




## **Enclosed Torque Limiter**

**Models TL20A-E, TL30A-E, TL40A-E, TL50A-E,  
TL60A-E, TL20A-E/2, TL30A-E/2, TL40A-E/2,  
TL50A-E/2, TL60A-E/2**

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="545 632 846 684"> <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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## GENERAL SPECIFICATIONS

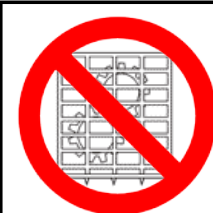
Specifications	
Torque:	Up to 3130 Nm (27,700 in-lbs)
Actuation Pressure:	1-5.5 bar (14.5-80 psi)
Service Temperature:	4.5-104C (40-220F)
Approximate Weight:	Up to 50.8 kg (112 lbs)

## GENERAL SAFETY PRECAUTIONS



### CAUTION

Some Torque Limiters can exceed 100 lbs. Use lifting aids and proper lifting techniques when installing, removing, or placing in service.



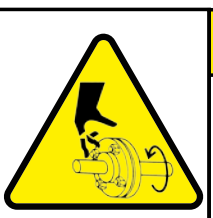
### WARNING

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



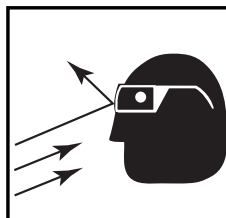
### CAUTION

Non-enclosed Torque Limiters have a pinch point between the driving and driven elements of the torque interface. Keep hands clear.



### CAUTION

Torque Limiters connect a driving and driven shaft. Keep hands clear.



### WARNING

Some Torque Limiter models are Spring Loaded. Extreme caution should be used in disassembling and disposing of the unit.



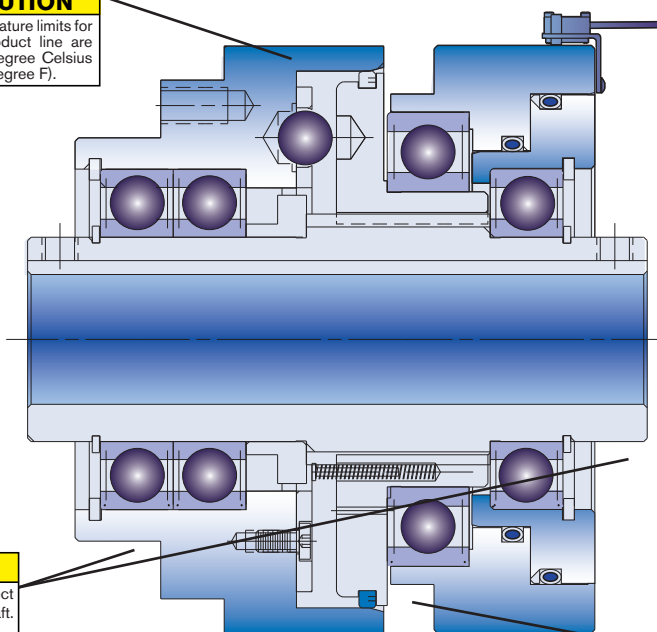
### CAUTION

Watch for sharp features when installing and servicing the Torque Limiter. The TL has complex shapes and machined edges.



### CAUTION

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



### CAUTION

Torque Limiters connect a driving and driven shaft. Keep hands clear.



### CAUTION

Non-enclosed Torque Limiters have a pinch point between the driving and driven elements of the torque interface. Keep hands clear.

## INTRODUCTION

Nexen's enclosed air engaged, single position, Torque Limiters provide overload protection for power transmission equipment, thus protecting machinery or product from jam-ups and resultant down time expense.

The totally enclosed construction of Nexen's Enclosed Torque Limiter allows for usage in wet or humid conditions and is acceptable for use in USDA approved meat and poultry plants.

A Proximity Sensor (located on the Torque Limiter) senses the onset of an overload condition and releases air pressure at the 3-way valve to provide split second disengagement of the Torque Limiter.

The single position feature resets in the same position when the unit is engaged, providing exact timing of two components.

## INSTALLATION

**NOTE:** Do not connect in-line without the use of a flexible coupling half. The internal construction of Nexen's Torque Limiter will not allow any misalignment tolerances. If a coupling is required, call Nexen customer support at 800-843-7445. See Tables 1 and 2 for coupling misalignment capacity.

TABLE 1

NEXEN SINGLE FLEX COUPLING SPECIFICATIONS				
MODEL	COUPLING ADAPTOR ASSEMBLY	MISALIGNMENT CAPACITY		
		Angular	Axial	Parallel
TL20A-E	909980	1.5 Degrees	0.07	0.013"
TL20A-E/2	909980	1.5 Degrees	0.07	0.013"
TL30A-E	910080	1.5 Degrees	0.09	0.015"
TL30A-E/2	910080	1.5 Degrees	0.09	0.015"
TL40A-E	910280	1.5 Degrees	0.13	0.020"
TL40A-E/2	910280	1.5 Degrees	0.13	0.020"
TL50A-E	910380	1.5 Degrees	0.15	0.026"
TL50A-E/2	910380	1.5 Degrees	0.15	0.026"
TL60A-E	910480	1.5 Degrees	0.17	0.032"
TL60A-E/2	910480	1.5 Degrees	0.17	0.032"

TABLE 2

NEXEN DOUBLE FLEX COUPLING SPECIFICATIONS				
MODEL	COUPLING ADAPTOR ASSEMBLY	MISALIGNMENT CAPACITY		
		Angular	Axial	Parallel
TL20A-E	909981	3 Degrees	0.14	0.031"
TL20A-E/2	909981	3 Degrees	0.14	0.031"
TL30A-E	910081	3 Degrees	0.19	0.047"
TL30A-E/2	910081	3 Degrees	0.19	0.047"
TL40A-E	910281	3 Degrees	0.26	0.055"
TL40A-E/2	910281	3 Degrees	0.26	0.055"
TL50A-E	910381	3 Degrees	0.30	0.062"
TL50A-E/2	910381	3 Degrees	0.30	0.062"
TL60A-E	910481	3 Degrees	0.34	0.071"
TL60A-E/2	910481	3 Degrees	0.34	0.071"

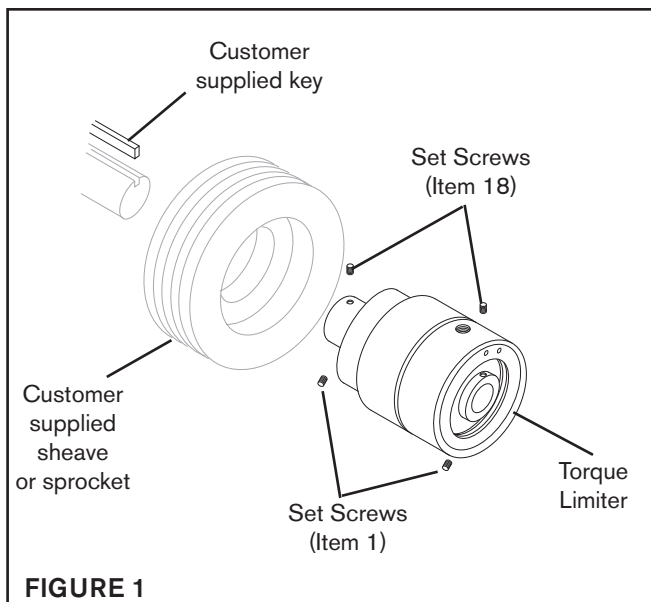
## TORQUE LIMITER

Refer to Figure 1.

1. Using customer supplied cap screws, fasten sheave or sprocket to the Torque Limiter.

**NOTE: Nexen recommends using Loctite 242® or equivalent thread locking compound on Pilot Mounting holes.**

2. Insert a customer supplied key into the shaft keyway.
3. Align the keyway of the Torque Limiter with the shaft and key; then, slide the Torque Limiter onto shaft.
4. Tighten the four Set Screws (Item 1).
5. Tighten the two Set Screws (Item 18).

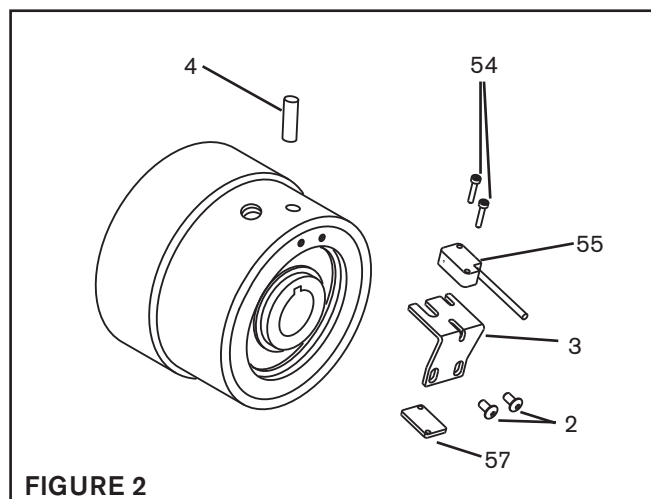


## PROXIMITY SENSOR

Refer to Figure 2.

**NOTE: A ground wire is not required.**

1. Install the Dowel Pin (Item 4) into the Torque Limiter.
2. Secure the Proximity Sensor (Item 55) to the Bracket (Item 3) using Cap Screws (Item 54) and Mounting Plate (Item 57).
3. Using Cap Screws (Item 2), mount the Bracket (Item 3) onto the Torque Limiter.



## 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.

Nexen product's bearings are shielded and pre-lubricated, and require no further lubrication.



### CAUTION

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

### 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.



### CAUTION

Do not over-lubricate the Drive Flange Assembly. Over-lubrication creates a hydraulic effect within the Torque Limiter that will adversely affect the break-away torque.

TABLE 4

#### RECOMMENDED LUBRICANTS

Chevron SRI  
Amoco Rykon Premium Grease #2  
Exxon Unirex #2  
Shell Dolium Grease #2  
Texaco Premium #2

Nexen's Torque Limiter bearings are shielded or sealed and prelubricated, and require no further lubrication.

The Drive Flange Assembly has been prelubricated and does not require additional lubrication at start up. The amount of lubrication is sufficient to maintain the proper coefficient of friction at the Balls and Detents.

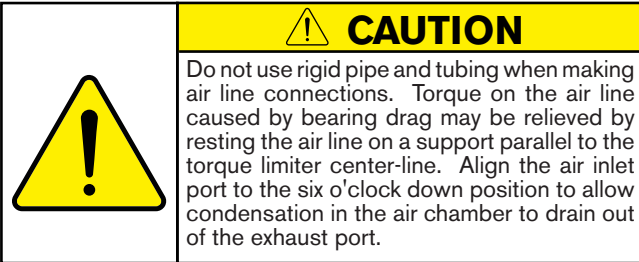
The Drive Flange Assembly must be disassembled if lubrication becomes necessary (See PARTS REPLACEMENT). Spread recommended lubricants (approx. 1/8" [3.2 mm] thick by 1/8" [3.2 mm] wide) evenly over Drive Flange Balls, Ball Track, and Drive Ring Detents (See Table 4 for recommended lubricants).

## AIR CONNECTIONS

### NOTE

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

**NOTE:** Nexen recommends using a Constant Bleed Air Regulator along with a 3-Way Solenoid Valve to ensure a total "crisp" release when overload conditions arise.

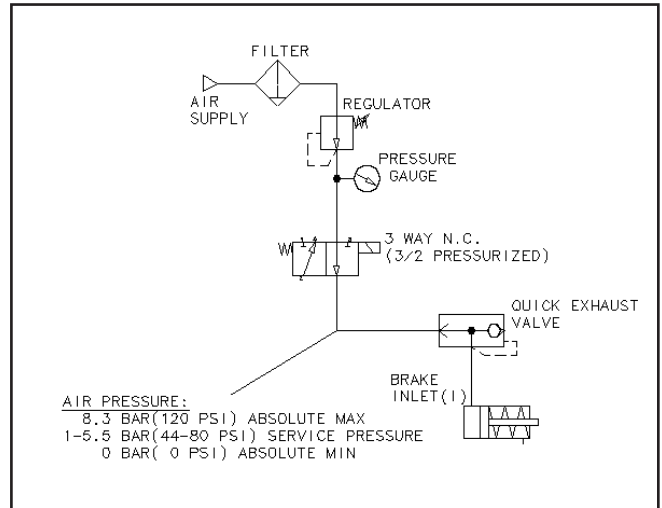


### SINGLE AIR PRESSURE CONTROL SYSTEM

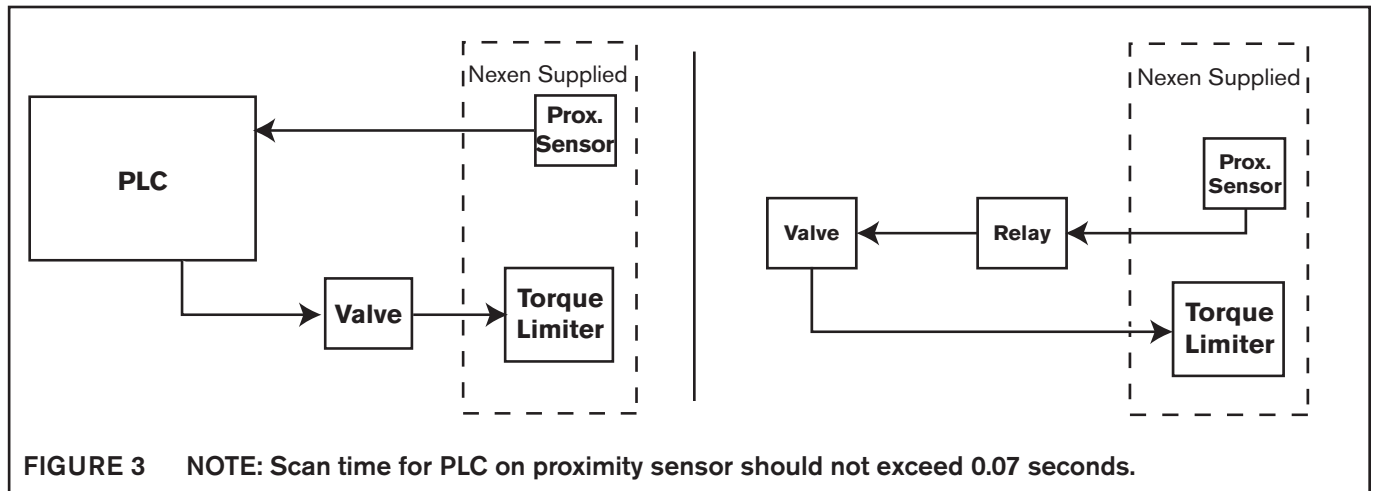
Nexen's Single Air Pressure Control System consists of: Constant Bleed Type Regulator, Gauge, Quick Exhaust Shuttle Valve, Tee Fitting, 3-Way N.C. (Normally Closed) Solenoid Valve, and Air Line.

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

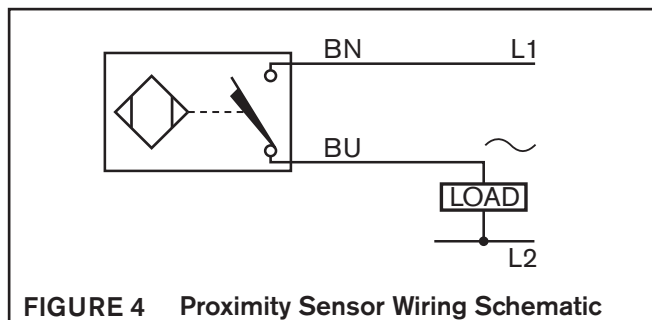
The following is a common air supply scheme used with this product. This is an example and not an all-inclusive list. All air circuits to be used with this product must be designed following EN983 guidelines.



## ELECTRICAL CONNECTIONS



The supplied Proximity Sensor is shown operating in two typical scenarios in Figure 3. It is the responsibility of the system integrator to ensure the limits of the Proximity Sensor Specifications are followed for integration into a robust system. See Figure 4 for Proximity Sensor Wiring Schematic, and Table 3 for Electrical Specifications.



**TABLE 3**  
**PROXIMITY SENSOR SPECIFICATIONS**

Voltage	20–250 VAC, 10–300 VDC
Line Frequency	40–60 Hz
Voltage Drop Across Conducting Sensor	<6.0 V at 100 mA
Continuous Load Current	<100 mA
Off-State (Leakage) Current	<1.7 mA
Minimum Load Current	3.0 mA
Maximum Inrush Current	1.0 A (<30 ms, 15% Duty Cycle)

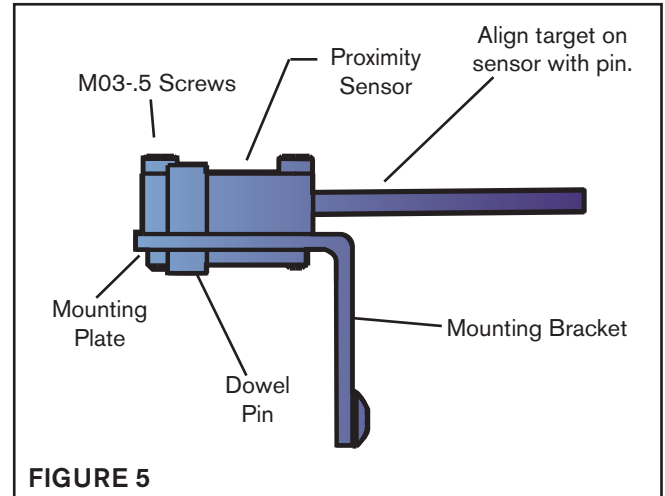


## ADJUSTMENTS

### PROXIMITY SENSOR

**NOTE:** The Nexen Torque Limiter is equipped with a proximity sensor to detect torque overloads. It is important that the sensor be positioned so the dowel pin just moves into the sensor's field of view when the Torque Limiter is engaged. At this time, the proximity sensor's output circuit will be closed. When the Torque Limiter is overloaded, the dowel pin will move immediately outside the proximity sensor's field of view and its output circuit will open.

1. Apply air pressure to the Torque Limiter.
2. Rotate the Drive Flange Assembly until the positioning balls are seated into the detents.
3. Slide the Proximity Sensor (Item 55) on the Bracket (Item 3) until the LED on the Proximity Sensor is illuminated.
4. Tighten the screws securing the Proximity Sensor to the Mounting Bracket.



5. Run the machine to verify proper operation of the Torque Limiter.
6. If nuisance tripping occurs, realign the proximity sensor with the Dowel Pin until it operates properly.

## OPERATION

The Ball and Detent design on Nexen's Torque Limiters ensure that each unit will reset in the same position when the Torque Limiter engages. They will also deliver the same torque in either direction of rotation.

**NOTE:** Machine must come to a complete stop before Torque Limiter can be reengaged.

	<b>WARNING</b>
<p>Never exceed maximum operating speeds listed for your product. (See Table 5).</p>	

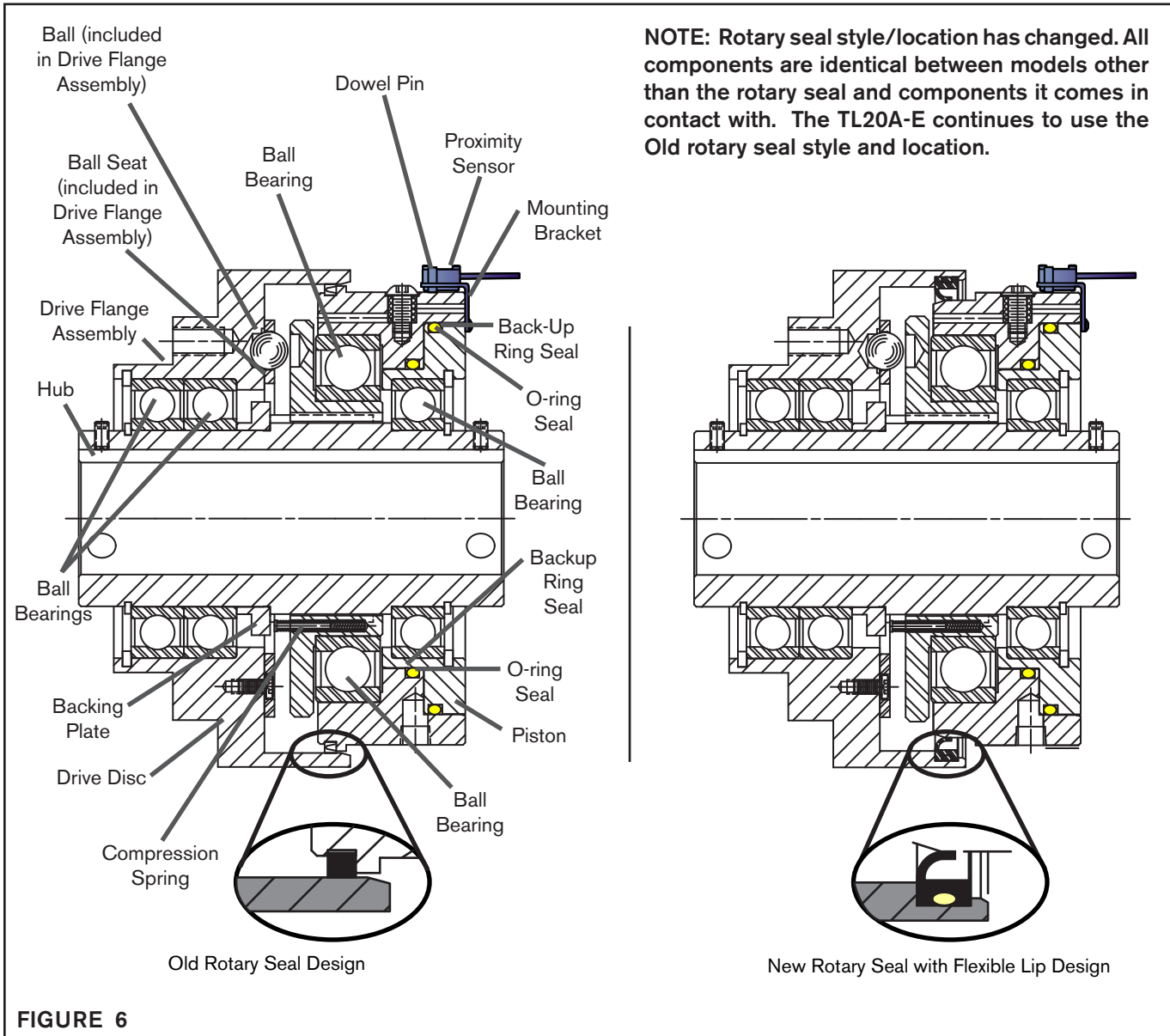
**NOTE:** Torque Limiter may run in excess of 200° F as measured on the Air Chamber until the Rotary Seal has worn in.

**TABLE 5**

MODEL	MAXIMUM OPERATING SPEEDS
TL20A-E, TL20A-E/2	1650 RPM
TL30A-E, TL30A-E/2	1350 RPM
TL40A-E, TL40A-E/2	1200 RPM
TL50A-E, TL50A-E/2	1100 RPM
TL60A-E, TL60A-E/2	1000 RPM

	<b>CAUTION</b>
<p>The temperature limits for the TL product line are 4.5-104 Degree Celsius (40-220 Degree F).</p>	

## TROUBLESHOOTING



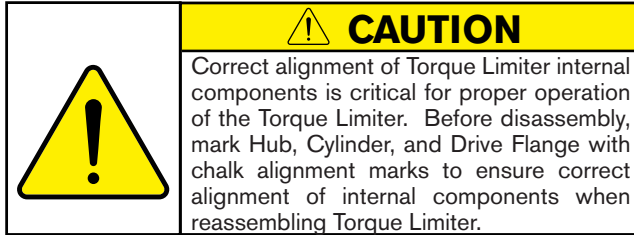
SYMPTOM	PROBABLE CAUSE	SOLUTION
Failure to Engage	Insufficient air pressure to the Torque Limiter.	Check the air lines for leaks and replace damaged air lines.
	Damaged or leaking O-ring Seals.	Replace the O-ring Seals.
	Driven load is too light.	Back off air pressure and use shielded bearings.
Failure to Disengage	Broken Compression Springs.	Replace the Compression Springs.
	Air not exhausting from the Quick Exhaust Shuttle Valve.	Replace the Quick Exhaust Shuttle Valve.
Ratcheting	Insufficient air pressure to the Torque Limiter.	Check the air lines for leaks and replace damaged air lines.
	Damaged or leaking O-ring Seals.	Replace the O-ring Seals.
Nuisance Tripping	Proximity Sensor not properly adjusted.	Adjust the Proximity Sensor (See ADJUSTMENTS.)

## PARTS REPLACEMENT

### TORQUE LIMITER REMOVAL AND DISASSEMBLY

Refer to Figures 7 & 8.

1. Shut off machine and air supply to the Torque Limiter.
2. Disconnect the Torque Limiter from the air supply by removing the Quick Exhaust Shuttle Valve and the 3-Way N.C. Solenoid Valve.
3. Remove the Torque Limiter from the machine.



4. Remove the Retaining Ring (Item 6) from the Hub (Item 7) on the Drive Flange Assembly (Item 19) end of the Torque Limiter.
5. Supporting Drive Flange Assembly (Item 19), press Hub (Item 7) and Cylinder/Piston Assembly out of the Drive Flange.
6. Remove the Rotary Seal (Item 15) from the Drive Flange Assembly.

**NOTE: Rotary seal style/location has changed (except for in TL20A-E models). If Torque Limiter has old rotary seal design, seal is located in the Cylinder/Piston Assembly (Items 8 & 9). Refer to Table 6 and Figure 6 to determine what style rotary seal is used on your product. All other procedures are identical between models.**

7. Remove Retaining Ring (Item 6) from the Hub (Item 7) on the Cylinder/Piston end of Torque Limiter.
8. Supporting the Cylinder/Piston Assembly, press the Hub (Item 7) out of the Cylinder/Piston Assembly.

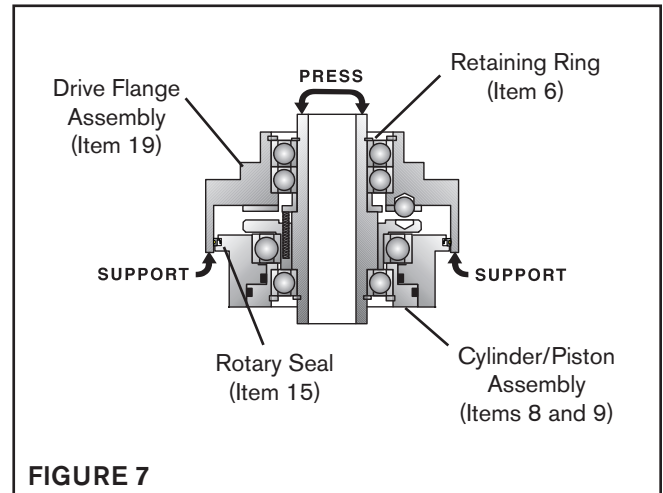


FIGURE 7

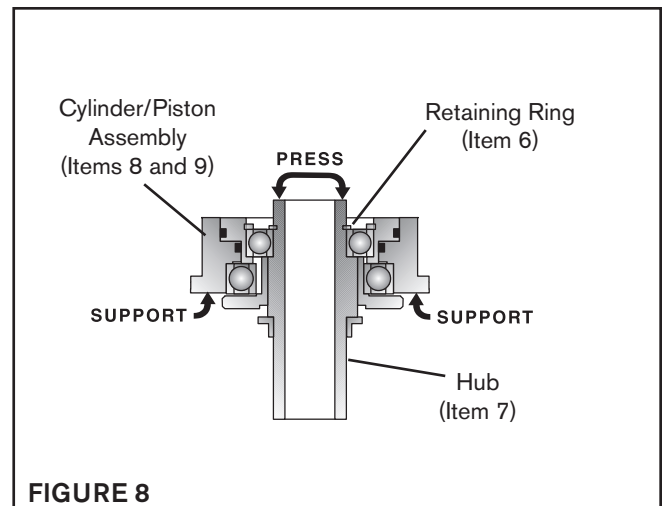


FIGURE 8

## CYLINDER/PISTON BALL BEARING AND O-RING SEALS

Refer to Figures 9 - 11.

1. Remove the old Compression Springs (Item 17) and Spring Stiffener Pins (Item 16) from the Drive Ring (Item 10).
2. Separate the Piston (Item 8) from the Cylinder (Item 9).
3. Remove old O-ring Seals (Items 12 and 13) and Back-Up Ring Seals (Items 11 & 14).
4. Remove the Retaining Ring (Item 5) from the Piston (Item 8) (See Figures 9 and 10).
5. Fully supporting the Piston (Item 8), press the old Ball Bearing (Item 21) out of Piston.



**NOTE: Do not reuse the old ball bearings. Applying force to the inner race to remove a ball bearing held by the outer race causes damage to the ball bearing.**

6. Clean the bearing bore of the Piston (Item 8) with fresh solvent, making sure all old Loctite® residue is removed.
7. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Ball Bearing (Item 21) and press the new Ball Bearing into the Piston (Item 8).
8. Reinstall Retaining Ring (Item 5).
9. Fully supporting the Cylinder (Item 9), press the old Ball Bearing (Item 22) and Drive Ring (Item 10) out of the Cylinder.
10. Using a bearing puller, remove old Ball Bearing (Item 22) from Drive Ring (Item 10).
11. Clean the bearing bore of the Cylinder (Item 9) with fresh 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 (Item 22) and press the new Ball Bearing into the Cylinder (Item 9).

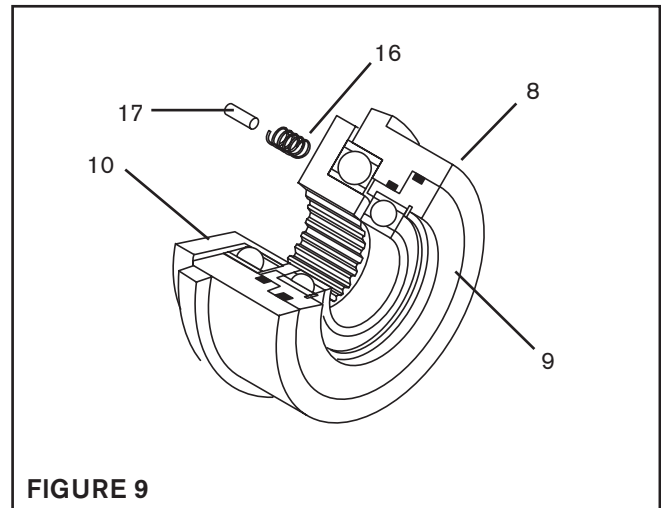


FIGURE 9

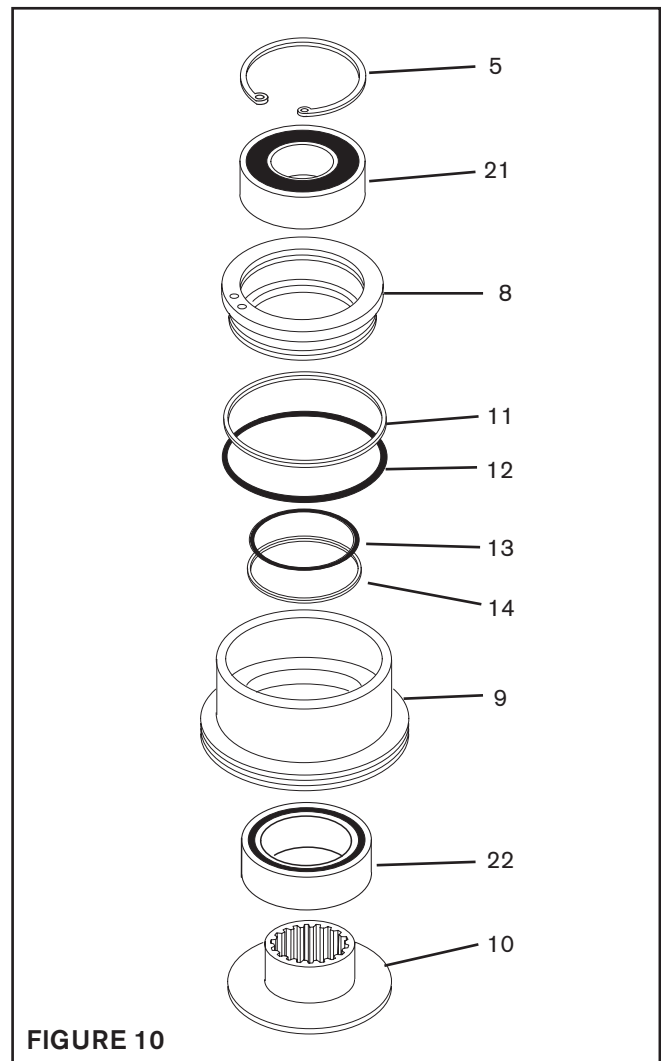
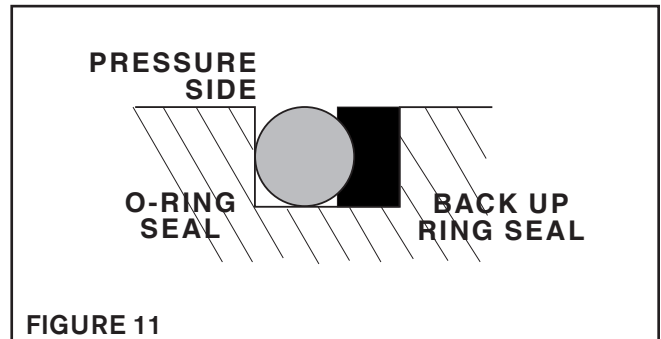


FIGURE 10

## CYLINDER/PISTON BALL BEARING AND O-RING SEALS (continued)

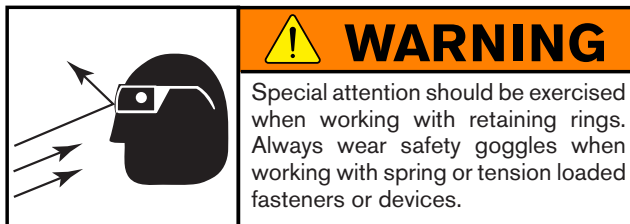
13. Supporting the inner race of the new Ball Bearing (Item 22), press the Drive Ring (Item 10) into the Cylinder (Item 9) and new Ball Bearing.
14. Clean the O-rings and Back-Up Ring Seal grooves.
15. Lubricate the new O-ring Seals (Items 12 and 13), Back-Up Ring Seals (Items 11 and 14), and seal contact surfaces of the Piston (Item 8) and Cylinder (Item 9) with a thin film of fresh o-ring lubricant.

**NOTE:** When installing new O-ring Seals (Items 12 and 13) and Back-Up Ring Seals (Items 11 and 14), make sure the curved surface of the Back-Up Ring Seal matches the curved surface of the O-ring Seal. The Back-Up Ring Seals must be installed on the non-pressurized side of the O-ring Seals.



16. Install new O-ring Seals (Items 11 and 14) and new Back-Up Ring Seals (Items 11 and 14).
17. Press the Piston (Item 8) back into the Cylinder (Item 9).

## DRIVE FLANGE BALL BEARINGS



Refer to Figures 12 & 13.

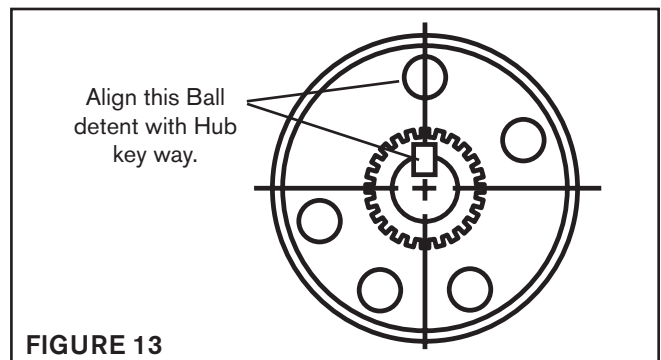
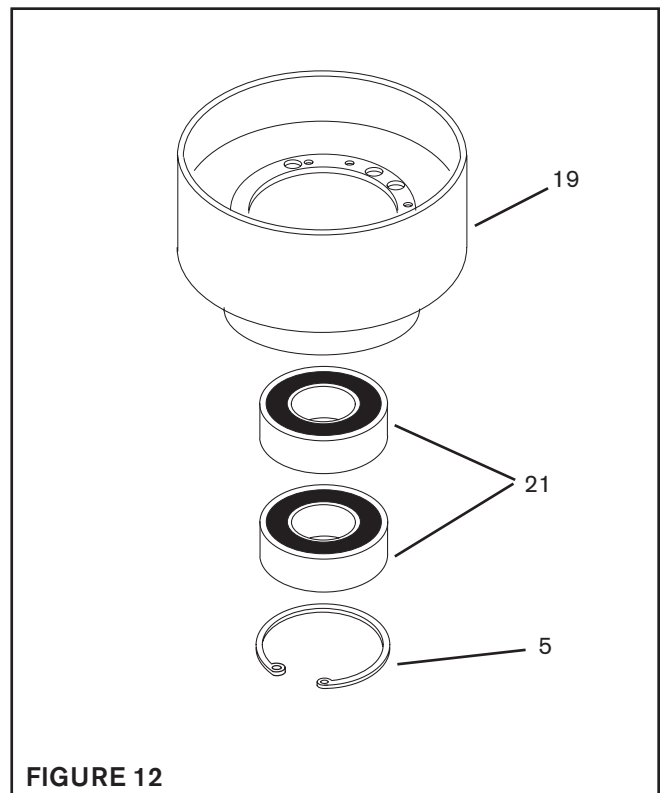
1. Remove the Retaining Ring (Item 5) from the Drive Flange (Item 19).

**NOTE:** The Drive Flange Assembly consists of: Machine Screws, Ball Seat, Balls, and Drive Flange. If any of these items show signs of wear or damage, the entire Drive Flange Assembly (Item 19) must be replaced.

2. Fully support the Drive Flange Assembly (Item 19); then, press the Ball Bearings (Item 21) out of Drive Flange Assembly.

**NOTE:** Do not reuse the old Ball Bearings. Applying force to the inner race to remove ball bearings held by the outer race causes damage to the ball bearings.

3. Clean the bearing bore of the Drive Flange Assembly (Item 19) with fresh solvent, making sure all old Loctite® residue is removed.
4. Apply an adequate amount of Loctite® 680 to evenly coat the outer race of the new Ball Bearings (Item 21) and press the new Ball Bearings into the Drive Flange Assembly (Item 19).
5. Reinstall Retaining Ring (Item 5).



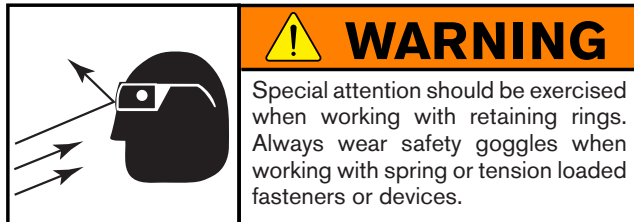
## TORQUE LIMITER REASSEMBLY

Refer to Figures 14 - 17.

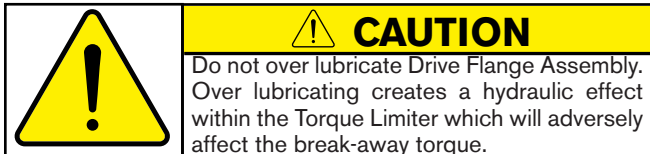
**NOTE:** To ensure proper operation after assembling the Torque Limiter, align the chalk alignment marks.

**When assembling Torque Limiter, align the Hub key way with Balls as shown (See Figure 13).**

1. Press Hub (Item 7) into Drive Flange Assembly (Item 19) while supporting the inner and outer races of the Drive Flange Ball Bearings.



2. Reinstall Retaining Rings (Items 5 & 6).

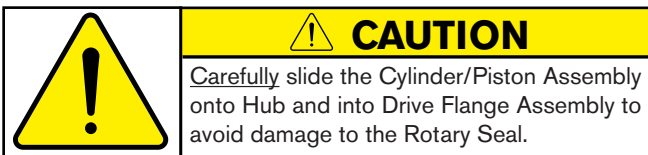


3. Lubricate the Drive Flange Assembly (Item 19) (See LUBRICATION).
4. Install new Compression Springs (Items 17) and Spring Stiffener Pins (Item 16) into the Drive Ring (Item 10).
5. Install the new Rotary Seal (Item 15).

**NOTE:** Back of the Rotary Seal must be installed facing the Drive Flange Assembly end of Torque Limiter.

**NOTE:** Rotary seal style/location has changed (except for in TL20A-E models). Refer to Table 6 and Figure 6 to determine what style rotary seal is used on your product. All other procedures are identical between models.

6. Lubricate the Hub spline with Never-Seez® and the lip of the Rotary Seal with a lubricant shown in Table 4.
7. Pressing on inner race of Ball Bearing (Item 21), press Cylinder/Piston Assembly onto Hub of Torque Limiter (See Figure 24).



8. Reinstall Retaining Ring (Item 6).

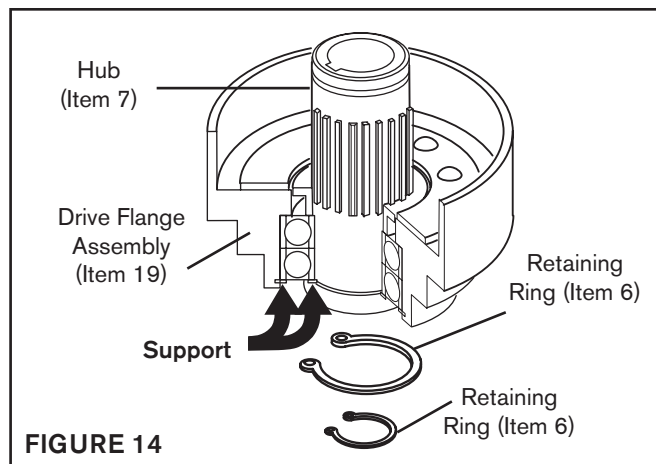


FIGURE 14

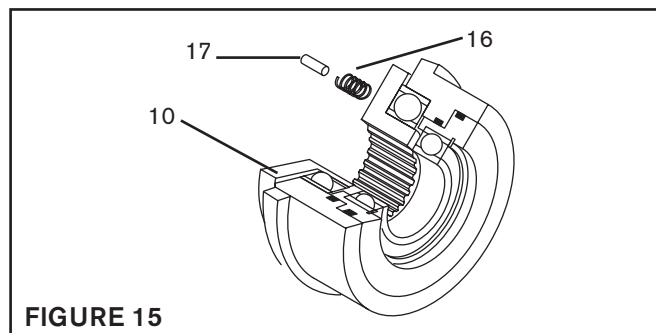


FIGURE 15

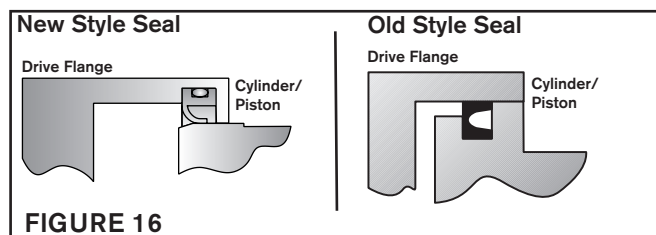


FIGURE 16

\*TL20A-E uses old style rotary seal.

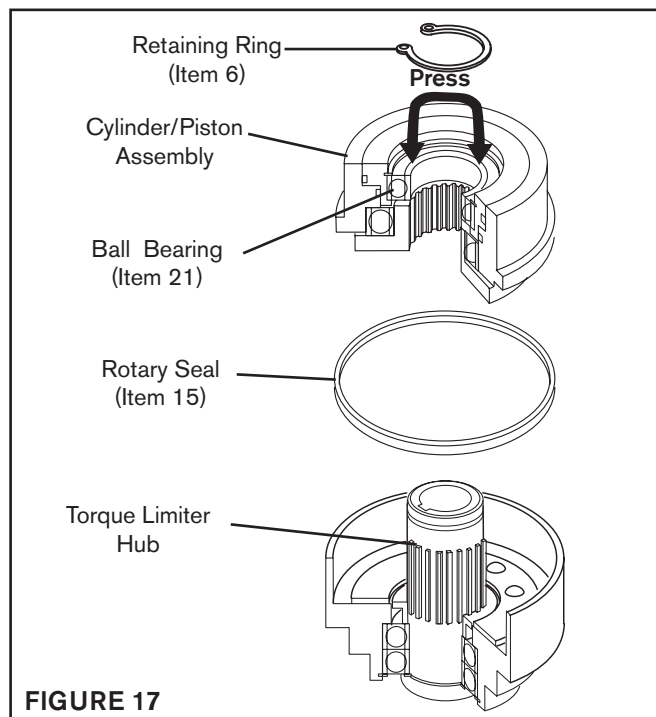


FIGURE 17

## PARTS LIST

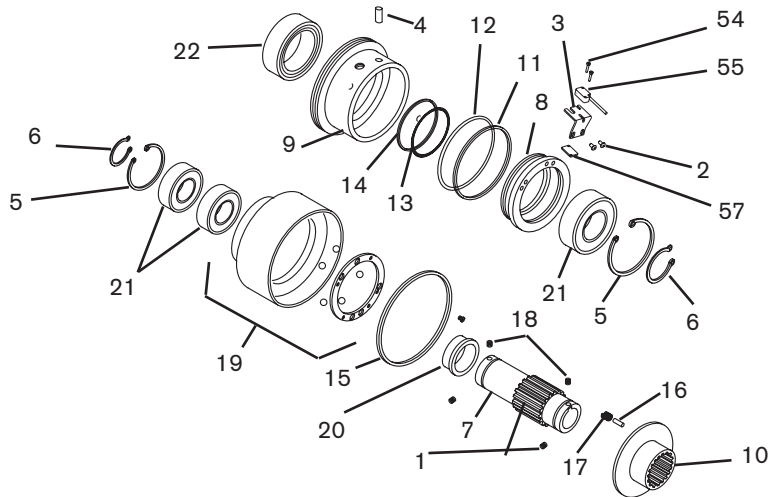


FIGURE 18

Item	Description	Quantity				
		TL20A-E	TL30A-E	TL40A-E	TL50A-E	TL60A-E
1	Set Screws	4	4	4	4	4
2	Cap Screw (10-24 x 3/8)	2	2	2	2	2
3	Mounting Bracket (Proximity Sensor)	1	1	1	1	1
4	Dowel Pin (0.250 x 1.250)	1	1	1	1	1
5	Retaining Ring (Internal)	2	2	2	2	2
6	Retaining Ring (External)	2	2	2	2	2
7	Hub	1	1	1	1	1
8	Piston	1	1	1	1	1
9	Cylinder	1	1	1	1	1
10	Drive Ring	1	1	1	1	1
11*	Back-Up Ring Seal (Large)	1	1	1	1	1
12*	O-ring Seal (Large)	1	1	1	1	1
13*	O-ring Seal (Small)	1	1	1	1	1
14*	Back-Up Ring Seal (Small)	1	1	1	1	1
15***	Rotary Seal	1	1	1	1	1
16*	Spring Stiffener Pin	6	10	13	15	18
17*	Compression Spring	6	10	13	15	18
18	Set Screw	2	2	2	2	2
19**	Drive Flange Assembly	1	1	1	1	1
20	Backing Plate	1	1	1	1	1
21*	Ball Bearing	3	3	3	3	3
22*	Ball Bearing	1	1	1	1	1
24	Air Line (Not Shown)	1	1	1	1	1
26	Breather Vent (Not Shown)	1	1	1	1	1
27	Cap Screw (Not Shown)	1	1	1	1	1
54	Cap Screw (M03-0.5 x 16mm)	2	2	2	2	2
55	Limit Switch	1	1	1	1	1
57	Mounting Plate (Proximity Sensor)	1	1	1	1	1
58	Quick Exhaust (Not Shown)	1	1	1	1	1

\* Denotes Repair Kit item.

\*\* Drive Flange Assembly (Item 19) includes: Drive Flange, Machine Screws, Ball Seat, and Balls.

\*\*\* Rotary seal styles have changed in all products except TL20A-E models. Refer to PARTS REPLACEMENT to determine rotary seal style.

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## ORDERING 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.

### ROTARY SEAL CHANGE

Torque Limiters have been improved with a new style rotary seal (excluding TL20A-E models). Be sure to order the correct seal style for your Torque Limiter. When ordering the Rotary Seal (Item 15), use the serial number on the Torque Limiter to determine rotary seal style used on the unit. Table 7 lists the serial numbers of the first units built with the New Rotary Seal. All units built before that were use old style rotary seals.

After determining what style seal is required, refer to Table 6 to select the rotary seal part number.

**NOTE: If serial number information is unavailable, refer to Figure 6 to determine if you have the old or new style rotary seal design.**

- On the new models, the rotary seal is located in the Drive Flange.
- On the old design, the rotary seal is seated in the Cylinder.

**TABLE 6**

Size	New Rotary Seal Part Number
20	N/A
30	170216
40	170320
50	170322
60	170249
Old Rotary Seal Part Number	
20	3019
30	3020
40	3021
50	3022
60	3023

**TABLE 7**

Size	Unit Number	1st Serial Number with New Rotary Seal	Exceptions	
20	all	-----	Built with old rotary seal.	
30	802914	1424569*	* A small number of size 30 units with lower serial numbers may have the new rotary seal. Refer to Figure 6 to verify seal style.	
30	802915	1442468*		
30	802916	1441043*		
30	802961	1431608*		
30	all others	1444909		
40	802909	1544497		
40	802922	1535781		
40	802924	1543391		
40	802926	1567197		
40	802929	1598674		
40	802981	1532006		
40	802992	1543451		
40	all others	1536543		
50	802932	1553665		
50	802934	1569641		
50	802936	1535354		
50	all others	1527467		
60	802942	1501842	1539815, 1539816, 1554128, 1554129	Built with old rotary seal
60	802945	1515016	1548616	
60	802949	1515074	1527666	
60	802952	1505031		
60	802996	1489629		
60	803008	1469946		
60	803012	1554168	1554168	
60	all others	1481480		



## REPAIR KITS

**TABLE 8**

ITEM	DESCRIPTION
11	Back-up Seal Ring (Large)
12	O-ring Seal (Large)
13	O-ring Seal (Small)
14	Back-up Ring Seal (Small)
16	Spring Stiffener Pin
17	Compression Spring
21	Ball Bearing
22	Ball Bearing

**TABLE 9**

MODEL	REPAIR KIT NUMBER
TL20A-E, TL20A-E/2	802908
TL30A-E, TL30A-E/2	802918
TL40A-E, TL40A-E/2	802928
TL50A-E, TL50A-E/2	802938
TL60A-E, TL60A-E/2	802948

## 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.

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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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