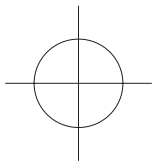
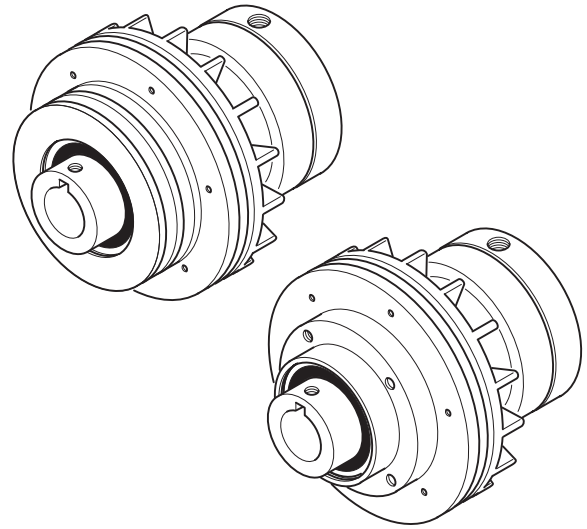


**nexen.**

# **AIR CHAMP® PRODUCTS**

User Manual



## **PILOT & SHEAVE MOUNT CLUTCHES MODELS FW, LW, MW, AND HW**




**CE**



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](http://www.nexengroup.com)

	<div data-bbox="537 558 834 611"> <b>DANGER</b></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 <b>ONLY</b>. 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.  
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Vadnais Heights, Minnesota 55127

**ISO 9001 Certified**

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## GENERAL SPECIFICATIONS


Specifications:	
Torque	Up to 316 Nm (2800 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 27.5 kg (60 lbs)

## GENERAL SAFETY PRECAUTIONS




**CAUTION**

Use lifting aids and proper lifting techniques when installing, removing, or placing this product in service.




**CAUTION**

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




**CAUTION**

Watch for sharp features when interacting with this product. The parts have complex shapes and machined edges.




**WARNING**

This product is capable of emitting a spark if misused therefore is not recommended for use in any explosive environment.



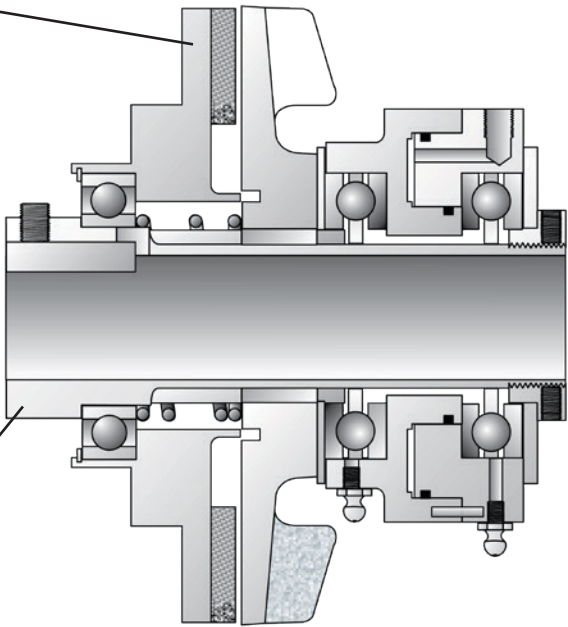
**WARNING**


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".



**CAUTION**

The temperature limits for the product are 4.5-100 degree Celsius (40-220 degree F).





**CAUTION**

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

## INSTALLATION

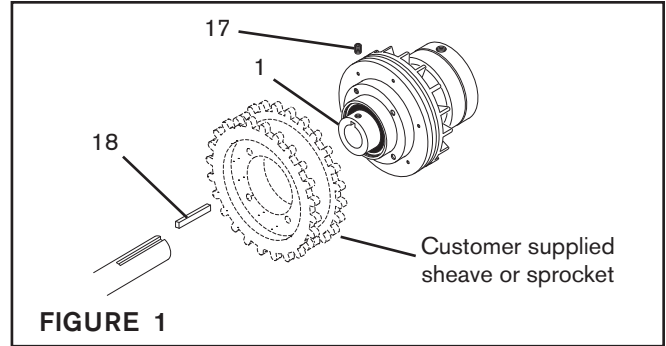
### PILOT MOUNT CLUTCH

Refer to Figure 1.

1. Secure a customer supplied sheave or sprocket to the Clutch.
2. Insert the Key (Item 18) into the shaft.

**NOTE: Align the air inlet port to a down position to allow condensation to drain out of the port.**

3. Slide the Clutch onto the shaft as far as possible with the Key (Item 18) fully seated into the Hub (Item 1) keyway (See Table 1).
4. Install and tighten the Set Screws (Item 17) to the recommended torque (See Table 2).



**TABLE 1**

MODEL	MINIMUM SHAFT INSERTATION
FW	2.0 In. [50.80 mm]
LW	2.5 In. [63.50 mm]
MW	3.75 In. [95.25 mm]
HW	4.0 In. [101.60 mm]

**TABLE 2**

MODEL	SET SCREW TIGHTENING TORQUE
FW	80 In. Lbs. [9 N•m]
LW	142 In. Lbs. [15.9 N•m]
MW	236 In. Lbs. [26.4 N•m]
HW	236 In. Lbs. [26.4 N•m]

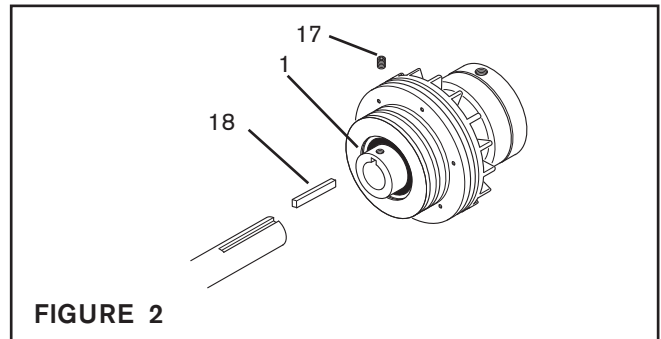
### SHEAVE MOUNT CLUTCH

Refer to Figure 2.

1. Insert the Key (Item 18) into the shaft.

**NOTE: Align the air inlet port to a down position to allow condensation to drain out of the port.**

2. Slide the Clutch onto the shaft as far as possible with the Key (Item 18) fully seated into the Hub (Item 1) keyway (See Table 3).
3. Install and tighten the Set Screws (Item 17) to the recommended torque (See Table 4).



**TABLE 3**

MODEL	MINIMUM SHAFT INSERTATION
FW	2.0 In. [50.80 mm]
LW	2.5 In. [63.50 mm]
MW	3.75 In. [95.25 mm]
HW	4.0 In. [101.60 mm]

**TABLE 4**

MODEL	SET SCREW TIGHTENING TORQUE
FW	80 In. Lbs. [9 N•m]
LW	142 In. Lbs. [15.9 N•m]
MW	236 In. Lbs. [26.4 N•m]
HW	236 In. Lbs. [26.4 N•m]

## COUPLING MOUNT CLUTCH

Refer to Figure 1.

1. Determine the parallel misalignment of the shafts to be coupled by placing a straight edge across the shafts and measuring the maximum offset at various points around the periphery of the shafts. Make the necessary corrections to keep the shafts within the parallel misalignment limits of the clutch coupling (See Table 5).

**NOTE: Before installation, the driving shaft can be fixed, but the driven shaft must be allowed to float.**

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

2. Slide the Clutch onto the driving shaft until the end of the Clutch is flush with the end of the shaft.
3. Insert the Key (Item 18) into the driving shaft and Clutch.
4. Install and tighten the Set Screws (Item 17) to the recommended torque (See Table 6).
5. Attach the Coupling Adapter Plate (Item 24) to the Clutch pilot using Cap Screws (Item 33) and Lock Washers (Item 34); then, tighten the Cap Screws to the recommended torque (See Table 6).
6. Place the Coupling's Flexible Disc (Item 25) over the pins in the Coupling Adapter Plate (Item 24).
7. Insert the customer supplied Dodge™ Taper-Lock Bushing into the Coupling Hub (Item 26).
8. Align the holes (not the threads) and slide the Dodge™ Taper-Lock Bushing/Coupling Hub Assembly onto the driving shaft until it is flush with the shaft.
9. Thread the screws supplied with the Dodge™ Taper Lock Bushing into the threaded holes of the Coupling Hub (Item 26); then, alternately and evenly tighten the screws to the bushing manufacturer's specifications.
10. Align the pins in the Coupling Hub (Item 26) with the holes in the Flexible Disc (Item 25).
11. Push the entire assembly together. Automatic spacing is accomplished by spacers molded into the Flexible Disc.

TABLE 5

MODEL	DODGE™ TAPER-LOCK POLY-DISC COUPLING SIZE	MEASURED VARIATION AT POINTS 180° APART		AXIAL FLOAT (MINIMUM VALUE FROM RECOMMENDED INITIAL SPACING)
		PARALLEL MAXIMUM	ANGULAR MAXIMUM	
FW	2-5/8 in. [66.75 mm]	0.015 in. [0.381 mm]	0.040 in. [1.016 mm]	+1/8 in [+1.375 mm]
LW	4 in. [101.6 mm]	0.015 in. [0.381 mm]	0.064 in. [1.625 mm]	+1/8 in [+1.375 mm]
MW	7 in. [177.8 mm]	0.015 in. [0.381 mm]	0.112 in. [2.845 mm]	+1/8 in [+1.375 mm]
HW	8 in. [203.2 mm]	0.015 in. [0.381 mm]	0.128 in. [3.251 mm]	+1/8 in [+1.375 mm]

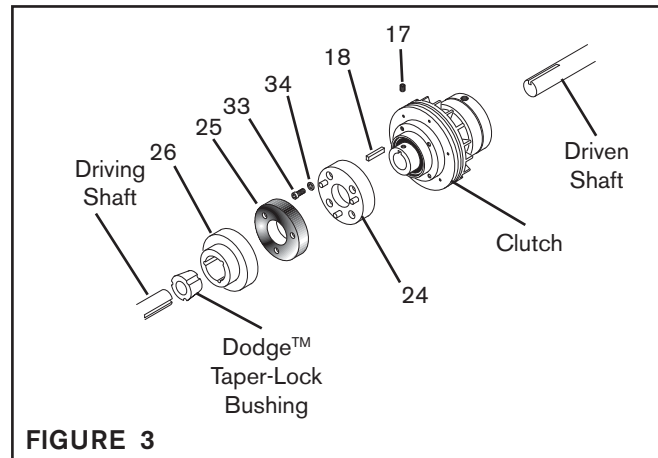


FIGURE 3

TABLE 6  
RECOMMENDED TIGHTENING TORQUES

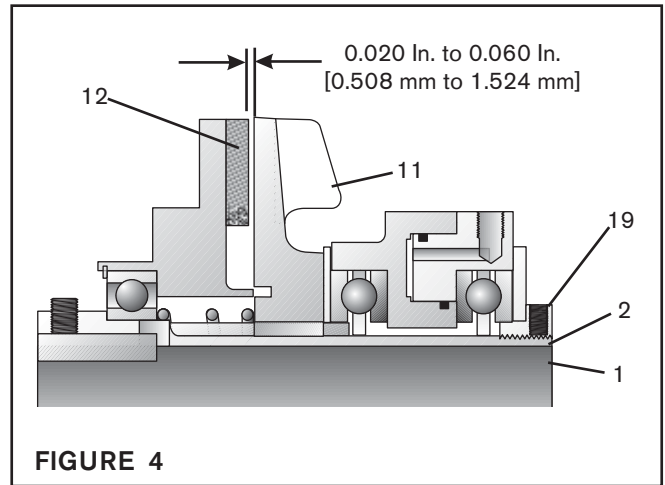
MODEL	FW	LW	MW	HW
SET SCREW (ITEM 17)	80 IN. LBS. [9 Nm]	142 IN. LBS. [15.9 Nm]	236 IN. LBS. [26.4 Nm]	236 IN. LBS. [26.4 Nm]
CAP SCREW (ITEM 33)	21 FT. LBS. [28.5 Nm]	21 FT. LBS. [28.5 Nm]	23 FT. LBS. [31.2 Nm]	78 FT. LBS. [105.8 Nm]

## FRICITION FACING ADJUSTMENT

Refer to Figure 4.

1. With a 0.020 In. [0.508 mm] to 0.060 In. [1.524 mm] feeler gauge, check the gap between the Friction Disc (Item 11) and the Friction Facing (Item 12).
2. If the gap is less than 0.020 In. [0.508 mm] loosen the Set Screw (Item 19) and rotate the Adjustment Nut (Item 2) counterclockwise until one of the Set Screw's holes is over the flat in the Hub (Item 1) and the feeler gauge can be inserted between the Friction Facing (Item 12) and the Friction Disc (Item 11).
3. If the gap is greater than 0.060 In. [1.524 mm] loosen the Set Screw (Item 19) and rotate the Adjustment Nut (Item 2) clockwise until one of the Set Screw's holes is over the flat in the Hub (Item 1) and the feeler gauge can be inserted between the Friction Facing (Item 12) and the Friction Disc (Item 11).
4. Tighten the Set Screw (Item 19) to the recommended torque (See Table 7).

**NOTE: Do not adjust the gap between the Friction Facing (Item 12) and the Friction Disc (Item 11) to less than 0.020 In. [0.508 mm]. The Clutch will not disengage if the gap between the Friction Disc and Friction Facing is closed.**



**TABLE 7**

MODEL	SET SCREW (ITEM 19)	
	DESCRIPTION	TIGHTENING TORQUE
FW	8-32	20 In. Lbs. [2.24 N•m]
LW	8-32	20 In. Lbs. [2.24 N•m]
MW	1/4-20	80 In. Lbs. [8.96 N•m]
HW	1/4-20	80 In. Lbs. [8.96 N•m]

## 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.

**BALL BEARING LUBRICATION:** The Thrust Bearings (Item 5) have been packed with Chevron SRI grease, which has been specially selected for use in the FW, LW, MW, and HW series clutches. When lubricating the Thrust Bearings, use Chevron SRI. All other ball bearings are pre-lubricated, sealed, and require no further lubrication.

## LUBRICATOR DRIP RATE SETTINGS

**CAUTION**

These settings are for Nexen supplied lubricators. If you are not using a Nexen lubricator, calibration must follow the manufacturer's suggested procedure.

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.

## AIR CONNECTIONS

An Air Line (Item 21) is furnished and air controls with 1/8 NPT ports are recommended. Where long air lines are required, a Quick Exhaust Valve (Nexen Product No. 945100) is recommended to ensure rapid disengagement.

**NOTE: Because of the necessary movement of the Air Chamber and Air Line upon engagement, flexible tubing or air lines must be used on the Clutch.**

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.

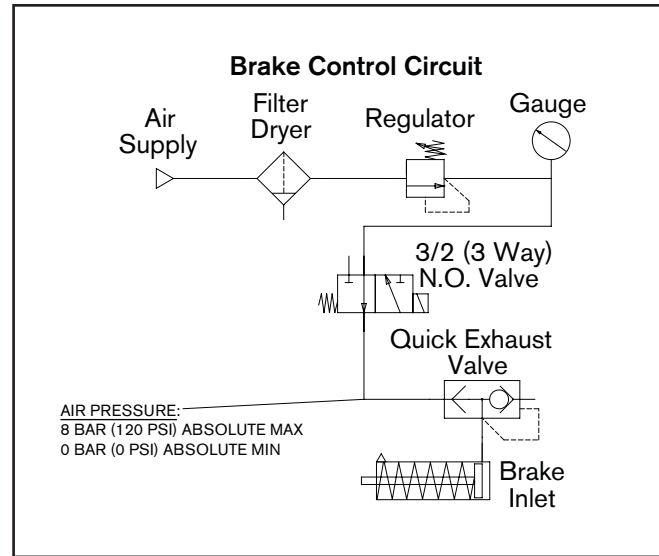


### CAUTION

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

Due to bearing seal drag, the outer portion of the Clutch will rotate when it is engaged. Rest the Air Line against a support that is parallel to the centerline of the Clutch to stop this rotation.

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.



## OPERATION



### WARNING

Never exceed maximum operating speeds listed for your product. (See Table 8).



### 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 8

Size	Max RPM
FW	3,600
LW	3,600
MW	1,800
HW	1,800



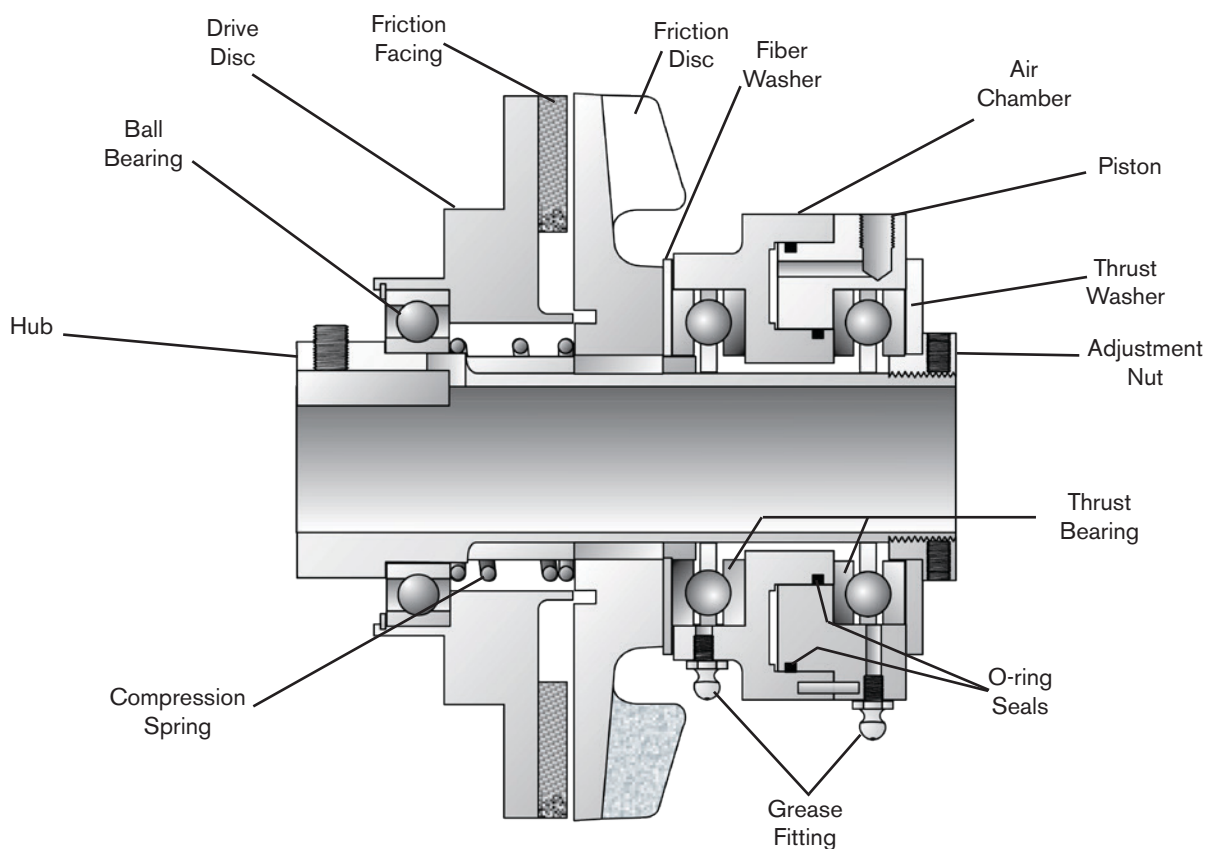
### CAUTION

The temperature limits for this product line are 4.5-100 Degree Celsius (40-220 Degree F).



## TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	SOLUTION
Failure to engage.	Air not getting to the clutch.	Check for a control valve malfunction or low air pressure to the clutch.
	Air leaks around the O-ring Seals.	Replace the O-ring Seals.
	Lack of lubrication on the Hub spline.	Lubricate the Hub spline.
	Rigid pipe or tubing on the air line connections.	Replace all rigid pipe or tubing on the air line connections with flexible tubing.
Failure to disengage.	Friction lock due to a lack of lubrication on the Hub spline or in the air chamber.	Lubricate the Hub spline and check that the air line lubricator is properly set and working.
	Broken Return Spring.	Replace the Return Spring.
	Unexhausted air.	Check for a control valve malfunction and replace the control valve if it is defective.
	The Friction Facing gap is less than 0.020 In. [0.508 mm].	Set the Friction Facing gap to the correct gap (0.020 In. [0.508 mm]).
Excessive drag load on the Air Line.	Defective Ball or Thrust Bearings.	Replace the Ball or Thrust Bearings.
	The Air Line is not properly supported resulting in bearing seal drag.	Rest the Air Line against a support mounted parallel to the clutch center line.
Bearing failure.	The clutch is out of its proper angular and parallel misalignment specifications.	Stay within the proper angular and parallel misalignment specifications as given in Table 5.



**FIGURE 5**

## PARTS REPLACEMENT

Refer to Figures 6 - 10.

1. Remove the Set Screw (Item 19), Adjustment Nut (Item 2), and the Thrust Washer (Item 3).

**NOTE: The FW Clutch has a Key (Item 20) in the Hub (Item 1). Do not remove this Key.**

**The FW Clutch does not have a Fiber Washer (Item 10).**

2. Slide the Air Chamber (Item 8), Piston (Item 4), Fiber Washer (Item 10), and Friction Disc (Item 11) off the Hub (Item 1).
3. Separate the Piston (Item 4) from the Air Chamber (Item 8); then, remove the old O-ring Seals (Items 6 and 7) from the Piston and Air Chamber.
4. Slide the Thrust Bearings (Item 5) out of the Piston (Item 4) and Air Chamber (Item 8).
5. Clean the O-ring contact surfaces of the Piston (Item 4) and Air Chamber (Item 8) with fresh safety solvent.
6. Lubricate the new O-ring Seals (Items 6 and 7) with fresh O-ring lubricant and install the new O-ring Seals onto the Piston (Item 4) and Air Chamber (Item 8).
7. Align the Spring Pin (Item 28) on the Piston (Item 4) with the hole in the Air Chamber (Item 8); then, slide the Piston into the Air Chamber.
8. Remove the Compression Spring (Item 14) from the Hub (Item 1); then, press the Ball Bearing (Item 23 or 15) and Sheave (Item 16) or Drive Disc (Item 22) off the Hub (Item 1).



### CAUTION

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

9. Remove the Retaining Ring (Item 36).

**NOTE: Sheave Mount Clutch Ball Bearings are Item 15. Pilot Mount Clutch Ball Bearings are Item 23.**

**The HW Clutch has two Ball Bearings (Item 15) in the Sheave (Item 16) and Drive Disc (Item 22).**

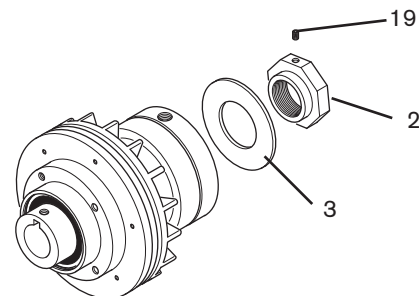


FIGURE 6

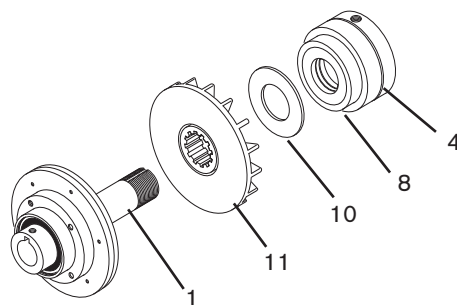


FIGURE 7

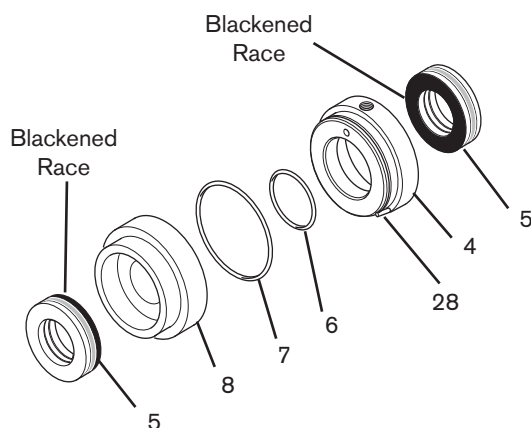


FIGURE 8

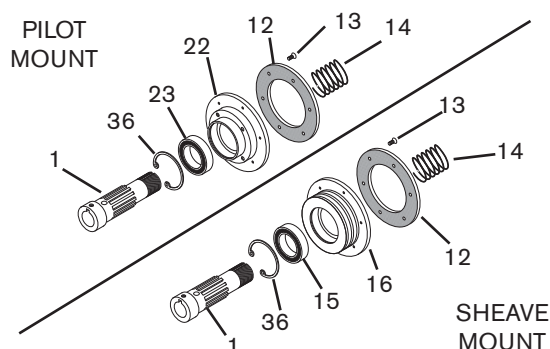
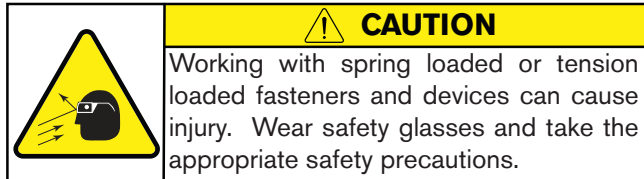


FIGURE 9

## PARTS REPLACEMENT (continued)

10. Press the old Ball Bearing(s) (Item 15 or 23) out of the Sheave (Item 16) or Drive Disc (Item 22).
11. Clean the bearing bore of the Sheave (Item 16) or Drive Disc (Item 22) with fresh safety solvent, making sure all old Loctite® residue is removed.
12. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Ball Bearing(s) (Item 15 or 23); then, press the new Ball Bearing(s) into the Sheave (Item 16) or Drive Disc (Item 22).



13. Reinstall the Retaining Ring (Item 36).

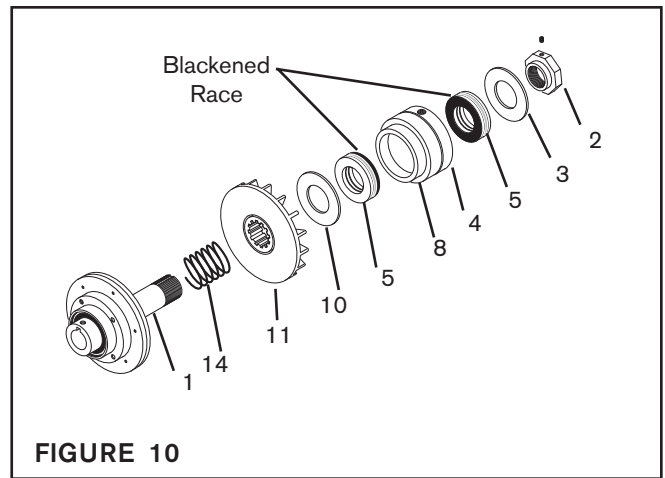
**NOTE: The Machine Screws are installed with an anaerobic thread locking compound. Inserting a properly fitting screwdriver into the head of the Machine Screw and striking the end of the screwdriver with a hammer will break the crystalline structure of this locking compound and allow removal of the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

14. Remove the old Machine Screws (Item 13) and Friction Facing (Item 12).
15. Install the new Friction Facing (Item 12) and secure it with the new Machine Screws (Item 13).
16. Tighten the new Machine Screws (Item 13) to the recommended torque (See Table 9).
17. Support the inner race of the new Ball Bearing (Item 15 or 23); then press the Hub (Item 1) into the new Ball Bearing and Sheave (Item 16) or Drive Disc (Item 22).
18. Slide the Compression Spring (Item 14) onto the Hub (Item 1).

**NOTE: The FW Clutch has a Key (Item 20) in the Hub (Item 1). Do not remove this Key.**

**The FW Clutch does not have a Fiber Washer (Item 10).**

19. Lubricate the Hub (Item 1) spline with a thin coating of Never-Seez®; then, slide the Friction Disc (Item 11) onto the Hub.
20. Slide the new Fiber Washer (Item 10) onto the Hub (Item 1).



**TABLE 9  
RECOMMENDED TIGHTENING TORQUES**

MODEL	ITEM NO.	TORQUE
FW	13	26 In. Lbs [2.9 N•m]
LW	13	26 In. Lbs [2.9 N•m]
MW	13	40-45 In. Lbs. [4.5-5.0 N•m]
HW	13	40-45 In. Lbs. [4.5-5.0 N•m]

**NOTE: If Thrust Bearings (Item 5) have blackened races, follow proper orientation procedures as indicated.**

21. Slide the first new Thrust Bearing (Item 5) with the blackened race facing the Piston/Air Chamber Assembly into the Air Chamber (Item 8).
22. Slide the Air Chamber (Item 8) and Piston (Item 4) onto the Hub (Item 1).
23. Slide the second new Thrust Bearing (Item 5) with the blackened race facing the Piston/Air Chamber Assembly into the Piston (Item 4).
24. Slide the Thrust Washer (Item 3) onto the Hub (Item 1).
25. Screw the Adjustment Nut (Item 2) onto the Hub (Item 1).
26. Adjust the gap between the Friction Facing and the Friction Disc (See FRICTION FACING ADJUSTMENT).

## 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.

### PILOT MOUNT FW CLUTCH

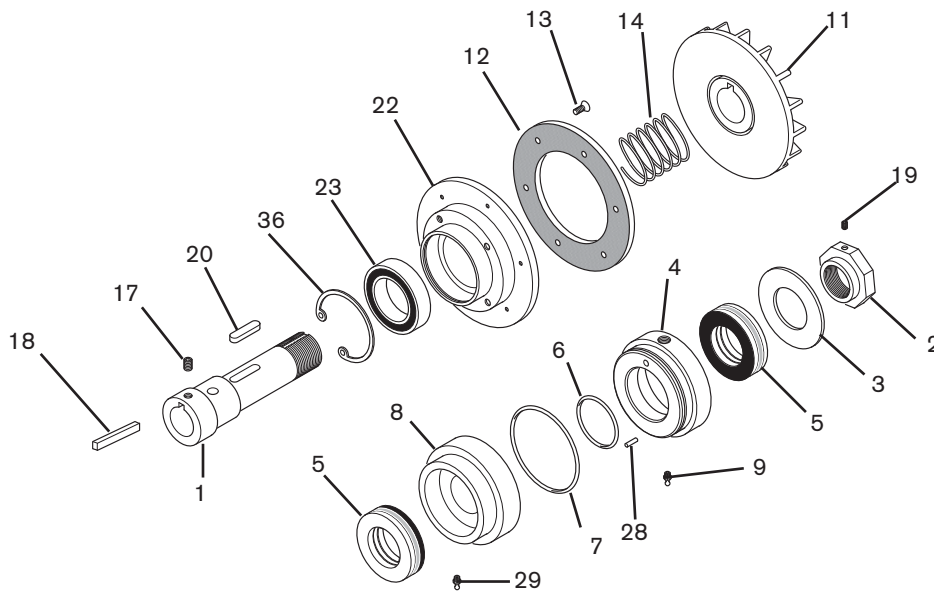


FIGURE 11

ITEM	DESCRIPTION	QTY
1	Hub	1
2	Adjustment Nut	1
3	Thrust Washer	1
4	Piston	1
5 <sup>1</sup>	Thrust Bearing	2
6 <sup>1</sup>	O-ring Seal	1
7 <sup>1</sup>	O-ring Seal	1
8	Air Chamber	1
9	Grease Fitting	1
11	Friction Disc	1
12 <sup>1</sup>	Friction Facing	1

ITEM	DESCRIPTION	QTY
13 <sup>1</sup>	Machine Screw	6
14 <sup>1</sup>	Compression Spring	1
17	Set Screw	2
18	Key	1
19	Set Screw	1
20	Key	1
21	Air Line (Not Shown)	1
22	Drive Disc	1
23	Ball Bearing	1
28	Spring Pin	1
29	Grease Fitting	1
36	Retaining Ring	1

<sup>1</sup> Denotes Repair Kit item.  
FW Repair Kit Product No. 846900.

## REPLACEMENT PARTS (continued)

### SHEAVE MOUNT FW CLUTCH

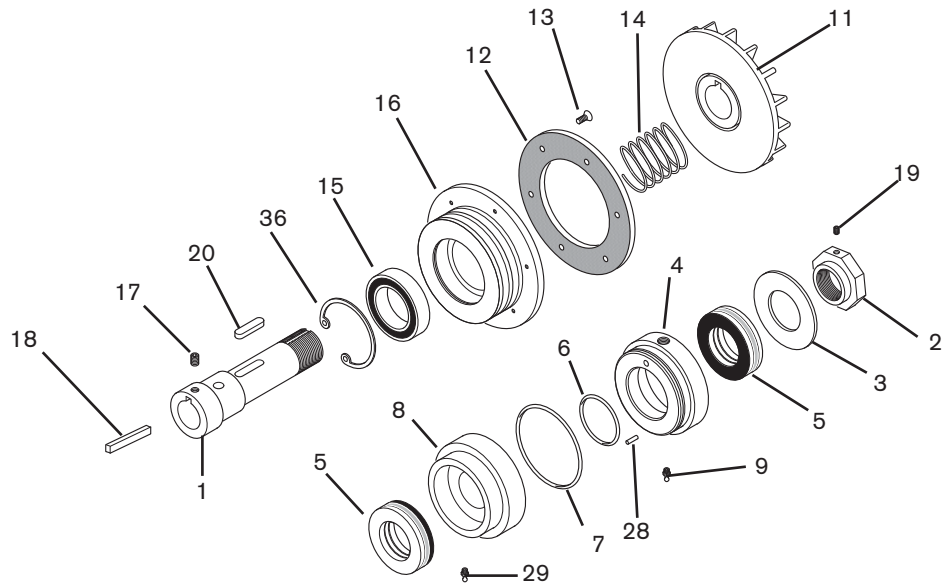


FIGURE 12

ITEM	DESCRIPTION	QTY
1	Hub	1
2	Adjustment Nut	1
3	Thrust Washer	1
4	Piston	1
5 <sup>1</sup>	Thrust Bearing	2
6 <sup>1</sup>	O-ring Seal	1
7 <sup>1</sup>	O-ring Seal	1
8	Air Chamber	1
9	Grease Fitting	1
11	Friction Disc	1
12 <sup>1</sup>	Friction Facing	1

ITEM	DESCRIPTION	QTY
13 <sup>1</sup>	Machine Screw	6
14 <sup>1</sup>	Compression Spring	1
15	Ball Bearing	1
16	Sheave	1
17	Set Screw	2
18	Key	1
19	Set Screw	1
20	Key	1
21	Air Line (Not Shown)	1
28	Spring Pin	1
29	Grease Fitting	1
36	Retaining Ring	1

<sup>1</sup> Denotes Repair Kit item.

FW Repair Kit Product No. 846900.

## REPLACEMENT PARTS (continued)

### PILOT MOUNT LW AND MW CLUTCHES

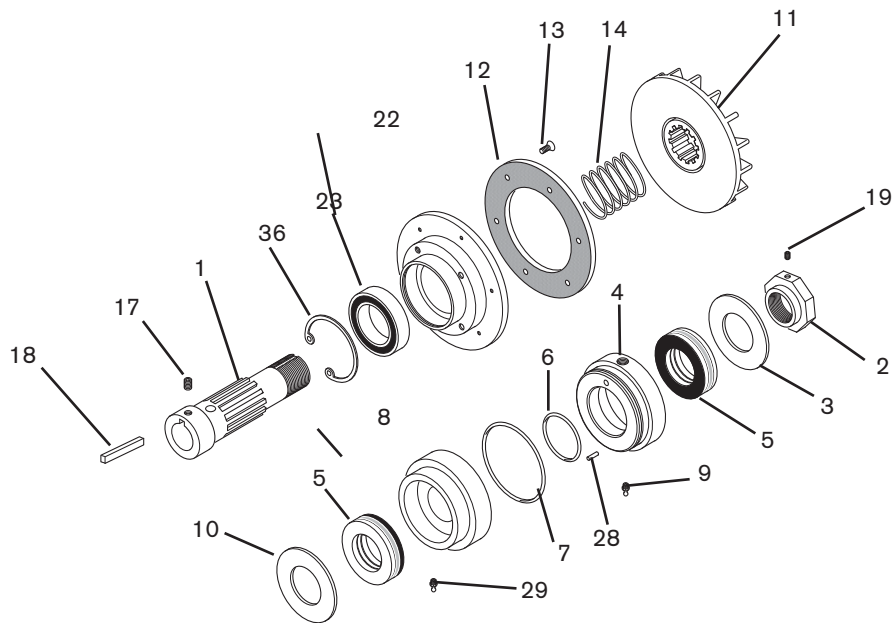


FIGURE 13

ITEM	DESCRIPTION	QTY
1	Hub	1
2	Adjustment Nut	1
3	Thrust Washer	1
4	Piston	1
5 <sup>1</sup>	Thrust Bearing	2
6 <sup>1</sup>	O-ring Seal	1
7 <sup>1</sup>	O-ring Seal	1
8	Air Chamber	1
9	Grease Fitting	2
10 <sup>1</sup>	Fiber Washer	1
11	Friction Disc	1

ITEM	DESCRIPTION	QTY
12 <sup>1</sup>	Friction Facing	1
13 <sup>1</sup>	Machine Screw	6
14 <sup>1</sup>	Compression Spring	1
17	Set Screw	2
18	Key	1
19	Set Screw	1
21	Air Line (Not Shown)	1
22	Drive Disc	1
23	Ball Bearing	1
28	Spring Pin	1
36	Retaining Ring	1

<sup>1</sup> Denotes Repair Kit item.

LW Repair Kit Product No. 847000.

MW Repair Kit Product No. 847100.

## REPLACEMENT PARTS (continued)

### SHEAVE MOUNT LW AND MW CLUTCHES

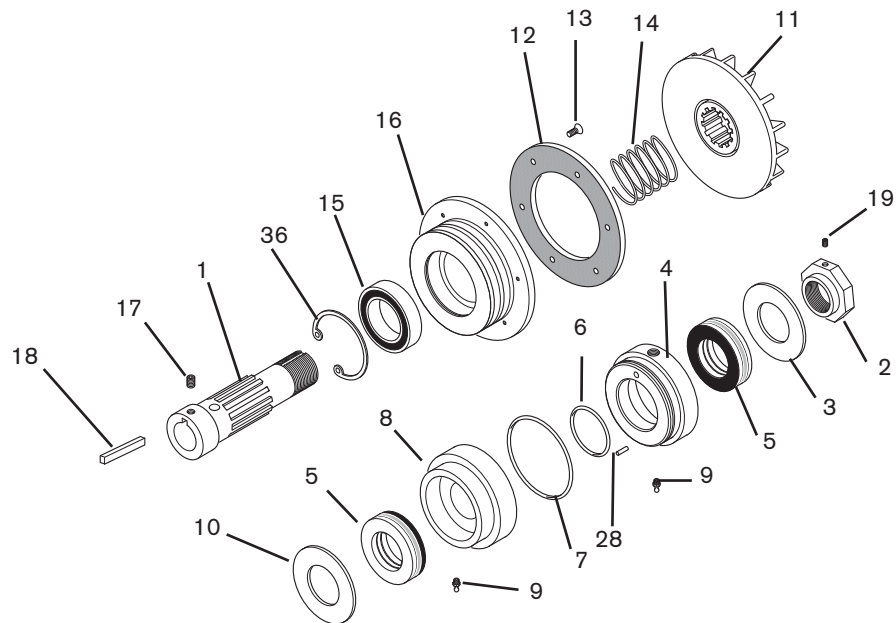


FIGURE 14

ITEM	DESCRIPTION	QTY
1	Hub	1
2	Adjustment Nut	1
3	Thrust Washer	1
4	Piston	1
5 <sup>1</sup>	Thrust Bearing	2
6 <sup>1</sup>	O-ring Seal	1
7 <sup>1</sup>	O-ring Seal	1
8	Air Chamber	1
9	Grease Fitting	2
10 <sup>1</sup>	Fiber Washer	1
11	Friction Disc	1

ITEM	DESCRIPTION	QTY
12 <sup>1</sup>	Friction Facing	1
13 <sup>1</sup>	Machine Screw	6
14 <sup>1</sup>	Compression Spring	1
15	Ball Bearing	1
16	Sheave	1
17	Set Screw	2
18	Key	1
19	Set Screw	1
21	Air Line (Not Shown)	1
28	Spring Pin	1
36	Retaining Ring	1

<sup>1</sup> Denotes Repair Kit item.

LW Repair Kit Product No. 847000.

MW Repair Kit Product No. 847100.

## REPLACEMENT PARTS (continued)

### PILOT MOUNT HW CLUTCH

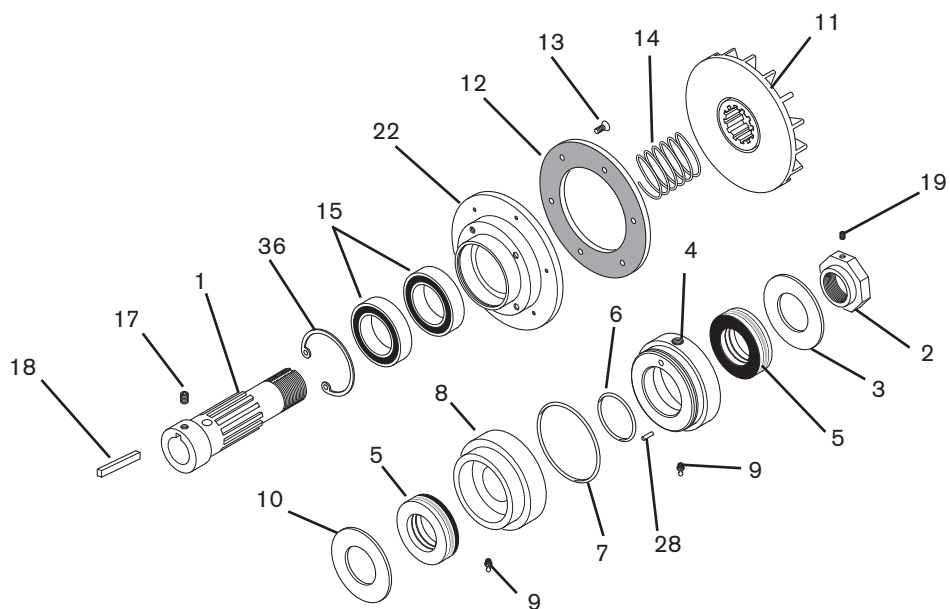


FIGURE 15

ITEM	DESCRIPTION	QTY
1	Hub	1
2	Adjustment Nut	1
3	Thrust Washer	1
4	Piston	1
5 <sup>1</sup>	Thrust Bearing	2
6 <sup>1</sup>	O-ring Seal	1
7 <sup>1</sup>	O-ring Seal	1
8	Air Chamber	1
9	Grease Fitting	2
10 <sup>1</sup>	Fiber Washer	1
11	Friction Disc	1

ITEM	DESCRIPTION	QTY
12 <sup>1</sup>	Friction Facing	1
13 <sup>1</sup>	Machine Screw	6
14 <sup>1</sup>	Compression Spring	1
15	Ball Bearing	2
17	Set Screw	2
18	Key	1
19	Set Screw	1
21	Air Line (Not Shown)	1
22	Drive Disc	1
28	Spring Pin	1
36	Retaining Ring	1

<sup>1</sup> Denotes Repair Kit item.  
HW Repair Kit Product No. 847200.



## REPLACEMENT PARTS (continued)

### SHEAVE MOUNT HW CLUTCH

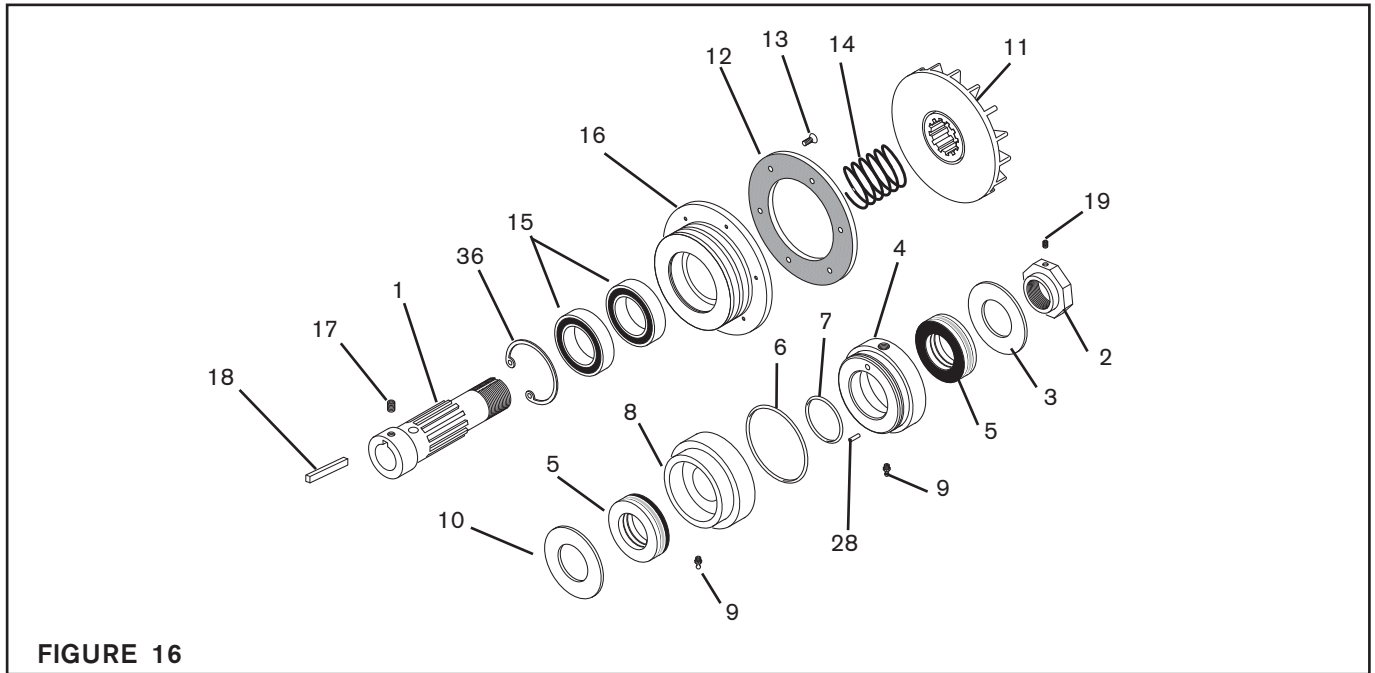


FIGURE 16

ITEM	DESCRIPTION	QTY
1	Hub	1
2	Adjustment Nut	1
3	Thrust Washer	1
4	Piston	1
5 <sup>1</sup>	Thrust Bearing	2
6 <sup>1</sup>	O-ring Seal	1
7 <sup>1</sup>	O-ring Seal	1
8	Air Chamber	1
9	Grease Fitting	2
10 <sup>1</sup>	Fiber Washer	1
11	Friction Disc	1

ITEM	DESCRIPTION	QTY
12 <sup>1</sup>	Friction Facing	1
13 <sup>1</sup>	Machine Screw	6
14 <sup>1</sup>	Compression Spring	1
15	Ball Bearing	2
16	Sheave	1
17	Set Screw	2
18	Key	1
19	Set Screw	1
21	Air Line (Not Shown)	1
28	Spring Pin	1
36	Retaining Ring	1

<sup>1</sup> Denotes Repair Kit item.  
LW Repair Kit Product No. 847200.

### COUPLING

ITEM	DESCRIPTION	QTY
24	Adapter Plate	1
25	Flexible Disc	1
26	Coupling Hub	1
33	Cap Screw	4
34	Lock Washer	4

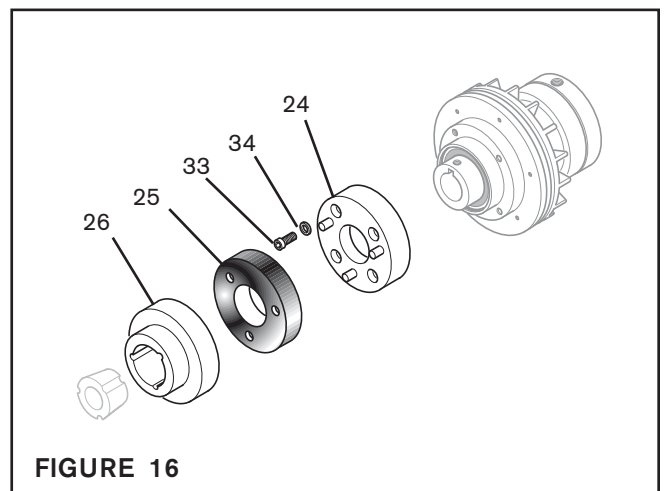


FIGURE 16

## 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.**

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