

**SE BRAKES**  
Model SE-500-1

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.

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# 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.**

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ISO 9001 Certified

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### MOTOR SHAFT MOUNTED SE BRAKE OPPOSITE DRIVE END ON DOUBLE C-FACED MOTOR

Refer to Figure 1.

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

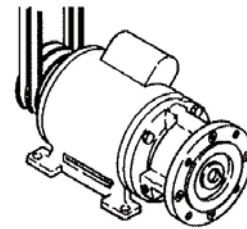


FIGURE 1

### SHAFT MOUNTED SE BRAKE WITH TORQUE ARM

Refer to Figure 2.

1. Insert the Key (Item 37) into the shaft keyway.
2. Slide the SE Brake onto the shaft.

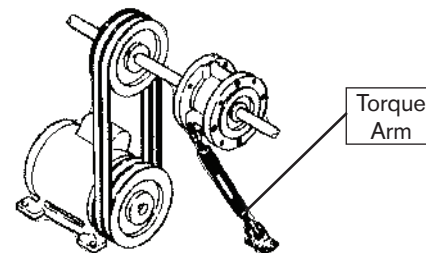


FIGURE 2

### SE BRAKE MOUNTED BETWEEN A MOTOR AND GEAR REDUCER

Refer to Figure 3.

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

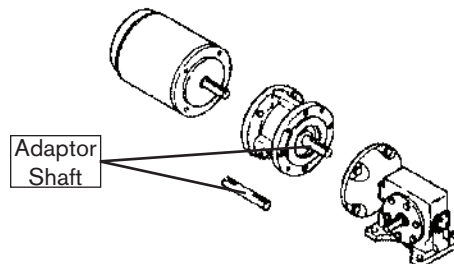


FIGURE 3

**NOTE**  
An output unit can be mounted to the SE Brake when a through drive arrangement is desired (See Figure 4). The output unit can then be used to mount a sheave, sprocket, or other desired drive.

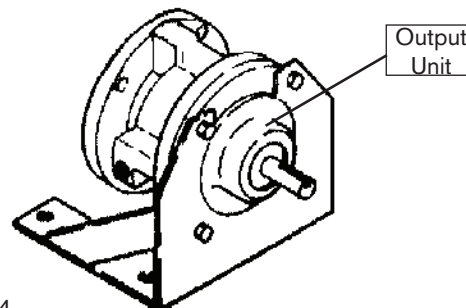


FIGURE 4

## 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 disengage 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 fastest response time is needed, install a Quick Exhaust Valve in place of the Restrictor Valve.

TABLE 1

MINIMUM DISENGAGEMENT AIR PRESSURE	
MODEL	AIR PRESSURE
SE-500-1	30 PSI

## LUBRICATION


### NOTE

Nexen pneumatically actuated devices require clean, pressure regulated 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 product, and use low viscosity oil such as SAE-10.

Synthetic lubricants are not recommended.

### LUBRICATOR DRIP RATE SETTINGS

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

## TROUBLESHOOTING

SYMPTOM	PROBABLE 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 the Control Valve if defective.
		Check for leaks in air lines and replace the air lines 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.
Loss of torque.	Internal contamination or corrosion.	Align exhaust port to the six o'clock down position to allow condensation to drain out of exhaust port.
		Replace the Friction Facings.
Loss of torque.	Worn or contaminated Friction Facings.	Replace the Friction Facings.

## PARTS REPLACEMENT

### SE DISASSEMBLY

1. Apply air pressure to disengage the SE Brake.



#### CAUTION

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

2. Remove the Retaining Ring (Item 14) (See Figure 5).
3. Exhaust air pressure.
4. Alternately and evenly remove Socket Head Cap Screws (Item 23) and Lock Washers (Item 24) (See Figure 5).
5. Slide the Air Chamber Housing (Item 2) off the internal assembly of the SE Brake (See Figure 6).

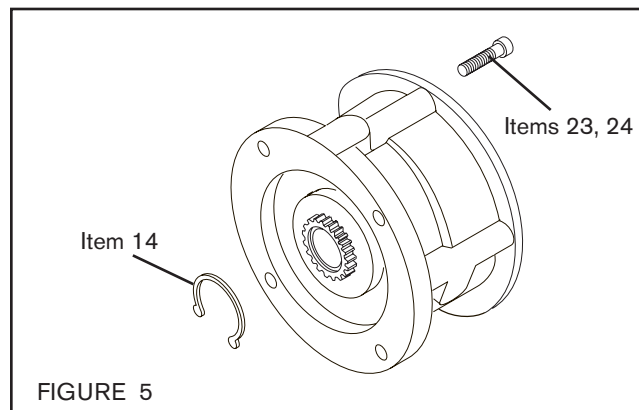


FIGURE 5

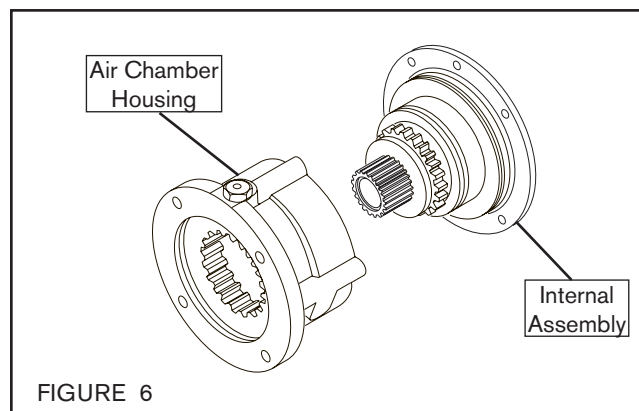


FIGURE 6

## FRICITION FACING REPLACEMENT

1. Remove the three Friction Plates (Item 5) and old Friction Facings (Item 7) (See Figure 7).
2. Install the new Friction Facings (Item 7).

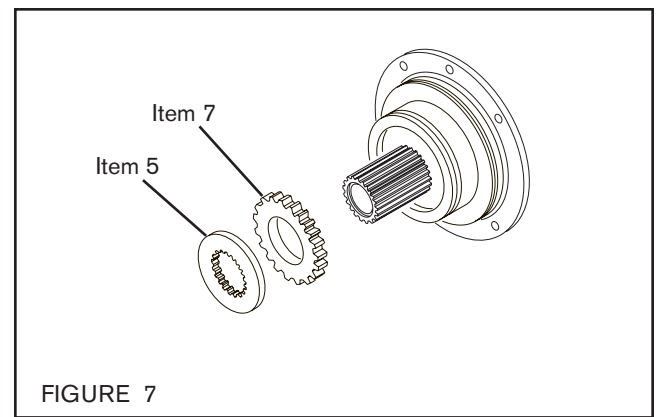


FIGURE 7

## O-RING SEALS

1. Remove old O-ring Seals (Items 12 & 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-ring Seals (Items 12 & 13) and O-ring contact surfaces with a thin film of fresh O-ring lubricant.
4. Install new O-ring Seals (Items 12 & 13).

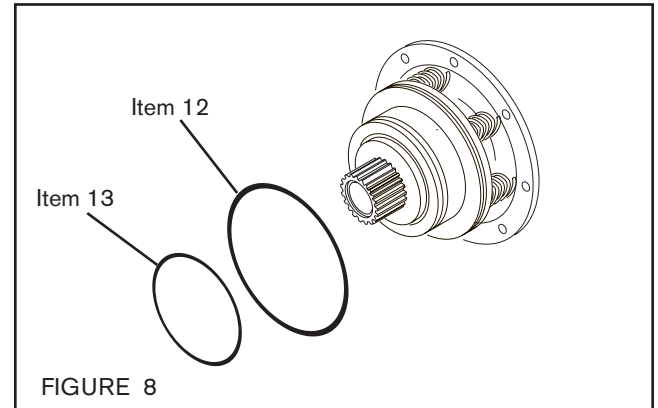


FIGURE 8

## BEARINGS

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

### NOTE

Inspect Compression Springs (Item 19) for signs of wear or fatigue. Replace springs if worn or if signs of fatigue exits (See Figure 9).



### CAUTION

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

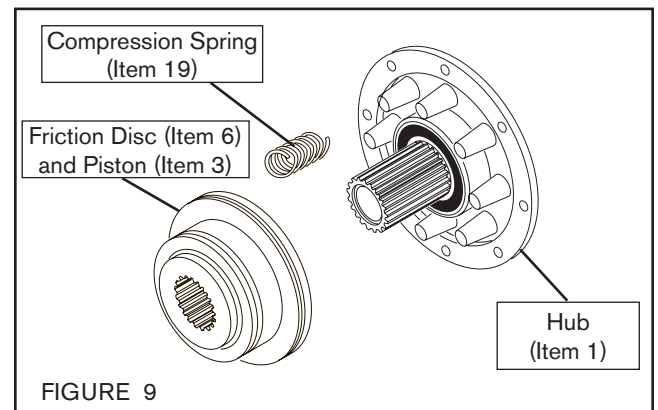


FIGURE 9

2. Remove Retaining Ring (Item 15) and press the Friction Disc (Item 6) out of the old Bearing (Item 21) (See Figure 10).
3. Remove the Retaining Ring (Item 16) and press the old 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.

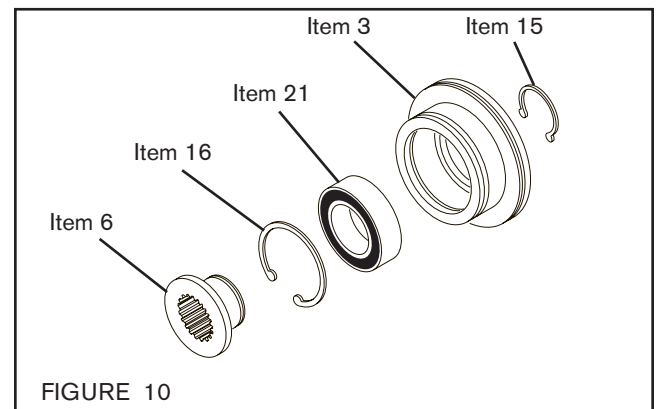


FIGURE 10

5. Remove the Retaining Ring (Item 33) (See Figure 11).
6. Press the Hub (Item 1) out of the Spring Housing (Item 4) and the old Bearing (Item 22) (See Figure 11).
7. Remove the Retaining Ring (Item 17) (See Figure 12).
8. Press the old Bearing (Item 22) out of the Spring Housing (Item 4) (See Figure 12).
9. Clean the bearing bore of the Spring Housing (Item 4) with fresh safety solvent.
10. Apply Loctite® 680, or equivalent, to the outer race of the new Bearings (Item 21 & 22).
11. Carefully align the O.D. of the new Bearing (Item 22) with the bore of the Spring Housing (Item 4) and press the Bearing into the Spring Housing.
12. Carefully align the O.D. of the new Bearing (Item 21) with the bore of the Piston (Item 3) and press the Bearing into the Piston.
13. Reinstall the Retaining Ring (Item 17) (See Figure 12).
14. Press the Hub (Item 1) into the Spring Housing (Item 4) and the new Ball Bearing (Item 22) (See Figure 11).
15. Reinstall the Retaining Ring (Item 33) (See Figure 11).
16. Press the new Bearing (Item 21) into the Piston (Item 3) and reinstall the Retaining Ring (Item 16) (See Figure 13).
17. Press the Friction Disc (Item 6) into the new Bearing (Item 21) and reinstall the Retaining Ring (Item 15) (See Figure 13).
18. Slide the Friction Disc (Item 6) and Piston onto the Hub (Item 1).

## BRAKE REASSEMBLY

1. Slide the Air Chamber Housing (Item 2) onto the internal assembly (See Figure 14).
2. Using four Socket Head Cap Screws (Item 23) and Lock Washers (Item 24), secure the SE Brake halves together (See Figure 15).
3. Alternately and evenly tighten the four Socket Head Cap Screws (Item 23) to 8 Ft. Lbs. [10.8 Nm] torque.
4. Apply air pressure to disengage the SE Brake.



### CAUTION

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

5. Install Retaining Ring (Item 14) (See Figure 15).
6. Exhaust air pressure.

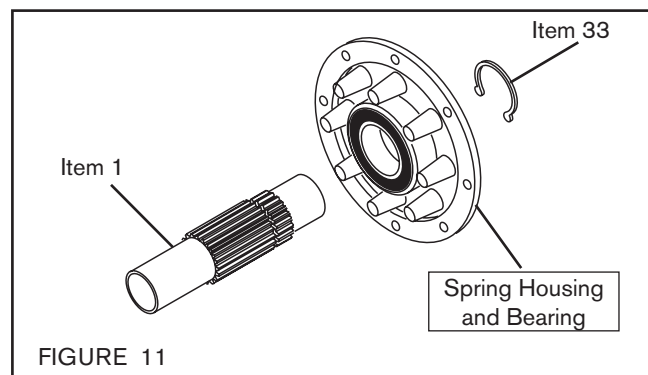


FIGURE 11

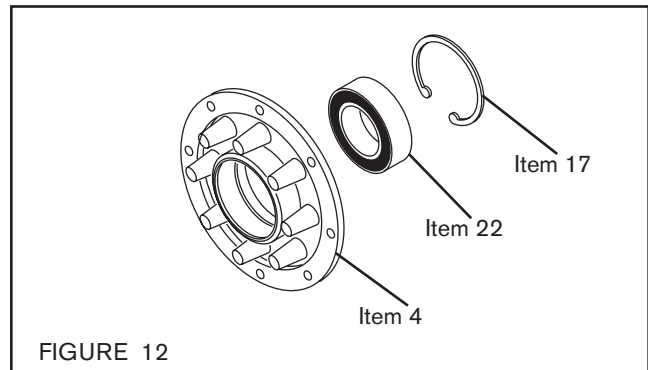


FIGURE 12

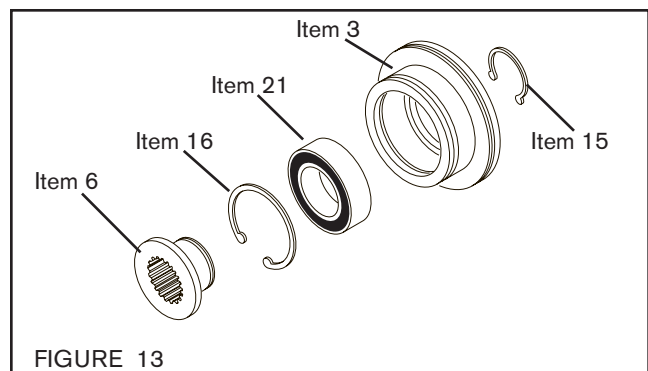


FIGURE 13

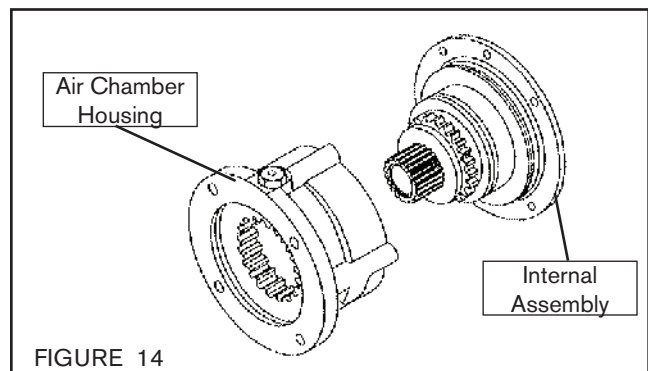


FIGURE 14

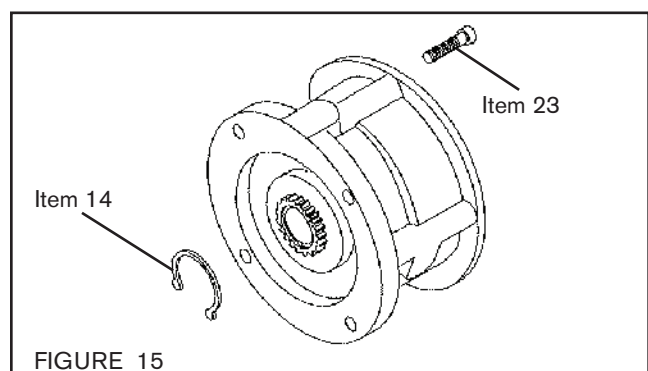


FIGURE 15

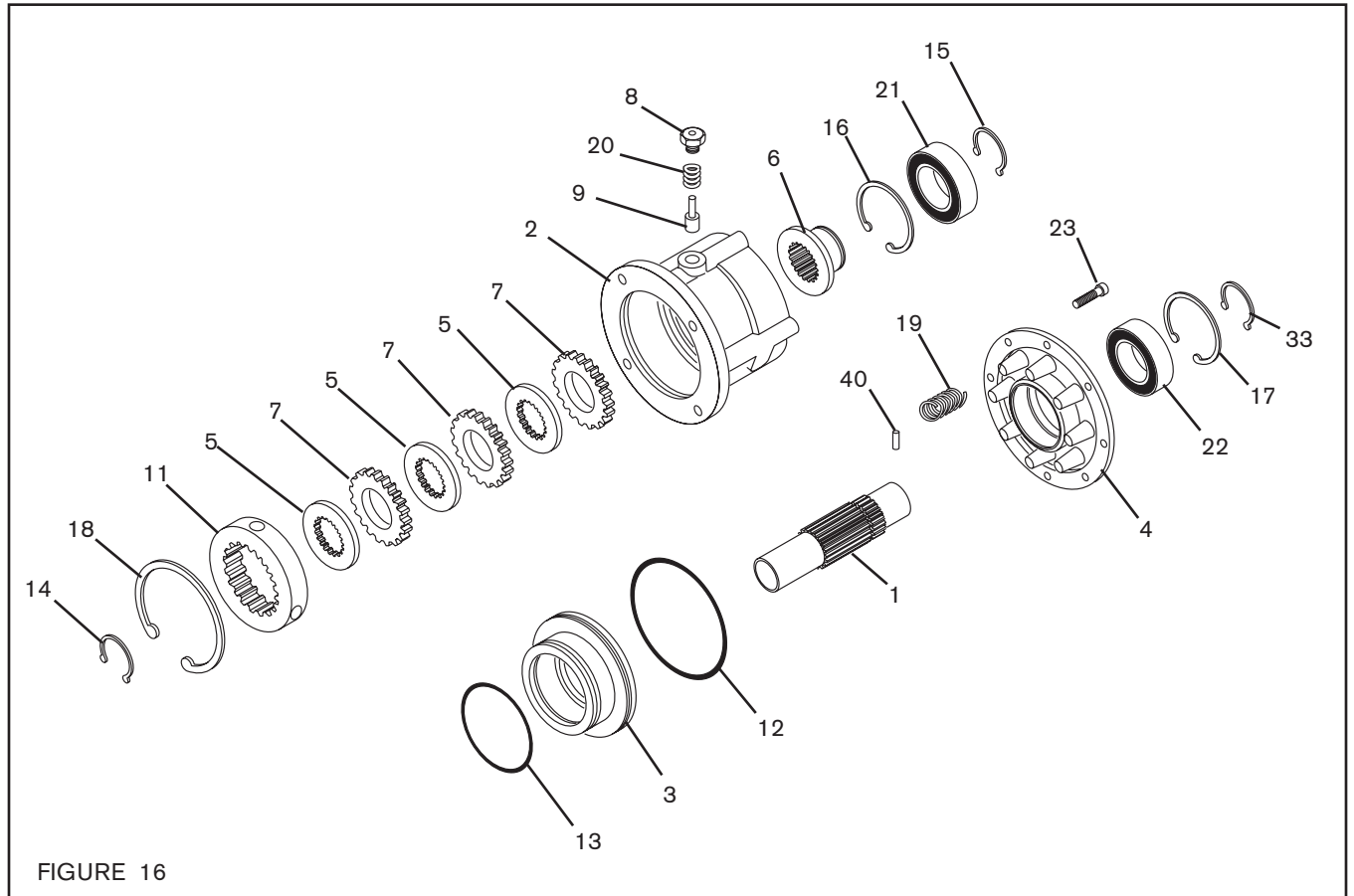


## REPLACEMENT PARTS

The Item or "Balloon" Number for all Nexen Products is used for part identification on all Product Parts List, Product Price List, 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



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
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
17	Retaining Ring	1

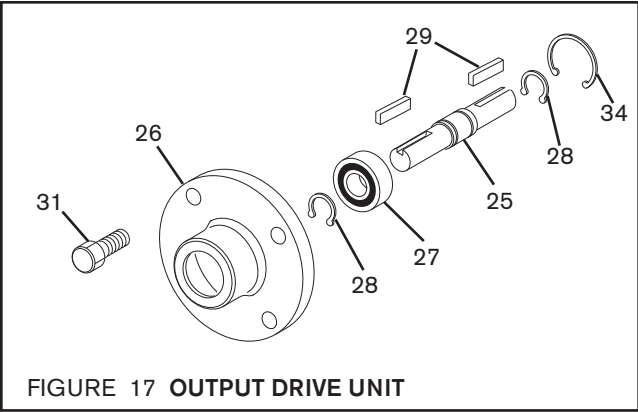
ITEM	DESCRIPTION	QTY
18	Retaining Ring	1
19 <sup>1</sup>	Compression Spring	8
20	Spring	1
21 <sup>1</sup>	Bearing	1
22 <sup>1</sup>	Bearing	1
23	Socket Head Cap Screw	4
24	Lock Washers (not shown)	4
33	Retaining Ring	1
35	Plug (not shown)	1
36	Hose Assembly (not shown)	1
37	Hub Key (not shown)	1
38	Cap Screws (not shown)	4
39	Lock Washers (not shown)	4
40	Spring Pin	1
41	Restrictor Valve (Opt., 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
31	Cap Screw	4
32	Lock Washer (not shown)	4
34	Retaining Ring	1

ACCESSORIES		
MODEL	DESCRIPTION	PRODUCT NUMBER
SE-500	Output Unit	933000
SE-500	Adaptor Shaft	812500
SE-500	Torque Arm	933200



REPAIR KITS	
MODEL	PRODUCT #
SE-500-1	812700

## 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.

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