

#### 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 WCBD Brake Assemblies

**Note:** This manual is a supplement to Airflex manual WCB 11070. For complete information on WCBD brake assemblies, obtain a copy of WCB 11070 and use it in conjunction with this manual.



#### 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) 233-5890**Outside the U.S.A. and Canada: **(216) 281-2211** 

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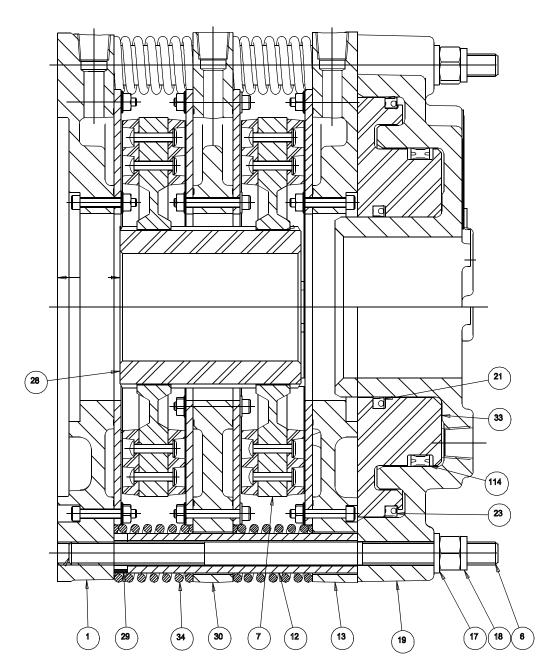


Fig. 1

|      |                        |      | TABLE 1                     |      |                     |
|------|------------------------|------|-----------------------------|------|---------------------|
|      |                        |      | Item Description            |      |                     |
| Item | Description            | Item | Description                 | Item | Description         |
| 1    | Mounting Flange S/A    | 18   | Self Locking Nut            | 29   | Wear Spacer         |
| 6    | Stud                   | 19   | Cylinder                    | 30   | Reaction Plate S/A  |
| 7    | Friction Disc Assembly | 21   | Seal (Inner)                | 33   | Piston              |
| 12   | Clamp Tube             | 23   | Seal (Outer                 | 34   | Release Spring      |
| 13   | Pressure Palte S/A     | 28   | Gear (Not included in P/L/) | 114  | Seal (Intermediate) |
| 17   | Flat Washer            |      |                             |      |                     |

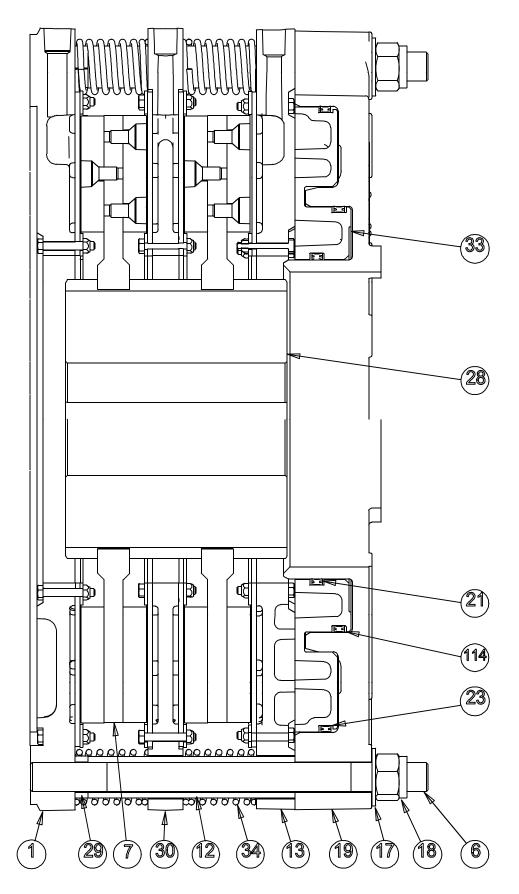


Fig. 2

#### 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  $\hat{L}$ .



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



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



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

# 1.1 Description

avoided.

The Airflex WCBD brake is identical to the 1.1.1 Airflex WCB2 brake with the exception of a dual piston and cylinder that is also referred to as the "power head assembly". This manual describes the unique operation and maintenance features associated with the dual chambered power head, and is an addendum to the manual for the basic WCB2 brake that has a single chambered piston and cylinder. This manual should be used in conjunction with Eaton manual WCB 11070 for installation, operation and maintenance of any WCBD brake. Refer to Eaton manual WCB 11070 for all functions and parameters of the WCBD that are not specific to the power head subassembly, such as friction disc and wear plate maintenance.

#### 1.2 How It Works

1.2.1 Referring to Figure 1, the operation of the Airflex WCBD is identical to that of the Airflex WCB2 with the exception of the dual chambered piston/cylinder power head assembly. In the WCBD brake, air pressure is applied to either the inner, outer, or both sets of the ports in the dual cylinder (19), causing the dual piston (33) and pressure plate assembly (13) to move towards the mounting flange, compressing the release springs. As the applied pressure to either, or both of pressure chambers increases, the friction disc(s) are clamped between the pressure plate and mounting flange, stopping or controlling the shaft that the discs are mounted upon. Modulation of air pressure then controls applied torque of the tensioner. The inner cylinder/piston chamber area of the power head is referred to as the small cylinder/piston, and the outer cylinder/piston chamber area is referred to as the large cylinder/piston.

Refer to Section 1.2 of Eaton manual WCB 11070 for additional details of operation.

#### 1.3 WCB2 versus WCBD

1.3.1 The WCBD dual piston/cylinder power head offers more precise tensioning control than the WCB2 by dividing the standard WCB2 piston/cylinder into a small and large section. This provides the ability to improve fine modulation of clamping pressure on the brake discs and improved control over our standard sinale chamber design. For very light tensioning loads, the small piston can be used solely, with no pressure applied to the large piston. For larger tensioning loads, the large piston can be used solely, with no pressure applied to the small piston. For the largest tensioning loads, both pistons can be used together. The combined area of the small and large piston/cylinder power head of the WCBD is equal to the area of the WCB2 single piston/cylinder. In this way, the maximum applied torque for both styles of brakes is the same.

#### 2.0 INSTALLATION

#### 2.1 Preparation and Alignment

2.1.1 The preparation and alignment of the WCBD is identical to that of the WCB2. Refer to IOM WCB 11070 for preparation and alignment procedures for the WCBD.

# 2.2 Mounting

2.2.1 Mounting of the WCBD is identical to that of the WCB2. Refer to IOM WCB 11070 for mounting procedures.

# 2.3 Air System



Maximum allowable air pressure to any WCBD pressure port is 150PSIG (10.2bar). 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 50 micron filter or better is recommended) which is free of excess moisture.
- 2.3.3 Air inlet sizes are shown in Table 2. Air inlets are located on the face of the cylinder (19). Some cylinders will have a single port to facilitate purging of moisture that may accumulate in the air system or cylinder. This lowest port should be located at or near the 6 o'clock position.

| TABLE 2 |                              |                              |  |  |  |  |  |  |
|---------|------------------------------|------------------------------|--|--|--|--|--|--|
| Α       | ir Inlet Sizes (NP           | Γ)                           |  |  |  |  |  |  |
| Model   | Small Cylinder (Inner Ports) | Large Cylinder (Outer Ports) |  |  |  |  |  |  |
| 8WCBD   | 3/8"-18 NPT                  | 3/8"-18 NPT                  |  |  |  |  |  |  |
| 14WCBD  | 3/8"-18 NPT                  | 1/2"-14 NPT                  |  |  |  |  |  |  |
| 18WCBD  | 3/8"-18 NPT                  | 1/2"-14 NPT                  |  |  |  |  |  |  |
| 24WCBD  | 3/8"-18 NPT                  | 1/2"-14 NPT                  |  |  |  |  |  |  |
| 36WCBD  | 3/8"-18 NPT                  | 3/4"-14 NPT                  |  |  |  |  |  |  |
| 48WCBD  | 1/2"-14 NPT                  | 1"-11.5 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 elbow should be used.
- 2.3.5 The WCBD tensioner does not require lubricated air; however associated control valves may. Consult the valve manufacturer for appropriate recommendations.

## 2.4 Coolant System

2.4.1 Installation and operation of the WCBD coolant system is identical to the WCB2. Refer to Eaton manual WCB 11070 for cooling system procedures and parameters for the WCBD.

#### 3.0 OPERATION

#### 3.1 Conditions of Operation

- 3.1.1 With the exception of the dual cylinder/piston power head (section 3.1.2, below), operation of the WCBD is identical to operation of the WCB2. Refer to section 3.0 of IOM WCB 11070 for conditions of operation of the WCBD.
- 3.1.2 When applying operation air pressure to only one of the two tensioner/brake piston pressure ports (item 19), of the dual piston configuration, the second piston pressure port must be open/vented to the atmosphere, with a filter installed in the vent line, as appropriate, to avoid contamination by foreign objects into the cylinder during piston operation.

#### 4.0 MAINTENANCE

Note: Refer to WCB2 manual WCB 11070 for maintenance of the WCBD brake, with the exception of section 4.7, which covers cylinder seal replacement. WCBD cylinder seal replacement is covered in this manual.

# 4.1 Dual Cylinder Seal Replacement

- 4.1.1 Disconnect the air connections
- 4.1.2 While supporting the cylinder, loosen the

locknuts (18) ONE TURN AT A 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.

- 4.1.3 Using lifting equipment, carefully remove the cylinder (19) and piston (33) as an assembly. Set aside in a clean area.
- 4.1.4 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.
- 4.1.5 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 any of the pressure ports on the cylinder.



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

- 4.1.6 To complete the removal of the piston from the cylinder, open all air inlets. Alternately insert a 0.50" (12 mm) diameter by 6" (150 mm) long wood dowel or small brass drift 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.
- 4.1.7 Remove the seals. Note how the lips of the Outer (23) and Inner (21) seal are oriented on the 8WCBD and the 14WCBD. The Intermediate seal (114) of these two sizes is bidirectional. All of the seals on the 18WCBD, 24WCBD, 36WCBD and 48WCBD are bidirectional. Refer to Figures 1 and 2.
- 4.1.8 Inspect the cylinder sealing surface condition for nicks or scratches, corrosion, or any other defect which may prevent the seals from being effective. The maximum amount of radial wear on the seal surfaces is 0.005". The wear on the sealing surfaces will be in the form of grooves where the seals contact the cylinder wall. Replace the cylinder, if necessary.
- 4.1.9 Thoroughly clean the seal grooves in the piston (33) and apply a thin 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)(114).
- 4.1.10 Install the new seals in the grooves in the piston, noting the orientation of the seal lips. See Figures 1 & 2.
- 4.1.11 Position the cylinder on a flat level surface so that the pressure cavity faces upward.
- 4.1.12 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.
- 4.1.13 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.
- 4.1.14 Using a lifting strap, slide the cylinder/piston assembly onto the studs.
- 4.1.15 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).
- 4.1.16 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 3.



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

- 4.1.17 Test for proper seal installation as follows:
- 4.1.17.1 There are two sets of ports on the cylinder; the outermost positioned ports connect to the larger pressure chamber. The innermost ports connect to the small pressure chamber. Remove any pipe plugs or fittings from the inner ports.
- 4.1.17.2 Install a pressure gauge in one of the outer cylinder ports. Apply 80 PSIG air through a second outer cylinder port (after plugging the other outer NPT port for sizes 14WCBD or larger) to engage the brake.

|                       | TABLE 3   |                      |                     |                      |                     |                     |                     |  |  |  |  |  |
|-----------------------|---|----------------------|---------------------|----------------------|---------------------|---------------------|---------------------|--|--|--|--|--|
|                       | Fastener Description and Assembly Torque - ftlb. (Nm) |                      |                     |                      |                     |                     |                     |  |  |  |  |  |
| Item #<br>Description |   |                      |                     |                      |                     |                     |                     |  |  |  |  |  |
| 4/5                   | Size  | #10-24NC             | 1/4-NC2             | 5/16-18 NC<br>Gr. 8  | 5/16-18 NC<br>Gr. 8 | 3/8-16-NC2<br>Gr.8  | 3/8-16-NC2<br>Gr.8  |  |  |  |  |  |
|                       | Torque, Dry   | 5 (7)                | 12 (16)             | 21 (28)              | 21 (28)             | 40 (54)             | 40 (54)             |  |  |  |  |  |
| 18                    | Size  | 1/2-13NC-3           | 3/4-10 NC-3         | 3/4-10 NC-3<br>Gr. 8 | 1 1/8-7 NC<br>Gr. 8 | 1 3/8-6 NC<br>Gr. 8 | 1 3/8-6 NC<br>Gr. 8 |  |  |  |  |  |
|                       | Torque, Lubed   | 60 (81)              | 150 (203)           | 150 (203)            | 500 (677)           | 750 (1016)          | 750 (1016)          |  |  |  |  |  |
| Mounting              | Size  | 1/2-13 NC-2<br>Gr. 8 | 5/8-11NC-2<br>Gr. 8 | 5/8-11NC-2<br>Gr. 8  | 5/8-11NC-2<br>Gr. 8 | 1-8 NC Gr. 8        | 1 3/8-6NC<br>Gr. 5  |  |  |  |  |  |
| Screw                 | Quantity  | 4                    | 6                   | 10                   | 10                  | 14                  | 14                  |  |  |  |  |  |
|                       | Torque, Lubed   | 70 (95)              | 150 (203)           | 150 (203)            | 150 (203)           | 660 (895)           | 1100 (1490)         |  |  |  |  |  |

- 4.1.17.3 After the pressure has stabilized, shut off the air supply. Monitor the pressure gauge for a drop in pressure for a period of ten minutes. If the air pressure does not drop below 60 PSIG within 10 minutes, the seals have been properly installed. If leakage is excessive, try to note the location of the leakage. If the intermediate seal is leaking, air will pass into the small (inner) chamber.
- 4.1.17.4 Exhaust all air pressure from the brake. Remove the plugs and gauges from the outermost ports and install them in the inner ports, leaving all of the outermost ports open.
- 4.1.17.5 Apply 80 PSIG air pressure through one of the inner ports in the cylinder (after plugging the other inner port for sizes 14WCBD and larger) to engage the brake.
- 4.1.17.6 After the pressure has stabilized, shut off the air supply. Monitor the pressure gauge for a drop in pressure for a period of ten minutes. If the air pressure does not drop below 60 PSIG within 10 minutes, the seals have been properly installed. If leakage is excessive, try to note the location of the leakage. If the intermediate seal is leaking, air will pass into the large (outer) chamber.
- 4.1.17.7 If excessive leakage is found in testing of the large or small pressure chamber, disassemble the brake and check the suspect seals and sealing surfaces for damage or other causes of leakage. Repair or replace components as required.

# 5.0 ORDERING INFORMATION / TECHNICAL ASSISTANCE

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 Road Cleveland, Ohio 44144

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

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## 6.0 PARTS

|      |   | 108WCBD     |      | 208WCBD     |      | 308WCBD     |      |
|------|---|-------------|------|-------------|------|-------------|------|
| Item | Description                             | 146415AE    |      | 146416AE    |      | 146417AE    |      |
|      |   | Part Number | Qty. | Part Number | Qty. | Part Number | Qty. |
| 1    | *Mounting Flange Sub-assy. (Item 2 & 3) | 512508-01   | 1    | 512508-01   | 1    | 512508-01   | 1    |
| 2    | Mounting Flange                         | 512496      | 1    | 512496      | 1    | 512496      | 1    |
| 3    | Wear Plate                              | 512507      | 2    | 512507      | 2    | 512507      | 2    |
| 6    | Stud                                    | 000245X0055 | 6    | 000245X0056 | 6    | 000245X0099 | 6    |
| 7    | Friction Disc Sub-assy.                 | 512512      | 1    | 512512      | 2    | 512512      | 3    |
| ′    | (Includes items 8 & 9)                  | 312312      | 1    | 312312      |      | 312312      | 3    |
| 8    | Friction Disc                           | 512509      | 2    | 512509      | 4    | 512509      | 6    |
| 9    | Friction Disc Core                      | 512510      | 1    | 512510      | 2    | 512510      | 3    |
| 12   | Clamp Tube                              | 307694-01   | 6    | 307694-02   | 6    | 307694-05   | 6    |
| 13   | *Pressure Plate Sub-assy. (Item 3 & 4)  | 512508-03   | 1    | 512508-03   | 1    | 512508-03   | 1    |
| 14   | Pressure Plate                          | 512502      | 1    | 512502      | 1    | 512502      | 1    |
| 17   | Flat Washer                             | 000067X0041 | 6    | 000067X0041 | 6    | 000067X0041 | 6    |
| 18   | Lock Nut                                | 000110X0024 | 6    | 000110X0024 | 6    | 000110X0024 | 6    |
| 19   | Cylinder                                | 515034      | 1    | 515034      | 1    | 515034      | 1    |
| 21   | Polypak Seal                            | 000402X0001 | 1    | 000402X0001 | 1    | 000402X0001 | 1    |
| 23   | Polypak Seal                            | 000402X0002 | 1    | 000402X0002 | 1    | 000402X0002 | 1    |
| 28   | Gear (Not included with assy.)          | 415313-#### | 1    | 415314-#### | 1    | 416457-#### | 1    |
| 29   | Wear Spacer                             | N/A         | N/A  | 308393      | 6    | 308393      | 12   |
| 30   | Reaction Plate Sub-assy. (Item 3 & 31)  | N/A         | N/A  | 512508-02   | 1    | 512508-02   | 2    |
| 31   | Reaction Plate                          | N/A         | N/A  | 512504      | 1    | 512504      | 2    |
| 33   | Piston                                  | 515043      | 1    | 515043      | 1    | 515043      | 1    |
| 34   | Release Spring                          | 307696      | 3    | 307696      | 6    | 307696      | 9    |
| 114  | Bi-Directional Lip Seal                 | 308462-09   | 1    | 308462-09   | 1    | 308462-09   | 1    |

<sup>\*-</sup>Individual parts breakdown for standard WCB2 sub-assemblies are in section 6.1.2 of WCB 11070

|      |   | 114WCBD     |      | 214WCBD     |      | 314WCBD     |      |
|------|---|-------------|------|-------------|------|-------------|------|
| Item | Description                                       | 146418AE    |      | 146419AE    |      | 146420AE    |      |
|      |   | Part Number | Qty. | Part Number | Qty. | Part Number | Qty. |
| 1    | *Mounting Flange Sub-assy. (Item 2 & 3)           | 513300-01   | 1    | 513300-01   | 1    | 513300-01   | 1    |
| 2    | Mounting Flange                                   | 512375      | 1    | 512375      | 1    | 512375      | 1    |
| 3    | Wear Plate  | 415212      | 2    | 415212      | 4    | 415212      | 6    |
| 6    | Stud  | 000245X0058 | 6    | 000245X0054 | 6    | 000245X0083 | 6    |
| 7    | Friction Disc Sub-assy.<br>(Includes items 8 & 9) | 415208      | 1    | 415208      | 2    | 415208      | 3    |
| 8    | Friction Disc                                     | 415227      | 2    | 415227      | 4    | 415227      | 6    |
| 9    | Friction Disc Core                                | 415207      | 1    | 415207      | 2    | 415207      | 3    |
| 12   | Clamp Tube  | 306956-07   | 6    | 306956-26   | 6    | 306956-27   | 6    |
| 13   | *Pressure Plate Sub-assy. (Item 3 & 4)            | 513300-03   | 1    | 513300-03   | 1    | 513300-03   | 1    |
| 14   | Pressure Plate                                    | 512377      | 1    | 512377      | 1    | 512377      | 1    |
| 17   | Flat Washer                                       | 000067X0040 | 6    | 000067X0040 | 6    | 000067X0040 | 6    |
| 18   | Lock Nut  | 000110X0030 | 6    | 000110X0030 | 6    | 000110X0030 | 6    |
| 19   | Cylinder  | 514678      | 1    | 514678      | 1    | 514678      | 1    |
| 21   | Polypak Seal                                      | 000402X0003 | 1    | 000402X0003 | 1    | 000402X0003 | 1    |
| 23   | Polypak Seal                                      | 000402X0004 | 1    | 000402X0004 | 1    | 000402X0004 | 1    |
| 28   | Gear (Not included with assy.)                    | 415454####  | 1    | 415302####  | 1    | 416303####  | 1    |
| 29   | Wear Spacer                                       | N/A         | N/A  | 308388-01   | 6    | 308388-01   | 12   |
| 30   | Reaction Plate Sub-assy. (Item 3 & 31)            | N/A         | N/A  | 513300-02   | 1    | 513300-02   | 2    |
| 31   | Reaction Plate                                    | N/A         | N/A  | 512380      | 1    | 512380      | 2    |
| 33   | Piston  | 514676      | 1    | 514676      | 1    | 514676      | 1    |
| 34   | Release Spring                                    | 307629      | 3    | 307629      | 6    | 307629      | 9    |
| 114  | Bi-Directional Lip Seal                           | 308462-08   | 1    | 308462-08   | 1    | 308462-08   | 1    |

<sup>\*-</sup>Individual parts breakdown for standard WCB2 sub-assemblies are in section 6.1.2 of WCB 11070

| Item | Description  | 118WCBD<br>146421AE | E 146422AE |             | 318WCBD<br>146423AE |             | 418WCBD<br>146424AE |             |      |
|------|--|---------------------|------------|-------------|---------------------|-------------|---------------------|-------------|------|
|      |  | Part Number         | Qty.       | Part Number | Qty.                | Part Number | Qty.                | Part Number | Qty. |
|      | *Mounting Flange Sub-assy.<br>(Includes items 2, 3, 50 & 51) | 513232-01           | 1          | 513232-01   | 1                   | 513232-01   | 1                   | 513232-01   | 1    |
| 2    | Mounting Flange  | 513207              | 1          | 513207      | 1                   | 513207      | 1                   | 513207      | 1    |
| 3    | Wear Plate   | 412953              | 2          | 412953      | 4                   | 412953      | 6                   | 412953      | 8    |
| 6    | Stud   | 000245X0057         | 12         | 000245X0063 | 12                  | 000245X0085 | 12                  | 000245X0086 | 12   |
| 7    | Friction Disc Sub-assembly (Includes items 8, 9 & 57)        | 513882              | 1          | 513882      | 3                   | 513882      | 3                   | 513882      | 4    |
| 8    | Friction Disc  | 513657              | 2          | 513657      | 4                   | 513657      | 6                   | 513657      | 8    |
| 9    | Friction Disc Core   | 513666              | 1          | 513666      | 2                   | 513666      | 3                   | 513666      | 4    |
| 12   | Clamp Tube   | 306956-11           | 12         | 306956-12   | 12                  | 306956-34   | 12                  | 306956-22   | 12   |
| 13   | *Pressure Plate Sub-assy.<br>(Includes items 3, 14, 50 & 51) | 513232-03           | 1          | 513232-03   | 1                   | 513232-03   | 1                   | 513232-03   | 1    |
| 14   | Pressure Plate   | 513214              | 1          | 513214      | 1                   | 513214      | 1                   | 513214      | 1    |
| 17   | Flat Washer  | 000153X0727         | 12         | 000153X0727 | 12                  | 000153X0727 | 12                  | 000153X0727 | 12   |
| 18   | Lock Nut   | 000110X0030         | 12         | 000110X0030 | 12                  | 000110X0030 | 12                  | 000110X0030 | 12   |
| 19   | Cylinder   | 514695              | 1          | 514695      | 1                   | 514695      | 1                   | 514695      | 1    |
| 21   | Bi-directional Lip Seal                                      | 308462-07           | 1          | 308462-07   | 1                   | 308462-07   | 1                   | 308462-07   | 1    |
| 23   | Bi-directional Lip Seal                                      | 308462-03           | 1          | 308462-03   | 1                   | 308462-03   | 1                   | 308462-03   | 1    |
| 28   | Gear (Not included with assy.)                               | 302813-####         | 1          | 302907-#### | 1                   | 413208-#### | 1                   | 414111-#### | 1    |
| 29   | Wear Spacer  | N/A                 | N/A        | 308388-02   | 12                  | 308388-02   | 24                  | 308388-02   | 36   |
| 30   | Reaction Plate Sub-assy. (Includes items 3, 31, 50 & 51)     | N/A                 | N/A        | 513232-02   | 1                   | 513232-02   | 2                   | 513232-02   | 3    |
| 31   | Reaction Plate   | N/A                 | N/A        | 513217      | 1                   | 513217      | 2                   | 513217      | 3    |
| 33   | Piston   | 514693              | 1          | 514693      | 1                   | 514693      | 1                   | 514693      | 1    |
| 34   | Release Spring   | 307629              | 6          | 307629      | 12                  | 307629      | 18                  | 307629      | 24   |
| 50   | Inner Support Ring   | 413105              | 8          | 413105      | 16                  | 413105      | 24                  | 413105      | 32   |
| 51   | Outer Support Ring   | 413106              | 8          | 413106      | 16                  | 413106      | 24                  | 413106      | 32   |
|      | Flat Head Screw  | 000153X1147         | 48         | 000153X1147 | 96                  | 000153X1147 | 144                 | 000153X1147 | 192  |
| 114  | Bi-Directional Lip Seal                                      | 308462-09           | 1          | 308462-09   | 1                   | 308462-09   | 1                   | 308462-09   | 1    |

<sup>\*-</sup>Individual parts breakdown for standard WCB2 sub-assemblies are in section 6.1.2 of WCB 11070

| Item | Description  | 124WCBD<br>146425AE |      | 224WCBD<br>146426AE |      | 324WCBD<br>146427AE |      | 424WCBD<br>146428AE |      |
|------|--|---------------------|------|---------------------|------|---------------------|------|---------------------|------|
|      |  | Part Number         | Qty. |
| 1    | *Mounting Flange Sub-assy.<br>(Includes items 2, 3, 50 & 51) | 513348-01           | 1    | 513348-01           | 1    | 513348-01           | 1    | 513348-01           | 1    |
| 2    | Mounting Flange  | 513337              | 1    | 513337              | 1    | 513337              | 1    | 513337              | 1    |
| 3    | Wear Plate   | 508459              | 2    | 508459              | 4    | 508459              | 6    | 508459              | 8    |
| 6    | Stud   | 000245X0069         | 12   | 000245X0071         | 12   | 000245X0081         | 12   | 000245X0082         | 12   |
| 7    | Friction Disc Sub-assembly (Includes items 8, 9 & 57)        | 513964-01           | 1    | 513964-01           | 2    | 513964-01           | 3    | 513964-01           | 4    |
| 8    | Friction Block   | 508725              | 2    | 508725              | 4    | 508725              | 6    | 508725              | 8    |
| 9    | Friction Disc Core   | 510745              | 1    | 510745              | 2    | 510745              | 3    | 510745              | 4    |
| 12   | Clamp Tube   | 306542-05           | 12   | 306542-20           | 12   | 306542-23           | 12   | 306542-24           | 12   |
| 13   | *Pressure Plate Sub-assy.<br>(Includes items 3, 14, 50 & 51) | 513348-03           | 1    | 513348-03           | 1    | 513348-03           | 1    | 513348-03           | 1    |
| 14   | Pressure Plate   | 513345              | 1    | 513345              | 1    | 513345              | 1    | 513345              | 1    |
| 17   | Flat Washer  | 000153X0641         | 12   | 000153X0641         | 12   | 000153X0641         | 12   | 000153X0641         | 12   |
| 18   | Lock Nut   | 000110X0073         | 12   | 000110X0073         | 12   | 000110X0073         | 12   | 000110X0073         | 12   |
|      | Cylinder   | 514690              | 1    | 514690              | 1    | 514690              | 1    | 514690              | 1    |
| 21   | Bi-directional Lip Seal                                      | 308462-02           | 1    | 308462-02           | 1    | 308462-02           | 1    | 308462-02           | 1    |
| 23   | Bi-directional Lip Seal                                      | 308462-05           | 1    | 308462-05           | 1    | 308462-05           | 1    | 308462-05           | 1    |
| 28   | Gear (Not included with assy.)                               | 411672              | 1    | 410970              | 1    | 412433              | 1    | 413195              | 1    |
|      | Wear Spacer  | N/A                 | N/A  | 308396              | 12   | 308396              | 24   | 308396              | 36   |
| 30   | Reaction Plate Sub-assy.<br>(Includes items 3, 31, 50 & 51)  | N/A                 | N/A  | 513348-02           | 1    | 513348-02           | 2    | 513348-02           | 3    |
| 31   | Reaction Plate   | N/A                 | N/A  | 513343              | 1    | 513343              | 2    | 513343              | 3    |
| 33   | Piston   | 514693              | 1    | 514693              | 1    | 514693              | 1    | 514693              | 1    |
| 34   | Release Spring   | 416751-02           | 12   | 416751-02           | 24   | 416751-02           | 36   | 416751-02           | 48   |
| 50   | Inner Support Ring   | 413107              | 6    | 413107              | 12   | 413107              | 18   | 413107              | 24   |
|      | Outer Support Ring   | 413108              | 10   | 413108              | 20   | 413108              | 30   | 413108              | 40   |
|      | Flat Head Screw  | 000294X407          | 36   | 000294X407          | 72   | 000294X407          | 108  | 000294X407          | 144  |
| 114  | Bi-Directional Lip Seal                                      | 308462-04           | 1    | 308462-04           | 1    | 308462-04           | 1    | 308462-04           | 1    |

<sup>\*-</sup>Individual parts breakdown for standard WCB2 sub-assemblies are in section 6.1.2 of WCB 11070

|      |                                 | 136WCBD     |      | 236WCBD     |      | 336WCBD     |      | 436WCBD     |      |
|------|---------------------------------|-------------|------|-------------|------|-------------|------|-------------|------|
| Item | Description                     | 146429AE    |      | 146430AE    |      | 146413AE    |      | 146431AE    |      |
|      |                                 | Part Number | Qty. |
| 1    | *Mounting Flange Sub-assy.      | 513985-01   | 1    | 513985-01   | 1    | 513985-01   | 1    | 513985-01   | 1    |
| ı    | (Includes items 2, 3, 50 & 51)  | 313963-01   | 1    | 313963-01   | '    | 313963-01   | l I  | 313905-01   | '    |
| 2    | Mounting Flange                 | 513986      | 1    | 513986      | 1    | 513986      | 1    | 513986      | 1    |
| 3    | Wear Plate                      | 416527      | 2    | 416527      | 4    | 416527      | 6    | 416527      | 8    |
| 6    | Stud                            | 307111-04   | 16   | 307111-10   | 16   | 307111-05   | 16   | 307111-07   | 16   |
| 7    | Friction Disc Sub-assembly      | 513990      | 1    | 513990      | 2    | 513990      | 3    | 513990      | 4    |
| ′    | (Includes items 8, 9 & 57)      | 313990      | ı    | 513990      |      | 313990      | 3    | 515990      | 4    |
| 8    | Friction Block                  | 513658      | 16   | 513658      | 32   | 513658      | 48   | 513658      | 64   |
|      | Friction Disc Core              | 513667      | 1    | 513667      | 2    | 513667      | 3    | 513667      | 4    |
| 12   | Clamp Tube                      | 308204-07   | 16   | 308204-02   | 16   | 308204-04   | 16   | 308204-05   | 16   |
| 13   | *Pressure Plate Sub-assy.       | 513985-03   | 1    | 513985-03   | 1    | 513985-03   | 1    | 513985-03   | 1    |
| 13   | (Includes items 3, 14, 50 & 51) | 313965-03   | ı    | 313965-03   | ı    | 313903-03   | ı .  | 313905-03   | 1    |
| 14   | Pressure Plate                  | 512860      | 1    | 512860      | 1    | 512860      | 1    | 512860      | 1    |
| 17   | Flat Washer                     | 000067X0042 | 16   | 000067X0042 | 16   | 000067X0042 | 16   | 000067X0042 | 16   |
| 18   | Lock Nut                        | 000110X0075 | 16   | 000110X0075 | 16   | 000110X0075 | 16   | 000110X0075 | 16   |
| 19   | Cylinder                        | 514586      | 1    | 514586      | 1    | 514586      | 1    | 514586      | 1    |
| 21   | Bi-directional Lip Seal         | 308463-05   | 1    | 308463-05   | 1    | 308463-05   | 1    | 308463-05   | 1    |
| 23   | Bi-directional Lip Seal         | 308463-02   | 1    | 308463-02   | 1    | 308463-02   | 1    | 308463-02   | 1    |
| 28   | Gear (Not included with assy.)  | 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-assy.        | N/A         | N/A  | 513985-02   | 1    | 513985-02   | 2    | 513985-02   | 3    |
| 30   | (Includes items 3, 31, 50 & 51) | IN/A        | IN/A | 313963-02   | '    | 313963-02   |      | 513965-02   | 3    |
| 31   | Reaction Plate                  | N/A         | N/A  | 513989      | 1    | 513989      | 2    | 513989      | 3    |
| 33   | Piston                          | 514485      | 1    | 514485      | 1    | 514485      | 1    | 514485      | 1    |
| 34   | Release Spring                  | 416751-01   | 16   | 416751-01   | 32   | 416751-01   | 48   | 416751-01   | 64   |
| 50   | Inner Support Ring              | 414032-01   | 12   | 414032-01   | 24   | 414032-01   | 36   | 414032-01   | 48   |
|      | Outer Support Ring              | 414033-01   | 18   | 414033-01   | 36   | 414033-01   | 54   | 414033-01   | 72   |
| 57   | Flat Head Screw                 | 000294X0407 | 144  | 000294X0407 | 288  | 000294X0407 | 432  | 000294X0407 | 576  |
| 105  | Pipe Plug                       | 000077X0021 | 1    | 000077X0021 | 1    | 000077X0021 | 1    | 000077X0021 | 1    |
| 114  | Bi-Directional Lip Seal         | 308462-01   | 1    | 308462-01   | 1    | 308462-01   | 1    | 308462-01   | 1    |

<sup>\*-</sup>Individual parts breakdown for standard WCB2 sub-assemblies are in section 6.1.2 of WCB 11070

| ltom | Deceription  | 148WCBD 248WCBD Description 146432AE 146433AE |      | 348WCBD     |      | 448WCBD     |      |             |      |
|------|--|---|------|-------------|------|-------------|------|-------------|------|
| Item | Description  |   | 04   |             | 04   | 146434AE    | 04   | 146435AE    | 104  |
|      | ***  | Part Number                                   | Qty. | Part Number | Qty. | Part Number | Qty. | Part Number | Qty. |
| 1    | *Mounting Flange Sub-assy.<br>(Includes items 2, 3, 50 & 51) | 514329-05                                     | 1    | 514329-05   | 1    | 514329-05   | 1    | 514329-05   | 1    |
| 2    | Mounting Flange  | 514749  | 1    | 514749      | 1    | 514749      | 1    | 514749      | 1    |
| 3    | Wear Plate   | 416690  | 2    | 416690      | 4    | 416690      | 6    | 416690      | 8    |
| 6    | Stud   | 307111-23                                     | 16   | 307111-22   | 16   | 307111-21   | 16   | 307111-20   | 16   |
| 7    | Friction Disc Sub-assembly (Includes items 8, 9 & 57)        | 514325  | 1    | 514325      | 2    | 514325      | 3    | 514325      | 4    |
| 8    | Friction Block   | 514286  | 16   | 514286      | 32   | 514286      | 48   | 514286      | 64   |
| 9    | Friction Disc Core   | 514287  | 1    | 514287      | 2    | 514287      | 3    | 514287      | 4    |
| 12   | Clamp Tube   | 308440-08                                     | 16   | 308440-07   | 16   | 308440-06   | 16   | 308440-05   | 16   |
| 13   | *Pressure Plate Sub-assy.<br>(Includes items 3, 14, 50 & 51) | 514329-01                                     | 1    | 514329-01   | 1    | 514329-01   | 1    | 514329-01   | 1    |
| 14   | Pressure Plate   | 514513  | 1    | 514513      | 1    | 514513      | 1    | 514513      | 1    |
| 17   | Flat Washer  | 000067X0042                                   | 16   | 000067X0042 | 16   | 000067X0042 | 16   | 000067X0042 | 16   |
| 18   | Lock Nut   | 000110X0075                                   | 16   | 000110X0075 | 16   | 000110X0075 | 16   | 000110X0075 | 16   |
| 19   | Cylinder   | 514753  | 1    | 514753      | 1    | 514753      | 1    | 514753      | 1    |
| 21   | Bi-directional Lip Seal                                      | 308463-01                                     | 1    | 308463-01   | 1    | 308463-01   | 1    | 308463-01   | 1    |
| 23   | Bi-directional Lip Seal                                      | 308463-04                                     | 1    | 308463-04   | 1    | 308463-04   | 1    | 308463-04   | 1    |
| 28   | Gear (Not included with assy.)                               | 416794  | 1    | 416795      | 1    | 416688      | 1    | 416797      | 1    |
| 29   | Wear Spacer  | N/A   | N/A  | 308398      | 16   | 308398      | 32   | 308398      | 48   |
| 30   | Reaction Plate Sub-assy.<br>(Includes items 3, 31, 50 & 51)  | N/A   | N/A  | 514329-02   | 1    | 514329-02   | 2    | 514329-02   | 3    |
| 31   | Reaction Plate   | N/A   | N/A  | 514514      | 1    | 514514      | 2    | 514514      | 3    |
| 33   | Piston   | 514484  | 1    | 514484      | 1    | 514484      | 1    | 514484      | 1    |
| 34   | Release Spring   | 416751-04                                     | 16   | 416751-04   | 32   | 416751-04   | 48   | 416751-04   | 64   |
| 50   | Inner Support Ring   | 416618  | 10   | 416618      | 20   | 416618      | 30   | 416618      | 40   |
| 51   | Outer Support Ring   | 416673  | 20   | 416673      | 40   | 416673      | 60   | 416673      | 80   |
|      | Flat Head Screw  | 000294X0407                                   | 224  | 000294X0407 | 448  | 000294X0407 | 672  | 000294X0407 | 896  |
| 105  | Pipe Plug  | 000077X0021                                   | 1    | 000077X0021 | 1    | 000077X0021 | 1    | 000077X0021 | 1    |
| 114  | Bi-Directional Lip Seal                                      | 308463-03                                     | 1    | 308463-03   | 1    | 308463-03   | 1    | 308463-03   | 1    |

<sup>\*-</sup>Individual parts breakdown for standard WCB2 sub-assemblies are in section 6.1.2 of WCB 11070

## 6.2 Seal Kits

| Parts Inc | luded in Kit | Lip Seal (Inner)<br>Item 21 | Lip Seal (Intermediate)<br>Item 114 | Lip Seal (Outer)<br>Item 23 |
|-----------|--------------|-----------------------------|-------------------------------------|-----------------------------|
| Model     | Kit P/N      | Part Number                 | Part Number                         | Part Number                 |
| 8         | 107671JD     | 000402X0001                 | 308462-09                           | 000402X0002                 |
| 14        | 107672JD     | 000402X0003                 | 308462-08                           | 000402X0004                 |
| 18        | 107726JD     | 308462-07                   | 308462-06                           | 308462-03                   |
| 24        | 107727JD     | 308462-05                   | 308462-04                           | 308462-02                   |
| 36        | 107622JD     | 308463-05                   | 308462-01                           | 308463-02                   |
| 48        | 108055JD     | 308463-04                   | 308462-03                           | 308462-01                   |

# NOTE:

All kits include one 5.3 oz tube of Dow Corning 55® lubricant. Part number 000153X1239 All kits include quantity of one of each Item listed.



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