

# *Gen 2* Electrically Released Motor Brake Module for EM-MBFB and EUM-MBFB

P-273-8  
819-0531

Installation Instructions



**Vented**

**Enclosed Version Optional**

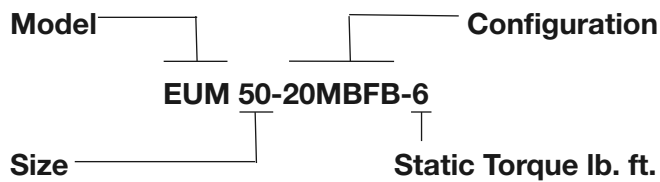


*An Altra Industrial Motion Company*

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 50-20MBFB-10	5370-169-249
EM 50-20MBFB-10, 24V	5370-169-248
EM 100-20MBFB-21	5370-169-254
EM 100-20MBFB-21,24V	5370-169-253
EM 180-20MBFB-21	5370-169-259
EM 180-20MBFB-21, 24V	5370-169-258
EUM 50-20MBFB-6	5370-169-263
EUM 100-20MBFB-12	5370-169-264
EUM 180-20MBFB-12	5370-169-265

**Note:** The model EUM is a vented style housing which includes the cover kit to enclose the housing. The model EM is a vented style housing. They can be enclosed by purchasing the optional cover kit 5370-101-082. (See page 4 for details.)



**⚠ 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 position 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 (20MBFB) can be mounted directly to the motor as follows:

- Insert the key provided in the motor shaft keyway. Prick punch the end of the motor shaft keyway to prevent the key from sliding out.
- Align the motor shaft and key with the mating shaft hole and key slot in the brake module.

**⚠ CAUTION** If anti-fretting lubricant is used on the motor shaft for future ease of removal, ensure that any excess is wiped off before unit assembly to avoid lubricant contaminating the clutch or brake friction faces.

- Slide the module onto the motor shaft so the module surface is snug against the motor face.

**NOTE:** Brake Module should slide freely onto shaft and fit flush with motor C-face. (Figure 1)

- Secure the brake module (20MBFB) to the motor C-face with the four (4) long hex head capscrews provided. Tighten the four (4) bolts alternately to ensure even alignment of the module. Tighten them to 30-35 foot pounds.



Figure 1

## 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 procedure 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 on page 4.

See the service installation instruction provided with control 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 and armature airgap set at the 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.

## 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.

## Foreign Materials

If units are used on machinery where fine, abrasive dust, chips or grit are dispelled into the atmosphere, or if the wear particles from the brake are undesirable, you may use the optional cover kit to enclose the module. See page 4 for more information.

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

## 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.

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

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 lead (black) 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, and then energize the power supply to apply power to the brake.
4. Starting from the low voltage point, slowly increase the applied voltage while visually watching the brake armature through the vents on either side of the module and through the  $\frac{1}{2}$  by 1 inch window in the clutch rotor fan until the brake armature disengages from the brake magnet. Note and record this voltage reading.
5. Add twenty (20) volts for a 90 volt brake and five (5) volts for a 24 volt brake to this reading and set the supply to this level. This will be the proper release voltage for your setup.
6. With the brake energized, spin the motor shaft by hand to insure that it turns freely. If a scraping sound is noted when the output shaft is spun, it means an armature is dragging slightly. Correct this problem by repeating steps 1 through 5 above.

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.

## Enclosed EM-20MBFB Module Option

If an Enclosed Brake-Module is required, an optional Cover Kit, Warner Electric part number 5370-101-082, can be purchased separately to enclose the open vents in the housing and a cover plate to close off the back of the Module. Each Cover Kit includes two (2) vent covers, four (4) screws and one (1) cover plate needed to convert a vented EM-20MBFB to an enclosed design (non-washdown) as shown in Figure 2.



Figure 2

**Note:** When using this cover kit to enclose the module the vent covers should be assembled as the final step.

### Notes:

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

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

# Warranty

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This warranty extends only to the original purchaser and is not transferable or assignable without Warner Electric LLC's prior consent.

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A purchase receipt or other proof of original purchase will be required before warranty service is rendered. If found defective under the terms of this warranty, repair or replacement will be made, without charge, together with a refund for transportation costs. If found not to be defective, you will be notified and, with your consent, the item will be repaired or replaced and returned to you at your expense.

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## **Changes in Dimensions and Specifications**

All dimensions and specifications shown in Warner Electric catalogs are subject to change without notice. Weights do not include weight of boxing for shipment. Certified prints will be furnished without charge on request to Warner Electric.



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