

INSTALLATION INSTRUCTIONS

Retrofit of Spectra E-frame (125 Amp max) breaker with ABB Tmax XT1 breaker Dual Mount (Bolt-On kits)

WARNING

Danger of electrical shock or injury. Turn OFF power ahead of the panel board or switchboard before working inside the equipment or removing any component. Equipment is to be installed and maintained by properly trained and qualified personnel only.

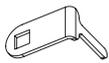
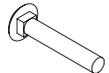
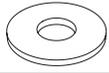
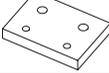
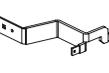
General

These instructions are applicable to retrofit of Spectra E-frame (125 Amp max) breaker with ABB Tmax XT1 breaker. Table 1 lists the parts included in the bolt-on circuit breaker kits for double branch configurations.

Installation

Numbers in brackets in the following instructions and figures refer to the item numbers in table below.

Retrofit Kit

Item	Part	Description	Qty.
1		Antiturn clip	3
2		1/4 - 20 x 1.50L carriage bolt	3
3		1/4 - Belleville Washer	3
4		1/4 - 20 Nut	3
5		Breaker mounting bracket	2
6		Thread-forming screw	8
7		SOCKET HEAD SCREW #8-36 UNF x 3.25IN	4
8		Hex Terminal Screw 10-32 x 0.50L Socket Head	6
9		Strap spacer	1
10		Busbar Link - 1	2

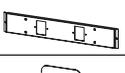
Item	Part	Description	Qty.
11		Busbar Link - 2	1
12		Filler plate with barrier	1
13		XT 1 Blankout plate for filler cover	1

Table 1. Retrofit kit

Required Tools

Below listed tools are required for installation

Item	Part	Description
1		Torque wrench

STEP 1

Prepare the breaker, refer to document 1SDH000722R0003 for more information. Install the appropriate lugs as in load side as shown in figure 1a. Insulating plate to be used while breaker mounting on panel. Phase barriers (4x) to be used as shown in figure 1a.

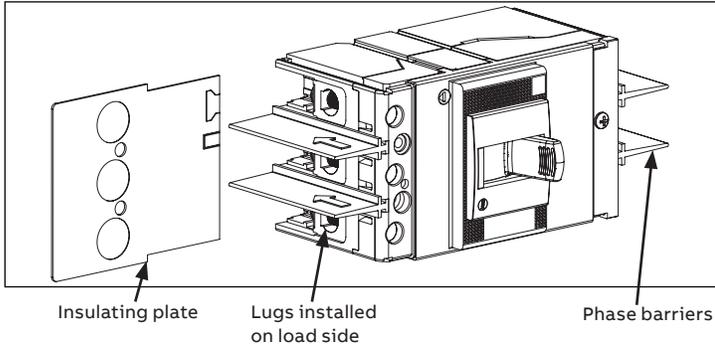


Figure 1a. Breaker preparation

STEP 2

Find the side of the panel interior at which the dimension from the face of nearest vertical bus to the inner face of the bus support rail is 2.75 inches, as illustrated in figure 2 .

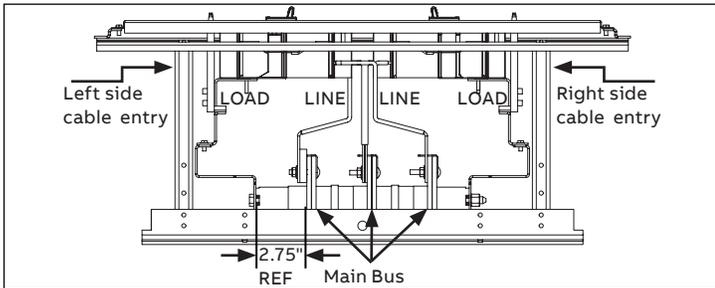


Figure 2. Double branch, ABB XT1; Assembly end view

STEP 4

Install the busbar link - 2 [11] to middle pole as shown in figure 4. Slide an antiturn clip [1] over the square shank of a carriage bolt [2]. Fasten the complete strap assembly loosely to the vertical bus with carriage bolt [2], antiturn clip [1], Belleville washer [3] and nut [4]. Refer figure 4.

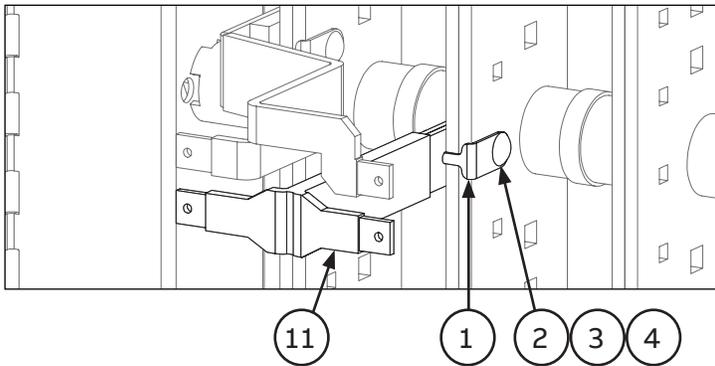


Figure 4. Installation of busbar link -2 middle pole

STEP 1 Continued

Note: Additional phase barrier usage

Use additional phase barrier when XT1 breakers are installed in adjacent rows in panel and when the gap between breakers is less than 1 inch.

Refer breaker instruction sheet Doc. N.º 1SDH000722R0003 – Section 7 for more details.

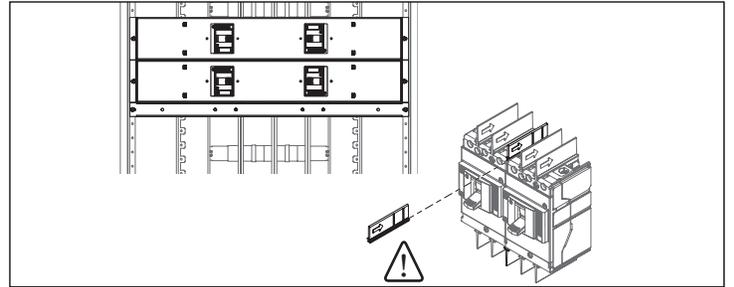


Figure 1b. Breaker additional phase barriers

Step 3

Install the strap spacer [9] and busbar link - 1 [10] to adjacent bus from 2.75 inches ref. as shown in figure 3. Slide an antiturn clip [1] over the square shank of a carriage bolt [2]. Fasten the complete strap assembly loosely to the vertical bus with carriage bolt [2], antiturn clip [1], Belleville washer [3] and nut [4]. Refer figure 3.

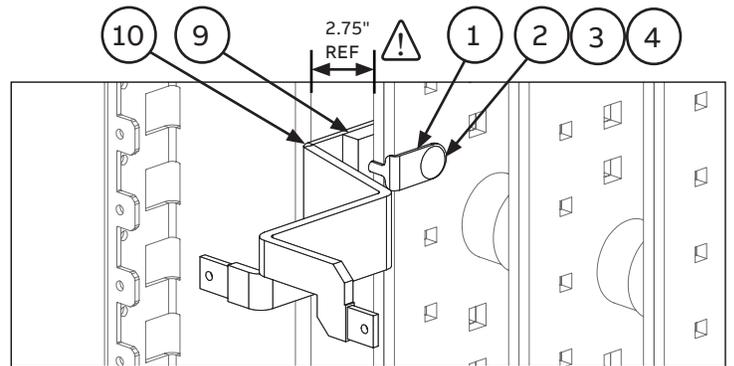


Figure 3. Installation of busbar link -1 to adjacent bus

STEP 5

Install the busbar link - 1 [10] to outermost pole as shown in figure 5. Slide an antiturn clip [1] over the square shank of a carriage bolt [2]. Fasten the complete strap assembly loosely to the vertical bus with carriage bolt [2], antiturn clip [1], Belleville washer [3] and nut [4]. Refer figure 5.

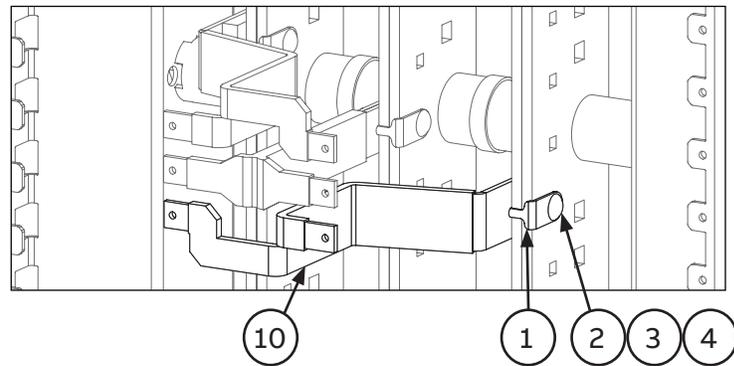


Figure 5. Installation of busbar link -1 to outermost pole

STEP 6

Install the breaker mounting bracket [5] on the bus support rail with the thread forming screw [6], torque the screw to 30 lb-in. Refer figure 6.

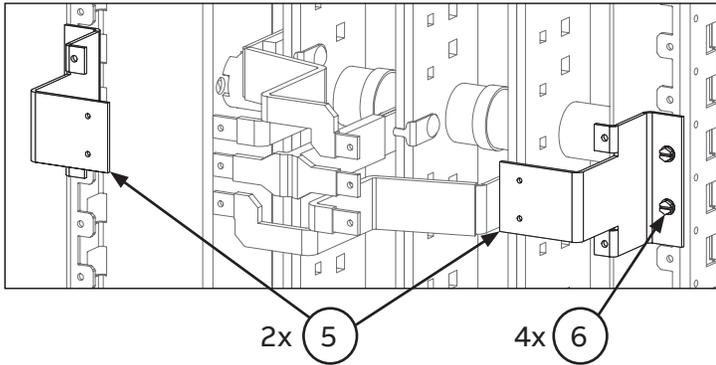


Figure 6. Installation of breaker mounting bracket

STEP 7

Install the insulating plate, pre-assembled breaker with mounting screw [7], torque the mounting screw [7] to 9 lb-in. Refer figure 7a.

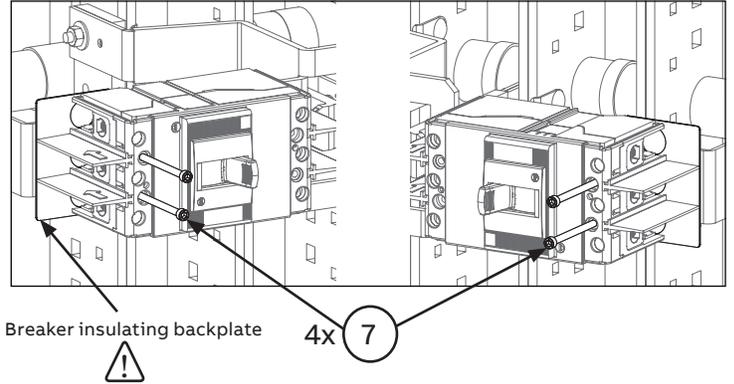


Figure 7a. Installation of breaker

STEP 7 continued

Install the hex terminal socket head screw [8], torque screw to specification in document 1SDH000719R0003. Refer figure 7b.

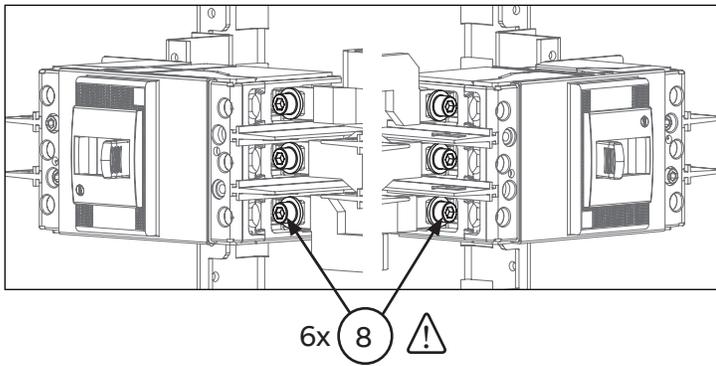


Figure 7b. Installation of breaker

STEP 7 continued

Install the cover and screw, refer to document 1SDH000719R0003 for more information.

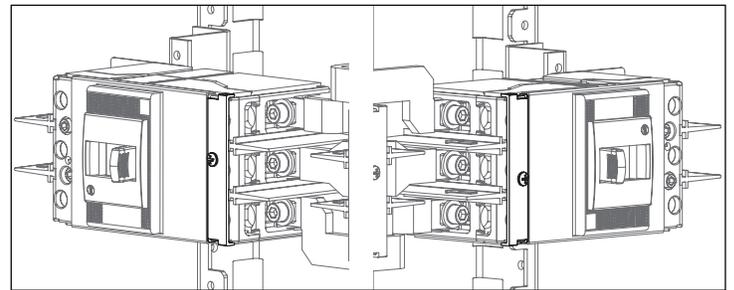


Figure 7c. Installation of breaker

STEP 8

Tighten all the three bolted strap connections (carriage bolt assembly) at the vertical bus to 65 lb-in. It may be necessary to remove adjacent circuit breaker modules to allow access to the bolted connections at the vertical bus.

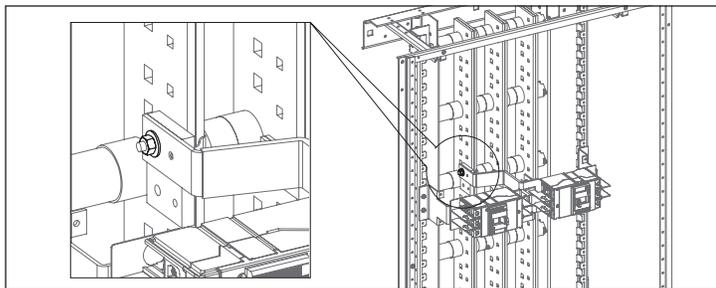


Figure 8. Tighten the straps

STEP 9

Prepare the filler plate [12] if single breaker installation is used. Attach the blankout out plate [13] to the filler plate with thread forming screw [6] from inside, torque the screw [6] to 30 lb-in. Refer figure 9.

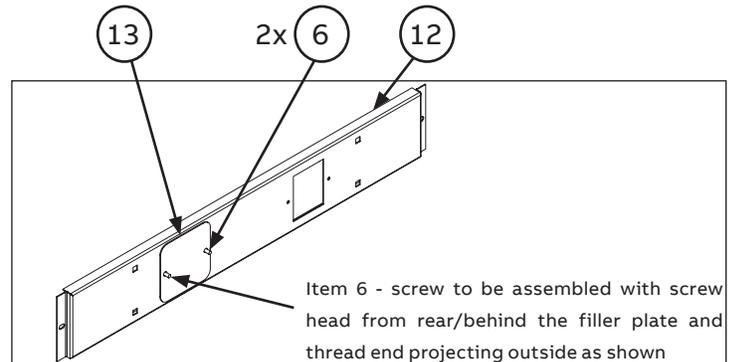


Figure 9. Prepare the filler plate

STEP 10: Tape unused contacts

Apply multiple wrappings of insulation to unused strap contact surfaces, as illustrated in figure 10. A UL-recognized 105 ° C thermoplastic tape (OANZ2, Permacel P-30-105, or 3M66R) is required. Overlap greater than one-half of each preceding turn, as shown to achieve a minimum tape thickness of 0.028 inch. This insulation thickness requires two complete layers of overlapping turns.

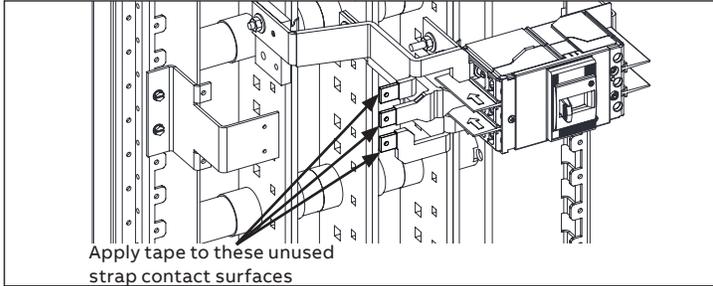


Figure 10. Applying insulating tape to unused strap contact surfaces

STEP 12: Optional - Kirk lock mounting kit assembly

Pre-assemble Kirk lock mounting kit assembly as shown in figure 12a.

Note: Kirk-lock is not included in the kit. Re-use Kirk lock from panel.

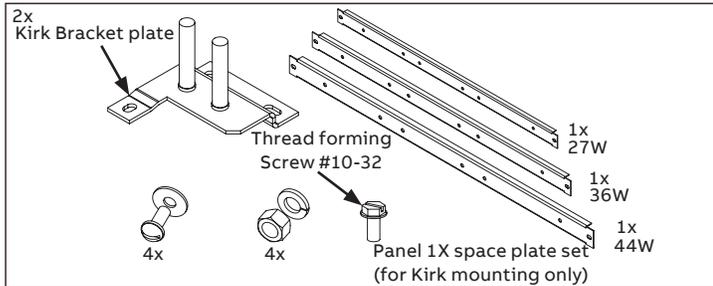


Figure 12a: XT1 Kirk lock mounting kit assembly

STEP 12 Continued

Remove extensions on plunger (If any) ⚠

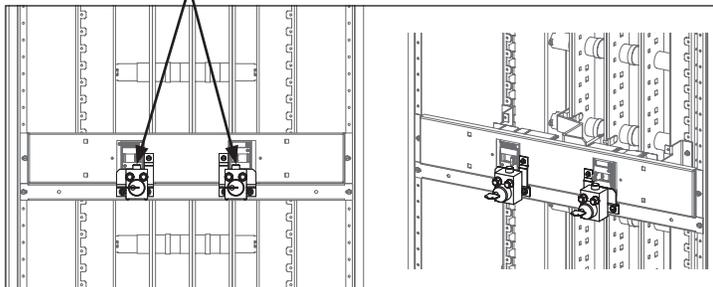


Figure 12c: XT1 Kirk lock set mounted on panel

Disclaimer : These instructions do not cover all details or variations in equipment nor do they provide for every possible contingency that may be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise that are not covered sufficiently for the purchaser's purposes, the matter should be referred to the ABB Company.

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STEP 11

Install the filler plate [13] with thread forming screw [6], torque the screws to 30 lb-in. Refer figure 11a.

Single breaker and other side with blank out plate. Refer figure 11b.

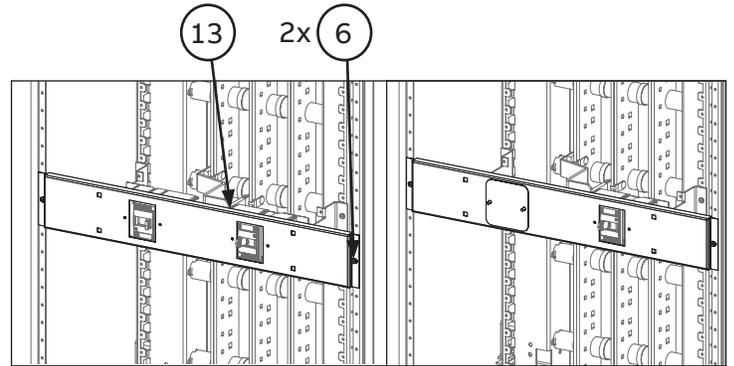


Figure 11a. Install the filler plate

Figure 11b. Single breaker and other side with blank out plate

STEP 12 Continued

Choose the appropriate panel width 1x space plate from the kirk lock kit and fit 1x space plate on the panel with thread forming screw (2x) as shown in figure 12b.

On the 1x space plate install the kirk lock assy with 2x screws fastened on 1x space plate and 2 screw on filler plate. Verify the lock function after complete installation.

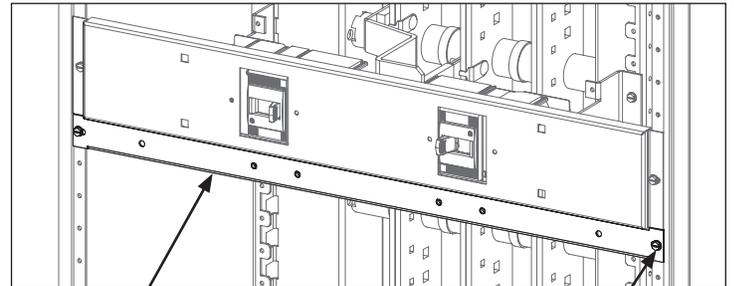


Figure 12b: XT1 Kirk lock set mounted on panel

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