

**nexen**

# AIR CHAMP® PRODUCTS

User Manual



SE BRAKE MODELS:

**SE-100-1, SE-200-1,  
SE-500-1, and SE-1000-1**

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)



## WARNING

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.

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Vadnais Heights, Minnesota 55127

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## INTRODUCTION

Nexen's Air Champ Spring Engaged Brakes offer worker protection on conveyors, hoists, and other equipment where fast, dependable stopping may prevent physical injury.

SE Brakes also protect equipment with controlled engagement where sudden stops may damage valuable equipment.

When power to the control valve is lost, or air is exhausted, springs engage the SE Brake, and the load is held in a stable position. Nexen's SE Brake also incorporates a manual release, which is used to disengage the brake if no air pressure is available.

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.



### WARNING

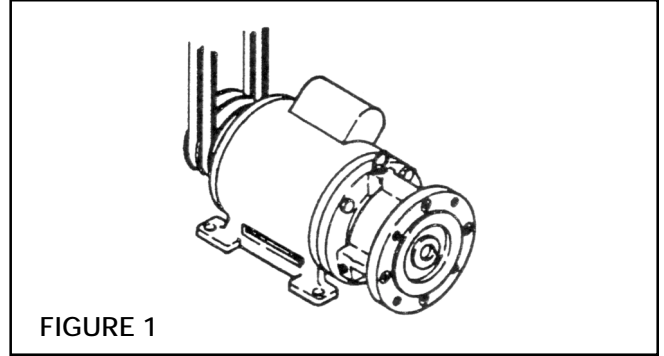
Do not run the SE Brake in disengaged position (*locking pin pulled out*). Always manually reengage the SE Brake before starting motor.

## INSTALLATION

### MOTOR SHAFT MOUNTED SE BRAKE

Opposite Drive End on Double "C" Faced Motor (See Figure 1)

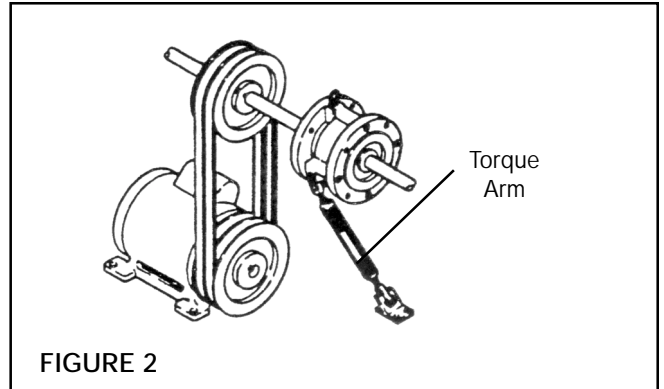
1. Insert the Key (Item 37) into shaft keyway.
2. Slide the SE Brake onto motor shaft and secure with mounting bolts.



### SHAFT MOUNTED SE BRAKE

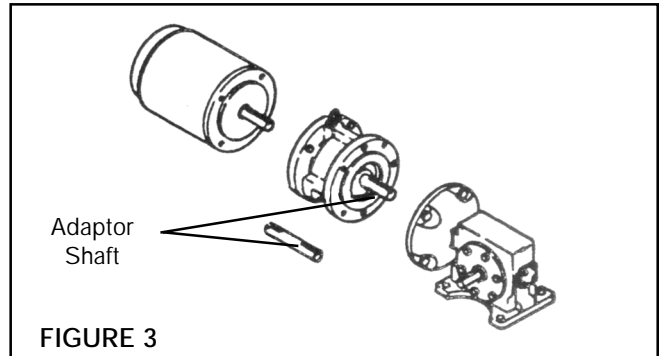
with Torque Arm (See Figure 2)

1. Insert the Key (Item 37) into the shaft keyway.
2. Slide the SE Brake onto the shaft.
3. Retain the Key with the set collar.



### SE BRAKE MOUNTED BETWEEN A MOTOR AND GEAR REDUCER (See Figure 3)

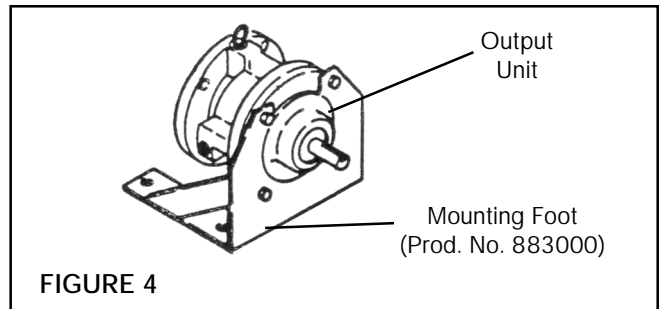
1. Insert the Key (Item 37) into the shaft keyway.
2. Slide the SE Brake onto motor shaft and secure it with mounting bolts.
3. Insert the first Key into Adaptor Shaft and insert Adaptor Shaft into the SE Brake.
4. Insert the second key into Adaptor Shaft; then, insert Adaptor Shaft into reducer, and bolt the SE Brake and motor to gear reducer.



### MOUNTING AN OUTPUT UNIT (See Figure 4)

An Output Unit can be mounted to the SE Brake when a drive through arrangement is desired. The Output Unit can then be used to mount a sheave, sprocket, or other desired drive.

With the Output Unit attached, the SE Brake may be foot mounted to provide a free standing drive through arrangement (Models SE-100-1 and SE-200-1 only).



## AIR CONNECTIONS

Nexen's SE Brakes engage when the air supply is exhausted by the control valve or when there is a loss of air supply, and engage when air pressure is applied (See Table 1).

For maximum performance, mount the control valve as close to the SE Brake as possible. A Hose Assembly (Item 36) is supplied.

SE Brake engagement is controlled by a Restrictor Valve (Item 41). For faster response, remove the Restrictor Valve. If maximum response time is needed, install a Quick Exhaust Valve in place of the Restrictor Valve.

**TABLE 1**

MINIMUM DISENGAGEMENT AIR PRESSURES	
MODEL	AIR PRESSURE
SE-100	40 PSI
SE-200	50 PSI
SE-500	30 PSI
SE-1000	50 PSI

## LUBRICATION

The most effective and economical way to lubricate SE Brakes is with an airline lubricator. Available from Nexen, the lubricator injects oil into the pressurized air, forcing a constant oil mist into the air chamber.

Lubricator drip rate is properly set when one drop of oil forms in the lubricator sight gage after the SE Brake has cycled twenty times. Locate the lubricator above and within ten feet of the SE Brake.

**NOTE:** Use a low viscosity petroleum base oil, such as SAE 10. Do not use synthetic lubricant.

When a lubricator is used, cycle the SE Brake periodically to allow oil from the lubricator to enter the SE Brake air chamber.

Bearings in SE Brakes are prelubricated and sealed, and therefore require no further lubrication.

## TROUBLESHOOTING

SYMPTOM	CAUSE	SOLUTION
Failure to Engage.	Air not being exhausted due to Control Valve malfunction.	Replace Control Valve.
	Broken Engagement Springs.	Replace Engagement Springs.
	Internal contamination or corrosion.	Align exhaust port to the six o'clock down position to allow condensation to drain out of exhaust port.
Failure to Disengage.	Low or lack of air pressure.	Check for Control Valve malfunction; replace if defective.
		Check for leaks in air lines and replace if defective.
	Friction lock due to lack of lubrication on Hub Spline or in Air Chamber.	Lubricate Hub Spline with NEVER-SEEZ®.
		Use an Air Line Lubricator.
	Internal contamination or corrosion.	Align exhaust port to the six o'clock down position to allow condensation to drain out of exhaust port.
Damaged Locking Pin.	Replace Locking Pin.	
Loss of Torque.	Worn or dirty Friction Facings	Replace Friction Facings.

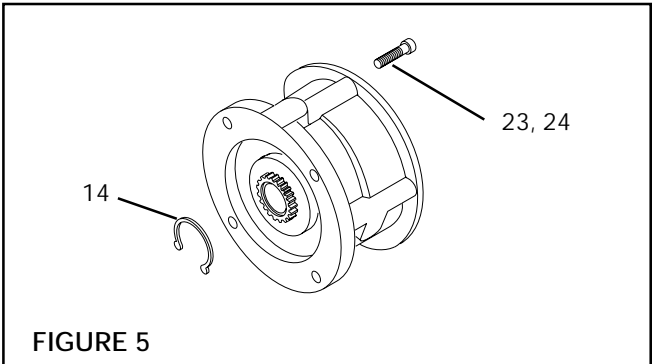
## PARTS REPLACEMENT

### SE DISASSEMBLY

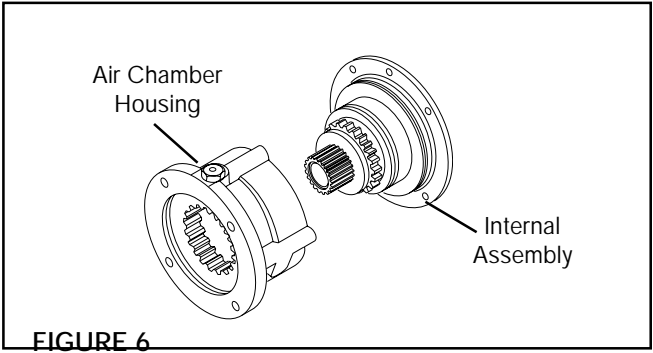
1. Apply air pressure to disengage the SE Brake.
2. Remove the Retaining Ring (Item 14) (See Figure 5).

### 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. Exhaust air pressure.
4. Slowly, and in a cross pattern, remove Socket Head Cap Screws (Item 23), and Lockwashers (Item 24) (See Figure 5).
5. Slide the Air Chamber Housing (Item 2) off internal assembly of the SE Brake (See Figure 6).

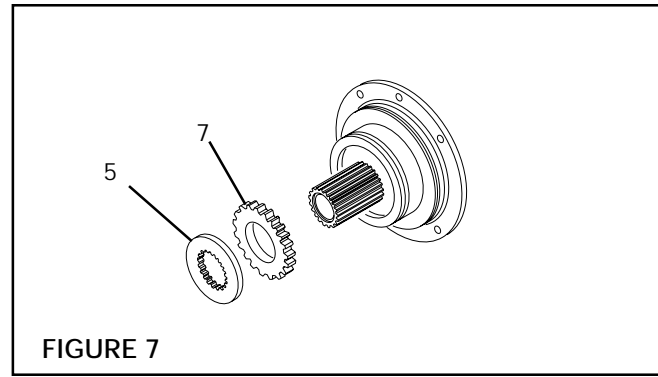


## FRICION FACING REPLACEMENT

1. Remove the Friction Plates (Item 5) and Friction Facings (Item 7) (See Figure 6).

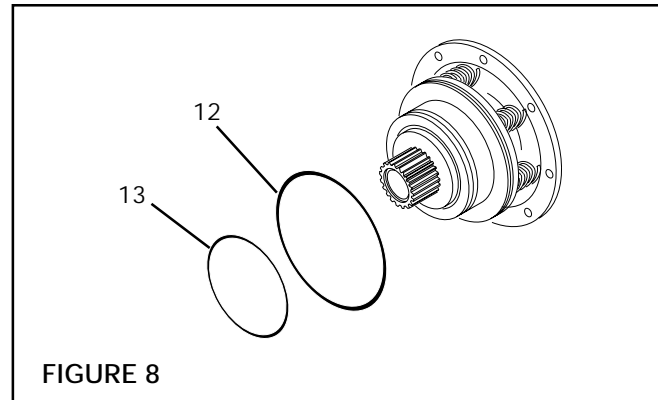
NOTE: SE Brakes Models SE-100-1 , and SE-200-1 have one Friction Plate and Friction Facing, while Models SE-500-1 and SE-1000-1 have three Friction Plates and Friction Facings.

2. Install the new Friction Facings (Item 7).



## O-RINGS (ITEMS 12 and 13).

1. Remove old O-rings (Items 12 and 13) (See Figure 8).
2. Clean O-ring contact surfaces of the Piston (Item 3) and Air Chamber Housing (Item 2) with fresh safety solvent.
3. Lubricate new O-rings (Items 12 and 13) and O-ring contact surfaces with fresh O-ring lubricant.
4. Install new O-rings (Items 12 and 13).

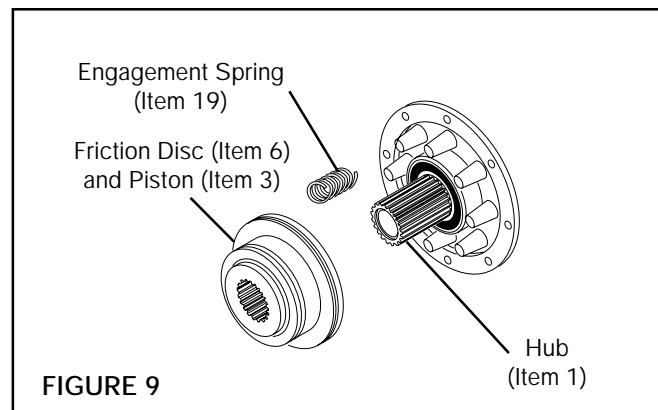


## BEARINGS (ITEMS 21 and 22).

1. Slide Friction Disc (Item 6) and Piston (Item 3) off Hub (Item 1) (See Figure 9).

NOTE: Inspect Engagement Springs (Item 19) for signs of wear or fatigue. Replace if worn or if signs of fatigue exist (See Figure 9).

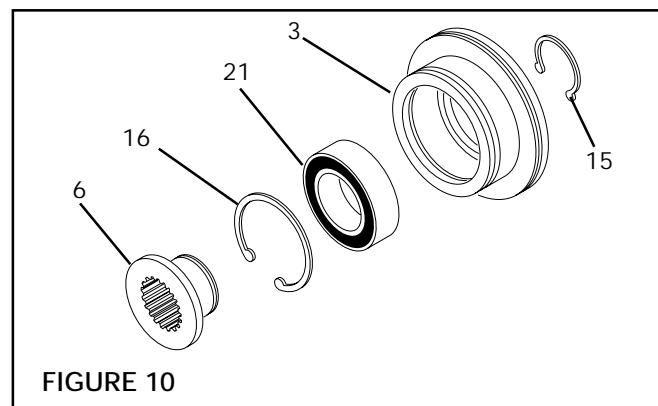
2. Remove Retaining Ring (Item 15) and press Friction Disc (Item 6) out of Bearing (Item 21) (See Figure 10).



### CAUTION

Special attention must 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) and press the Bearing (Item 21) out of the Piston (Item 3) (See Figure 10).
4. Clean the bearing bore of the Piston (Item 3) with fresh safety solvent.





5. Remove the Retaining Ring (Item 14) on Models SE-100-1 and SE-200-1, or (Item 33) on Models SE-500-1 and SE-1000-1 (See Figures 11 & 12).
6. Press the Hub (Item 1) out of the Spring Housing (Item 4) and Bearing (Item 22) (See Figures 11 & 12).
7. Remove the Retaining Ring (Item 17) (See Figure 13).
8. Press the Bearing (Item 22) out of the Spring Housing (Item 4) (See Figure 13).
9. Clean the bearing bore of the Spring Housing (Item 4) with fresh safety solvent.
10. Apply Loctite® 601, or equivalent, to the outer races of the new Bearings (Items 21 and 22).
11. Carefully align the O.D. of the Bearing (Item 22) with the bore of the Spring Housing (Item 4) and press the new Bearing into the Spring Housing.
12. Carefully align the O.D. of the Bearing (Item 21) with the bore of the Piston (Item 3) and press the new Bearing into the Piston.
13. Reverse Steps 1-7 to reassemble the internal brake components.

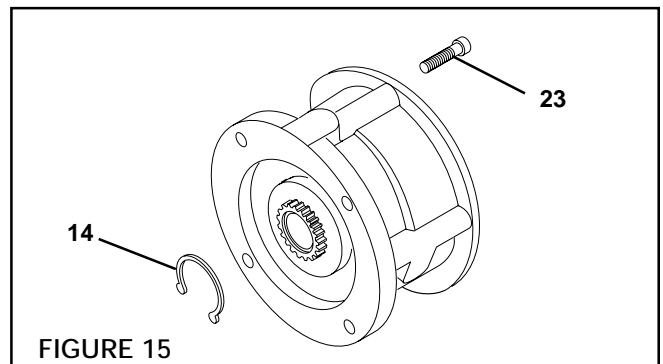
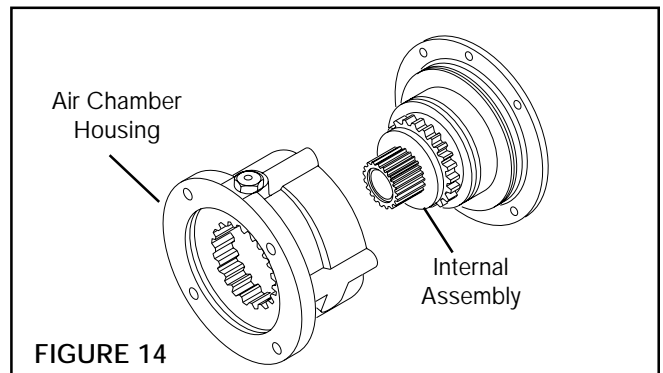
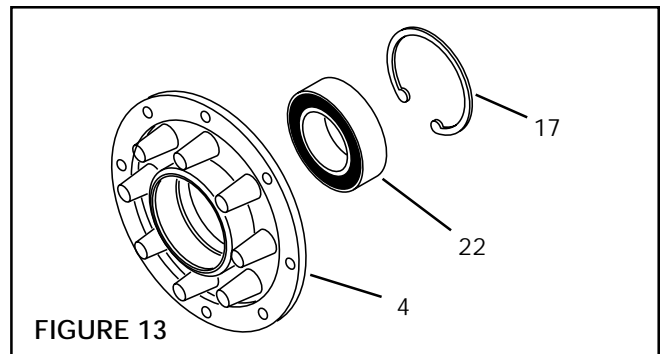
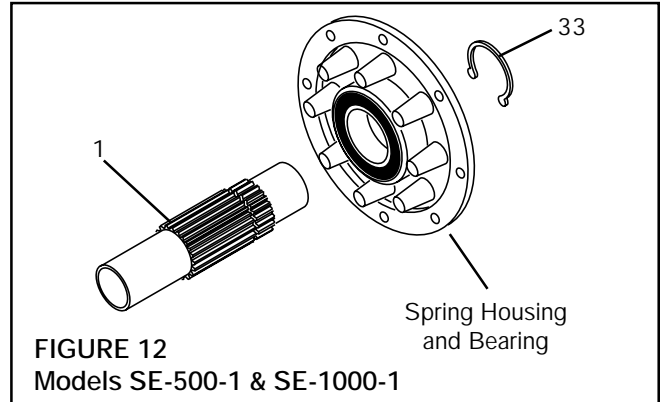
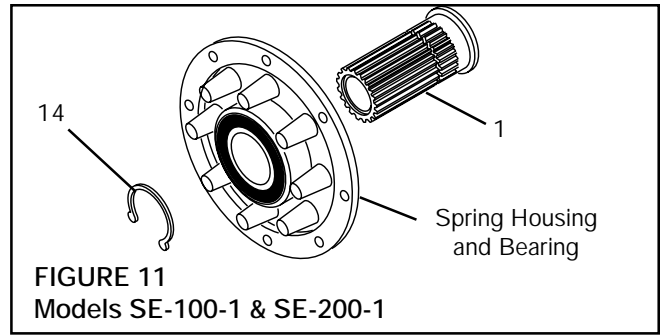
### BRAKE REASSEMBLY

1. Slide the Air Chamber Housing (Item 2) onto the Internal Assembly (See Figure 14).
2. Using Cap Screws (Item 23), secure the SE Brake halves together (See Figure 15).
3. Alternately and evenly tighten the Cap Screws (Item 23) to 8 Ft. Lbs. [10.8 N•m].
4. Apply air pressure to disengage the SE Brake.
5. Install Retaining Ring (Item 14) (See Figure 15).

**CAUTION**

Special attention must be exercised when working with retaining rings. Always wear safety goggles when working with spring or tension loaded fasteners or devices.

6. Exhaust air pressure.

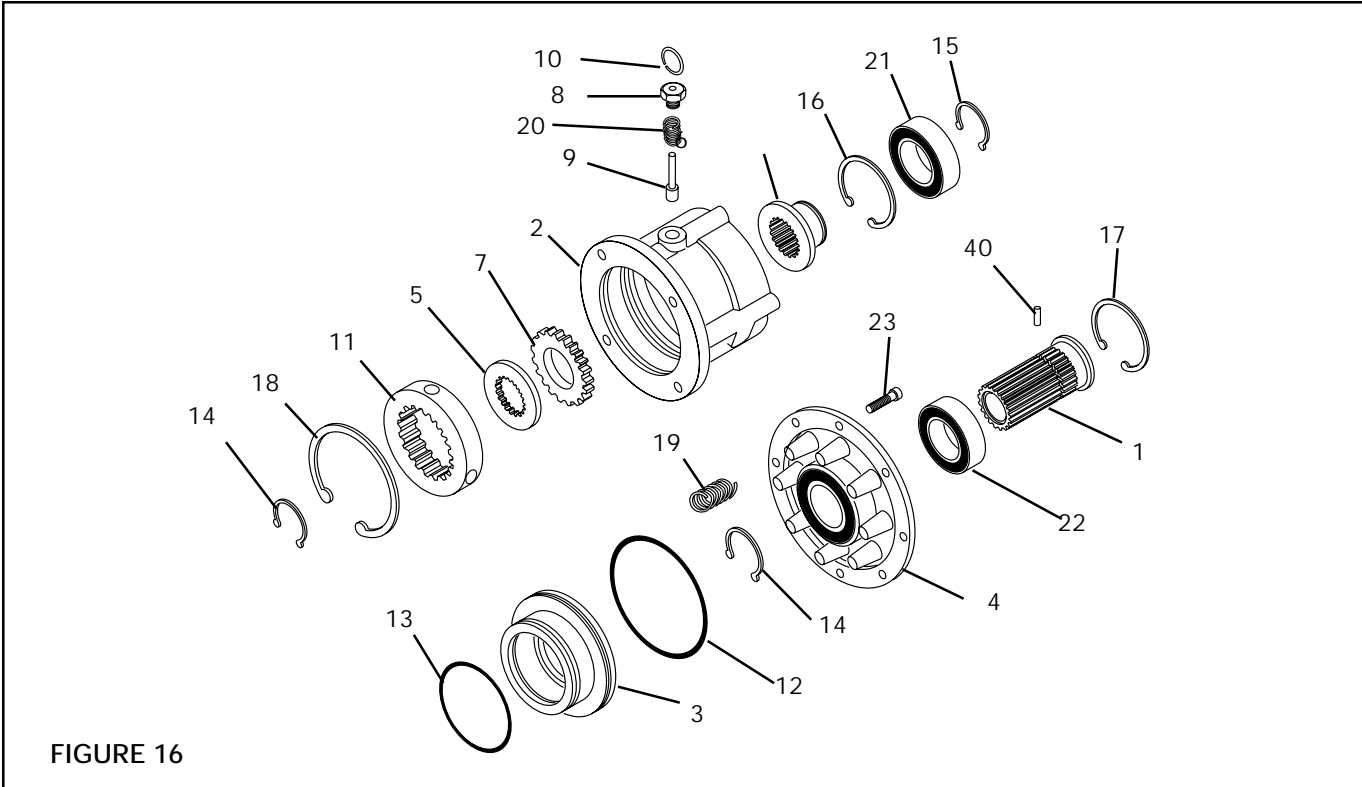


## REPLACEMENT PARTS

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 / SE-100-1 AND SE-200-1



ITEM	DESCRIPTION	QTY
1	Hub	1
2	Air Chamber Housing	1
3	Piston	1
4	Spring Housing	1
5	Friction Plate	1
6	Friction Disc	1
7 <sup>1</sup>	Friction Facing	1
8	Locking Pin Retainer	1
9	Locking Pin	1
10	Locking Pin Handle	1
11	Splined Sleeve	1
12 <sup>1</sup>	O-ring Seal (Large)	1
13 <sup>1</sup>	O-ring Seal (Small)	1
14	Retaining Ring	2
15	Retaining Ring	1
16	Retaining Ring	1

ITEM	DESCRIPTION	QTY
17	Retaining Ring	1
18	Retaining Ring	1
19 <sup>1</sup>	Engagement Spring	8
20	Locking Pin Spring	1
21 <sup>1</sup>	Bearing	1
22 <sup>1</sup>	Bearing	1
23	Cap Screws	4
24	Lockwashers	4
35	Plug (Not Shown)	1
36	Hose Assembly (Not Shown)	1
37	Hub Key (Not Shown)	1
38	Cap Screws (Not Shown)	4
39	Lockwashers (Not Shown)	4
40	Spring Pin	1
41	Restrictor Valve (Optional, Not Shown)	1
42	Air House Coupling (Not Shown)	1

<sup>1</sup> Denotes Repair Kit Items

**PARTS LIST / SE-500-1 AND SE-1000-1**

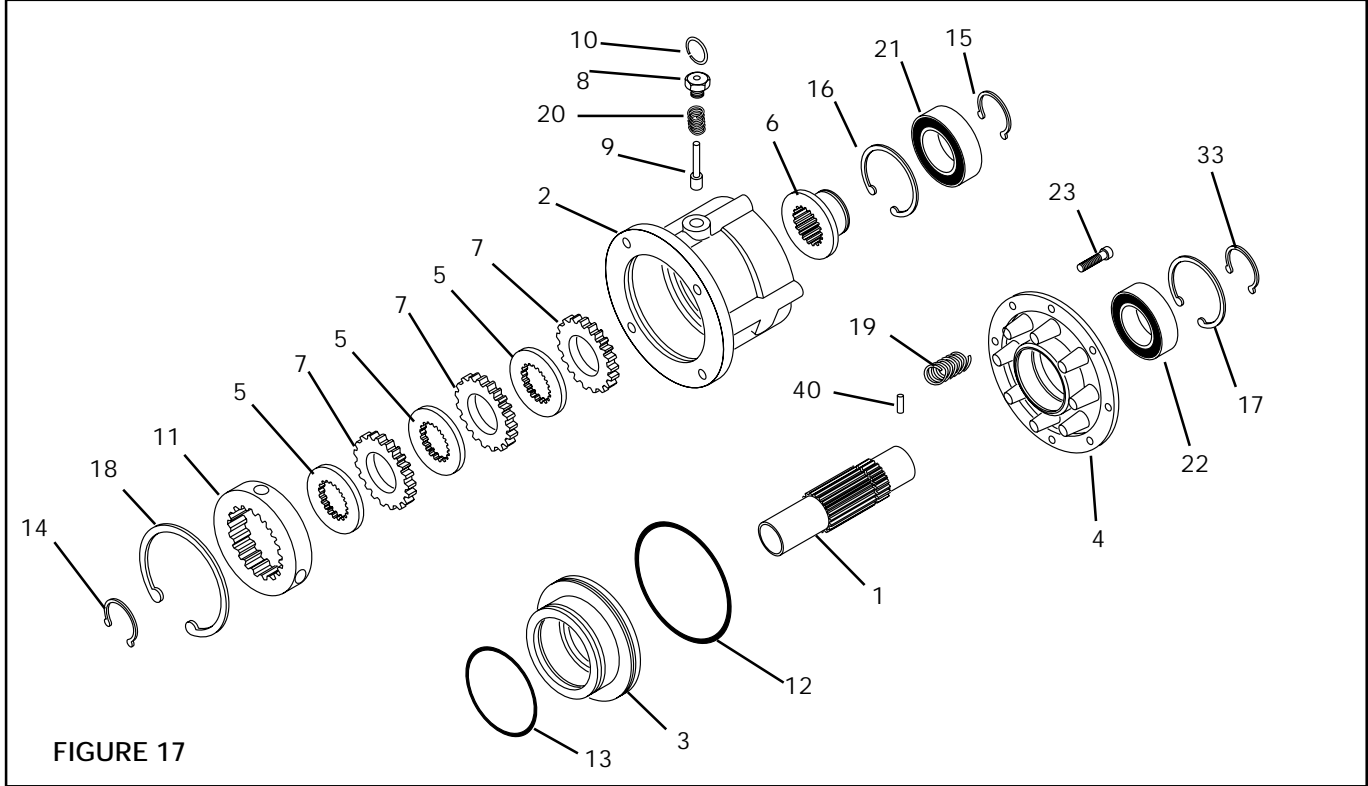


FIGURE 17

ITEM	DESCRIPTION	QTY
1	Hub	1
2	Air Chamber Housing	1
3	Piston	1
4	Spring Housing	1
5	Friction Plate	3
6	Friction Disc	1
7 <sup>1</sup>	Friction Facing	3
8	Locking Pin Retainer	1
9	Locking Pin	1
10	Locking Pin Handle	1
11	Splined Sleeve	1
12 <sup>1</sup>	O-ring Seal (Large)	1
13 <sup>1</sup>	O-ring Seal (Small)	1
14	Retaining Ring	1
15	Retaining Ring	1
16	Retaining Ring	1

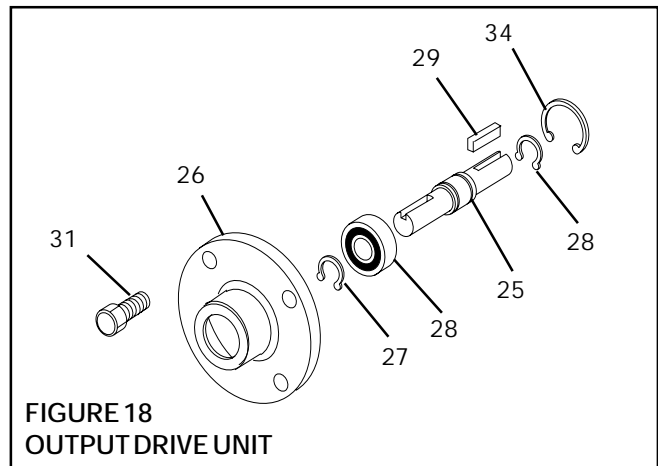
ITEM	DESCRIPTION	QTY
17	Retaining Ring	1
18	Retaining Ring	1
19 <sup>1</sup>	Engagement Spring	8
20	Locking Pin Spring	1
21 <sup>1</sup>	Bearing	1
22 <sup>1</sup>	Bearing	1
23	Cap Screws	4
24	Lockwashers	4
33	Retaining Ring	1
35	Plug (Not Shown)	1
36	Hose Assembly (Not Shown)	1
37	Hub Key (Not Shown)	1
38	Cap Screws (Not Shown)	4
39	Lockwashers (Not Shown)	4
40	Spring Pin	1
41	Restrictor Valve (Optional, Not Shown)	1

<sup>1</sup> Denotes Repair Kit Items

**OUTPUT DRIVE UNIT**

ITEM	DESCRIPTION	QTY
25	Shaft	1
26	Bearing Flange	1
27	Bearing	1
28	Retaining Ring	2
29	Key	2**
30	Key	**
31	Cap Screw	4
32	Lockingwasher (Not Shown)	4
34	Retaining Ring	1

\*\* Qty.1 / SE-100-1 and SE-200-1



REPAIR KITS	
MODEL	PRODUCT NUMBER
SE-100-1	808400
SE-200-1	808500
SE-500-1	812700
SE-1000-1	812800

ACCESSORIES		
MODEL	DESCRIPTION	PRODUCT NUMBER
SE-100 SE-200 SE-500 SE-1000	Output Unit	932600 932700 933000 933000 933100
SE-100 SE-200 SE-500 SE-1000	Adaptor Shaft	805700 805800 812500 812600
SE-100 & SE-200 SE-500 & SE-1000	Torque Arm	932900 933200
SE-100 & SE-200	'L' Mounting	883000

## WARRANTIES

### 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.

**nexen**®

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