WCB 11075

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® Model WCB2EP* Tensioner / Brake
(for size 36EP)

***For prior model 36WCB2 see manual WCB 11070**

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. & Canada: **(216) 281-2211**
Internet: **www.eaton.com/airflex**

March, 2010

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Powering Business Worldwide

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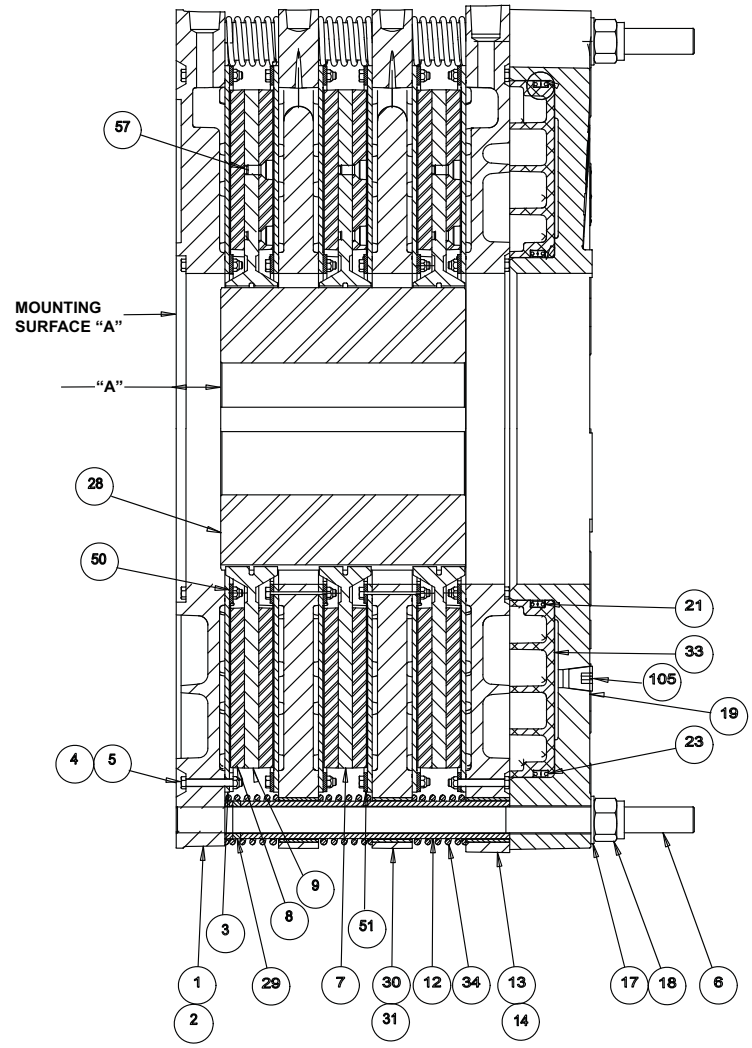


Figure 1 : 36WCB2EP Cross Section and Item Numbers

TABLE 1					
36WCB2EP Item Description (Ref. Figure 1)					
Item	**Description**	**Item**	**Description**	**Item**	**Description**
1	Mounting Flange Sub Assembly	12	Clamp Tube	29	Wear Spacer
2	Mounting Flange	13	Pressure Plate Sub Assembly	30	Reaction Plate Sub Assembly
3	Wear Plate	14	Pressure Plate	31	Reaction Plate
4	Screw	17	Flat Washer	33	Piston
5	Locknut	18	Self Locking Nut	34	Release Spring
6	Stud	19	Cylinder	50	Inner Support Ring
7	Friction Disc Assembly	21	Seal (Inner)	51	Outer Support Ring
8	Friction Disc	23	Seal (Outer)	57	Flat Head Screw
9	Friction Disc Core	28	Gear (Not Included in Parts List)	105	Pipe Plug

1.0 INTRODUCTION

Throughout this manual there are a number of HAZARD WARNINGS that must be read and adhered to in order to prevent possible personal injury and/or damage to 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

Used when serious injury or death MAY result from misuse or failure to follow specific instructions.

⚠ Caution

Used 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

⚠ Caution

procedures by which hazards can be avoided.

1.1 Description

1.1.1 The Airflex® WCB2EP 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 WCB2EP tensioner permits mid-shaft or end-shaft mounting. The rugged construction ensures long, trouble free service.

1.1.2 WCB2EP tensioners are available in various quantities of friction discs. The model number identifies the number of discs and the nominal disc diameter. For example, 336WCB2EP indicates three 36" diameter discs.

1.1.3 When size, such as 36WCB2EP, is referred to in this manual, it means that the information given applies to all models using the 36" diameter water-cooled disc assembly; i.e., 236WCB2EP, 336WCB2EP, etc.

1.1.4 Tensioners can be used with either closed loop or open loop water systems.

1.1.5 This manual includes metric equivalents usually shown in brackets (#) following the U.S. measurement system value. Be sure to use the correct value.

1.2 How It Works

1.2.1 Referring to **Figure 1**, the gear (28) is mounted on the shaft which is to be stopped and the tensioner assembly is attached to the machine frame or a reaction bracket.

Air pressure is applied through the ports in the cylinder (19) causing the piston (33) and pressure plate assembly (13) to move towards the mounting flange (2), compressing the release springs (34). As the applied pressure increases, the friction disc(s) are clamped between the pressure plate (14) and mounting flange (2), stopping or controlling the shaft the discs are mounted on. Modulation of air pressure then controls applied torque of the tensioner. Multiple disc brakes utilize reaction plates (30) between discs. The release springs (34) assist in disengagement and retraction of the piston (33), pressure plate (14) and reaction plates (31), if applicable. High heat dissipation is accomplished by passing 60 psig water (Table 7) through a cavity behind the copper alloy wear plates.

Torque flows through the brake from the shaft to be controlled, through the friction discs, through the pressure plate and reaction plates, through the clamp tubes and studs, to the mounting flange, which is attached to a rigid surface.

⚠ Caution

The brake is never to be operated without the coolant supply attached and coolant running through the unit. See Tables 6 & 7.

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), wear spacers (29), or the release springs (34), as this may hinder the engagement or disengagement of the tensioner.

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.

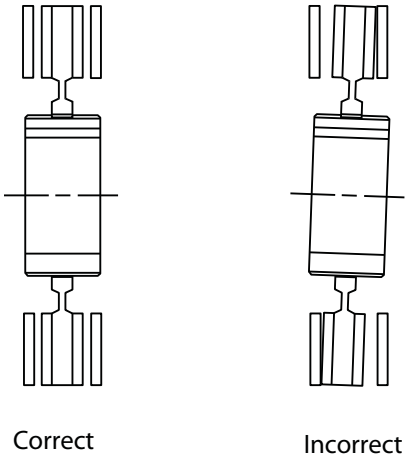


Figure 2 : Proper vs Improper alignment of WCB2EP

2.1 Preparation and Arrangements

2.1.1 Refer to the appropriate catalog information (available upon request) for appropriate envelope dimensions, mounting register diameters, mounting bolt circles and positions, and stud support bracket recommendations for each specific tensioner.

2.1.2 The tensioner reaction member (such as the machine frame) should have a machined register to allow for mounting and alignment control of the tensioner. The mounting surface should be designed to provide full support of the face of the mounting flange (1), preventing deflection during operation.

2.1.3 For proper operation and service life, the tensioner reaction member must be aligned to the shaft within the limits shown in Table 2.

⚠ 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 mating surfaces, plus the gear and splined bore of the friction disc assemblies. See Figure 2.

TABLE 2
Alignment Requirements

Size	Cocentricity (Parallel, TIR) of Shaft and Tensioner Inches (mm)	Perpendicularity (Angular, TIR) of Mounting Flange to Shaft* Inches (mm)
36WCB2EP	0.010 (0.25)	0.019 (0.48)

* Perpendicularity measured near the outside diameter of the mounting flange

TABLE 3 “A” dimension on Figure 1 in inches (mm)				
Size	**Single**	**Dual**	**Triple**	**Quad**
36WCB2EP	2.36 (59.9)	2.36 (59.9)	2.36 (59.9)	2.36 (59.9)

2.1.4 Refer to Table 3 for the setup dimension between the tensioner mounting surface and the end of the gear (dimension "A" on **Figure 1**). Gears should be positioned to ensure that - when the tensioner is mounted - the disc splines will not overhang the end of the gear when components are in both new and worn conditions. The gear is typically bored and keyed for a resulting Class FN2S interference fit for inch shafting and ISO System S7h6 for metric shafting. Contact Airflex Application Engineering for specific recommendations.

2.2 Mounting

2.2.1 The WCB2EP must be mounted to a clean, rigid surface with hardened flat washers and screws of the grade, quantity and size as listed in Table 4. Mounting to a properly aligned, rigid surface that fully supports the face of the mounting flange minimizes any deflection during operation and helps to ensure that the friction discs will track properly on the copper wear plates.

Note : To facilitate the mounting process, the friction disc assemblies should be aligned to the gear and centered in the tensioner. With the tensioner positioned with the mounting flange facing down, lower the gear (28) slowly and carefully into the splined bore of the friction disc assemblies (7). Adjust the discs so that they are centered in the tensioner and fit in 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 during installation. Remove the gear.

⚠ 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

Water inlets and outlets must be located as close as possible to the 6 o'clock and 12 o'clock positions, respectively. This will help to prevent air pockets in the water cavities, which would allow the tensioner to overheat.

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

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

2.2.4 Heat the gear uniformly to 250^{o}F (121^{o}C) to expand the bore and ease assembly. 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 3. Allow the gear to cool.

2.2.5 Apply a thin coat of MOLUB-ALLOY® OG Heavy - or equivalent - grease to the splines of the gear.

⚠ Caution

Excessive lubricant may contaminate friction material, resulting in erratic response or loss of torque.

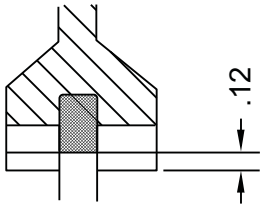
TABLE 4 Fastener Description and Assembly Torque: ft.lb. (Nm)		
Item # Description	**Specification**	**36WCB2EP**
4 Screw & 5 Locknut	Size	3/8-16 NC2 Gr.8
	Torque (Dry)	40 (54)
18 Self Locking Nut	Size	1-3/8-6 NC Gr.8
	Torque (Lubed)	750 (1016)
Mounting Screw	Size	1-8 NC Gr.8
	Quantity	14
	Torque (Lubed)	660 (895)

Caution

The use of anti-seize or bearing greases on the gear splines may result in premature gear and disc spline wear.

2.2.6 Pre-fill the grease channel in the friction disc splines (if applicable) with MOLUB-ALLOY® OG Heavy - or equivalent - grease, as shown on **Figure 3**.

2.2.7 Rig the WCB2EP into position and slide it over the gear. Avoid placing lifting straps or cables directly on the release springs (34).



FILL GREASE CHANNEL 360°
WITH MOLUB-ALLOY O.G. HEAVY
GREASE TO WITHIN .12 OF I.D.
AS SHOWN.

Figure 3 : Grease Requirement

2.2.8 Attach the mounting flange (1) to the mounting surface using the appropriate fasteners. If applied pressure was used to help position the discs during mounting, exhaust the air pressure prior to tightening the fasteners. Tighten the fasteners to the specified torque value. See Table 4.

Caution

Maximum allowable air pressure in the cylinder (19) is 150 psi (10.2 bar).

2.2.9 WCB2EP tensioners should be covered to protect the unit from dirt, rain, overspray, and other sources of external contamination. In extreme environments the use of a sealed enclosure with internal strip heater is recommended to prevent moisture from collecting on the unit.

2.3 Air System

Warning

Maximum allowable air pressure is 150 psig (10.2 bar). Application of pressure exceeding maximum allowable may result in damage to the tensioner.

2.3.1 Maximum allowable pressure is 150 psi (10.2 bar).

2.3.2 Use only clean, filtered air (a 40 micron filter or better is recommended) which is free of excess moisture.

2.3.3 The air inlet size is shown in Table 5. Air inlets are located on the face of the cylinder (19). For cylinders with three ports, the lowest port should be located at or near the 6 o'clock position to facilitate purging of moisture that may accumulate in the air system or cylinder.

TABLE 5
Air Inlet Size

Model	Thread Size
36WCB2EP	3/4”-14 NPT

2.3.4 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. For optimum air system response, a minimum number of bends and elbows should be used.

2.3.5 The WCB2EP tensioner does not require lubricated air; however associated control valves may. Consult the valve manufacturer for appropriate recommendations.

2.4 Coolant System

Caution

Make sure that the water inlets and outlets are positioned as close as possible to the 6 o'clock and 12 o'clock positions, respectively. This will help to minimize the formation of air pockets in the water cavity during operation, which could contribute to overheating of the tensioner.

2.4.1 Maximum allowable coolant pressure within the water cavity is 60 psig for size 36” WCB2EP units. See Table 7 for coolant pressure limitations as measured at the inlets and outlets of water jackets. Note that inlet pressures exceeding the maximum allowable static pressures are only permissible under dynamic flow conditions, provided that the average pressure between the inlet and outlet does not exceed the maximum allowable pressure stated above. The use of an accumulator or pressure relief valve may be desirable to reduce the effect of pressure spikes in the coolant system during operation.

⚠ Caution

High outlet pressures or surges exceeding maximum allowable may result in damage to the tensioner.

⚠ Caution

Maximum allowable water pressure is dependent upon tensioner size and specific application requirements.

⚠ Caution

Inlet pressures exceeding the maximum allowable average pressure are only permissible when the outlet pressures are at or below the limits listed in Table 7.

2.4.2 The coolant supply and discharge hose, pipe and fitting sizes, along with minimum flow rates for the tensioner rated horsepower, are listed in Table 6.

2.4.3 Coolant supply connections to the tensioner should provide a parallel flow through each section of the tensioner. Series flow is not recommended, as it can lead to overheating of the tensioner.

2.4.4 Inlet and outlet coolant manifolds must be provided. Manifolds should be constructed to allow for even flow through all ports. On size 36", two hoses can be routed to the reaction plates (30) to assist with balancing the flow to each wear plate.

Note : Reaction plates (30) in WCB2EP size 36" typically have two inlet and two outlet ports to assist with obtaining balanced flow to each cooling chamber. In the event that a multiple disc tensioner includes an older style reaction plate with only one inlet and one outlet port, water flow should be restricted at the inlets to the pressure plate (13) and mounting flange (1) to allow for equally proportional heat dissipation at each cooling cavity. See **Figure 4.**

2.4.5 Use flexible connecting hose to each tensioner coolant section to allow axial travel of the pressure plate, reaction plate and end plate during tensioner operation without restricting the movement of components. When determining hose lengths, consideration should be given to movement and location of the pressure plate and reaction plate as friction material wears. Hose lengths running between the manifolds and the inlet or outlet ports should be equal in length, if possible. Reductions in the recommended line diameter should be avoided to prevent excessive line pressures.

TABLE 6
WCB2EP Coolant Supply Data

No. of Discs	Disc Size	Thermal Rating[1] HP (kW)	Water Inlet and Outlet Pipe Size (Minimum piping I.D.)	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.
1	36”	780 (581)	1- 1/4”-11.5 NPT (1”)	78 (295)	92 (348)	101 (382)	116 (439)
2		1560 (1162)		156 (590)	184 (696)	202 (764)	232 (878)
3		2340 (1743)		234 (885)	276 (1044)	303 (1146)	348 (1317)
4		3120 (2324)		312 (1181)	368 (1393)	404 (1529)	464 (1756)

1 - Thermal rating based on a 70°F (21°C) water inlet temperature and a 50°F (28°C) temperature rise between inlet and outlet

2 - Flow rate is based on requirement of 1 U.S. GPM per 10 HP (1.97 kW per dm^3/min) thermal dissipation

3 - Maximum pressure at inlet = 60 psig

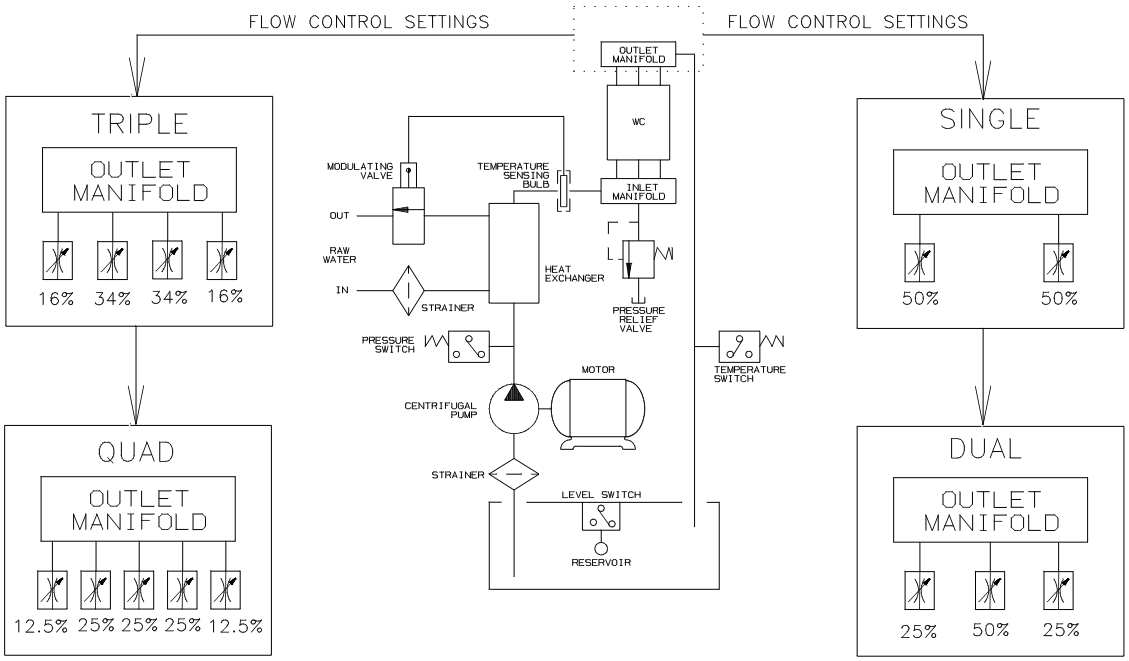


Figure 4 : Manifold design for older style reaction plates with one inlet and one outlet

2.4.6 Avoid the use of sharp bends and elbows that will restrict water flow. Loops and bends in the lines may create air pockets, which substantially reduce the flow of coolant and can contribute to overheating.

2.4.7 Coolant and coolant supply lines should be free of foreign material (a 500 micron water filter is recommended). In the event that contaminated water is used as a coolant (not generally recommended), use of a multi-stage filter/strainer may be desirable to avoid the need for frequent cleaning of fine mesh filters.

2.4.8 **Figure 4** 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.

2.4.9 The coolant supply temperature at the inlet should be 100^{o}F (38^{o}C) or lower. The coolant outlet temperature should not exceed the values given in Table 8. However, in no event should there be more than a 50^{o}F (28^{o}C) temperature rise between inlet and outlet. See Table 8 for maximum allowable outlet coolant temperature with various water/ethylene glycol mixtures and other cooling media.

2.4.10 **Open Loop Systems**

For efficient operation of the WCB2EP, an adequate supply of filtered fresh water is required. (See 2.4.1 - 2.4.2). Excessive water hardness promotes the formation of scale deposits, which, in time, will affect the service life of the WCB2EP unit. Water of high acidity or high in corrosive salts may cause electrolytic corrosion between the dissimilar metals used in the water cavities. 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.

⚠ Caution

Open loop systems should be thoroughly flushed with clean fresh water after operation to reduce the corrosive effects of contaminants on internal components.

2.4.11 **Closed Loop Systems**

For efficient operation of the WCB2EP 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 make-up water which is low in corrosive ions such as chlorides and sulfates.

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

TABLE 7 Coolant Pressure, psi (bar)		
Size	**Maximum Static**	**Maximum Inlet***
36WCB2EP	60 (4.1)	60 (4.1)
* Under Dynamic Flow Conditions		
NOTE : Above ratings for tensioning / winding type applications. For high cyclic applications, consult the factory.		

3.0 OPERATION

3.1 Conditions of Operation

The following Hazard Warnings are to be followed for proper WCB2EP functioning:

⚠ Warning

Friction lining must be worn-in to achieve product torque rating. For new installations or after repair, a minimum wear-in period for the friction couple of four hours at 50% of the rated horse-power is recommended to achieve rated torque. Verify proper operation before putting the product into service.

⚠ Warning

Protective means must be used to prevent 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

Maximum free wheeling speed must not exceed the speeds listed in Table 9. Exposure to speeds in excess of these values may cause the friction discs (8) to burst and result in extensive damage to the tensioner and/or cause personal injury.

⚠ Caution

For proper cooling of the WCB2EP tensioner, it is required that the coolant inlet be located as close as possible to the 6 o'clock position and the outlet be located near the 12 o'clock position. This will help to assure that all coolant cavities are water-filled to help avoid overheating.

⚠ 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. Excessive amounts of antifreeze will reduce cooling capacity and can cause coolant leakage due to overheating. Refer to Table 8.

⚠ 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 as a coolant, the minimum ambient temperature is 45°F (7°C).

3.2 Pressure and Speed Limits

3.2.1 Maximum applied air pressure is 150 psig (10.2 bar).

3.2.2 Maximum coolant pressure allowable within the water cavities is 60 psig (4.1 bar) for 36" WCB2EP units. The use of an accumulator or pressure relief valve may be desirable to reduce the effect of pressure spikes in the coolant system during operation.

⚠ Warning

Maximum allowable water pressure is dependent upon tensioner size. Water piping elevations, restrictions in outlet piping or pressure surges may cause pressures that exceed the maximum allowable, resulting in damage to the tensioner.

3.2.3 Maximum slip speeds and free wheeling disc speeds are shown in Table 9.

⚠ Caution

Excessive slip speeds will result in rapid friction material wear. For good life of wear components, the operating values in Table 9 should not be exceeded.

3.3 Periodic Maintenance

3.3.1 As the friction material wears, adjustment of the tensioner may be required to keep pistons within the proper stroke range. See Section 4.0 for wear measurement, adjustment procedures and component wear limits.

TABLE 8
Maximum 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)

3.3.2 Periodically check for external air leakage in the area of the piston seals (21) (23). For replacement, refer to procedures in Section 4.0, Maintenance.

3.3.3 Moisture that may accumulate in the cylinder can be purged. With air pressure exhausted from the cylinder, remove the pipe plug (105) at the 6 o'clock position on the cylinder, and apply low air pressure to assist in expelling any excess moisture. After draining the cylinder, re-install the pipe plug, applying a pipe thread sealant on the threads prior to installation.

⚠ Caution

Applied air pressure greater than 10 psi should not be used when draining the cylinder. Use adequate shielding to avoid contact with direct spray from moisture being purged from the cylinder.

3.3.4 Periodically observe the rotating discs while the tensioner is fully released. Dragging discs may be caused by wear or contamination of the gear or disc splines, lack of spline lubrication, disc imbalance, warped discs, or misalignment. Correct as required.

3.3.5 Pneumatic and electrical control interlocks should be periodically checked for proper settings and operation.

3.3.6 If leakage or blockage of any water-cooled chamber is suspected, a static or dynamic test may be performed as follows:

TABLE 9
Maximum Disc Speeds

Size	Max. Slip Speed RPM	Max. Free Wheeling Speed RPM
36WCB2EP	475	700

3.3.6.1 ***Static Pressure Test:***

a) Release the tensioner by exhausting the air pressure from the cylinder.

⚠ Warning

Ensure that the machinery will remain in a safe position prior to releasing the brake.

b) 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 proper operating position.

Note : Avoid contaminating the friction material with coolant or water.

⚠ Warning

Contamination of the friction material could result in erratic or loss of torque.

c) After the air has been removed, install a pipe plug(s) in the outlet(s) and apply maximum allowable coolant pressure measured at the inlet to the water cavity. Maximum allowable is 60 psig (4.1 bar) for 36" WCB2EP units for 30 minutes. Check for leakage at O.D. and I.D. sealing areas.

3.3.6.2 ***Dynamic Flow Test***:

a) 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 and outlet pressures for the appropriate tensioner size as listed in Table 7 should not to be exceeded.

b) There should be no restrictions on the outlet side of the brake to cause any back pressure to the unit. Coolant inlet and outlet sizes are listed in Table 6. Full size hoses and piping should be used. Check for low flow and/or leakage at the O.D. and I.D. seal areas.

4.0 MAINTENANCE

Warning

Before performing any maintenance work on the WCB2EP tensioner, 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 the WCB2EP 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 Limits

Warning

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

4.1.1 Wear limits for the WCB2EP components are shown in Table 13. If any wear limit has been reached or exceeded, that component must be repaired or replaced.

4.2 Wear Adjustment

Warning

If a wear adjustment is not made when required, the brake torque may deteriorate to the point where the equipment will not stop properly.

4.2.1 Determining Wear

The friction material must be replaced when worn to the bottom of the groove of the friction lining - as shown on **Figure 5** or if any "Y" or "Z" dimension exceeds the limits shown in Table 10. On multi-disc units, a wear adjustment is required when the "X" dimension has been reached and the friction discs or "Y" or "Z" dimension(s) are NOT worn to their limits.

4.2.1.1 **Single Disc Units**

Apply approximately 25 psig (1.7 bar) air pressure to the cylinder to engage the tensioner. Measure the "X" gap 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 6**. If either 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 Table 13 have not been exceeded.

4.2.1.2 **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) to determine if adjustment may be required.

Measure the "Y" gap between the pressure plate (13) and the reaction plate (31), the "Y" gap between the reaction plate (31) and the mounting flange (2), and the "Z" gap between the reaction plates (31) as shown in **Figures 7, 8 and 9**.

If the "X worn" dimension has been reached or exceeded and the "Y" or "Z" dimensions have not reached the limits shown in Table 10 **AND** none of the friction discs are worn to the bottom of the wear groove / step, wear adjustment is required. It is also recommended that wear plates be inspected to ensure that the wear limits listed in Table 13 have not been exceeded.

Warning

If wear adjustment is not made, the piston may extend out of the cylinder beyond an acceptable operating range, resulting in loss of torque and/or seal damage.

If the "Y" or "Z" dimensions have been reached or any of the friction discs are worn to the bottom of the wear groove (or step), the tensioner should be taken out of service and rebuilt with new components as required.

4.2.2 Adjustment Procedure

Wear adjustment can be conducted without full disassembly of the WCB2EP tensioner. The wear adjustment spacers are slotted to allow for easy removal with a chisel.

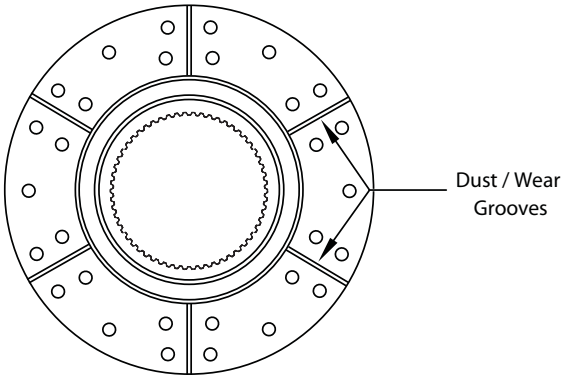


Figure 5 : Illustration of dust wear grooves

Warning

Before performing any maintenance work on the WCB2EP unit, make sure that the machinery will remain in a safe position. Failure to do so could result is serious injury or possibly death.

Note : It may be necessary to disconnect air and water supply lines to prevent damage to the hoses and binding of components during the adjustment procedure.

4.2.2.1 Wear spacers should be removed in complete sets only (one from each stud location). Mark the spacers to be removed to avoid confusion during removal.

Warning

Removal of spacers in quantities other than complete sets (layers) will result in severe damage to WCB2EP components during re-assembly, and could cause the brake to not function properly.

4.2.2.2 If so equipped, remove the support bracket from the cylinder (19) end of the unit.

4.2.2.3 Loosen the locknuts (18) evenly (ONE TURN AT A TIME) and in an alternating (cross wise) pattern to prevent binding of the cylinder on the studs. Continue to loosen the locknuts until the force of the release springs is relieved, allowing for access to the wear spacers. It may be necessary to push the pressure plate and reaction plate(s) away from the mounting flange so that the release springs can be moved to gain access to the wear spacers.

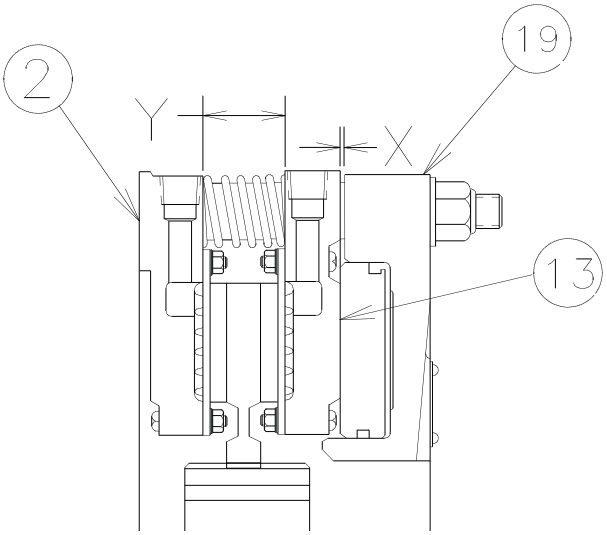


Figure 6 : 136WCB2EP - “X” & “Y” gap locations for single disc

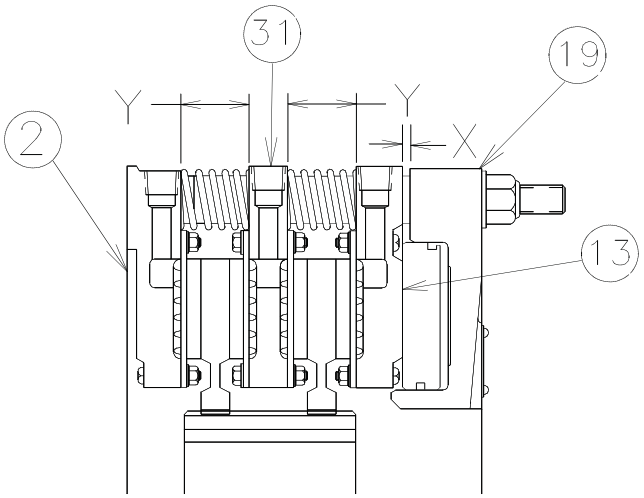


Figure 7 : 236WCB2EP - “X” & “Y” gap locations for dual disc

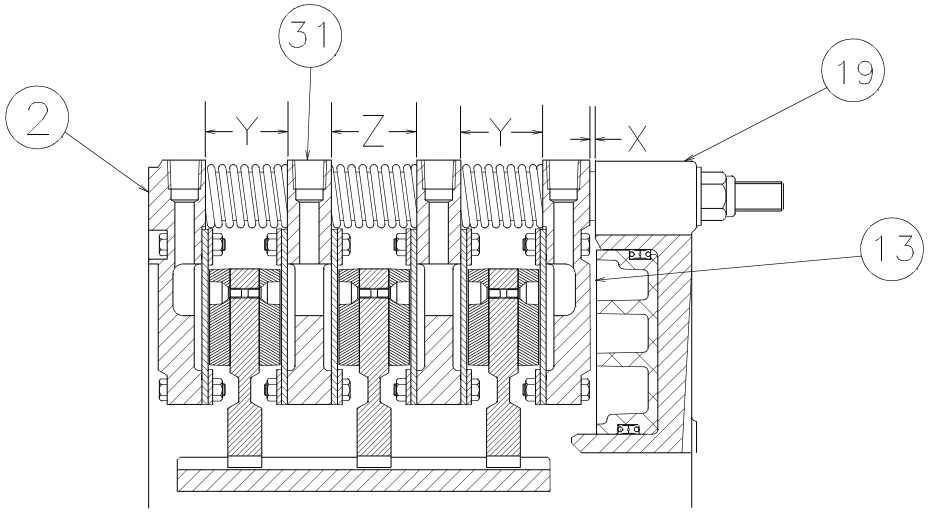


Figure 8 : 336WCB2EP - “X”, “Y” & ” Z” gap locations for triple disc

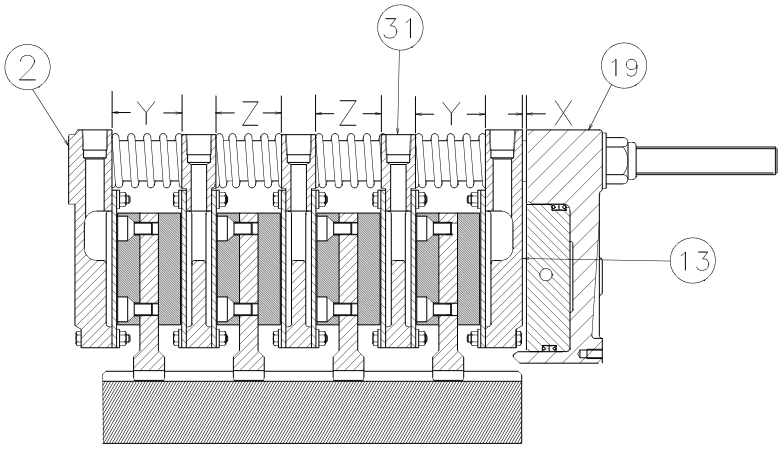


Figure 9 : 436WCB2EP - “X”, “Y” & “Z” gap locations for quad disc

TABLE 10
Wear Measurements X, Y, & Z Gaps - Inches (mm)
Refer to Figs 6, 7, 8 & 9

Disc Size Inches	Qty. of Discs	X - New *	X - Max (Adjustment)	Y - New	Y - Min	Z - New	Z - Min
36EP	1	0.12 +/-.005 (3.05 +/-.13)	0.54 (13.18)	2.75 (69.85)	2.31 (58.67)	n/a	n/a
	2	0.24 +/-.050 (6.10 +/-1.27)	0.66 (16.67)	2.75 (69.85)	2.31 (58.67)	n/a	n/a
	3	0.36 +/-.100 (9.14+/-2.54)	0.78 (19.81)	2.75 (69.85)	2.31 (58.67)	2.75 (69.85)	2.31 (58.67)
	4	0.48 +/-.150 (12.19+/-3.81)	0.90 (22.86)	2.75 (69.85)	2.31 (58.67)	2.75 (69.85)	2.31 (58.67)

* Value shown is gap after wear adjustment
New or rebuilt brakes may vary slightly from this value due to tolerances

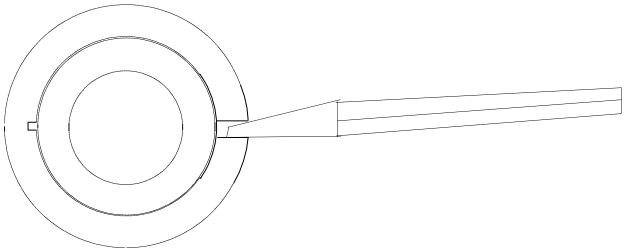


Figure 10 : Removing wear spacers

4.2.2.4 Wear spacers are slotted to allow for in-place removal. Using a narrow chisel wedged into the slot in the spacer, as shown in **Figure 10**, pry the wear spacer until it fractures and is clear to be removed from the stud. Repeat for the remaining spacers in the set that is to be removed (one spacer from each stud location).

⚠ Warning

Be sure to collect *all* wear spacers when removed. Spacers lodging in between tensioner components could prevent the tensioner from properly engaging or releasing.

4.2.2.5 While supporting the weight of the cylinder/piston assembly, tighten the locknuts (18) ONE TURN AT A TIME and in a 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 and evenly to prevent damage to the brake components.

4.2.2.6 Re-install the support bracket if required.

4.2.2.7 Restore any piping or covers removed prior to operating the tensioner.

4.3 Disassembly Procedures

⚠ Warning

Ensure that the machinery is and will remain in a safe position prior to loosening fasteners or removing the tensioner.

4.3.1 Disconnect the air supply lines and water lines from the tensioner.

4.3.2 Remove the fasteners that secure the tensioner (and support bracket, if applicable) to the mounting structure.

4.3.3 Using soft slings, rig the tensioner and slide the WCB2EP off of the gear. Avoid placing slings or straps directly on the release springs (34).

4.3.4 Transport the tensioner to a clean working area and position the unit on a flat surface with the mounting flange (1) facing down.

4.3.5 If the gear (28) requires replacement, remove it from the shaft with a portable jack, using the threaded holes in the end of the gear for puller holes. Heating may be required to ease removal. Replace the gear and install per Section 2.2.

4.3.6 Match-mark the mounting flange (1), reaction plates (30), pressure plate (13) and cylinder (19) to one another prior to disassembly to adequately show the proper orientation of components and various ports to one another.

4.3.7 Loosen the locknuts (18) ONE TURN AT A TIME and in sequence until the release spring force is relieved.

4.3.8 Lift the cylinder and piston off of the studs as an assembly. Set the assembly aside on a clean, level area, making sure to avoid damaging the face of the piston.

4.3.9 Continue removing the remaining components if required.

4.3.10 Inspect all components using the wear limits in Table 13 as a reference.

4.3.11 For friction lining replacement refer to Section 4.4.

4.3.12 For wear plate replacement refer to Section 4.5.

4.3.13 Refer to Section 4.6 to replace seals.

4.3.14 Assemble the tensioner per Section 4.8.

⚠ Caution

After replacement of friction material, a minimum wear-in period of four hours at 50% of the rated horsepower is recommended for the friction couple to achieve rated torque.

4.4 Friction Material Replacement (Sizes 36WCB2EP)

Note : When replacing friction material, it is recommended that the mating wear surface be inspected for wear. See Table 13 for wear limits. A light touch up of the wear surfaces may be performed to remove high spots or burrs if desired, but is typically not necessary.

4.4.1 Refer to Section 6.0 for the friction disc replacement part numbers.

⚠ Caution

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

4.4.2 Disassemble the tensioner as per Section 4.3.

4.4.3 Remove the old screws and discard the old friction material.

Note : Use of a pinpoint torch to heat the screws and soften the Loctite® will ease removal of the screws.

4.4.4 Clean any corrosion etc. from the friction disc core surfaces.

4.4.5 Position the friction material to align the screw holes. Install several screws loosely at several of the outermost screw hole locations to properly align the friction discs or blocks.

4.4.6 When installing screws in friction blocks, install and tighten the screws from the centermost position in the block, then progress towards the outer edges of the block.

4.4.7 Following the above pattern, install one screw at a time by applying Loctite® #262 to the screw threads and tightening the screw to the proper torque value (15 ft.lb. (20 Nm)). Install and torque each remaining screw immediately after the application of Loctite®. Then proceed to the next screw. Be sure to remove, apply Loctite® and properly tighten the initial screws used for alignment of the friction disc or block.

⚠ Warning

Loctite® may cure prior to properly tightening the screw if not tightened to the proper torque value immediately after installation.

⚠ Caution

Use only Airflex-supplied screws.

⚠ 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.

4.4.8 After replacement of friction material, re-assemble the tensioner per Section 4.8. During start-up, observe wear-in and operation precautions per Section 3.0, Operation.

⚠ Caution

After replacement of friction material, a minimum wear-in period of four hours at 50% of the rated horsepower is recommended for the friction couple to achieve rated torque.

4.5 Wear Plate Replacement

Note : When replacing wear surfaces, it is recommended that the mating friction material be replaced.

4.5.1 Disassemble the tensioner per Section 4.3.

4.5.2 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.

4.5.3 Inspect the water passages and, if necessary, use a wire brush to clean them. If re-painting is necessary, sand blast the water passages and paint the surfaces with PLASITE® Epoxy #9052 Polyamine coating. Dry film thickness should be 8 to 12 mils (0.2 to 0.3 mm). Be careful not to allow the paint to get into the seal grooves or onto the face of the support nubs.

⚠ Caution

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

⚠ Caution

Follow manufacturer's instructions and proper safety precautions for application of epoxy coatings.

4.5.4 Assembly with Gasket Tape.

Note : The Pressure Plate (14), Reaction Plate (31) and Mounting Flange (2) will be referred to as IRON in the following paragraphs. Refer to **Figure 1** for item number references shown in parenthesis (#).

4.5.4.1 Preparation and cleaning the IRON:

Ensure that the IRON surface is smooth and free of scale, burrs and corrosion. Thoroughly clean both the inner and outer lands which will receive the Gasket. Use a solvent based cleaner such as acetone, mineral spirits, or a general-purpose wax/oil/grease remover, turning the wipe until it is free of new dark debris. Finish the cleaning process by blowing off lint on the sealing surface.

⚠ Caution

Follow manufacture's instructions and proper safety precautions for the use of solvent based cleaners (acetone, mineral spirits, or general-purpose wax/oil/grease remover).

4.5.4.2 Preparation and cleaning the Copper Wear Plate:

Ensure that the wear plate surface is smooth and free of burrs and corrosion. Thoroughly clean both the outer and inner areas which will be in contact with the gasket tape. Use a solvent based cleaner such as acetone, mineral spirits, or a general-purpose wax/oil/grease remover. Finish the cleaning process by blowing off lint on the sealing surface.

⚠ Caution

Follow manufacture's instructions and proper safety precautions for the use of solvent based cleaners (acetone, mineral spirits, or general-purpose wax/oil/grease remover).

4.5.4.3 Applying the Gasket Tape to the IRON:

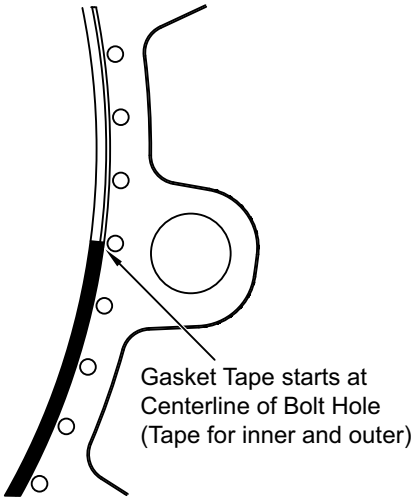


Figure 11 : Start location of gasket tape

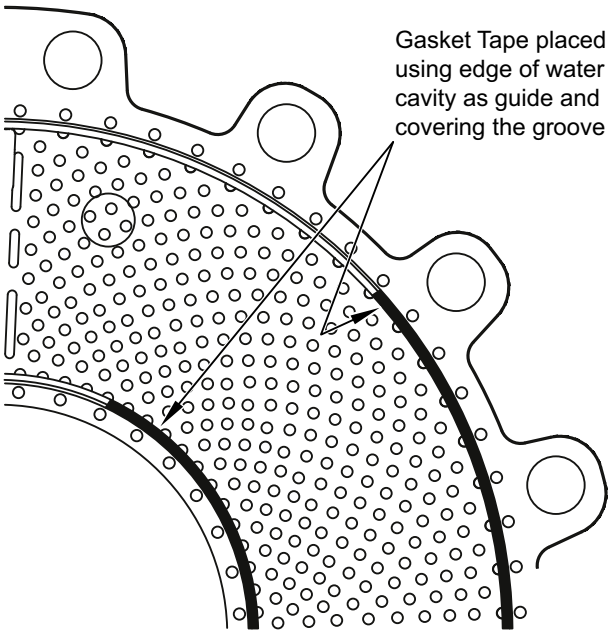


Figure 12 : Placement of gasket tape

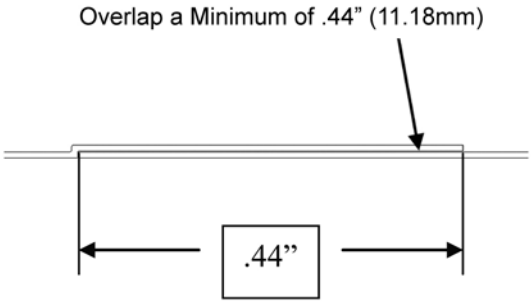


Figure 13 : Overlap of gasket tape

a) Start with the sealing area nearest to the inner diameter on the IRON. Remove the adhesive backing on the gasket tape a little at a time to prevent the adhesive from picking up dirt during installation. Start by positioning one end of the tape and at the centerline of a bolt hole as shown in **Figure 11**, using the edge of the water cavity as a guide, as shown in **Figure 12**. Proceed to apply the tape on the sealing surface following a smooth circular path, being sure to press the tape in place. Note that the tape will cover the machined groove that is located between the water cavity and bolt holes.

b) After the gasket tape has been placed around the entire circumference, overlap the starting end of the tape by a minimum of 0.44" (11.2 mm). See **Figure 13**.

c) Repeat steps (a) and (b) for the outer sealing area nearest to the outer diameter of the IRON, again using the edge of the water cavity as a guide.

⚠ Caution

Before the gasket tape is covered with the wear plate, the sealing surface should be protected to prevent contamination from dust, dirt or oils. No additional cleaning or liquid should be applied to the surface of the IRON or gasket tape.

4.5.5 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 sealing surface, being careful to align the holes with those in the IRON.

4.5.6 Position the clamp rings over the holes in the wear plates and install the new hex head screws and locknuts provided, securing them finger tight.

⚠ Caution

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

4.5.7 For each wear plate being replaced, follow the tightening sequence shown in **Figure 14** for the first 16 screws. The remaining screws may be tightened in any reasonable crosswise pattern. See Table 11 for tightening torque values.

TABLE 11
Wear Plate Fastener Torque: ft.lb. (Nm)

Model	Size	Torque
36WCB2EP	3/8-16NC2	40 (54)

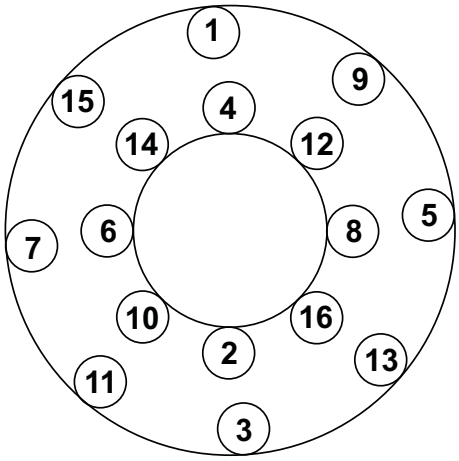


Figure 14 : Wear plate bolt tightening sequence

TABLE 12
Inlet and Outlet Port Sizes

Model	Size
36WCB2EP	1-1/4-11.5 NPT

4.5.8 After completion of the assembly, each water cavity should be checked for leaks.

4.5.8.1 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). In reaction plates, plug the remaining inlet port. See Table 12 for water port sizes.

4.5.8.2 Slowly fill with water to purge all air from water cavities.

4.5.8.3 Install pipe plug(s) in the outlet port(s) and apply appropriate water pressure (60 psig) (4.1 bar) for size 36WCB2EP. Pressure is measured at the inlet. Maintain this pressure for a minimum of 30 minutes.

4.5.8.4 Check for leakage at O.D. and I.D. seal areas. **NO** leakage is allowed.

4.5.8.5 If the assembly leaks, check the torque on each screw and re-test. If leaks still occur, the wear plate(s) or sealant groove may be damaged. Repeat procedure from 4.5.1.

4.5.8.6 Follow steps in Section 4.8 to reassemble the tensioner.

⚠ Caution

After replacement of wear plates, a minimum wear-in period of four hours at 50% of the rated horsepower is recommended for the friction couple to achieve rated torque.

4.6 Cylinder Seal Replacement

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

4.6.1 Disconnect the air connections.

4.6.2 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). Deep well sockets are required for removal of the locknuts.

4.6.3 Using lifting equipment, carefully remove the cylinder (19) and piston (33) as an assembly. Set aside in a clean area.

4.6.4 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.

4.6.5 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.

4.6.6 To complete the removal of the piston from the cylinder, open all air inlets. Alternately insert a 0.50 inches (12 mm) diameter by 6 inches (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.

4.6.7 Remove the old seals and discard.

4.6.8 Inspect the cylinder sealing surface condition for nicks or scratches or any other defect which may prevent the seals from being effective. See Table 13 for wear limits of the sealing surface. Replace the cylinder, if necessary.

4.6.9 Thoroughly clean the seal grooves in the piston (#33) and apply a thin, even coat of Dow Corning® 55 O-ring lubricant to the piston seal grooves and chamfer on the piston, the sealing surfaces in the cylinder (19), and the seals (21)(23).

4.6.10 Install the new seals in the grooves in the piston, noting the orientation of the seal lips. See **Figure 15**.

Note : Some assemblies might have used a one piece bi-directional lip seal. That type of seal has been superseded by the use of TWO seals that fit back-to-back as shown in **Figure 15**.

4.6.11 Position the cylinder on a flat, level surface so that the pressure cavity faces upward.

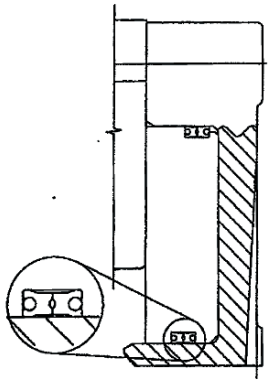


Figure 15 : Lip seal installation

4.6.12 Carefully place the piston onto the cylinder with the chamfered edge of the piston facing downward, taking special care to avoid damaging the seal lips.

4.6.13 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. The use of 'C-clamps' may assist with the assembly process.

4.6.14 Using a lifting strap, slide the cylinder/piston assembly onto the studs.

4.6.15 Lubricate the threads on the end of the studs with 30 wt. oil or anti-seizing compound and install the washers (17) and locknuts (18).

4.6.16 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.

4.6.17 Connect an air supply line to one of the ports in the cylinder, plugging the remaining port(s).

4.6.18 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. If excessive leaking is found, disassemble the piston / cylinder and inspect the seals or sealing surfaces for damage. Repair or replace components as required.

4.7 Bushing Replacement

Note : Some pressure plate and reaction plates have bushings installed in the reaction holes. (Typically corrosion resistant units, and older size 36" tensioners). See **Figure 16**. If applicable, replacement of the bushings can be performed per the following procedures.

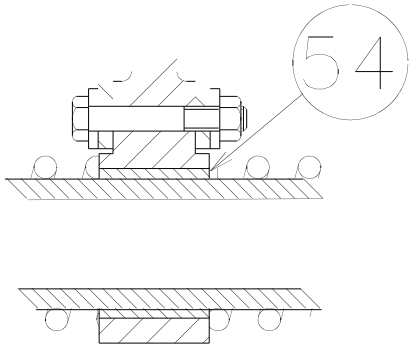


Figure 16 : Bushing replacement

4.7.1 Disassemble per Section 4.3.

4.7.2 Refer to the wear limits in Table 13 to determine if the bushings (54) require replacement.

4.7.3 Heat up the area around each bushing to soften the Loctite® and press out the old bushings.

4.7.4 Clean the bores in the mating component, removing any residual Loctite®.

4.7.5 Apply Loctite® #RC601, 635 or 680 to the bushing O.D. and mating hole in the reaction plate using a swab. Apply enough liquid to entirely fill the space between the parts. Install the bushings by twisting the bushing while pushing it down, until it is flush with the casting surface. Inspect to see that a ring of liquid adhesive is visible at the parting line. Reapply Loctite if required. Allow the Loctite to cure for 15 minutes before moving the sub assembly.

4.7.6 Assemble the tensioner per section 4.8, as required.

4.8 Assembly Procedures

Note : Friction discs and water jackets (mounting flange, end plate and reaction plate - if applicable) should be assembled per the appropriate maintenance procedures prior to final assembly of the tensioner.

4.8.1 Position the mounting flange (1) on a flat, level surface, mounting face down.

4.8.2 Install the studs (6) into the mounting flange. The stud end with the shorter length of threads is to be assembled into the mounting flange. Clean the stud end to be assembled by applying Loctite Locquic® Primer Grade "T" to the threads. After the threads have dried, apply Loctite® #271 on the threads to be assembled and insert the stud completely into the threaded hole in the mounting flange so that the installed end is flush or slightly recessed inside the face of mounting flange. See **Figure 1**. Using a machinists square as a reference, hold the stud in position so that it remains perpendicular to the machined surface of the mounting flange until the Loctite® has cured. Repeat for the remaining studs.

⚠ Caution

Loctite Locquic® Primer Grade "T" contains harmful vapors. Refer to the product label and follow proper safety precautions.

⚠ Caution

The end of the stud must not extend past the mounting surface of the mounting flange.

4.8.3 Install the appropriate number of wear spacers (29) and clamp tubes (12) over the studs.

4.8.4 Place a friction disc assembly onto the mounting flange. Center the friction disc.

4.8.5 For size 36WCB2EP install a release spring over every clamp tube. For single disc WCB2EP tensioners, proceed to Section 4.8.9.

4.8.6 Noting the location of the water inlets in the mounting flange, lift the reaction plate (30) into position, align the water inlets with those in the mounting flange, and slide the reaction plate over the studs and clamp tubes.

4.8.7 For size 36WCB2EP install a release spring over every clamp tube.

4.8.8 Place friction disc assembly onto the reaction plate. Repeat the sequence of steps 4.8.5 through 4.8.8 until all friction discs, reaction plates and release springs are assembled.

4.8.9 Noting the location of the water inlets in the mounting flange, lift the pressure plate (13) into position and align the water inlets with those in the mounting flange. Slide the pressure plate over the studs and clamp tubes.

4.8.10 Thoroughly clean the seal grooves in the piston (33) and apply a thin, even coat of Dow Corning 55 O-ring lubricant to the piston seal grooves and chamfer on the piston, the sealing surfaces in the cylinder (19), and the seals (21) (23).

4.8.11 Install the new seals in the grooves in the piston, noting the orientation of the seal lips. See **Figure 15.**

4.8.12 Position the cylinder on a flat level surface so that the pressure cavity faces upward.

4.8.13 Carefully place the piston onto the cylinder with the chamfered edge of the piston facing downward, taking special care to avoid damaging the seal lips.

4.8.14 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 or seals. The use of 'C-clamps' may assist with the assembly process.

4.8.15 Lift the cylinder/piston assembly into position and slide it over the studs, noting the orientation of the ports on the cylinder face.

4.8.16 Lubricate the threads on the end of the studs with 30 wt. oil or anti-seizing compound and assemble the washers (17) and locknuts (18).

4.8.17 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.

4.8.18 Re-install the tensioner per Section 2.0

TABLE 13
Wear Limits for WCB2EP Components (Ref. Fig. 1 and Section 4.0)

Item	Description	Wear Limit	Remarks
#3 Wear Plate	Friction Wear Signature	36 WCB2EP - 0.050 inch	Wear will be in form of even wear or circular grooves in the copper surface.
#8 Friction Disc	Friction Material	Fully worn at bottom of dust groove. **See Figure 6**. Friction material must also be replaced if contaminated with oil or grease.	Brake has an adjustment provision. See Section 4.2.
#9, #28 Friction Disc Core & Gear	Gear Backlash	Maximum total backlash is 0.060 inches (1.5 mm).	If step is worn in gear, gear must be replaced.
#12 Clamp Tube	Reaction Area	Maximum wear is 0.015 inches (0.38 mm).	Wear will be in the form of notch or step on the side of tube.
#13, #30, #54	Reaction Holes	Maximum wear is 0.031 inches (0.80 mm).	Wear will be in the form of elongation of the holes. Original hole diameters are shown on the table below.
#19 Cylinder	Seal Area	Maximum wear is 0.005 inches (0.13 mm).	Wear will be in form of grooves where the seals contact the cylinder wall.
#34 Spring	Spring Free Height	Maximum free height shown on the table below.	Original free height shown on the table below. Springs must be replaced in complete sets.

Reaction Hole Size (NEW) and Spring Free Height Limit			
Size	**Original Reaction Hole Sizes (#14, #31 & 54) inches (mm)**	**Spring (#34) Free Height**	
		Original inches (mm)	**Minimum inches (mm)**
36WCB2EP	2.065 inches (52.45 mm)	4.000 inches (101.6 mm)	3.88 inches (98.55 mm)

4.9 Corrosion Protection

Caution

All previously painted areas must be touched up after maintenance or installation to provide corrosion protection.

4.9.1 Clean any contamination, scale, or loose paint from disturbed surfaces.

4.9.2 Touch up any disturbed area with an organic zinc primer.

4.9.3 Paint areas with two coats of a high solid two part, marine grade epoxy paint as per manufacturer's instructions.

5.0 ORDERING INFORMATION / TECHNICAL ASSISTANCE

5.1 Equipment Reference

5.1.1 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

Tel: (216) 281-2211
Fax: (216) 281-3890
Internet: www.eaton.com/airflex

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Polypak® is a registered trademark of Parker Hannifin Corporation.

MOLUB-ALLOY® is a trademark of Castrol Industrial Lubricants.

PLASITE® is a registered trademark of Carboline Company.

6.0 PARTS

⚠ Caution

The components listed in this manual are for the enhanced 36WCBDEP ONLY. For part reference and replacement kits for the prior model 36WCB2, refer to manual WCB 11070.

6.1 Parts (Standard / LO-CO)

Item	Description	136WCB2EP 146532A		236WCB2EP 146536A		336WCB2EP 146540A		436WCB2EP 146545A	
		Part Number	Qty	Part Number	Qty	Part Number	Qty	Part Number	Qty
1	Mounting Flange Sub Assembly *	515400-01	1	515400-01	1	515400-01	1	515400-01	1
6	Stud	307111-04	16	307111-10	16	307111-05	16	307111-07	16
7	Friction Disc Sub Assembly*	515404	1	515404	2	515404	3	515404	4
12	Clamp Tube	417359-01	16	417359-02	16	417359-03	16	417359-04	16
13	Pressure Plate Sub Assembly*	515400-03	1	515400-03	1	515400-03	1	515400-03	1
17	Flat Washer	000067 x 0042	16	000067 x 0042	16	000067 x 0042	16	000067 x 0042	16
18	Locknut	000110 x 0075	16	000110 x 0075	16	000110 x 0075	16	000110 x 0075	16
19	Cylinder	513988	1	513988	1	513988	1	513988	1
21	Lip Seal	000402 x 0005	2	000402 x 0005	2	000402 x 0005	2	000402 x 0005	2
23	Lip Seal	000402 x 0006	2	000402 x 0006	2	000402 x 0006	2	000402 x 0006	2
28	Gear (not included with assembly)	416538	1	416536	1	416535	1	416537	1
29	Wear Spacer	N/A	N/A	308397	16	308397	32	308397	48
30	Reaction Plate Sub Assembly*	N/A	N/A	515400-02	1	515400-02	2	515400-02	3
33	Piston	512858	1	512858	1	512858	1	512858	1
34	Release Spring	416751-01	16	416751-01	32	416751-01	48	416751-01	64
105	Pipe Plug	000077 x 0021	1	000077 x 0021	1	000077 x 0021	1	000077 x 0021	1

* - Individual parts breakdown for standard WCB2EP sub-assemblies are in section 6.7
For Item (1) Mounting Flange Sub Assembly - See Table 6.7.1
For Item (7) Friction Disc Sub Assembly - See Table 6.7.4
For Item (13) Pressure Plate Sub Assembly - See Table 6.7.2
For Item (30) Reaction Plate Sub Assembly - See Table 6.7.3

6.2 Parts (Standard / MID-CO)

Item	Description	136WCB2EP TBD		236WCB2EP TBD		336WCB2EP 146540BL		436WCB2EP TBD	
		Part Number	Qty	Part Number	Qty	Part Number	Qty	Part Number	Qty
1	Mounting Flange Sub Assembly*	515400-01	1	515400-01	1	515400-01	1	515400-01	1
6	Stud	307111-04	16	307111-10	16	307111-05	16	307111-07	16
7	Friction Disc Sub Assembly*	515401	1	515401	2	515401	3	515401	4
12	Clamp Tube	417359-01	16	417359-02	16	417359-03	16	417359-04	16
13	Pressure Plate Sub Assembly*	515400-03	1	515400-03	1	515400-03	1	515400-03	1
17	Flat Washer	000067 x 0042	16	000067 x 0042	16	000067 x 0042	16	000067 x 0042	16
18	Locknut	000110 x 0075	16	000110 x 0075	16	000110 x 0075	16	000110 x 0075	16
19	Cylinder	513988	1	513988	1	513988	1	513988	1
21	Lip Seal	000402 x 0005	2	000402 x 0005	2	000402 x 0005	2	000402 x 0005	2
23	Lip Seal	000402 x 0006	2	000402 x 0006	2	000402 x 0006	2	000402 x 0006	2
28	Gear (not included with assembly)	416538	1	416536	1	416535	1	416537	1
29	Wear Spacer	N/A	N/A	308397	16	308397	32	308397	48
30	Reaction Plate Sub Assembly*	N/A	N/A	515400-02	1	515400-02	2	515400-02	3
33	Piston	512858	1	512858	1	512858	1	512858	1
34	Release Spring	416751-01	16	416751-01	32	416751-01	48	416751-01	64
105	Pipe Plug	000077 x 0021	1	000077 x 0021	1	000077 x 0021	1	000077 x 0021	1

* - Individual parts breakdown for standard WCB2EP sub-assemblies are in section 6.7
For Item (1) Mounting Flange Sub Assembly - See Table 6.7.1
For Item (7) Friction Disc Sub Assembly - See Table 6.7.5
For Item (13) Pressure Plate Sub Assembly - See Table 6.7.2
For Item (30) Reaction Plate Sub Assembly - See Table 6.7.3

6.3 Parts (Standard / HI-CO)

Item	Description	136WCB2EP TBD		236WCB2EP TBD		336WCB2EP TBD		436WCB2EP TBD	
		Part Number	Qty	Part Number	Qty	Part Number	Qty	Part Number	Qty
1	Mounting Flange Sub Assembly*	515400-01	1	515400-01	1	515400-01	1	515400-01	1
6	Stud	307111-04	16	307111-10	16	307111-05	16	307111-07	16
7	Friction Disc Sub Assembly*	TBD	1	TBD	2	TBD	3	TBD	4
12	Clamp Tube	417359-01	16	417359-02	16	417359-03	16	417359-04	16
13	Pressure Plate Sub Assembly*	515400-03	1	515400-03	1	515400-03	1	515400-03	1
17	Flat Washer	000067 x 0042	16	000067 x 0042	16	000067 x 0042	16	000067 x 0042	16
18	Locknut	000110 x 0075	16	000110 x 0075	16	000110 x 0075	16	000110 x 0075	16
19	Cylinder	513988	1	513988	1	513988	1	513988	1
21	Lip Seal	000402 x 0005	2	000402 x 0005	2	000402 x 0005	2	000402 x 0005	2
23	Lip Seal	000402 x 0006	2	000402 x 0006	2	000402 x 0006	2	000402 x 0006	2
28	Gear (not included with assembly)	416538	1	416536	1	416535	1	416537	1
29	Wear Spacer	N/A	N/A	308397	16	308397	32	308397	48
30	Reaction Plate Sub Assembly*	N/A	N/A	515400-02	1	515400-02	2	515400-02	3
33	Piston	512858	1	512858	1	512858	1	512858	1
34	Release Spring	416751-01	16	416751-01	32	416751-01	48	416751-01	64
105	Pipe Plug	000077 x 0021	1	000077 x 0021	1	000077 x 0021	1	000077 x 0021	1

* - Individual parts breakdown for standard WCB2EP sub-assemblies are in section 6.7
For Item (1) Mounting Flange Sub Assembly - See Table 6.7.1
For Item (7) Friction Disc Sub Assembly - See Table 6.7.6
For Item (13) Pressure Plate Sub Assembly - See Table 6.7.2
For Item (30) Reaction Plate Sub Assembly - See Table 6.7.3

6.4 Parts (Corrosion Resistant / LO-CO)

Item	Description	136WCB2EP 146XXXAJ (515414)		236WCB2EP 146536AJ (515411)		336WCB2EP 146540AJ (515410)		436WCB2EP 146545AJ (514434)	
		Part Number	Qty	Part Number	Qty	Part Number	Qty	Part Number	Qty
1	Mounting Flange Sub Assembly*	TBD		515429-01	1	515429-01	1	515429-01	1
6	Stud	TBD		307111-10	16	307111-05	16	307111-07	16
7	Friction Disc Sub Assembly*	TBD		515435	2	515435	3	515435	4
12	Clamp Tube	TBD		417359-02	16	417359-03	16	417359-04	16
13	Pressure Plate Sub Assembly*	TBD		515429-03	1	515429-03	1	515429-03	1
17	Flat Washer	TBD		000067 x 0042	16	000153 x 0850	16	000153 x 0850	16
18	Locknut	TBD		000110 x 0075	16	000110 x 0075	16	000110 x 0075	16
19	Cylinder	TBD		512809	1	512809	1	512809	1
21	Lip Seal	TBD		000402 x 0005	2	000402 x 0005	2	000402 x 0005	2
23	Lip Seal	TBD		000402 x 0006	2	000402 x 0006	2	000402 x 0006	2
28	Gear (not included with assembly)	TBD		416536	1	416435	1	416495	1
29	Wear Spacer	TBD		308400	16	308400	32	308400	48
30	Reaction Plate Sub Assembly*	TBD		515429-02	1	515429-02	2	515429-02	3
33	Piston	TBD		513872	1	513872	1	513872	1
34	Release Spring	TBD		416751-01	32	416751-01	48	416751-01	64
105	Pipe Plug	TBD		000077 x 0021	1	000077 x 0021	1	000077 x 0021	1
N/A	Grease	TBD		000153 x 1182	1	000153 x 1182	3	000153 x 1182	4

* - Individual parts breakdown for Corrosion Resistant WCB2EP sub-assemblies are in section 6.8
For Item (1) Mounting Flange Sub Assembly - See Table 6.8.1
For Item (7) Friction Disc Sub Assembly - See Table 6.8.4
For Item (13) Pressure Plate Sub Assembly - See Table 6.8.2
For Item (30) Reaction Plate Sub Assembly - See Table 6.8.3

6.5 Parts (Corrosion Resistant / MID-CO)

Item	Description	136WCB2EP 146XXXBM (515414)		236WCB2EP 146XXXBM (515411)		336WCB2EP 146540BM (515410)		436WCB2EP 146545BM (514434)	
		Part Number	Qty	Part Number	Qty	Part Number	Qty	Part Number	Qty
1	Mounting Flange Sub Assembly*	TBD		TBD		515429-01	1	515429-01	1
6	Stud	TBD		TBD		307111-05	16	307111-07	16
7	Friction Disc Sub Assembly*	TBD		TBD		515437	3	515437	4
12	Clamp Tube	TBD		TBD		417359-03	16	417359-04	16
13	Pressure Plate Sub Assembly*	TBD		TBD		515429-03	1	515429-03	1
17	Flat Washer	TBD		TBD		000153 x 0850	16	000153 x 0850	16
18	Locknut	TBD		TBD		000110 x 0075	16	000110 x 0075	16
19	Cylinder	TBD		TBD		512809	1	512809	1
21	Lip Seal	TBD		TBD		000402 x 0005	2	000402 x 0005	2
23	Lip Seal	TBD		TBD		000402 x 0006	2	000402 x 0006	2
28	Gear (not included with assembly)	TBD		TBD		416435	1	416495	1
29	Wear Spacer	TBD		TBD		308400	32	308400	48
30	Reaction Plate Sub Assembly*	TBD		TBD		515429-02	2	515429-02	3
33	Piston	TBD		TBD		513872	1	513872	1
34	Release Spring	TBD		TBD		416751-01	48	416751-01	64
105	Pipe Plug	TBD		TBD		000077 x 0021	1	000077 x 0021	1
N/A	Grease	TBD		TBD		000153 x 1182	3	000153 x 1182	4

* - Individual parts breakdown for Corrosion Resistant WCB2EP sub-assemblies are in section 6.8
For Item (1) Mounting Flange Sub Assembly - See Table 6.8.1
For Item (7) Friction Disc Sub Assembly - See Table 6.8.5
For Item (13) Pressure Plate Sub Assembly - See Table 6.8.2
For Item (30) Reaction Plate Sub Assembly - See Table 6.8.3

6.6 Parts (Corrosion Resistant / HI-CO)

Item	Description	136WCB2EP 146535AK (515414)		236WCB2EP 146536AK (515411)		336WCB2EP 146540AK (515410)		436WCB2EP 146XXXAK (514434)	
		Part Number	Qty	Part Number	Qty	Part Number	Qty	Part Number	Qty
1	Mounting Flange Sub Assembly*	515429-01	1	515429-01	1	515429-01	1	515429-01	1
6	Stud	307111-04	16	307111-10	16	307111-05	16	307111-07	16
7	Friction Disc Sub Assembly*	515430	1	515430	2	515430	3	TBD	4
12	Clamp Tube	417359-01	16	417359-02	16	417359-03	16	417359-04	16
13	Pressure Plate Sub Assembly*	515429-03	1	515429-03	1	515429-03	1	515429-03	1
17	Flat Washer	000067 x 0042	16	000067 x 0042	16	000153 x 0850	16	000153 x 0850	16
18	Locknut	000110 x 0075	16	000110 x 0075	16	000110 x 0075	16	000110 x 0075	16
19	Cylinder	512809	1	512809	1	512809	1	512809	1
21	Lip Seal	000402 x 0005	2	000402 x 0005	2	000402 x 0005	2	000402 x 0005	2
23	Lip Seal	000402 x 0006	2	000402 x 0006	2	000402 x 0006	2	000402 x 0006	2
28	Gear (not included with assembly)	416538	1	416536	1	416435	1	416495	1
29	Wear Spacer	N/A	N/A	308400	16	308400	32	308400	48
30	Reaction Plate Sub Assembly*	N/A	N/A	515429-02	1	515429-02	2	515429-02	3
33	Piston	513872	1	513872	1	513872	1	513872	1
34	Release Spring	416751-01	16	416751-01	32	416751-01	48	416751-01	64
105	Pipe Plug	000077 x 0021	1	000077 x 0021	1	000077 x 0021	1	000077 x 0021	1
N/A	Grease	TBD		000153 x 1182	1	000153 x 1182	3	000153 x 1182	4

* - Individual parts breakdown for Corrosion Resistant WCB2EP sub-assemblies are in section 6.8
For Item (1) Mounting Flange Sub Assembly - See Table 6.8.1
For Item (7) Friction Disc Sub Assembly - See Table 6.8.6
For Item (13) Pressure Plate Sub Assembly - See Table 6.8.2
For Item (30) Reaction Plate Sub Assembly - See Table 6.8.3

6.7 Sub-Assemblies (Standard)

6.7.1 WCB2EP Mounting Flange Sub-assemblies (Item Numbers (#) shown in Figure 1 & 17)

Item		MODEL	36WCB2EP	
		Part Description	Part No.	Qty
1		Sub Assembly Part #	515400-01	1
	2	Mounting Flange	513986	1
	3	Wear Plate	417335	1
	4	Screw	000153 x 0842	108
	5	Nut	000153 x 0844	108
	50	Inner Support Ring	414032-01	6
	51	Outer Support Ring	414033-01	9
		PTFE Gasket O.D.	308581-01	1
		PTFE Gasket I.D.	308581-02	1

6.7.2 WCB2EP Pressure Plate Sub-assemblies (Item Numbers (#) shown in Figure 1 & 17)

Item		MODEL	36WCB2EP	
		Part Description	Part No.	Qty
13		Sub Assembly Part #	515400-03	1
	3	Wear Plate	417335	1
	4	Screw	000153 x 0842	108
	5	Nut	000153 x 0844	108
	14	Pressure Plate	512860	1
	50	Inner Support Ring	414032-01	6
	51	Outer Support Ring	414033-01	9
		PTFE Gasket O.D.	308581-01	1
		PTFE Gasket I.D.	308581-02	1

6.7.3 WCB2EP Reaction Plate Sub-assemblies (Item Numbers (#) shown in Figure 1 & 17)

Item		MODEL	36WCB2EP	
		Part Description	Part No.	Qty
30		Sub Assembly Part #	515400-02	1
	3	Wear Plate	417335	2
	4	Screw	000153 x 0843	108
	5	Nut	000153 x 0844	108
	31	Reaction Plate	513989	1
	50	Inner Support Ring	414032-01	12
	51	Outer Support Ring	414033-01	18
		PTFE Gasket O.D.	308581-01	2
		PTFE Gasket I.D.	308581-02	2

Friction Disc Sub-Assemblies (Standard)

6.7.4 WCB2EP Friction Disc Sub-assemblies LO-CO (Item Numbers (#) shown in Figure 1)

Item		MODEL	36WCB2EP (LO-CO)	
		Part Description	Part No.	Qty
7		Sub Assembly Part #	515404	1
	8	Friction Block	515387	16
	9	Friction Disc Core	513667	1
	57	Screw	000294 x 0407	144

6.7.5 WCB2EP Friction Disc Sub-assemblies MID-CO (Item Numbers (#) shown in Figure 1)

Item		MODEL	36WCB2EP (MID-CO)	
		Part Description	Part No.	Qty
7		Sub Assembly Part #	515401	1
	8	Friction Block	515388	16
	9	Friction Disc Core	513667	1
	57	Screw	000294 x 0407	144

6.7.6 WCB2EP Friction Disc Sub-assemblies HI-CO (Item Numbers (#) shown in Figure 1)

Item		MODEL	36WCB2EP (C/R HI-CO)	
		Part Description	Part No.	Qty
7		Sub Assembly Part #	TBD	1
	8	Friction Block	TBD	16
	9	Friction Disc Core	513667	1
	57	Screw	000294 x 0407	144

6.8 Sub-Assemblies (Corrosion Resistant)

6.8.1 WCB2EP Mounting Flange Sub-assemblies (Item Numbers (#) shown in Figure 1 & 17)

Item		MODEL	36WCB2EP	
		Part Description	Part No.	Qty
1		**Sub Assembly Part #**	515429-01	1
	2	Mounting Flange	513986	1
	3	Wear Plate	417335	1
	4	Screw	000153 x 0842	108
	5	Nut	000153 x 0844	108
	50	Inner Support Ring	414032-01	6
	51	Outer Support Ring	414033-01	9
		PTFE Gasket O.D.	308581-01	1
		PTFE Gasket I.D.	308581-02	1

6.8.2 WCB2EP Pressure Plate Sub-assemblies (Item Numbers (#) shown in Figure 1& 17)

Item		MODEL	36WCB2EP	
		Part Description	Part No.	Qty
13		**Sub Assembly Part #**	515429-03	1
	3	Wear Plate	417335	1
	4	Screw	000153 x 0842	108
	5	Nut	000153 x 0844	108
	14	Pressure Plate	513869	1
	50	Inner Support Ring	414032-01	6
	51	Outer Support Ring	414033-01	9
	54	Bushing	203863-04	16
		PTFE Gasket O.D.	308581-01	1
		PTFE Gasket I.D.	308581-02	1

6.8.3 WCB2EP Reaction Plate Sub-assemblies (Item Numbers (#) shown in Figure 1 & 17)

Item		MODEL	36WCB2EP	
		Part Description	Part No.	Qty
30		**Sub Assembly Part #**	515429-02	1
	3	Wear Plate	417335	2
	4	Screw	000153 x 0843	108
	5	Nut	000153 x 0844	108
	31	Reaction Plate	512813	1
	50	Inner Support Ring	414032-01	12
	51	Outer Support Ring	414033-01	18
	54	Bushing	203863-03	16
		PTFE Gasket O.D.	308581-01	2
		PTFE Gasket I.D.	308581-02	2

Friction Disc Sub-Assemblies (Corrosion Resistant)

6.8.4 WCB2EP Friction Disc Sub-assemblies LO-CO (Item Numbers (#) shown in Figure 1)

Item		MODEL	36WCB2EP (C/R LO-CO)	
		Part Description	Part No.	Qty
7		**Sub Assembly Part #**	515435	1
	8	Friction Block	515387	16
	9	Friction Disc Core	514139	1
	57	Screw	000421 x 0407	144

6.8.5 WCB2EP Friction Disc Sub-assemblies MID-CO (Item Numbers (#) shown in Figure 1)

Item		MODEL	36WCB2EP (C/R MID-CO)	
		Part Description	Part No.	Qty
7		**Sub Assembly Part #**	515437	1
	8	Friction Block	515388	16
	9	Friction Disc Core	514139	1
	57	Screw	000421 x 0407	144

6.8.6 WCB2EP Friction Disc Sub-assemblies HI-CO (Item Numbers (#) shown in Figure 1)

Item		MODEL	36WCB2EP (C/R HI-CO)	
		Part Description	Part No.	Qty
7		**Sub Assembly Part #**	515430	1
	8	Friction Block	515386	16
	9	Friction Disc Core	514139	1
	57	Screw	000421 x 0407	144

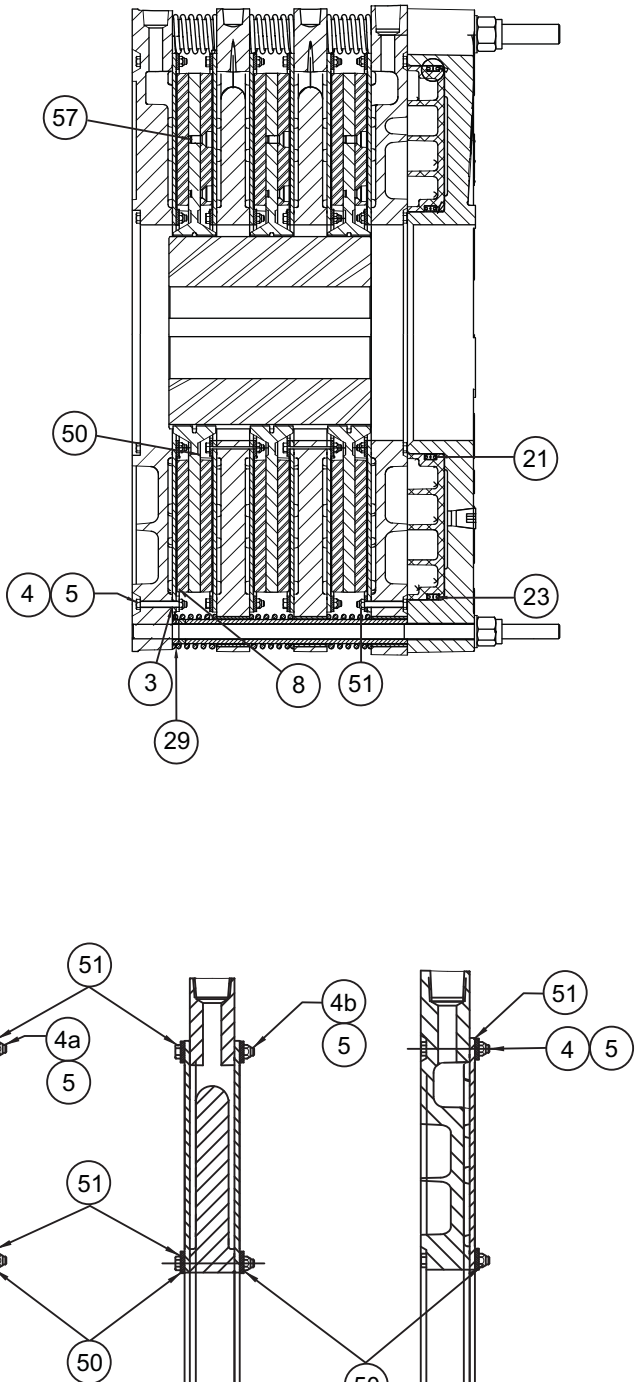

Figure 17 : Parts breakdown for 36WCB2EP

7.0 KITS

Note : Item Numbers (#) for Kits Are Shown on **Figure 17 :**

7.1 Friction Disc Kits (Standard / LO-CO)

Parts Included in Kit		Loctite® #242 Sealant		Flat Head Screw (57)		Friction Disc (8)		Wear Spacer (29)		Instruction Sheet	
Model	**Kit P/N**	**Part No.**	**QTY**	**Part No.**	**QTY**	**Part No.**	**QTY**	**Part No.**	**QTY**	**Part No.**	**QTY**
136EP	108134B	000153 x 1168	1	000294 x0407	144	515387	16	N/A	N/A	204210	1
236EP	108134BA	000153 x 1168	2	000294 x0407	288	515387	32	308397	16	204210	1
336EP	108134BB	000153 x 1168	3	000294 x0407	432	515387	48	308397	32	204210	1
436EP	108134BC	000153 x 1168	4	000294 x0407	576	515387	64	308397	48	204210	1

7.2 Friction Disc Kits (Standard / Mid-CO)

Parts Included in Kit		Loctite® #242 Sealant		Flat Head Screw (57)		Friction Disc (8)		Wear Spacer (29)		Instruction Sheet	
Model	**Kit P/N**	**Part No.**	**QTY**	**Part No.**	**QTY**	**Part No.**	**QTY**	**Part No.**	**QTY**	**Part No.**	**QTY**
136EP	108134F	000153 x 1168	1	000294 x0407	144	515388	16	N/A	N/A	204210	1
236EP	108134FA	000153 x 1168	2	000294 x0407	288	515388	32	308397	16	204210	1
336EP	108134FB	000153 x 1168	3	000294 x0407	432	515388	48	308397	32	204210	1
436EP	108134FC	000153 x 1168	4	000294 x0407	576	515388	64	308397	48	204210	1

7.3 Friction Disc Kits (Standard / HI-CO)

Parts Included in Kit		Loctite® #242 Sealant		Flat Head Screw (57)		Friction Disc (8)		Wear Spacer (29)		Instruction Sheet	
Model	**Kit P/N**	**Part No.**	**QTY**	**Part No.**	**QTY**	**Part No.**	**QTY**	**Part No.**	**QTY**	**Part No.**	**QTY**
136EP	108134D	000153 x 1168	1	000294 x0407	144	TBD	16	N/A	N/A	204210	1
236EP	108134DA	000153 x 1168	2	000294 x0407	288	TBD	32	308397	16	204210	1
336EP	108134DB	000153 x 1168	3	000294 x0407	432	TBD	48	308397	32	204210	1
436EP	108134DC	000153 x 1168	4	000294 x0407	576	TBD	64	308397	48	204210	1

⚠ Caution

The replacement kits in this manual are for the enhanced 36WCB2EP ONLY. For part reference and replacement kits for the prior model 36WCB2, refer to manual WCB 11070.

7.4 Friction Disc Kits (Corrosion Resistant / LO-CO)

Parts Included in Kit		Loctite® #242 Sealant		Flat Head Screw (57)		Friction Disc (8)		Wear Spacer (29)		Grease		Instruction Sheet	
Model	Kit P/N	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY
136EP	108134C	000153 x 1168	1	000421 X 0407	144	515387	16	N/A	N/A	000153 x 1182	1	204211	1
236EP	108134CA	000153 x 1168	2	000421 X 0407	288	515387	32	308400	16	000153 x 1182	1	204211	1
336EP	108134CB	000153 x 1168	3	000421 X 0407	432	515387	48	308400	32	000153 x 1182	1	204211	1
436EP	108134CC	000153 x 1168	4	000421 X 0407	576	515387	64	308400	48	000153 x 1182	4	204211	1

7.5 Friction Disc Kits (Corrosion Resistant / Mid-CO)

Parts Included in Kit		Loctite® #242 Sealant		Flat Head Screw (57)		Friction Disc (8)		Wear Spacer (29)		Grease		Instruction Sheet	
Model	Kit P/N	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY
136EP	108134G	000153 x 1168	1	000421 X 0407	144	515388	16	N/A	N/A	000153 x 1182	1	204211	1
236EP	108134GA	000153 x 1168	2	000421 X 0407	288	515388	32	308400	16	000153 x 1182	1	204211	1
336EP	108134GB	000153 x 1168	3	000421 X 0407	432	515388	48	308400	32	000153 x 1182	1	204211	1
436EP	108134GC	000153 x 1168	4	000421 X 0407	576	515388	64	308400	48	000153 x 1182	4	204211	1

7.6 Friction Disc Kits (Corrosion Resistant / HI-CO)

Parts Included in Kit		Loctite® #242 Sealant		Flat Head Screw (57)		Friction Disc (8)		Wear Spacer (29)		Grease		Instruction Sheet	
Model	Kit P/N	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY
136EP	108134E	000153 x 1168	1	000421 X 0407	144	515386	16	N/A	N/A	000153 x 1182	1	204211	1
236EP	108134EA	000153 x 1168	2	000421 X 0407	288	515386	32	308400	16	000153 x 1182	1	204211	1
336EP	108134EB	000153 x 1168	3	000421 X 0407	432	515386	48	308400	32	000153 x 1182	1	204211	1
436EP	108134EC	000153 x 1168	4	000421 X 0407	576	515386	64	308400	48	000153 x 1182	4	204211	1

⚠ Caution

The replacement kits in this manual are for the enhanced 36WCB2EP ONLY. For part reference and replacement kits for the prior model 36WCB2, refer to manual WCB 11070.

7.7 Cylinder Seal Kit

Parts Included in Kit		Seal Lubricant O-Ring Lube		Lip Seal (Inner) (21)		Lip Seal (Outer) (23)		Instruction Sheet	
Model	Kit P/N	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY
36EP	107662C	000153 x1239	1	00402 x 0005	2	000402 x 0006	2	204067	1

7.8 Wear Plate Kits for Mounting Flange and Pressure Plate

Parts Included in Kit		Screw (4)		Lock Nut (5)		Wear Plate (3)		Inner Support Ring (50)		Outer Support Ring (51)		PTFE Gasket O.D.		PTFE Gasket I.D.		Instruction Sheet	
Model	Kit P/N	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY
36EP	108132A	000153 x 0842	216	000153 x 0844	216	417335	2	414032-01	12	414033-01	18	308581-01	2	308581-02	2	204209	1

7.9 Wear Plate Kits for Reaction Plate

Parts Included in Kit		Screw (49)		Lock Nut (5)		Wear Plate (3)		Inner Support Ring (50)		Outer Support Ring (51)		PTFE Gasket O.D.		PTFE Gasket I.D.		Instruction Sheet	
Model	Kit P/N	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY	Part No.	QTY
36EP	108132E	000153 x 0843	108	000153 x 0844	108	417335	2	414032-01	12	414033-01	18	308581-01	2	308581-02	2	204209	1

⚠ Caution

The replacement kits in this manual are for the enhanced 36WCB2EP ONLY. For part reference and replacement kits for the prior model 36WCB2, refer to manual WCB 11070

8.0 REVISIONS

Original Publication Date : March, 2010		
Revision Date	**Change**	**Page(s)**

CE Declaration of Incorporation

MANUFACTURER: Eaton Corporation Airflex Business Unit

ADDRESS: 9919 Clinton Road, Cleveland, OH 44144

PRODUCT DESCRIPTION: Air applied, spring applied and combination air applied spring applied water-cooled brakes

MODEL NUMBER (s):
124WCB2, 124WCBD, 224WCB2, 224WCBD, 324WCB2, 324WCBD, 424WCB2, 424WCBD, 136WCB2, 136WCBD, 236WCB2, 236WCBD, 336WCB2, 336WCBD, 436WCB2, 436WCBD, 148WCB2, 148WCBD, 248WCB2, 248WCBD, 348WCB2, 348WCBD, 448WCB2, 448WCBD

124WCS, 224WCS, 324WCS, 424WCS, 136WCS, 236WCS, 336WCS, 436WCS

224WCSB, 324WCSB, 424WCSB, 236WCSB, 336WCSB, 436WCSB, 248WCSB, 348WCSB, 448WCSB

Note: The above listed models are the most common but are not all-inclusive.

APPLICABLE EUROPEAN DIRECTIVES:

Machinery:	98/37/EC
ATEX:	94/9/EC
PED:	97/23/EC

APPLICABLE INTERNATIONAL STANDARDS:

Machinery:	EN292-1, EN954-1, EN1050
ATEX:	EN1127-1, EN13463-1, EN13463-5

The product described in this Declaration of Incorporation complies with the Applicable European Directives and relevant sections of the Applicable International Standards. A manual is provided with this Declaration that contains specific integration requirements and specifications that must be implemented prior to putting this equipment into service; this equipment must not be put into service before being declared in full conformity with the provisions of all Applicable Directives. A Technical Construction File that addresses the EHSR's of the equipment described above is available for inspection by designated bodies.

Authorized Signature: Date: 10-21-09

This Declaration of Incorporation applies only to the equipment described above and is invalid if not reproduced in its entirety

Eaton Corporation
Airfiex Division
9919 Clinton Road
Cleveland, Ohio 44144

EATON PRODUCT WARRANTY

Subject to the conditions stated herein, Eaton Corporation warrants to the Purchaser that each new Airflex® Product manufactured by Eaton will be free from failures caused by defects in material and workmanship, and will deliver its rated capacity, for a period of twelve (12) months from the date of shipment to Purchaser, provided such Product is properly installed, properly maintained, operated under normal conditions and with competent supervision. Warranty claims shall be made in writing and the part or parts shall, if requested by Airflex Division, be returned prepaid to the Airflex Division for inspection. Upon a determination that a defect exists, Eaton shall thereupon correct any defect, at its option either by repairing any defective part or parts or by making available at Eaton's plant a repaired or replacement part. This warranty does not extend to normal wear parts or components of the Product, such as friction material and friction surfaces.

LIMITATION OF WARRANTY

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Form ML-318
Rev. October 8, 2008