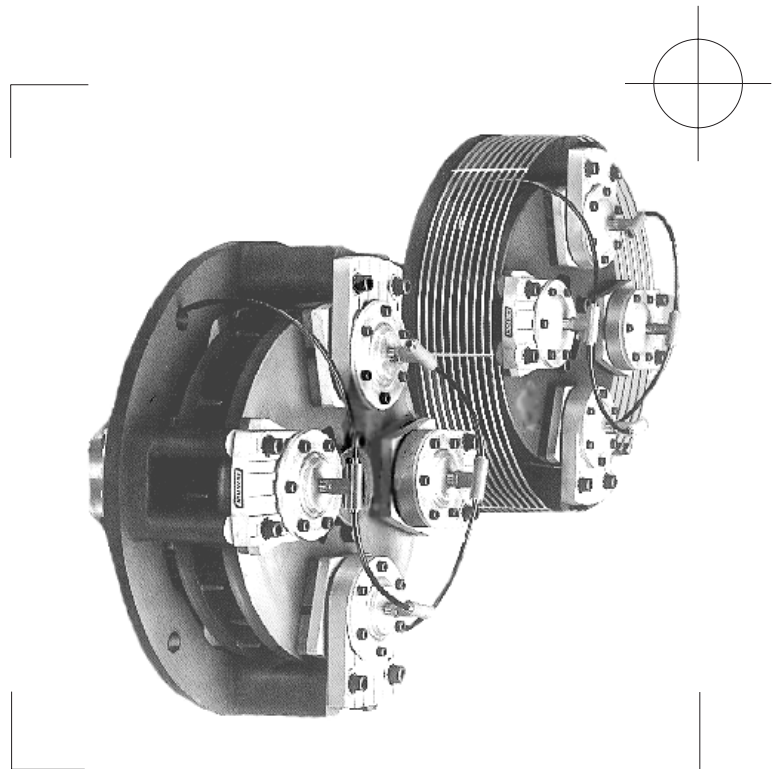


# AIR CHAMP<sup>®</sup> PRODUCTS

User Manual



## Tension Control Brakes

Models TCB-10, TCB-14, and TCB-20

In accordance with Nexen's established policy of constant product improvement, the specifications contained in this manual are subject to change without notice. Technical data listed in this manual are based on the latest information available at the time of printing and are also subject to change without notice.

Technical Support:  
800-843-7445  
(651) 484-5900

[www.nexengroup.com](http://www.nexengroup.com)



# WARNING

Read this manual carefully before installation and operation.

Follow Nexen's instructions and integrate this unit into your system with care.

This unit should be installed, operated and maintained by qualified personnel **ONLY**.

Improper installation can damage your system or cause injury or death.

Comply with all applicable codes.

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



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## INTRODUCTION

Read this manual carefully, making full use of its explanations and instructions. The "Know How" of safe, continuous, trouble-free operation depends on the degree of your understanding of the system and your willingness to keep all components in proper operating condition. Pay particular attention to all NOTES, CAUTIONS, and WARNINGS to avoid the risk of personal injury or property damage. It is important to understand that these NOTES, CAUTIONS, and WARNINGS are not exhaustive. Nexen cannot possibly know or evaluate all conceivable methods in which service may be performed, or the possible hazardous consequences of each method. Accordingly, anyone who uses a procedure that is not recommended by Nexen must first satisfy themselves that neither their safety or the safety of the product will be jeopardized by the service method selected.

## INSTALLATION

NOTE: The following sections are arranged by model. Verify that you are in the correct section for your model. For the Frame Mounted TCB, see below. For the Shaft Mounted TCB, see Page 3.

### FRAME MOUNTED TCB

1. Install Stud Bolts (Item 9) into a mounting bracket which has been machined with 3/4-10 UNC tapped holes (See Figures 1 and 2).

Tapped hole location requirements are:

TCB-10	2 holes @ 180° on a 12-1/8" B.C.
TCB-14	3 holes @ 120° on a 15-1/2" B.C.
TCB-20	4 holes @ 90° on a 21-9/16" B.C.

NOTE: An alternate method for mounting this unit is to secure the Stud Bolts by using angle brackets located at the proper angles (See Figure 2).

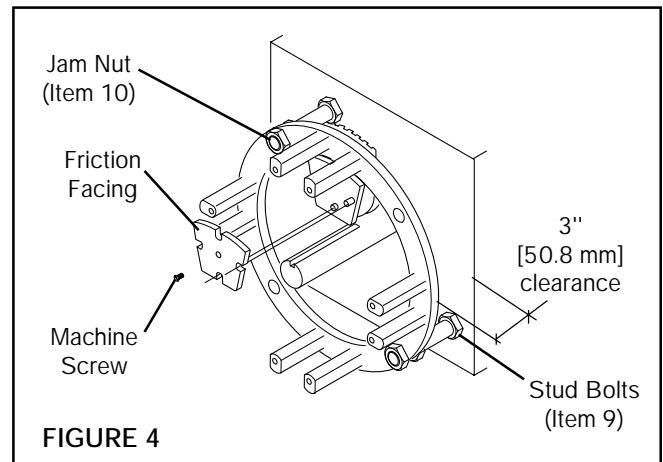
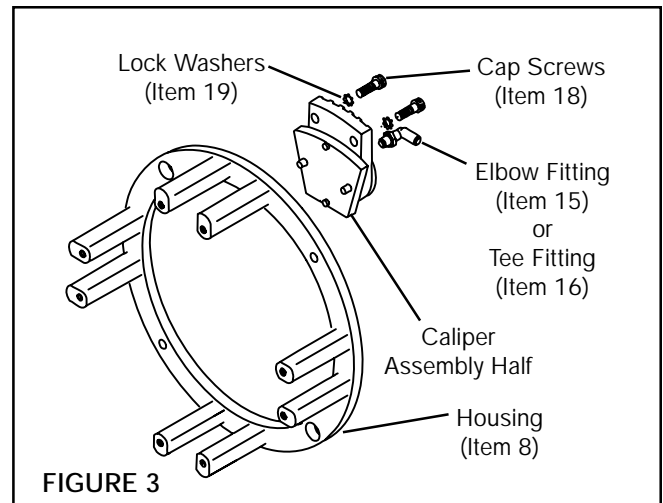
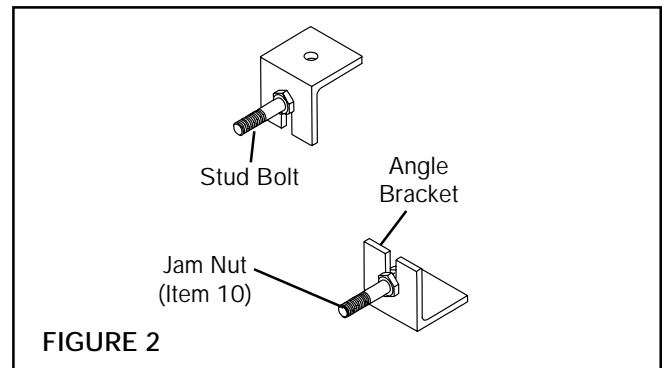
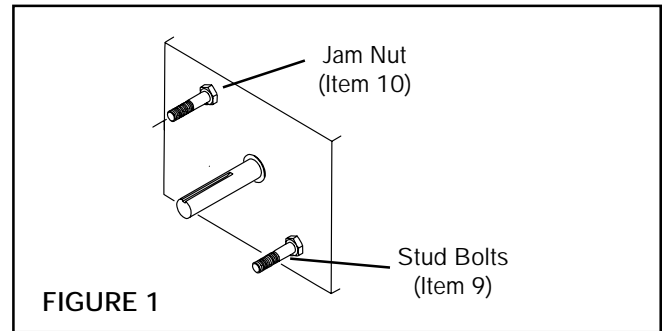
2. Secure Stud Bolts (Item 9) using Jam Nuts (Item 10) (See Figures 1 and 2).
3. Install an Elbow Fitting (Item 15) or a Tee Fitting (Item 16) as required into each caliper half (See Figure 3).
4. Using Lock Washers (Item 19) and Cap Screws (Item 18), secure one-half of a Caliper Assembly to the flange side of the Housing (Item 8). Tighten the Cap Screws to 7 Ft. Lbs. [9.5 N•m] torque (See Figure 3).

NOTE: Internal springs return the Caliper Piston to the disengaged position to guarantee clearance between Friction Facing and Rotor when no air pressure is being applied. The use of this spring is optional; the low air pressure setting is more sensitive without the springs. Refer to PARTS REPLACEMENT for spring removal.

5. Install a Jam Nut (Item 10) onto each Stud Bolt (Item 9) and place Housing (Item 8) on Stud Bolts (See Figure 4).

NOTE: Provide a minimum clearance of 3" between both sides of Housing (Item 8) and other machine components (See Figure 4).

6. Secure Housing (Item 8) to Stud Bolts (Item 9) with remaining Jam Nuts (Item 10) (See Figure 4).
7. Using the Machine Screw provided with the Friction Facing, secure a Friction Facing to each caliper. Tighten the Machine Screw to 10-19 In. Lbs. [2.0-2.1 N•m] (See Figure 4).
8. Install rotor Hub (Item 1).



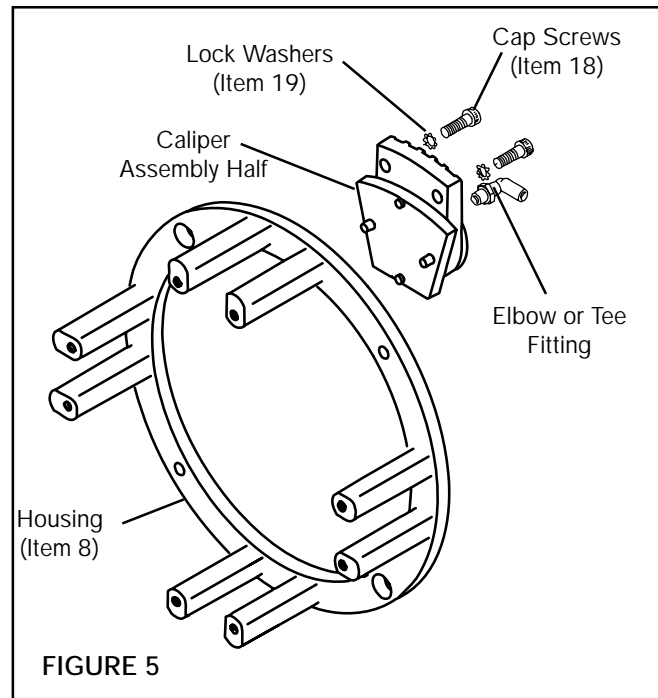
## SHAFT MOUNTED TCB

- Using Cap Screws (Item 36) and Lock Washers (Item 37), fasten Torque Arm (Item 32) onto Housing (Item 8) (See Figure 5).

NOTE: Use Cap Screws (Item 34) on TCB-20.

- Using Cap Screws (Item 18) and Lock Washers (Item 19), secure one-half of a Caliper Assembly to flange side of Housing (Item 8). Tighten Cap Screws to 7 Ft. Lbs. [9.5 N•m] torque (See Figure 5).

NOTE: Internal springs return the Caliper Piston to the disengaged position to guarantee clearance between Friction Facing and Rotor when no air pressure is being applied. The use of this spring is optional; the low air pressure setting is more sensitive without the springs. Refer to PARTS REPLACEMENT for spring removal.



- Install an Elbow Fitting (Item 15) or a Tee Fitting (Item 16) as required into each caliper half (See Figure 5).
- Slide Housing assembly onto shaft and tighten Set Screw (Item 26) to torque recommended in Table 1.

NOTE: Provide a minimum clearance of 3" [76.2 mm] between both sides of Housing and other machine components.

- Install rotor Hub (Item 1).

NOTE: See Page 4 for ROTOR HUB installation.

**TABLE 1  
TIGHTENING TORQUES**

DESCRIPTION	TCB-10	TCB-14	TCB-20
Lock Nut (Item 38)	32 Ft. Lbs. [43.0 N•m]	32 Ft. Lbs. [43.0 N•m]	32 Ft. Lbs. [43.0 N•m]
Set Screw (Item 7)	23 Ft. Lbs. [30.9 N•m]	50 Ft. Lbs. [67.2 N•m]	166 Ft. Lbs. [223.1 N•m]
Jam Nut (Item 10)	200 Ft. Lbs. [268.8 N•m]	200 Ft. Lbs. [268.8 N•m]	200 Ft. Lbs. [268.8 N•m]
Cap Screw (Item 18)	27 Ft. Lbs. [36.4 N•m]	27 Ft. Lbs. [36.4 N•m]	27 Ft. Lbs. [36.4 N•m]
Set Screw (Item 26)	23 Ft. Lbs. [30.9 N•m]	50 Ft. Lbs. [67.2 N•m]	166 Ft. Lbs. [223.1 N•m]

**ROTOR HUB**

NOTE: The following sections are arranged by rotor type. Verify that you are in the correct section for your model.

1. Insert Key (Item 6) into shaft keyway and align Hub (Item 1) keyway with shaft keyway and slide Hub Assembly (Items 1-5) onto shaft.

NOTE: Allow 1/16" [16 mm] gap between Friction Facings and Rotor Disc.

2. Tighten Set Screw (Item 7) to recommended torque (See Table 2).

**TABLE 2  
 TIGHTENING TORQUES**

DESCRIPTION	TCB-10	TCB-14	TCB-20
Lock Nut (Item 38)	32 Ft. Lbs. [43.2 N•m]	32 Ft. Lbs. [43.2 N•m]	32 Ft. Lbs. [43.2 N•m]
Set Screw (Item 7)	23 Ft. Lbs. [31 N•m]	50 Ft. Lbs. [67.5 N•m]	166 Ft. Lbs. [224 N•m]
Jam Nut (Item 10)	200 Ft. Lbs. [269.9 N•m]	200 Ft. Lbs. [269.9 N•m]	200 Ft. Lbs. [269.9 N•m]
Cap Screw (Item 18)	27 Ft. Lbs. [36.4 N•m]	27 Ft. Lbs. [36.4 N•m]	27 Ft. Lbs. [36.4 N•m]
Set Screw (Item 26)	23 Ft. Lbs. [31 N•m]	50 Ft. Lbs. [67.5 N•m]	166 Ft. Lbs. [224 N•m]

**Q.D. (Tapered Bore) Rotor Hub**

**CAUTION**

Thoroughly inspect the tapered bore of the hub and the tapered surfaces of the Q.D. bushing. Remove any dirt, grease, or foreign material. Do not use lubricants for this installation.

1. Assemble Q.D. bushing into hub, aligning untapped holes of Q.D. bushing with tapered holes in hub.
2. Loosely insert pull-up bolts with Lock Washers into Q.D. bushing and hub.

NOTE: Do not use lubricants or thread locking compounds on these bolts.

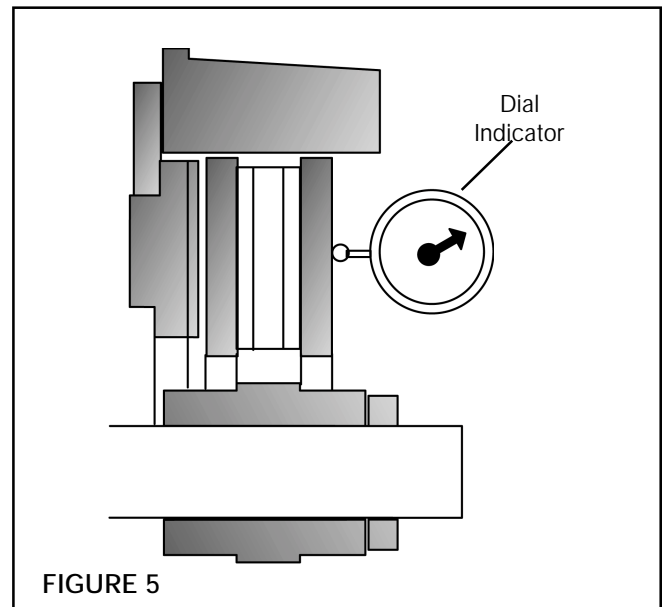
3. With Key in shaft keyseat, slide the Hub Assembly (Items 1-5) onto shaft.
4. Tighten pull-up bolts alternately and evenly to recommended torque in Table 3.

**TABLE 3  
 Q.D. BUSHING SPECIFICATIONS**

MODEL	BUSHING	TIGHTENING TORQUE
<b>TCB-10</b>	JA	5 Ft. Lbs. [6.7 N•m]
<b>TCB-14</b>	SK	15 Ft. Lbs. [20.2 N•m]
<b>TCB-20</b>	J	135 Ft. Lbs. [182.2 N•m]

**CAUTION**

The tightening force on the pull-up bolts is multiplied several times by the wedging action of the tapered surface. If extreme tightening force is applied or if a lubricant is used, bursting pressure will be created in the splined hub.

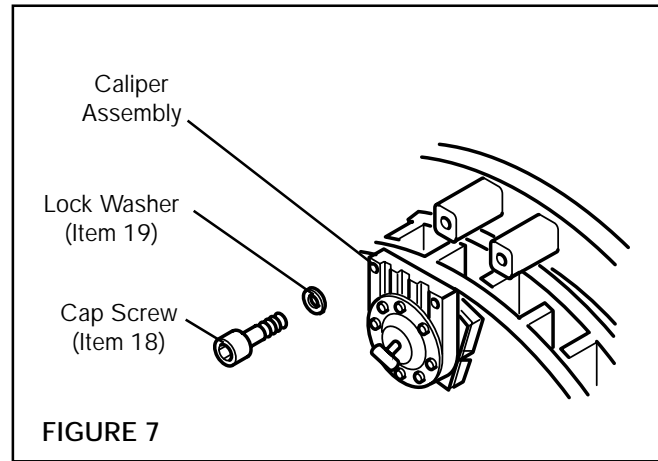


NOTE: Runout is minimized if a Dial Indicator is used as the Q.D. bushing pull-up bolts are tightened. Place the contact tip of Dial Indicator on the machined surface of the Rotor to measure runout. Runout must be less than 0.015" [0.381 mm] TIR. (See Figure 6).

NOTE: Proceed with FRICTION FACING AND CALIPER installation.

## FRICION FACING AND CALIPER

1. Using the Machine Screw (Item 10) supplied with the friction facings, secure a friction facing to each remaining caliper half. Tighten the Machine Screw to 18-19 In. Lbs. [2.0-2.1 N•m].
2. Using Lock Washers (Item 19) and Cap Screws (Item 18), attach caliper halves to each remaining caliper position (See Figure 7).
3. Tighten Cap Screws (Item 18) to torque recommended in Table 4.
4. Install a Tee Fitting (Item 16) or an Elbow Fitting (Item 15) into each remaining caliper.
5. Place a 1/16" [16 mm] shim between the friction facings and rotor disc, rotating the disc past each caliper and checking for equal clearance at all positions. Clearance adjustments are made by moving Jam Nuts (Item 10) on each side of housing flange. Tighten Jam Nuts (Item 10) and Set Screws (Item 26) to torque recommended in Table 4 when the clearance between the Rotor Disc and all Friction Facings is equal.
6. Using Cap Screws (Item 34) and Lock Nuts (Item 38), attach Extension Bar (Item 31) to Torque Arm (Item 32).
7. Using Lock Nut (Item 39) and Cap Screw (Item 35), attach Bracket (Item 33) to Extension Bar (Item 31).
8. Using customer supplied screws, secure Bracket (Item 33) to a firm support. Four 15/32" [11.9 mm] diameter holes on 2 15/16" [74.6 mm] centers are provided in the bracket.



**TABLE 4  
TIGHTENING TORQUES**

DESCRIPTION	TCB-10	TCB-14	TCB-20
Lock Nut (Item 38)	32 Ft. Lbs. [43.2 N•m]	32 Ft. Lbs. [43.2 N•m]	32 Ft. Lbs. [43.2 N•m]
Set Screw (Item 7)	23 Ft. Lbs. [31 N•m]	50 Ft. Lbs. [67.5 N•m]	166 Ft. Lbs. [224 N•m]
Jam Nut (Item 10)	200 Ft. Lbs. [269.9 N•m]	200 Ft. Lbs. [269.9 N•m]	200 Ft. Lbs. [269.9 N•m]
Cap Screw (Item 18)	27 Ft. Lbs. [36.4 N•m]	27 Ft. Lbs. [36.4 N•m]	27 Ft. Lbs. [36.4 N•m]
Set Screw (Item 26)	23 Ft. Lbs. [31 N•m]	50 Ft. Lbs. [67.5 N•m]	166 Ft. Lbs. [224 N•m]

## AIR CONNECTIONS

A length of 5/32" [4 mm] O.D. air line for connection between calipers and the air controls is supplied (See Table 5 for Air Line Specifications). Each caliper comes with one Elbow Fitting, two Tee Fittings, and 13 1/2" [342.9 mm] of air line.

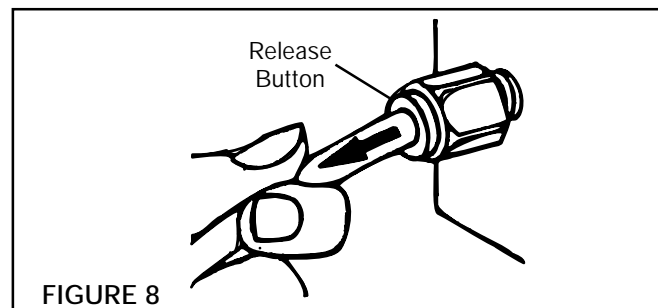
**NOTE:** Use the length of air line supplied to make the connections between calipers.

The Elbow and Tee Fittings (Items 15 and 16) are push-lock fittings for instant connection and disconnection. To install the Air Line, simply push it into the fitting until it stops. To disconnect the Air Line, push on the fitting collar and pull the Air Line out (See Figure 8).

**NOTE:** Not all fittings are used for making caliper connections. Save extra fittings for use as

**TABLE 5  
AIR LINE SPECIFICATIONS**

O.D.	I.D.	MINIMUM BEND RADIUS	BURST PRESSURE	MATERIAL
0.1560" [4 mm]	0.106" [2.7 mm]	3/4" [19 mm]	1000 PSI @ 75° F	Nylon-11





### SINGLE CALIPER CONNECTION

The Single Caliper Control (Product No. 854000) directs air to a single caliper. It consists of a 3-Way, ON/OFF toggle switch, a pressure regulator, and a 5-125 psi pressure gauge (See Figure 9).

1. Install an Elbow Fitting into one caliper half and a Tee Fitting into the other half (See Figure 10).
2. Connect the halves together using the 13-1/2" [342.9 mm] length of Air Line. Push one end of the tube into the elbow. Pass the other end through the 7/16" [11 mm] hole in the Housing and push it into the Tee fitting (See Figure 10).
3. Connect opposite end of the Tee Fitting to control output hose.

NOTE: Fitting (part number 2161) connects the control panel to the caliper Air Line.

4. Connect air supply to the control input and set regulator to the desired air pressure. With the toggle switch in the **ON** position, air is directed through the output to the caliper.

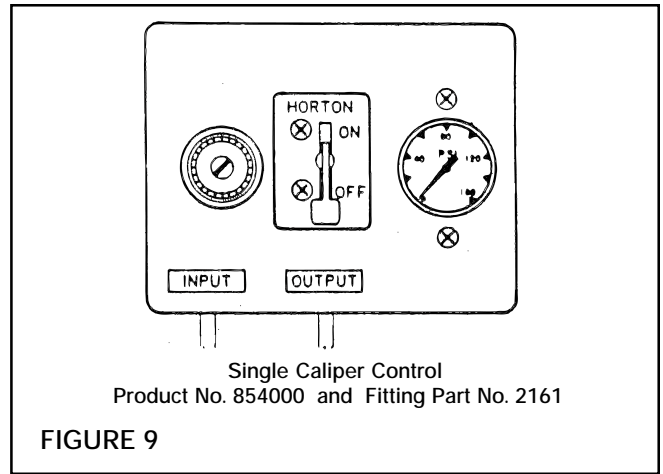


FIGURE 9

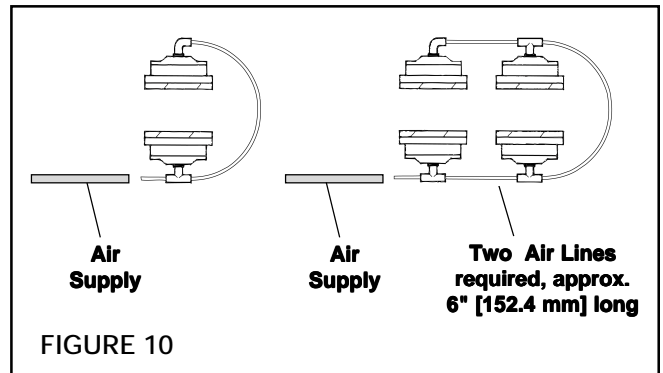


FIGURE 10

### MULTIPLE CALIPER CONNECTIONS

The 3-Stage Caliper Control (Product No. 835120) directs air pressure to three separate sets of calipers connected as a single pair or a series. This provides three torque ranges with just one brake for handling a variety of web materials. It consists of a 3-Way, ON/OFF toggle switch, a pressure regulator, a 0-100 psi pressure gauge, and three rocker switch valves which allow the user to select caliper operating stages to vary torque output (See Figure 11).

Figure 12 shows typical caliper connections for the TCB-10, TCB-14, and TCB-20. The 3-Stage connections shown are examples of how calipers are arranged when controlled by the 3-Stage Caliper Control.

Any number of calipers may be used in each stage. By activating switch 1, 2, or 3, two or all three switches vary the torque output to meet a predetermined braking requirement.

1. Install a Tee Fitting into each half of one caliper (See Figure 12, Stage III for your model).
2. Connect caliper halves together using 13 1/2" [342.9 mm] length of Air Line (See Figure 12, Stage III for your model).
3. Install two Tee Fittings in the next set of calipers. Cut lengths of Air lines to make bridge connections between the Tee Fittings.

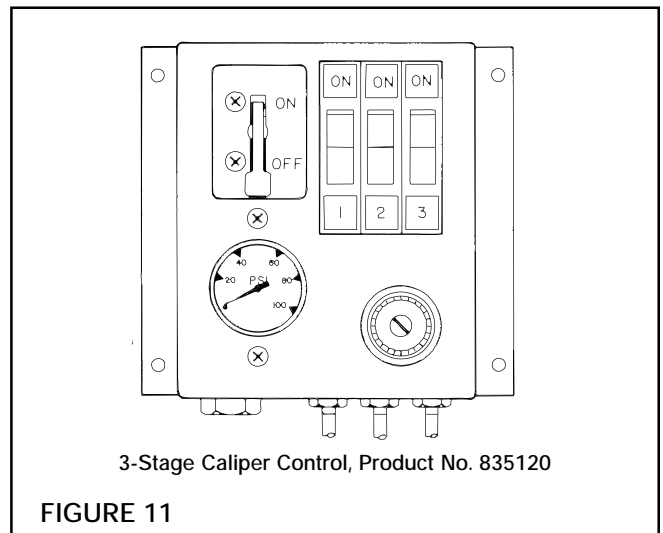
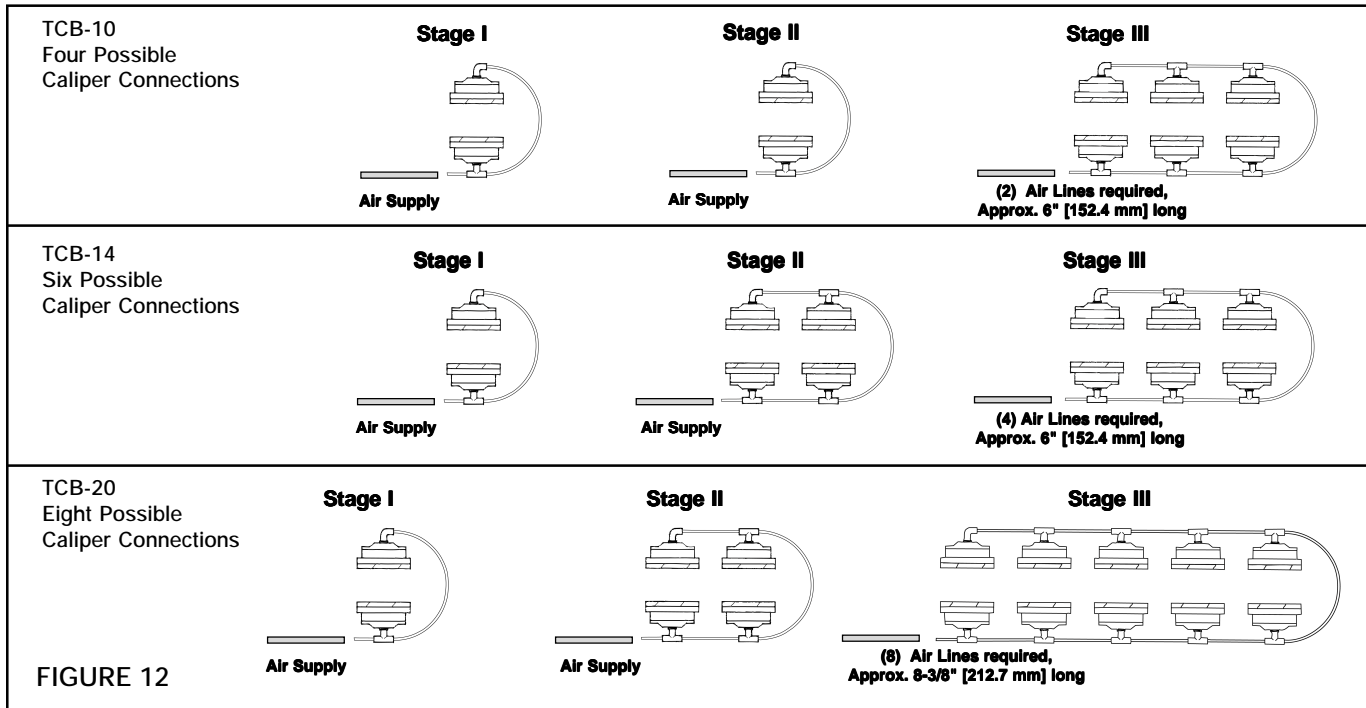
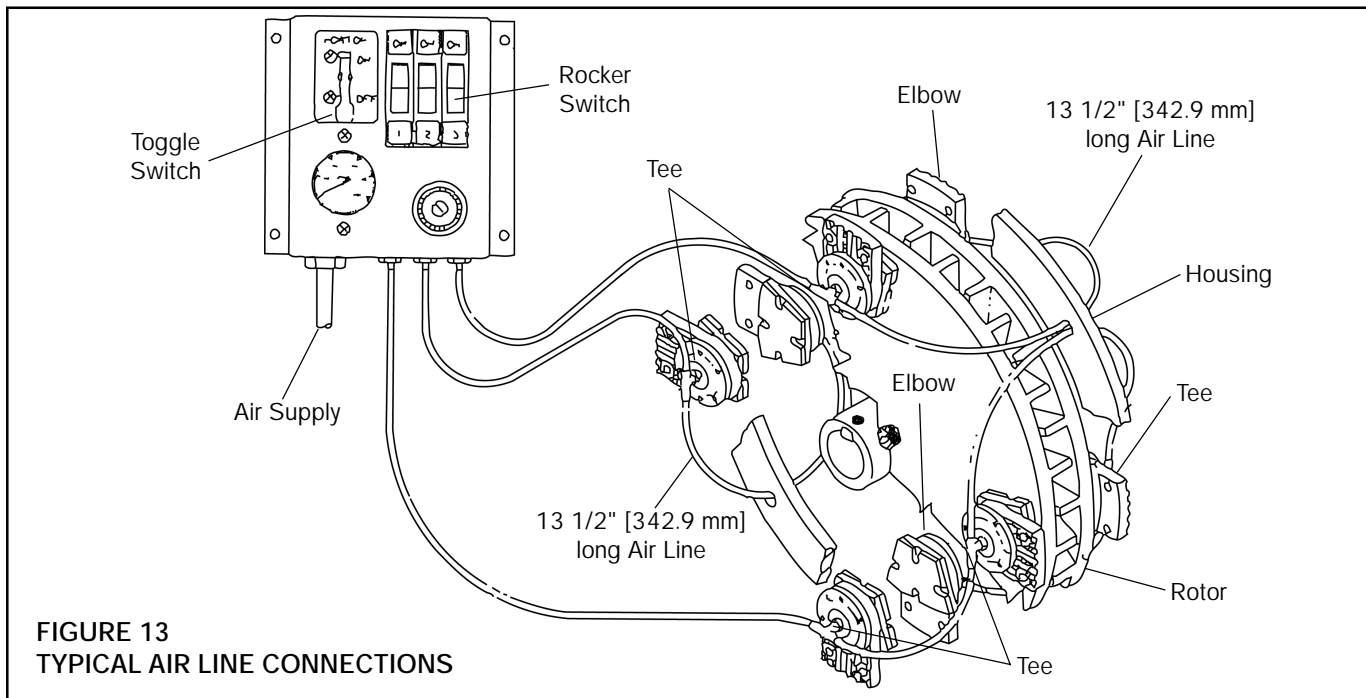


FIGURE 11

4. Install an Elbow and Tee Fitting into the last set of calipers. Make a bridge connection between the Tee Fittings in the previous caliper (See Figure 12, Stage III for your model).
5. Connect opposite end of Tee Fitting to 3-Stage control outlet.
6. Repeat Steps 1-5 for each set of calipers connected in series.
7. Connect air supply to control inlet port and set regulator to desired air pressure (See Figure 13).



**FIGURE 12**



## OPERATION

The Single Caliper Control and 3-Stage Caliper Control are for manual operation.

Connect controls as close to the unit as possible for optimum response. Install an air line filter into the air line ahead of the controls.

For automatic tension control, use Nexen's Electronic Control System. Contact your Nexen distributor or representative for information concerning these products.


WARNING

Never exceed maximum recommended operating speeds specified in Table 6.

CAUTION

Before placing the TCB into service, check that all screws are tightened to the proper torque as specified in Table 7.

Each TCB is provided with a wire guard ring assembly. Install guard around brake after all air line connection and fastener tightening checks have been made. Secure guard with screw, washer, and hex. nut provided.


WARNING

Always have a guard in place when operating brake in order to prevent personal injury.

To properly set your Nexen TCB:

1. Set all controls to the **OFF** position.
2. Adjust regulator until desired air pressure is indicated on air pressure gauge.
3. Activate the Rocker Switches.
  - a. Activating Rocker Switch 1 engages two calipers. With the regulator set at 80 psi, the torque output (with .35 coefficient facings) is 800 In. Lbs [89.6 N•m].
  - b. Activating Rocker Switch 2 increases torque 400 In. Lbs [44.8 N•m] for a total of 1,200 In. Lbs. [134.4 N•m].
  - c. Activating Rocker Switches 1, 2, and 3 increases torque output to 1,600 In. Lbs. [179.2 N•m].
4. Set toggle switch to the **ON** position to activate entire system.

**TABLE 6  
MAXIMUM OPERATING SPEEDS**

MODEL	RPM
TCB-10	3000
TCB-14	2000
TCB-20	1500

**TABLE 7  
TIGHTENING TORQUES**

DESCRIPTION	TCB-10	TCB-14	TCB-20
Lock Nut (Item 38)	32 Ft. Lbs. [43.2 N•m]	32 Ft. Lbs. [43.2 N•m]	32 Ft. Lbs. [43.2 N•m]
Set Screw (Item 7)	23 Ft. Lbs. [31 N•m]	50 Ft. Lbs. [67.5 N•m]	166 Ft. Lbs. [224 N•m]
Jam Nut (Item 10)	200 Ft. Lbs. [269.9 N•m]	200 Ft. Lbs. [269.9 N•m]	200 Ft. Lbs. [269.9 N•m]
Cap Screw (Item 18)	27 Ft. Lbs. [36.4 N•m]	27 Ft. Lbs. [36.4 N•m]	27 Ft. Lbs. [36.4 N•m]
Set Screw (Item 26)	23 Ft. Lbs. [31 N•m]	50 Ft. Lbs. [67.5 N•m]	166 Ft. Lbs. [224 N•m]

## LUBRICATION

The caliper diaphragms of the TCB do not require lubrication. If an air line lubricator is used on the air line for the controls, the lubricant must be compatible with the silicone diaphragm.

Bearings (Item 23) in the shaft mounted TCB housing assembly are prelubricated, sealed, and do not require lubrication.

## MAINTENANCE

Inspect all cap screws and set screws on a routine basis to make sure they are tightened to the recommended torque.

Inspect friction facings and replace them when worn to approximately 5/32" [4 mm] thick.

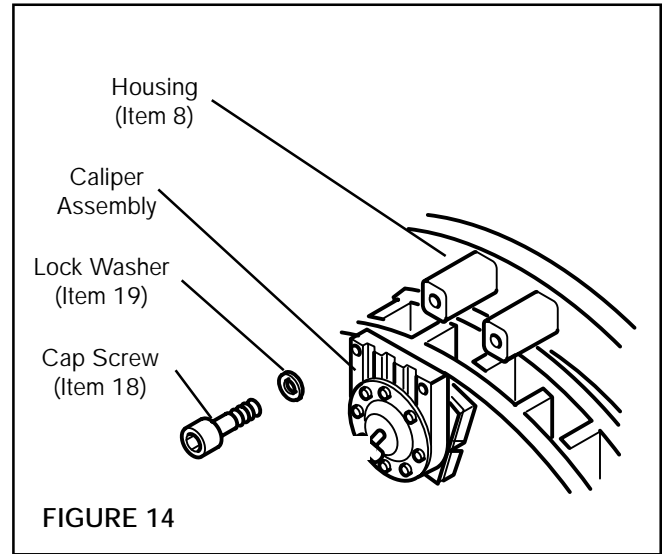
## TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	SOLUTION
Failure to engage.	Air not getting to the TCB due to low air pressure or a control valve malfunction.	Check for control valve malfunction or low air pressure.
Failure to disengage.	Unexhausted air due to a control valve malfunction.	Check for control valve malfunction.
Friction Facing squeal or chatter.	Air pressure too high.	Reduce air pressure.
	Wrong Friction Facing for the application.	Check the Friction Facing.
	Runout of the Hub Friction Disc is too great.	Runout of the Hub Friction Disc must be less than 0.015" [0.381 mm] TIR. If the Hub Friction Disc runout is greater than this amount it must be reinstalled.
Wobble or vibration.	Improper TCB mounting.	Check mounting and re-install the TCB if necessary.
	Faulty Shaft.	Inspect the shaft and replace it if necessary.
Noise (other than facing squeal).	Bearing failure (shaft mounted TCB only).	Check bearings.
	Loose fasteners.	Check fasteners and tighten if necessary.
	Runout of the Hub Friction Disc is too great.	Runout of the Hub Friction Disc must be less than 0.015" [0.381 mm] TIR. If the Hub Friction Disc runout is greater than this amount the Friction Disc must be reinstalled.
Loss of torque.	Air leaks or low air pressure.	Check system for air leaks and replace leaking components.
	Worn or contaminated Friction Facings.	Replace Friction Facings.
	Wrong Friction Facing for the application.	Check the Friction Facing.

## PARTS REPLACEMENT

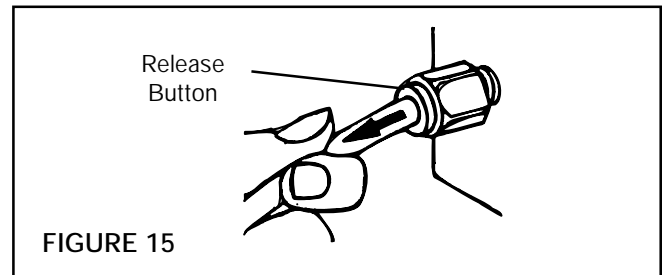
### FRICTION FACINGS

1. Stop machine and shut off air supply to the TCB.
2. Remove Cap Screws (Item 18) and Lock Washers (Item 19) (See Figure 14).
3. Remove Caliper Assembly from Housing (Item 8).
4. Remove Machine Screw (Item 10) securing friction facing to caliper and remove Friction Facing from caliper.
5. Install new Friction Facing. Tighten screw to 18-19 In. Lbs. [2.0-2.1 N•m].
6. Place Caliper Assembly in position and replace Lock Washers and Cap Screws (See Figure 14).
7. Tighten Cap Screws (Item 18) to 27 Ft. Lbs. [36.4 N•m] torque.



### AIR LINE

1. To disconnect air line, push in on collar of fitting, then pull air line out of fitting (See Figure 15).
2. To install new air line, push air line into fitting until it stops.

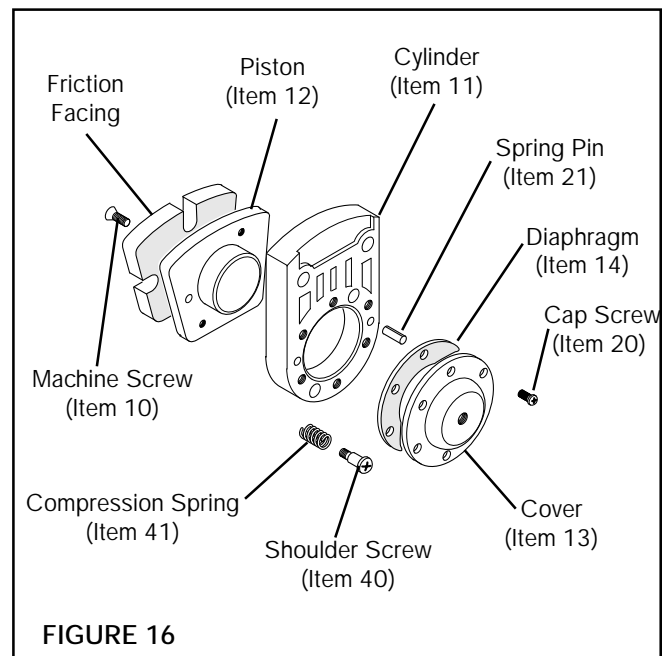


### DIAPHRAGM

1. Disconnect air line.
2. Remove Cap Screws (Item 18) and Lock Washers (Item 19).
3. Remove Caliper Assembly from Housing (Item 8).
4. Remove six Cap Screws (Item 20) and Cover (Item 13) from Cylinder (Item 11) (See Figure 16).
5. Remove Diaphragm (Item 14) (See Figure 16).

NOTE: Internal Compression Springs may also be removed at this time. These springs are optional; the low air pressure setting is more sensitive without the springs (See Figure 16).

6. Replace the Diaphragm and reassemble the caliper.
7. Tighten the Shoulder Screw (Item 40) to 22 Ft. Lbs. [29.6 N•m] and the Cap Screw (Item 20) to 5.5 Ft. Lbs. [7.45 N•m] torque.

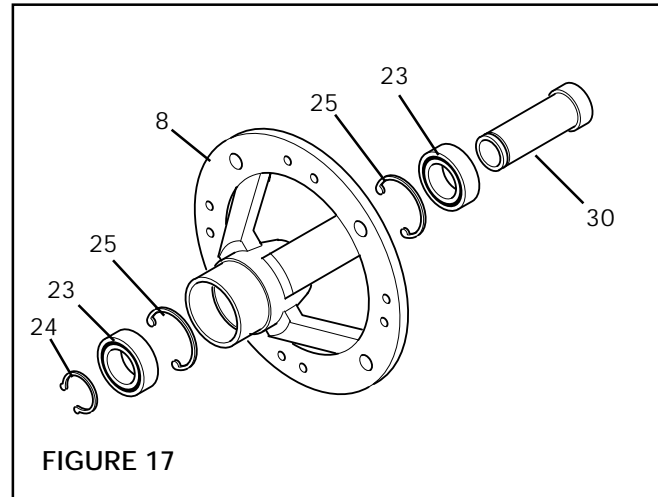


## BEARINGS (Shaft mounted TCB only)

1. Stop the machine and shut off air supply to the TCB.
2. Remove the brake by reversing the installation procedure.

NOTE: To remove the Q.D. bushing, remove the Cap Screws; then, reinsert them into the threaded holes and tighten them to push Rotor off Q.D. bushing.

3. Remove all calipers and air lines from Housing Assembly.
4. Remove the Retaining Ring (Item 24) from the Hub (Item 30) (See Figure 17).



### WARNING

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

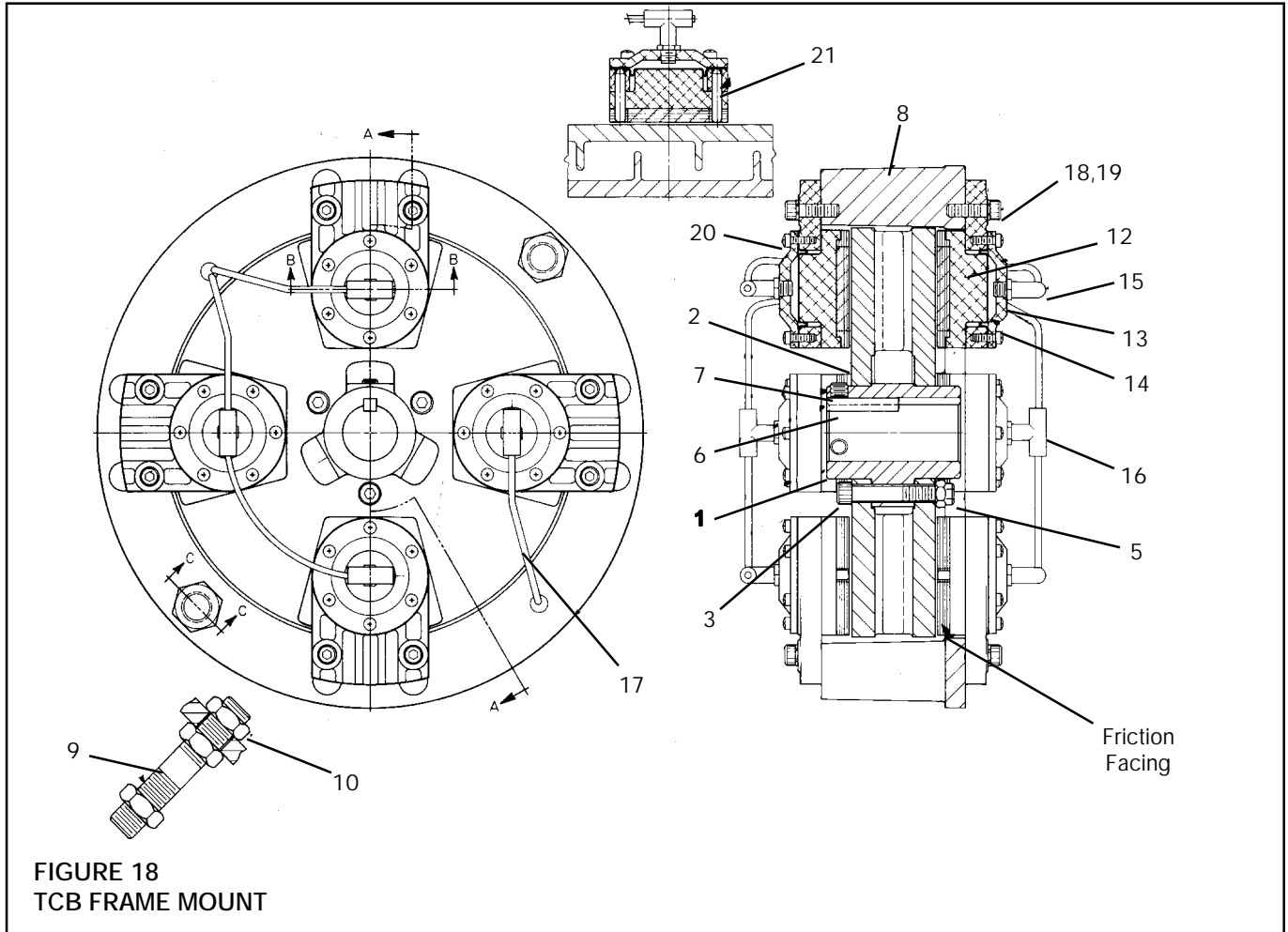
5. Fully supporting the Housing (Item 8), press the Hub (Item 30) out of the Bearings (Item 23) (See Figure 17).
  6. Using a bearing puller, remove the old Bearings (Item 23) from the Housing (Item 8) (See Figure 17).
  7. Clean the bearing bore of the Housing (Item 8) with solvent, making sure all Loctite® residue is removed.
  8. Apply Loctite® 680, or equivalent, to outer race of the new Bearings and press new bearings into the Housing.
- NOTE: When installing new bearings, carefully align bearing O.D. with housing bore.
9. Supporting bearing's inner race, press Hub (Item 30) into Housing (Item 8) (See Figure 17).
  10. Insert the Retaining Ring (Item 24).
  11. Reinstall the TCB according to installation instructions.

## REPLACEMENT PARTS

The item or balloon number for all Nexen products is used for part identification on all product parts lists, product price lists, unit assembly drawings, bills of materials, and instruction manuals.

When ordering replacement parts, specify model designation, item number, part description, and quantity. Purchase replacement parts through your local Nexen Distributor.

**PARTS LIST**



**ROTOR ASSEMBLY**

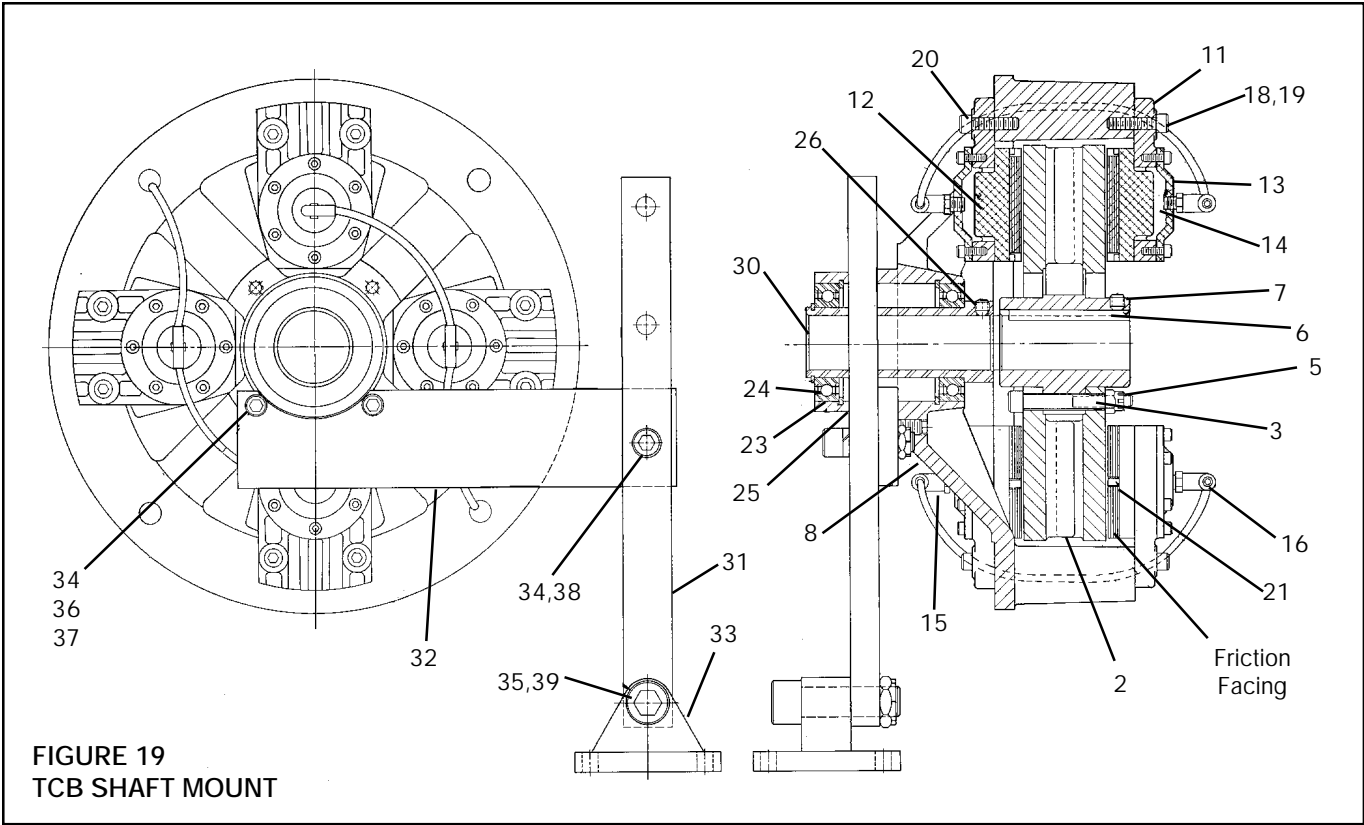
ITEM	DESCRIPTION	QTY
1	Hub*	1
2	Rotor Disc	2
3	Screw, Cap	3
5	Nut, Hex	3
6	Key, Square	1
7	Screw, Set	2

**HOUSING ASSEMBLY (FRAME MOUNT)**

ITEM	DESCRIPTION	QTY		
		TCB-10	TCB-14	TCB-20
8	Housing	1	1	1
9	Bolt, Stud	2	3	4
10	Nut, Jam	8	12	16

\* Specify taper or straight bore. Give diameter of straight bore.





**FIGURE 19**  
**TCB SHAFT MOUNT**

**HOUSING ASSEMBLY (SHAFT MOUNT)**

ITEM	DESCRIPTION	QTY
8	Housing	1
23	Bearing, Ball	2
24	Ring, Retaining	1
25	Ring, Retaining	2
26	Screw, Set	3
30	Hub	1
31	Extension Bar	1
32	Torque Arm	1
33	Bracket	1
34	Screw, Cap	3
35	Screw, Cap	1
36	Screw, Cap	2
37	Washer, Lock	3
38	Lock Nut	1
39	Lock Nut	1

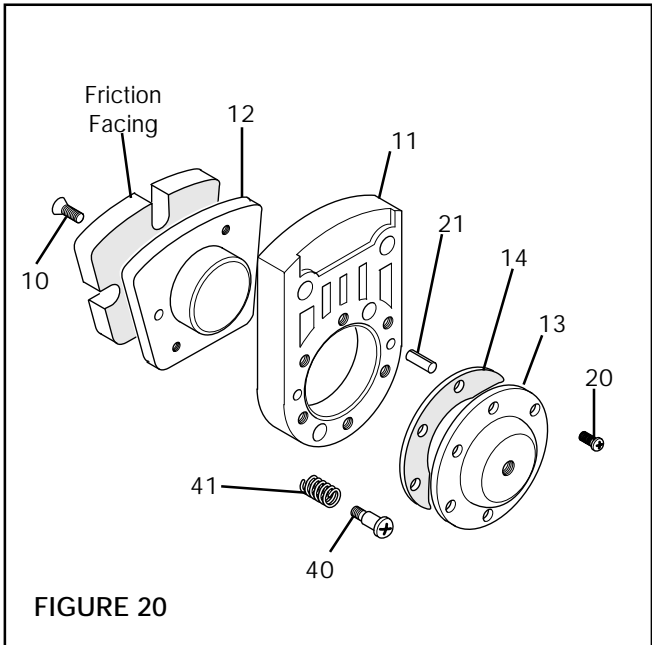
**ROTOR ASSEMBLY**

ITEM	DESCRIPTION	QTY
1	Hub*	1
2	Rotor Disc	2
3	Screw, Cap	3
5	Nut, Hex	3
6	Key, Square	1
7	Screw, Set	2

\*Specify taper or straight bore. Give diameter of straight bore.

**CALIPER**

ITEM	DESCRIPTION	QTY
10	Machine Screw	1
11	Cylinder	2
12	Piston	2
13	Cover	2
14	Diaphragm	2
15	Fitting, Elbow (See Figures 18 & 19)	1
16	Fitting, Tee (See Figures 18 & 19)	2
17	Air Line (See Figures 18 & 19)	13 1/2" [342.9 MM]
18	Screw, Cap	4
19	Lock Washer	4
20	Screw, Cap	12
21	Pin, Spring	4
40	Screw, Cap	4
41	Spring, Compression	4



**FIGURE 20**



## FRICTION FACING KITS

Friction facing kits contain two friction facings of the specific coefficient of friction listed below. One facing kit is required per Caliper Assembly.

NOTE: Caliper Assemblies and Friction Facing kits are common to all tension control brake models. When ordering replacements, specify one Caliper Assemblies and Friction Facing.

**TABLE 8**

COEFFICIENT	DESCRIPTION	PRODUCT NUMBER
.20	LOCO	835113
.35	STD	835112
.45	HICO	835111

## ACCESSORIES

### CONTROLS

#### Single Caliper Control

Product number 854000 and Fitting product number 002161.

#### Three-Stage Caliper Control

Product number 835120.

### TCB COOLING ENHANCEMENT

**TABLE 9**

MODEL	PRODUCT NUMBER	QTY REQUIRED
TCB-10	835130	1
TCB-14	835130	1
TCB-20	835130	2

### TCB FACE GUARD

**TABLE 10**

MODEL	PRODUCT NUMBER	SHIPPING WT.
TCB-10	835106	4 Lbs. [1.8 Kg]
TCB-14	835107	6 Lbs. [2.7 Kg]
TCB-20	835108	9 Lbs. [4.1 Kg]



## WARRANTIES

### Warranties

Nexen warrants that the Products will be free from any defects in material or workmanship for a period of 12 months from the date of shipment. NEXEN MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. This warranty applies only if (a) the Product has been installed, used and maintained in accordance with any applicable Nexen installation or maintenance manual for the Product; (b) the alleged defect is not attributable to normal wear and tear; (c) the Product has not been altered, misused or used for purposes other than those for which it was intended; and (d) Buyer has given written notice of the alleged defect to Nexen, and delivered the allegedly defective Product to Nexen, within one year of the date of shipment.

### Exclusive Remedy

The exclusive remedy of the Buyer for any breach of the warranties set out above will be, at the sole discretion of Nexen, a repair or replacement with new, serviceably used or reconditioned Product, or issuance of credit in the amount of the purchase price paid to Nexen by the Buyer for the Products.

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### 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.

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