




Tension Control Brakes

XTB-10, XTB-12, XTB-14, XTB-18, XTB-22

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

	<div data-bbox="553 527 850 579"> DANGER</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 ONLY. Improper installation can damage your system, cause injury or death. Comply with all applicable codes.</p>	
---	---	---

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.
560 Oak Grove Parkway
Vadnais Heights, Minnesota 55127

ISO 9001 Certified

Copyright 2014 Nexen Group, Inc.


TABLE OF CONTENTS

General Specifications	4
General Safety Precautions	4
Installation	5
Guard Installation	7
Lubrication	8
Air Connections	9
Operation	10
Troubleshooting	11
Parts Replacement:	
Friction Facings	11
Diaphragm	12
Rotor	13
Replacement Parts	14
Warranty	17

GENERAL SPECIFICATIONS


Specifications:	
Torque	Up to 4050 Nm (35840 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 200 kg (440 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.




CAUTION

This product has possible pinch points. Care should be taken when interacting with this product.




WARNING

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



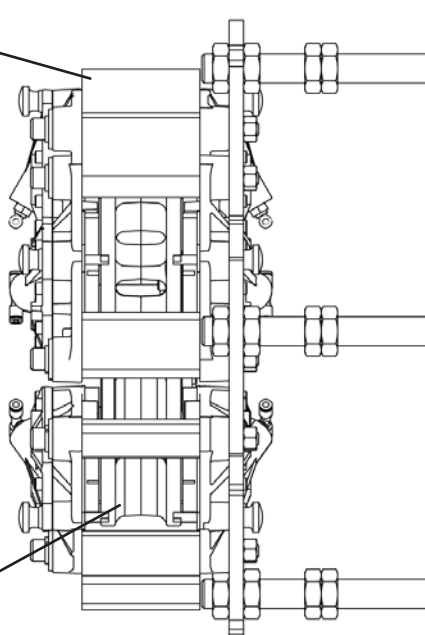
WARNING


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

Surface temperature may exceed safe handling limits during operation. Do not touch.





CAUTION

This product has possible pinch points. Care should be taken when interacting with this product.

INSTALLATION

MACHINE PREPARATION

Refer to Figure 1.

1. Using the machine shaft as a center point, scribe a bolt circle on the machine surface.
2. Drill four holes spaced as shown.

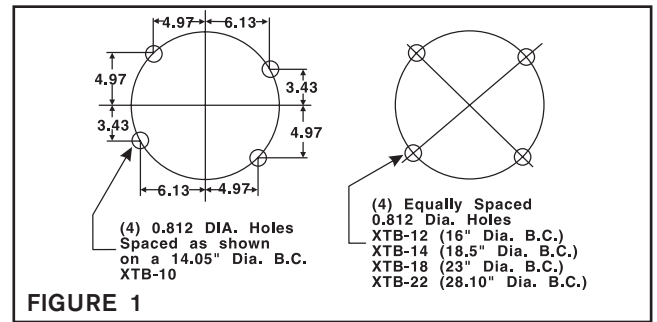


FIGURE 1

MOUNTING PLATE

Refer to Figure 2.

1. Thread one Hex. Head Jam Nut (Item 9) part way onto one end of each Mounting Stud Standoff (Item 8).
2. Insert the Mounting Stud Standoffs with Hex. Head Jam Nuts into the holes drilled into the machine surface.
3. From the back side of the machine surface, install the second set of Hex. Head Jam Nuts onto the Mounting Stud Standoffs.
4. Tighten the Hex. Head Jam Nuts to 131 Ft. Lbs. [178 N•m] torque.

NOTE
Do not tighten the Hex. Head Jam Nuts (Item 9) installed in Steps 5 and 7.

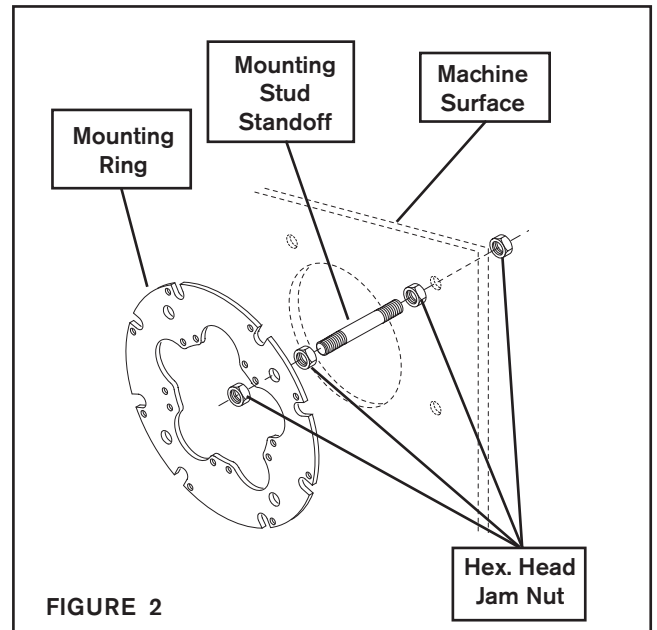


FIGURE 2

5. Thread a third Hex. Head Jam Nut onto each Mounting Stud Standoff.
6. Slide the Mounting Ring (Item 7) onto the Mounting Stud Standoffs.
7. Thread the fourth Hex. Head Jam Nut onto each Mounting Stud Standoff to hold the Mounting Ring in place.

NOTE
The Mounting Ring must be perpendicular to the brake shaft.

ROTOR

Refer to Figure 3.

1. Insert the Key (Item 6) into the machine shaft.

NOTE
The Rotor(s) and Hub are available in both clockwise and counterclockwise rotation. The direction of rotation is stamped into the Rotor. Make sure rotational direction is correct for the application.

2. Slide the Rotor(s) and Hub (Item 2) onto the machine shaft and Key.

NOTE
Do not tighten the Set Screws at this time.

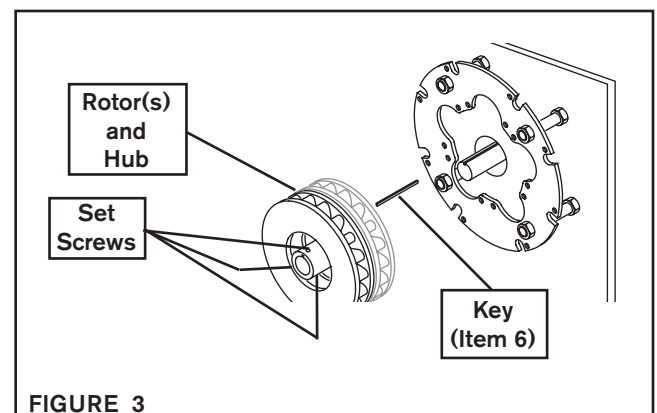


FIGURE 3

INSTALLATION (continued)

CALIPER

Refer to Figures 4 - 7.

1. Slide one Caliper Assembly over the Rotor and Hub.

NOTE

For best thermal dissipation, align the Caliper Assembly as shown in relation to the direction of Rotor rotation. Direction of Rotor rotation is stamped in the Rotor.

NOTE

Remove and discard the two Hex. Nuts used to hold the Caliper Assembly together during shipping.

2. Using Socket Head Cap Screws, Flat Washers, and Lock Washers, secure the Caliper Assembly to the Mounting Ring.
3. Tighten the Socket Head Cap Screws.

NOTE

On Models XTB-10, 12, 14, and 18, tighten the Socket Head Cap Screws to 45 Ft. Lbs. [61 N•m] torque.

On Model XTB-22, tighten the Socket Head Cap Screws to 110 Ft. Lbs. [149 N•m] torque.

4. Repeat Steps 1-3 to install the remaining Caliper Assemblies.
5. Slide the Rotor and Hub on the machine shaft until it is snug against the Caliper Assemblies.
6. Tighten Set Screws.
7. Align the Mounting Ring and Calipers to the Rotor(s) and Hub Assembly by adjusting the Nuts until a 1/16-3/32" spacer can be inserted between the tabs on the Caliper and Rotor (See Figure 6 for Single Rotor alignment and Figure 7 for Dual Rotor alignment procedures).
8. Tighten the Hex. Head Jam Nuts to 131 Ft. Lbs. [178 N•m] torque.

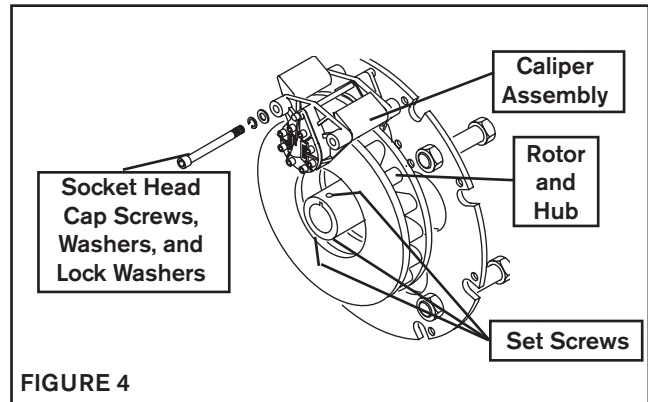


FIGURE 4

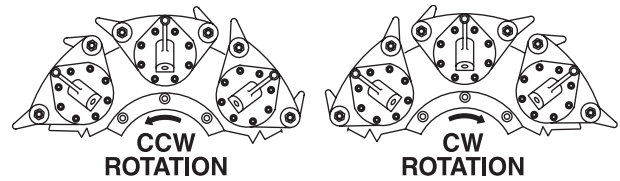


FIGURE 5

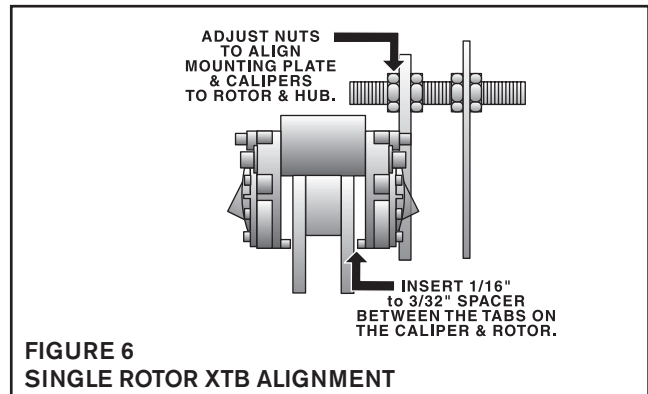


FIGURE 6
SINGLE ROTOR XTB ALIGNMENT

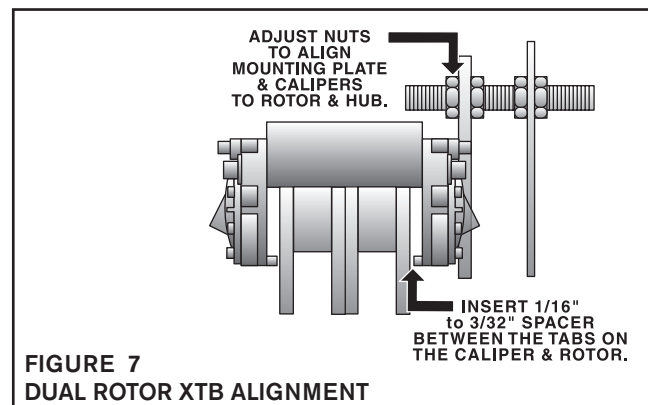


FIGURE 7
DUAL ROTOR XTB ALIGNMENT

INSTALLATION (continued)

FRICTION FACING

Refer to Figure 8.

NOTE
STD Friction Facings have a red stripe and LOCO Friction Facings have a green stripe.

1. Pull out the Shoe Retaining Pin.
2. Slide the Friction Facings into the space between the Caliper and Rotor until the cutout on each Friction Facing is against the lug on the Caliper.
3. Secure the Friction Facings by sliding the Shoe Retaining Pin back into the Caliper and through the holes in the Friction Facings.
4. Repeat Steps 1-3 to install all Friction Facings.

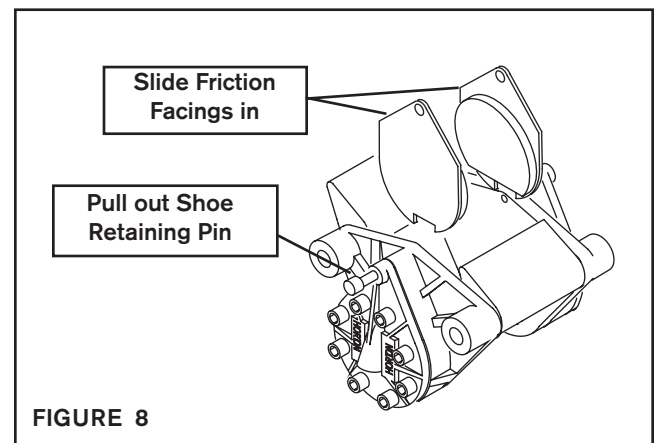


FIGURE 8

GUARD INSTALLATION

Refer to Figure 9.

	<p>WARNING</p> <p>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".</p>
--	--

1. Slide the Ring Guard over the XTB Caliper Brake Assembly by aligning the Ring Guard attachment hook ends with the notches in the XTB Mounting Ring; then, turn the Ring Guard to the closest attachment hole.
2. Secure the Ring Guard to the Mounting Ring of the XTB Caliper Brake Assembly using the eight Socket Head Cap Screws. Tighten to 50 in lbs [5,6 Nm].
3. If the Ring Guard is shipped with an End Cap, slide the End Cap onto the Ring Guard; then, secure it in place by bending the tabs on the End Cap around the Ring Guard.

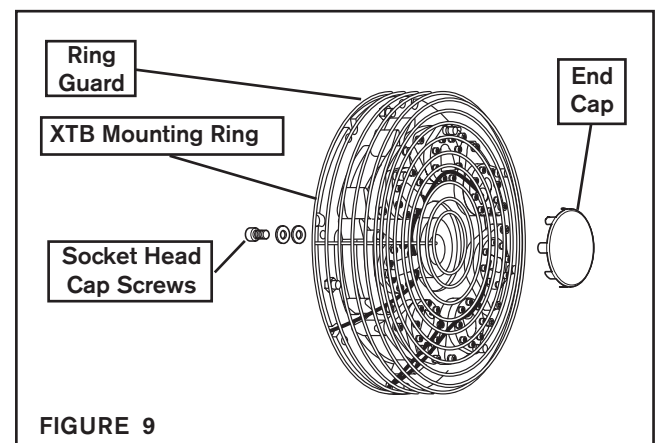


FIGURE 9

NOTE
Ring Guard product numbers are located in the Replacement Parts section.

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.

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

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.

Refer to Figures 10 - 14.

A length of 5/32" [4 mm] O.D. nylon air line for connections between Caliper Assemblies and Air Controls is supplied (See Table 1 for Tubing Specifications). Each Caliper comes with one Elbow fitting, two Tee fittings, and a 13-1/2" [342.9 mm] nylon air line.

TABLE 1

O.D.	I.D.	MINIMUM BEND RADIUS	BURST PRESSURE	MATERIAL
0.15-60	0.106	3/4"	1000 PSI @ 75 Deg. F.	NYLON - 11

NOTE

Use the length of air line supplied to make the connections between Calipers.

The Elbows and Tees are push-lock fittings. To install the air line, simply push the air line into the fitting until it stops. To disconnect, push in on the fitting collar and pull the air line out.

There are a variety of plumbing options with the multi-caliper XTB Brake. Figures 11 through 14 show typical air line connections.

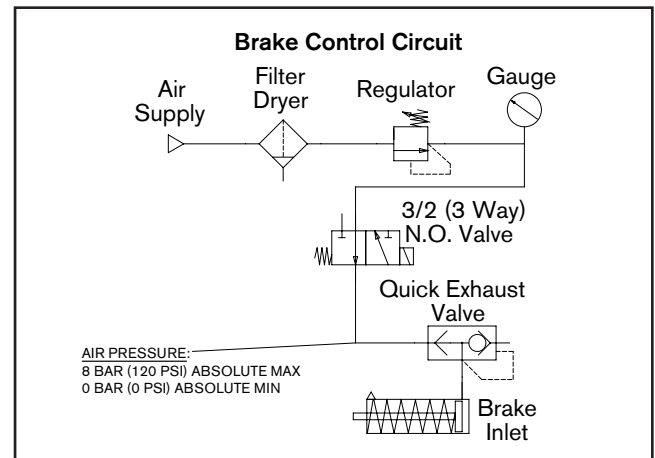
NOTE

Not all the fittings are used for making Caliper connections. Save the extra fittings for use as replacement parts.

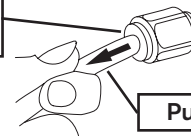
The Four Stage Caliper Manifold (Product No. 835134) directs air pressure to three separate sets of calipers connected as a single pair or series, providing three torque ranges with just one brake for handling a variety of web materials. It consists of a 3-Way, ON/OFF Toggle switch and three other Toggle switches allowing the user to select caliper operating stages and vary torque output (See Figures 11-14).

Any number of calipers may be used in each stage. Actuating one switch, two switches, or all three switches will vary the torque output to meet a predetermined braking requirement.

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.



Push the collar in



Pull air line out

FIGURE 10

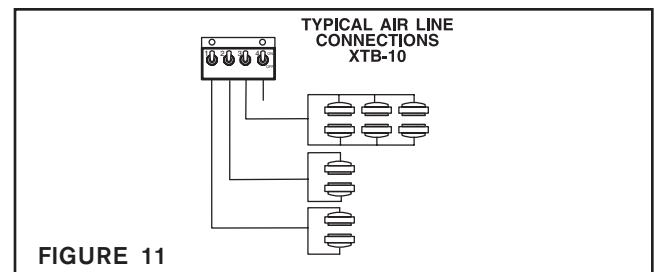


FIGURE 11

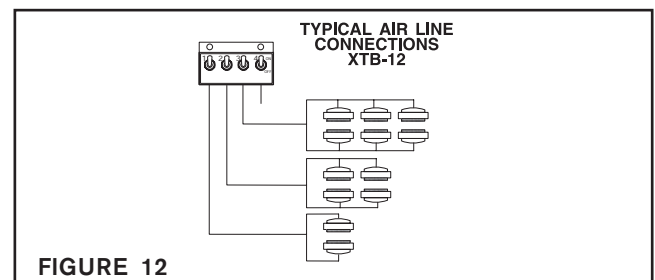


FIGURE 12

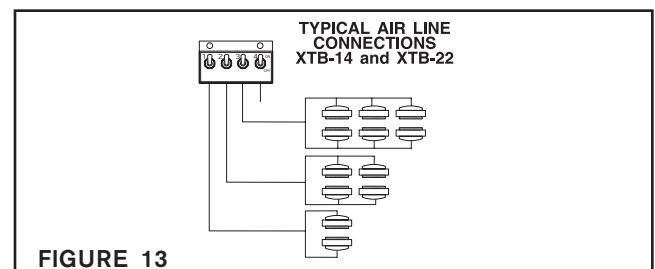


FIGURE 13

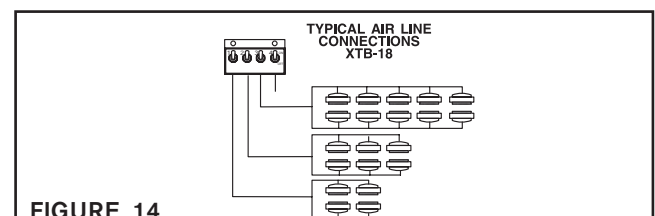






FIGURE 14


OPERATION

	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: $\text{Time} = \text{Volume} / (\text{Power} * \text{Wear Rate})$.

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

	WARNING
	Before placing the XTB Caliper Brake into service, check that all Fasteners have been tightened to the proper torque (See Table 2).

	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".

	WARNING
	Never exceed maximum operating speeds listed for your product. (See Table 3).

Inspect all Fasteners on a routine basis to make sure they are tightened to the recommended torque (See Table 2).

To properly set the XTB Caliper Brake:

1. Set all controls to **OFF**.
2. Set the regulator to the desired air pressure.
3. Set the Control Toggle Switches (selected for the desired braking torque) to **ON**.
4. Set the Toggle Switch No. 4 to **ON** to start the Control System.

TABLE 2

TIGHTENING TORQUES			
MODEL	HEX. HEAD JAM NUTS (ITEM 9)	CALIPER SOCKET HEAD CAP SCREWS (ITEM 11)	ROTOR TO HUB SOCKET HEAD CAP SCREWS (ITEM 3)
XTB-10	131 Ft. Lbs. [178 N•m]	30 Ft. Lbs. [40.7 N•m]	12 Ft. Lbs. [16.3 N•m]
XTB-12	131 Ft. Lbs. [178 N•m]	30 Ft. Lbs. [40.7 N•m]	45 Ft. Lbs. [61 N•m]
XTB-14	131 Ft. Lbs. [178 N•m]	30 Ft. Lbs. [40.7 N•m]	45 Ft. Lbs. [61 N•m]
XTB-18	131 Ft. Lbs. [178 N•m]	30 Ft. Lbs. [40.7 N•m]	108 Ft. Lbs. [146 N•m]
XTB-22	131 Ft. Lbs. [178 N•m]	110 Ft. Lbs. [149 N•m]	108 Ft. Lbs. [146 N•m]

TABLE 3

MAXIMUM OPERATING SPEEDS				
XTB-10	XTB-12	XTB-14	XTB-18	XTB-22
4,000 RPM	3,300 RPM	3,000 RPM	2,500 RPM	1,800 RPM

TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	SOLUTION
Failure to engage.	Air not getting to brake.	Check controls and replace if necessary.
	Low air pressure.	Check controls and air lines for restrictions and replace them if necessary.
	Control malfunction.	Replace control.
Failure to disengage.	Air not being exhausted.	Check controls and air lines for restrictions.
	Incorrect alignment of Caliper or Mounting Ring.	Review Caliper and Mounting Ring procedure (See INSTALLATION, CALIPER).
	Control malfunction.	Replace control.
Loss of torque.	Air leaks.	Check controls and air lines for leaks. Replace the air lines or controls if leaks exist.
	Friction Facings worn or contaminated.	Replace Friction Facings.
Friction Facing squeal or chatter.	Air pressure too high.	Reduce air pressure.
	Wrong Friction Facing for application.	Replace Friction Facings with correct Friction Facings for the application.

PARTS REPLACEMENT

FRICITION FACINGS

Refer to Figure 15.

1. Stop the machine, shut off the air supply, and ensure safety lockouts are installed to prevent accidental machine start-up.
2. Remove the Ring Guard.
3. Pull out the Shoe Retaining Pin.
4. Slide the old Friction Facings out of the Caliper.
5. Slide two new Friction Facings into the space between the Caliper and Rotor until the cutout on the Friction Facings are against the lugs on the Caliper.
6. Secure the new Friction Facings by sliding the Shoe Retaining Pin back into the Caliper and through the holes in the Friction Facings.
7. Repeat Steps 1 -5 until all the facings have been replaced.
8. Reinstall the Ring Guard (See **GUARD INSTALLATION**).

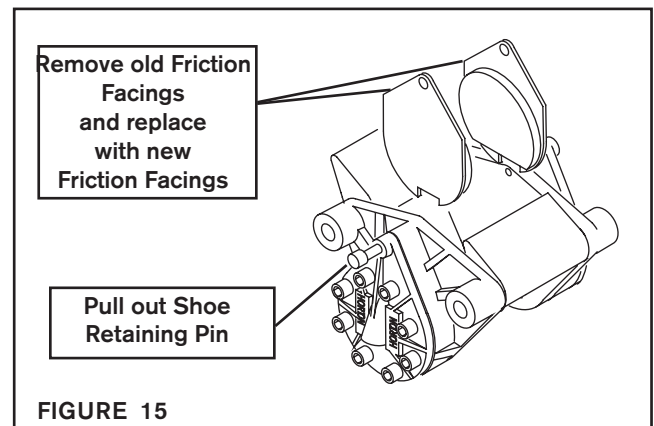


FIGURE 15

NOTE

Inspect the Friction Facings and replace them when they are worn to approximately 5/32" [4 mm] thick.

PARTS REPLACEMENT (continued)

DIAPHRAGM

Refer to Figures 16 - 18.

1. Stop the machine, shut off the air supply, and ensure safety lockouts are installed to prevent accidental machine start-up.
2. Remove the Ring Guard.
3. Remove the Friction Facings (See **PARTS REPLACEMENT—FRICTION FACINGS**).
4. Disconnect the air lines from the Caliper by pushing in on collar of the fitting; then, pull the air line out of the fitting.

NOTE

Mark the orientation of the Caliper Spacers (Item 9) in relation to the Caliper Housing (Item 1) to ensure correct orientation during reassembly.

5. Remove the Caliper Assembly from the Mounting Ring.
 - a. Remove the Socket Head Cap Screw securing the Caliper to the Mounting Ring.
 - b. Slide the Caliper free of the Rotor and Mounting Ring.
6. Remove the Socket Head Cap Screws securing the Caliper Cap to the Caliper Housing and remove the Caliper Cap.
7. Remove the old Diaphragm and Piston.
8. Remove the old Diaphragm from the Piston; then, slide the Piston back into the Caliper Housing.

NOTE

The holes in the Diaphragm must be aligned with the holes in the Caliper Housing.

9. Place a new Diaphragm (dull side towards Caliper Housing) over the Piston and Caliper Housing.
10. Place the Caliper Cap on the Caliper Assembly.

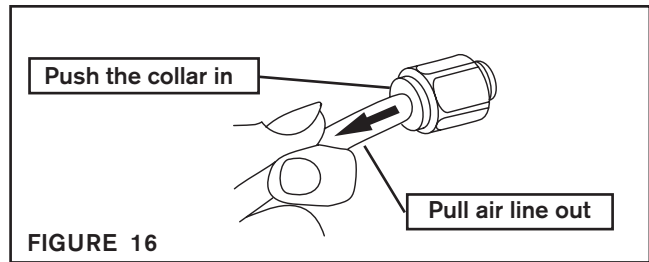


FIGURE 16

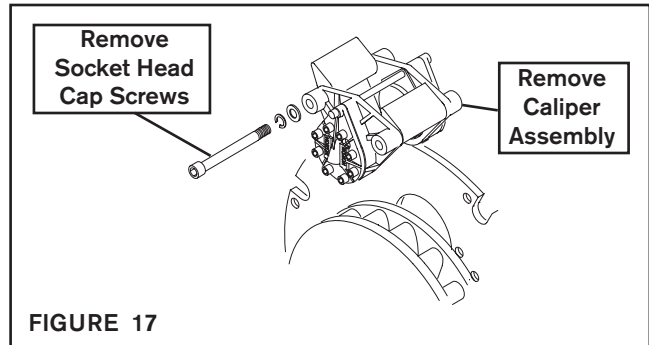


FIGURE 17

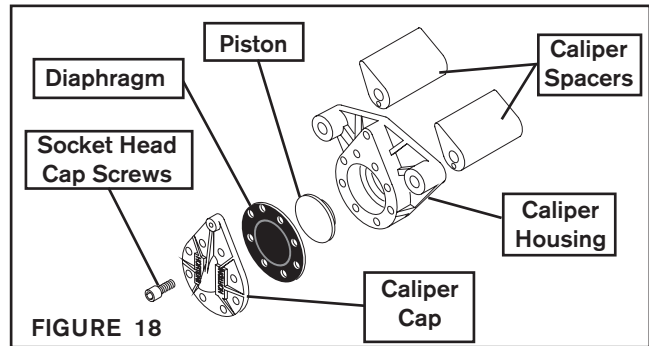


FIGURE 18

11. Install and tighten the Socket Head Cap Screws to 1.75 Ft. Lbs. [2.4 N•m] torque.
12. Install the Caliper to the Mounting Ring (See **INSTALLATION—CALIPER**).
13. Install the Friction Facings (See **INSTALLATION—FRICTION FACINGS**).
14. Connect the air lines.
15. Reinstall the Ring Guard (See **GUARD INSTALLATION**).

PARTS REPLACEMENT (continued)

ROTOR

Refer to Figures 19 - 21

1. Stop the machine, shut off the air supply, and ensure safety lockouts are installed to prevent accidental machine start-up.
2. Remove the Ring Guard (See **GUARD INSTALLATION**).
3. Remove Calipers (See **PARTS REPLACEMENT—DIAPHRAGM**, Steps 3 and 4).
4. Remove the Socket Head Cap Screws securing the Rotor(s) to the Hub (See Figure 20 for Single Rotor and Figure 21 for Dual Rotor).

NOTE

The Rotor(s) may be resurfaced. The minimum Rotor(s) thickness after resurfacing must be no less than 1.937" [49.2 mm] for XTB-10, XTB-12, XTB-14, XTB-18, and 2.925" [50.3 mm] for XTB-22.

5. Apply Loctite® 242 to the Socket Head Cap Screws to avoid loosening. Using the Socket Head Cap Screws, secure the new or resurfaced Rotor(s) to the Hub (See Figure 20 for Single Rotor and Figure 21 for Dual Rotor).
6. Tighten the Socket Head Cap Screws to the recommended torque (See Table 4).
7. Install the Rotor and Hub (See **INSTALLATION—ROTOR**).
8. Install the Calipers (See **INSTALLATION—CALIPER**).
9. Install the Friction Facings (See **INSTALLATION—FRICTION FACINGS**).
10. Install the Ring Guard (See **GUARD INSTALLATION**).

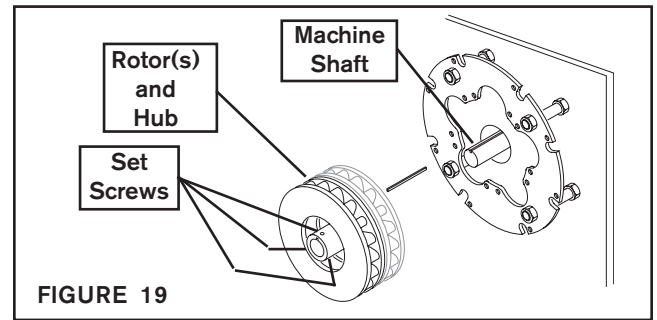


FIGURE 19

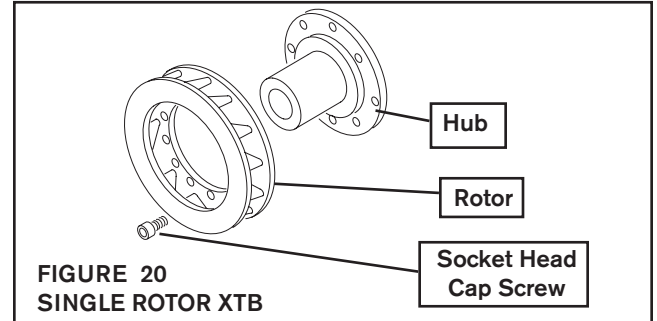


FIGURE 20
SINGLE ROTOR XTB

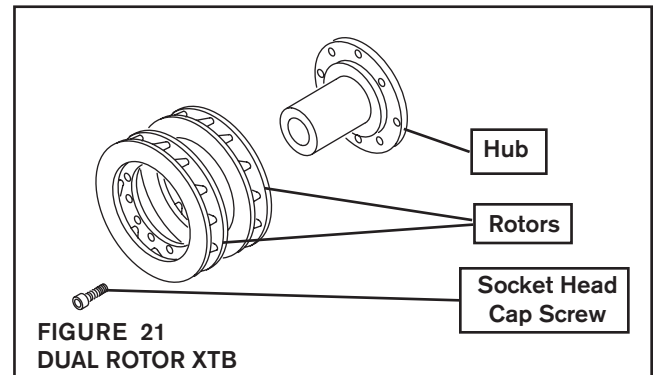


FIGURE 21
DUAL ROTOR XTB

TABLE 4

SOCKET HEAD CAP SCREW (ITEM 3) HUB TO ROTOR TIGHTENING TORQUES				
XTB-10	XTB-12	XTB-14	XTB-18	XTB-22
12 Ft. Lbs. [16.3 N•m]	45 Ft. Lbs. [61 N•m]	45 Ft. Lbs. [61 N•m]	108 Ft. Lbs. [146 N•m]	108 Ft. Lbs. [146 N•m]

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.

CALIPER ASSEMBLY

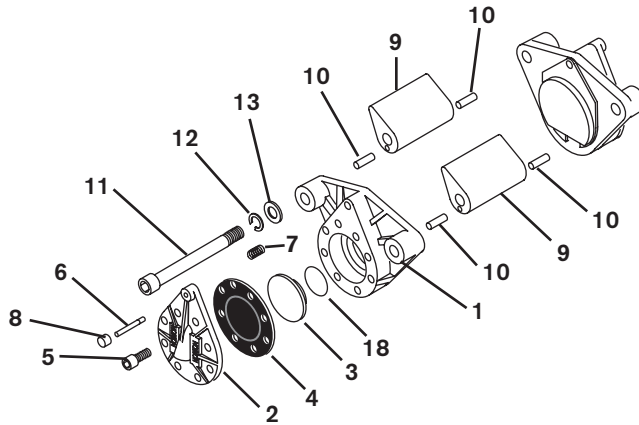


FIGURE 22
CALIPER ASSEMBLY

ITEM	DESCRIPTION	QTY
1	Caliper Housing	2
2	Caliper Cap	2
3	Piston	2
4	Diaphragm	2
5	Socket Head Cap Screw	16
6	Shoe Retaining Pin	2
7	Compression Spring	2
8	Retaining Pin Knob	2
9	Caliper Spacer	2

ITEM	DESCRIPTION	QTY
10	Spring Pin (Slotted)	4
11	Socket Head Cap Screw	2
12	Lock Washer	2
13	Flat Washer	2
14	Hex. Nut (Not Shown)	2
15	Elbow Fitting (Not Shown)	1
16	Tee Fitting (Not Shown)	2
17	Nylon Air Line (Not Shown)	--
18	O-Ring	2

MOUNTING PLATE AND ROTOR ASSEMBLY

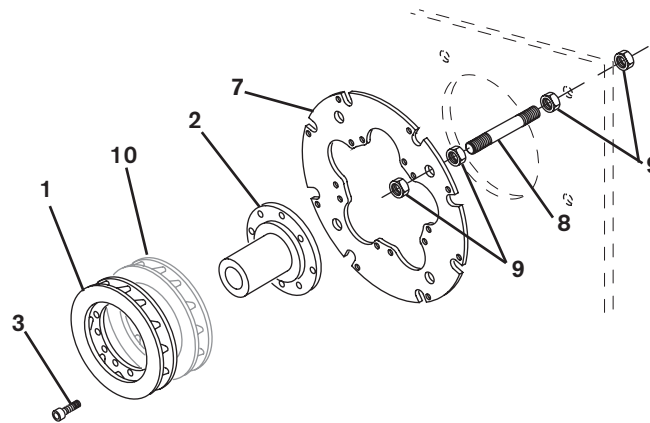


FIGURE 23
HUB AND ROTOR ASSEMBLY

ITEM	DESCRIPTION	QTY
1	Rotor	1
2	Hub	1
3	Socket Head Cap Screw	8
4	Set Screw (Not Shown)	1
5	Set Screw (Not Shown)	2

ITEM	DESCRIPTION	QTY
6	Key (Not Shown)	1
7	Mounting Ring	1
8	Mounting Stud Standoff	4
9	Hex Head Jam Nut	16
10 ¹	Rotor	1

¹ Item 10 is for Dual Rotor XTB only.

REPLACEMENT PARTS (continued)

COMPONENT PRODUCT NUMBERS:

HUB AND ROTOR PRODUCT NUMBERS

SINGLE ROTOR XTB	CW ROTATION P/N	CCW ROTATION P/N
XTB-10 1-1/8" Hub Bore	835401	835402
XTB-10 1-3/8" Hub Bore	835403	835404
XTB-10 1-5/8" Hub Bore	835405	835406
XTB-12 1-1/4" Hub Bore	835411	835412
XTB-12 1-5/8" Hub Bore	835413	835414
XTB-12 2-1/8" Hub Bore	835415	835416
XTB-14 1-5/8" Hub Bore	835421	835422
XTB-14 1-15/16" Hub Bore	835423	835424
XTB-14 2-1/2" Hub Bore	835425	835426
XTB-18 2-1/2" Hub Bore	835431	835432
XTB-18 2-15/16" Hub Bore	835433	835434
XTB-18 4-1/2" Hub Bore	835435	835436
XTB-22 2-1/2" Hub Bore	835540	835541
XTB-22 3-3/4" Hub Bore	835542	835543
XTB-22 5" Hub Bore	835544	835545
Best thermal dissipation is achieved if the brake is ordered for the direction of rotation.		

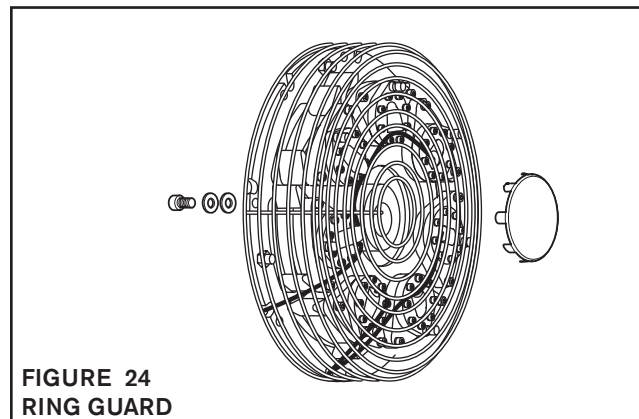
DUAL ROTOR XTB	CW ROTATION P/N	CCW ROTATION P/N
XTB-10 1-1/8" Hub Bore	835510	835511
XTB-10 1-3/8" Hub Bore	835512	835513
XTB-10 1-5/8" Hub Bore	835514	835515
XTB-12 1-1/4" Hub Bore	835520	835521
XTB-12 1-5/8" Hub Bore	835522	835523
XTB-12 2-1/8" Hub Bore	835524	835525
XTB-14 1-5/8" Hub Bore	835530	835531
XTB-14 1-15/16" Hub Bore	835532	835533
XTB-14 2-1/2" Hub Bore	835534	835535
XTB-18 2-1/2" Hub Bore	835491	835492
XTB-18 2-15/16" Hub Bore	835493	835494
XTB-18 4-1/2" Hub Bore	835495	835496
XTB-22 2-1/2" Hub Bore	835550	835551
XTB-22 3-3/4" Hub Bore	835552	835553
XTB-22 5" Hub Bore	835554	835555
Best thermal dissipation is achieved if the brake is ordered for the direction of rotation.		

REPLACEMENT PARTS (continued)

COMPONENT PRODUCT NUMBERS:

RING GUARD PRODUCT NUMBERS

MODEL	RING GUARD P/N
Single and Dual Rotor XTB-10	835446
Single and Dual Rotor XTB-12	835447
Single and Dual Rotor XTB-14	835448
Single and Dual Rotor XTB-18	835445
Single and Dual Rotor XTB-22	835449



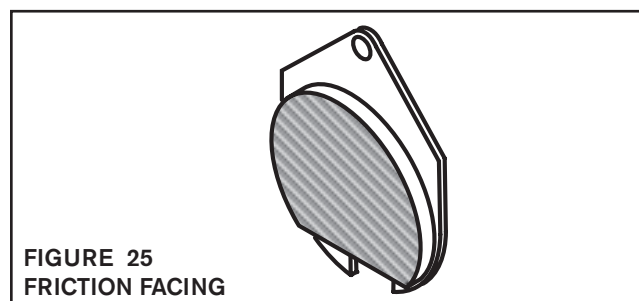
CALIPER ASSEMBLY PRODUCT NUMBERS

MODEL	PRODUCT NUMBER
Single Rotor XTB-10, 12, 14, 18	835451
Single Rotor XTB-22	835560

MODEL	PRODUCT NUMBER
Dual Rotor XTB-10, 12, 14, 18	835500
Dual Rotor XTB-22	835570

FRICTION FACING PRODUCT NUMBERS

MODEL	LOCO (0.15)	STD (0.35)
Single and Dual Rotor XTB-10, 12, 14, and 18	835471	835461
Single and Dual Rotor XTB-22	835581	835580



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[®]

Nexen Group, Inc.
560 Oak Grove Parkway
Vadnais Heights, MN 55127

800.843.7445
Fax: 651.286.1099
www.nexengroup.com

ISO 9001 Certified