

# ⚠ WARNING

**DO NOT ATTEMPT TO INSTALL OR PERFORM MAINTENANCE ON EQUIPMENT WHILE IT IS ENERGIZED. SEVERE PERSONAL INJURY, DEATH, OR SUBSTANTIAL PROPERTY DAMAGE CAN 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.**

**ONLY LICENSED ELECTRICAL CONTRACTORS SHOULD INSTALL TYPE B3 BYPASS. QFE002 SHALL NOT BE LIABLE FOR THE MISINSTALLATION AND/OR MISAPPLICATION OF ITS PRODUCTS.**

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 QFE002 experience and judgment, but should not be considered to be all-inclusive or covering every application or circumstance which may arise. If any questions arise, please contact QFE002 for further information or instructions.

## I. INTRODUCTION

The B3 Bypass is a thermal-magnetic over-current protection device.

The following accessories are available for use with the B3 Bypass:

- B3 Bypass Hold-Down Kit\*
- Amphenol Q-line Precision Stripper

\* included with the purchase of the B3 Bypass.

**NOTE:** An Amphenol Q-line Precision Stripper **shall** be used to perform all mid-span stripping of insulated utility feeder wires required for the installation of the B3 Bypass, in order to ensure that the conductor portions of the feeder wires are not damaged.

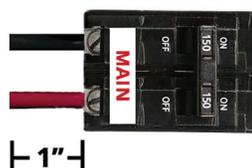
Prior to proceeding with the installation of the B3 Bypass, visually inspect it to ensure that it is complete, free from any defects, and undamaged. The B3 box should contain a thermoplastic terminal insulator cover (See FIG. 2-2 on page 2) and two split-lug terminal tops. In addition, you should have a QFE002 B3 Breaker Hold-Down Kit (comprising of a plastic tube and screw; see FIG. 2-1 on page 2).

## II. INSTALLATION INSTRUCTIONS FOR PLUG-IN MAIN BREAKER TYPE LOAD CENTERS

**NOTE:** Read and understand these instructions completely before proceeding with the installation. The procedure for installing the B3 Bypass in a plug-in main breaker type load center involves, among other steps, mounting the B3 Bypass immediately adjacent (i.e., either directly above or directly below; see Step 6) to the main circuit breaker in the load center, and connecting and appropriately torquing all terminations (as set forth in more detail below).

**MAXIMUM** amperage per 2-pole (2 wire), field or factory installed, plug-in **MAIN BREAKER = 150 A**

**MINIMUM** of one-inch (1") of unbent main feeders/leads **MUST** be present at the connection to the plug-in **MAIN BREAKER** in order for the B3 Bypass to be installed.



## INSTALLATION INSTRUCTIONS

### for QFE002 B3 Bypass

Molded-Case Type B3220220 thru B3250250 Circuit Breakers

**MAXIMUM** amperage per 4-pole (4 wire), factory-installed, plug-in **MAIN BREAKER = 225 A**

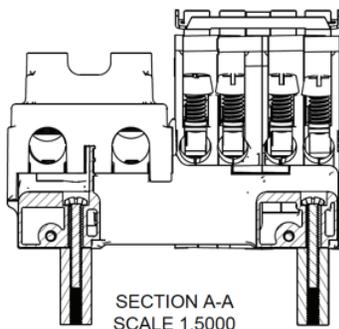
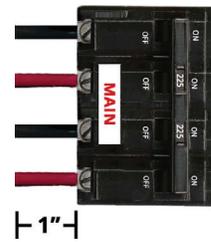
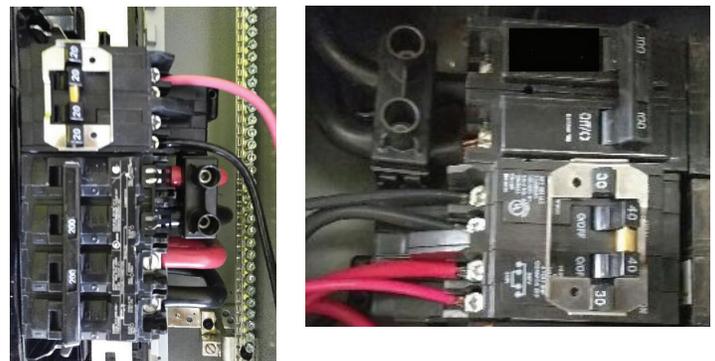


Figure 1-1 B3 4-Pole Circuit Breaker



For Siemens Type QN 150A to 200A plug-in main circuit breakers, a minimum of 1-5/8" of unbent feeder wires/leads must be present at the main breaker connection in order for the B3 Bypass to be installed.

There must also be 2 breaker positions adjacent to the main breaker such that the B3 Bypass can be attached to the feeder wires. See below:



- The **B3 Bypass** shall **NOT** be used in a load center having a **main breaker** mounted **ABOVE** or **BELOW** the bus bars **UNLESS** such a main breaker has been **REMOVED and REPLACED** with a **PLUG-IN main breaker** installed **ON** the bus.
- The **B3 Bypass** shall **ONLY** be used in a load center with **WIRE-FED plug-in main breakers**, with maximum wire sizes of **1/0** for copper (Cu) wire or **2/0** for aluminum (Al) wire.
- When installing the **B3 Bypass** on a **FACTORY-WIRED main breaker**, **DO NOT** disconnect the factory-installed wires. Use the Amphenol Precision Stripper to remove the insulation.
- The **B3 Bypass** shall **ONLY** be used in those panelboards intended for 1-inch wide circuit breakers. See the Compatibility List for acceptable load centers.

II.i. **NOTE:** Steps 1-20 (below) are for load centers with plug-in main breakers only.

1. Ensure the load center catalog number is one on the B3 Compatibility List.
2. Remove the electrical utility meter to disconnect all power to the main breaker (and thus to the load center).

3. Using a voltage meter, test the power on the load center to verify that there is no power going to the load center.

4. Locate the main breaker in the load center.

5. Allocate two (2) one-inch (1") spaces next to the main breaker such that the B3 Bypass split lugs line up with the main breaker feeder wires. If necessary, relocate the existing branch breakers occupying these spaces in order to free up two (2) adjacent one-inch (1") spaces.

6. Make sure there is at least 1" of straight, unbent feeder wire measured from the edge of the main breaker. See page 2 for more information.

7. Review torque markings on the side of the B3 Bypass and record the torque value necessary for the alternative energy wiring.

8. If the neutral bar is mounted next to the circuit breaker mounting rail, remove the neutral bar screws directly underneath the chosen location of B3 Bypass.

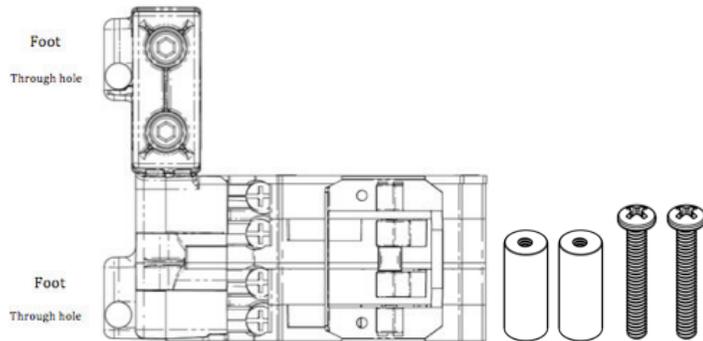
9. Insert the B3 Bypass so that the two split lug bottoms slide beneath the insulated utility main feeders connected to the main breaker\* and clip the B3 Bypass onto the load center rail. Pivot the B3 Bypass towards the bus stabs until the bottom of the split-lugs contact the insulation of the feeder wires. Do not force the B3 Bypass into its normal final position. Then, mark the portions of insulation of the two utility feeder wires above each split-lug bottom.

\* **WARNING:** If the B3 Bypass does not fit properly when attempting to perform this portion of **Step 9**, do **NOT** attempt to force it into place. Improper installation of the B3 Bypass will void its warranty.

10. After marking the insulation of the main breaker feeder wires as described above in **Step 9**, temporarily remove the B3 Bypass, and then use the Amphenol Precision Stripper to remove the insulation of the main breaker feeder wires where marked. **WARNING:** If an Amphenol Precision Stripper is not used to strip the main breaker's feeder wires, QFE002 will not be liable for any resulting misinstallation.

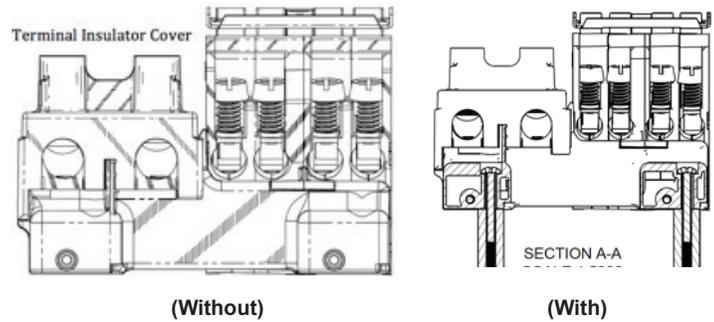
11. After stripping the main breaker feeder wires, reinsert the B3 Bypass until it is level with the main breaker, but do **not** install the tops of the split lugs.

12. After inserting the B3 Bypass, secure the B3 Bypass in the load center using the provided B3 Bypass Hold-Down Kit. (See **Figure 2-1** below.)



**Figure 2-1 Through holes in Feet of B3 Bypass & the B3 Bypass Hold-Down Kit**

13. With the provided B3 Bypass Hold-Down Kit, insert the plastic tube from the bottom of the foot at the front of the B3 Bypass (See **Figure 2-1** above) to the back of the enclosure. If necessary, cut the tube to length with a cable cutter. Place the tube underneath one of the "feet" and hold it in place under the through hole in the foot. (See **Figures 2-1, above and 2-2** on right top.) Insert the hold-down screw through the through-hole in the foot and torque the hold-down screw enough to hold the tube solidly in place. Only one hold-down assembly is necessary (two shown in Fig 2-2 below)

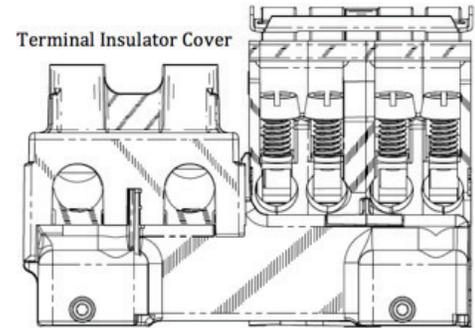


**Figure 2-2 B3 Bypass without and with the B3 Bypass Hold-Down Kit.**

14. Locate the two split-lug tops, and slide one of them into the guide rails of one of the split-lug bottoms so that it is centered directly over the bare portion of the feeder wire and the split-lug bottom. Hand tighten the allen screw onto the feeder wire to hold the top in place. Repeat this procedure with the remaining split-lug top on the other stripped feeder wire.

**WARNING:** Do **NOT** apply the rated torque to the split lugs prior to completing Step 15.

15. After ensuring that each split-lug top has been properly assembled, position the one-piece, plastic terminal insulator cover (See **Figure 2-3** below) over the two split lugs and push it down firmly until it snaps into place. (**Pull up** on the terminal insulator cover to confirm that it has been securely fastened.)

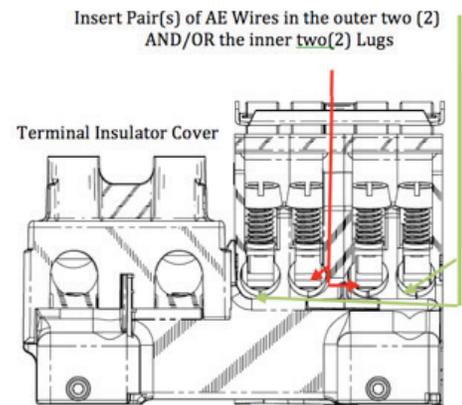


**Figure 2-3 Terminal Insulator Cover securely fastened over split-lug terminals of B3 Bypass.**

16. After confirming that the terminal insulator cover has been securely fastened, torque each split lug to 100 IN.-LBS. using hex size 4mm or 5/32" (0.156").

17. Next, strip 0.46" of insulation from the end of each alternative energy (AE) wire. A "Strip" marking of this precise length has been molded into each of the two sides of the B3 Bypass.

18. After each of the alternative energy wires have been stripped as described above in **Step 17**, confirm that all B3 Bypass latches are toggled to the **OFF** (open) position. Insert the stripped pair(s) of alternative energy (AE) wires into the appropriate B3 Bypass terminals (See the annotations in **Figure 2-4** below). If only one (1) pair of AE wires is to be secured, secure them to the two innermost terminal lugs; if two (2) pairs of AE wires are to be secured, secure one pair in the two **innermost** terminal lugs and the other pair in the outermost terminal lugs. Apply the rated torque based on the instructions permanently marked on the side of the B3 Bypass for the particular gauge wire installed.



**Figure 2-4 Proper 120/240V connections to the B3 Bypass.**