

Electrically Released Motor Brake Module for EM-MBFB and EUM-MBFB

P-1337
819-0314

Installation Instructions



An Altra Industrial Motion Company

Warner Electric’s MBFB series of Electrically Released Brake Modules are designed for brake only applications when mounted to the back of a NEMA C-face double shaft motor. The fail safe brake engages when power goes off.

Model	Part No.
EM 210-20MBFB-56	5371-169-030
EM 210-20MBFB-56, 24V	5371-169-033
EM 210-7/8-20MBFB-56	5371-169-072
EUM 210 7/8-20MBFB-32	5371-169-064
EUM 210 7/8-20MBFB-56	5371-169-068
EUM 210-20MBFB-32	5371-169-056
EUM 210-20MBFB-56	5371-169-060



⚠ WARNING Failure to follow these instructions may result in product damage, equipment damage, and serious or fatal injury of personnel.

⚠ CAUTION If brake is to be applied with the brake output shaft in a vertical condition Warner Electric's application engineering should evaluate application.

⚠ WARNING

The term “fail safe” describes a brake that engages automatically when its full power is shut off for whatever reason. The term, as applied to brakes, designates a mode of operation, not a guarantee of safety for the equipment on which the brake is mounted and for personnel who are near it.

Mounting Instructions

Step 1: Mounting the Brake to a Motor

The brake module (20) can be mounted directly to the motor as follows:

- A. Insert a key in the motor shaft keyway. Prick punch the end of the motor shaft keyway to prevent the key from sliding out.
- B. A set collar is provided in the EM-210 mounting accessory to prevent the key from sliding out. Slide the set collar against the motor bearing and tighten the set screw securely. (See Figure 1)
- C. Align the motor shaft and key with the mating shaft hole and key slot in the brake module.
- D. Slide the module onto the motor shaft so the module surface is snug against the motor face.

- E. Secure the brake module in the motor C-face with the four (4) long hex head capscrews. Suggested torque for capscrews is 30-35 lb.ft.



(Figure 1)

NOTE: Brake Module should slide freely onto shaft and fit flush with motor c-face.

Step 2: Electrical Connections

The conduit hole in the motor brake is threaded for standard pipe conduit connectors. The wiring diagram included with each Warner Electric control shows the proper electrical connections to be made. **Note: Controls used must have adjustable output voltage.**

Connect the red wire from the unit to the “+” terminal of the DC supply and the black wire from the unit to the “-” terminal of the DC supply.

Note: Refer to the brake release adjustment process on page 4.

Control Requirements

All Permanent Magnet Type Electrically Released Brake Modules are polarity sensitive. Therefore, the (+) red wire must be connected to the (+) terminal and the (-) black wire to the (-) terminal.

Potentiometer control will then provide adjustment for the proper brake release point as described in the “brake release” procedure.

See the service installation instruction provided with controls for connection information.

90 Volt Brake recommended controls are:

- *CBC-160-1 120 VAC input
part no. 6013-448-001
- *CBC-160-2 220-240 VAC input
part no. 6013-448-002
- CBC-200 120 VAC input
part no. 6011-448-001
- CBC-300 120 VAC input
part no. 6021-448-001
- CBC-500-90 120 VAC input
part no. 6024-448-003
- CBC-550-90 120/220/240/380/480 VAC input
part no. 6024-448-006

***These controls are for use with conduit box kit part no. 5370-101-042. All others require other enclosures or alternate mounting.**

24 Volt Brake recommended controls are:

- CBC-500-24, 24-30 VAC input
part no. 6024-448-002
- CBC-550-24, 120/220/240/380/480 VAC input
part no. 6024-448-005

⚠ WARNING All Permanent Magnet type Electrically Released Brake Modules are polarity sensitive. See the service installation sheet included with the control for connection information.

Burnishing and Maintenance

No burnishing required, units are pre-burnished at factory.

As with any friction-type device, some initial concern should be given to wear rate.

Improper voltage setting can reduce the braking life. Once the best release voltage has been established, precautions should be taken to prevent machine operators, or other personnel not familiar with wear characteristics, from changing the potentiometer setting arbitrarily.

To reach the normal wearing components, reverse the installation procedure for the module assembly.

Wear Pattern

Wear grooves appear on the friction surfaces. This is a normal wear condition, and does not impair functioning of the unit. Never machine the friction surfaces to remove grooves or score marks resulting from normal wear.

Heat

Excessive heat and high operating temperatures are causes of rapid wear. Units, therefore, should be ventilated as efficiently as possible, especially if the application requires fast, repetitive cycle operation.

Foreign Materials

If units are used on machinery where fine, abrasive dust, chips or grit are dispelled into the atmosphere, a screen over the ventilation holes may be necessary.

Where units are used near gearboxes or transmissions requiring frequent lubrication, means should be provided to protect the friction surfaces from oil and grease to prevent serious loss of torque.

Oil and grease accidentally reaching the friction surfaces may be removed by wiping with a rag dampened with a suitable cleaner, which leaves no residue. In performing this operation, do not drench the friction material. If the friction materials have been saturated with oil or grease, no amount of cleaning will be completely effective. Once such a unit has been placed back in service, heat will cause the oil to boil to the surface, resulting in continued torque loss.

Brake Release Adjustment

Instructions for setting the optimum release voltage of permanent magnet applied/electrically released brakes.

▲CAUTION The following procedure will result in the brake releasing and allowing the load to be free to move. Be sure the load is in a safe condition before proceeding with this process.

In a permanent magnet applied/electrically released brake, the attractive force between the brake surfaces is created by permanent magnets. The brake is electrically released by applying DC power to the electro-magnetic coil in the brake that opposes the permanent magnets. Electrically released brakes are polarity sensitive: the positive lead of the power supply must be connected to the positive (red) lead of the brake, and the negative lead of the power supply must be connected to the negative (black) lead of the brake. The power supply

applied to the brake must also be adjustable so that the optimum release voltage for each individual brake can be determined and set.

The following procedure describes how to set the adjustable power supply to the optimum release point of the brake. A volt-meter is required to perform the procedure.

▲CAUTION No power is applied to motor during this procedure. Power normally supplied by motor to brake control should be supplied by alternate method.

After control is adjusted per steps below, brake control may need to be fine tuned (adjusted) with motor running to compensate for any changes in supply voltage used.

1. With power off, connect the positive lead of the power supply to the positive (red) lead of the brake and the negative lead of the power supply to the negative (black) lead of the brake.
2. Connect a volt-meter to measure the voltage applied across the brake.
3. Adjust the power supply to its lowest possible output, then energize the power supply only, to apply power to the brake.
4. Starting from the low point, slowly increase the applied voltage until the brake armature disengages from the magnet. Note and record the applied voltage at this point.
5. Continue to slowly increase the applied voltage until the armature re-engages the magnet. If the maximum voltage available from the supply does not cause the armature to re-engage, the armature should be manually assisted into engagement.
Note: If armature needs to be manually assisted, armature should be pressed on back side to make contact with friction face of magnet.

6. With the armature re-engaged, slowly reduce the applied voltage until the armature disengages from the magnet. Note and record the applied voltage at this point.
7. The optimum release point for the brake is half-way between the two recorded voltage readings. Adjust the supply to this optimum release voltage.

Note: The above procedure should be done by visually watching the armature move and may be repeated if necessary from Step 1 through Step 7.

If any problems should occur during adjustments or application questions arise, please contact Technical Support at 1-800-825-9050 Monday through Friday 7:30 a.m. - 4:30 p.m. central time.

Notes: Visit Warner Electric's website at www.warnerelectric.com for dimensional drawings, weights, inertias and a complete offering of our products including clutches, brakes, and clutch or brake controls and service parts.

In addition, Warner Electric module products, controls and service parts information can be found in our catalog P-1234-WE. Call 815-389-3771 to request any of our catalogs.

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