



Miami Breaker, Inc.
Circuit Breakers & Controls

**REF
RHE
RCE**

CIRCUIT BREAKER INSTALLATION MANUAL



WARNING

DO NOT ATTEMPT TO INSTALL OR PERFORM MAINTENANCE ON EQUIPMENT WHILE IT IS ENERGIZED. DEATH, SEVERE PERSONAL INJURY, OR SUBSTANTIAL PROPERTY DAMAGE MAY RESULT FROM CONTACT WITH ENERGIZED EQUIPMENT. ALWAYS VERIFY THAT NO VOLTAGE IS PRESENT BEFORE PROCEEDING WITH THE TASK, AND ALWAYS FOLLOW GENERALLY ACCEPTED SAFETY PROCEDURES.

The user is cautioned to observe all recommendations, warnings and cautions relating to the safety of personnel and equipment, as well as all general and local health and safety laws, codes, and procedures.

The recommendations and information contained herein are based on Miami Breaker experience and judgment, and should not be considered to be all-inclusive or covering every application or circumstance which may arise. If any questions arise, contact Miami Breaker for further information or instructions.

MIAMI BREAKER IS NOT LIABLE FOR THE MISAPPLICATION OR MISINSTALLATION OF ITS PRODUCTS.

INTRODUCTION

The E Frame *R-Line*™ circuit breakers (Fig 1) replaces mechanically and electrically the obsolete ITE* breakers as specified in Table 1. These circuit breakers are manufactured in the following types: Thermal Magnetic rated from 10 A to 150 A, Magnetic rated from 3 A to 150 A, circuit breakers and molded case switches are rated 150 A. Miami Breaker's *R-Line*™ Circuit Breakers are manufactured according to NEMA AB1 and IEC 947-2 standards and are individually tested (see enclosed test report). For this publication, the term circuit breaker also includes molded case switches and magnetic only circuit breakers.

Replacement
for E FRAME
Circuit Breakers

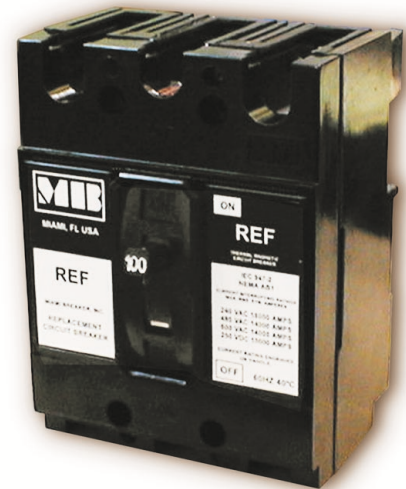


Figure 1

TYPES

Thermal Magnetic
Magnetic & Molded
Case Switch

MB	ITE*
REF	E, EH, EF
RHE	HE
RCE	CE

Replacements. Table 1

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INSTALLATION

The installation procedure consists of:

1. Inspecting and mounting the circuit breaker.
2. Connecting and tightening the line and load terminations.

To install the circuit breaker, perform the following steps:

Note: Accessory installation should be done before the circuit breaker is mounted and connected, only if permitted by the codes and/or standards.



WARNING

BEFORE MOUNTING THE CIRCUIT BREAKER IN AN ELECTRICAL SYSTEM, MAKE SURE THERE IS NO VOLTAGE PRESENT WHERE WORK IS TO BE PERFORMED. THE VOLTAGE IN ENERGIZED EQUIPMENT MAY CAUSE INJURY OR DEATH.

INSPECTING AND MOUNTING

1. Make sure that the circuit breaker is suitable for the installation by comparing nameplate data with system requirements. Inspect the circuit breaker for completeness, and check for shipping damage before mounting.
2. If circuit breaker includes factory installed internal accessories, make sure that accessories wiring can be reached when the circuit breaker is mounted.
3. Position circuit breaker on mounting spot.
4. Install mounting screws and washers.



CAUTION

EXTREME CARE SHOULD BE TAKEN NOT TO EXCEED MAXIMUM BRANCH AMPERAGE OF MOUNTING HARDWARE WHEN REPLACING OR ADDING THIS BREAKER TO AN EXISTING ITE* PANEL BOARD SERIES 4 TYPE NAB, NHB AND CDP.

CONNECTING AND TORQUING

Tighten screws firmly, but do not exceed 12 - 15 Lb/In. After the circuit breaker is installed, with a non-energized circuit breaker, check all mounting hardware and terminal connecting hardware for correct torque loading. Torque values for line/load connectors are given in Table 2.

Amp	Wire Size (AWG)	Torque (Lb/In)
3 -20	10 - 14	35
25 - 150	4 - 8	45
	2/0 - 3	55

Conductor Connection Torque. Table 2



CAUTION

WHEN ALUMINUM CONDUCTORS ARE USED THE APPLICATION OF A SUITABLE JOINT COMPOUND IS RECOMMENDED TO REDUCE THE POSSIBILITY OF TERMINAL OVERHEATING. TERMINAL OVERHEATING CAN CAUSE NUISANCE TRIPPING OR DAMAGE TO THE CIRCUIT BREAKER. AND IT IS A POTENTIAL FIRE HAZARD.

OPERATION

The circuit breaker has a handle that controls its manual ON and OFF operation. The handle has three possible positions, two of which are molded into the case to indicate ON and OFF. The third position indicates a TRIPPED position and is located between the ON and OFF position, see figure 2.

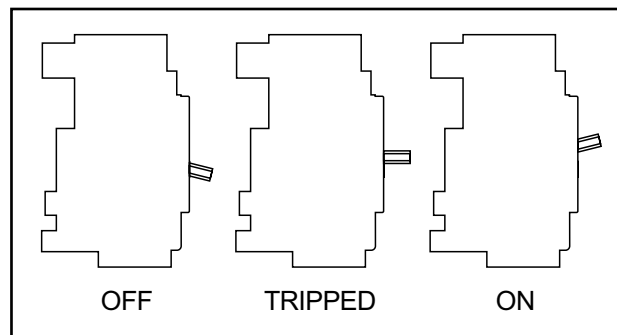


Figure 2

Circuit Breaker Reset

After tripping, a circuit breaker is reset by moving the circuit breaker's handle to the extreme OFF position before moving the circuit breaker handle back to the ON position.

Note: In the event of a thermal trip, the circuit breaker cannot be reset until the thermal bimetal element cools to ambient temperature. Check load for an eventual short circuit condition and clear it.

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PREVENTIVE MAINTENANCE

R-Line™ molded case circuit breakers are designed to provide optimum operation for years. It is strongly recommended to inspect the breaker once a year or depending on the installation conditions and/or environment.



WARNING

BEFORE INSPECTING THE CIRCUIT BREAKER IN AN ELECTRICAL SYSTEM, MAKE SURE THE CIRCUIT BREAKER IS SWITCHED TO THE OFF POSITION AND THERE IS NO VOLTAGE PRESENT WHERE WORK IS TO BE PERFORMED. SPECIAL ATTENTION SHOULD BE PAID TO REVERSE FEED APPLICATIONS TO ENSURE NO VOLTAGE IS PRESENT. THE VOLTAGE IN ENERGIZED EQUIPMENT MAY CAUSE BODILY INJURY OR DEATH.

Case

- Inspect the case for cracks, chips and unused holes.
- Inspect the case for signs of overheating.
- Inspect all control wire for signs of deterioration, overheating or damage.
- Inspect for missing parts.

Connectors

- Inspect for tightness.
- Inspect for signs of overheating.
- Inspect plating.
- Inspect for signs of cross-threads or stripped-threads.

Control Wiring

- Inspect for overheating.
- Inspect for loose or defective terminal insulation.
- Check for loose or worn out terminal connectors.

Note: In the event of any of these occurrences, breaker must be repaired or replaced.

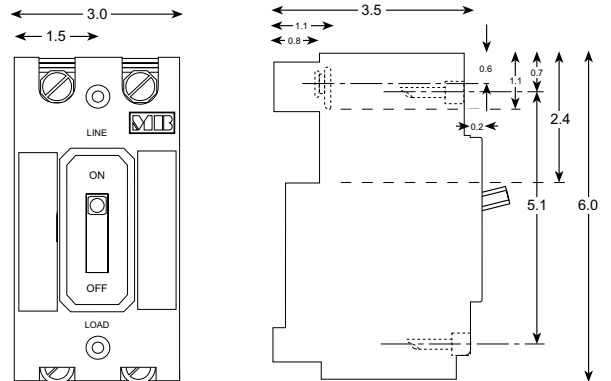


CAUTION

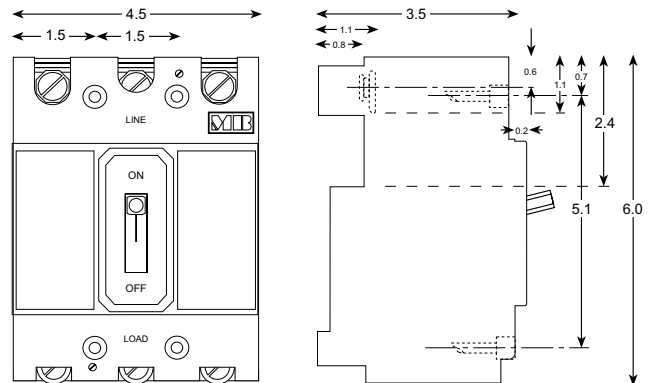
MAKE SURE THAT CLEANING AGENTS OR SOLVENTS USED TO CLEAN THE CIRCUIT BREAKER ARE SUITABLE FOR THE JOB. SOME COMMERCIAL CLEANING AGENTS WILL DAMAGE THE NAME PLATES OR MOLDED PARTS.

PHYSICAL DIMENSIONS

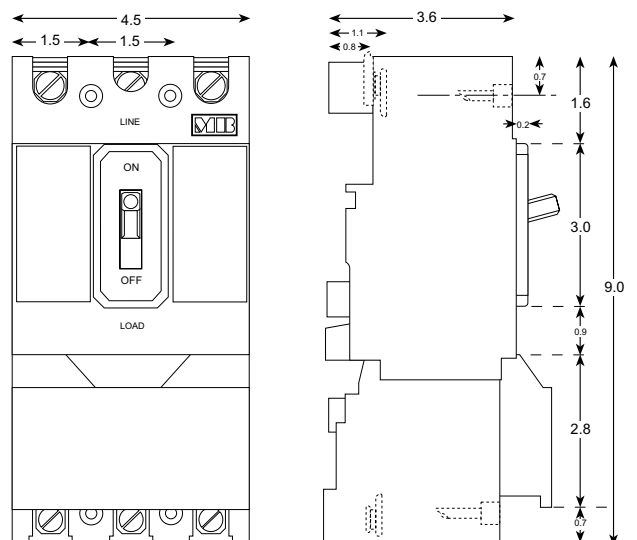
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