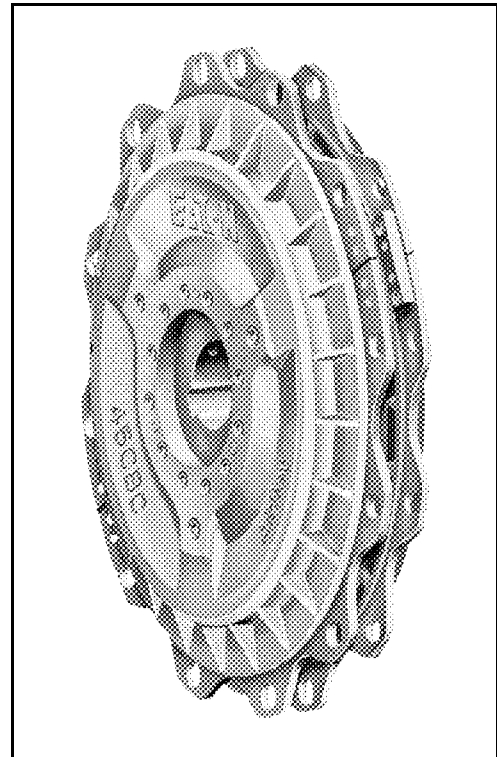


CBC 16100

**! 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<sup>®</sup> Model CBC Clutch\Brake Combination



**! Caution:**

### Use Only Genuine Airflex<sup>®</sup> 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  
Internet: [www.airflex.com](http://www.airflex.com)

December, 2001  
204177

© Copyright Eaton Corp., 2001. All rights reserved.

**Authorized Distributor**



26255 Groesbeck Hwy.  
Warren, MI 48089 U.S.A.  
586.775.3000 • 586.775.3040 (Fax)  
[sales@midwestbrake.com](mailto:sales@midwestbrake.com)  
[www.midwestbrake.com](http://www.midwestbrake.com)

**Eaton<sup>®</sup> Airflex<sup>®</sup> Clutches & Brakes**



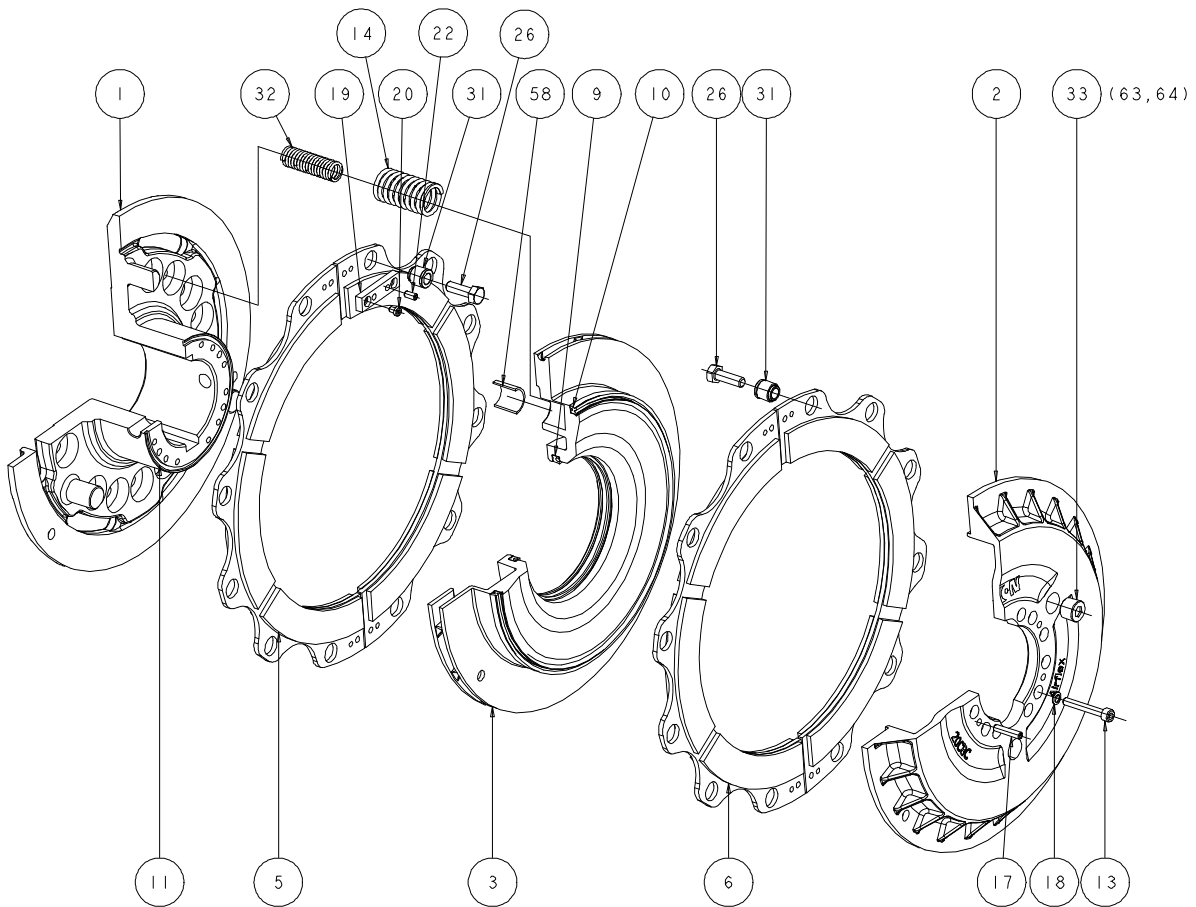
# Table of Contents

<b>1.0</b>	<b>INTRODUCTION</b>	<b>5</b>
1.1	Description	5
1.2	How it Works	5
1.3	Technical Information	5
<b>2.0</b>	<b>INSTALLATION</b>	<b>6</b>
2.1	Preparation	6
2.2	Interference Fit Bore & Key CBC	6
2.3	Taper Lock Mounting CBC	6
2.4	Bushing Mount	7
2.5	Bushing Mount and Short Arms	8
2.6	Bushing Mount and Long Arms	9
2.7	Short and Long Arm Mounting	10
2.8	Short Arm Mounting	11
2.9	Long Arm Mounting	11
2.10	Air System Requirements	12
<b>3.0</b>	<b>OPERATION</b>	<b>12</b>
3.1	Periodic Maintenance	12
3.2	Friction Disc Wear Inspection	12
<b>4.0</b>	<b>MAINTENANCE</b>	<b>13</b>
4.1	Interference Fit CBC	13
4.2	Taper Lock CBC	13
4.3	Disassembly of CBC	14
4.4	Inspection	14
4.5	Assembly	15
4.6	Friction Lining Replacement	17
4.7	Bushing Replacement	17
<b>5.0</b>	<b>TROUBLESHOOTING</b>	<b>17</b>
<b>6.0</b>	<b>ORDERING INFORMATION/TECHNICAL ASSISTANCE</b>	<b>17</b>
6.1	Equipment Reference	17
<b>7.0</b>	<b>CBC IDENTIFICATION</b>	<b>20</b>
7.1	Explanation of Alpha Designators	20
7.2	CBC Basic Part Number	21
7.3	CBC Assembly Numbers	21
7.4	CBC Alpha Designations	22
	continued	

<b>8.0</b>	<b>PARTS &amp; KITS LISTS</b>	<b>. . . . .21</b>
8.1	5 CBC Parts & Kits	23 - 25
8.2	10 CBC Parts & Kits	26 - 28
8.3	15 CBC Parts & Kits	29 - 31
8.4	20 CBC Parts & Kits	32 - 34
8.5	25 CBC Parts & Kits	35 - 37
8.6	30 CBC Parts & Kits	38 - 40
8.7	35 CBC Parts & Kits	41 - 43
8.8	40 CBC Parts & Kits	44 - 46
8.9	45 CBC Parts & Kits	47 - 49
8.10	50 CBC Parts & Kits	50 - 52
8.11	55 CBC Parts & Kits	53 - 55
8.12	60 CBC Parts & Kits	56 - 58
8.13	66 CBC Parts & Kits	59 - 61
8.14	72 CBC Parts & Kits	64
<b>9.0</b>	<b>REVISIONS</b>	<b>. . . . .65</b>

### Index of Tables

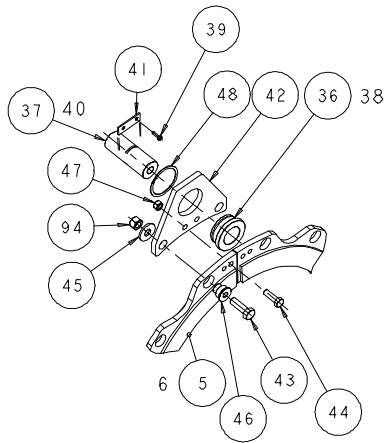
Table No.	Table Title	Page No.
1	Parts	3
2	Technical Data	5
3	Fastener Torque	10
4	Wear Gap Limits	13
5	Cylinder Screw (13) Sizes	13
6	Reaction Pin Fits	14
7	Alignment Rod Specifications	15
8	CBC Wear Limits	18
9	Friction Material Wear Limit	19
10	Spring Free Height	19



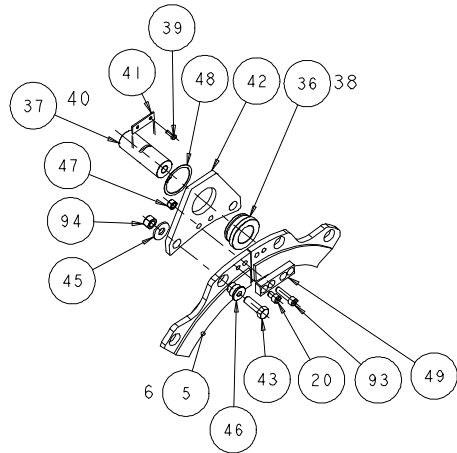
5-20 CBC

**Table 1  
Exploded View Callouts**

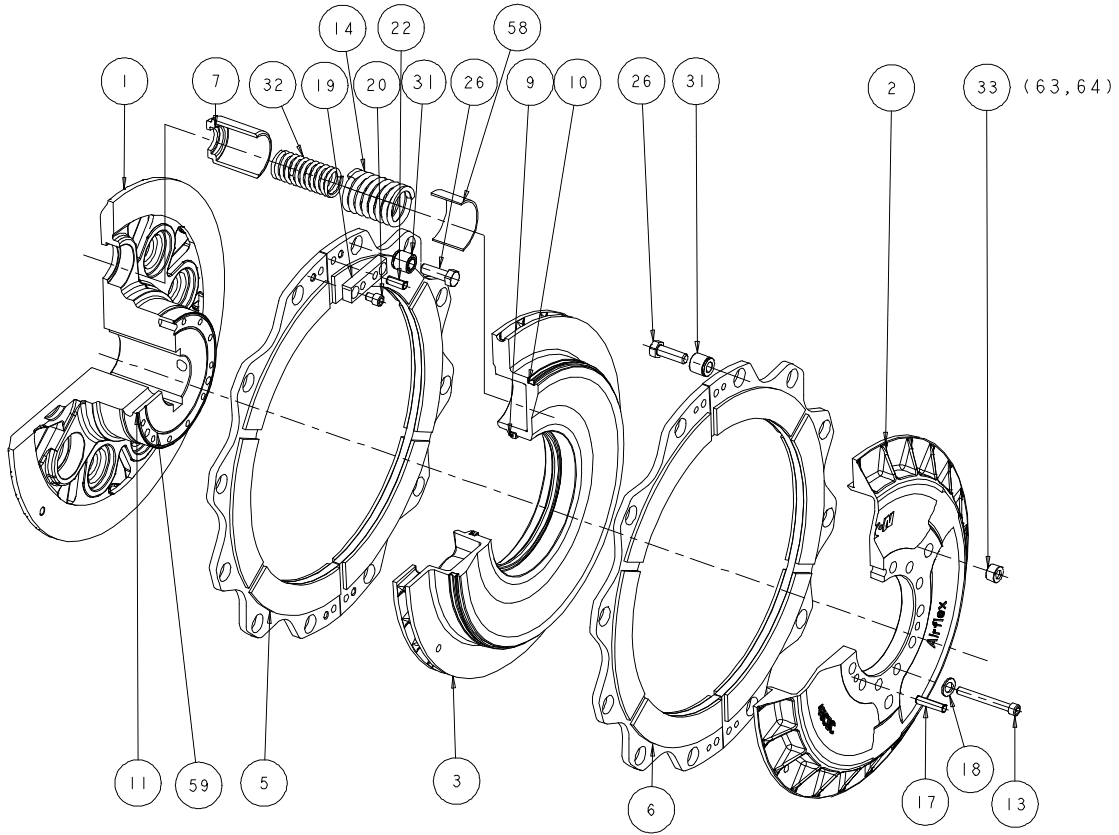
Item	Description	Item	Description	Item	Description
1	Hub	26	Hex Head Screw	48	Retaining Ring
2	Cylinder	31	Bushing	49	Strap (Sizes 30-72)
3	Piston	32	Inner Spring	50	Long Arm Bushing (Round)
5	Clutch Friction Disc	33	Plug	51	Long Arm Reaction Pin (Round)
6	Brake Friction Disc	36	Short Arm Bushing (Round)	52	Long Arm Bushing (Rectangular)
7	Torque Tube	37	Short Arm Reaction Pin (Round)	53	Hex Head Screw
9	Piston Seal (I.D.)	38	Short Arm Bushing (Rectangular)	54	Long Arm Reaction Pin (Square)
10	Piston Seal (O.D.)	39	Hex Head Screw	55	Retaining Plate
11	Face Seal	40	Short Arm Reaction Pin (Square)	56	Long Arm Reaction Arm
13	Socket Head Screw	41	Retaining Plate	57	Retaining Ring
14	Outer Spring	42	Short Reaction Arm	58	Torque Tube Bushing
17	Spring Pin	43	Hex Head Screw	59	O-Ring
18	Serrated Safety Washer	44	Hex Head Screw	63	Quick Release Valve (Not Shown)
19	Strap	45	Washer	64	Manual Release Screw (Not Shown)
20	Socket Head Screw	46	Bushing	93	Socket Head Screw
22	Spring Pin	47	Nut	94	Nut



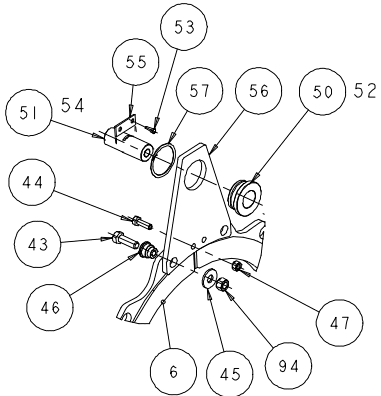
SHORT ARMS (SIZES 5-25)



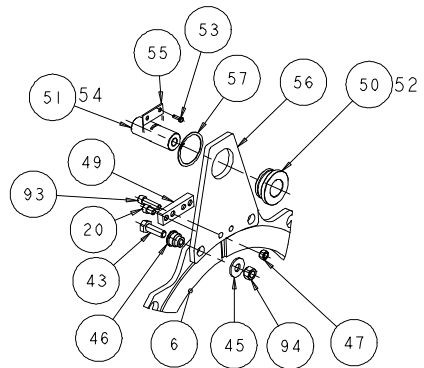
SHORT ARM (SIZES 30-72)



25 - 72 CBC




LONG ARM (SIZES 5-25)



LONG ARM (SIZES 30-72)

Figure 1

## 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® Model CBC is a pneumatically operated clutch-brake combination, which is designed and manufactured to provide dependable clutch-brake service to a multitude of industrial applications. It is suitable for high speed and cyclic operation. The CBC requires no lubrication or adjustment.

## 1.2 How it Works

NOTE: Refer to Figure 1 for Item ( ) call outs.

- 1.2.1 The CBC hub (1) is mounted to the machine input shaft. The clutch disc (5) is mounted to the machine drive. The brake disc (6) is mounted to the stationary member. Air supply is transferred from a supply line, through a rotary seal, and into the cylinder (2). Springs (14)(32) transfer pressure between the hub and the piston (3) pressing the piston toward the cylinder clamping the brake disc and holding the hub in the static (stopped) condition. When air pressure is applied to the cylinder the piston moves toward the hub, overcoming spring pressure and releasing the brake and applying the clutch.

## 1.3 Technical Information

- 1.3.1 Maximum Speeds and Pressures are shown in Table 2.



### **Warning:**

**Operations at speeds and pressures that exceed the limits in Table 2 will cause damage to the CBC.**

**Table 2  
Technical Data**

Model	Maximum Speed RPM	Maximum Air Pressure	Brake Release Air Pressure	CBC Weight lbs.
5	3200	100 PSI	40 PSI for Standard Spring Configuration	10
10	2800			14
15	2400			24
20	1800			46
25	1400			88
30	1200			166
35	1100			221
40	1000			260
45	900			360
50	800			527
55	700			752
60	600			1173
66	550			1522
75	500			1900

## 2.0 INSTALLATION

### 2.1 Preparation

- 2.1.1 Refer to the appropriate assembly drawing (available upon request) for appropriate mounting configuration and tolerances.
- 2.1.2 CBC lifting weights are shown on Table 2. For Bore & Key installations refer to Section 2.1 for Taper Lock installation refer to Section 2.3.



#### **Warning:**

**Prior to perform any work insure that machinery is and will stay in a safe condition.**



#### **Warning:**

**Failure to use proper lifting gear could result in damage to CBC. Refer to Table 2 for CBC element gross weights.**

### 2.2 Interference Fit Bore and Key Mounting

- 2.2.1 Prior to installing the CBC insure shaft and key is free of nicks and burrs. Apply a light coat of anti seize compound to the shaft and key to prevent gauling.
- 2.2.2 Refer to Figure 2 for interference mount fits.
- 2.2.3 Rig the CBC and position to press onto shaft using a jack and a strong back or draw stud. 150 deg.F Heat may be applied to the hub (1) to ease installation.



#### **Caution:**

**Do not heat CBC above 150 deg. F. Heat above 150 deg. F will cause damage to the piston seals(9)(10).**

- 2.2.4 Draw the CBC onto the shaft aligning the air hole positions. Allow to cool if heated.
- 2.2.5 For applications with face seal install remaining face seal, lock washer and spanner nut.
- 2.2.6 See section 2.3 for bushing mount and short arm, 2.4 for bushing mount and long arm, 2.5 for short arm and 2.6 for short arm and long arm installation instructions

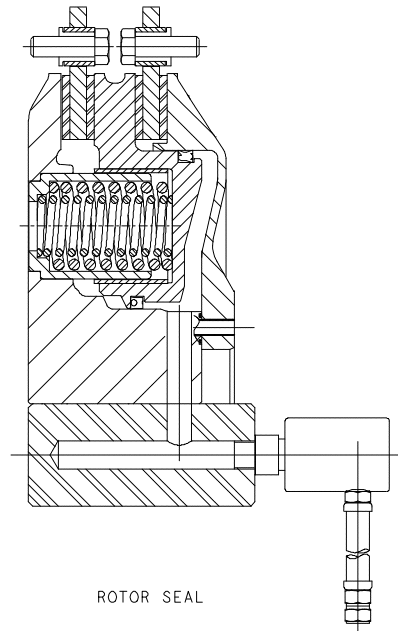


Figure 2

### 2.3 Taper Lock Mounting

Refer to Figure 3 for typical shaft seal arrangement.

- 2.3.1 Insure that the shaft is clean of nicks and burrs.
- 2.3.2 Rig the CBC so it hangs straight. Refer to Table 2 for lifting weights.



#### **Caution:**

**Do not use molybdenum disulphide, anti seize or other similar lubricant on the shaft.**

- 2.3.3 Slide taper lock into bore. Lubricate shaft seat with a thin coat of Dow Corning<sup>®</sup> #55.

NOTE: assembly instruction for locking device and shaft seal will depend on the specific application. Contact Airflex for details

- 2.3.4 Slide the CBC onto the shaft referencing the air hole position. Lubricate shaft seal with
- 2.3.5 Refer to instruction sheet provided with the locking device for proper installation instructions
- 2.3.6 Check CBC for angular runout using a square or dial indicator(see Figure 4). Maximum angular runout is .0005" TIR per inch of diameter with a maximum of .010".

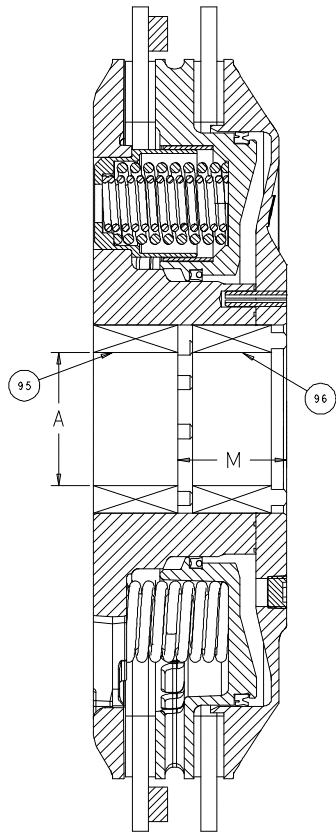


Figure 3

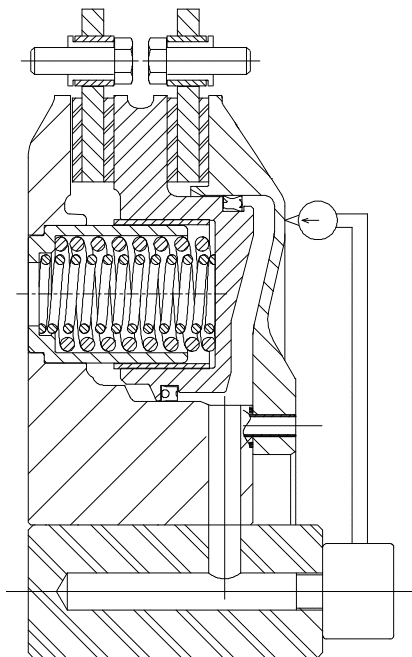


Figure 4

## 2.4 Bushing Mount

Illustration shown in Figure 4.

- 2.4.1 Loosen socket head screws (20) on clutch and brake friction discs.

**! Caution:**

**Loctite® #243 Must be shaken prior to application. Also Loctite® #243 may irritate sensitive skin. Refer to the product label proper application and safety instructions.**

- 2.4.2 Apply Loctite® #243 and install socket head screw (28) and bushing (31), ONE AT A TIME, and torque to value in Table 3. Repeat and install remaining bushings. Refer to Figure 5 for proper bushing orientation.

- 2.4.3 Remove screw (20) from strap and apply Loctite® #243, torque to value in Table 3. Repeat for remaining three screws. Insure friction disc assembly is free to float on bushings.

**! Warning:**

**A pinch point exists when air is applied to the CBC.**

**! Warning:**

**Maximum applied air pressure is 100 psi. Air pressures above 100 psi will cause damage to the CBC.**

- 2.4.4 Apply 70 - 100 psi to release brake and apply clutch. Repeat steps 2.3.1 to 2.3.3 to install bushings and secure straps.

**! Caution:**

**Clutch and brake discs must be free to float on bushings to prevent dragging and overheating.**



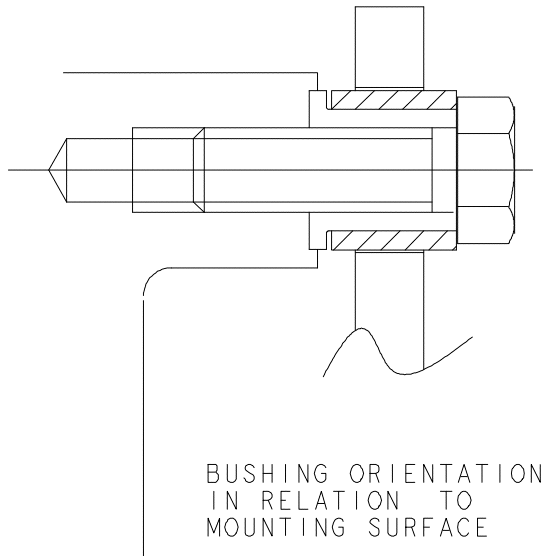


Figure 5

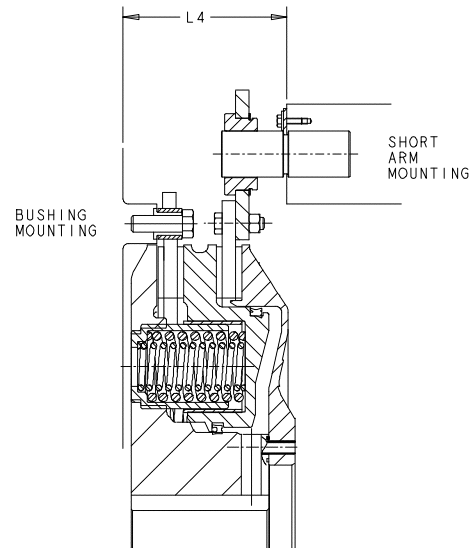


Figure 6

## 2.5 Bushing Mount and Short Arms

Illustration shown in Figure 6.

### 2.5.1 Installation with clutch disc mounted on twelve bushings and brake disc with short arms.

- 2.5.1.1 Follow procedures 2.3.1 - 2.3.3 to install clutch disc (5).
- 2.5.1.2 Install reaction pins (37) (40) into machine frame.
- 2.5.1.3 Install retaining plate (41). Apply Loctite<sup>®</sup> #243 and install hex head screws (39) and torque to value in Table 3.



#### Caution:

**Loctite<sup>®</sup> #243 Must be shaken prior to application. Also Loctite<sup>®</sup> #243 may irritate sensitive skin. Refer to the product label proper application and safety instructions.**

- 2.5.1.4 Install short reaction arms (42) and install with bushings (46), hex head screws (43), washers (45) and lock nuts (94), do not tighten.
- 2.5.1.5 For sizes 30-72 install straps (49) and socket head screws (93) and lock nuts (47), do not tighten.

- 2.5.1.6 Install round bushing (36) and secure with retaining ring (48).

- 2.5.1.7 Install square bushing (38) and secure with retaining ring (48), refer to Figure 8 for proper orientation.

- 2.5.1.8 Remove screws (20) and apply Loctite<sup>®</sup> #243 and torque to value in Table 3. Install and torque ONE SCREW AT A TIME.

- 2.5.1.9 Torque nuts (94) to value in Table 3.



#### Caution:

**Clutch and brake discs must be free to float on bushings to prevent dragging and overheating.**

- 2.5.2 Installation with brake disc mounted on twelve bushings and clutch disc with short arms.

- 2.5.2.1 Remove the screws (20), spring Pins (22) and straps (19) and set aside for use on the brake disc (6)

- 2.5.2.2 Refer to para. 2.6.2 - 2.6.9 to install clutch disc with short arms.



#### Warning:

**A pinch point exists when air is applied to the CBC.**



**Warning:**

**Maximum applied air pressure is 120 psi. Air pressures above 120 psi will cause damage to the CBC.**

2.5.2.3 Refer to para. 2.3.4 to install brake disc with bushings.



**Caution:**

**Clutch and brake discs must be free to float on bushings to prevent dragging and overheating.**

## 2.6 Bushing Mount and Long Arms

Illustration shown on Figure 7.



**Warning:**

**Long arms are for use on the brake side of the CBC only. Use of the long arm on the clutch side may cause failure of the long arm assembly.**

2.6.1 Follow procedures in para. 2.3.1 - 2.3.3 to install clutch disc (5).

2.6.2 Install reaction pins (51) (54) into machine frame.



**Caution:**

**Loctite® #243 Must be shaken prior to application. Also Loctite® #243 may irritate sensitive skin. Refer to the product label proper application and safety instructions.**

2.6.3 Install retaining plate (55). Apply Loctite® #243 and install hex head screws (53) and torque to value in Table 3.

2.6.4 Install long reaction arms (56) and install with bushings (46), hex head screws (43), washers (45) and nuts (94), do not tighten.

2.6.5 Install straps (49) and socket head screws (93) and nuts (47), do not tighten.

2.6.6 Install round bushing (50) and secure with retaining ring (57).

2.6.7 Install square bushing (52), with the short sides of the rectangle and secure with retaining ring (57), refer to Figure 8 for proper orientation.

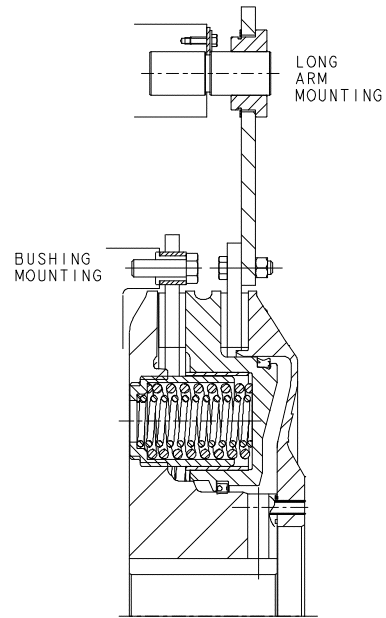


Figure 7

2.6.8 Remove screws (20) and apply Loctite® #243 and torque to value in Table 3. Install and torque ONE SCREW AT A TIME.

2.6.9 Torque nuts (94) to value in Table 3.



**Caution:**

**Clutch and brake discs must be free to float on bushings to prevent dragging and overheating.**

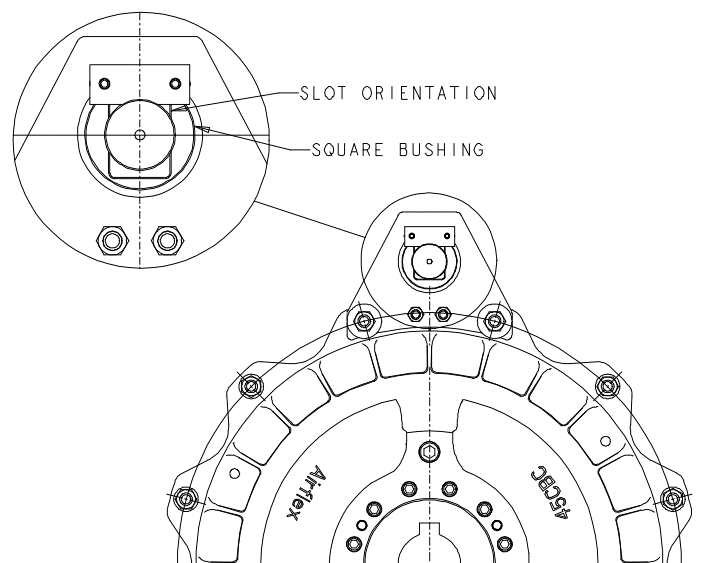


Figure 8

**TABLE 3  
Fastener Size and Torque**

Item »»		20	39	43	44	47	53	93	94	
CBC Model		Strap Screw	Hex Head Screw	Hex Head Screw	Hex Head Screw	Nut with nylon insert	Hex Head Screw	Socket Head Screw	Nut with nylon insert	
5	Size	M4x6	M4x12	M5x20	M4x12	M4	M4x12	N/A	M5	
	Torque	20 in.lb.	20 in.lb.	42 in.lb.	20 in.lb.	20 in.lb.	20 in.lb.		42 in.lb.	
10	Size	M4x6	M4x12	M5x20	M4x12	M4	M4x12		M5	
	Torque	20 in.lb.	20 in.lb.	42 in.lb.	20 in.lb.	20 in.lb.	20 in.lb.		42 in.lb.	
15	Size	M4x6	M5x16	M5x25	M5x20	M5	M4x12		N/A	N/A
	Torque	20 in.lb.	42 in.lb.	42 in.lb.	42 in.lb.	42 in.lb.	20 in.lb.			
20	Size	M4x6	M5x16	M6x25	M5x20	M5	M4x12		M6	
	Torque	20 in.lb.	42 in.lb.	69 in.lb.	42 in.lb.	42 in.lb.	20 in.lb.		69 in.lb.	
25	Size	M6x10	M5x16	M8x30	M8x25	M8	M5x16		N/A	
	Torque	69 in.lb.	42 in.lb.	14 ft.lb.	14 ft.lb.	20 ft.lb.	42 in.lb.			
30	Size	M8x16	M6x20	M10x45	N/A	M10	M5x16	M10x40		
	Torque	14 ft.lb.	69 in.lb.	20 ft.lb.		20 ft.lb.	42 in.lb.	28 ft.lb.		
35	Size	M8x16	M6x20	M10x45		M10	M5x16	M10x40		
	Torque	14 ft.lb.	69 in.lb.	20 ft.lb.		20 ft.lb.	42 in.lb.	28 ft.lb.		
40	Size	M8x16	M6x20	M10x45		M10	M5x16	M10x40		
	Torque	14 ft.lb.	69 in.lb.	20 ft.lb.		20 ft.lb.	42 in.lb.	28 ft.lb.		
45	Size	M12x20	M6x20	M12x75		M12	M6x20	M12x50		N/A
	Torque	49 ft.lb.	69 in.lb.	49 ft.lb.		49 ft.lb.	69 in.lb.	49 ft.lb.		
50	Size	M12x20	M8x25	M12x60		M12	M6x20	M12x60		
	Torque	49 ft.lb.	14 ft.lb.	49 ft.lb.		49 ft.lb.	69 in.lb.	49 ft.lb.		
55	Size	M12x20	M8x25	M12x60	M12	M6x20	M12x60			
	Torque	49 ft.lb.	14 ft.lb.	49 ft.lb.	49 ft.lb.	69 in.lb.	49 ft.lb.			
60	Size	M12x30	M8x25	M12x70	M12	M8x25	M12x70			
	Torque	49 ft.lb.	14 ft.lb.	49 ft.lb.	49 ft.lb.	14 ft.lb.	49 ft.lb.			
66	Size	M12x30	M8x25	M14x70	M12	M8x25	M12x70	M14		
	Torque	49 ft.lb.	14 ft.lb.	78 ft.lb.	49 ft.lb.	14 ft.lb.	49 ft.lb.	78 ft.lb.		
72	Size	M12x40	M8x25	M14x75	M12	M8x25	M12x80	M14		
	Torque	49 ft. lb.	14ft.lb.	78 ft.lb.	49 ft.lb.	14 ft.lb.	49 ft.lb.	78 ft.lb.		

## 2.7 Short Arm and Long Arm Mounting

Illustration shown on Figure 9

2.7.1 Prior to installing Clutch disc remove screws (20), spring pin (22) and straps (19) and discard.

2.7.2 Install reaction pins (37) (40) into machine flywheel.



### Caution:

**Loctite® #243 Must be shaken prior to application. Also Loctite® #243 may irritate sensitive skin. Refer to the product label proper application and safety instructions.**

2.7.3 Install retaining plate (41). Apply Loctite® #243 and install hex head screws (39) and torque to value in Table 3.

2.7.4 Install short reaction arms (42) and install with bushings (46), hex head screws (43), washers (45) and nuts (94), do not tighten.

2.7.5 Install straps (49) and socket head screws (93) and nuts (47), do not tighten.

2.7.6 Install round bushing (36) and secure with retaining ring (48).

2.7.7 Install square bushing (38) and secure with retaining ring (48), refer to Figure 8 for proper orientation.

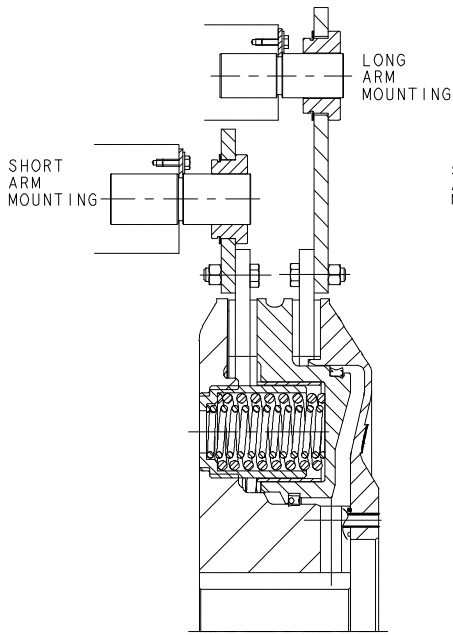


Figure 9

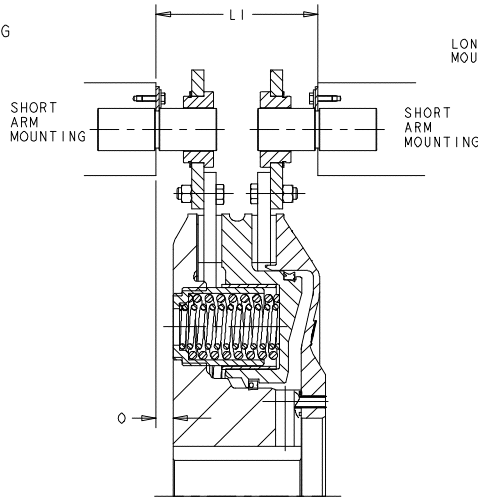


Figure 10

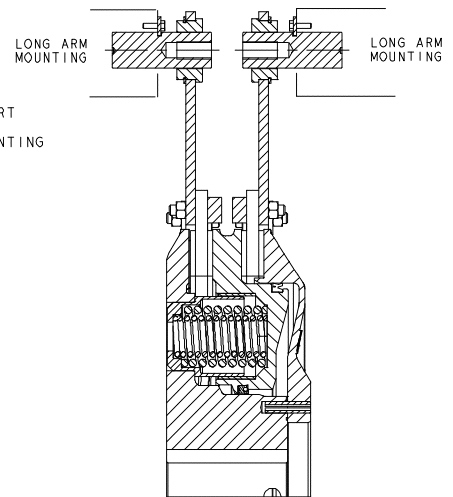


Figure 11

- 2.7.8 Remove screws (20) and apply Loctite<sup>®</sup> #243 and torque to value in Table 3. Install and torque ONE SCREW AT A TIME.
- 2.7.9 Torque nuts (94) to value in Table 3.
- 2.7.10 Install reaction pins (51) (54) into machine frame.



**Caution:**

**Loctite<sup>®</sup> #243 Must be shaken prior to application. Also Loctite<sup>®</sup> #243 may irritate sensitive skin. Refer to the product label proper application and safety instructions.**

- 2.6.11 Install retaining plate (55). Apply Loctite<sup>®</sup> #243 and install hex head screws (53) and torque to value in Table 3.
- 2.6.12 Install long reaction arms (56) and install with bushings (46), hex head screws (43), washers (45) and nuts (94), do not tighten.
- 2.7.13 Install straps (49) and socket head screws (93) and nuts (47), do not tighten.
- 2.7.14 Install round bushing (50) and secure with retaining ring (57).
- 2.7.15 Install square bushing (52) and secure with retaining ring (57), refer to Figure 8 for proper orientation.

- 2.7.16 Remove screws (20) and apply Loctite<sup>®</sup> #243 and torque to value in Table 3. Install and torque ONE SCREW AT A TIME.
- 2.7.17 Torque nuts (94) to value in Table 3.



**Caution:**

**Clutch and brake discs must be free to float on bushings to prevent dragging and overheating.**

## 2.8 Short Arm Mounting

Illustration shown on Figure 10.

- 2.8.1 Refer to para. 2.7.1 - 2.7.9 to install clutch disc with short arm.
- 2.8.2 Refer to para. 2.5.1.2 2.5.19 to install Brake disc with short arms.



**Caution:**

**Clutch and brake discs must be free to float on bushings to prevent dragging and overheating.**

## 2.9 Long Arm Mounting

Illustration shown on Figure 11.

- 2.9.1 Refer to para. 2.7.1 - 2.7.9 to install clutch disc with long arm.

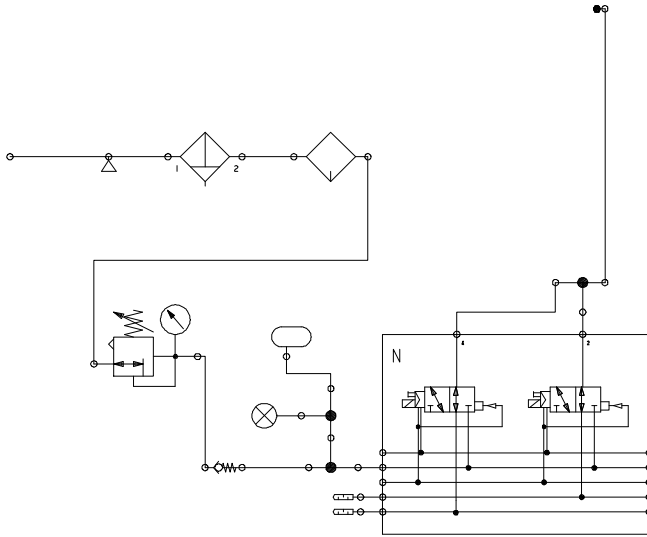


Figure 12

- 2.9.2 Refer to para. 2.5.1.2 2.5.19 to install Brake disc with long arms.



**Caution:**  
Clutch and brake discs must be free to float on bushings to prevent dragging and overheating.

## 2.10 Air System Requirements

NOTE: Refer to Table 2 for air pressure limits.

- 2.10.1 Refer to Figure 12 for a typical air system schematic.
- 2.10.2 For air systems with restricted supply lines a surge tank and check valve must be used to insure quick response to the clutch.
- 2.10.3 For air systems with a supply pressure that exceeds 100 psi a pressure relief valve(100 psi) may be placed between the rotor seal and dual valve.
- 2.10.4 For faster brake response the dual valve should be placed as close to the rotor seal as possible. Quick release valve can also be used at the rotor seal.
- 2.10.5 Limiting the use of elbows will lower the air restriction resulting in quicker brake response.

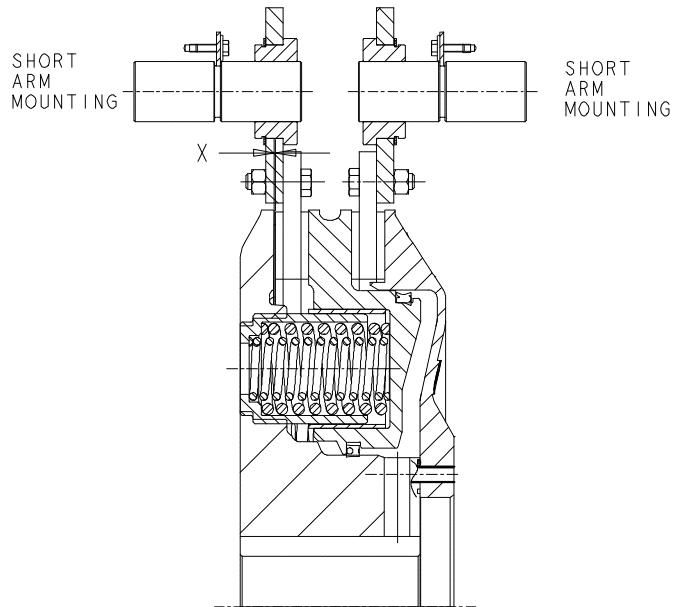


Figure 13

- 2.10.6 A flexible hose is required between the dual valve supply line and the rotor seal to prevent bearings from binding.

## 3.0 OPERATION

### 3.1 Periodic Maintenance

- 3.1.1 Inspect friction material for signs of wear, Refer to Figure 13 and Table 4 for wear limits. Repair If limits are achieved.
- 3.1.2 Check for air leaks in the air system and at the clutch/brake.
- 3.1.3 Check rotor seal bearings for freedom of movement
- 3.1.4 Insure that all guards are free and clear of the CBC.
- 3.1.5 Check for loose fasteners. replace, repair, secure as required in the installation section of this manual.
- 3.1.6 Inspect arm and drive bushings for wear. Refer to table seven for wear limits. Replace as required.



**Warning:**  
Exceeding wear limits can result in product failure.

<b>CBC Model</b>	<b>Min. "X"</b>
5	.016"
10	.016"
15	.016"
20	.016"
25	.016"
30	.016"
35	.022"
40	.021"
45	.025"
50	.030"
55	.035"
60	.039"
66	.049"
72	.057"

### 3.2 Friction Disc Wear Inspection

- 3.2.1 Refer to Figure 13 and and measure the "X" dimension for clearance. Refer to Table 4 for Wear gap limits. If the Maximum gap is achieved refer to Maintenance section for repair instructions.
- 3.2.2 Check friction disc lining for wear. If the thickness exceeds the wear limit in table 8 the disc must be replaced.

## 4.0 MAINTENANCE



### **Warning:**

**Prior to perform any work insure that machinery is and will stay in a safe condition.**



### **Warning:**

**New nylon locknuts must be used when performing clutch or brake disc or arm maintenance. Failure to replace may result in CBC failure.**

### 4.1 Interference Fit CBC

- 4.1.1 Remove rotorseal and air supply lines.
- 4.1.2 Remove any interference which would keep the CBC from being removed from shaft.

- 4.1.3 Remove 4 screws (13), 90 degrees apart, from the cylinder and install studs for pressing CBC off of shaft. Use a plate as a backing surface for a jack utilizing all four studs. Refer to Table 5 for thread dia. and pitch and minimum engagement
- 4.1.4 Rig the CBC, see Table two for lifting weight, press off of shaft and transport to a clean work space.
- 4.1.5 Refer to section 4.3 for disassembly and inspection.

### 4.2 Taper Lock CBC

- 4.2.1 Remove Rotorseal and air supply lines.
- 4.2.2 Remove any interference which would keep the CBC from being removed from shaft.
- 4.2.3 Loosen the screws and remove shaft seal assembly (x).
- 4.2.4 Rig the CBC, see Table two for lifting weight, slide off of shaft and transport to a clean work space.
- 4.2.5 Loosen locking device as prescribed in the instruction sheet accompanied with device.
- 4.2.6 Slide the CBC and taper lock off of the shaft and transport to a clean work space.

<b>CBC Model</b>	<b>Item (13) Screw (class12.9)</b>
5	M4x0.70 x3 0 mm lg.
10	M4x0.70 x 35 mm lg.
15	M5x0.80 x 35 mm lg.
20	M6x1.00 x 40 mm lg.
25	M8x1.25 x 35 mm lg.
30	M10x1.50 x 50 mm lg.
35	M10x1.50 x 80 mm lg.
40	M12x1.75 x100 mm lg.
45	M12x1.75 x100 mm lg.
50	M14x2.0 x 100 mm lg.
55	M14x2.0 x 100 mm lg.
60	M16x2.0 x 130 mm lg.,
66	M20x2.5 x 120 mm lg.
72	M24x3.0 x 140 mm lg.

### 4.3 Disassembly of CBC

**Note: Refer to Table 8 for wear limits. Components must be repaired or replaced if limits are reached.**



**Warning:**

**Cylinder socket head screws (13) must removed gradually to release the brake spring pressure. Failure to follow instruction could result in injury and/or damage to the CBC.**

- 4.3.1 Lay CBC on a clean, flat, level working surface, hub side down remove the socket head screws (13) turning in 90 deg. increments using a crosswise pattern until ALL spring force is relieved.



**Warning:**

**Insure that spring pins (17) do not restrict cylinder movement.**

- 4.3.2 Lift cylinder (2) off of piston (3). Remove spring pins (17) from cylinder and/or hub (1) and set aside.
- 4.3.3 Remove brake disc assembly (6) and set aside.
- 4.3.4 Match mark piston assembly (3) and hub(1). Lift the piston assembly off of the hub and set aside.
- 4.3.5 Remove clutch disc assembly (5) and springs (14) (35) and set aside. Note the spring quantities , orientation and location for reassemble.

### 4.4 Inspection

- 4.4.1 Inspect cylinder (2) for wear and cracks, refer to Table 8 and repair or replace as required.
- 4.4.2 Remove seals (9)(10) from piston(3) assembly and discard.
- 4.4.3 Inspect friction wear surfaces and torque tube wear pockets on piston (3) assembly and repair or replace.

**Table 6  
Reaction Pin Fits**

CBC Model	Short Arm Reaction Pin (37)(40) Bore Dimension	Long Arm Reaction Pin (51)(54) Bore Dimension
5	0.5509"/0.5519"	0.5509"/0.5519"
10	0.5509"/0.5519"	0.5509"/0.5519"
15	0.8660"/0.8670"	0.5509"/0.5519"
20	0.8670"/0.8660"	0.5519"/0.5509"
25	1.1809"/1.1819"	0.8660"/0.8670"
30	1.5748"/1.5758"	1.8109"/1.1819"
35	1.5758"/1.5748"	1.1819"/1.1809"
40	1.5725"/1.5715"	1.1785"/1.1775"
45	1.7716"/1.7726"	1.5748"/1.5758"
50	2.1665"/2.1655"	1.7726"/1.7716"
55	2.1655"/2.1665"	1.7726"/1.7716"
60	2.5565"/2.5555"	2.1625"/2.1615"
66	2.5602"/2.5592"	2.1665"/2.1655"
72	N/A	N/A

- 4.4.4 Inspect friction disc assemblies (5)(6) for wear, refer to Table 9 for friction lining wear limit. Replace as required.
- 4.4.5 Inspect springs (14)(32) for free height and wear. Refer to Table 10 for limits. Replace as required.
- 4.4.6 Inspect hub(1) seal surface for wear. Repair or replace as required.
- 4.4.7 For 25-72 CBC, inspect torque tube (7) for internal and external wear. Press out and replace as required.
- 4.4.8 For 5-20 CBC inspect hub drive pins for wear. Replace as required
- 4.4.9 Inspect polyube bushings (58) for cracks and wear. Replace as required. Refer to section 4.7 for replacement.
- 4.4.10 For CBC's with short and long arm inspect the Reaction Pins (37)(40)(51)(54) for looseness in the machine mounting holes.
- 4.4.11 If replacing refer to Table 6 for the proper Reaction Pin fits.
- 4.4.12 Repair if required.

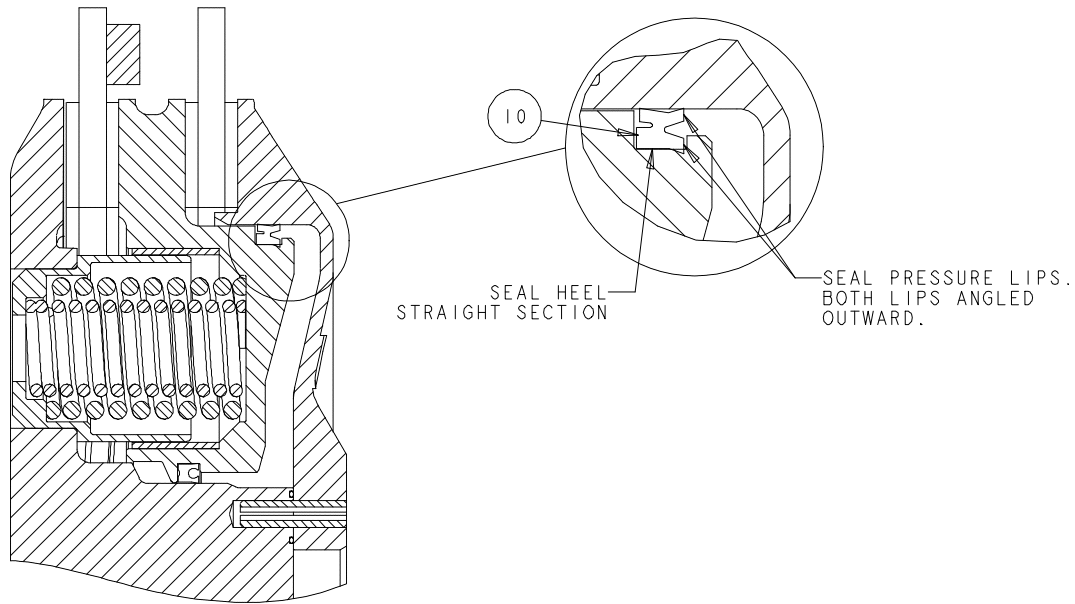


Figure 14

## 4.5 Assembly

- 4.5.1 Place hub(1) with seal surface up, ribbed side down.
- 4.5.1.1 For 25-72 CBC, if torque tubes were removed, apply Loctite® #620 into the torque tube holes of the hub(1), press torque tubes (7) into the mating holes in the hub until the torque tube seats flat against the hub mating surface.



### Caution:

**Loctite® #620 Must be shaken prior to application. Also Loctite® #620 may irritate sensitive skin. Refer to the product label proper application and safety instructions.**

- 4.5.1.2 Install seals (11) and (59) when used - not all sizes/configurations use both seals - into the seal grooves on the face of the hub. Lubricate seal(s) in place with Parker O-Lube®.
- 4.5.2 Installs springs (14) and (32) back into the same spring pockets in the hub as were removed. For 25-72 CBC install one spring into each torque tube.
- 4.5.3 Position the cylinder (2) with the EATON/Airflex CBC identification lettering facing up. Press roll pins (17) into cylinder (2) flush with the outer surface.

CBC Model	Maximum Diameter	Minimum Diameter	Length
5 - 15	0.238"	0.232"	6"
20 - 30	0.332"	0.326"	9"
35 - 45	0.472	0.467"	12"
50 - 60	0.472	0.467"	16"
66 - 72	0.472	0.467"	20"

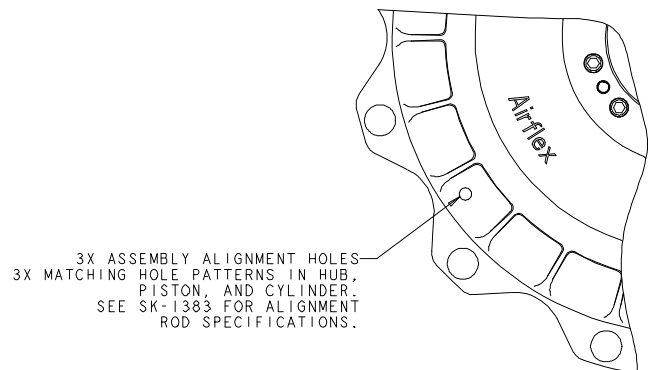


Figure 15



- 4.5.4 Apply Loctite® #609 into the piston (3) torque tube holes and press bushing (58) into torque tube hole until the bushings are flush with the top the bushing holes.



**Caution:**

**Loctite® #609 Must be shaken prior to application. Also Loctite® #609 may irritate sensitive skin. Refer to the product label proper application and safety instructions.**

- 4.5.5 Apply Dow Corning® #55 to piston seals (9)(10) and install on piston. Refer to Figure 14 for seal orientation.
- 4.5.6 Lubricate the exposed seal lips with a thin coat of Dow Corning® #55.
- 4.5.7 Lubricate entire seal contact area of hub(1) with a thin coat of Dow Corning® #55.
- 4.5.8 Lubricate cylinder(2) bore with a thin coat of Dow Corning® #55. I
- 4.5.9 Align springs with bushing holes and conical centering posts in piston and install piston onto springs/hub.
- 4.5.10 Install three alignment rods, See table 7 for specifications, into the three alignment holes in the piston. See figure 15.
- 4.5.11 Adjust piston (3) until alignment rods can be installed into the hub(1) alignment holes.
- 4.5.12 Install cylinder (2) onto the three alignment rods and the piston (3) This will seat the cylinder on the piston seals.
- 4.5.13 Install three cylinder screws (13) with three serrated safety washers (18) into the counterbored holes of the flywheel, equally spaced, adjacent to the three plugged air inlet holes on the cylinder face. NOTE: The screws may not engage the threads at this time.
- 4.5.14 If the cylinder assembly screws have not engaged the threads in the hub, using alternate blow with a rubber mallet (dead blow hammer), tapping down on cylinder until the outside piston seal engages the cylinder bore. NOTE: The cylinder should be tapped down far enough so that the previously installed cylinder assembly

screws will engage for about three threaded holes in the hub - DO NOT fully tap down cylinder at this time since that would not allow assembly of brake friction disc assembly (6). An alternate procedure, to insure that the cylinder is not assembled too far down on the piston, would be to manufacture three wood spacer blocks 1/8" thicker than the friction disc and install, equally spaced, on the piston ventilated rotor upper surface adjacent to the alignment rods.

- 4.5.15 Install both halves of the brake friction disc assembly(6), position the side marked "THIS SIDE UP" in the "up" position, and centering the friction disc relative to the cylinder.



**Caution:**

**Friction disc assemblies consist of "matched-pair" halves strapped together for proper performance, ALWAYS use "matched-pair" halves together when installing friction disc assemblies.**

- 4.5.16 Tighten the three cylinder assembly screws (13), ONE TURN AT A TIME IN A CROSSWISE PATTERN, until the cylinder is flush with the hub face.



**Caution:**

**Insure that the cylinder is drawn down evenly to prevent damage to the seals and/or cylinder bore causing seal leakage.**

- 4.5.17 Apply Loctite® #243 and install screws (13) and serrated safety washers (18) into the remaining counterbored holes and torque, one at a time a crosswise pattern, to the specifications in Table 3. remove the three screws installed in para. 4.5.13 and reinstall as noted above.
- 4.5.18 Install both halves of the clutch friction disc assembly(5), position the side marked "THIS SIDE UP" in the "up" position, and centering the friction disc relative to the cylinder.



**Caution:**

Friction disc assemblies consist of "matched-pair" halves strapped together for proper performance, **ALWAYS** use "matched-pair" halves together when installing friction disc assemblies.

4.5.19 Install straps (19) on the clutch friction disc by loosely installing screws (20) to position straps, press roll pins into strap and into the mating holes in the friction disc core plate flush with the outer strap surface. Remove screws and apply Loctite<sup>®</sup> #243 and install to the torque listed in Table 3.

4.5.20 Refer to Section 2.0 to install clutch.

### 4.6 Friction Lining Replacement

4.6.1 For friction lining replacement refer to section 2.0 for installing the various types of friction lining mounting arrangements.

### 4.7 Bushing Replacement

4.7.1 Dis assemble per section 4.3.

4.7.2 Using a long small chisel, break the old bushing (58) away from the piston (3) bushing bore in several places taking care to not score the bore. Pull back on the chisel and separate bushing from cast bore. Bushing should pop out of bore once the bushing sidewall becomes loose and moves away from the casting bore. Using a propane torch you may heat the casting around the piston bushing bore to soften the locking compound. Do not exceed 200 deg. F.



**Caution:**

**Do not heat piston piston in excess of 200 deg. F. Heat in excess of 200 deg. F. may warp and/or crack the piston.**

4.7.3 Clean bore surface and measure for wear. Refer to Table 7 for wear limits.

4.7.4 Follow the assembly procedures in para. 4.5.4.

## 5.0 TROUBLESHOOTING

Problem	Probable Cause	Remedy
Loss or Torque	Low Air Pressure	Increase air pressure, Insure air system is not restricted. Refer to Section 3.0 for air system setups.
	Worn Friction Disc	Measure X dimension refer in Section 3.0. replace friction discs if required.
	Contaminated Friction Disc	Clean disc with brake cleaner. Replace if required
Excessive Heat	Cycling rate too high	Reduce cycling rate
	Low air pressure	Check air system
	No ventilation holes in flywheel or brake flange	Provide more aceses holes in componants
	Excessive speed	Reduce speed

## 6.0 ORDERING INFORMATION/ TECHNICAL ASSISTANCE

### 6.1 Equipment Reference

6.1.1 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: [airflex.com](http://airflex.com)

Loctite, Locquic, Permafex and Superflex are registered trademarks of Loctite Corporation

Dow Corning is a registered trademark of the Dow Chemical Company.

**Table 8**  
**CBC WEAR LIMITS**  
Refer to Figure 1 and Table 1

Item	Description	Model	Wear Limit	Remarks
1	Hub Seal Surface Wear			Contact Airflex for details
	Hub Friction Surface Wear			
	Hub drive pin diameter wear 5-20 CBC			
2	Cylinder Seal Surface			
	Cylinder Friction Surface			
3	Piston Friction Surface Wear & Rotor Thickness			
	Piston Bushing Bore			
7	Torque Tube 20-72 CBC			
5,6	Friction disc core plate bore, IB, 12 point bushing			
36,50	Short & Long Arm Bushing (round)			
37,51	Short & Long Arm Reaction Pin (round)			
38,52	Short & Long Arm Bushing (rectangular)			
40,54	Short & Long Arm Reaction Pin (Square)			
58	Torque Tube Bushing			

**Table 9  
Friction Material Wear Limit**

CBC Model	Friction Lining Thickness (NEW)	Minimum Thickness
5	0.079"	0.020"
10	0.109"	0.027"
15	0.158"	0.035
20	0.158"	0.040"
25	0.178"	0.045"
30	0.197"	0.049"
35	0.217"	0.054"
40	0.217"	0.054"
45	0.236"	0.060"
50	0.256"	0.064"
55	0.296"	0.074"
60	0.355"	0.089"
66	0.355"	0.065"
72	0.512"	0.092"

(14) - Outer Spring  
(32) - Inner Spring

**Table 10  
Spring Free Height**

CBC Model	Spring	Spring Free Height (NEW)	Minimum Spring Free Height
5	Inner	1.910"	1.793"
	Outer	1.910"	1.793"
10	Inner	2.260"	2.132"
	Outer	2.260"	2.132"
15	Inner	2.390"	2.258"
	Outer	2.390"	2.258"
20	Inner	3.410"	3.248"
	Outer	3.410"	3.248"
25	Inner	3.750"	3.578"
	Outer	3.600"	3.432"
30	Inner	4.970"	4.761"
	Outer	4.730"	4.582"
35	Inner	6.460"	6.206"
	Outer	6.220"	5.973"
40	Inner	6.510"	6.255"
	Outer	6.130"	5.886"
45	Inner	7.130"	6.856"
	Outer	6.750"	6.488"
50	Inner	7.930"	7.632"
	Outer	7.550"	7.264"
55	Inner	9.230"	8.893"
	Outer	8.850"	8.525"
60	Inner	10.880"	10.494"
	Outer	10.500"	10.125"
66	Inner	10.380"	10.009"
	Outer	10.000"	9.640"
72	Inner	12.860"	12.240"
	Outer	12.300"	11.871"

# 7.0 CBC IDENTIFICATION

## 7.1 Explanation of Alpha Designations

### 7.1.1 BOM Numeric Numbers

1080XXAA → These numbers will designate the unit size.

1080XXAA → This letter designates the style of element.

- |   |            |   |   |
|---|------------|---|---|
| A | Bore & Key | D | Hub side mounted Taper Lock with no Taper Lock Seal       |
| B | Taper Lock | E | Taper Lock with Counterbore Seal, with Rotor Seal Adapter |
| C | Rough Bore |   |   |

1080XXAA → The second letter designates the mounting configuration.

- |   |                   |
|---|-------------------|
| A | SHORT ARMS        |
| B | LESS BUSHING      |
| C | BUSHINGS          |
| D | SHORT & LONG      |
| E | BUSHING LONG ARM  |
| F | BUSHING SHORT ARM |

### 7.1.2 Element Assembly Number

1464XXAA#### → These numbers will designate the unit (Model) size.

1464XXAA#### → This letter designates the style of element.

- |   |                       |
|---|-----------------------|
| A | BORE & KEY/ROUGH BORE |
| B | TAPER LOCK            |
| C | ROUGH BORE            |

1464XXAA#### → This letter designates the spring configuration.

Letter Designator	A	B	C	D	E	F	G	H	I	J	K	L
Outer Springs	9	9	9	9	6	6	6	6	3	3	3	3
Inner Springs	9	6	3	0	9	6	3	0	9	6	3	0
Standard Configuration		<b>25-66 CBC</b>										
Letter Designator	M	N	P	Q	R	S	T	U	V	W	X	
Outer Springs	0	0	0	12	12	12	12	15	15	15	15	
Inner Springs	9	6	3	9	6	3	0	9	6	3	0	
Standard Configuration				<b>72 CBC</b>				<b>5-20 CBC</b>				

1464XXAA#### → The pounds will designate the bore size and will vary with each order.

1464XXAA## → There will only be two pounds for the taper lock.

## 7.2 CBC Basic Part Number

1080XXAA	BORE AND KEY W/2 SHORT ARMS
1080XXBA	TAPER LOCK W/2 SHORT ARMS
1080XXCA	ROUGH BORE W/2 SHORT ARMS
1080XXAB	BORE AND KEY L/BUSHING MIN. BORE
1080XXBB	TAPER LOCK L/BUSHING MIN. BORE
1080XXCB	ROUGH BORE L/BUSHING MIN.. BORE
1080XXAC	BORE AND KEY W/BUSHING MIN.. BORE
1080XXBC	TAPER LOCK W/BUSHING MIN.. BORE
1080XXCC	ROUGH BORE W/BUSHING MIN.. BORE
1080XXAD	BORE AND KEY W/SHORT ARM AND LONG ARM
1080XXBD	TAPER LOCK W/SHORT ARM AND LONG ARM
1080XXCD	ROUGH BORE W/SHORT ARM AND LONG ARM
1080XXAE	BORE AND KEY W/BUSHING AND LONG ARM
1080XXBE	TAPER LOCK W/BUSHING AND LONG ARM
1080XXCE	ROUGH BORE W/BUSHING AND LONG ARM
1080XXAF	BORE AND KEY W/BUSHING AND SHORT ARM
1080XXBF	TAPER LOCK W/BUSHING AND SHORT ARM
1080XXCF	ROUGH BORE W/BUSHING AND SHORT ARM

## 7.3 CBC Assembly Numbers

Model	BOM	Element	Assy. drawing	Kits
5CBC	108028	146477		146482
10CBC	108029	146439		146483
15CBC	108030	146440		146484
20CBC	108031	146441		146485
25CBC	108032	146442		146486
30CBC	108033	146443		146487
35CBC	108034	146445		146488
40CBC	108035	146446	514777	146489
45CBC	108036	146438	514737	146490
50CBC	108037	146488	514776	146491
55CBC	108038	146449	514764	146492
60CBC	108039	146450	514833	146493
66CBC	108040	146451	514841	146494
75CBC	108041	146480		146495

## 7.4 CBC Kit Alpha Designations

Kit Description	Alpha Designation
Bushing Kit	AA
Short Arm Kit	BB
Long Arm Kit	CC
Lining Kit	DD
Element Seal Kit	FF
Shaft Seal Kit	GG
Shaft Seal Repair Kit	HH
Strap Kit	JJ

EXAMPLE: 45CBCLONG ARM KIT = **146490CC**

Kit	Item	Contents
<b>Bushing Kit</b>	<b>31</b> <b>26</b> -	<b>12 Bushings</b> <b>12 Bolts</b> <b>Loctite®</b>
<b>Short Arm Kit</b>	-	<b>Short Arm Hardware</b> <b>Loctite®</b>
<b>Long Arm Kit</b>	-	<b>Long Arm Hardware</b> <b>Loctite®</b>
<b>Lining Kit</b>	<b>5(6)</b>	<b>Friction Disc</b>
<b>Element Seal Kit</b>	-	<b>Inner Piston Seal</b> <b>Outer Piston Seal</b> <b>Inner Face seal</b> <b>Outer Face Seal</b> <b>Dow® 55 O-ring Lube</b>
<b>Shaft Seal Kit</b>		<b>Shaft Seal Assembly</b>
<b>Shaft Seal Repair Kit</b>		<b>Four O-rings</b>
<b>Strap Kit</b>	<b>19</b> <b>20</b> <b>22</b>	<b>Strap</b> <b>Four Bolts</b> <b>Four Spring Pins</b>

## 8.0 Parts and Kits

### 8.1 5 CBC Parts & Kits

<b>5 CBC</b> <b>146438AB (514737)</b> <b>Rough Bore &amp; Key Assembly 15 outer and 9 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514966-####
2	1	Cylinder	514962-0100
3	1	Piston	514964
5	2	Friction Disc	416864
7	3	Torque Tube	N/A
9	1	Piston Seal (I.D.)	000402x0070
10	1	Piston Seal (O.D.)	000402x0077
11	1	Face Seal (outer)	000073x0407
13	12	Socket Head Screw	000401x0030
14	15	Outer Spring	416816-25
17	3	Spring Pin	000382x0055
18	12	Serrated Safety	000404x0017
19	2	Strap	416810-06
20	4	Socket Head Screw	000433x0401
22	4	Spring Pin	000382x0053
32	9	Inner Spring	416816-26
58	3	Polylube Bushing	000432x0011

<b>5 CBC</b> <b>146438BB (514960)</b> <b>Taper Lock Assembly 15 outer and 9 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514967-##
2	1	Cylinder	514962-##
3	1	Piston	514964
5	2	Friction Disc	416864
7	3	Torque Tube	N/A
9	1	Piston Seal (I.D.)	000402x0070
10	1	Piston Seal (O.D.)	000402x0077
11	1	Face Seal (outer)	000073x0407
13	12	Socket Head Screw	000401x0030
14	15	Outer Spring	416816-25
17	3	Spring Pin	000382x0055
18	12	Serrated Safety	000404x0017
19	2	Strap	416810-06
20	4	Socket Head Screw	000433x0401
22	4	Spring Pin	000382x0053
32	9	Inner Spring	416816-26
58	3	Polylube Bushing	000432x0011



**5 CBC 12 Point Bushing Kit - 146482AA (308404)**

Item	Quantity	Description	Part Number
26	12	Hex Head Screw	000391x0503
31	12	CBC Clutch Bushing	416809-01
-	1	Loctite® #243, 10ml	000153x1238
-	1	CBC 16100.1, Instruction Sheet	204178

**5 CBC Short Arm Kit - 146482BB (416928)**

Item	Quantity	Description	Part Number
36	1	CBC Round Reaction Pin Bushing	416804-01
37	1	CBC Round Reaction Pin	416802-01
38	1	CBC Square Reaction Pin Bushing	416805-01
39	4	Hex Head Screw	000391x0401
40	1	CBC Square Reaction Pin	416803-01
41	2	CBC Retainer Plate	308381-01
42	2	CBC Short Arm Plate	416806-01
43	4	Hex Head Screw	000391x0504
44	4	Hex Head Screw	000391x0502
45	4	Flat Washer	000067x0057
46	4	CBC Arm Step Bushing	308380-02
47	8	Lock Nut	000414x0006
48	2	Snap Ring	000190x0104
94	4	Lock Nut	000414x0006
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1 instruction Sheet	204178

**5 CBC Long Arm Kit - 146482CC (416930)**

Item	Quantity	Description	Part Number
43	4	Hex Head Screw	000391x0502
44	8	Hex Head Screw	000391x0401
45	4	Flat Washer	000067x0058
46	4	CBC Arm Step Bushing	308380-01
47	8	Lock Nut	000414x0005
50	1	CBC Round Reaction Pin	416804-01
51	1	CBC Round Reaction Pin	416802-01
52	1	CBC Square Reaction Pin	416805-01
54	1	CBC Square Reaction Pin	416803-01
55	2	CBC Retaining Plate	308381-01
56	2	CBC Long Arm Plate	416807-01
57	2	Snap Ring	000190x0105
94	4	Lock Nut	000414x0006
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1, Instruction sheet	204178

**5 CBC Lining Kit - 146482DD  
(416932)**

Item	Quantity	Description	Part Number
5	1	Friction Disc Assembly	416864
19	2	CBC Clutch Strap	416810-06
20	4	Socket Head Screw (low head)	000433x0401
22	4	Roll Pin	000382x0053
-	1	CBC 16100.1 Instruction Manual	204178
-	1	Loctite #243, 10 ml Bottle	000153x1238

**5 CBC Piston Seal Kit - 146482FF**

Item	Quantity	Description	Part Number
9	1	Piston Seal (ID)	<b>Call Airflex for Details</b>
10	1	Piston Seal (OD)	
11	1	Face Seal (outer)	
59	1	Seal (inner)	
-	1	Dow Corning <sup>®</sup> 55 O-ring Lube	

**5 CBC Shaft Seal Assembly - 146482GG**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**5 CBC Shaft Seal Repair Kit - 146482HH**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**5 CBC Strap Kit - 146482JJ**

Item	Quantity	Description	Part Number
19	2	CBC Clutch Strap	416810-06
20	4	Socket Head Screw (low head)	000433x0401
22	4	Roll Pin	000382x0053

## 8.2 10 CBC Parts & Kits

<b>10 CBC 146439AB (514952) Rough Bore &amp; Key Assembly 15 outer and 9 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514958-####
2	1	Cylinder	514954-0100
3	1	Piston	514956
5	2	Friction Disc	416863
7	3	Torque Tube	N/A
9	1	Piston Seal (I.D.)	000402x0069
10	1	Piston Seal (O.D.)	000402x0076
11	1	Face Seal (outer)	000073x0406
13	12	Socket Head Screw	000401x0029
14	15	Outer Spring	416816-23
17	3	Spring Pin	000382x0055
18	12	Serrated Safety	000404x0017
19	2	Strap	416810-06
20	4	Socket Head Screw	000433x0401
22	4	Spring Pin	000382x0053
32	9	Inner Spring	416816-24
58	3	Polylube Bushing	000432x0010

<b>10 CBC 146439BB (514952) Taper Lock Assembly 15 outer and 9 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514959-##
2	1	Cylinder	514954-##
3	1	Piston	514956
5	2	Friction Disc	416863
7	3	Torque Tube	N/A
9	1	Piston Seal (I.D.)	000402x0069
10	1	Piston Seal (O.D.)	000402x0076
11	1	Face Seal (outer)	000073x0406
13	12	Socket Head Screw	000401x0029
14	15	Outer Spring	416816-23
17	3	Spring Pin	000382x0055
18	12	Serrated Safety	000404x0017
19	2	Strap	416810-06
20	4	Socket Head Screw	000433x0401
22	4	Spring Pin	000382x0053
32	9	Inner Spring	416816-24
58	3	Polylube Bushing	000432x0010

**10 CBC 12 Point Bushing Kit - 146483AA (308404)**

Item	Quantity	Description	Part Number
26	12	Hex Head Screw	000391x0502
31	12	CBC Clutch Bushing	416809-02
-	1	Loctite® #243, 10ml	000153x1238
-	1	CBC 16100.1, Instruction Sheet	204178

**10 CBC Short Arm Kit - 146483BB (416928)**

Item	Quantity	Description	Part Number
36	1	CBC Round Reaction Pin Bushing	416804-01
37	1	CBC Round Reaction Pin	416802-01
38	1	CBC Square Reaction Pin Bushing	416805-01
39	4	Hex Head Screw	000391x0401
40	1	CBC Square Reaction Pin	416803-01
41	2	CBC Retainer Plate	308381-01
42	2	CBC Short Arm Plate	416806-02
43	4	Hex Head Screw	000391x0502
45	4	Flat Washer	000067x0058
46	4	CBC Arm Step Bushing	308380-01
47	4	Lock Nut	000414x0005
48	2	Snap Ring	000190x0105
94	4	Lock Nut	000414x0006
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1 instruction Sheet	204178

**10 CBC Long Arm Kit - 146483CC (416930)**

Item	Quantity	Description	Part Number
43	4	Hex Head Screw	000391x0502
44	8	Hex Head Screw	000391x0401
45	4	Flat Washer	000067x0058
46	4	CBC Arm Step Bushing	308380-01
47	8	Lock Nut	000414x0005
50	1	CBC Round Reaction Pin	416804-01
51	1	CBC Round Reaction Pin	416802-01
52	1	CBC Square Reaction Pin	416805-01
54	1	CBC Square Reaction Pin	416803-01
55	2	CBC Retaining Plate	308381-01
56	2	CBC Long ArmPlate	416807-02
57	2	Snap Ring	000190x0105
94	4	Lock Nut	000414x0006
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1, Instruction sheet	204178

**10 CBC Lining Kit - 146483DD  
(416932)**

Item	Quantity	Description	Part Number
5	1	Friction Disc Assembly	416863
19	2	CBC Clutch Strap	416810-06
20	4	Socket Head Screw (low head)	000433x0401
22	4	Roll Pin	000382x0053
-	1	CBC 16100.1 Instruction Manual	204178
-	1	Loctite #243, 10 ml Bottle	000153x1238

**10 CBC Piston Seal Kit - 146483FF**

Item	Quantity	Description	Part Number
9	1	Piston Seal (ID)	<b>Call Airflex for Details</b>
10	1	Piston Seal (OD)	
11	1	Face Seal (outer)	
59	1	Seal (inner)	
-	1	Dow Corning <sup>®</sup> 55 O-ring Lube	

**10 CBC Shaft Seal Assembly - 146483GG**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**10 CBC Shaft Seal Repair Kit - 146483HH**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**10 CBC Strap Kit - 146483JJ**

Item	Quantity	Description	Part Number
19	2	CBC Clutch Strap	416810-06
20	4	Socket Head Screw (low head)	000433x0401
22	4	Roll Pin	000382x0053

### 8.3 15 CBC Parts & Kits

<b>15 CBC 146440AB (514931) Rough Bore &amp; Key Assembly 15 outer and 9 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514937-#####
2	1	Cylinder	514933-0100
3	1	Piston	514935
5	2	Friction Disc	416862
7	3	Torque Tube	N/A
9	1	Piston Seal (I.D.)	000402x0068
10	1	Piston Seal (O.D.)	000431x0012
11	1	Face Seal (outer)	000073x0405
13	12	Socket Head Screw	000401x0028
14	15	Outer Spring	416816-21
17	3	Spring Pin	000382x0055
18	12	Serrated Safety	000404x0016
19	2	Strap	416810-05
20	4	Socket Head Screw	000433x0401
22	4	Spring Pin	000382x0052
32	9	Inner Spring	416816-22
58	3	Polylube Bushing	000432x0010

<b>15 CBC 146440BB (514931) Taper Lock Assembly 15 outer and 9 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514938-##
2	1	Cylinder	514933-##
3	1	Piston	514935
5	2	Friction Disc	416862
7	3	Torque Tube	N/A
9	1	Piston Seal (I.D.)	000402x0068
10	1	Piston Seal (O.D.)	000431x0012
11	1	Face Seal (outer)	000073x0405
13	12	Socket Head Screw	000401x0028
14	15	Outer Spring	416816-21
17	3	Spring Pin	000382x0055
18	12	Serrated Safety	000404x0016
19	2	Strap	416810-05
20	4	Socket Head Screw	000433x0401
22	4	Spring Pin	000382x0052
32	9	Inner Spring	416816-22
58	3	Polylube Bushing	000432x0010

**15 CBC 12 Point Bushing Kit - 146484AA (308404)**

Item	Quantity	Description	Part Number
26	12	Hex Head Screw	000391x0601
31	12	CBC Clutch Bushing	416809-03
-	1	Loctite® #243, 10ml	000153x1238
-	1	CBC 16100.1, Instruction Sheet	204178

**15 CBC Short Arm Kit - 146484BB (416928)**

Item	Quantity	Description	Part Number
36	1	CBC Round Reaction Pin Bushing	416804-02
37	1	CBC Round Reaction Pin	416802-02
38	1	CBC Square Reaction Pin Bushing	416805-02
39	4	Hex Head Screw	000391x0503
40	1	CBC Square Reaction Pin	416803-02
41	2	CBC Retainer Plate	308381-02
42	2	CBC Short Arm Plate	416806-03
43	4	Hex Head Screw	000391x0504
45	4	Flat Washer	000067x0058
46	4	CBC Arm Step Bushing	308380-01
47	4	Lock Nut	000414x0005
48	2	Snap Ring	000190x0105
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1 instruction Sheet	204178

**15 CBC Long Arm Kit - 146484CC (416930)**

Item	Quantity	Description	Part Number
43	4	Hex Head Screw	000391x0504
44	8	Hex Head Screw	000391x0503
45	4	Flat Washer	000067x0057
46	4	CBC Arm Step Bushing	308380-02
47	8	Lock Nut	000414x0006
50	1	CBC Round Reaction Pin	416804-01
51	1	CBC Round Reaction Pin	416802-01
52	1	CBC Square Reaction Pin	416805-01
54	1	CBC Square Reaction Pin	416803-01
55	2	CBC Retaining Plate	308381-01
56	2	CBC Long ArmPlate	416807-03
57	2	Snap Ring	000190x0105
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1, Instruction sheet	204178

**15 CBC Lining Kit - 146484DD  
(416932)**

Item	Quantity	Description	Part Number
5	1	Friction Disc Assembly	416862
19	2	CBC Clutch Strap	416810-05
20	4	Socket Head Screw (low head)	000433x0401
22	4	Roll Pin	000382x0052
-	1	CBC 16100.1 Instruction Manual	204178
-	1	Loctite #243, 10 ml Bottle	000153x1238

**15 CBC Piston Seal Kit - 146484FF**

Item	Quantity	Description	Part Number
9	1	Piston Seal (ID)	<b>Call Airflex for Details</b>
10	1	Piston Seal (OD)	
11	1	Face Seal (outer)	
59	1	Seal (inner)	
-	1	Dow Corning <sup>®</sup> 55 O-ring Lube	

**15 CBC Shaft Seal Assembly - 146484GG**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**15 CBC Shaft Seal Repair Kit - 146484HH**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**15 CBC Strap Kit - 146484JJ**

Item	Quantity	Description	Part Number
19	2	CBC Clutch Strap	416810-05
20	4	Socket Head Screw (low head)	000433x0401
22	4	Roll Pin	000382x0052



## 8.4 20 CBC Parts & Kits

<b>20 CBC 146441AB (514931) Rough Bore &amp; Key Assembly 15 outer and 9 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514926-####
2	1	Cylinder	514922-0100
3	1	Piston	514924
5	2	Friction Disc	416861
7	3	Torque Tube	N/A
9	1	Piston Seal (I.D.)	000402x0067
10	1	Piston Seal (O.D.)	000431x0011
11	1	Face Seal (outer)	000073x0404
13	12	Socket Head Screw	000401x0027
14	15	Outer Spring	416816-19
17	3	Spring Pin	000382x0035
18	12	Serrated Safety	000404x0015
19	2	Strap	416810-05
20	4	Socket Head Screw	000433x0401
22	4	Spring Pin	000382x0052
32	9	Inner Spring	416816-20
33	3	Pipe Plug	000077x0004
58	3	Polylube Bushing	000432x0009

<b>20 CBC 146441BB (514928) Taper Lock Assembly 15 outer and 9 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514927-##
2	1	Cylinder	514922-##
3	1	Piston	514924
5	2	Friction Disc	416861
7	3	Torque Tube	N/A
9	1	Piston Seal (I.D.)	000402x0067
10	1	Piston Seal (O.D.)	000431x0011
11	1	Face Seal (outer)	000073x0404
13	12	Socket Head Screw	000401x0027
14	15	Outer Spring	416816-19
17	3	Spring Pin	000382x0035
18	12	Serrated Safety	000404x0015
19	2	Strap	416810-05
20	4	Socket Head Screw	000433x0401
22	4	Spring Pin	000382x0052
32	9	Inner Spring	416816-20
33	3	Pipe Plug	000077x0004
58	3	Polylube Bushing	000432x0009

**20 CBC 12 Point Bushing Kit - 146485AA (308404)**

Item	Quantity	Description	Part Number
26	12	Hex Head Screw	000391x0802
31	12	CBC Clutch Bushing	416809-04
-	1	Loctite® #243, 10ml	000153x1238
-	1	CBC 16100.1, Instruction Sheet	204178

**20 CBC Short Arm Kit - 146485BB (416928)**

Item	Quantity	Description	Part Number
36	1	CBC Round Reaction Pin Bushing	416804-02
37	1	CBC Round Reaction Pin	416802-02
38	1	CBC Square Reaction Pin Bushing	416805-02
39	4	Hex Head Screw	000391x0503
40	1	CBC Square Reaction Pin	416803-02
41	2	CBC Retainer Plate	308381-02
42	2	CBC Short Arm Plate	416806-04
43	4	Hex Head Screw	000391x0600
44	4	Hex Head Screw	000391x0502
45	4	Flat Washer	000067x0057
46	4	CBC Arm Step Bushing	308380-03
47	4	Lock Nut	000414x0006
48	2	Snap Ring	000190x0104
94	4	Lock Nut	000414x0007
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1 instruction Sheet	204178

**20 CBC Long Arm Kit - 146485CC (416930)**

Item	Quantity	Description	Part Number
43	4	Hex Head Screw	000391x0600
44	8	Hex Head Screw	000391x0503
45	4	Flat Washer	000067x0057
46	4	CBC Arm Step Bushing	308380-03
47	4	Lock Nut	000414x0006
50	1	CBC Round Reaction Pin	416804-01
51	1	CBC Round Reaction Pin	416802-01
52	1	CBC Square Reaction Pin	416805-01
53	4	Hex Head Screw	000391x0401
54	1	CBC Square Reaction Pin	416803-01
55	2	CBC Retaining Plate	308381-01
56	2	CBC Long Arm Plate	416807-04
57	2	Snap Ring	000190x0105
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1, Instruction sheet	204178

<b>20 CBC Lining Kit - 146485DD (416932)</b>			
<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
5	1	Friction Disc Assembly	416861
19	2	CBC Clutch Strap	416810-05
20	4	Socket Head Screw (low head)	000433x0401
22	4	Roll Pin	000382x0052
-	1	CBC 16100.1 Instruction Manual	204178
-	1	Loctite #243, 10 ml Bottle	000153x1238

<b>20 CBC Piston Seal Kit - 146485FF</b>			
<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
9	1	Piston Seal (ID)	000402x0067
10	1	Piston Seal (OD)	000431x0011
11	1	Face Seal (outer)	000073x0404
59	1	Seal (inner)	N/A
-	1	Dow Corning® 55 O-ring Lube	000153x1239

<b>20 CBC Shaft Seal Assembly - 146485GG</b>			
<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
<b>Call Airflex for Details</b>			

<b>20 CBC Shaft Seal Repair Kit - 146485HH</b>			
<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
<b>Call Airflex for Details</b>			

<b>20 CBC Strap Kit - 146485JJ</b>			
<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
19	2	CBC Clutch Strap	416810-05
20	4	Socket Head Screw (low head)	000433x0401
22	4	Roll Pin	000382x0052

## 8.5 25 CBC Parts & Kits

<b>25 CBC 146442AB (514913) Rough Bore &amp; Key Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514911-####
2	1	Cylinder	514907-0100
3	1	Piston	514909
5	2	Friction Disc	416860
7	3	Torque Tube	416815-05
9	1	Piston Seal (I.D.)	000402x0066
10	1	Piston Seal (O.D.)	000431x0010
11	1	Face Seal (outer)	000073x0402
13	12	Socket Head Screw	000401x0026
14	9	Outer Spring	416816-17
17	3	Spring Pin	000382x0054
18	12	Serrated Safety	000404x0001
19	2	Strap	416810-04
20	4	Socket Head Screw	000433x0601
22	4	Spring Pin	000382x0051
32	6	Inner Spring	416816-18
33	3	Pipe Plug	000077x0003
58	3	Polylube Bushing	000432x0008
59	1	O-ring	000073x0403

<b>25 CBC 146442BB (514913) Taper Lock Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514912-##
2	1	Cylinder	514907-##
3	1	Piston	514909
5	2	Friction Disc	416860
7	3	Torque Tube	416815-05
9	1	Piston Seal (I.D.)	000402x0066
10	1	Piston Seal (O.D.)	000431x0010
11	1	Face Seal (outer)	000073x0402
13	12	Socket Head Screw	000401x0026
14	9	Outer Spring	416816-17
17	3	Spring Pin	000382x0054
18	12	Serrated Safety	000404x0001
19	2	Strap	416810-04
20	4	Socket Head Screw	000433x0601
22	4	Spring Pin	000382x0051
32	6	Inner Spring	416816-18
33	3	Pipe Plug	000077x0003
58	3	Polylube Bushing	000432x0008
59	1	O-ring	000073x0403

**25 CBC 12 Point Bushing Kit - 146486AA (308404)**

Item	Quantity	Description	Part Number
26	12	Hex Head Screw	000391x1002
31	12	CBC Clutch Bushing	416809-05
-	1	Loctite® #243, 10ml	000153x1238
-	1	CBC 16100.1, Instruction Sheet	204178

**25 CBC Short Arm Kit - 146486BB (416928)**

Item	Quantity	Description	Part Number
36	1	CBC Round Reaction Pin Bushing	416804-03
37	1	CBC Round Reaction Pin	416802-03
38	1	CBC Square Reaction Pin Bushing	416805-03
39	4	Hex Head Screw	000391x0503
40	1	CBC Square Reaction Pin	416803-03
41	2	CBC Retainer Plate	308381-02
42	2	CBC Short Arm Plate	416806-05
43	8	Hex Head Screw	000391x0803
44	4	Hex Head Screw	N/A
45	4	Flat Washer	000067x0056
46	4	CBC Arm Step Bushing	308380-04
47	8	Lock Nut	000414x0008
48	2	Snap Ring	000190x0103
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1 instruction Sheet	204178

**25 CBC Long Arm Kit - 146486CC (416930)**

Item	Quantity	Description	Part Number
43	4	Hex Head Screw	000391x0803
44	8	Hex Head Screw	000391x0802
45	4	Flat Washer	000067x0057
46	4	CBC Arm Step Bushing	308380-04
47	4	Lock Nut	000414x0008
50	1	CBC Round Reaction Pin	416804-02
51	1	CBC Round Reaction Pin	416802-02
52	1	CBC Square Reaction Pin	416805-02
53	4	Hex Head Screw	000391x0503
54	1	CBC Square Reaction Pin	416803-02
55	2	CBC Retaining Plate	308381-02
56	2	CBC Long Arm Plate	416807-05
57	2	Snap Ring	000190x0104
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1, Instruction sheet	204178

**25 CBC Lining Kit - 146486DD  
(416932)**

Item	Quantity	Description	Part Number
5	1	Friction Disc Assembly	416860
19	2	CBC Clutch Strap	416810-04
20	4	Socket Head Screw (low head)	000433x0601
22	4	Roll Pin	000382x0051
-	1	CBC 16100.1 Instruction Manual	204178
-	1	Loctite #243, 10 ml Bottle	000153x1238

**25 CBC Piston Seal Kit - 146486FF**

Item	Quantity	Description	Part Number
9	1	Piston Seal (ID)	000402x0066
10	1	Piston Seal (OD)	000431x0010
11	1	Face Seal (outer)	000073x0402
59	1	Seal (inner)	000073x0403
-	1	Dow Corning <sup>®</sup> 55 O-ring Lube	000153x1239

**25 CBC Shaft Seal Assembly - 146486GG**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**25 CBC Shaft Seal Repair Kit - 146486HH**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**25 CBC Strap Kit - 146486JJ**

Item	Quantity	Description	Part Number
19	2	CBC Clutch Strap	416810-04
20	4	Socket Head Screw (low head)	000433x0601
22	4	Roll Pin	000382x0052

## 8.6 30 CBC Parts & Kits

<b>30 CBC 146443AB (514905) Rough Bore &amp; Key Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514903-####
2	1	Cylinder	514899-0100
3	1	Piston	514901
5	2	Friction Disc	416917
7	3	Torque Tube	416815-06
9	1	Piston Seal (I.D.)	000402x0065
10	1	Piston Seal (O.D.)	000431x0009
11	1	Face Seal (outer)	000073x0401
13	12	Socket Head Screw	000401x0025
14	9	Outer Spring	416816-15
17	3	Spring Pin	000382x0043
18	12	Serrated Safety	000404x0003
19	2	Strap	416810-03
20	4	Socket Head Screw	000433x0801
22	4	Spring Pin	000382x0047
32	6	Inner Spring	416816-16
33	3	Pipe Plug	000077x0003
58	3	Polyube Bushing	000432x0007
59	1	O-ring	000073x0297

<b>30 CBC 146443BB (514905) Taper Lock Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514904-##
2	1	Cylinder	514899-##
3	1	Piston	514901
5	2	Friction Disc	416917
7	3	Torque Tube	416815-06
9	1	Piston Seal (I.D.)	000402x0065
10	1	Piston Seal (O.D.)	000431x0009
11	1	Face Seal (outer)	000073x0401
13	12	Socket Head Screw	000401x0025
14	9	Outer Spring	416816-15
17	3	Spring Pin	000382x0043
18	12	Serrated Safety	000404x0003
19	2	Strap	416810-03
20	4	Socket Head Screw	000433x0801
22	4	Spring Pin	000382x0047
32	6	Inner Spring	416816-16
33	3	Pipe Plug	000077x0003
58	3	Polyube Bushing	000432x0007
59	1	O-ring	00073x0297

**30 CBC 12 Point Bushing Kit - 146487AA (308404)**

Item	Quantity	Description	Part Number
26	12	Hex Head Screw	000391x1401
31	12	CBC Clutch Bushing	416809-06
-	1	Loctite® #243, 10ml	000153x1238
-	1	CBC 16100.1, Instruction Sheet	204178

**30 CBC Short Arm Kit - 146487BB (416796)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x0009
36	1	CBC Round Reaction Pin Bushing	416804-04
37	1	CBC Round Reaction Pin	416802-04
38	1	CBC Square Reaction Pin Bushing	416805-04
39	4	Hex Head Screw	000391x0601
40	1	CBC Square Reaction Pin	416803-04
41	2	CBC Retainer Plate	308381-03
42	2	CBC Short Arm Plate	416806-06
43	4	Hex Head Screw	000391x1005
44	4	Hex Head Screw	N/A
45	4	Flat Washer	000067x0051
46	4	CBC Arm Step Bushing	308380-05
47	8	Lock Nut	000414x0009
48	2	Snap Ring	000190x0102
49	2	CBC Arm Backing Plate	416808-03
93	4	Socket Head Screw	000433x1001
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1 instruction Sheet	204178

**30 CBC Long Arm Kit - 146487CC (416868)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x0801
43	4	Hex Head Screw	000391x1004
45	4	Flat Washer	000067x0051
46	4	CBC Arm Step Bushing	308380-05
47	8	Lock Nut	000414x0009
49	2	CBC Arm Backing Plate	416808-03
50	1	CBC Round Reaction Pin	416804-03
51	1	CBC Round Reaction Pin	416802-03
52	1	CBC Square Reaction Pin	416805-03
53	4	Hex Head Screw	000391x0503
54	1	CBC Square Reaction Pin	416803-03
55	2	CBC Retaining Plate	308381-02
56	2	CBC Long Arm Plate	416807-06
57	2	Snap Ring	000190x0103
93	4	Socket Head Screw	000433x1002
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1, Instruction sheet	204178



**30 CBC Lining Kit - 146487DD  
(416932)**

Item	Quantity	Description	Part Number
5	1	Friction Disc Assembly	416917
19	2	CBC Clutch Strap	416810-03
20	4	Socket Head Screw (low head)	000433x0801
22	4	Roll Pin	000382x0047
-	1	CBC 16100.1 Instruction Manual	204178
-	1	Loctite #243, 10 ml Bottle	000153x1238

**30 CBC Piston Seal Kit - 146487FF**

Item	Quantity	Description	Part Number
9	1	Piston Seal (ID)	000402x0065
10	1	Piston Seal (OD)	000431x0009
11	1	Face Seal (outer)	000073x0401
59	1	Seal (inner)	000073x0297
-	1	Dow Corning <sup>®</sup> 55 O-ring Lube	000153x1239

**30 CBC Shaft Seal Assembly - 146487GG**

Item	Quantity	Description	Part Number
Call Airflex for Details			

**30 CBC Shaft Seal Repair Kit - 146487HH**

Item	Quantity	Description	Part Number
Call Airflex for Details			

**30 CBC Strap Kit - 146487JJ**

Item	Quantity	Description	Part Number
19	2	CBC Clutch Strap	416810-03
20	4	Socket Head Screw (low head)	000433x0801
22	4	Roll Pin	000382x0047

## 8.7 35 CBC Parts & Kits

<b>35 CBC 146445AB (514896) Rough Bore &amp; Key Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514890-####
2	1	Cylinder	514886-0100
3	1	Piston	514888
5	2	Friction Disc	416918
7	3	Torque Tube	416815-07
9	1	Piston Seal (I.D.)	000402x0064
10	1	Piston Seal (O.D.)	000431x0008
11	1	Face Seal (outer)	000073x0400
13	12	Socket Head Screw	000401x0024
14	9	Outer Spring	416816-13
17	3	Spring Pin	000382x0043
18	12	Serrated Safety	000404x0003
19	2	Strap	416810-03
20	4	Socket Head Screw	000433x0801
22	4	Spring Pin	000382x0047
32	6	Inner Spring	416816-14
33	3	Pipe Plug	000077x0003
58	3	Polylube Bushing	000432x0006
59	1	O-ring	000073x0297

<b>35 CBC 146445BB (514896) Taper Lock Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514891-##
2	1	Cylinder	514886-##
3	1	Piston	514888
5	2	Friction Disc	416918
7	3	Torque Tube	416815-07
9	1	Piston Seal (I.D.)	000402x0064
10	1	Piston Seal (O.D.)	000431x0008
11	1	Face Seal (outer)	000073x0400
13	12	Socket Head Screw	000401x0024
14	9	Outer Spring	416816-13
17	3	Spring Pin	000382x0043
18	12	Serrated Safety	000404x0003
19	2	Strap	416810-03
20	4	Socket Head Screw	000433x0801
22	4	Spring Pin	000382x0047
32	6	Inner Spring	416816-14
33	3	Pipe Plug	000077x0003
58	3	Polylube Bushing	000432x0006
59	1	O-ring	000073x0297

**35 CBC 12 Point Bushing Kit - 146488AA (308404)**

Item	Quantity	Description	Part Number
26	12	Hex Head Screw	000391x1401
31	12	CBC Clutch Bushing	416809-07
-	1	Loctite® #243, 10ml	000153x1238
-	1	CBC 16100.1, Instruction Sheet	204178

**35 CBC Short Arm Kit - 146488BB (416796)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x0801
36	1	CBC Round Reaction Pin Bushing	416804-04
37	1	CBC Round Reaction Pin	416802-04
38	1	CBC Square Reaction Pin Bushing	416805-04
39	4	Hex Head Screw	000391x0601
40	1	CBC Square Reaction Pin	416803-04
41	2	CBC Retainer Plate	308381-03
42	2	CBC Short Arm Plate	416806-07
43	4	Hex Head Screw	000391x1005
44	4	Hex Head Screw	N/A
45	4	Flat Washer	000067x0051
46	4	CBC Arm Step Bushing	308380-05
47	8	Lock Nut	000414x0009
48	2	Snap Ring	000190x0102
49	2	CBC Arm Backing Plate	416808-03
93	4	Socket Head Screw	000433x1001
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1 instruction Sheet	204178

**35 CBC Long Arm Kit - 146488CC (416868)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x0801
43	4	Hex Head Screw	000391x1004
45	4	Flat Washer	000067x0051
46	4	CBC Arm Step Bushing	308380-05
47	8	Lock Nut	000414x0009
49	2	CBC Arm Backing Plate	416808-03
50	1	CBC Round Reaction Pin	416804-03
51	1	CBC Round Reaction Pin	416802-03
52	1	CBC Square Reaction Pin	416805-03
53	4	Hex Head Screw	000391x0503
54	1	CBC Square Reaction Pin	416803-03
55	2	CBC Retaining Plate	308381-02
56	2	CBC Long ArmPlate	416807-07
57	2	Snap Ring	000190x0103
93	4	Socket Head Screw	000433x1002
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1, Instruction sheet	204178

**35 CBC Lining Kit - 146488DD  
(416932)**

Item	Quantity	Description	Part Number
5	1	Friction Disc Assembly	416918
19	2	CBC Clutch Strap	416810-03
20	4	Socket Head Screw (low head)	000433x0801
22	4	Roll Pin	000382x0047
-	1	CBC 16100.1 Instruction Manual	204178
-	1	Loctite #243, 10 ml Bottle	000153x1238

**35 CBC Piston Seal Kit - 146488FF**

Item	Quantity	Description	Part Number
9	1	Piston Seal (ID)	000402x0064
10	1	Piston Seal (OD)	000431x0010
11	1	Face Seal (outer)	000073x0400
59	1	Seal (inner)	000073x0297
-	1	Dow Corning <sup>®</sup> 55 O-ring Lube	000153x1239

**35 CBC Shaft Seal Assembly - 146488GG**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**35 CBC Shaft Seal Repair Kit - 146488HH**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**35 CBC Strap Kit - 146488JJ**

Item	Quantity	Description	Part Number
19	2	CBC Clutch Strap	416810-03
20	4	Socket Head Screw (low head)	000433x0801
22	4	Roll Pin	000382x0047

## 8.8 40 CBC Parts & Kits

<b>40 CBC 146445AB (514777) Rough Bore &amp; Key Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514799-####
2	1	Cylinder	514803-0100
3	1	Piston	514801
5	2	Friction Disc	416855
7	3	Torque Tube	416815-08
9	1	Piston Seal (I.D.)	000402x0056
10	1	Piston Seal (O.D.)	000431x0007
11	1	Face Seal (outer)	000073x0392
13	12	Socket Head Screw	000401x0018
14	9	Outer Spring	416816-01
17	3	Spring Pin	000382x0030
18	12	Serrated Safety	000404x0009
19	2	Strap	416810-03
20	4	Socket Head Screw	000433x0801
22	4	Spring Pin	000382x0047
32	6	Inner Spring	416816-02
33	3	Pipe Plug	000077x0008
58	3	Polylube Bushing	000432x0006
59	1	O-ring	000073x0390

<b>40 CBC 146445BB (514777) Taper Lock Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514798-##
2	1	Cylinder	514803-01##
3	1	Piston	514801
5	2	Friction Disc	416855
7	3	Torque Tube	416815-08
9	1	Piston Seal (I.D.)	000402x0056
10	1	Piston Seal (O.D.)	000431x0007
11	1	Face Seal (outer)	000073x0392
13	12	Socket Head Screw	000401x0018
14	9	Outer Spring	416816-01
17	3	Spring Pin	000382x0030
18	12	Serrated Safety	000404x0009
19	2	Strap	416810-03
20	4	Socket Head Screw	000433x0801
22	4	Spring Pin	000382x0047
32	6	Inner Spring	416816-02
33	3	Pipe Plug	000077x0008
58	3	Polylube Bushing	000432x0006
59	1	O-ring	000073x0390

**40 CBC 12 Point Bushing Kit - 146489AA (308404)**

Item	Quantity	Description	Part Number
26	12	Hex Head Screw	000391x1401
31	12	CBC Clutch Bushing	416809-07
-	1	Loctite® #243, 10ml	000153x1238
-	1	CBC 16100.1, Instruction Sheet	204178

**40 CBC Short Arm Kit - 146489BB (416796)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x0801
36	1	CBC Round Reaction Pin Bushing	416804-04
37	1	CBC Round Reaction Pin	416802-04
38	1	CBC Square Reaction Pin Bushing	416805-04
39	4	Hex Head Screw	000391x0601
40	1	CBC Square Reaction Pin	416803-04
41	2	CBC Retainer Plate	308381-03
42	2	CBC Short Arm Plate	416806-08
43	4	Hex Head Screw	000391x1005
44	4	Hex Head Screw	N/A
45	4	Flat Washer	000067x0051
46	4	CBC Arm Step Bushing	308380-05
47	8	Lock Nut	000414x0009
48	2	Snap Ring	000190x0102
49	2	CBC Arm Backing Plate	416808-03
93	4	Socket Head Screw	000433x1001
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1 instruction Sheet	204178

**40 CBC Long Arm Kit - 146489CC (416868)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x0801
43	4	Hex Head Screw	000391x1004
45	4	Flat Washer	000067x0051
46	4	CBC Arm Step Bushing	308380-05
47	8	Lock Nut	000414x0009
49	2	CBC Arm Backing Plate	416808-03
50	1	CBC Round Reaction Pin	416804-03
51	1	CBC Round Reaction Pin	416802-03
52	1	CBC Square Reaction Pin	416805-03
53	4	Hex Head Screw	000391x0503
54	1	CBC Square Reaction Pin	416803-03
55	2	CBC Retaining Plate	308381-02
56	2	CBC Long Arm Plate	416807-08
57	2	Snap Ring	000190x0103
93	4	Socket Head Screw	000433x1001
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1, Instruction sheet	204178

**40 CBC Lining Kit - 146489DD  
(416932)**

Item	Quantity	Description	Part Number
5	1	Friction Disc Assembly	416855
19	2	CBC Clutch Strap	416810-03
20	4	Socket Head Screw (low head)	000433x0801
22	4	Roll Pin	000382x0047
-	1	CBC 16100.1 Instruction Manual	204178
-	1	Loctite #243, 10 ml Bottle	000153x1238

**40 CBC Piston Seal Kit - 146489FF**

Item	Quantity	Description	Part Number
9	1	Piston Seal (ID)	000402x0056
10	1	Piston Seal (OD)	000431x0007
11	1	Face Seal (outer)	000073x0392
59	1	Seal (inner)	000073x0261
-	1	Dow Corning® 55 O-ring Lube	000153x1239

**40 CBC Shaft Seal Assembly - 146489GG**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**40 CBC Shaft Seal Repair Kit - 146489HH**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**40 CBC Strap Kit - 146489JJ**

Item	Quantity	Description	Part Number
19	2	CBC Clutch Strap	416810-03
20	4	Socket Head Screw (low head)	000433x0801
22	4	Roll Pin	000382x0047

**8.9 45 CBC Parts & Kits**

<b>45 CBC 146438AB (514737) Rough Bore &amp; Key Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514765-####
2	1	Cylinder	514739-0100
3	1	Piston	514741
5	2	Friction Disc	416812
7	3	Torque Tube	416815-09
9	1	Piston Seal (I.D.)	000402x0055
10	1	Piston Seal (O.D.)	000431x0006
11	1	Face Seal (outer)	000073x0393
13	12	Socket Head Screw	000401x0018
14	9	Outer Spring	416816-03
17	3	Spring Pin	000382x0036
18	12	Serrated Safety Washer	000404x0009
19	2	Strap	416810-02
20	4	Socket Head Screw	000433x1201
22	4	Spring Pin	000382x0048
32	6	Inner Spring	416816-04
33	3	Plug	000077x0008
58	3	Polytube Bushing	000432x0005
59	1	O-Ring	000073x0391

<b>45 CBC 146438BB (514737) Taper Lock Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514743-##
2	1	Cylinder	514739-##
3	1	Piston	514741
5	2	Friction Disc	416812
7	3	Torque Tube	416815-09
9	1	Piston Seal (I.D.)	000402x0055
10	1	Piston Seal (O.D.)	000431x0006
11	1	Face Seal (outer)	000073x0393
13	12	Socket Head Screw	000401x0018
14	9	Outer Spring	416816-03
17	3	Spring Pin	000382x0036
18	12	Serrated Safety Washer	000404x0009
19	2	Strap	416810-02
20	4	Socket Head Screw	000433x1201
22	4	Spring Pin	000382x0048
32	6	Inner Spring	416816-04
33	3	Plug	000077x0008
58	3	Polytube Bushing	000432x0005
59	1	O-Ring	000073x0391



**45 CBC 12 Point Bushing Kit - 146490AA (308404)**

Item	Quantity	Description	Part Number
26	12	Hex Head Screw	000391x1607
31	12	CBC Clutch Bushing	416809-08
-	1	Loctite® #243, 10ml	000153x1238
-	1	CBC 16100.1, Instruction Sheet	204178

**45 CBC Short Arm Kit - 146490BB (416796)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x1201
36	1	CBC Round Reaction Pin Bushing	416804-05
37	1	CBC Round Reaction Pin	416802-05
38	1	CBC Square Reaction Pin Bushing	416805-05
39	4	Hex Head Screw	000391x0601
40	1	CBC Square Reaction Pin	416803-05
41	2	CBC Retainer Plate	308381-03
42	2	CBC Short Arm Plate	416806-09
43	4	Hex Head Screw	000391x1202
45	4	Flat Washer	000067x0052
46	4	CBC Arm Step Bushing	308380-06
47	8	Lock Nut	000414x0010
48	2	Snap Ring	000190x0101
49	2	CBC Arm Backing Plate	416806-02
93	4	Socket Head Screw	000433x1202
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1 instruction Sheet	204178

**45 CBC Long Arm Kit - 146490CC (416868)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x1201
43	4	Hex Head Screw	000391x1202
45	4	Flat Washer	000067x0052
46	4	CBC Arm Step Bushing	308380-06
47	8	Lock Nut	000414x0010
49	2	CBC arm backing Plate	416808-02
50	1	CBC Round Reaction Pin	416804-04
51	1	CBC Round Reaction Pin	416802-04
52	1	CBC Square Reaction Pin	416805-04
53	4	Hex Head Screw	000391x0601
54	1	CBC Square Reaction Pin	416803-04
55	2	CBC Retaining Plate	308381-03
56	2	CBC Long Arm Plate	416807-09
57	2	Snap Ring	000190x0102
93	4	Socket Head Screw	000433x1202
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1, Instruction sheet	204178

**45 CBC Lining Kit - 146490DD  
(416932)**

Item	Quantity	Description	Part Number
5	1	Friction Disc Assembly	416812
19	2	CBC Clutch Strap	416810-02
20	4	Socket Head Screw (low head)	000433x1201
22	4	Roll Pin	000382x0048
-	1	CBC 16100.1 Instruction Manual	204178
-	1	Loctite #243, 10 ml Bottle	000153x1238

**45 CBC Piston Seal Kit - 146490FF**

Item	Quantity	Description	Part Number
9	1	Piston Seal (ID)	000402x0055
10	1	Piston Seal (OD)	000431x0006
11	1	Face Seal (outer)	000073x0393
59	1	O-Ring	000073x0391
-	1	Dow Corning® 55 O-ring Lube	000153x1239

**45 CBC Shaft Seal Assembly - 146490GG**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**45 CBC Shaft Seal Repair Kit - 146490HH**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**45 CBC Strap Kit - 146490JJ**

Item	Quantity	Description	Part Number
19	2	CBC Clutch Strap	416810-02
20	4	Socket Head Screw (low head)	000433x1201
22	4	Roll Pin	000382x0048

## 8.10 50 CBC Parts & Kits

<b>50 CBC 146448AB (514776) Rough Bore &amp; Key Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514784-####
2	1	Cylinder	514779-0100
3	1	Piston	514781
5	2	Friction Disc	416856
7	3	Torque Tube	416815-10
9	1	Piston Seal (I.D.)	000402x0054
10	1	Piston Seal (O.D.)	000431x0005
11	1	Face Seal (outer)	000073x0395
13	12	Socket Head Screw	000401x0019
14	9	Outer Spring	416816-05
17	3	Spring Pin	000382x0036
18	12	Serrated Safety Washer	000404x0010
19	2	Strap	416810-02
20	4	Socket Head Screw	000433x1201
22	4	Spring Pin	000382x0048
32	6	Inner Spring	416816-06
33	3	Plug	000077x0008
58	3	Polylube Bushing	000432x0004
59	1	O-Ring	000073x0399

<b>50 CBC 146448BB (514776) Taper Lock Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514783-##
2	1	Cylinder	514779-##
3	1	Piston	514781
5	2	Friction Disc	416856
7	3	Torque Tube	416815-10
9	1	Piston Seal (I.D.)	000402x0054
10	1	Piston Seal (O.D.)	000431x0005
11	1	Face Seal (outer)	000073x0395
13	12	Socket Head Screw	000401x0019
14	9	Outer Spring	416816-05
17	3	Spring Pin	000382x0036
18	12	Serrated Safety Washer	000404x0010
19	2	Strap	416810-02
20	4	Socket Head Screw	000433x1201
22	4	Spring Pin	000382x0048
32	6	Inner Spring	416816-06
33	3	Plug	000077x0008
58	3	Polylube Bushing	000432x0004
59	1	O-Ring	000073x0399

**50 CBC 12 Point Bushing Kit - 146491AA (308404)**

Item	Quantity	Description	Part Number
26	12	Hex Head Screw	000391x2007
31	12	CBC Clutch Bushing	416809-09
-	1	Loctite® #243, 10ml	000153x1238
-	1	CBC 16100.1, Instruction Sheet	204178

**50 CBC Short Arm Kit - 146491BB (416796)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x1201
36	1	CBC Round Reaction Pin Bushing	416804-06
37	1	CBC Round Reaction Pin	416802-06
38	1	CBC Square Reaction Pin Bushing	416805-06
39	4	Hex Head Screw	000391x0802
40	1	CBC Square Reaction Pin	416803-06
41	2	CBC Retainer Plate	308381-04
42	2	CBC Short Arm Plate	416806-10
43	4	Hex Head Screw	000391x1200
45	4	Flat Washer	000067x0053
46	4	CBC Arm Step Bushing	308380-07
47	8	Lock Nut	000414x0010
48	2	Snap Ring	000190x0100
49	2	CBC Arm Backing Plate	416808-02
93	4	Socket Head Screw	000433x1203
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1 instruction Sheet	204178

**50 CBC Long Arm Kit - 146491CC (416868)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x1201
43	4	Hex Head Screw	000391x1207
45	4	Flat Washer	000067x0053
46	4	CBC Arm Step Bushing	308380-07
47	8	Lock Nut	000414x0010
49	2	CBC arm backing Plate	416808-02
50	1	CBC Round Reaction Pin	416804-05
51	1	CBC Round Reaction Pin	416802-05
52	1	CBC Square Reaction Pin	416805-05
53	4	Hex Head Screw	000391x0601
54	1	CBC Square Reaction Pin	416803-05
55	2	CBC Retaining Plate	308381-03
56	2	CBC Long Arm Plate	416807-10
57	2	Snap Ring	000190x0101
93	4	Socket Head Screw	000433x1203
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1, Instruction sheet	204178

<b>50 CBC Lining Kit - 146491DD (416932)</b>			
<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
5	1	Friction Disc Assembly	416856
19	2	CBC Clutch Strap	416810-02
20	4	Socket Head Screw (low head)	000433x1201
22	4	Roll Pin	000382x0048
-	1	CBC 16100.1 Instruction Manual	204178
-	1	Loctite #243, 10 ml Bottle	000153x1238

<b>50 CBC Piston Seal Kit - 146491FF</b>			
<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
9	1	Piston Seal (ID)	000402x0054
10	1	Piston Seal (OD)	000431x0005
11	1	Face Seal (outer)	000073x0395
59	1	O-Ring	000073x0399
-	1	Dow Corning® 55 O-ring Lube	000153x1239

<b>50 CBC Shaft Seal Assembly - 146491GG</b>			
<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
<b>Call Airflex for Details</b>			

<b>50 CBC Shaft Seal Repair Kit - 146491HH</b>			
<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
<b>Call Airflex for Details</b>			

<b>50 CBC Strap Kit - 146491JJ</b>			
<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
19	2	CBC Clutch Strap	416810-02
20	4	Socket Head Screw (low head)	000433x1201
22	4	Roll Pin	000382x0048

## 8.11 55 CBC Parts & Kits

<b>55 CBC</b> <b>146449AB (514764)</b> <b>Rough Bore &amp; Key Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514796-####
2	1	Cylinder	514791-0100
3	1	Piston	514793
5	2	Friction Disc	416857
7	3	Torque Tube	416815-11
9	1	Piston Seal (I.D.)	000402x0053
10	1	Piston Seal (O.D.)	000431x0004
11	1	Face Seal (outer)	000073x0396
13	12	Socket Head Screw	000401x0020
14	9	Outer Spring	416816-07
17	3	Spring Pin	000382x0036
18	12	Serrated Safety Washer	000404x0010
19	2	Strap	416810-02
20	4	Socket Head Screw	000433x1201
22	4	Spring Pin	000382x0049
32	6	Inner Spring	416816-08
33	3	Plug	000077x0008
58	3	Polylube Bushing	000432x0003
59	1	O-Ring	000073x0394

<b>55 CBC</b> <b>146449AB (514764)</b> <b>Taper Lock Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514796-##
2	1	Cylinder	514791-##
3	1	Piston	514793
5	2	Friction Disc	416857
7	3	Torque Tube	416815-11
9	1	Piston Seal (I.D.)	000402x0053
10	1	Piston Seal (O.D.)	000431x0004
11	1	Face Seal (outer)	000073x0396
13	12	Socket Head Screw	000401x0020
14	9	Outer Spring	416816-07
17	3	Spring Pin	000382x0036
18	12	Serrated Safety Washer	000404x0010
19	2	Strap	416810-02
20	4	Socket Head Screw	000433x1201
22	4	Spring Pin	000382x0049
32	6	Inner Spring	416816-08
33	3	Plug	000077x0008
58	3	Polylube Bushing	000432x0003
59	1	O-Ring	000073x0394

**55 CBC 12 Point Bushing Kit - 146492AA (308404)**

Item	Quantity	Description	Part Number
26	12	Hex Head Screw	000391x2406
31	12	CBC Clutch Bushing	416809-10
-	1	Loctite® #243, 10ml	000153x1238
-	1	CBC 16100.1, Instruction Sheet	204178

**55 CBC Short Arm Kit - 146492BB (416796)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x1201
36	1	CBC Round Reaction Pin Bushing	416804-06
37	1	CBC Round Reaction Pin	416802-06
38	1	CBC Square Reaction Pin Bushing	416805-06
39	4	Hex Head Screw	000391x0802
40	1	CBC Square Reaction Pin	416803-06
41	2	CBC Retainer Plate	308381-04
42	2	CBC Short Arm Plate	416806-11
43	4	Hex Head Screw	000391x1200
45	4	Flat Washer	000067x0053
46	4	CBC Arm Step Bushing	308380-08
47	8	Lock Nut	000414x0010
48	2	Snap Ring	000190x0100
49	2	CBC Arm Backing Plate	416808-02
93	4	Socket Head Screw	000433x1203
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1 instruction Sheet	204178

**55 CBC Long Arm Kit - 146492CC (416868)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x1201
43	4	Hex Head Screw	000391x1207
45	4	Flat Washer	000067x0053
46	4	CBC Arm Step Bushing	308380-07
47	8	Lock Nut	000414x0010
49	2	CBC arm backing Plate	416808-02
50	1	CBC Round Reaction Pin	416804-05
51	1	CBC Round Reaction Pin	416802-05
52	1	CBC Square Reaction Pin	416805-05
53	4	Hex Head Screw	000391x0601
54	1	CBC Square Reaction Pin	416803-05
55	2	CBC Retaining Plate	308381-03
56	2	CBC Long Arm Plate	416807-10
57	2	Snap Ring	000190x0101
93	4	Socket Head Screw	000433x1203
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1, Instruction sheet	204178

**55 CBC Lining Kit - 146492DD  
(416932)**

Item	Quantity	Description	Part Number
5	1	Friction Disc Assembly	416857
19	2	CBC Clutch Strap	416810-02
20	4	Socket Head Screw (low head)	000433x1201
22	4	Roll Pin	000382x0049
-	1	CBC 16100.1 Instruction Manual	204178
-	1	Loctite #243, 10 ml Bottle	000153x1238

**55 CBC Piston Seal Kit - 146492FF**

Item	Quantity	Description	Part Number
9	1	Piston Seal (ID)	000402x0053
10	1	Piston Seal (OD)	000431x0004
11	1	Face Seal (outer)	000073x0396
59	1	O-Ring	000073x0394
-	1	Dow Corning <sup>®</sup> 55 O-ring Lube	000153x1239

**55 CBC Shaft Seal Assembly - 146492GG**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**55 CBC Shaft Seal Repair Kit - 146492HH**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**55 CBC Strap Kit - 146492JJ**

Item	Quantity	Description	Part Number
19	2	CBC Clutch Strap	416810-02
20	4	Socket Head Screw (low head)	000433x1201
22	4	Roll Pin	000382x0049



## 8.12 60 CBC Parts & Kits

<b>60 CBC 146450AB (514833) Rough Bore &amp; Key Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514840-####
2	1	Cylinder	514835-0100
3	1	Piston	514837
5	2	Friction Disc	416858
7	3	Torque Tube	416815-12
9	1	Piston Seal (I.D.)	000402x0052
10	1	Piston Seal (O.D.)	000431x0003
11	1	Face Seal (outer)	000073x0397
13	12	Socket Head Screw	000401x0021
14	9	Outer Spring	416816-09
17	3	Spring Pin	000382x0036
18	12	Serrated Safety Washer	000404x0007
19	2	Strap	416810-01
20	4	Socket Head Screw	000433x1204
22	4	Spring Pin	000382x0050
32	6	Inner Spring	416816-10
33	3	Plug	000077x0008
58	3	Polylube Bushing	000432x0002
59	1	O-Ring	000073x0396

<b>60 CBC 146450BB (514833) Taper Lock Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514839-##
2	1	Cylinder	514835-##
3	1	Piston	514837
5	2	Friction Disc	416858
7	3	Torque Tube	416815-12
9	1	Piston Seal (I.D.)	000402x0052
10	1	Piston Seal (O.D.)	000431x0003
11	1	Face Seal (outer)	000073x0397
13	12	Socket Head Screw	000401x0021
14	9	Outer Spring	416816-09
17	3	Spring Pin	000382x0036
18	12	Serrated Safety Washer	000404x0007
19	2	Strap	416810-01
20	4	Socket Head Screw	000433x1204
22	4	Spring Pin	000382x0050
32	6	Inner Spring	416816-10
33	3	Plug	000077x0008
58	3	Polylube Bushing	000432x0002
59	1	O-Ring	000073x0396

**60 CBC 12 Point Bushing Kit - 146493AA (308404)**

Item	Quantity	Description	Part Number
26	12	Hex Head Screw	000391x2406
31	12	CBC Clutch Bushing	416809-11
-	1	Loctite® #243, 10ml	000153x1238
-	1	CBC 16100.1, Instruction Sheet	204178

**60 CBC Short Arm Kit - 146493BB (416796)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x1204
36	1	CBC Round Reaction Pin Bushing	416804-07
37	1	CBC Round Reaction Pin	416802-07
38	1	CBC Square Reaction Pin Bushing	416805-07
39	4	Hex Head Screw	000391x0802
40	1	CBC Square Reaction Pin	416803-07
41	2	CBC Retainer Plate	308381-04
42	2	CBC Short Arm Plate	416806-12
43	4	Hex Head Screw	000391x1208
45	4	Flat Washer	000067x0054
46	4	CBC Arm Step Bushing	308380-08
47	8	Lock Nut	000414x0010
48	2	Snap Ring	000190x0099
49	2	CBC Arm Backing Plate	416808-01
93	4	Socket Head Screw	000433x1205
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1 instruction Sheet	204178

**60 CBC Long Arm Kit - 146493CC (416868)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x1204
43	4	Hex Head Screw	000391x1209
45	4	Flat Washer	000067x0054
46	4	CBC Arm Step Bushing	308380-08
47	8	Lock Nut	000414x0010
49	2	CBC arm backing Plate	416808-01
50	1	CBC Round Reaction Pin	416804-06
51	1	CBC Round Reaction Pin	416802-06
52	1	CBC Square Reaction Pin	416805-06
53	4	Hex Head Screw	000391x0802
54	1	CBC Square Reaction Pin	416803-06
55	2	CBC Retaining Plate	308381-04
56	2	CBC Long Arm Plate	416807-12
57	2	Snap Ring	000190x0100
93	4	Socket Head Screw	000433x1205
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1, Instruction sheet	204178

<b>60 CBC Lining Kit - 146493DD (416932)</b>			
<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
5	1	Friction Disc Assembly	416858
19	2	CBC Clutch Strap	416810-01
20	4	Socket Head Screw (low head)	000433x1204
22	4	Roll Pin	000382x0050
-	1	CBC 16100.1 Instruction Manual	204178
-	1	Loctite #243, 10 ml Bottle	000153x1238

<b>60 CBC Piston Seal Kit - 146493FF</b>			
<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
9	1	Piston Seal (ID)	000402x0052
10	1	Piston Seal (OD)	000431x0003
11	1	Face Seal (outer)	000073x0397
59	1	O-Ring	000073x0396
-	1	Dow Corning <sup>®</sup> 55 O-ring Lube	000153x1239

<b>60 CBC Shaft Seal Assembly - 146493GG</b>			
<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
<b>Call Airflex for Details</b>			

<b>60 CBC Shaft Seal Repair Kit - 146493HH</b>			
<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
<b>Call Airflex for Details</b>			

<b>60 CBC Strap Kit - 146493JJ</b>			
<b>Item</b>	<b>Quantity</b>	<b>Description</b>	<b>Part Number</b>
19	2	CBC Clutch Strap	416810-01
20	4	Socket Head Screw (low head)	000433x1204
22	4	Roll Pin	000382x0050

### 8.13 66 CBC Parts & Kits

<b>66 CBC 146496AB (514841) Rough Bore &amp; Key Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514848-####
2	1	Cylinder	514843-0100
3	1	Piston	514845
5	2	Friction Disc	416859
7	3	Torque Tube	416815-13
9	1	Piston Seal (I.D.)	000402x0051
10	1	Piston Seal (O.D.)	000431x0002
11	1	Face Seal (outer)	000073x0398
13	12	Socket Head Screw	000401x0022
14	9	Outer Spring	416816-11
17	4	Spring Pin	000382x0056
18	12	Serrated Safety Washer	000404x0012
19	2	Strap	416810-01
20	4	Socket Head Screw	000433x1204
22	4	Spring Pin	000382x0050
32	6	Inner Spring	416816-12
33	3	Plug	000077x0007
58	3	Polylube Bushing	000432x0002
59	1	O-Ring	000073x0396

<b>66 CBC 146496BB (514841) Taper Lock Assembly 9 outer and 6 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514847-##
2	1	Cylinder	514843-##
3	1	Piston	514845
5	2	Friction Disc	416859
7	3	Torque Tube	416815-13
9	1	Piston Seal (I.D.)	000402x0051
10	1	Piston Seal (O.D.)	000431x0002
11	1	Face Seal (outer)	000073x0398
13	12	Socket Head Screw	000401x0022
14	9	Outer Spring	416816-11
17	4	Spring Pin	000382x0056
18	12	Serrated Safety Washer	000404x0012
19	2	Strap	416810-01
20	4	Socket Head Screw	000433x1204
22	4	Spring Pin	000382x0050
32	6	Inner Spring	416816-12
33	3	Plug	000077x0007
58	3	Polylube Bushing	000432x0002
59	1	O-Ring	000073x0396

**66 CBC 12 Point Bushing Kit - 146494AA (308404)**

Item	Quantity	Description	Part Number
26	12	Hex Head Screw	000391x3002
31	12	CBC Clutch Bushing	416809-12
-	1	Loctite® #243, 10ml	000153x1238
-	1	CBC 16100.1, Instruction Sheet	204178

**66 CBC Short Arm Kit - 146494BB (416796)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x1204
36	1	CBC Round Reaction Pin Bushing	416804-07
37	1	CBC Round Reaction Pin	416802-07
38	1	CBC Square Reaction Pin Bushing	416805-07
39	4	Hex Head Screw	000391x0802
40	1	CBC Square Reaction Pin	416803-07
41	2	CBC Retainer Plate	308381-04
42	2	CBC Short Arm Plate	416806-13
43	4	Hex Head Screw	000391x1403
45	4	Flat Washer	000067x0055
46	4	CBC Arm Step Bushing	308380-09
47	8	Lock Nut	000414x0010
48	2	Snap Ring	000190x0099
49	2	CBC Arm Backing Plate	416808-01
93	4	Socket Head Screw	000433x1205
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1 instruction Sheet	204178

**66 CBC Long Arm Kit - 146494CC (416868)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x1204
43	4	Hex Head Screw	000391x1403
45	4	Flat Washer	000067x0055
46	4	CBC Arm Step Bushing	308380-09
47	4	Lock Nut	000414x0010
49	2	CBC arm backing Plate	416808-01
50	1	CBC Round Reaction Pin	416804-06
51	1	CBC Round Reaction Pin	416802-06
52	1	CBC Square Reaction Pin	416805-06
53	4	Hex Head Screw	000391x0802
54	1	CBC Square Reaction Pin	416803-06
55	2	CBC Retaining Plate	308381-04
56	2	CBC Long Arm Plate	416807-13
57	2	Snap Ring	000190x0100
93	4	Socket Head Screw	000433x1205
94	4	Lock Nut	000414x0003
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1, Instruction sheet	204178

**66 CBC Lining Kit - 146494DD  
(416932)**

Item	Quantity	Description	Part Number
5	1	Friction Disc Assembly	416859
19	2	CBC Clutch Strap	416810-01
20	4	Socket Head Screw (low head)	000433x1204
22	4	Roll Pin	000382x0050
-	1	CBC 16100.1 Instruction Manual	204178
-	1	Loctite #243, 10 ml Bottle	000153x1238

**66 CBC Piston Seal Kit - 146494FF**

Item	Quantity	Description	Part Number
9	1	Piston Seal (ID)	000402x0051
10	1	Piston Seal (OD)	000431x0002
11	1	Face Seal (outer)	000073x0398
59	1	O-Ring	000073x0396
-	1	Dow Corning <sup>®</sup> 55 O-ring Lube	000153x1239

**66 CBC Shaft Seal Assembly - 146494GG**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**66 CBC Shaft Seal Repair Kit - 146494HH**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**66 CBC Strap Kit - 146494JJ**

Item	Quantity	Description	Part Number
19	2	CBC Clutch Strap	416810-01
20	4	Socket Head Screw (low head)	000433x1204
22	4	Roll Pin	000382x0050

## 8.14 72 CBC Parts & Kits

<b>72 CBC 146480AB (514944) Rough Bore &amp; Key Assembly 12 outer and 9 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514951-####
2	1	Cylinder	514946-0100
3	1	Piston	514948
5	2	Friction Disc	416919
7	3	Torque Tube	416815-14
9	1	Piston Seal (I.D.)	000402x0050
10	1	Piston Seal (O.D.)	000431x0001
11	1	Face Seal (outer)	000073x0408
13	12	Socket Head Screw	000401x0031
14	12	Outer Spring	416816-27
17	4	Spring Pin	000382x0056
18	12	Serrated Safety Washer	000404x0002
19	2	Strap	416810-01
20	4	Socket Head Screw	000433x1208
22	4	Spring Pin	000382x0050
32	9	Inner Spring	416816-28
33	3	Plug	000077x0007
58	3	Polytube Bushing	000432x0001
59	1	O-Ring	000073x0409

<b>72 CBC 146480BB (514944) Assembly 12 outer and 9 inner springs</b>			
Item	Quantity	Description	Part Number
1	1	Hub	514950-##
2	1	Cylinder	514946-##
3	1	Piston	514948
5	2	Friction Disc	416919
7	3	Torque Tube	416815-14
9	1	Piston Seal (I.D.)	000402x0050
10	1	Piston Seal (O.D.)	000431x0001
11	1	Face Seal (outer)	000073x0408
13	12	Socket Head Screw	000401x0031
14	12	Outer Spring	416816-27
17	4	Spring Pin	000382x0056
18	12	Serrated Safety Washer	000404x0002
19	2	Strap	416810-01
20	4	Socket Head Screw	000433x1208
22	4	Spring Pin	000382x0050
32	9	Inner Spring	416816-28
33	3	Plug	000077x0007
58	3	Polytube Bushing	000432x0001
59	1	O-Ring	000073x0409

**72 CBC 12 Point Bushing Kit - 146495AA (308404)**

Item	Quantity	Description	Part Number
26	12	Hex Head Screw	000391x3002
31	12	CBC Clutch Bushing	416809-12
-	1	Loctite® #243, 10ml	000153x1238
-	1	CBC 16100.1, Instruction Sheet	204178

**72 CBC Short Arm Kit - 146495BB (416796)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x1206
36	1	CBC Round Reaction Pin Bushing	416804-08
37	1	CBC Round Reaction Pin	416802-08
38	1	CBC Square Reaction Pin Bushing	416805-08
39	4	Hex Head Screw	000391x0802
40	1	CBC Square Reaction Pin	416803-08
41	2	CBC Retainer Plate	308381-04
42	2	CBC Short Arm Plate	416806-14
43	4	Hex Head Screw	000391x1405
45	4	Flat Washer	000067x0055
46	4	CBC Arm Step Bushing	308380-09
47	4	Lock Nut	000414x0010
48	2	Snap Ring	000190x0098
49	2	CBC Arm Backing Plate	416808-01
93	4	Socket Head Screw	000433x1207
94	4	Lock Nut	000414x0003
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1 instruction Sheet	204178

**72 CBC Long Arm Kit - 146495CC (416868)**

Item	Quantity	Description	Part Number
20	4	Socket Head Screw	000433x1206
43	4	Hex Head Screw	000391x1405
45	4	Flat Washer	000067x0055
46	4	CBC Arm Step Bushing	308380-09
47	4	Lock Nut	000414x0010
49	2	CBC arm backing Plate	416808-01
50	1	CBC Round Reaction Pin	416804-07
51	1	CBC Round Reaction Pin	416802-07
52	1	CBC Square Reaction Pin	416805-07
53	4	Hex Head Screw	000391x0802
54	1	CBC Square Reaction Pin	416803-07
55	2	CBC Retaining Plate	308381-04
56	2	CBC Long Arm Plate	416807-14
57	2	Snap Ring	000190x0099
93	4	Socket Head Screw	000433x1207
94	4	Lock Nut	000414x0003
-	1	Loctite® #243, 10 ml	000153x1238
-	1	CBC 16100.1, Instruction sheet	204178



**72 CBC Lining Kit - 146495DD  
(416932)**

Item	Quantity	Description	Part Number
5	1	Friction Disc Assembly	416919
19	2	CBC Clutch Strap	416810-01
20	4	Socket Head Screw (low head)	000433x1208
22	4	Roll Pin	000382x0050
-	1	CBC 16100.1 Instruction Manual	204178
-	1	Loctite #243, 10 ml Bottle	000153x1238

**72 CBC Piston Seal Kit - 146495FF**

Item	Quantity	Description	Part Number
9	1	Piston Seal (ID)	<b>Contact Airflex for details</b>
10	1	Piston Seal (OD)	
11	1	Face Seal (outer)	
59	1	O-Ring	
-	1	Dow Corning® 55 O-ring Lube	

**72 CBC Shaft Seal Assembly - 146495GG**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**72 CBC Shaft Seal Repair Kit - 146495HH**

Item	Quantity	Description	Part Number
<b>Call Airflex for Details</b>			

**72 CBC Strap Kit - 146495JJ**

Item	Quantity	Description	Part Number
19	2	CBC Clutch Strap	416810-01
20	4	Socket Head Screw (low head)	000433x1208
22	4	Roll Pin	000382x0050

# 9.0 REVISIONS

**Original Publication Date: JUNE 2001**

Revision Date	Change

## **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.

**CBC 16100**



**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<sup>®</sup> Model CBC Clutch\Brake Combination



**Caution:**

**Use Only Genuine Airflex<sup>®</sup> 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**

Internet: **[www.airflex.com](http://www.airflex.com)**



**December, 2001  
204177**

© Copyright Eaton Corp., 2001. All rights reserved.