

WC 11050



Warning

Forward this manual to the person responsible for Installation, Operation and Maintenance of the product described herein. Without access to this information, faulty Installation, Operation or Maintenance may result in personal injury or equipment damage.

Installation, Operation and Maintenance of Airflex® WCB Water Cooled Tensioners

**Ref.: Parts List #'s
146246A thru 146298J**



Caution:

Use Only Genuine Airflex® Replacement Parts

The Airflex Division of Eaton Corporation recommends the use of genuine Airflex replacement parts. The use of non-genuine Airflex replacement parts could result in substandard product performance, and may void your Eaton warranty. For optimum performance, contact Airflex:

In the U.S.A. and Canada: **800-233-5926**
Outside the U.S.A. and Canada: **(216) 281-2211**

EAT•N

**August, 1995 PDF Format
204054**

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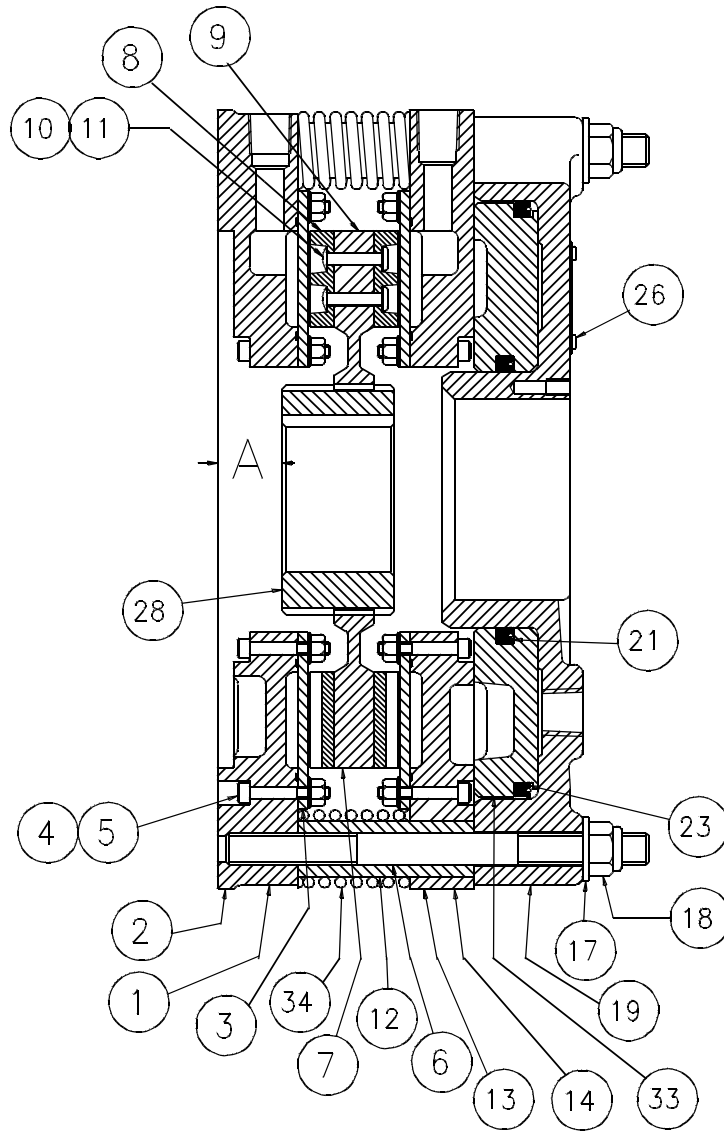


Figure 1

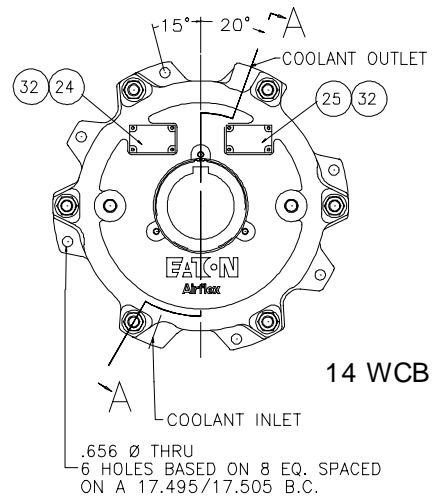
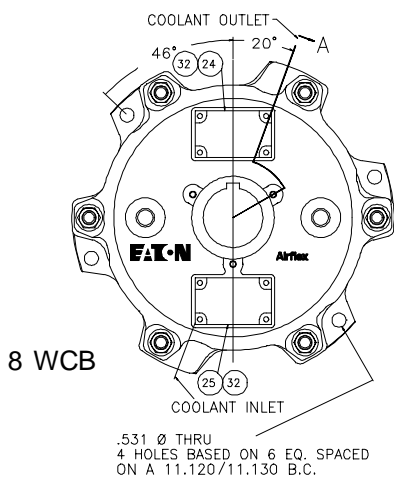


Figure 2

NOTE: The coolant outlets should be positioned at the 12 o'clock position.

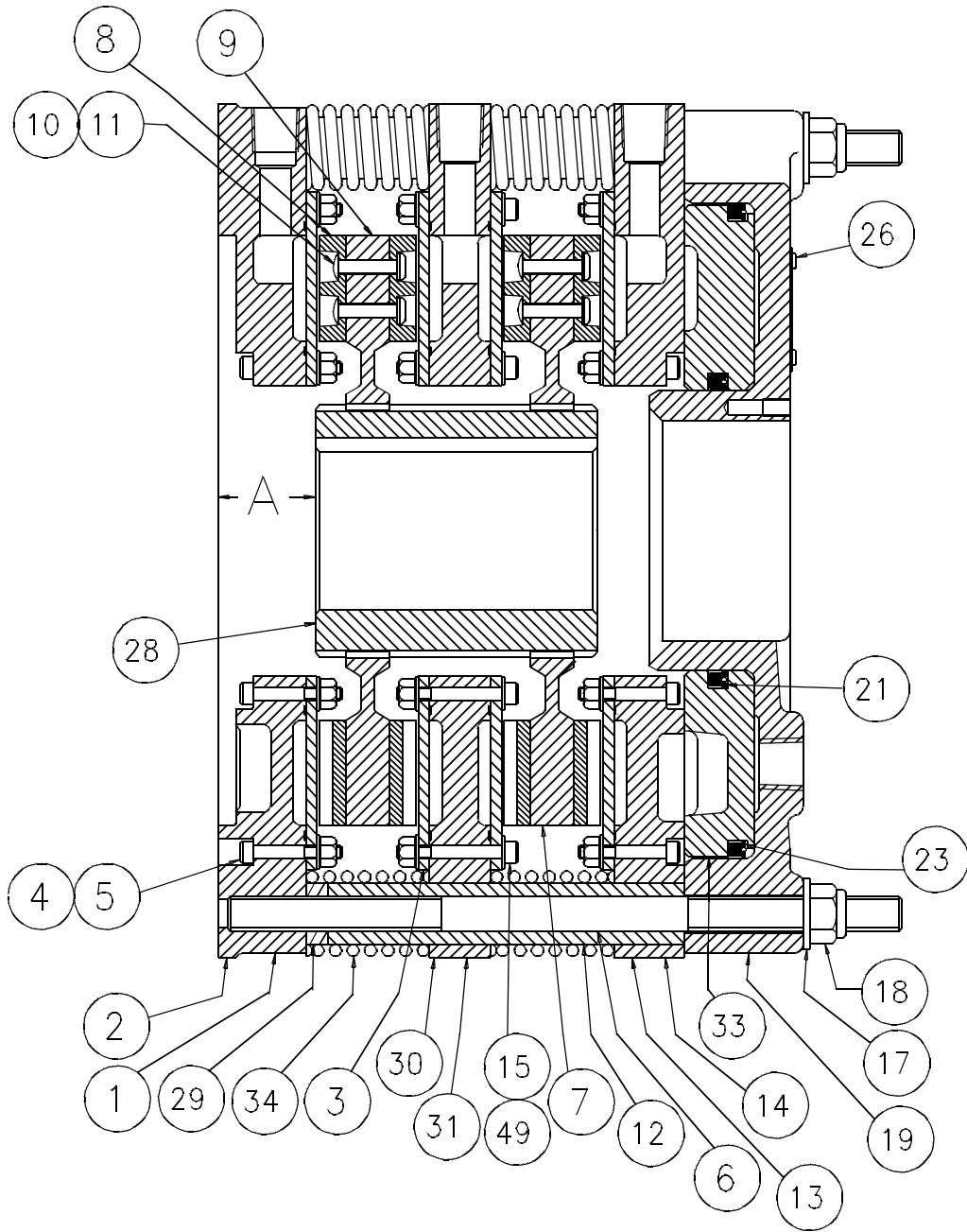


Figure 3

Item Description for 8 & 14 WCB (Figure 1 & 3)					
Item	Description	Item	Description	Item	Description
1	Mounting Flange Ass'y	10	Rivet	21	Inner Polypak [®] Seal
2	Mounting Flange	11	Washer	23	Outer Polypak [®] Seal
3	Wear Plate	12	Clamp Tube	28	Gear
4	Socket Head Screw	13	Pressure Plate Ass'y	29	Wear Spacer
5	Locknut	14	Pressure Plate	30	Reaction Plate Ass'y
6	Stud	15	Washer	31	Reaction Plate
7	Friction Disc Ass'y	17	Washer	33	Piston
8	Friction Disc	18	Locknut	34	Spring
9	Friction Disc Core	19	Cylinder	49	Socket Head Screw

For part number listing see section 8.0

18, 24 & 36 WCB Single Disc

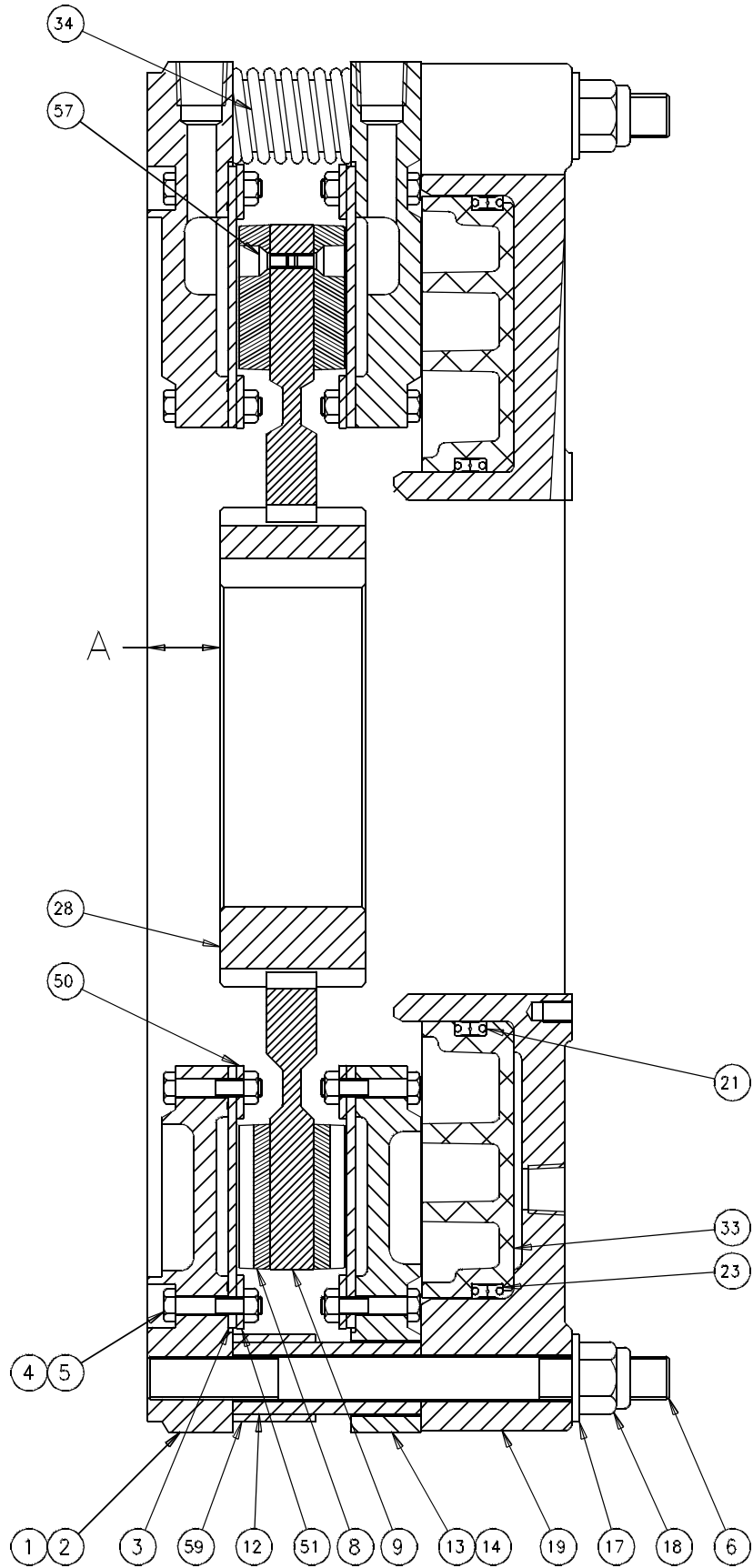


Figure 4

18, 24 & 36 WCB Dual Disc

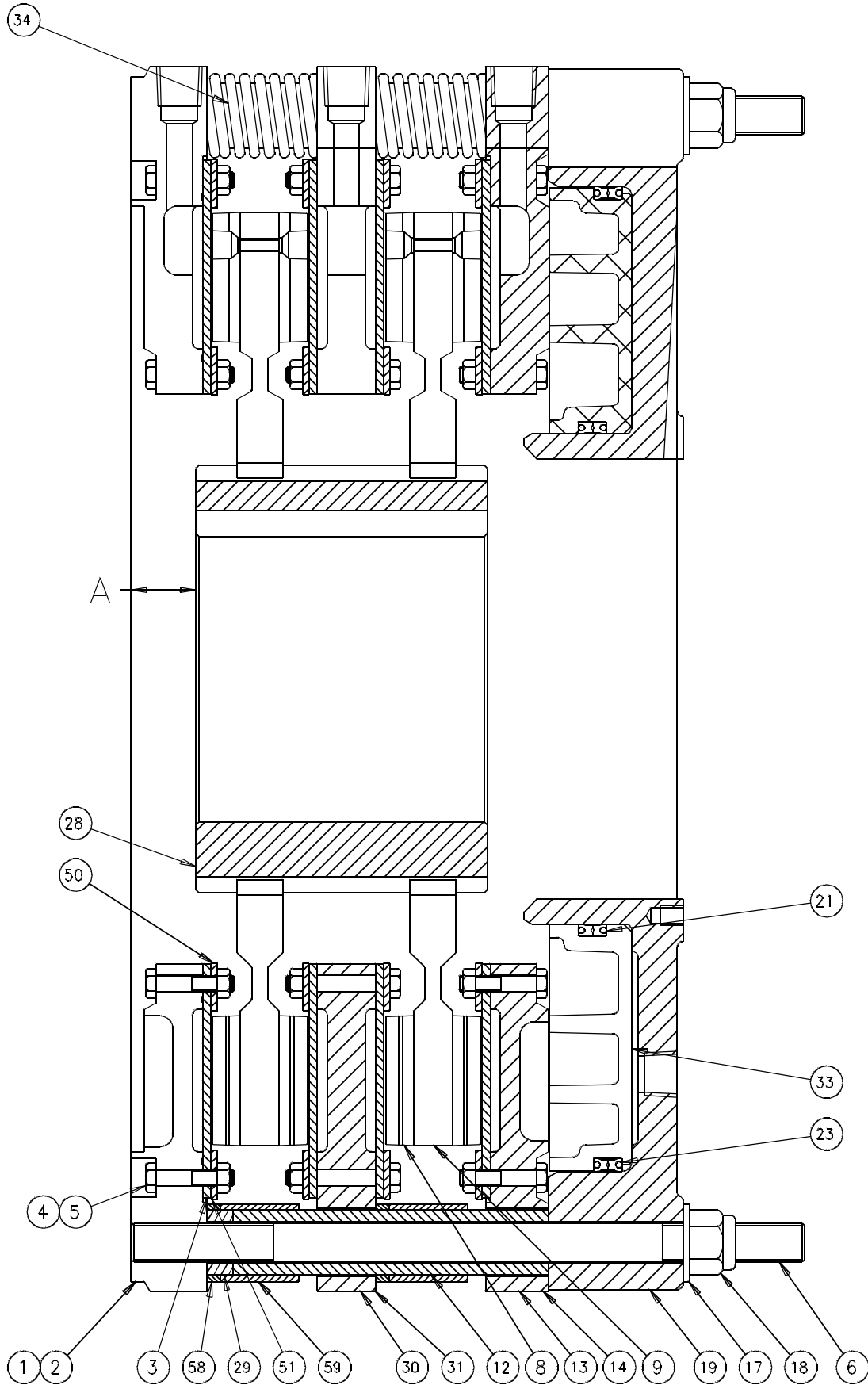


Figure 5

18, 24 & 36 WCB Triple Disc

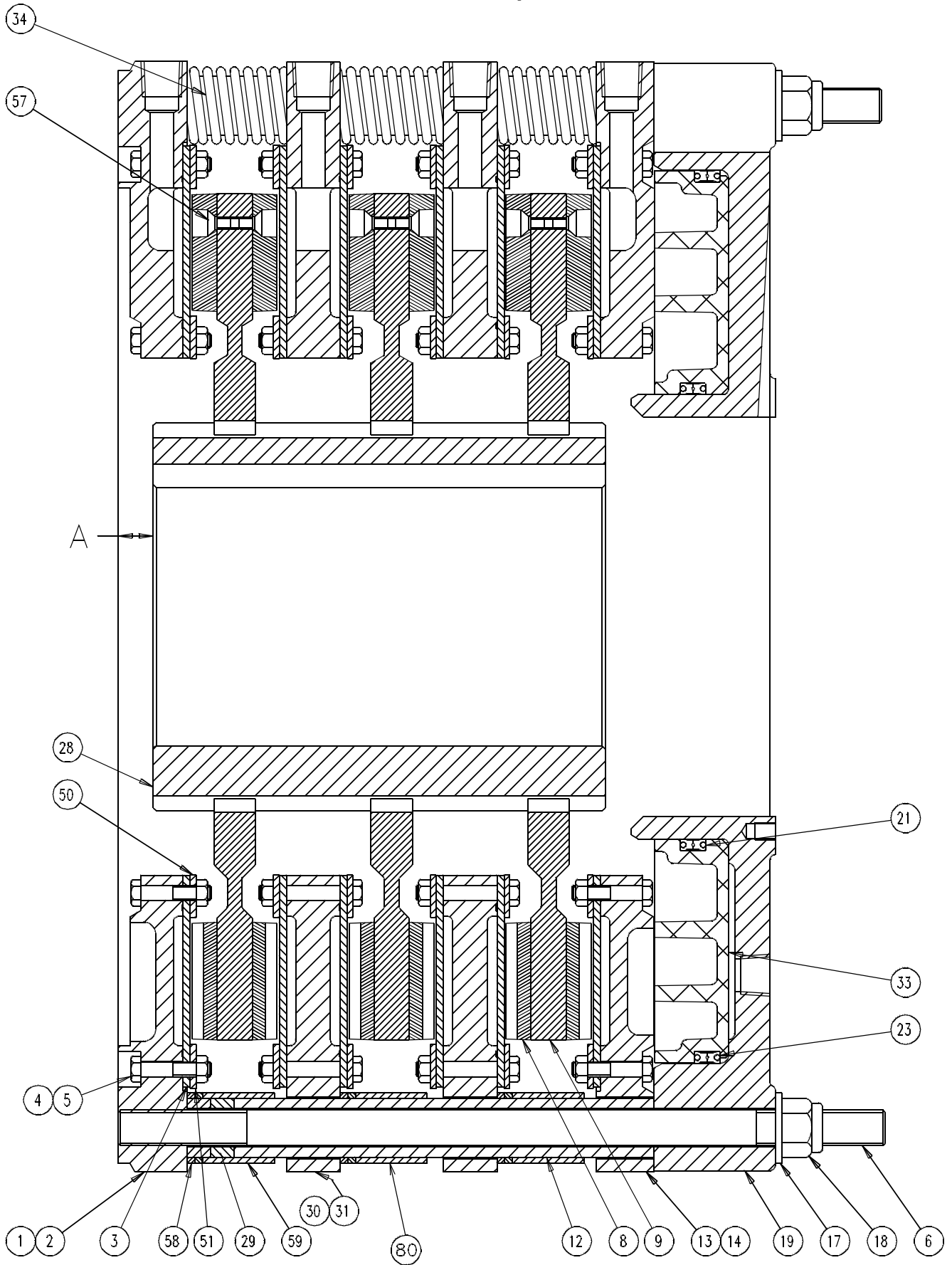


Figure 6

18, 24 & 36 WCB Quad Disc

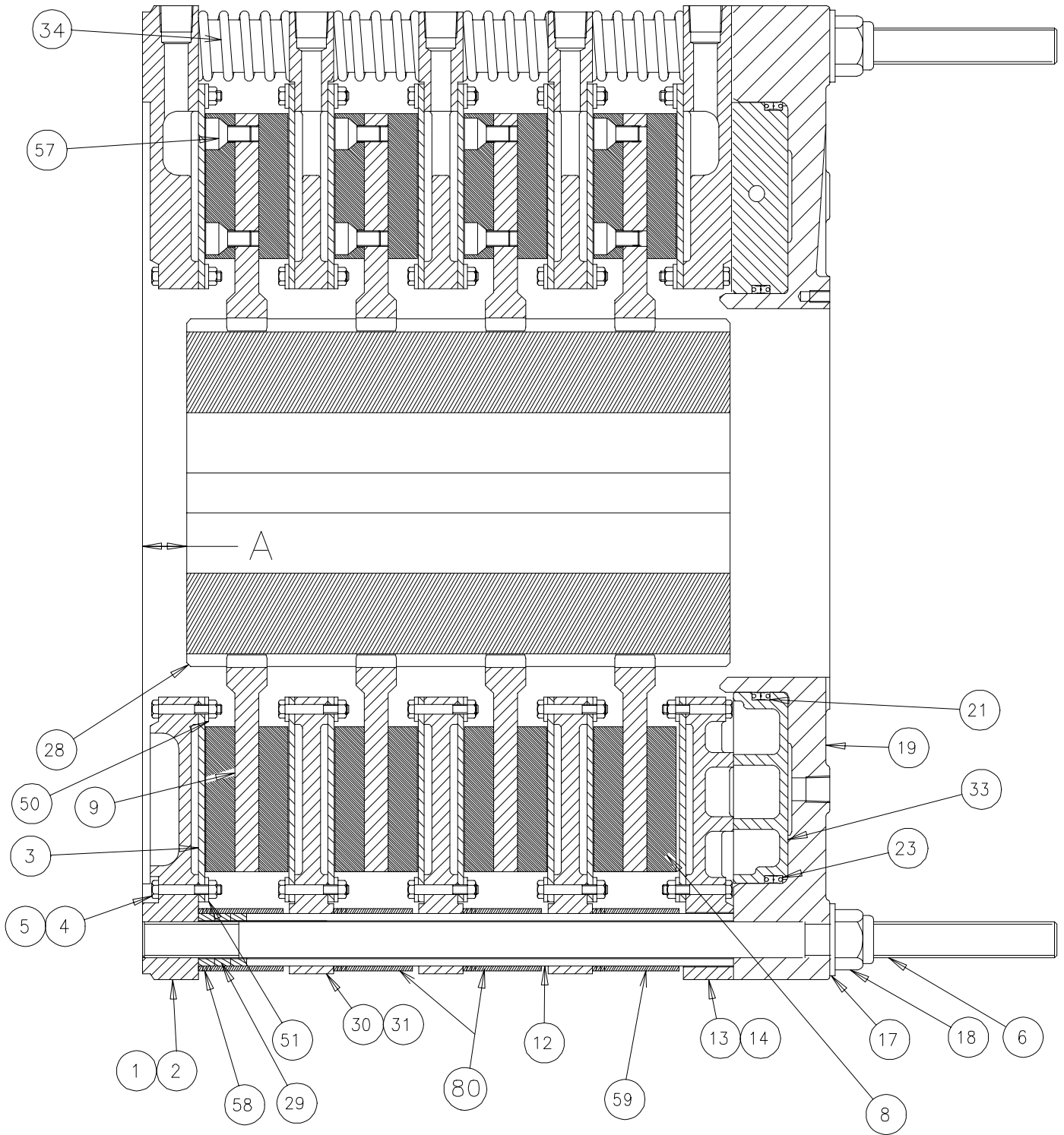
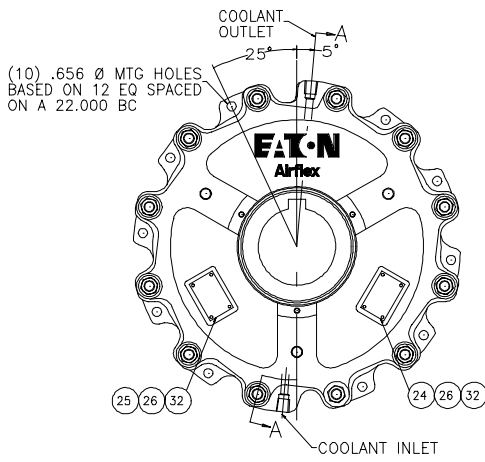


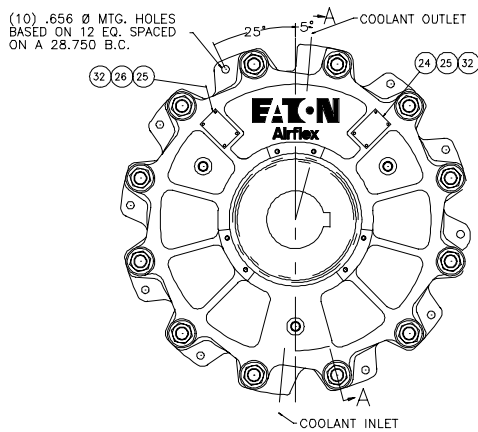
Figure 7

Item Description for 18, 24 & 36 WCB			
Items for Figures , 4, 5, 6, 7 & 8 for 18, 24 & 36 WCB,s with screwed on linings and stop tubes			
Item	Description	Item	Description
1	Mounting Flange Sub-assembly	24	Warning Decal
2	Mounting Flange	25	Name Plate
3	Wear Plate	26	Drive Screw
4	Hex Head Screw	28	Gear
5	Locknut	29	Wear Spacer
6	Stud	30	Reaction Plate Sub-assembly
8	Friction Disc	31	Reaction Plate
9	Friction Disc Core	32	Decal Plate
12	Clamp Tube	33	Piston
13	Pressure Plate Sub-assembly	34	Release Spring
14	Pressure Plate	50	Inner Support Ring
17	Flat Washer	51	Outer Support Ring
18	Locknut	57	Flat Head Screw
19	Cylinder	58	Wear Ring
21	Polypak Seal	59	Stop Tube
23	Polypak Seal	80	Stop Tube

For part number listing see section 9.0



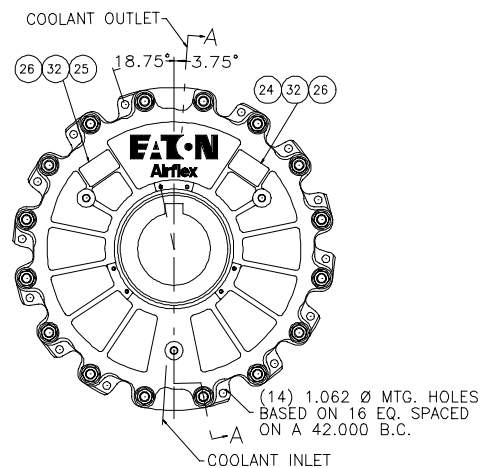
18 WCB



24 WCB

TABLE 1		
Tensioner Mounting Register Diameters - In. (mm)		
Size	Female Register	Male Register
8WCB	8.375/8.378 (212.7/212.8)	12.125/12.122 (308.0/307.9)
14WCB	14.375/14.378 (365.1/365.2)	18.750/18.747 (476.3/476.2)
18WCB	18.250/18.253 (463.5/463.6)	23.250/23.247 (590.5/590.4)
24WCB	24.375/24.378 (619.1/619.2)	29.998/29.995 (761.9/761.8)
36WCB	18.375/18.378 (466.7/466.8)	44.498/44.493 (1130.2/1130.1)

Registers to be .125"-.188" (3.2-4.8mm) deep.




36 WCB

Figure 8

NOTE: The coolant outlets should be positioned at the 12 o'clock position.

1.0 INTRODUCTION

Throughout this manual, there are a number of **HAZARD WARNINGS** that must be read and understood in order to prevent possible injury and/or damage to the equipment. Three signal words, "**DANGER**", "**WARNING**", and "**CAUTION**" are used to indicate the severity of a hazard and are preceded by the safety alert symbol. 



Danger:

Denotes the most serious hazard, and is used when serious injury or death **WILL** result from misuse or failure to follow specific instructions.



Warning:

When serious injury or death **MAY** result from misuse or failure to follow specific instructions.



Caution:

When injury or product/equipment damage may result from misuse or failure to follow specific instructions.

It is the responsibility and duty of all personnel involved in the installation, operation and maintenance of the equipment on which this device is used to fully understand the

 **Danger:** ,  **Warning:** , and  **Caution:**

1.1 Description

- 1.1.1 The Airflex WCB water-cooled tensioner is designed for constant tension applications. It is exceptionally well suited for high inertia stopping and rapid heat dissipation. The design of the WCB tensioner permits midshaft or endshaft mounting. The rugged construction ensures long, trouble free service. Several models are available having single and multiple friction discs. The tensioner model number identifies the number of discs and the disc diameter. For example, 114WCB means one 14" diameter disc. When size, such as 14WCB, is referred to in this manual, it means that the information given applies to all models using the 14" diameter disc; i.e., 114WCB, 214WCB, etc.

- 1.1.2 Standard 8 and 14 WCB models have parts list numbers ending with "B". These units have riveted friction lining and no stop tubes or wear rings.
- 1.1.3 Standard 18, 24 and 36 WCB models have screwed on friction lining, stop tubes and wear rings. These units have part list numbers ending with "E".
- 1.1.4 Some earlier 18, 24 and 36 WCB units have riveted friction lining and no stop tubes or wear rings. These units have part list numbers ending with "B".
- 1.1.5 Tensioners can be used for either closed loop or open loop water systems.
- 1.1.6 This manual includes metric equivalents usually shown in (#) following the U.S. measurement system value. Be sure to use the correct value.

1.2 Specials

- 1.2.1 WCB models with high coefficient lining are designated with the following alphanumeric designators:
- 1.2.2.1 Models ending with "C" (146XXXC) are WCB's with riveted linings and no stop tubes. 8 and 14 WCB's are current HI-CO elements and 18,24 & 36 models are discontinued.
- 1.2.2.2 Models ending with "D" (146XXXD) are WCB's with screwed on linings and stop tubes. 18, 24 & 36 models are current HI-CO elements.
- 1.2.2 214WCB Models with an "A" (146XXXA) designator are elements with a machined cylinder face to accept a mounting flange to accept a 108 WCB for dual purpose operation. The only difference between the "A" model and the "B" model is the Cylinder (19) part number. "A" models use P/N513398 for item (19). All other parts on the part list is the same as a "B" model element.
- 1.2.3 WCB Models with "G" (146XXXG) designator have bonded standard lining. To replace see table 12 in section 6.2 and order a complete friction disc sub assembly.

- 1.2.4 114 WCB Models with "H" (146XXXH) designator have a special friction disc core for mating with a 112.5 WC gear. The friction disc core (9) P/N is 416126 and the friction disc sub-assembly (7) P/N is 416125, all other parts are the same as the "B" model WCB.
- 1.2.5 WCB models with "J" (146XXXJ) designator have Corrosion Resistant Pistons and Standard screwed on friction linings. Contact Airflex for piston (33) P/N's.
- 1.2.6 WCB models with "K" (146XXXK) designator have Corrosion Resistant Pistons and High Coefficient screwed on friction linings(8). Call Airflex for piston (33) P/N's.
- 1.2.7 WCB models with part list numbers, not just alphanumeric designator, other than listed on cover use WC 11040.

1.3 Upgrades

- 1.3.1 18, 24 and 36 WCB elements ending with a "B" (146XXXB) alphanumeric designators have been discontinued, however, existing models may be upgraded to new standards. To upgrade the element you must change the friction disc subassembly with cores having screwed on linings. See table X, all disc's must be changed. Also stop tubes (59) & (80), wear rings (58) must be installed. See the part list in section 9.0 for part numbers and quantities for the individual elements.

Note: If these changes have been made stamp out the "B" letter designator and stamp the "E" designator.

1.4 How It Works

- 1.4.1 Refer to Figure 1. Air is introduced to the unit causing the pressure plate assembly (13) to move and make contact with the friction discs (8). Torque is transmitted through the studs (6) to the mounting flange (2). The release springs (34) assist in disengagement and retraction of the piston and pressure plate. High heat dissipation is accomplished by passing water through a special cavity behind copper wear plates (3).

2.0 INSTALLATION



Warning:

Only qualified maintenance personnel should install, adjust or repair these units. Faulty workmanship will result in unreasonable exposure to hazardous conditions or personal injury.



Caution:

Read these instructions thoroughly and review until you fully understand the installation sequence before proceeding with the work described in this section. Failure to follow these instructions will result in unreasonable exposure to hazardous conditions or personal injury.



Caution:

Do not paint the clamp tubes (12) or the springs (34), as this may hinder the engagement or disengagement of the tensioner.



Caution:

Maximum ambient temperature is 110°F (43°C). Minimum ambient temperature for closed loop systems using ethylene glycol antifreeze is 0°F (-18°C). For open loop systems using water, the minimum temperature is 45°F (7°C).

Note: Some three and four disc units may require support on the cylinder end of the tensioner in certain high torque applications. Contact the factory for specific application information.

2.1 Preparation

- 2.1.1 Table 2 shows the relationship between the tensioner mounting surface and the end of the gear (dimension "A" on Figure 1, 3-6). The gear is bored and keyed for a resulting Class FN2S interference fit for inch shafting and ISO System S7h6 for metric shafting.

Size	Single	Dual	Triple	Quad
8WCB	1.00 (25.4)	1.38 (35.0)	N/A	N/A
14WCB	1.06 (26.9)	1.69 (42.9)	N/A	N/A
18WCB	1.25 (31.8)	1.25 (31.8)	0.75 (19.1)	N/A
24WCB	1.38 (35.1)	1.00 (25.4)	0.63 (16.0)	1.38 (35.1)
36WCB	1.50 (38.1)	N/A	2.38 (60.5)	2.38 (60.5)

Size	Concentricity of Shaft and Brake In. (mm)	Perpendicularity of Mounting Flange(2) to Shaft - In. (mm)
8WCB	0.005 (0.13)	0.005 (0.13)
14WCB	0.010 (0.25)	0.007 (0.18)
18WCB	0.010 (0.25)	0.010 (0.25)
24WCB	0.010 (0.25)	0.012 (0.30)
36WCB	0.010 (0.25)	0.019 (0.48)

Perpendicularity referenced to outside diameter of mounting flange from shaft center line (TIR).

2.1.2 Figures 2 and 8 and Table 1 show the mounting dimensions for the tensioner to the machine frame or reaction bracket. Note that a male or female register may be used.

2.2 Alignment

2.2.1 For proper operation and service life, the tensioner reaction member must be aligned to the shaft within the limits shown on Table 3.

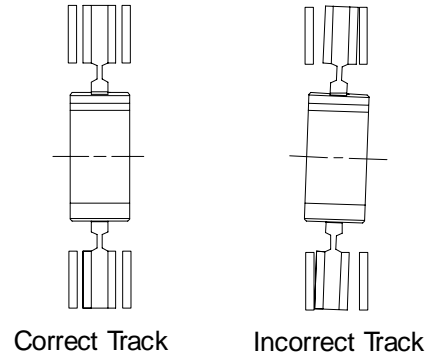


Fig. 9

Caution:

Proper alignment is necessary to ensure that the friction discs track properly. Improper alignment will result in excessive wear to the friction material and its mating surfaces, the gear and splined bore of the friction disc assembly. See Figure 9.

2.3 Mounting

2.3.1 The WCB must be mounted to a clean, rigid surface with hardened flat washers and screws of the grade, quantity, and size and torqued to the values identified in Table 4 for each WCB size. Mounting to a rigid surface minimizes any deflection during operation and ensures that the friction discs will track properly on the copper wear plates.

Fastener		8WCB	14WCB	18WCB	24WCB	36WCB
Item #18	Description	1/2-13NC-3	3/4-10NC-3	3/4-10NC-3	1 1/8-7NC Gr. 8	1 3/8-6NC Gr. 8
	Torque	60 (81)	150 (203)	150 (203)	500 (677)	750 (1016)
Item # 5	Description	#10-24NC	1/4NC2	5/16-18NC	5/16-18NC	3/8-16NC2
	Torque	5 (7)	12 (16)	25(31)	25(31)	40(54)
Mounting Screw	Description	1/2-13NC-2 Gr.8	5/8-11NC-2 Gr. 8	5/8-11NC-2 Gr. 8	5/8-11NC-2 Gr. 8	1-8NC2 Gr. 8
	Quantity	4	6	10	10	14
	Torque	70 (95)	150 (203)	150 (203)	150 (203)	660 (895)

**Danger:**

Use only the proper number and grade fasteners shown in Table 4. Use of commercial grade (Grade 2) fasteners where Grade 8 fasteners are specified may result in failure of the fasteners and a sudden and drastic reduction in brake torque.

**Caution:**

Make sure that the water inlets and outlets are at the 6 o'clock and 12 o'clock positions, respectively. See Figures 2 & 8. This will ensure that there will be no air pockets in the water cavity during operation, which would allow the tensioner to overheat.

2.3.2 To facilitate the tensioner mounting process, the friction disc assemblies should be aligned to the gear and centered in the tensioner. With the tensioner laying on the floor, lower the gear (28) slowly and very carefully into the splined bore of the friction disc assemblies (7). Adjust the discs so that they are centered in the tensioner and fit the gear. Apply and maintain an air pressure of 25 PSIG (1.7 bar) to the cylinder. This will engage and hold the discs in position to facilitate tensioner installation. Remove the gear.

2.3.3 Ensure that the shaft is free of nicks or burrs and the key fits properly in the shaft and gear.

2.3.4 Apply a light coat of anti-seizing compound to the shaft and key. Tap the key into the shaft keyway.

2.3.5 Press the gear onto the shaft, making sure that the dimension between the gear and the tensioner mounting surface ("A") is maintained. See Figure 1 and Table 1. Heating the gear uniformly to 250°F (121°C) will expand the bore and ease assembly.

Model	Thread Size
8 WCB	3/8-18 NPT
14 WCB	1/2-14 NPT
18 WCB	1/2-14 NPT
24 WCB	1/2-14 NPT
36 WCB	3/4-14 NPT

Size	Thermal Rating ¹ HP (kW)	Water Inlet and Outlet Pipe Size	Min. Flow Rate ² GPM (dm ³ /min) 100% Water	Min. Flow Rate ² GPM (dm ³ /min) 70% Water, 30% Ethylene Glycol by Vol.	Min. Flow Rate ² GPM (dm ³ /min) 60% Water, 40% Ethylene Glycol by Vol.	Min. Flow Rate ² GPM (dm ³ /min) 50% Water, 50% Ethylene Glycol by Vol.
108	30 (22.4)	1/2-14NPT	3 (11.4)	3.5 (13.4)	3.9 (14.7)	4.5 (17.0)
208	60 (44.7)	1/2-14NPT	6 (22.7)	7 (26.8)	7.8 (29.4)	9 (33.9)
114	60 (44.7)	1/2-14NPT	6 (22.7)	7 (26.8)	7.8 (29.4)	9 (33.9)
214	120 (89.4)	1/2-14NPT	12 (45.4)	14 (53.6)	15.6 (58.8)	18 (67.9)
118	120 (89.4)	1/2-14NPT	12 (45.4)	14 (53.6)	15.6 (58.8)	18 (67.9)
218	240 (179)	1/2-14NPT	24 (91)	28 (106)	31 (117)	36 (136)
318	360 (268)	1/2-14NPT	36 (136)	42 (161)	47 (176)	54 (204)
124	270 (201)	3/4-14 NPT	27 (102)	32 (121)	35 (132)	40 (151)
224	540 (402)	3/4-14 NPT	54 (204)	64 (242)	70 (265)	80 (303)
324	810 (603)	3/4-14 NPT	81 (306)	96 (363)	105 (396)	120 (453)
424	1080 (804)	3/4-14 NPT	108 (408)	128 (484)	140 (528)	160 (604)
136	650 (485)	1 1/4-11 NPT	65 (246)	76 (288)	84 (318)	98 (371)
236	1300 (970)	1 1/4-11 NPT	130 (492)	152 (576)	168 (636)	196 (742)
336	1950 (1454)	1 1/4-11 NPT	195 (738)	228 (863)	253 (985)	294 (1113)
436	2600 (1940)	1 1/4-11 NPT	260 (984)	304 (1152)	336 (1272)	392 (1484)

¹ Thermal rating based on a 70°F (21°C) water inlet temperature rise between inlet and outlet.
² Flow rate is based on requirement of 1 U.S. GPM per 10 HP thermal dissipation.

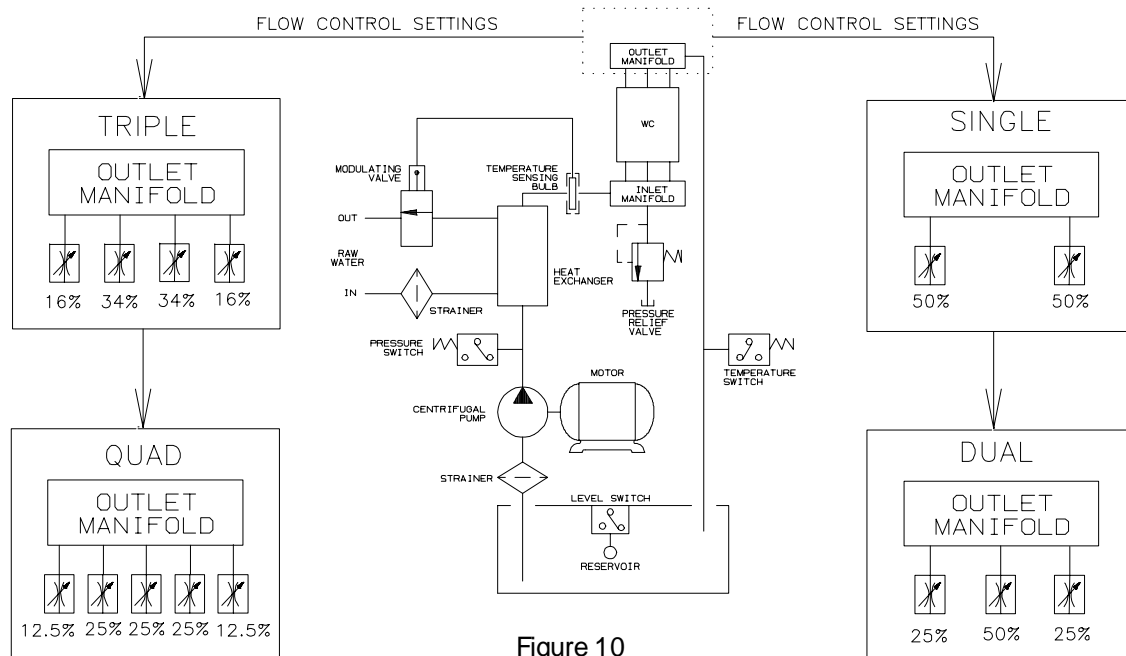


Figure 10



Caution:

For an Airflex supplied plated gear, do not heat the gear to more than 300° F (150°C). Temperatures in excess of 300°F (150°C) will cause the plating to separate from the gear.

- 2.3.6 Apply a thin coat of Molub-alloy O.G.® to the gear teeth.
- 2.3.7 Using lifting equipment and straps, lift the tensioner and slide it over the gear. Fasten it to the mounting surface using the hardware called for in Table 4.
- 2.3.8 Torque the screws to the values called for in Table 4 using a crosswise tightening sequence. Release the air pressure applied in 2.3.2

2.4 Air System



Warning:

Maximum allowable air pressure is 150 PSIG (10.3 bar). Application of pressure exceeding maximum allowable may result in damage to the tensioner.

- 2.4.1 All pipes should be free of metal chips, cutting compound and any other foreign matter. Pipe ends should be reamed after cutting to eliminate possible restrictions. A minimum of bends and elbows should be used.

- 2.4.2 Air inlets for the WCB are on the face of the cylinder (19). See table 5. Use only clean, filtered air (a 50 micron filter or better is recommended) which is free of excess moisture.

2.5 Coolant System



Warning:

Maximum allowable water pressure is 45 PSIG (3.1 bar). Application of pressure exceeding maximum allowable may result in damage to the tensioner.

- 2.5.1 Coolant supply connections to the tensioner should provide a parallel flow through each section of the tensioner. Series flow is not generally recommended, contact Airflex for specific applications. Inlet and outlet coolant manifolds must be provided with flexible connecting hose to each tensioner coolant section. Coolant supply connection to the tensioner must be flexible to allow axial travel of the pressure plate and reaction plate during tensioner operation. Coolant and coolant supply lines should be free of foreign material (a 500 micron water filter is recommended). Reductions in the recommended line diameter should be avoided. Avoid loops and bends in the lines which may create air pockets, which substantially reduce the flow of coolant. Figure 10 illustrates a typical closed loop liquid to liquid coolant system. The heat exchanger and temperature control would be replaced with a radiator, fan and motor in a liquid to air system.

TABLE 7 Maximum Mixture Outlet Coolant Temperature	
Water/Ethylene Glycol Mixture % by Volume	Maximum Outlet Coolant Temperature °F (°C)
100/0	150 (66)
70/30	165 (74)
60/40	165 (74)
50/50	170 (77)

2.5.2 Figure 10 shows the flow control valve settings for each type of element depending on the number of friction surfaces to be cooled.



Caution:

Improper or low coolant temperature can cause condensation to occur on the friction surfaces which will affect torque and wear performances. Coolant should be shut off when element is not in use.



Caution:

Make sure that the water inlets and outlets are at the 6 o'clock and 12 o'clock positions, respectively. This will ensure that there will be no air pockets in the water cavity during operation, which would allow the tensioner to overheat.

2.5.3 The coolant supply and discharge pipe sizes, along with minimum flow rates for the tensioner rated horsepower, are given in Table 6.

2.5.4 Each coolant cavity of each WCB tensioner has been statically tested at the factory before shipment. If leakage is suspected, a static or dynamic test may be made as follows:

Static Pressure Test:

First, bleed all air from within the coolant cavity. Air bleeding must be accomplished by running coolant through the cavity with the tensioner secured in its operating position. After the air has been removed, install a pipe plug in the outlet and apply 45 PSIG (3.1 bar) coolant pressure measured at the inlet to the water cavity. Maintain this pressure for 30 minutes. Check for leakage at O.D. and I.D. seal areas.



Caution:

Do not apply air pressure to the cylinder of the tensioner during static coolant pressure testing. Surge pressures exceeding 45 PSIG (3.1 bar) could be developed within the coolant cavities which will cause damage to the seals.

Dynamic Flow Test:

Dynamic flow testing of the tensioner should be conducted at the required flow rate for the rated HP dissipation and coolant quality, as given in Table 6. Inlet pressure is not to exceed 45 PSIG (3.1 bar).

There should be no restrictions on the outlet side of the brake to cause any back pressure to the unit. Coolant inlet and hose size should be as given in Table 6. Check for leakage at the O.D. and I.D. seal areas.

2.5.5 The coolant supply temperature at the inlet should be 100°F (38°C) or lower. The coolant outlet temperature should not exceed the values given in Table 6. However, in no event should there be more than a 50°F (28°C) temperature rise between inlet and outlet. See Table 7 for maximum allowable outlet coolant temperature with a water/ethylene glycol mix.

2.5.6 **Open Loop Systems**

For efficient operation of the WCB, an adequate supply of filtered fresh water is required. (See 2.5.1-2.5.2). Excessive water hardness promotes the formation of scale deposits, which, in time, will affect the service life of the WCB unit. Water of high acidity may cause electrolytic corrosion between the dissimilar metals used in the WCB. Water treatment should be considered if the properties of the water exceed the following:

Equivalent calcium carbonate content (hardness): Maximum 100 p.p.m.

pH value: 7.0 to 9.0.

2.5.7 **Closed Loop Systems**

For efficient operation of the WCB in a closed loop system, ethylene glycol coolant conforming to SAE Standard J1034 should be used. For preparation of the proper concentration of a water/ethylene glycol mixture, use makeup water which is low in corrosive ions such as chlorides and sulfates.

TABLE 8 Maximum Disc Speeds		
Size	Max. Slip Speed RPM	Max. Disc Speed RPM
8WCB	2150	3580
14WCB	1260	2045
18WCB	955	1600
24WCB	715	1200
36WCB	475	700

pH value of the water/ethylene glycol mixture:
7.5. to 10.5.

3.0 OPERATION

3.1 Conditions of Operation

The following Hazard Warnings are to be followed for proper WCB functioning:

Warning:

The maximum recommended operating air pressure is 150 PSIG (10.3 bar). Air pressure in excess of 150 PSIG (10.3 bar) will cause high stress in various parts of the tensioner. Do not risk personal injury or damage to the equipment!

Warning:

Protective means must be used to prevent rain, water, oil, grease, dirt or coolant from coming into contact with the surfaces of the friction discs (8) or the wear plates (3). Oil or grease on these parts will significantly reduce the torque capacity of the unit. Dirt or coolant will produce erratic torque. Do not risk personal injury or damage to the equipment!

Warning:

The friction disc assembly (7) maximum disc speed must not exceed the speeds listed in Table 8. Exposure to speeds in excess of these values may cause the friction discs to burst and result in extensive damage to the tensioner and/or cause personal injury.

Caution:

For proper cooling of the WCB tensioner, it is required that the coolant inlet be located at the 6 o'clock position and the outlet be located at the 12 o'clock position. This will assure that all coolant cavities are filled and will prevent overheating. Refer to Figure 2 & 8.

Caution:

For operation in subfreezing temperatures, ethylene glycol antifreeze must be added to the water. The antifreeze content of the mixture is critical and should not exceed 50% by volume since excessive amounts will reduce cooling capacity and can cause coolant leakage due to overheating. Refer to Section 2.5 and Table 6.

3.2 Pressure and Speed Limits

- 3.2.1 Maximum applied air pressure is 150 PSIG (10.3 bar). Maximum water pressure measured at the inlet of the tensioner is 45 PSIG (3.1 bar).
- 3.2.2 Maximum slip speeds and (free wheeling) disc speeds are shown in Table 8.

Caution:

Excessive slip speeds will result in rapid friction material wear. For good life, the values in Table 8 should not be exceeded.

Caution:

A minimum wear in period of four hours at 50% of the rated horsepower is recommended for the friction couple to achieve rated torque.

4.0 PERIODIC MAINTENANCE



Warning:

Before doing any maintenance work on the WCB unit, make sure that the machinery will remain in a safe position. Failure to do so could result in serious injury or possibly death.



Warning:

Only qualified maintenance personnel should install, adjust or repair these WCB units. Faulty workmanship will result in unreasonable exposure to hazardous conditions or personal injury.



Caution:

Read these instructions thoroughly and review until you fully understand the parts replacement steps before proceeding with the work described in this section. Failure to follow these instructions can result in unreasonable exposure to hazardous conditions or personal injury.

4.1 Wear Adjustments (WCBs w/Stop Tubes)

4.1.1 Single disc WCBs

Note: Item numbers (#) are shown on Figure 3.

- 4.1.1.1 There is no adjustment for single disc elements. When the pressure plate (13) bottoms against the stop tubes (59), replace friction material and inspect wear plates for wear. See section 6.0.

Note: Stop tubes may be added to 18, 24 & 36 WCB single elements that did not originally come equipped with stop tubes. Order Item (58), (59) and (80) from parts list for WCB elements including stop tubes. (Part lists' alpha-numeric number ends with "E".) See section 9.0.

4.1.2 Dual, Triple & Quad disc WCB's

Note: Items (#) referenced in Figures 4, 5 and 6.

- 4.1.2.1 Dual disc elements have one adjustment, triple disc elements have two adjustments and quad disc elements have three adjustments. Follow the wear spacer adjustment procedures in section 4.1.3 for each adjustment made.

Note: Stop tubes may be added to 18, 24 & 36 WCB multi disc elements that did not originally come equipped with stop tubes. Order Items (58), (59) & (80) from parts list for WCB elements including stop tubes. Part lists' alpha-numeric number ends with "E". See section 9.0.

4.1.3 Wear adjustment procedures (Multi disc)

Note: Item numbers (#) are shown on Figures 4, 5 and 6.

Note: On all units, the friction material must be replaced when worn to the bottom of the groove on the friction lining. See Figure 11. See Table 17 in Section 7.0 for new wear groove depth.

- 4.1.3.1 Disconnect air and water supply lines from the tensioner.
- 4.1.3.2 While supporting the cylinder (19), loosen the locknuts (18) ONE TURN AT TIME and in an alternating (crosswise) pattern until the spring force is completely relieved. Remove the locknuts and washers (17). Mark all of the water outlet ports for identification. Deep well sockets are required. See table 9 for size and depth of socket required.
- 4.1.3.3 Using lifting equipment, carefully remove the cylinder (19) and piston (33) as an assembly. Set aside in a clean area. (Piston side up.)

Note: If a stud (6) should happen to come loose, remove it completely, clean the threads on the stud and the threads in the mounting flange. Apply Locquic® Primer Grade "T" to the stud threads. After the threads have dried, assemble to the mounting flange using Loctite® #262. The end of the stud must not extend past the mounting surface of the mounting flange.

Table 9 Socket size and depth		
Model	Nut Size	Socket Depth
108	3/4"	1 3/8"
208		1 1/2"
114	1 1/16"	1 1/2"
214		2 1/8"
118	1 1/16"	1 3/4"
218		2 3/8"
318		2 1/4"
124	1 5/8"	1 3/4"
224		2 1/4"
324		6 5/8"
424		7 1/8"
136	2"	3 1/4"
236		4"
336		5 1/2"
436		6 1/5"



Caution:

Loctite® #262 must be shaken prior to application.



Caution:

Loctite® #262 may irritate sensitive skin. Refer to the product label for proper safety precautions.

- 4.1.3.4 Using lifting equipment, remove the pressure plate assembly (13) and carefully place it on a suitable work surface with the wear plate (3) facing up. Do not damage the wear plate.
- 4.1.3.5 Remove the friction disc assembly, the reaction plate assembly (30), release springs (34), stop tubes (59) or (80)** and wear ring (58) from each stud and set aside Repeat for three and four disc units.
- 4.1.3.6 Remove the clamp tubes (12) and one wear spacer (29) from each stud. Reinstall the clamp tubes, set aside the removed wear spacers and ONLY one wear ring (58) from each stop tube that was removed.
- 4.1.3.7 Slide the friction disc assembly onto the gear.

- 4.1.3.8 Place a release spring over every other clamp tube. Install required number of wear rings (58) and install one stop tube** on every fourth stud without release springs and slide the reaction plate assembly onto the clamp tubes. NOTE: Quantity of wear rings re-installed at each location should be same as quantity of wear spacers installed.



Caution:

The stop tubes (80)** on 324 WCB and 424 WCB units must be installed in the center or center two positions shown on figure 5 & 6. These stop tubes are identified by a small hole drilled into the side. Improper installation will cause the element to bind.

** NOTE: On 324 WCB and 424 WCB units use Item (80) for the center set of stop tubes. See Figure 5 and 6. These stop tubes are identified by a small hole drilled into the side.

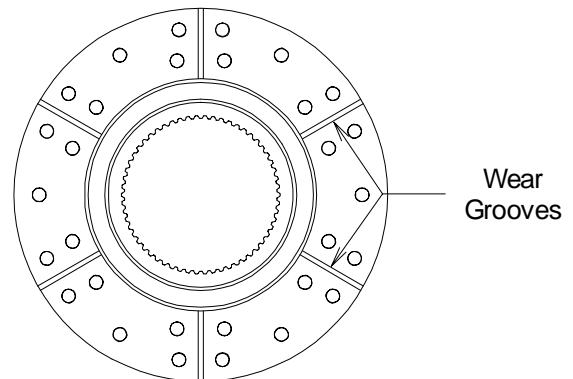


Fig. 11

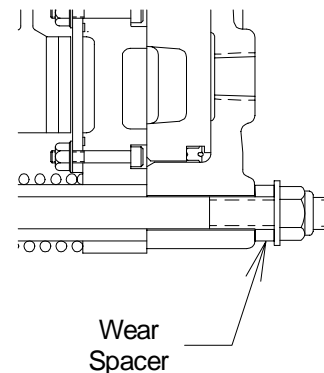


Fig. 12

- 4.1.3.9 For multi-disc units, repeat steps 4.1.3.7 and 4.1.3.8 for each additional friction disc and reaction plate **.
- 4.1.3.10 Slide the pressure plate and the cylinder/piston assembly onto the studs. Lubricate the threads on the end of the studs with 30 wt. oil or anti-seizing compound and install the washers (17), wear spacers (29) and the locknuts (18) removed in 4.1.3.6.
- 4.1.3.11 The wear spacers are "stored" under the locknuts and washers for use after replacing the friction discs. See Figure 12.
- 4.1.3.12 Discard un-used wear rings. New wear rings are included in friction disc replacement kits.
- 4.1.4 While supporting the weight of the cylinder/piston assembly, tighten the locknuts, ONE TURN AT A TIME and in an alternating (crosswise) pattern until the cylinder is seated firmly against the clamp tubes. Torque the locknuts to the appropriate value. See Table 4.



Caution:

The locknuts (18) must be tightened gradually to prevent damage to the tensioner components.

- 4.1.5 Check that clearance exists between friction discs and wear plates.
- 4.1.6 Reinstall air and coolant lines per 2.0.

4.2 Wear Adjustments (WCB's without stop tubes)

4.2.1 Measuring Lining Wear



Warning:

Periodically examine the tensioner for wear of linings and wear plates. Failure to perform this examination will result in excessive wear, a significant reduction in torque, and may result in personal injury and/or damage to the machinery.

- 4.2.1 Wear limits for the WCB components are shown in Section 7.0. If any wear limit has been reached or exceeded, that component must be repaired or replaced.

Note: Item numbers (#) are shown on Figure 1.

4.2.2 Single Disc Units

Apply approximately 25 PSIG (1.7 bar) air pressure to the cylinder to engage the tensioner. Measure the gap "X" between the cylinder (19) and the pressure plate (13) or the gap "Y" between the pressure plate (13) and the mounting flange (2) as shown in Figure 13. If the gap exceeds the limits shown in Table 9, the friction discs and/or wear plates must be inspected to ensure that the wear limits listed in section 9.0, Table 10 have not been exceeded.

4.2.3 Multi-disc Units

Apply approximately 25 PSIG (1.7 bar) air pressure to the cylinder to engage the tensioner. Measure the gap "X" between the cylinder (19) and the pressure plate (13) or the gap "Y" or "Z" between the pressure plate (13) and the reaction plates (31) and the gap "Y" between the reaction plate (31) and the mounting flange (2) as shown in Figure 14, 15 and 16. If the gap exceeds the limits shown in Table 10, the friction discs and/or wear plates must be inspected to ensure that the wear limits listed in section 7.0.



Warning:

If wear adjustment is not made, the piston may pop out of the cylinder resulting in loss of torque and/or seal damage.

4.2.4 Wear Adjustment



Caution:

Premature wear adjustment may result in improper disc clearances.



Warning:

If a wear adjustment is not made, the piston may be allowed to travel past the end of the cylinder resulting in a sudden loss of air pressure and a complete loss in torque.

- 4.2.5 Disconnect air and water supply lines from the tensioner.

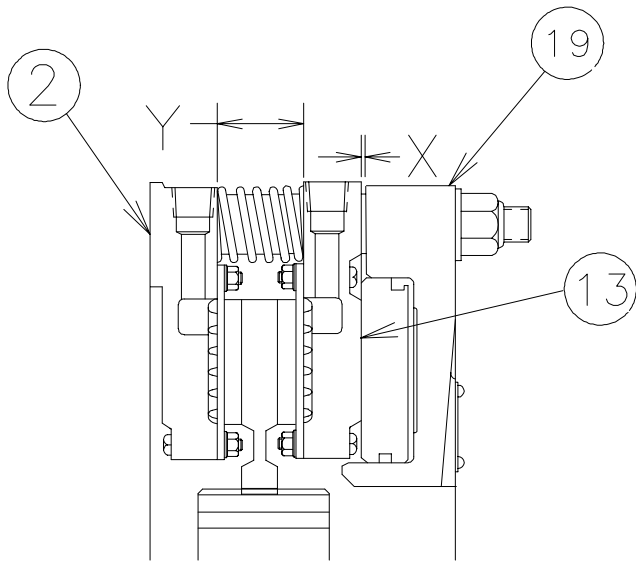


Figure 13

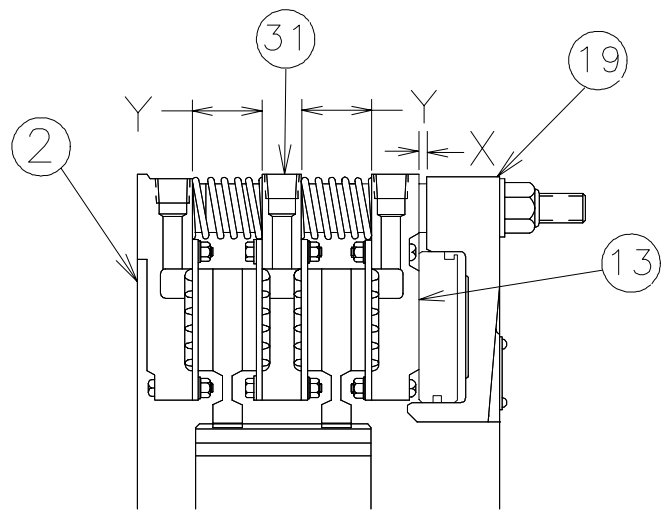


Figure 14

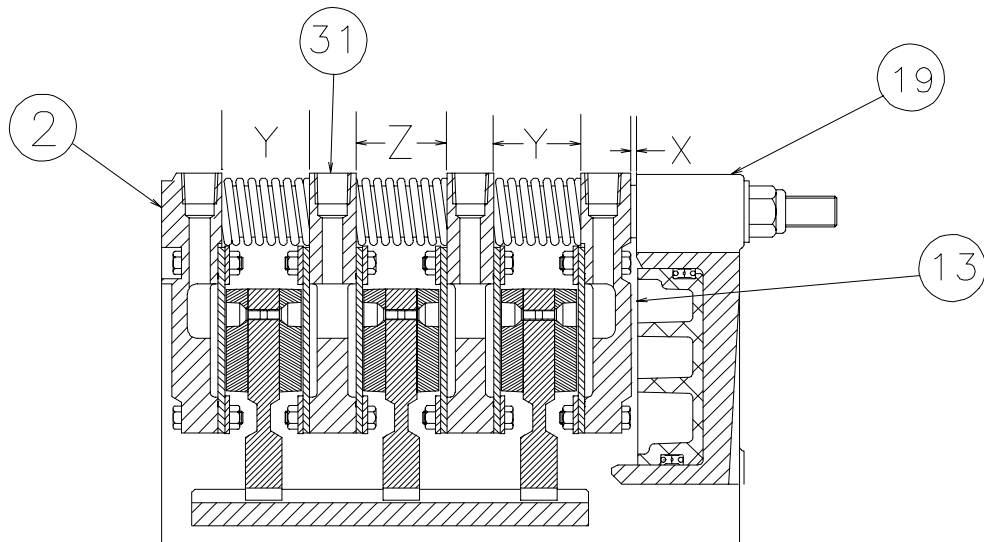


Figure 15

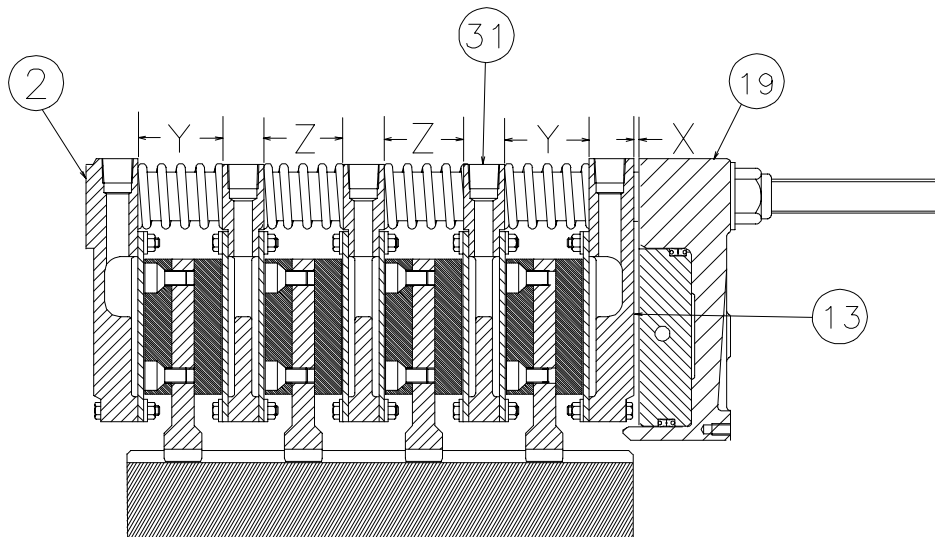


Figure 16

- 4.2.6 While supporting the cylinder, loosen the locknuts (18) ONE TURN AT TIME and in an alternating (crosswise) pattern until the spring force is completely relieved. Remove the locknuts and washers (17). Mark all of the water outlet ports for identification. Deep well sockets are required. See table 9 for size and depth of socket required.
- 4.2.7 Using lifting equipment, carefully remove the cylinder (19) and piston (33) as an assembly. Set aside in a clean area.

Note: If a stud (6) should happen to come loose, remove it completely, clean the threads on the stud and the threads in the mounting flange. Apply Locquic® Primer Grade "T" to the stud threads. After the threads have dried, assemble to the mounting flange using Loctite® #262. The end of the stud must not extend past the mounting surface of the mounting flange.



Caution:

Loctite® #262 must be shaken prior to application.



Caution:

Loctite® #262 may irritate sensitive skin. Refer to the product label for proper safety precautions.

- 4.2.8 Using lifting equipment, remove the pressure plate assembly (13) and carefully place it on a suitable work surface with the wear plate (3) facing up. Do not damage the wear plate.
- 4.2.9 Remove the friction disc assembly, the reaction plate assembly (30) and the release springs (34) and set aside.
- 4.2.10 Slide the clamp tubes (12) off of the studs. Remove one wear spacer from each stud. Reinstall the clamp tubes and set aside the removed wear spacers.
- 4.2.11 Place a release spring over every other clamp tube and slide the reaction plate assembly onto the clamp tubes.

- 4.2.12 Slide the friction disc assembly onto the gear.
- 4.2.13 For multi-disc units, repeat steps 4.2.5.7 and 4.2.5.8 for each additional friction disc and reaction plate.
- 4.2.14 Place a release spring on every other clamp tube and slide the pressure plate and the cylinder/piston assembly onto the studs.
- 4.2.15 Lubricate the threads on the end of the studs with 30 wt. oil or anti-seizing compound and install the locknuts (18) washers (17) and the wear spacers removed in 4.2.5.6.
- 4.2.16 The wear spacers are "stored" under the locknuts for use after replacing the friction discs. See Figure 12.
- 4.2.17 While supporting the weight of the cylinder/piston assembly, tighten the locknuts, ONE TURN AT A TIME and in an alternating (crosswise) pattern until the cylinder is seated firmly against the clamp tubes. Torque the locknuts to the appropriate value. See Table 4.



Caution:

The locknuts (18) must be tightened gradually to prevent damage to the tensioner components.

- 4.2.18 Reinstall the air and coolant lines per 2.0.

5.0 DISASSEMBLY, INSPECTION & ASSEMBLY



Warning:

Before doing any maintenance work on the WCB unit, make sure that the machinery will remain in a safe position. Failure to do so could result in serious injury or possibly death.



Warning:

Only qualified maintenance personnel should install, adjust or repair these WCB units. Faulty workmanship will result in unreasonable exposure to hazardous conditions or personal injury.

Table 10
X, Y & Z Dimension Limits for WCB's without stop tubes

Model	Max. X- in. (mm)	Min. Y ¹ - in. (mm)	Min. Z ¹ - in. (mm)	Min. Y ² - in. (mm)	Min. Z ² - in. (mm)	Min. Y ³ - in. (mm)	Min. Z ³ - in. (mm)
108			N/A	N/A	N/A	N/A	N/A
208			N/A				
114			N/A				
214			N/A				
118			N/A				
218			N/A				
318							
124			N/A				
224			N/A				
324							
424							
136			N/A				
236			N/A				
336							
436							



Caution:

Read these instructions thoroughly and review until you fully understand the parts replacement steps before proceeding with the work described in this section. Failure to follow these instructions can result in unreasonable exposure to hazardous conditions or personal injury.

5.1 Removal of WCB

- 5.1.1 Disconnect the air and water supply lines.
- 5.1.2 Using lifting straps, rig the unit and remove the mounting screws from the mounting flange (1).
- 5.1.3 Slide the WCB off of the gear (28) and transport it to a clean working area placing the WCB on its mounting flange, studs (6) facing up.

5.2 Disassembly of WCB

Note: Item numbers (#) are shown on Figures 3, 4, 5, 6 and 7.

- 5.2.1 Loosen the locknuts (18) ONE TURN AT TIME and in an alternating (crosswise) pattern until the spring force is completely relieved. Remove the locknuts and washers (17) and wear spacers. Mark all of the water outlet ports for identification and orientation. Deep well sockets are required. See table 9 for size and depth of socket required.
- 5.2.2 Using lifting equipment, carefully remove the cylinder (19) and piston (33) as an assembly. Set aside in a clean area.

Note: If a stud (6) should happen to come loose, remove it completely, clean the threads on the stud and the threads in the mounting flange. Apply Locquic® Primer Grade "T" to the stud threads. After the threads have dried, assemble to the mounting flange using Loctite® #262. The end of the stud must not extend past the mounting surface of the mounting flange.



Caution:

Loctite® #262 must be shaken prior to application.



Caution:

Loctite® #262 may irritate sensitive skin. Refer to the product label for proper safety precautions.

- 5.2.3 Using lifting equipment, remove the pressure plate assembly (13) and carefully place it on a suitable work surface with the wear plate (3) facing up. Do not damage the wear plate
- 5.2.4 Remove the friction disc assembly, the reaction plate assembly (30), release springs (34), stop tubes (59) or (80) and wear rings (58) (if present) and set aside.
- 5.2.5 For multi disc units repeat step 5.2.4 for each reaction plate and friction disc set until all are removed.
- 5.2.6 Slide the clamp tubes (12) and wear spacers (29) off each of the studs.
- 5.2.7 Place the cylinder and piston assembly with the piston facing down on blocks approximately 6" (150 mm) high. The blocks must only contact the cylinder (19) so that the piston (33) will be free to move out of the cylinder bore.
- 5.2.8 If a regulated air line is available, the piston can be partially ejected from the cylinder by applying no more than 15 PSIG (1.0 bar) to the cylinder.



Caution:

Application of a higher pressure may cause damage to the components.

- 5.2.9 To complete the removal of the piston from the cylinder, open all air inlets. Alternately insert a 0.50" (12 mm) diameter by 6" (150 mm) long wood dowel into each air inlet and gently tap the piston with a mallet so that it moves evenly out of the cylinder. Be careful not to damage the sealing surfaces of the piston or cylinder by cocking the piston in the cylinder.
- 5.2.10 Inspect the cylinder sealing surface condition for nicks or scratches or any other defect which may prevent the seals from being effective. Refer to the Wear Limit tables in section 7.0. Replace the cylinder, if necessary.

- 5.2.11 Noting how the lips of the seals are oriented in the piston grooves, remove the seals.
- 5.2.12 Thoroughly clean the seal grooves in the piston and apply a thin, even coat of Parker "O" Lube® to the seal grooves, the seals, the sealing surfaces of the cylinder and to the chamfer on the piston.
- 5.2.13 See section 5.4 for inspection and section 5.5 for assembly.

5.4 Inspection of WCB components

Note: Wear limit tables for the following paragraphs are in section 7.0.

- 5.4.1 Inspect the friction disc assemblies (8) for wear or contamination. On single and multi-disc units, the friction material must be replaced when worn to the bottom of the groove on the friction lining. See Figure 11.
 - 5.4.2 For friction disc repair see section 6.5 for elements with riveted linings or section 6.4 for elements with screwed-on lining.
 - 5.4.3 Inspect the wear plate (3) for wear. Wear plates must be replaced if they exceed the wear limits. See section 6.6 for repair procedures.
 - 5.4.4 Inspect the cylinder (19) seal area. Inspect the cylinder sealing surface condition for nicks or scratches or any other defect which may prevent the seals from being effective. Refer to section 6.1 for repair procedures.
 - 5.4.5 Inspect the reaction hole diameters in the reaction plate (31) and pressure plate (14).
 - 5.4.6 Inspect the clamp tubes (12) for wear on the reaction area.
 - 5.4.7 Inspect the friction disc core (9) and the gear for excessive backlash.
 - 5.4.8 Inspect the release springs (34) for free height.
- ## **5.5 Assembly of WCB 18, 24 & 36 WCB's (with Stop Tubes)**
- Note: Item numbers (#) are shown on Figures 4, 5, 6 and 7.
- 5.5.1 Position mounting flange (1) with studs (6) installed, on a level working surface, mounting face down.

- 5.5.2 Install wear spacers (29) and clamp tubes (12) over studs.
- 5.5.3 Place the first friction disc assembly onto the mounting flange.
- 5.5.4 Place a release spring (34) over every other clamp tube. Install wear rings (58) and install stop tubes (59) on every fourth stud without release springs and slide the reaction plate assembly onto the clamp tubes. For single disc elements proceed to para. 5.5.6.
- 5.5.5 The following steps are for multi disc elements:
 - 5.5.5.1 Place friction disc assembly onto the reaction plate.
 - 5.5.5.2 Place a release spring (34) over every other clamp tube. Install wear rings (58) and install stop tubes** (59) or (80) on 3 equally spaced studs without release springs and slide the reaction plate assembly onto the clamp tubes.



Caution:

The stop tubes (80) on 324 WCB and 424 WCB units, must be installed in the center or center two positions shown on figure 5 & 6. These stop tubes are identified by a small hole drilled into the side. Improper installation will cause the element to bind.**

** NOTE: On 324 WCB and 424 WCB units use Item (80) for the center set of stop tubes. See Figure 5 and 6. These stop tubes are identified by a small hole drilled into the side.

- 5.5.5.3 Repeat steps 5.5.5.1 and 5.5.5.2 for each additional friction disc and reaction plate**.
- 5.5.6 Slide the pressure plate and the cylinder/piston assembly onto the studs. Lubricate the threads on the end of the studs with 30 wt. oil or anti-seizing compound and install the locknuts (18) washers (17).
- 5.5.7 Tighten the locknuts, ONE TURN AT A TIME and in an alternating (crosswise) pattern until the cylinder is seated firmly against the clamp tubes. Torque the locknuts to the appropriate value. See Table 4.



Caution:

The locknuts (18) must be tightened gradually to prevent damage to the tensioner components.

- 5.5.8 Reinstall the tensioner per 2.0.

5.6 Assembly of WCB's without Stop Tubes

Note: Item numbers (#) are shown on Figure 1 & 3.

- 5.6.1 Place mounting flange (1) with studs (6) installed on face with studs facing up.
- 5.6.2 Install wear spacers (29) and clamp tubes (12) over studs.
- 5.6.3 Place a friction disc assembly onto the mounting flange
- 5.6.4 Place a release spring (34) over every other clamp tube. Slide the pressure plate (13) onto the studs.
- 5.6.5 For multi disc elements, install a reaction plate sub-assembly onto the clamp tube.
- 5.6.6 Place friction disc assembly onto the reaction plate. Repeat the sequence until all friction discs, and reaction plates are assembled.
- 5.6.7 Slide the pressure plate sub-assembly and the cylinder/piston assembly onto the studs. Lubricate the threads on the end of the studs with 30 wt. oil or anti-seizing compound and install the locknuts (18) washers (17).
- 5.6.8 Tighten the locknuts, ONE TURN AT A TIME and in an alternating (crosswise) pattern until the cylinder is seated firmly against the clamp tubes. Torque the locknuts to the appropriate value. See Table 4.



Caution:

The locknuts (18) must be tightened gradually to prevent damage to the tensioner components.

- 5.6.8 Reinstall the tensioner per 2.0.

6.0 COMPONENT MAINTENANCE



Warning:

Before doing any maintenance work on the WCB unit, make sure that the machinery will remain in a safe position. Failure to do so could result in serious injury or possibly death.



Warning:

Only qualified maintenance personnel should install, adjust or repair these WCB units. Faulty workmanship will result in unreasonable exposure to hazardous conditions or personal injury.



Caution:

Read these instructions thoroughly and review until you fully understand the parts replacement steps before proceeding with the work described in this section. Failure to follow these instructions can result in unreasonable exposure to hazardous conditions or personal injury.

6.1 Cylinder Seal Replacement

Note: Item numbers (#) are shown on Figures 1, 3, 4, 5, 6 and 7.

- 6.1.1 See the Section 11.6 for the appropriate seals for each WCB tensioner.
- 6.1.2 Disconnect the air connections.
- 6.1.3 While supporting the cylinder, loosen the locknuts (18) ONE TURN AT TIME and in an alternating (crosswise) pattern until the spring force is completely relieved. Remove the locknuts and washers (17). Remove any wear spacers stored under locknuts. Mark all of the water outlet ports for identification. Deep well sockets are required. See table 9 for size and depth of socket required.
- 6.1.4 Using lifting equipment, carefully remove the cylinder (19) and piston (33) as an assembly. Set aside in a clean area.

Note: If a stud (6) should happen to come loose, remove it completely, clean the threads on the stud and the threads in the mounting flange. Apply Locquic® Primer Grade "T" to the stud threads. After the threads have dried, assemble to the mounting flange using Loctite® #262. The end of the stud must not extend past the mounting surface of the mounting flange.



Caution:

Loctite® #262 must be shaken prior to application.



Caution:

Loctite® #262 may irritate sensitive skin. Refer to the product label for proper safety precautions.

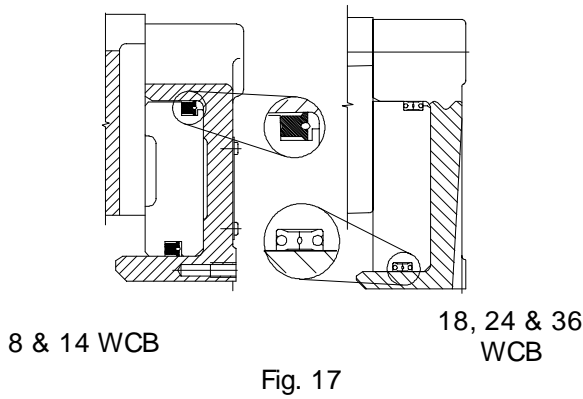
- 6.1.5 Place the cylinder and piston assembly with the piston facing down on blocks approximately 6" (150 mm) high. The blocks must only contact the cylinder (19) so that the piston (33) will be free to move out of the cylinder bore.
- 6.1.6 If a regulated air line is available, the piston can be partially ejected from the cylinder by applying no more than 15 PSIG (1.0 bar) to the cylinder.



Caution:

Application of a higher pressure may cause damage to the components.

- 6.1.7 To complete the removal of the piston from the cylinder, open all air inlets. Alternately insert a 0.50" (12 mm) diameter by 6" (150 mm) long wood dowel into each air inlet and gently tap the piston with a mallet so that it moves evenly out of the cylinder. Be careful not to damage the sealing surfaces of the piston or cylinder by cocking the piston in the cylinder.
- 6.1.8 Inspect the cylinder sealing surface condition for nicks or scratches or any other defect which may prevent the seals from being effective. Replace the cylinder, if necessary.
- 6.1.9 Noting how the lips of the seals are oriented in the piston grooves, remove the seals.



! Caution:

The locknuts (18) must be tightened gradually to prevent damage to the tensioner components.

- 6.1.19 Connect air supply line
- 6.1.20 Perform an air test by applying 80 PSIG (5.5 bar) to engage the tensioner. Shut off the air supply. If the air pressure does not drop below 70 PSIG (4.8 bar) after 10 minutes, the seals have been properly installed.

6.2 Friction Lining Replacement for WCB's (with screwed on linings)

- 6.1.10 Thoroughly clean the seal grooves in the piston and apply a thin, even coat of Parker "O" Lube[®] to the seal grooves, the seals, the sealing surfaces of the cylinder and to the chamfer on the piston.
- 6.1.11 Install the new seals in the grooves in the piston, noting the orientation of the seals in Figure 17.
- 6.1.12 Turn the cylinder over so that the cavity faces upward.
- 6.1.13 Carefully place the piston into the cylinder with the chamfered edge of the inner diameter facing downward into the cylinder taking special care to avoid damaging the seal lips.
- 6.1.14 Gradually apply an evenly distributed force to press the piston into the cylinder being sure not to cock the piston which may damage the sealing surfaces.
- 6.1.15 Using a lifting strap, slide the cylinder/piston assembly onto the studs.
- 6.1.16 If not replacing friction disc, replace any wear spacers that were removed in 6.2.3 and install (stored) under the locknuts for use after replacing the friction discs. See Figure 12.
- 6.1.17 Lubricate the threads on the end of the studs with 30 wt. oil or anti-seizing compound and install the locknuts (18) washers (17) and the wear spacers removed.
- 6.1.18 While supporting the weight of the cylinder/piston assembly, tighten the locknuts, ONE TURN AT A TIME and in an alternating (crosswise) pattern until the cylinder is seated firmly against the clamp tubes. Torque the locknuts to the appropriate value. See Table 4.

- 6.2.1 Friction disc cores may be relined with new friction material per the following instructions. Refer to Section 11.0 for the appropriate friction disc sub-assembly or friction disc replacement kit part number.

Note: Standard screwed on friction lining is identified with one notch, two places 180° apart, see Figure 18. High coefficient screwed on lining is identified with two notches, two places 180° apart. See Figure 19.

! Caution:

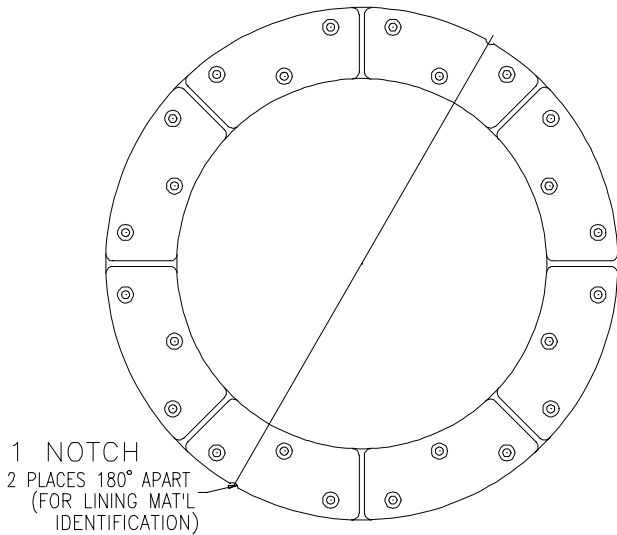
Use only genuine Airflex friction material. Use of material not of Airflex origin may result in unpredictable performance.

- 6.2.2 Remove the old screws and remove and discard the old friction material.
- 6.2.3 Clean all burrs and corrosion from the friction disc cores.
- 6.2.4 Apply Loctite[®]#262 to screws and torque to value shown in table 11.

! Caution:

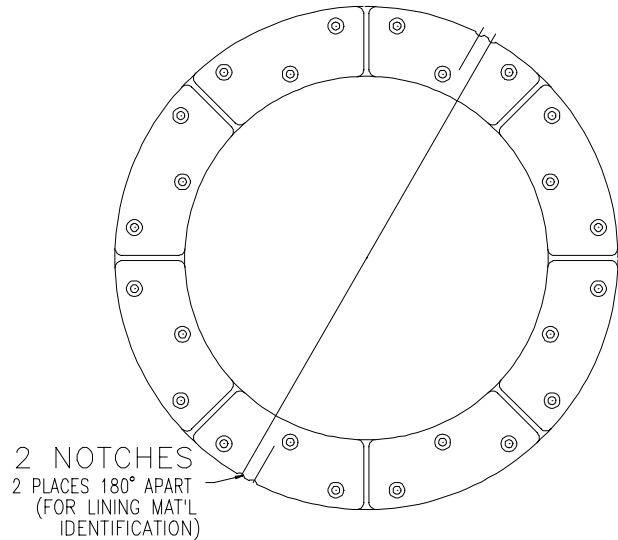
Use only Airflex-supplied screws.

TABLE 11 Friction disc screw torque		
P/N	Size	Torque
000153x1147	1/4-28UNRF	120 in lbs
000294x0407	1/2-13NC2	15 ft lbs



STANDARD LINING

Figure 18



HIGH COEFFICIENT LINING

Figure 19



Figure 20



Caution:

Loctite®#262 must be shaken prior to application.



Caution:

Loctite®#262 may irritate sensitive skin. Refer to the product label for proper safety precautions.

6.3 Friction Lining Replacement for 8 & 14 WCB's (Riveted Lining)

6.3.1 Friction disc cores may be relined with new friction material per the following instructions. Refer to Section 11.0 for the appropriate friction disc replacement kit part number.



Caution:

Use only genuine, Airflex friction material. Use of material not of Airflex origin may result in unpredictable brake performance and/or excessive wear of the brake components.

- 6.3.2 Drill out the old rivets and discard the old friction discs.
- 6.3.3 Refer to Figure 20 and carefully examine the counterbored holes in the friction disc segments (512308). One set of counterbored holes is **tapered** and designed to accept the **rivet head**, while the other set of counterbored holes is **flat-bottomed** and designed to accept the **clinched end of the rivet**.
- 6.3.4 Position the friction discs on both sides of the disc core and align the rivet holes.

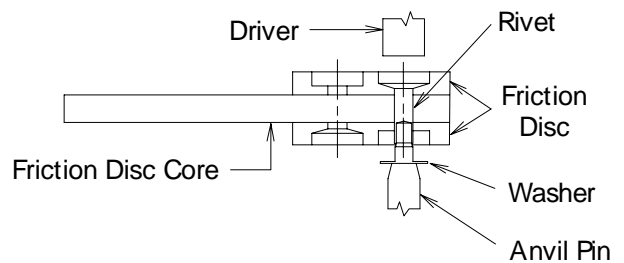


Fig. 21

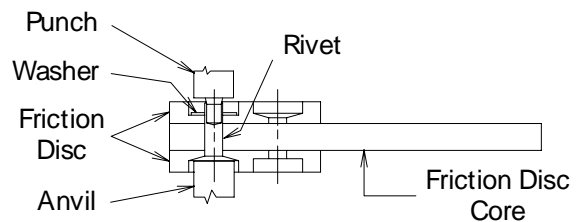


Fig. 22



Caution:

Manual setting of the rivets using a punch very frequently results in splitting of the clinched end of the rivet. When this occurs, the rivet will ultimately fail in service due to fatigue. It is therefore recommended that rivets be set using an automatic rivet setting machine if possible.

- 6.3.5 Insert a rivet through any hole and set using a washer on the clinched end of the rivet. Figure 21 illustrates machine setting and Figure 22 illustrates setting the rivet manually. When setting manually, use an arbor press and keep the setting tool square to avoid splitting the rivet.



Caution:

The clinched end of the rivet must have a washer in place prior to clinching. Failure to use the washer or use of excessive force when clinching the rivet will fracture the friction lining.

- 6.3.6 The remaining rivets may be installed in any reasonable sequence following a crosswise pattern.

6.4 Wear Plate Replacement

Note: Item numbers (#) are shown on Figures 1, 3, 4, 5, 6 and 7.

- 6.4.1 Refer to Section 11.0 for the appropriate wear plate replacement kit part number.
- 6.4.2 Remove the screws and locknuts holding the wear plates and remove the wear plates. If the wear plates cannot be easily lifted off, gently tap the O.D. to break the gasket seal.



Caution:

Do not attempt to break the gasket seal by prying between the wear plate and housing. Damage to the sealing surfaces may occur.

- 6.4.3 Inspect the water passages and, if necessary, use a wire brush to clean them. If repainting is necessary, sand blast the water passages and paint the surfaces with Glid Gard® Epoxy 5256/5257 or equivalent. Dry film thickness should be 0.007" (0.18 mm). Be careful not to allow the paint to get into the seal grooves or onto the nubs.



Caution:

If nubs are severely corroded, wear plates may not be properly supported. Replace pressure plate, reaction plate or mounting flange, if necessary.

- 6.4.4 Clean and completely dry the gasket surfaces on the pressure plate (14), reaction plate(s) (31) and mounting flange (2). These surfaces should be free of nicks and scratches to prevent leaks. Nicks and scratches may be filled with Loctite Superflex® #596 Silicon Sealant.
- 6.4.5 Apply a uniform bead of Loctite Superflex® #596 Silicon Sealant in the grooves of the pressure plate, reaction plate(s) and mounting flange. Recommended bead diameter is 0.060" - 0.090" (1.5 mm - 2.3 mm).
- 6.4.6 Inspect the new wear plates and remove any scratches or raised edges with very fine sandpaper or steel wool. Position the smoothest side of the wear plate on the mating surface being careful to align the holes.

TABLE 12 Wear Plate Fastener Torque-ft-lb (Nm) Lubed		
Model	Size	Torque
8WCB	#10-24NC	5 (7)
14WCB	1/4-20NC2	12 (16)
18WCB	5/16-18NC	21 (28)
24WCB	5/16-18NC	21 (28)
36WCB	3/8-16NC2	40 (54)

TABLE 13 Inlet and outlet port sizes	
Model	Size
8WCB	1/2-14NPT
14WCB	1/2-14NPT
18WCB	1/2-14NPT
24WCB	3/4-14NPT
36WCB	1 1/4-11NPT

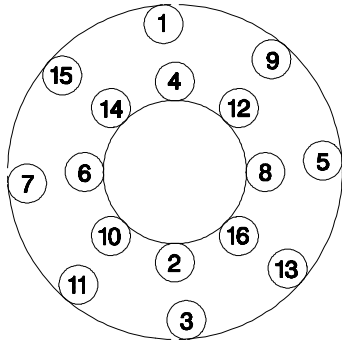


Fig. 23



Caution:

Loctite Superflex® #596 Silicon Sealant will begin to set up and skin over in approximately 10 minutes. The wear plate must be fastened to the mating component within 10 minutes of applying the sealant.

- 6.4.7 Install the new screws and locknuts provided with the wear plate replacement kit and secure finger tight.



Caution:

To prevent excessive warpage and to ensure a good seal, the following hardware tightening procedure must be followed.

- 6.4.8 For each wear plate being replaced, follow the tightening sequence shown in Figure 23 for the first 16 screws. The remaining screws may be tightened in any reasonable crosswise pattern. See Table 12 for tightening torques.



Caution:

Allow the Loctite Superflex® #596 Silicon Sealant 24 hours to completely cure before performing the following leak test procedure.

- 6.4.9 24 hours after completion of assembly, each water cavity should be checked for leaks.



Caution:

Premature pressurization may cause leaks

- 6.4.9.1 Using lifting straps, suspend each assembly with the water outlet port at the 12 o'clock position. Connect a water supply line to the inlet port (at 6 o'clock position). See Table 13 for water port size.
- 6.4.9.2 Slowly fill with water to purge all air from water cavities.
- 6.4.9.3 Install a pipe plug in the outlet port and apply 45 PSIG (3.1 bar) water pressure measured at the inlet. Maintain this pressure for 30 minutes.
- 6.4.9.4 Check for leakage at O.D. and I.D. seal areas. **NO** leakage is allowed.
- 6.4.9.5 If the assembly leaks, check the torque on each screw and retest. If leaks still occur, the wear plate(s) may be damaged. Repeat procedure from 6.4.
- 6.4.9.6 Follow steps in section 5.5 or 5.6 to reassemble the tensioner.
- 6.4.9.7 Reinstall the tensioner per 2.0.

**ORDERING INFORMATION/
TECHNICAL ASSISTANCE**

Equipment Reference

In any correspondence regarding Airflex equipment, refer to the information on the product nameplate and call or write:

Eaton Corporation
Airflex Division
9919 Clinton Rd.
Cleveland, Ohio 44144
Inside the U.S.A and Canada: 800-233-5926
Outside the U.S.A and Canada: (216)-281-2211
Fax: (216) 281-3890

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Polypak and Parker O-Lube are registered trademarks of Parker Hannifin Corporation
Glid Gard is a registered trademark of The Glidden Company.
Molub-Alloy O.G. is a registered trademark of Imperial Metallic Lubricants Co..

7.0 WEAR LIMITS

Item	Description	Wear Limit	Remarks
#8 Friction Disc	Friction Material	Fully worn at bottom of dust groove. See Figure 5. Friction material must also be replaced if contaminated with oil or grease.	Multi-disc units have adjustment provision. See 4.2.
#3 Wear Plate	Friction Wear Surface	Maximum wear is 0.030" (0.76 mm).	Wear will be in form of circular grooves in copper surface.
#19 Cylinder	Seal Area	Maximum wear is 0.005" (0.13 mm).	Wear will be in the form of grooves where the seals contact.
#14 Pressure Plate	Reaction Holes	Maximum wear is 0.031" (0.80 mm).	Wear will be in the form of elongation of the holes. Original hole diameters are shown in Table 8A.
#31 Reaction Plate	Reaction Holes	Maximum wear is 0.031" (0.80 mm).	Wear will be in the form of elongation of the holes. Original hole diameters are shown in Table 8A.
#12 Clamp Tube	Reaction Area	Maximum wear is 0.015" (0.38 mm).	Wear will be in the form of a notch or step on the side of the tube.
#9 & #28 Friction Disc Core and Gear	Gear Backlash	Maximum allowable total backlash is 0.040" (1.0 mm).	If step is worn in gear, gear must be replaced.

Size	Diameter - In. (mm)
8WCB	0.938 (23.83)
14WCB	1.312 (33.33)
18WCB	1.312 (33.33)
24WCB	1.688 (42.88)
36WCB*	2.060 (52.32)

Note: 36 WCB's use bushing p/n 203863 which is replaceable

Model	Depth - in. (mm)
8 WCB	.190" (4.8)
14 WCB	.190" (4.8)
18 WCB	.250" (6.3)
24 WCB	.250" (6.3)
36 WCB	.210" (5.3)

Model	Original Release Spring free height in. (mm)	Minimum Release Spring free height in. (mm)
8 WCB	2.14 (54.36)	1.38 (35.05)
14 WCB	2.84 (72.14)	1.65 (41.91)
18 WCB	2.84 (72.14)	1.65 (41.91)
24 WCB	4.67 (118.61)	2.59 (65.79)
36 WCB	4.46 (113.280)	2.66 (67.56)

8.0 PARTS LIST (Models with riveted linings & without stop tubes)

8.1

Standard 8 and 14 WCB Models										
Model		108 WCB		208 WCB		114 WCB		214 WCB		Model
Parts List #		146246B		146247B		146231B		146232B		Part List
Item	Description	Part Number	Qty.	Part Number	Qty.	Part Number	Qty.	Part Number	Qty.	Item
1*	Mounting Flange S/A	512508-01	1	512508-01	1	512300-01	1	512300-01	1	1
2	Mounting Flange	512496	1	512496	1	512375	1	512375	1	2
3	Wear Plate	512507	2	512507	4	415212	2	415212	4	3
4	Socket Head Screw	000030x5407	84	000030x5407	84	000153x1017	120	000153x1017	120	4
5	Locknut	000153x1049	84	000153x1049	126	000153x1061	120	000153x1061	180	5
6	Stud	000245x0055	6	000245x0055	6	000245x0058	6	000245x0054	6	6
7*	Friction Disc S/A	512512	1	512512	2	415208	1	415208	2	7
8	Friction Disc	512509	2	512509	4	415227	2	415227	4	8
9	Friction Disc Core	512510	1	512510	2	415207	1	415207	2	9
10	Rivet	000130x0086	20	000130x0086	20	000130x0085	30	000130x0085	60	10
11	Washer	000153x1065	20	000153x1065	20	000153x1064	30	000153x1064	60	11
12	Clamp Tube	307694-01	6	307694-02	6	306596-07	6	306596-08	6	12
13*	Pressure Plate S/A	512508-03	1	512508-03	1	512300-03	1	512400-01	1	13
14	Pressure Plate	512502	1	512502	1	512377	1	512377	1	14
17	Flat Washer	00067x0041	6	000067x0041	6	000067x0040	6	000067x0040	6	17
18	Locknut	000110x0024	6	000110x0024	6	000110x0030	6	00110x0030	6	18
19	Cylinder	512483	1	512483	1	512296	1	512296	1	19
21	Polypak Seal	000402x0001	1	000402x0001	1	000402x0003	1	000402x0003	1	21
23	Polypak Seal	000402x0002	1	000402x0002	1	000402x0004	1	000402x0004	1	23
24	Warning Decal	203627	1	203627	1	203627	1	203627	1	24
25	Name Plate	307640	1	307640	1	307640	1	307640	1	25
26	Drive Screw	000153x0644	8	000153x0644	8	000153x0644	8	000153x0644	8	26
28	Gear	415313	1	415314	1	415454	1	415302	1	28
29	Wear Spacer	N/A	N/A	307695-01	6	N/A	N/A	307643-01	6	29
30*	Reaction Plate S/A	N/A	N/A	512508-02	1	N/A	N/A	512400-02	1	30
31	Reaction Plate	N/A	N/A	512504	1	N/A	N/A	512380	1	31
32	Decal Plate	307753	2	307753	2	307753	2	307753	2	32
33	Piston	512500	1	512500	1	512302	1	512302	1	33
34	Spring	307696	3	307696	6	307629	3	307629	6	34
49	Socket Head Screw	N/A	N/A	000030x5408	42	N/A	N/A	000153x1018	60	49

* See section 10.0 for sub-assembly quantity breakdown.

9.0 PARTS LIST (Models with screwed on linings and stop tubes)

9.1

Standard 18 WCB Models ("E")								
Model		118 WCB		218 WCB		318 WCB		Model
Parts List #		146308E (Figure 3)		146310E (Figure 4)		146363E (Figure 5)		Parts List
Item	Description	Part Number	Qty.	Part Number	Qty.	Part Number	Qty.	
1*	Mounting Flange Sub-assembly	513232-01	1	513232-01	1	513232-01	1	1
2	Mounting Flange	513207	1	513207	1	513207	1	2
3	Wear Plate	412953	2	412953	4	412953	6	3
4	Hex Head Screw	000153x0726	160	000153x0726	240	000153x0726	320	4
5	Locknut	000153x0642	160	000153x0642	240	000153x0642	320	5
6	Stud	000245x0057	12	000245x0063	12	000245x0063	12	6
8†	Friction Disc *	513657	2	513657	4	513657	6	8
9†	Friction Disc Core *	513666	1	513666	2	513666	3	9
12	Clamp Tube	306956-11	12	306956-12	12	306956-17	12	12
13*	Pressure Plate Sub-assembly	513232-03	1	513232-03	1	513232-03	1	13
14	Pressure Plate	513214	1	513214	1	513214	1	14
17	Flat Washer	000153x0727	12	000153x0727	12	000153x0727	12	17
18	Locknut	000110x0030	12	000110x0030	12	000110x0030	12	18
19	Cylinder	512693	1	512693	1	512693	1	19
21	Polypak Seal	000402x0021	2	000402x0021	2	000402x0021	2	21
23	Polypak Seal	000402x0022	2	000402x0022	2	000402x0022	2	23
24	Warning Decal	203627	1	203627	1	203627	1	24
25	Name Plate	307640	1	307640	1	307640	1	25
26	Drive Screw	000153x0644	8	000153x0644	8	000153x0644	8	26
28	Gear	302813	1	302907	1	413208	1	28
29	Wear Spacer	N/A	N/A	307643-02	12	307643-02	24	29
30*	Reaction Plate Sub-assembly	N/A	N/A	513232-02	1	513232-02	2	30
31	Reaction Plate	N/A	N/A	513217	1	513217	2	31
32	Decal Plate	307753	2	307753	2	307753	2	32
33	Piston	512761	1	512761	1	512761	1	33
34	Release Spring	307629	6	307629	12	307629	18	34
50	Inner Support Ring	413105	8	413105	16	413105	24	50
51	Outer Support Ring	413106	8	413106	16	413106	24	51
57†	Flat Head Screw	000153x1147	48	000153x1147	96	000153x1147	144	57
58	Wear Spacer **	N/A	N/A	308078-01	6	308078-02	18	58
59	Stop Tube **	N/A	N/A	308077-01	6	308077-01	9	59

* See section 10.0 for sub-assembly quantity breakdown.

** These items were not included on Discontinued "B" models; See section 1.3 for upgrade information.

† Included in Friction Disc Kit. See Section 11.0 for Quantity breakdown.

9.2

Standard 24 WCB Models										
Model		124 WCB		224 WCB		324 WCB		424 WCB		Model
Parts List #		146308E (Figure 3)		146339E (Figure 4)		146361 E (Figure 5)		146362E (Figure 6)		Part List
Item	Description	Part List	Qty.	Part List	Qty.	Part List	Qty.	Part List	Qty.	Item
1*	Mounting Flange Sub-assembly	513348-01	1	513348-01	1	513348-01	1	513348-01	1	1
2	Mounting Flange	513337	1	513337	1	513337	1	513337	1	2
3	Wear Plate	508459	2	508459	4	508459	6	508459	8	3
4	Hex Head Screw	000153x0685	180	000153x0685	270	000153x0685	360	000153x0685	450	4
5	Locknut	000153x0642	180	000153x0642	270	000153x0642	3	000153x0642	450	5
6	Stud	000245x0069	12	000245x0071	12	000245x0081	12	000245x0082	12	6
8†	Friction Disc	508725	2	508725	4	508725	6	508725	8	8
9†	Friction Disc Core	510745	1	510745	2	510745	3	510745	4	9
12	Clamp Tube	306542-05	12	306542-20	12	306542-23	12	306542-24	12	12
13*	Pressure Plate Sub-assembly	513348-03	1	513348-03	1	513348-03	1	513348-03	1	13
14	Pressure Plate	513345	1	513345	1	513345	1	513345	1	14
17	Flat Washer	000153x0641	12	000153x0641	12	000143x0641	12	000143x0641	12	17
18	Locknut	000110x0073	12	000110x0073	12	000110x0073	12	000110x0073	12	18
19	Cylinder	513264	1	513264	1	513264	1	513264	1	19
21	Polypak Seal	000402x0023	2	000402x0023	2	000402x0023	2	000402x0023	2	21
23	Polypak Seal	000402x0024	2	000402x0024	2	000402x0024	2	000402x0024	2	23
24	Warning Decal	203627	1	203627	1	203627	1	203627	1	24
25	Name Plate	307640	1	307640	1	307640	1	307640	1	25
26	Drive Screw	000153x0644	8	000153x0644	8	000153x0644	8	000153x0644	8	26
28	Gear	411672	1	410970	1	412433	1	413195	1	28
29	Wear Spacer	N/A	N/A	307989-01	12	307989-01	24	307989-01	36	29
30*	Reaction Plate Sub-assembly	N/A	N/A	513348-02	1	513348-02	2	513348-02	3	30
31	Reaction Plate	N/A	N/A	513343	1	513343	1	513343	11	31
32	Decal Plate	307753	2	307753	2	307753	2	307753	2	32
33	Piston	513317	1	513317	1	513317	1	513317	1	33
34	Release Spring	307073	6	307073	12	307073	18	307073	24	34
50	Inner Support Ring	413107	6	413107	12	413107	30	413107	42	50
51	Outer Support Ring	413108	10	413108	20	413108	30	413108	40	51
57†	Flat Head Screw	000294x0407	24	000294x0407	48	000294x0407	108	000294x0407	96	57
58	Wear Ring **	N/A	N/A	307126-04	6	307126-02	18	307126-02	36	58
59	Stop Tube **	306929-09	3	306929-10	6	306299-11	6	306299-11	6	59
80	Stop Tube **	N/A	N/A	N/A	N/A	308106-01	3	308106-01	6	80

* See section 10.0 for sub-assembly quantity breakdown.

** These items were not included on Discontinued "B" models; See section 1.3 for upgrade information.

† Included in Friction Disc Kit. See Section 11.0 for Quantity breakdown.

9.3

Standard 36 WCB Models										
Model		136 WCB		236 WCB		336 WCB		436 WCB		Model
Parts List #		146287E (Figure 3)		146338E(Figure 4)		146289E(Figure 5)		146298E(Figure 6)		Part List
Item	Description	Part Number	Qty.	Part Number	Qty.	Part Number	Qty.	Part Number	Qty.	Item
1*	Mounting Flange Sub-assembly	513284-01	1	513284-01	1	513284-01	1	513284-01	1	1
2	Mounting Flange	512815	1	512815	1	512815	1	512815	1	2
3	Wear Plate	414026	2	414026	4	414026	6	414026	8	3
4	Hex Head Screw	000153x0842	216	000153x0842	324	000153x0842	432	000153x0842	540	4
5	Locknut	000153x0844	216	000153x0844	324	000153x0844	432	000153x0844	540	5
6	Stud	307111-04	16	307111-10	16	307111-05	16	307111-07	16	6
8†	Friction Block	N/A	16	?	32	?	48	?	64	8
9†	Friction Disc Core	513667	1	513667	2	513667	3	513667	4	9
12	Clamp Tube	307092-10	16	307092-09	16	307092-010	16	307092-07	16	12
13*	Pressure Plate Sub-assembly	513284-03	1	513284-03	1	513284-03	1	513284-03	1	13
14	Pressure Plate	512860	1	512860	1	513869	1	512860	1	14
17	Flat Washer	000067x0042	16	000067x0042	16	000067x0042	16	000067x0042	16	17
18	Locknut	000110x0075	16	000110x0075	16	000110x0075	16	000110x0075	16	18
19	Cylinder	512809	1	512809	1	512809	1	512809	1	19
21	Polypak Seal	000402x0005	2	000402x0005	2	000402x0005	2	000402x0005	2	21
23	Polypak Seal	000402x0006	2	000402x0006	2	000402x0006	2	000402x0006	2	23
24	Warning Decal	203627	1	203627	1	203627	1	203627	1	24
25	Name Plate	307640	1	307640	1	307640	1	307640	1	25
26	Drive Screw	000153x0644	8	000153x0644	8	000153x0644	8	000153x0644	8	26
28	Gear	415871	1	416069	1	414054	1	414132	1	28
29	Wear Spacer	N/A	N/A	307094-02	?	307094	32	307094	32	29
30*	Reaction Plate Sub-assembly	N/A	N/A	513284-02	1	513284-02	2	513284-02	3	30
31	Reaction Plate	N/A	N/A	512318	1	512813	2	512813	3	31
32	Decal Plate	307753	2	307753	2	307753	2	307753	2	32
33	Piston	512858	1	512858	1	512858	1	512858	1	33
34	Release Spring	307175	12	307175	24	307175	36	307175	48	34
50	Inner Support Ring	414032	12	414032	24	414032	36	414032	48	50
51	Outer Support Ring	414033	18	414033	36	414033	54	414033	72	51
54	Bushing	N/A	N/A	203863-03	16	203863-03	32	203863-03	48	54
55	Bushing	203863-04	16	203863-04	16	203863-04	16	203863-04	16	55
57†	Flat Head Screw	000294x0407	144	000294x0407	288	000294x0407	432	000294x0407	576	57
58	Wear Ring **	N/A	N/A	Contact Airflex		?Contact Airflex		Contact Airflex		58
59	Stop Tube **	Contact Airflex	3	Contact Airflex		?Contact Airflex		Contact Airflex		59

* See section 10.0 for sub-assembly quantity breakdown.

** These items were not included on Discontinued "B" models; See section 1.3 for upgrade information.

† Included in Friction Disc Kit. See Section 11.0 for Quantity breakdown.

10.0 SUB-ASSEMBLIES

10.1

Sub assembly breakdown for 8 WCB's				
Sub-assembly	Item	Qty.	Description	Part Number
Mounting Flange Sub-assembly P/N 512508-01 Item #1, Fig. 1	2	1	Mounting Flange	512496
	3	1	Wear Plate	512507
	4	42	Socket Head Screw	000030x5407
	5	42	Locknut	000153x1049
Friction Disc Sub-assembly P/N 512512 Item #7, Fig. 1	8	2	Friction Disc	512509
	9	1	Friction Disc Core	512510
	10	20	Rivet	000130x0086
	11	20	Washer	000153x0055
Pressure Plate Sub-assembly P/N 512508-03 Item #13, Fig. 1	14	1	Pressure Plate	512502
	3	1	Wear Plate	512507
	4	42	Socket Head Screw	000030x5407
	5	42	Locknut	000110x0024
Reaction Plate Sub-assembly P/N 512508-02 Item #30, Fig. 1	31	1	Reaction Plate	512504
	3	2	Wear Plate	512507
	49	42	Socket Head Screw	000030x5408
	5	42	Locknut	000153x1049
	15	42	Washer	00067x0036

10.2

Sub assembly breakdown for 14 WCB's				
Sub-assembly	Item	Qty.	Description	Part Number
Mounting Flange Sub-assembly P/N 513300-01 Item #1, Fig. 1	2	1	Mounting Flange	512375
	3	1	Wear Plate	415212
	4	60	Hex Head Screw	000153x1017
	5	60	Locknut	000153x1061
Friction Disc Sub-assembly P/N 415208 Item #7, Fig. 1	8	2	Friction Disc	415227
	9	1	Friction Disc Core	415207
	10	30	Rivet	000130x0085
	11	30	Washer	000153x1064
Pressure Plate Sub-assembly P/N 513300-03 Item #13, Fig. 1	14	1	Pressure Plate	512377
	3	1	Wear Plate	415212
	4	60	Hex Head Screw	000153x1017
	5	60	Locknut	000153x1061
Reaction Plate Sub-assembly P/N 513300-02 Item #30, Fig. 1	31	1	Reaction Plate	512380
	3	2	Wear Plate	415212
	49	60	Hex Head Screw	000153x1018
	5	60	Locknut	000153x1061
	15	60	Washer	00067x0001

10.3

Sub assembly breakdown for standard 18 WCB's with screwed on linings.				
Sub-assembly	Item	Qty.	Description	Part Number
Mounting Flange Sub-assembly P/N 513232-01 Item #1, Fig. 3-6	2	1	Mounting Flange	513207
	3	1	Wear Plate	412953
	4	80	Hex Head Screw	000153x0726
	5	80	Locknut	000153x0642
	50	4	Inner Support Ring	413105
	51	4	Outer Support Ring	413106
Pressure Plate Sub-assembly P/N 513232-03 Item #13, Fig. 3-6	14	1	Pressure Plate	513214
	3	1	Wear Plate	412953
	4	80	Hex Head Screw	000153x0726
	5	80	Locknut	000153x0642
	50	4	Inner Support Ring	413105
	51	4	Outer Support Ring	413106
Reaction Plate Sub-assembly P/N 513232-02 Item #30, Fig. 3-6	31	1	Reaction Plate	513217
	3	2	Wear Plate	412953
	4	80	Hex Head Screw	000153x0726
	5	80	Locknut	000153x0642
	50	8	Inner Support Ring	413105
	51	8	Outer Support Ring	413106
Friction Disc Sub-assembly P/N 513963-01	8	1	Friction Disc Core	513666
	9	2	Friction Disc	513657
	57	48	Flat head screws	000153x1147

10.4

Sub assembly breakdown for standard 24WCB's with screwed on linings.				
Sub-assembly	Item	Qty.	Description	Part Number
Mounting Flange Sub-assembly P/N 513348-01 Item #1, Fig. 3-6	2	1	Mounting Flange	513337
	3	1	Wear Plate	508459
	4	90	Hex Head Screw	000153x0685
	5	90	Locknut	000153x0642
	50	3	Inner Support Ring	413107
	51	5	Outer Support Ring	413108
Pressure Plate Sub-assembly P/N 513348-03 Item #13, Fig. 3-6	14	1	Pressure Plate	513345
	3	1	Wear Plate	508459
	4	90	Hex Head Screw	000153x0685
	5	90	Locknut	000153x0642
	50	3	Inner Support Ring	413107
	51	5	Outer Support Ring	413108
Reaction Plate Sub-assembly P/N 513348-02 Item #30, Fig. 3-6	31	1	Reaction Plate	513343
	3	2	Wear Plate	508459
	4	90	Hex Head Screw	000153x0685
	5	90	Locknut	000153x0642
	50	6	Inner Support Ring	413107
	51	10	Outer Support Ring	413108
Friction Disc Sub-assembly P/N 513964-01	8	1	Friction Disc Core	510745
	9	2	Friction Disc	508725
	57	48	Flat head screws	000294x0407

10.5

Sub assembly breakdown for standard 36 WCB's with screwed on linings.				
Sub-assembly	Item	Qty.	Description	Part Number
Mounting Flange Sub-assembly P/N Item #1, Fig. 3-6	2	Later	Mounting Flange	Information not available at this time. Contact Airflex for details.
	3		Wear Plate	
	4		Socket Head Screw	
	5		Locknut	
	50		Inner Support Ring	
	51		Outer Support Ring	
Pressure Plate Sub-assembly P/N Item #13, Fig. 3-6	14		Pressure Plate	
	3		Wear Plate	
	4		Socket Head Screw	
	5		Locknut	
	50		Inner Support Ring	
	51		Outer Support Ring	
Reaction Plate Sub-assembly P/N Item #30, Fig. 3-6	31		Reaction Plate	
	3		Wear Plate	
	4		Hex Head Screw	
	5		Locknut	
	50		Inner Support Ring	
	51		Outer Support Ring	
Friction Disc Sub-assembly P/N 513965-01	8	1	Friction Disc Core	513667
	9	16	Friction Blocks	Contact Airflex
	57	144	Flat head screws	000294x0407

10.6

Sub assembly breakdown for high coefficient friction discs.				
Friction Disc Sub-assembly Standard lining	Item	Qty.	Description	Part Number
18WCB 513963-02	8	1	Friction Disc Core	513666
	9	2	Friction Disc	513680
	57	48	Flat head screws	000153x1147
24WCB 513964-02	8	1	Friction Disc Core	510745
	9	2	Friction Disc	512825
	57	48	Flat head screws	000294x0407
36WCB 513965-02	8	1	Friction Disc Core	513667
	9	16	Friction Blocks	513675
	57	144	Flat head screws	000294x0407

11.0 KITS

11.1

Friction Lining Kits for WCB models with riveted friction lining				
Each kit includes the following:				
Model	Kit Part Number	Quantity Each	Description	Part Number
8WCB	107671B	25	Flat Washer	000153x1065
		25	Rivet	000130x0086
		1	Instruction Sheet	204064
		2	Friction Disc	512509
14WCB	107672B	36	Flat Washer	000153x1064
		36	Rivet	000130x0085
		1	Instruction Sheet	204064
		2	Friction Disc	415227
Rivet Tool Sold Separately				
8WCB		1	Rivet tool	000153x1095
14WCB		1	Rivet tool	000153x1096

Note: For 18, 24 & 36 WCB's with riveted lining order friction disc sub-assembly from section 10.0

11.2

Friction Lining Kits for 18 WCB models with screwed on friction lining				
EACH FRICTION LINING KIT INCLUDES THE FOLLOWING:				
Model	Kit Part Number	Quantity Each	Description	Part Number
118WCB	107820B LO-CO		Contact Airflex for details	
218WCB	107820BA LO-CO			
318WCB	107820BB LO-CO			

11.3

Friction Lining Kits for 24WCB models with screwed on friction lining				
Each friction lining kit includes the following:				
Model	Kit Part Number	Quantity Each	Description	Part Number
124WCB	107821B LO-CO	Contact Airflex for details		
224WCB	107821BA LO-CO			
324WCB	107821BB LO-CO			
424WCB	107821BC			

11.4

Friction Lining Kits for 36 WCB models with screwed on friction lining				
Each friction lining kit includes the following:				
Model	Kit Part Number	Quantity Each	Description	Part Number
136WCB	107822B LO-CO	Contact Airflex for details		
236WCB	107822BA LO-CO			
336WCB	107822BB LO-CO			
436WCB	107822BC			

11.5

Wear Plate Kits				
Each kit includes the following:				
Model	Kit Part Number	Quantity Each	Description	Part Number
8WCB Basic Kit	107671A	84	#10 Screw	000030x5407
		84	Flange Nut	000153x1049
		1	Loctite® Superflex	000153x1071
		1	Instruction Sheet	204063
		2	Wear Plate	512507
8WCB Reaction Plate Kit	107671E	42	#10-24 Screw	000030x5408
		42	Plain Washer	000067x0036
		42	Flange Nut	000153x1049
		1	Loctite® Superflex	000153x1071
		1	Instruction Sheet	204063
		2	Wear Plate	512507
14WCB Basic Kit	107672A	120	Gr. 8 1/4" Screw	000153x1017
		120	Flange Nut	000153x0061
		1	Loctite® Superflex	000153x1071
		1	Instruction Sheet	204063
		2	Wear Plate	415212
14WCB Reaction Plate Kit	107672E	60	Plain Washer	000067x0001
		60	Gr. 8 1/4" Screw	000153x1018
		60	Flange Nut	000153x1061
		1	Loctite® Superflex	000153x1071
		1	Instruction Sheet	204063
		2	Wear Plate	415212
18WCB Basic Kit	107726A	160	Locknut	000153x0642
		160	Screw	000153x0726
		1	Loctite® Superflex	000153x1071
		1	Instruction Sheet	204063
		2	Wear Plate	412953
		8	Inner Ring	413105
		8	Outer Ring	413106
18WCB Reaction Plate Kit	107726E	80	Locknut	000153x0642
		80	Screw	000153x1071
		1	Loctite® Superflex	000153x1071
		1	Instruction Sheet	204063
		2	Wear Plate	412953
		8	Inner Ring	413105
		8	Outer Ring	413106
24WCB Basic Kit	107727A	180	Locknut	000153x0642
		180	Screw	000153x0685
		1	Loctite® Superflex	000153x1071
		1	Instruction Sheet	204063
		6	Inner Ring	413107
		10	Outer Ring	413108
		2	Wear Plate	508459

Wear Plate Kits (Continued)				
Model	Kit Part Number	Quantity Each	Description	Part Number
24WCB Reaction Plate Kit	107727E	90	Locknut	000153x0642
		90	Screw	000153x0685
		1	Loctite® Superflex	000153x1071
		1	Instruction Sheet	204063
		6	Inner Ring	413107
		10	Outer Ring	413108
		2	Wear Plate	508459
36WCB Basic Kit	107662A	216	Screw	000153x0842
		216	Locknut	000153x0844
		2	Loctite® Superflex	000153x1071
		1	Instruction Sheet	204063
		2	Wear Plate	414026
		12	Inner Ring	414032
		12	Inner Ring	414032-01
		18	Outer Ring	414033
36WCB Reaction Plate Kit	107662E	18	Outer Ring	414033-01
		108	Screw	000153x0843
		108	Locknut	000153x0844
		2	Loctite® Superflex	000153x1071
		1	Instruction Sheet	204063
		2	Wear Plate	414026
		12	Inner Ring	414032
		12	Inner Ring	414032-01
	18	Outer Ring	414033	
	18	Outer Ring	414033-01	

11.6

Cylinder Seal Kits			
Each Kit Includes the following:			
Size	Part Number	Large seal	Small seal
8WCB	107671C	000402X0002 1 EACH	000401X0001 1 EACH
14WCB	107672C	000402X0004 1 EACH	000402X0003 1 EACH
18WCB	107726C	000402X0022 2 EACH	000402X0021 2 EACH
24WCB	107727C	000402X0024 2 EACH	000402X0023 2 EACH
36WCB	107662C	000402X0006 2 EACH	000402X0005 2 EACH

All Kits include 1 each - Instruction Sheet (P/N204067) and 4oz tube of Parker O-Lube (P/N000153x0881).

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