RS 9010

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 AA2, B2, B3 and C2 Rotorseals

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) 233-5903**
Outside the U.S.A. and Canada: (**800) 233-5890**

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TYPE AA2, B3, & C2

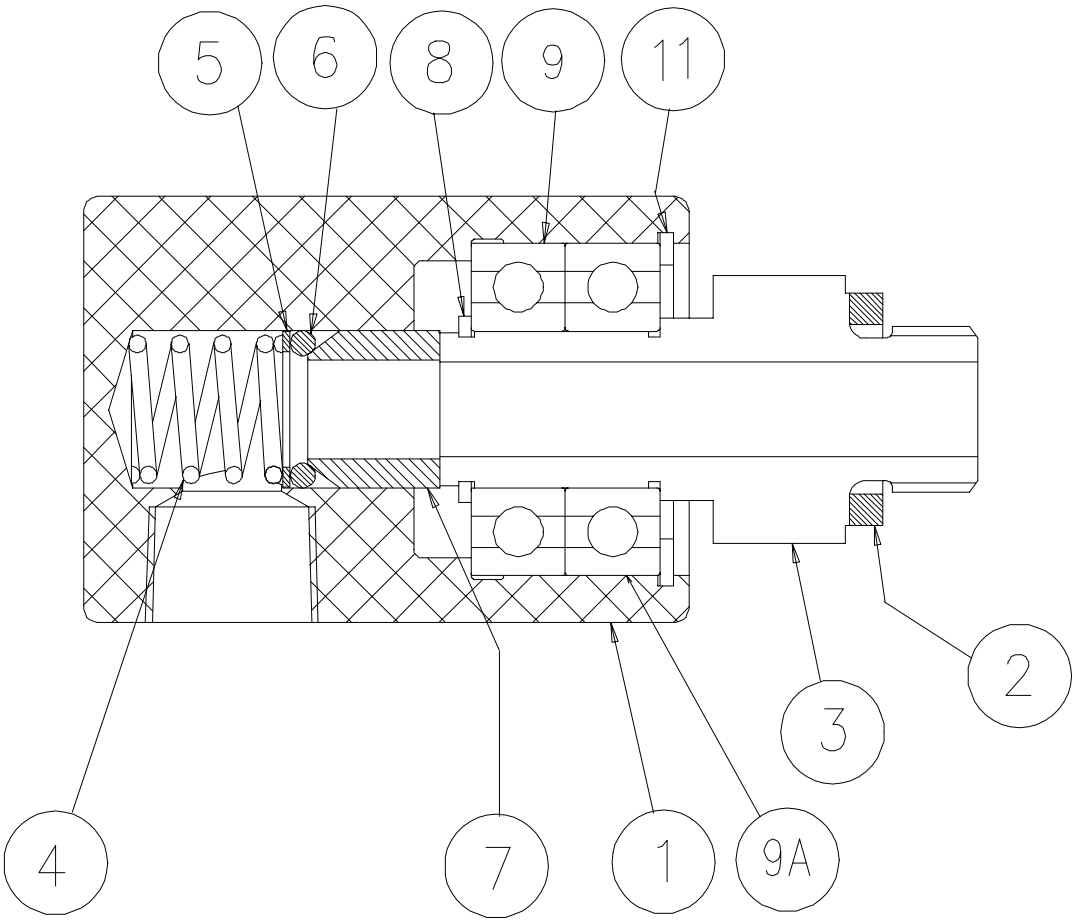

FIGURE 1

TABLE 1			
ITEM	**DESCRIPTION**	**ITEM**	**DESCRIPTION**
1	HOUSING	7	CARBON SEAL
2	COPPER GASKET	8	SNAP RING (SHAFT)
3	SHAFT	9	BEARING
4	SPRING	9A	BEARING
5	SPRING STOP	10	COLLAR
6	GROMMET	11	SNAP RING (HOUSING)

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 the equipment. Three signal words "**DANGER**", "**WARNING**", and "**CAUTION**" are used to indicate the severity of the hazard, and are preceded by the safety alert symbol ⚠ .

⚠ DANGER

Denotes the most serious injury 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 the duty of all personnel involved in the installation, operation and maintenance of the equipment on which this device is used to fully understand the ⚠ DANGER , ⚠ WARNING , and ⚠ CAUTION procedures by which hazards are to be avoided.

1.1 Description

1.1.1 The Airflex single passage rotorseal is a positive seal rotary union (rotary joint). The rotorseal permits the transfer of gases or liquids, under pressure, into or out of the exposed end of a rotating shaft. The rotorseal operates continuously or intermittently up to rated speeds in either direction.

⚠ Caution:

The factory must be consulted when contemplating the use of Airflex rotorseals with mediums other than air.

1.1.2 Ball bearings are used between the stationary and rotating parts. The rotorseals are lubricated for life at the factory to give long, maintenance-free service.

1.1.3 The rotorseal housing (1) features an inlet port with the American National pipe thread size shown on Table 2.

TABLE 2

Rotorseal Size	Inlet Port Pipe Tap
AA2	1/8 NPT
B3	* 3/8 NPT
C2	1/2 NPT

* B3 rotorseal is furnished with an adapter, having 1/4 NPT internal threads and is a direct replacement for the discontinued B2 rotorseal.

1.2 How It Works

1.2.1 The sealing between the stationary housing (1) of the rotorseal and the carbon seal ring (7), occurs at the lapped seal face of the rotating shaft (3). A light coil spring (4) keeps the carbon seal ring in place assuring a positive seal between the components. See Figure 1.

2.0 INSTALLATION

2.1 Preparation

2.1.1 The Airflex rotorseals have threaded shafts for direct and easy mounting to the shaft or assembly. Inspect the internal thread form in the mounting shaft to insure that there is no damage to the threads. Insure that the proper diameter and depth conform with Table 3 specifications.

2.1.2 A good pipe thread sealant should be applied to the outside thread on the rotorseal shaft before mounting.

2.2 Air connection

2.2.1 The rotorseal housing has an American National Pipe Thread air inlet as shown in Table 2. This connection to the rotorseal should always be through a flexible hose. Refer to Figure 2 for examples of mounting assemblies.

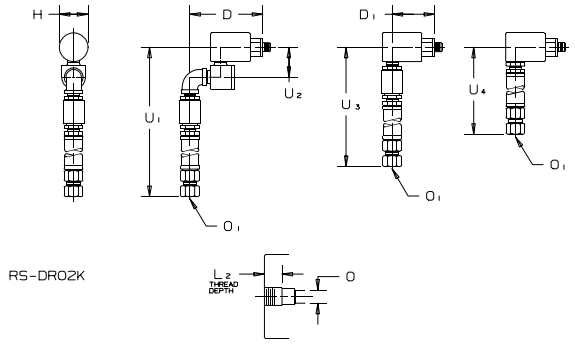

Figure 2

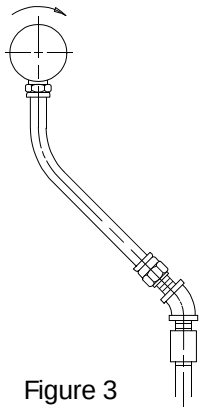

Figure 3

Caution:

The use of a rigid air connection will tend to preload the rotorseal bearing. This will result in poor bearing life, and/or bearing failure.

2.2.2 Connect the flexible hose to the rotorseal inlet. A good pipe thread sealant should be used at this joint.

Caution:

This first installation step is necessary to avoid damage to the rotorseal bearing and seals.

2.2.3 Install the copper gasket (2) over the threaded portion of the rotorseal shaft. This gasket must be seated against the inside face of the shaft.
Apply a good pipe thread sealant to the thread on the rotorseal shaft. Thread this assembly into the shaft mounting. Refer to Table 3.

Caution:

The maximum chamfer allowed at the hole location on the shaft mounting is .06x45°. Wide chamfers at this interface prevent the gasket from sealing and should be avoided.

TABLE 3

Rotorseal Size	Hex Size	Straight Mounting Thread	Thread Depth
AA2	0.625	3/8-24	0.75
B3	0.875	5/8-18	0.75
C2	1.375	1-14	1.00

2.2.4 A union type connection to the supply line completes the installation. See Figure 3. All supply piping must be self supporting.

3.0 OPERATION

3.1 Temperature

3.1.1 The rotorseal operating temperature is dependent upon the sealing "O" ring rubber compounds and/or the type of ball bearings used in their design.

3.1.1.1 The AA2, B3, and C2 rotorseals have a maximum operating temperature of 220°F (104°C).

3.2 Pressure and Speed Limits

3.2.1 Airflex rotorseals are designed with low internal friction for cool operation, even at rated speeds. Specific models of this product are
offered for standard and high pressure operating applications. See Table 4.

3.2.2 Maximum rotorseal pressure and speed limits are shown on Table 4.

TABLE 4

Type	Description	Part Number	Max. RPM	Max. Pressure psi
AA2	Standard	145631E	4000	150
	High pressure	145631T	1000	1000
B3	Standard	145106BQ	4000	150
	High pressure	145106BV	600	1000
C2	Standard	145107BG	3000	150
	High pressure	145107BK	400	1000

Caution:

The operation of Airflex rotorseals at maximum air pressure combined with maximum speed should be avoided. Consult the factory for details of specific application data.

4.0 MAINTENANCE

WARNING

Prior to performing any maintenance on the rotorseal, make sure the equipment is in, and will remain in, a safe condition.

4.1 Wear Limits

4.1.1 The Airflex rotorseals are lubricated for life and require no maintenance. If a rotorseal has become ineffective after prolonged service, it can be restored to good operating condition by rebuilding it.

4.2 Rebuilding

4.2.1 A replacement kit is available to allow the rebuilding of these rotorseals in the field. Airflex rotorseals are manufactured of quality materials which are held to precision tolerances. NOTE: Only genuine Airflex rotorseal parts should be used. The rotorseal should be removed from its mounting and repairs should be made in a clean, dust-free environment.

4.2.2 **Disassembly**

4.2.3 Remove the snap ring (11). This can be done with the aid of snap ring pliers. Insert the pins of the pliers into the holes in the snap ring. Compress the ring enough to insure that the groove in the housing (1) will not be damaged, and remove the snap ring.

4.2.4 Refer to Figure 1 for bearing arrangement. Remove shaft (3) and bearing (9) and/or (9A) from the housing (1) by holding the hex portion of the shaft in a vise while striking the housing gently with a light mallet. Rotate the housing while striking to reduce the tendency of binding the bearing in the housing.

4.2.5 Remove the spring (4), spring stop (5), "O" ring (6), and seal (7) from the housing (1) with the aid of a small wire hook.

4.3 CLEANING AND INSPECTION

4.3.1 Clean all the parts thoroughly after disassembly with a grease cutting solvent.

DANGER

The manufacturer of any grease cutting solvent publishes a Material Safety Data Sheet. This sheet must be read and understood before using the product.

4.3.2 Inspect the lapped sealing end of the shaft (3). This sealing surface should be free of scoring and excessive wear.

4.3.2.1 Inspect the bearings (9)(9A) for roughness, end play and contamination. They should be in good condition, free of rust, and should revolve smoothly without any tendency to bind.

4.3.3 If the shaft (3) or the bearings (9)(9A) are in poor condition, they must be replaced. If these two parts require disassembly, remove the shaft external snap ring (8) and press the bearings from the shaft.

4.3.4 Inspect the housing (1) for damage from the outer race of the bearings (9)(9A) rotating. Replace the housing if necessary.

Caution:

Only genuine Airflex rotorseal parts should be used (Bearings or shaft can be obtained from the factory separately).

4.4 ASSEMBLY

4.4.1 Assemble the spring (4), spring stop (5), "O" ring (6), and seal (7) as shown in Figure 1, making sure the "O" ring seats properly on the chamfered surface of the seal.

4.4.1.1 Re-pack grease cavity in the housing (1) of rotorseals with Alvania #2 Oil grease or equivalent. All unsealed bearings must be packed (refer to parts list).

Caution:

Failure to follow this lubrication procedure may result in rotorseal damage or failure.

4.4.1.2 Note the proper orientation of the seal or shield if applicable and assemble bearings (9) and/or (9A) onto the shaft (3). Refer to Figure 1. On the older styles of B3 and C2 rotorseals, the collar (10) must be on the shaft before the bearing is pressed on. Replace the shaft external snap ring (8) into the shaft groove to lock the bearing into place.

4.4.1.3 Assemble shaft and bearings into housing (1). Enter the bearings evenly in the housing to prevent binding. Press end of shaft gently until the outer race is against the housing shoulder.

4.4.1.4 Replace the snap ring (11) in the housing groove to retain the assembly. Check the shaft rotation for smooth operation. There must be no bind.

5.0 ORDERING INFORMATION/ TECHNICAL ASSISTANCE

5.1 In any correspondence regarding Airflex Equipment, refer to the Part Number shown on the housing.

Eaton Corporation
Airflex Division
9919 Clinton Road
Cleveland, Ohio 44144
Tel.: 800-233-5890
Fax: (216)281-3890

6.0 PARTS LIST

		Rotorseal Size		
		A2	**B3**	**C2**
Basic Assembly		**145631E**	**145106BQ**	**145107BG**
Item	**Description**			
1	Housing	303375	415628	415631
2	Copper Gasket	82x9	82x10	82x11
3	Shaft	201346	415627	415630
4	Spring	201204	8347	9479
5	Spring Stop	200919	8346	9480
6	"O" Ring	73x190	73x14	73x10
7	Carbon Seal	201347	8344	9482
8	Snap Ring	118x9	139x74	139x20
9	Bearing	159x68	159x204	159x203
9A	Bearing	159x31	159x204	159x21
11	Snap ring	138x8	138x66	138x10
Replacement Kit				
Kit Number		**145631X**	**145106X**	**145107X**
Included in Kit				
4	Spring	201204	8347	9479
5	Spring Stop	200919	8346	9480
6	"O" Ring	73x190	73x14	73x10
7	Carbon Seal	201347	8344	9482
Shaft Replacement Kit				
Kit Number		**N/A**	**145106ZZ**	**145107ZZ**
3	Shaft	N/A	415628	415630
8	Snap Ring	N/A	139x74	139x20
11	Snap Ring	N/A	138x66	138x10

7.0 REVISIONS

Original Publication Date June 1994	
Revision Date	**Change**
September 1998	Add Revision Section, This Page
	Update Warranty to Sept. 97 version

Airflex®

Form ML-318
Revised September 3, 1997

PDF format

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.

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