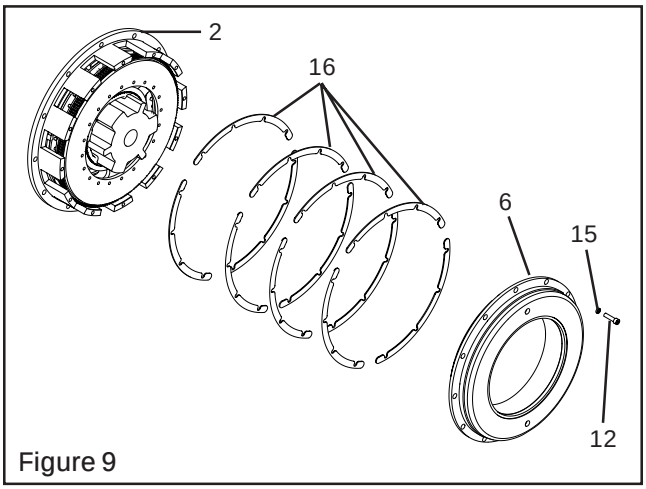

Figure 9

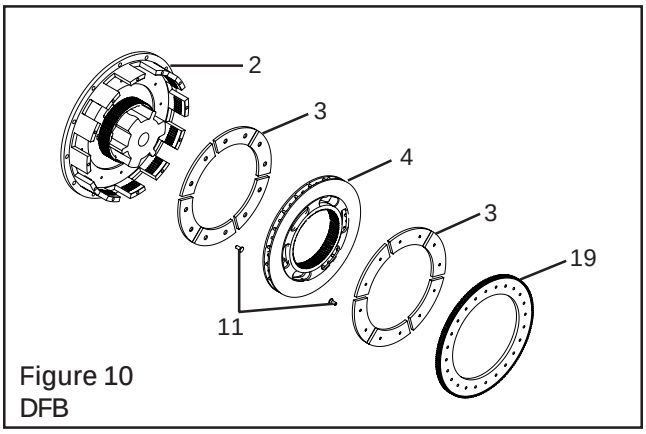

Figure 10
DFB

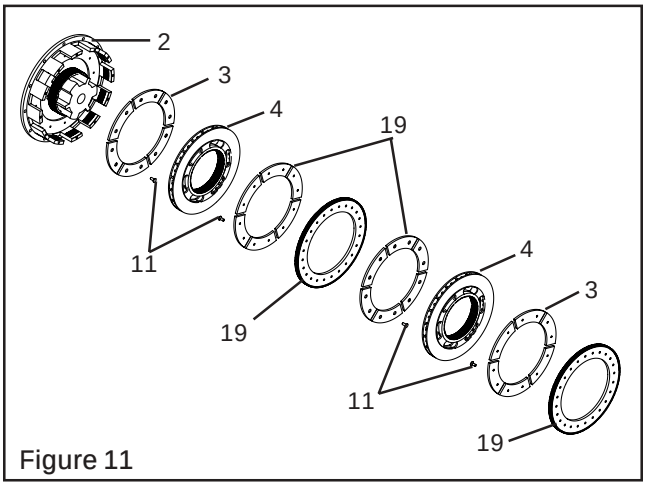

Figure 11

NOTE: Reinsert the Shims (Item 16) removed when performing Friction Facing wear adjustment (QFB only).

12. Apply a drop of Loctite® 242 to the threads of the twelve Socket Head Cap Screws (Item 12) (See Figure 9).

13. Using the twelve Socket Head Cap Screws (Item 12) and Lock Washers (Item 15), secure the Piston (Item 6) to the Housing (Item 2) (See Figure 9).

14. Alternately and evenly tighten the twelve Socket Head Cap Screws (Item 12) to 89 ft-lb [120.67 Nm] torque (See Figure 9).

O-RING SEAL REPLACEMENT

NOTE: Refer to Figure 12 for the following procedure.

1. Alternately and evenly remove the twelve Socket Head Cap Screws (Item 12), Lock Washers (Item 15), and Piston (Item 6) to free the Shims (Item 16).

2. Remove the Shims (Item 16).

3. Remove the Cylinder (Item 5), Piston (Item 6), and Pressure Plate (Item 7).

⚠ DANGER

The Pistom (Item 6) and Pressure Plate (Item 7) are spring loaded under extreme pressure. Always wear safety goggles when working with spring or tension loaded devices. Failure to follow the disassembly instructions listed below may result in serious bodily harm or death.

4. Alternately loosen the twenty Socket Head Cap Screws (Item 8) and Lock Washers (Item 10) one-half turn at a time until all spring pressure is relieved.

   Once all twenty screws are loose and spring pressure is relieved, it is possible to completely remove the scres and Pressure Plate.

5. Remove the ten Compression Springs (Item 9) from the Piston (Item 6).

6. Separate the Piston (Item 6) and Cylinder (Item 5).

7. Remove the old O-ring Seals (Items 13 and 14).

8. Lubricate O-ring contact surfaces and the new O-ring Seals (Items 13 and 14) with fresh O-ring lubricant.

9. Install the new O-ring Seals (Items 13 and 14).

10. Install the new Compression Springs (Item 9).

11. Slide the Piston (Item 6) back into the Cylinder (Item 5).

12. Apply a drop of Loctite® 242 to the threads of the twenty Socket Head Cap Screws (Item 8).

13. Using the twenty Socket Head Cap Screws (Item 8) and Lock Washers (Item 10), secure the Pressure Plate (Item 7) to the Cylinder (Item 5).

14. Alternately and evenly tighten the twenty Socket Head Cap Screws (Item 8) to 36.25 ft-lb [49.15 Nm] torque.

15. Reassemble the brake, installing the Shims (Item 16).

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

17. Using the twelve Socket Head Cap Screws (Item 12) and Lock Washers (Item 15), secure the Piston (Item 6) to the Housing (Item 2).

18. Alternately and evenly tighten the twelve Socket Head Cap Screws (Item 12) to 89 ft-lb [120.67 Nm] torque.

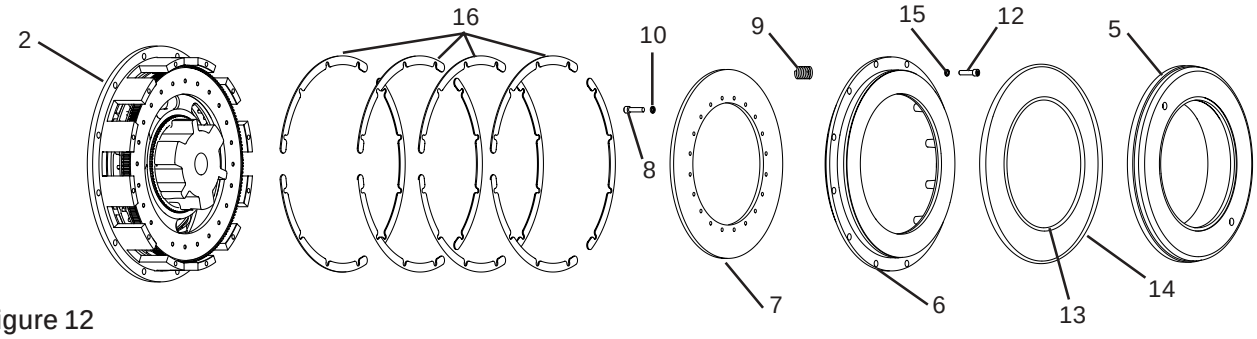

Figure 12

PARTS LIST

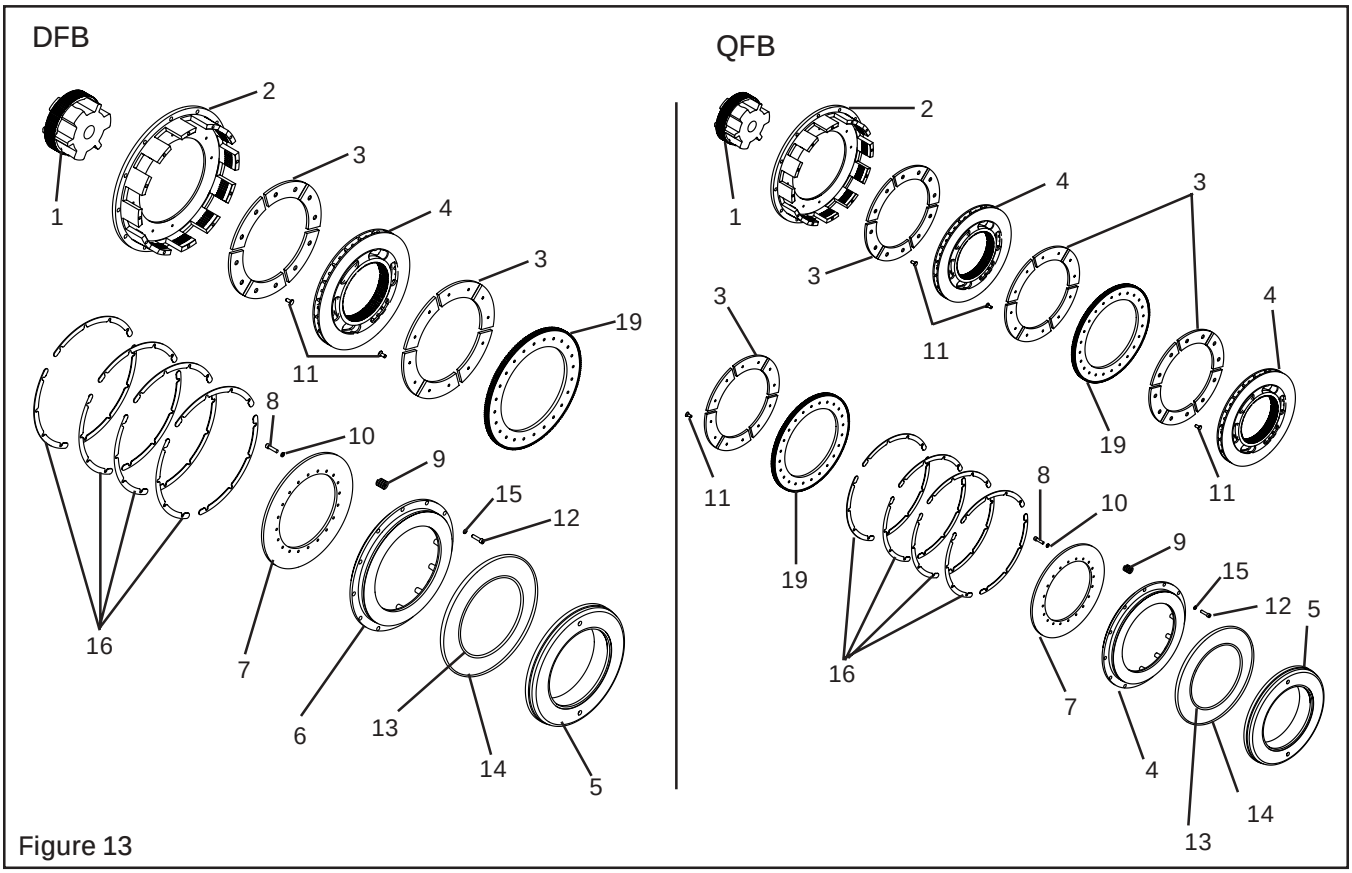

Figure 13

ITEM	DESCRIPTION	DFB Qty.	QFB Qty.
1	Hub	1	1
2	Housing	1	1
3[1]	Friction Facing	12	24
4	Drive Disc	1	2
5	Cylinder	1	1
6	Piston	1	1
7	Pressure Plate	1	1
8	Socket Head Cap Screw	20	22
9	Compression Spring	10	10
10	Lock Washer	20	20
11[1]	Flat Head Screw	24	48

ITEM	DESCRIPTION	DFB Qty.	QFB Qty.
12	Socket Head Cap Screw	12	12
13	O-ring Seal	1	1
14	O-Ring Seal	1	1
15	Lock Washer	12	12
16	Shim	12	12
19	Friction Plate	1	2
20	Tube Fitting (Not Shown)	2	2
21	Tube Assembly (Not Shown)	2	2
22	Tube Fitting (Not Shown)	1	1
24	Reducer Fitting (Not Shown)	1	1
27	Lock Washer (Not Shown)	--	2

[1] Denotes facing kit item.

COMPONENT PRODUCT NUMBERS

FRICTION FACING KITS

Model DFB / QFB	PRODUCT NUMBER	
	STD	HICO
2200	964034	964035
2500	964037	964038

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.

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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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