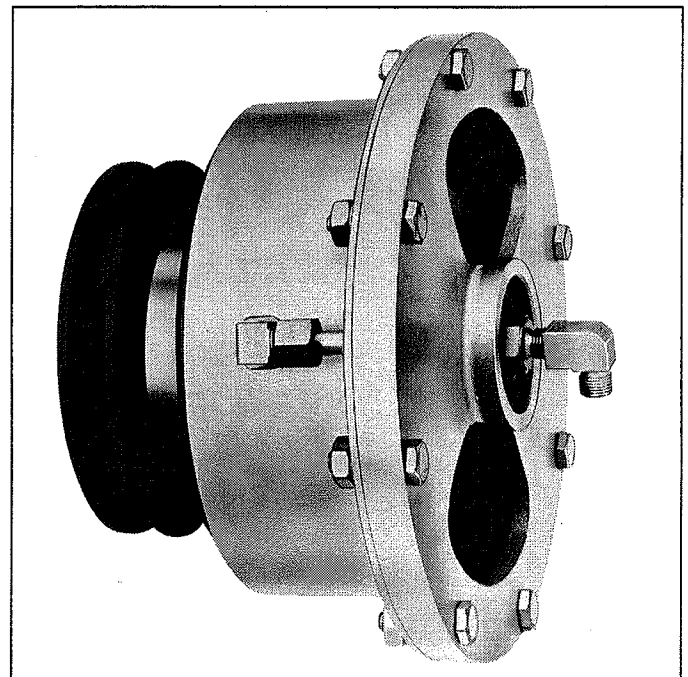




Warning

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 the Airflex[®] CB Sheave Clutch



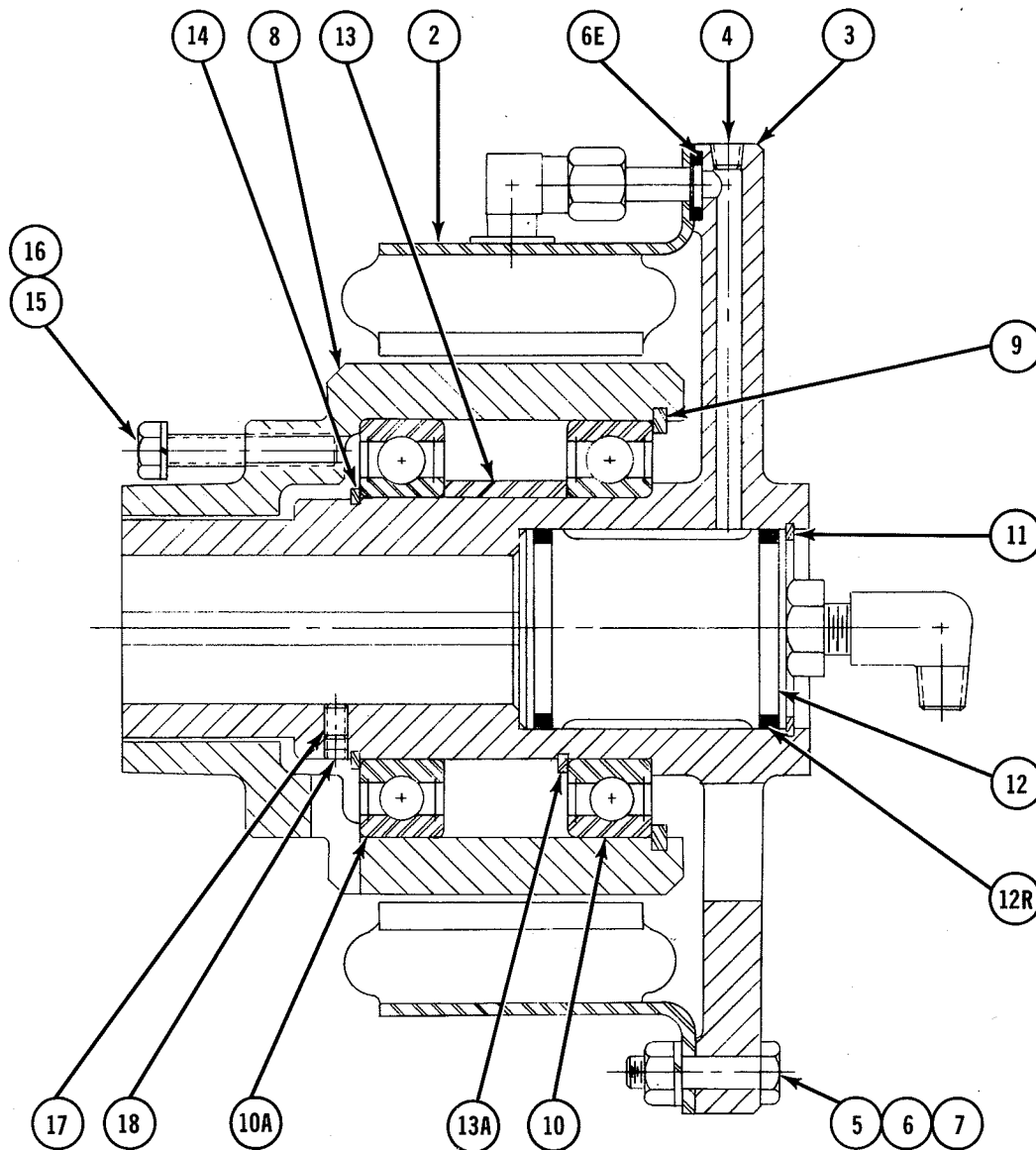
Caution:

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

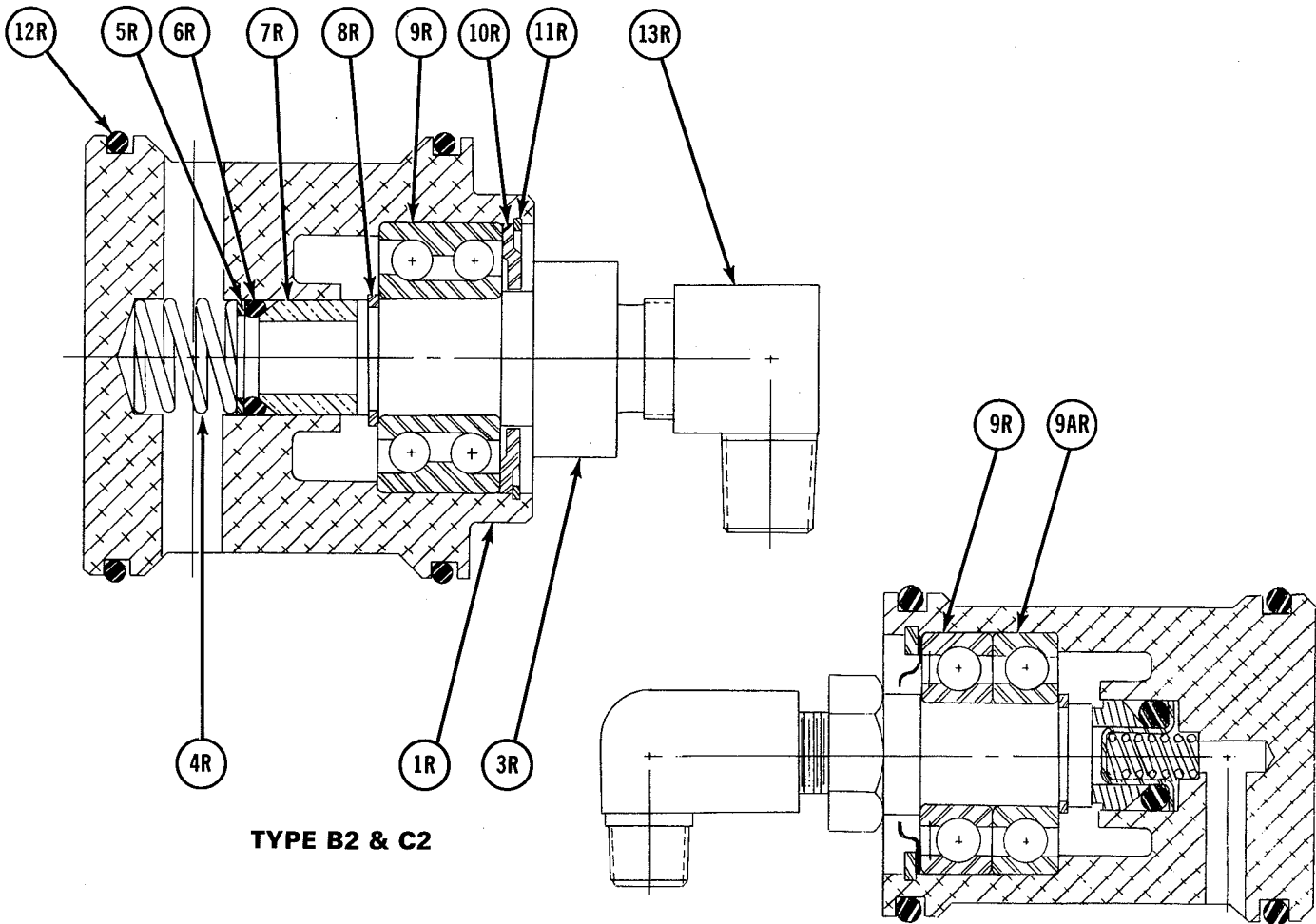
COMPONENT PARTS FOR AIRFLEX TYPE CB SHEAVE CLUTCH



ITEM	DESCRIPTION	ITEM	DESCRIPTION
1	Element & Spider Sub-Ass'y	10A	Bearing
2	Element	11	Snap Ring
3	Spider	12	Rotorseal
4	Plug	13	Spacer*
5	Hex. Hd. Cap. Screws	14	Snap Ring
6	Lockwashers	15	Hex. Hd. Cap Screw
7	Hex. Nut	16	Lockwasher
8	Drum	17	Set Screw
9	Snap Ring	18	Jam Screw
10	Bearing		

*Size 10CB300 uses Snap Ring (13A) instead of Spacer (13).

COMPONENT PARTS FOR AIRFLEX TYPE AA2, B2, & C2 ROTORSEALS



TYPE B2 & C2

TYPE AA2

TABLE R

ITEM	QTY.	DESCRIPTION	PART NUMBER & TYPE		
			AA2	B2	C2
—	—	Basic Assembly	145631L	Note ^①	145107BA
1R	1	Housing	303885	Note ^②	409313
3R	1	Shaft	201346	303669	303658
*4R	1	Spring	201204	8347	9479
*5R	1	Spring Stop	200919	8346	9480
*6R	1	Grommet	73x190	8345	73x10
*7R	1	Carbon Seal	201347	8344	9482
8R	1	Snap Ring (Internal)	118x9	8342	9484
9R	1	Bearing	159x68	159x8	159x9
9AR	1	Bearing	159x31	—	—
10R	1	Collar	200917	202631	202618
11R	1	Snap Ring (External)	138x8	8340	9486
12R	2	"O" Ring	73x223	73x226	73x229
13R	—	Elbow	153x293	153x330	202879
—	—	Replacement Kit	145631X	145106X	145107X

* These parts are included in replacement kit.

NOTES:

- ① 6CB200 P/N 145106 BM; 8CB250 P/N 145106B
- ② 6CB200 P/N 409221 ; 8CB250 P/N 304518

I. OPERATION

A. DESCRIPTION

The Airflex® CB sheave clutch package was designed for all types of industrial machines with moderate power requirements. They are adjustable to cyclic or continuous operation and can be operated either by local or remote manual or electro-pneumatic controls. Eaton QD® tapered bushing construction with standard bores minimizes installation and service problems.

The Airflex CB sheave clutch package allows for use of a wide range of standard sheaves and sprockets. Clutch never needs adjustment, has sealed for life oversize ball bearings and incorporates built-in rotorseal.

B. HOW IT WORKS

Air pressure is introduced into the element assembly (2) through the built-in rotorseal (12). This engages the clutch and transfers rotation of the spider (3) and element assembly to the drum (8) and sheave.

When the actuating air pressure is released, centrifugal force assures complete disengagement of element assembly.

II. INSTALLATION

Sufficient shaft length must be provided so the sheave clutch may be mounted and locked properly on the shaft.

Size	Minimum Shaft Length
4CB200	2-1/4"
6CB200	2-7/8"
8CB250	3"
10CB300	3-3/4"

A. AIR CONNECTION

1. Pneumatic piping should be free of foreign material such as pipe dope, metal chips, etc. Pipe ends should be reamed after cutting to prevent reductions of effective pipe diameter. Selecting the proper size of pipe and valves is very important for proper operation in cyclic applications.
2. Air to operate sheave clutch is introduced to the internal mounted rotorseal. Piping to the rotorseal must be self-supporting with a section of flexible hose connected to the rotorseal. Ridged piping to the rotorseal will tend to preload the bearings and seals.
3. For clutches operating on rapid cyclic duty, an air accumulator tank with pressure regulator and gauge is recommended except in those cases where the installation may be near a large supply line. Always install the pressure regulator in the supply line to the tank and provide a drain at the bottom for blowing off condensation which may accumulate in the system. The air tank also serves as an excellent filter.
4. The controlling air valve should be mounted as close to the clutch as possible. For cyclic applications, the solenoid air valve should be a 3-way N. C. pilot-operated type. Solenoid valve should be larger or sized to match inlet pipe size of internal mounted rotorseal. If you have special control problems, our Engineering department will submit recommendations upon request.

B. "QD" TYPE SHEAVE MOUNTING

1. Slide large end of sheave taper bore into position over drum cone, aligning pull-up bolt holes in sheave with tapped holes in drum face. Assemble pull-up bolts and lockwashers.
2. Tighten pull-up bolts alternately and evenly, do not use extensions on wrench handles. There should be a gap between the face of the sheave hub and drum face to insure a satisfactory cone grip and press fit.

CAUTION: This gap must not be closed.

3. The types of tapered hubs used are as follows:

4CB200	SD & SDS
6CB200	SK
8CB250	SF
10CB300	E

Table 1 shows the amount of wrench torque and length of wrench recommended for tightening Eaton QD hubs. In the Eaton taper of 3/4" per foot in diameter, forces are multiplied 32 to 1. Excessive draw on the bolts for 100% effectiveness of this self-locking taper is not necessary. (Excessive draw of the cap screws can force cracking of the mating component.)

Wrench Torque Recommended for Mounting QD Hubs

QD Hub	Wrench Torque (Lbs. In)	Wrench Length (Inches)	Wrench Pull (Pounds)
SDS	108	4	27
SD	108	4	27
SK	180	6	30
SF	360	6	60
E	720	12	60

TABLE 1

III. MAINTENANCE

A. GENERAL

1. Airflex CB sheave clutches are completely self-adjusting and automatically compensate for lining and friction drum wear. This type operates without springs, torque bars, or any metal-to-metal moving parts. Lubrication is not required. The supply pressure which may be controlled by a pressure regulating valve must always be adequate to carry the maximum required load.
2. The bearings used in the Airflex sheave clutch are "sealed for life" and require no lubrication. For specific maintenance of element assembly (2) and rotorseal (12) refer to section IV and V respectively of this bulletin.

B. DISASSEMBLY

1. Remove sheave clutch from shaft.
2. To dismount sheave, remove pull-up bolts and screw two of them into threaded holes in sheave hub and against face of drum to break cone grip. If cone grip is hard to break loose, tapping end of taper drum hub with a soft headed mallet, while maintaining back off bolt pressure will help to loosen it, after which sheave can be removed easily.
3. **IMPORTANT:** The spider and element assembly are balanced at the factory. Before removing element from spider, match mark each member.

To remove element assembly unbolt mounting screws (5).

CAUTION: When detaching clutch element, do not lose the rubber washer (6E), which seals the air passage between the clutch element and spider.

4. To remove rotorseal, remove snap ring (11) and pull rotorseal out.

5. To disassemble drum and spider assembly remove drum snap ring (9). Access holes to snap ring are provided in spider flange. Leave snap ring hang loose on spider shaft.

Support spider at bore end. Thru opening in spider, press drum off bearings toward spider bore end.

Remove snap ring (14)—also (13A) on 10CB300—on spider shaft.

With spider properly supported, press off bearings and remove bearing spacer (13).

C. INSPECTION

Points to check when inspecting the Airflex sheave clutch:

1. Friction surface of drum.
2. Friction shoe assemblies.
3. Condition of rubber tube.
4. Oil or grease on friction surface or on the tube.
5. Drum bearings.
6. Rotorseal

D. ASSEMBLY

To assemble drum and spider place drum snap ring (9) over spider shaft. Assemble bearings and spacer on shaft. Replace snap rings (13A) and (14) in grooves on spider shaft. Apply LOCTITE "Bearing Mount" on O.D. of each bearing. Assemble spider shaft and bearings into drum housing. Enter bearing evenly into drum housing to prevent binding, bearing must be seated against housing shoulder. Replace snap ring (9) in drum housing groove to lock-up assembly.

IV. MAINTENANCE OF THE AIRFLEX CB ELEMENT ASSEMBLY

A. POINTS TO CHECK WHEN INSPECTING THE AIRFLEX ELEMENT:

1. The condition of the friction surface of the drum.
 - a. If the drum surface is badly grooved or worn, the surface may be remachined. The minimum drum diameter should not exceed 3/32" under nominal.

NOTE: The number preceding letters CB in the element size designates the original drum diameter in inches.

EXAMPLE:

10CB300—original drum diameter = 10". Minimum allowable drum diameter is 10"—3/32" = 9-29/32".

2. The condition of the friction shoe assemblies.
 - a. If friction linings are glazed, this condition can be corrected by sanding the friction lining to remove the glaze. Linings that have been worn to minimum allowable thickness (see replacement of friction shoes) should be replaced.
3. The condition of the rubber tube. (Ref. paragraph 5, below).
 - a. If there are air bubbles or signs of ply separation on the tube, the rim and tube must be replaced.
4. Oil or grease on the friction surface or on the tube.
 - a. If oil or grease accidentally gets on a clutch actuating element, the oil or grease should be

wiped dry. The rubber tube should be thoroughly cleaned. If friction shoes have been contaminated, they should be removed and cleaned.

(See instructions below for friction shoe replacement). For light contamination, Fuller's Earth may be used to remove grease or oil from the friction lining surface. If the lining is saturated with oil or grease, a solvent such as VM and P Naptha or Petroleum Ether should be used to degrease the lining. A cloth dampened with the solvent may be used to wipe the grease off the lining, or the friction shoe assembly may be dipped into the solvent. Severely saturated linings may have to be replaced.

CAUTION: The recommended solvents are flammable and should be used with the proper safety precautions.

5. RUBBER TUBE

- a. The actuating tube may lose its resiliency due to heat curing of the rubber or rubber growth due to grease contamination. A tube in this condition will not retract the friction shoes. Rim and tube must be replaced.

6. Leaks in the air lines or in the rotor seal.

- a. Repair as necessary.

B. REPLACEMENT OF FRICTION SHOES

Friction shoes should be replaced after the friction material has worn down to 1/16" except 4CB200. When 4CB200 lining thickness has worn down to 1/32", the element should be replaced. Any air-operated element with worn friction shoes necessarily requires an increased amount of air on cyclic duty.

1. To Change CB Friction Shoes.

- a. Remove friction shoe pin lockwires (11E) and withdraw shoe pins (10E). To obtain the required clearance, the actuating element can be separated from its mounting by removing bolts.

CAUTION: When detaching element, do not lose the rubber gasket (6E) which seals the air passage between the element and mating part.

- b. Old friction shoe assemblies can then be removed from the element.
- c. Place new friction shoe assemblies in position; insert shoe pins so holes in the ends are in position to insert lockwires.
- d. Slide lockwires through holes so that scallop of bend in wire points outward from shaft on which element is mounted. Bend each end of wire inward toward element shaft. Use only the proper size Airflex type lockwires available from the factory.

V. MAINTENANCE OF THE AIRFLEX ROTORSEAL

The Airflex type AA2, B2 and C2 rotor seals are lubricated for life and require no maintenance. If a rotor seal has become ineffective after prolonged service it can be restored to good operating condition by rebuilding it.

A. REBUILDING

A replacement kit is available to allow the rebuilding of these rotor seals in the field. Airflex rotor seals are manufactured of quality materials to precision tolerances. These instructions should be followed carefully to assure a properly repaired rotor seal. Only genuine Airflex rotor seal parts should be used. The rotor seal should be removed from its mounting and repairs should only be made in clean, dust-free surroundings.

1. DISASSEMBLY

- a. Remove housing snap ring (11).
- b. Remove shaft (3R) and bearing (9R) from the housing by holding the hex portion of the shaft in a vice while striking the housing (1R) gently with a soft head mallet. Rotate the housing while striking to reduce tendency of binding the bearing in the housing.

- c. Item numbers (4R), (5R), (6R) and (7R) are removed from the housing with the aid of a small wire hook.

2. CLEANING AND INSPECTION

- a. Clean all parts thoroughly after disassembly with a grease cutting solvent.
- b. Inspect lapped sealing end of shaft. This sealing surface should be free of scoring and excess wear.
- c. Inspect bearings. They should be in good condition, free of rust and contamination, and should revolve smoothly without any tendency to bind.
- d. If shaft (3R) or bearing (9R) are in poor condition, they must be replaced. If these two parts require disassembly, remove shaft snap ring (8R) and press bearing from shaft. (Bearing or shaft can be obtained from the Factory.)

3. ASSEMBLY

- a. Assemble part numbers (4R), (5R), (6R) and (7R) as shown, making sure grommet (6R) seats properly on chamfered surface of carbon seal ring (7R).

b. Repack grease cavity in housing on rotorseals with Andok "C" Standard Oil grease or equivalent.

c. Assemble bearing (9R) onto shaft (3R) as shown if either or both are replacements. Collar (10R) must be on the shaft before the bearing is pressed on. Replace shaft snap ring (8R) into shaft groove to lock bearing in place.

d. Assemble shaft and bearing into housing. Enter bearing evenly in the housing to prevent binding. Press end of shaft gently until the outer race is against the housing shoulder.

e. Replace snap ring (11R) in the housing groove to lock-up the assembly. Check shaft rotation for smooth operation. There must be no bind.

f. When installing rotorseal in spider, a few drops of light oil may be applied to "O" rings (12R) to ease installation.

In any correspondence regarding Airflex equipment, refer to the size shown on the housing.

Call or write Eaton Corporation, Industrial Drives Division, Airflex Plant, 9919 Clinton Road, Cleveland, Ohio, 44111.

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

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER WRITTEN, ORAL OR IMPLIED. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE SPECIFICALLY EXCLUDED.

In no event shall Eaton be liable for special, incidental or consequential damages. Eaton's liability arising out of the supplying of such Product, or its use, whether in warranty, contract or otherwise, shall in no case exceed the cost of correcting defects in the Products as herein provided. Upon expiration of the twelve (12) month period, all such liability shall terminate. THE FOREGOING SHALL CONSTITUTE THE SOLE REMEDY OF PURCHASER AND THE SOLE LIABILITY OF EATON.