

BC Brake Caliper

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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INTRODUCTION

Models BC288 and BC425 Brake Calipers are available with either air or spring actuation. Caliper spacing is moveable to fit 3/16 to 1-1/2 inch wide rotating discs or linear traveling devices.

Shoe travel of the spring actuated Brake Caliper adjusts for maintaining constant “new facing” torque as the facing wears and the springs extend. This adjustment mechanism also manually releases the spring actuated Brake Caliper when turned counter clockwise.

INSTALLATION

1. Assemble the two Brake Caliper halves together with the Connecting Rods (Item 7) and Hex Nuts (Item 17). At this time, adjust the space between the Friction Facings (Item 5) to the thickness of the disc or linear device used. Add 1/16 inch for facing clearance. Tighten the Hex Nuts to the torque recommended in Table 1.

NOTE: Before mounting the Spring-Actuated Brake Caliper: Be sure the brake is in the manual released position (See paragraph two of the OPERATION SECTION); and Install the air connection fittings and tube (See step two in the AIR CONNECTIONS section).

2. Mount the Brake Caliper assembly on a support that is capable of sustaining the loads produced during braking. See the mounting cap screw size and tightening torque recommendations in Table 1.
3. Position the brake so there is 1/32 inch between both sides of the disc and the facings. The outside radius of the disc should run approximately 1/16 inch below the radius of the friction facing. The friction facings should be as parallel to the disc as possible to minimize facing wearing time,

TABLE 1

Description	BC 288		BC 425	
	Size	Torque	Size	Torque
Shoulder Screw (Item 11)	5/16--18	13 ft-lb [17.6 Nm]	3/8--16	27 ft-lb [36.6 Nm]
Hex Nut (Item 17)	3/8--16	24 ft-lb [32.5 Nm]	1/2--13	59 ft-lb [80 Nm]
Mounting Cap Screws Soc. Hd.	3/8--16	48 ft-lb [65.1 Nm]	1/2--13	119 ft-lb [161.3 Nm]
Clamp Bolt	5/16--18	20 ft-lb [27.1 Nm]	5/16--18	20 ft-lb [27.1 Nm]

AIR CONNECTION

1. Air Actuated Brake Caliper: Connect an air supply to the 1/8 NPT air inlet ports located in the end caps (Item 2) in both caliper halves.
2. Spring Actuated Brake Caliper: Air cylinders are connected in tandem with push lock fittings and a nylon tube.

Install one Elbow Fitting (Item 22) in the inlet port located at the bottom of one Brake Caliper Cylinder (Item 1). Install the Tee Fitting (Item 23) in the other cylinder air port. Push the ends of the 1/4 inch Polyethylene Tube (Item 24) into the fittings and tighten the fitting nuts. Connect an air supply to the tee with the extra tube and elbow fitting.
3. Pneumatically actuated devices require clean pressure regulated and lubricated air for maximum performance and long life. Nexen recommends that a filter, regulator and lubricator be used on the air line ahead of the air controls.
4. Connect the air controls as close to the unit as possible for faster engagement and disengagement. Use a quick exhaust valve where long air lines are required.
5. Check all connections for leaks.

OPERATION

AIR ACTUATED UNIT

This unit engages when air is applied to both calipers. Return Springs (Item 12) disengage the calipers when air exhausts from the cylinders.

SPRING ACTUATED UNIT

Manual Release:

1. Loosen the Hex Nut (Item 17) attached to the Set Screw (Item 20). Use an Allen wrench to turn the Set Screw CCW until the Return Springs (item #12) pull the Shoe/Facing assembly back against the cylinder (Item 1).
2. Adjust the caliper halves for the space requirements as described in the INSTALLATION section.

Reset:

1. Apply 90 PSI hold-off air pressure at the air inlet.
2. Turn the Set Screws CW until the Shoe/Facing assembly just starts to move towards the disc; tighten the Hex Nuts.

3. Release the hold-off pressure to engage the spring actuated Brake Caliper.

Friction Facing Wear Adjustment:

1. To maintain new facing torque levels, periodic adjustments for facing wear is necessary. Optimum torque is derived with a 1/32 inch gap on each side of the disc.
2. Apply 90 PSI hold-off air pressure at the air inlet and inspect the gap between the friction facing and the disc.
3. Loosen the set screw hex nut (item #17) and turn the set screw CW until a 1/32 inch spacer can be slid between the facing and the disc.
4. Remove the spacer and retighten the hex nut.

MAINTENANCE AND REPAIR

NOTE: Periodically inspect all airline connections for leaks. Inspect all fasteners to make sure they are tightened to the torques recommended in Table 1.

NOTE: Depending upon the Brake Caliper accessibility, friction facing replacement and piston seal maintenance can be performed without removing the brake from it's mounting.

2. Replace the Friction Facings (Item 5) when they are approximately 3/16 inch thick:
 - a. Spring Actuated Unit: Apply 90 PSI hold-off pressure at the air inlet or manually release the brake as described in paragraph B.1 of the OPERATION section.
 - b. All models: Remove the Shoulder Screws (Item 11). Remove the facing/shoe assembly (Items 4 & 5) and Spacer (Item 6). Remove the Machine Screws (Item 9) and replace the Friction Facings.
 - c. All models: Reassemble the Spacer, Shoe/Facing assembly, Springs and Shoulder screws. Tighten the Shoulder Screws to the torque recommended in Table 1.
 - d. Spring Actuated Unit: Reset as described in paragraph B.2 of the OPERATION section.
3. Air Actuated U-cup and O-ring replacement (Items 10 & 14):
 - a. Disconnect the air supply to both cylinders.
 - b. Remove the clamps (Item 8) and end caps (Item 2).

- c. Pull the Pistons (Item 3) out of the Cylinders (Item 1) and remove the U-cups (Item 10). Inspect the Sleeve Bushings (Item 15) for wear and replace if necessary.
 - d. Lubricate the new u-cups with O-ring lube and place them, with the seal lip upward, over the small diameters of the pistons and into the grooves. Slide the pistons into the cylinders.
 - e. Lubricate the new O-rings (Item 14) with O-ring lube, place them into the end cap grooves and reinstall the end caps and clamps. Tighten the clamp bolts to the torque recommended in Table 1.
4. Spring Actuated u-cup and O-ring replacement (Items 10 & 21):
 - a. Disconnect the air supply from the air inlet.
 - b. Manually release the Brake Caliper as described in Section IV, paragraph 2.

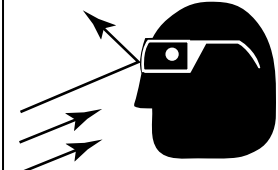
- c. Loosen the clamp bolt and carefully remove the Clamp (Item 8) The actuating springs will push the End Cap (Item 2) away from the cylinder. Remove the Springs (Item 19).
- d. Slide the Piston, Spacer, Set Screw and Hex Nut assembly (Items 3, 18, 20, 17) out of the Cylinder and remove the U-cups and O-rings.
- e. Lubricate the new U-cups with O-ring lube and place them, with the seal lip upward, over the small diameter of the pistons and into the grooves.
- f. Lubricate the new O-rings (Item 21) with O-ring lube and install in the O-ring grooves.
- g. Slide the Piston, Spacer, Set Screw and Hex Nut assembly back into the Cylinder. Install the springs and place the end caps on top of the springs. Push down on the end caps until they are flush with the Cylinder Flange; install the clamp and tighten the clamp bolt to the torque recommended in Table 1.

NOTE: A 'C' clamp, used to compress the End Cap against the Cylinder Flange, will facilitate assembly.

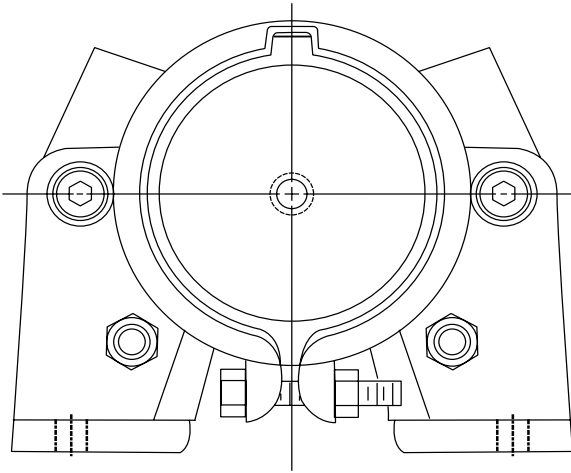
- h. Reset as described in the OPERATION section.

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WARNING

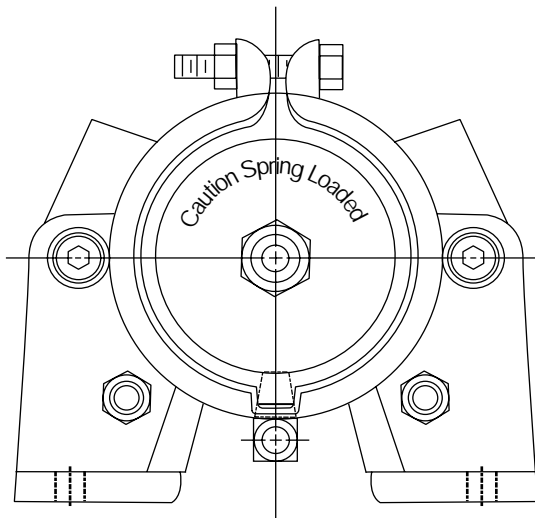
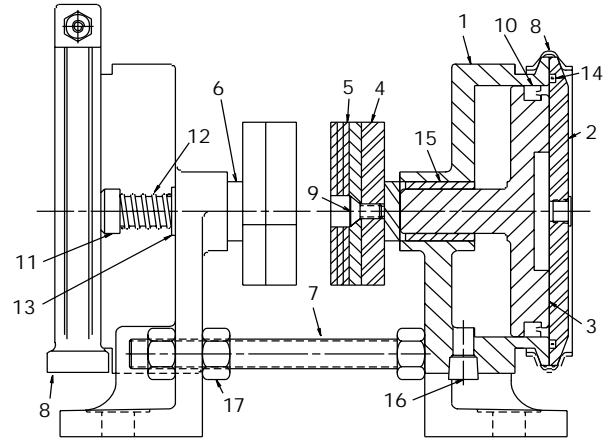
Always wear safety goggles when working with spring or tension loaded devices such as retaining rings.



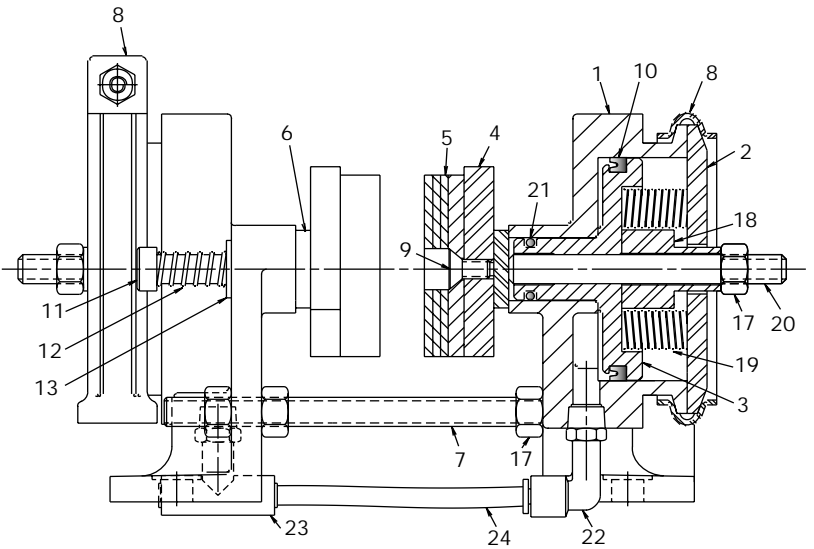
PARTS LIST



AIR ACTUATED BRAKE CALIPER



SPRING ACTUATED BRAKE CALIPER



Item No.	Description	Quantity		Item No.	Description	Quantity	
		Air Actuated	Spring Actuated			Air Actuated	Spring Actuated
1	Cylinder	2	2	13	Flange Bushing	4	4
2	End Cap ¹	2	2	14	O-ring	2	--
3	Piston ¹	2	2	15	Sleeve Bushing	2	--
4	Shoe	2	2	16	Breather	2	--
5	Friction Facing	*	*	17	Hex Nut	8	10
6	Spacer	2	2	18	Spacer	--	2
7	Connecting Rod	2	2	19	Die Spring	--	12
8	Clamp	2	2	20	Set Screw	--	2
9	Machine Screw	*	*	21	O-ring	--	2
10	U-cup	2	2	22	Elbow	--	2
11	Shoulder Screw	4	4	23	Tee	--	1
12	Return Spring	4	4	24	Polyethylene Tube	--	1

¹ Specify Air Actuated or Spring Actuated

* BC288, Qty. 4 / BC 423, Qty. 6

WARRANTY

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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