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Boston Gear

C-Face Clutch/Brakes

INSTALLATION AND MAINTENANCE MANUAL

CBC Series — Face-Mounted Clutch Brakes

CC Series — Face-Mounted Clutches

RATINGS

Clutch/Brake Model	Fits NEMA Frames	Torque Lbs. Ft. Clutch	Torque Lbs. Ft. Brake	Voltage DC	Current Amps Clutch	Current Amps Brake	Resistance Ohms Clutch	Resistance Ohms Brake	Power Watts Clutch	Power Watts Brake	Output Inertia
CC/CBC 56-12	56C 48Y	12	12	90	.139	.139	648	648	12.5	12.5	.018 lb-ft^2
CC/CBC 180-25	182C 143TC 184C 145TC	25	20	90	.189	.083	476	1084	17	7.45	.035 lb-ft^2
CC/CBC 210-100	213C 182TC	100	100	90	.445	.445	202	202	40	40	.26 lb-ft^2

BOSTON GEAR
INCOM INTERNATIONAL INC.

QUINCY, MASS. U.S.A.

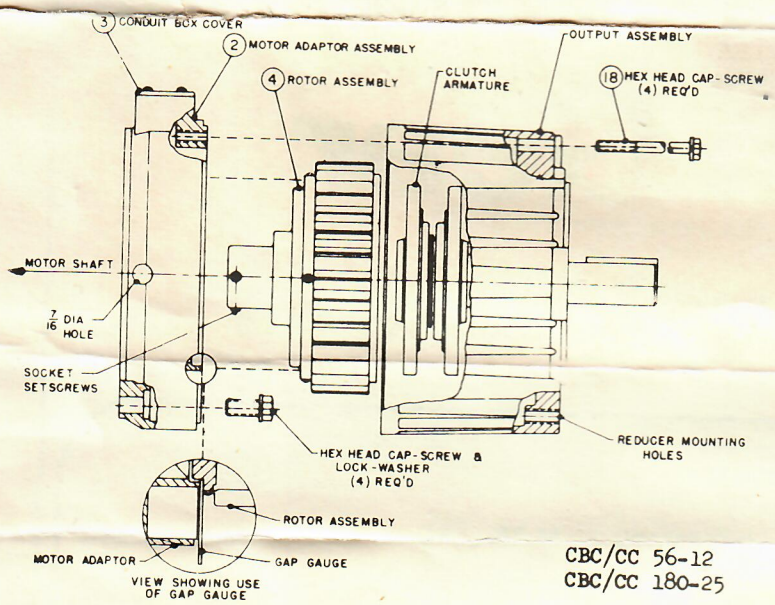
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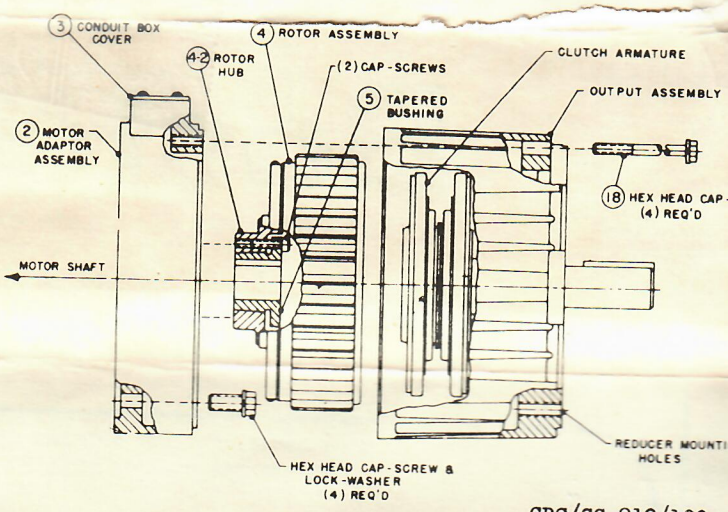
Installation Instructions - C-face Clutch Brake Packages

The clutch brake package consists of three principal sub-assemblies:

Motor adapter assembly
Rotor assembly
Output assembly



CBC/CC 56-12
CBC/CC 180-25



CBC/CC 210/100

These assemblies and components are illustrated and parts listed on page three. These are shipped assembled and must be separated for assembling to the motor by removing the four long hexhead cap-screws (18) holding the output housing to the motor adapter. Be sure to remove the cardboard insert in the rotor face. The conduit box cover (3) should also be removed.

Motor Adapter Assembly

First, assemble the motor adapter assembly to the C-face motor using the cap-screws and lock washers supplied in the accessory kit. In most cases, it is preferable to mount the motor adapter housing with the conduit box uppermost. Tighten the cap-screws securely.

Rotor Assembly

The motor assembly should then be installed on the motor shaft: the procedures are the same for models CBC56-12 and CBC180-25, but differ for model CBC210-100.

CBC56-12 and CBC180-25

Check that the motor shaft key is of the correct length for the rotor, then slide the rotor assembly on the motor shaft until it contacts the motor adapter. Rotate the rotor so that one of the set screws in its hub is under the 7/16 hole in the side of the motor adapter: move the rotor away from the motor adapter enough to allow the gap gauge, supplied in the assembly accessory kit, to be inserted between the rotor and field (1), through the slot in the mounting flange of the fan. Maintaining the clearance between rotor and field provided by the gap gauge, tighten the first set screw securely, using the long Allen wrench in the accessory kit. Next, remove the gap gauge, rotate the rotor and tighten the second set screw in the rotor hub. Check that the motor shaft rotates freely and the gap is correct.

CBC210-100

With the tapered bushing (5) loosely secured in the rotor hub (4-2), slide the rotor assembly on the motor shaft, with key in position, until the rotor contacts the motor adapter. Tighten the two cap-screws holding the bushing in the hub. When this is done, the correct gap between rotor and field is usually made automatically. As a means of checking this, the field has a groove machined in its outer pole which should be in line with the rear (motor side) face of the rotor. If these are not in line, the bushing cap-screws should be loosened and the position of the rotor assembly adjusted. Check that the motor shaft rotates freely.

Output Assembly

Before installing the output assembly, check that the clutch armature is located as far back on the hub as it will go: it should be within .024" of the snap ring in the center of the armature hub.

Pull the brake lead wires (gray) through the conduit box and mount the output assembly on the motor adapter flange, with the vents 180° from the conduit box, lining up the four holes for the long hexhead cap-screws (18) in the motor adapter and output housing. Insert the cap-screws and washers and tighten securely. Check that the output shaft rotates freely.

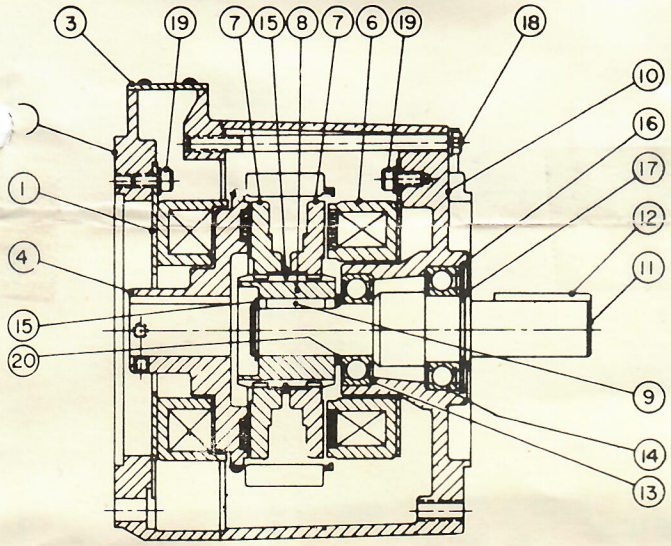
Reducer

The output housing is furnished with a standard NEMA flange and bolt holes, and the complete assembly can be mounted to a C-face reducer, using the mounting bolts supplied with the reducer.

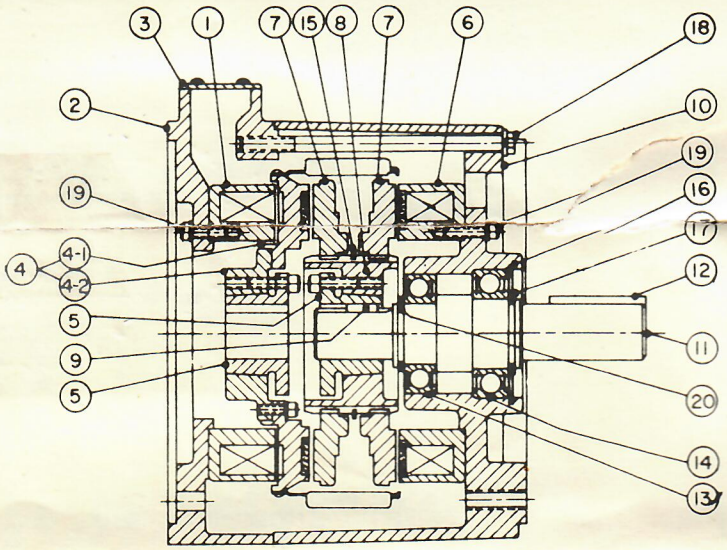
Electrical Connections

The conduit box has a ½" standard pipe tapped hole, to accept standard conduit connections. After connecting the clutch and brake leads (white to clutch, gray to brake) replace the conduit box cover and secure with two screws provided.

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CBC/CC 56-12
CBC/CC 180-25



CBC/CC 210-100

PART NUMBERS

Item No.	Description	Part No. for Model - CC/CBC56-12	CC/CBC180-25	CC/CBC210-100
	MOTOR ADAPTER ASSEMBLY			
1.	Clutch Field	45424	45425	45128
19.	Capscrews and Lockwashers - Clutch Field Mounting	45081	45081	45462
2.	Motor Adapter Housing	45426	45426	45427
3.	Conduit Box Cover and Screws	45428	45428	45428
	ROTOR ASSEMBLY			
4.	Rotor, Hub and Fan	45429	45430	45431
4-1.	Rotor and Fan			45432
4-2.	Rotor Hub			45433
5.	Bushing			45434
	OUTPUT ASSEMBLY			
6.	Brake Field (CBC Models Only)	45435	45436	45129
7.	Armature (2 used) (1 Only on CC Models)	45437	45061	45119
8.	Armature Hub	45438	45438	45125
5.	Bushing			45434
9.	Key- Armature Hub	45439	45439	45440
10.	Output Housing	45441	45441	45442
11.	Output Shaft	45443	45444	45445
12.	Key - Output Shaft	45446	45446	45447
13.	Bearing-Inboard	45448	45448	45449
14.	Bearing - Outboard	45450	45451	45452
15.	Snap Ring - Armature Hub Retainer	45453	45453	45454
16.	Snap Ring - Bearing Retainter Outer	45455	45455	45456
17.	Snap Ring - Bearing Retainer Inner	45457	45458	45459
18.	Hexhead Capscrews and Washers (Set of 4)	45460	45460	45461
19.	Capscrews and Lockwashers - Brake Field Mounting (CBC Only)	45081	45081	45462
20.	Inboard Bearing Spacer or Snap Ring	45463	45463	45464
21	Lead Wires	45465	45465	45466
	ASSEMBLY ACCESSORY Consisting of motor adapter capscrews and lockwashers (3 models), Allen wrench and gap gauge (sizes 56-12 and 180-25).	45467	45467	45468

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Wear

This clutch/brake is self-adjusting for wear and bearings are lubricated for life; under normal operating conditions, it should require no maintenance during its life.

Depending on the duty cycle and load, periodic inspections should be made of the wear rate. Wear produces grooves on the two faces; this is normal, and they should not be removed. Excessive wear will usually first result in a loss of torque.

When units are worn out, it is usually necessary and preferable to replace both rotor and brake field and armatures as they tend to wear at about the same rate.

Contaminants

Care should be taken that contaminants, such as dust, oil, grease, etc., do not come in contact with the working faces of the unit. As the housing is of a dripproof design, oil and grease will normally be kept from the friction faces. If friction faces become contaminated, the oil or grease must be removed. Wiping with trichlorethylene is usually sufficient.

Heat

Heat is generated in the clutch brake unit by the clutch and brake coils and by friction during operation. It is therefore normal for the unit to be warm or hot to the touch. Excessive heat may be a source of failure and can be corrected by:

a.) Insuring that voltage input is correct.
b.) Providing ventilation of the unit.
c.) Reducing the voltage applied to the unit, providing this will not affect its performance.

Airgap

If the airgap between the armature and brake or clutch has closed up, allowing contact when de-energized, the armature should be forced away from the clutch or brake by applying pressure through the ventilation holes until the armature contacts the snap ring in the center of the armature hub. When the unit is next energized, the armature should reset itself automatically. In some cases it may be necessary to apply a small amount of pressure behind the armature to provide the proper adjustment.

Loss of Torque

The most common service problem is loss of torque. The following quick checks can easily be made and will usually take care of the problem:

1. Check for wear - the clutch and brake may be worn out and need replacing.

2. Check the friction faces for oil, grease or other contaminants and remove if present.

3. Check to see that the fields are receiving the right voltage -- put a DC voltmeter across the field terminals; a reading about the nominal voltage of the fields should be seen. If the power supply has potentiometers, they should be turned to full power for this test. If the voltage is zero or low, the wiring should be checked for breaks or improper connections.

4. It may be necessary to check for a grounded or open coil.

   a. To check for grounded coil:

      With the power off and one lead disconnected, hold one ohmmeter lead on the field terminal and touch the shell of the field with the other; the ohmmeter should register no change with a good unit. Repeat with other terminal. If the ohmmeter shows a reading, there is a ground to the shell and the field should be replaced.

   b. To check for open coil:

      Apply ohmmeter leads to both terminals of the field with the power off. With the field at 77° F, the ohmmeter should give a reading within ten percent of the resistance specified in the ratings included in these instructions. An open coil indicates infinite resistance and must be replaced.

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