INSTALLATION INSTRUCTIONS

Retrofit of Spectra E-frame and F-frame with ABB Tmax XT4 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.

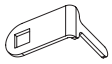
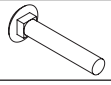
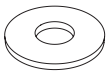
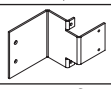
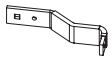
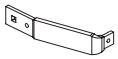
General

These instructions are applicable to retrofit of Spectra E-frame and F-frame with ABB Tmax XT4 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	10
7		Mounting screw - breaker #8-32 - 3.25L Socket head	4
8		Hex Terminal Screw 1/4-20 x 0.50L Socket Head	6
9		Link1 - Long	1
10		Link 1 - Short	1
11		Link 2- Long	1
12		Link 2 - Short	1
13		Link 3 - Long	1

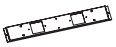
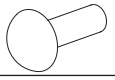
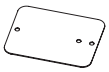
Item	Part	Description	Qty.
14		Link 3 - Short	1
15		Filler Plate	1
16		Support cover	2
17		Push in Rivet	2
18		Centre Barrier	1
19		Kit TerminalCover, XT4 (HTC)	2
20		Filler Space Plate	1

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. Use the insulating plate while mounting the breaker on panel. Use the Phase barriers (2x) in line side as shown in figure.

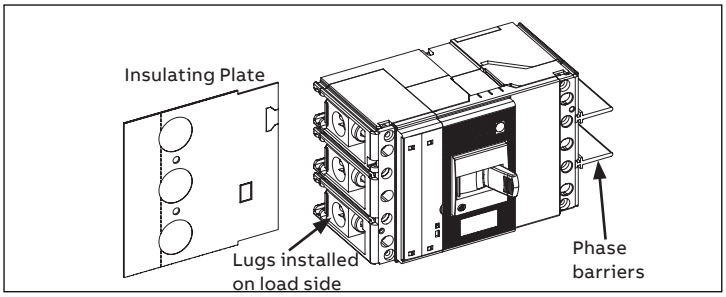


Figure 1a. Prepare the breaker

STEP 1 Continued

Note: Additional phase barrier usage

Use additional phase barrier when XT4 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.° 1SDH000722R0003 – Section 7 for more details.

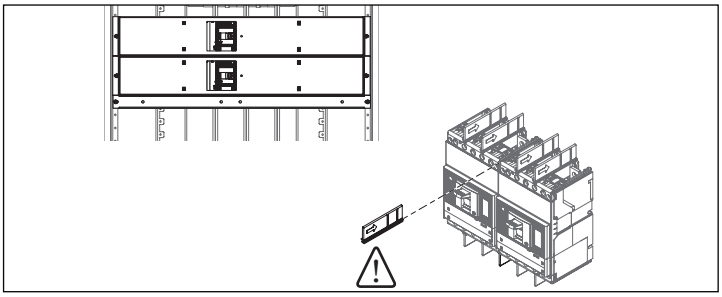


Figure 1b. Breaker additional phase barriers

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.

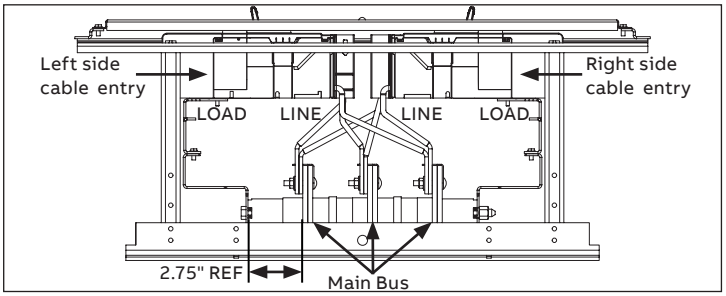


Figure 2. Double branch XT4 Breaker; Assembly end view

STEP 3

Install Link 3 - Long [13] and Link 3 - Short [14] to outermost pole 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].

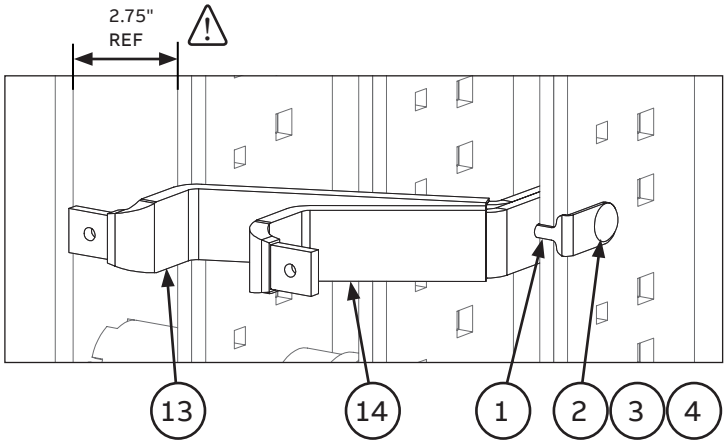


Figure 3. Installation of link - 3

STEP 4

Install Link 2 - Long [11] and Link 2 - Short [12] 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].

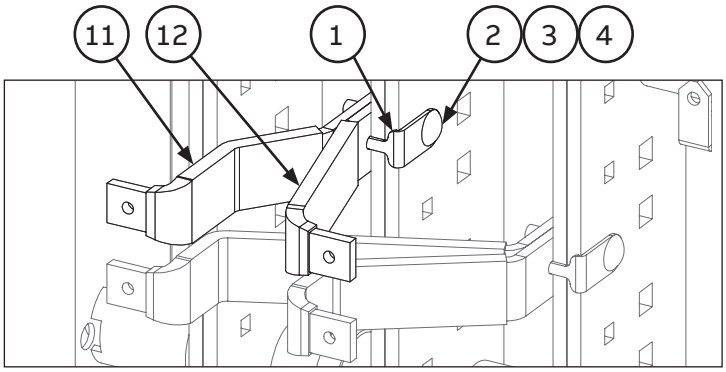


Figure 4. Installation of link - 2

STEP 5

Install Link 1 - Long [9] and Link 1 - Short [10] to the 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].

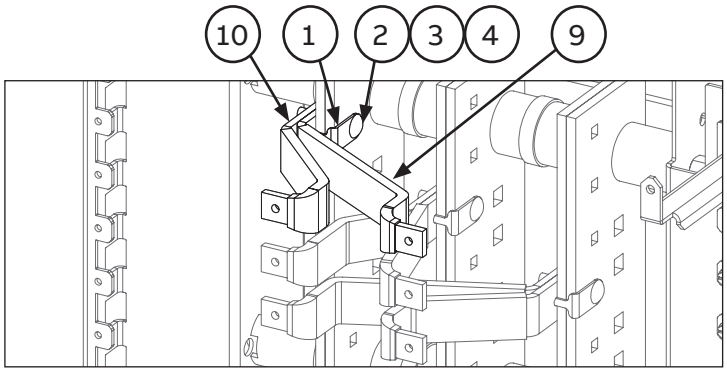


Figure 5. Installation of link - 1

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.

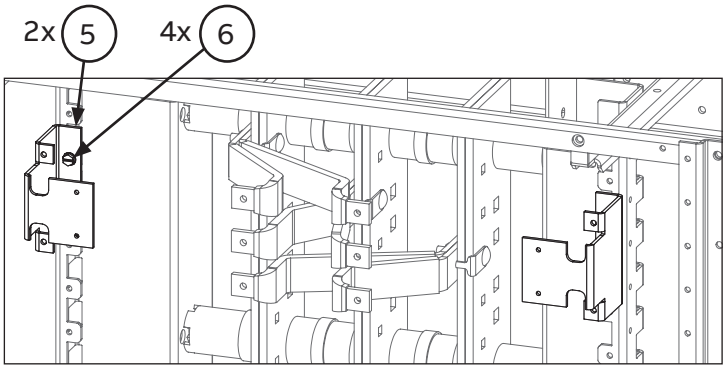


Figure 6. Installation of mounting bracket

STEP 7

Install the insulating plate, pre-assembled breaker with mounting screw [7] and hex terminal socket head screw [8]. Torque the mounting screw [7] to 9 lb-in and screw [8] to specification in document 1SDH000722R0003. Refer figure 7.

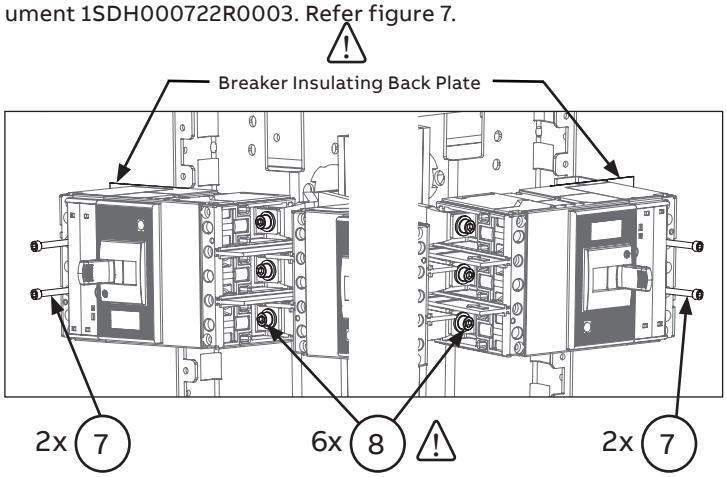


Figure 7. Installation of breaker

STEP 8

Remove the plastic wall (knock out) in terminal cover (19) and install the XT4 terminal cover on load side (slide down in as shown) of both breakers.

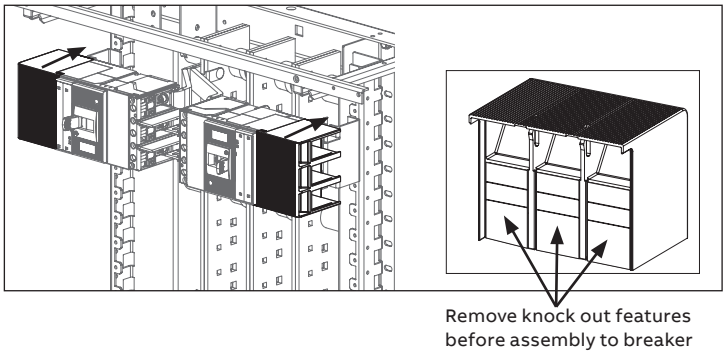


Figure 8. Installation of terminal cover both sides

STEP 9

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.

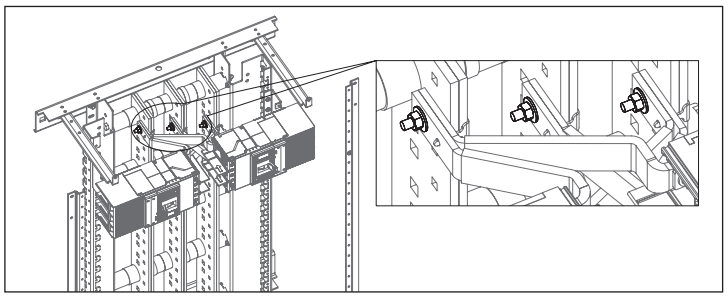


Figure 9. Tighten the bolted straps

STEP 10

Attach the center barrier (18) to the filler plate (15). Use two push-in rivets (17) with mild hammering, as shown in figure 10.

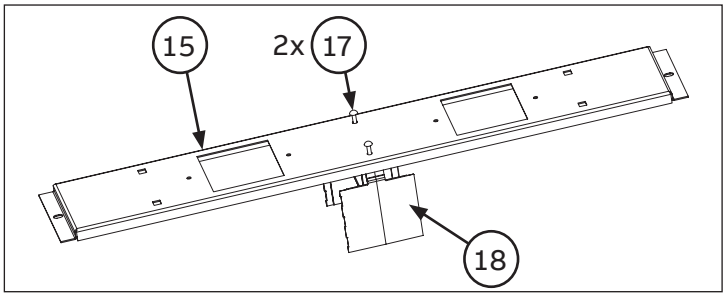


Figure 10. Attaching the center barrier to the filler cover

STEP 11: Tape unused contacts

Apply multiple wrappings of insulation to unused strap contact surfaces, as illustrated in figure 11. 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.

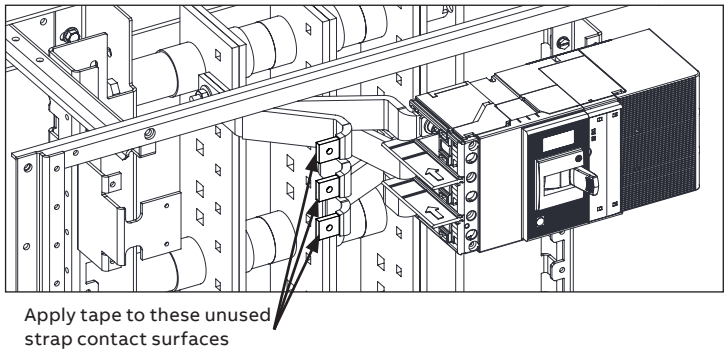


Figure 11. Applying insulating tape to unused strap contact surfaces

STEP 12

Install the filler plate assembly to the panel with thread forming screw [6], torque the screws [7] to 30 lb-in. Refer figure 12.

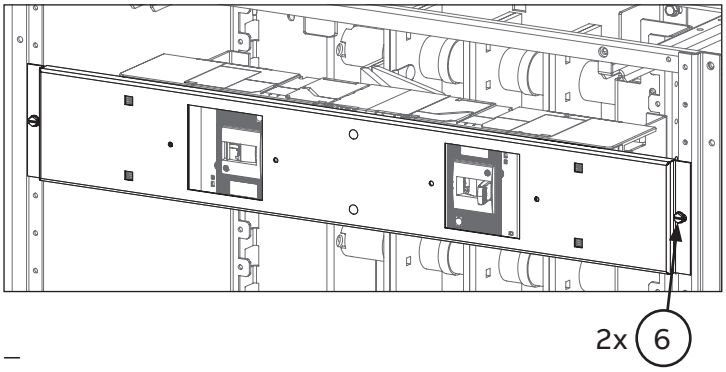


Figure 12. Installation of main filler plate to panel

STEP 13: Space fillers (Optional)

Install space filler plate (20) to any holes (left or right) in the main filler plate (from STEP 10) only in case of no breakers mounted behind. The space filler plate has to be secured with 2 thread forming screws [6] and torque to 30 lb-in. Refer figure 13.

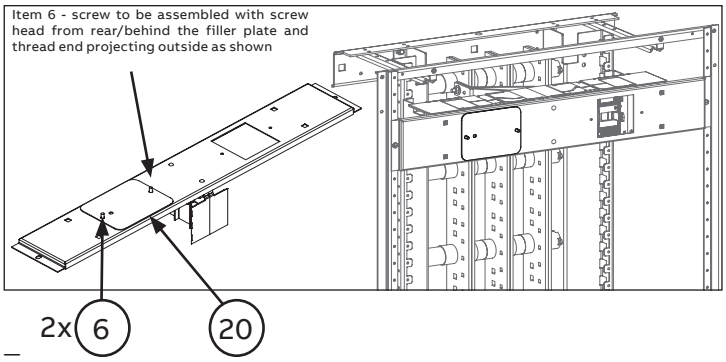


Figure 13 . Installation of space filler plate on main filler plate

STEP 14: Optional - Kirk lock mounting kit assembly

Pre-assemble Kirk lock mounting kit assembly as shown in figure 14a.

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

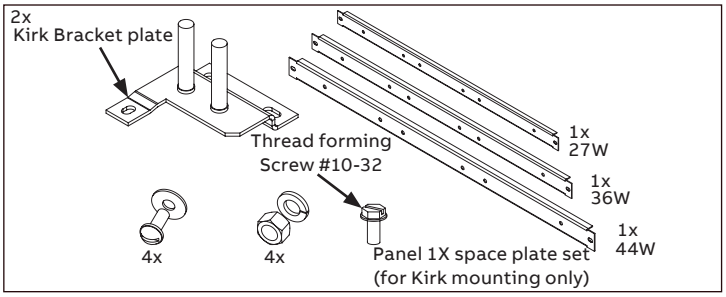


Figure 14a: XT4 Kirk lock mounting kit assembly

STEP 14 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 14b.

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

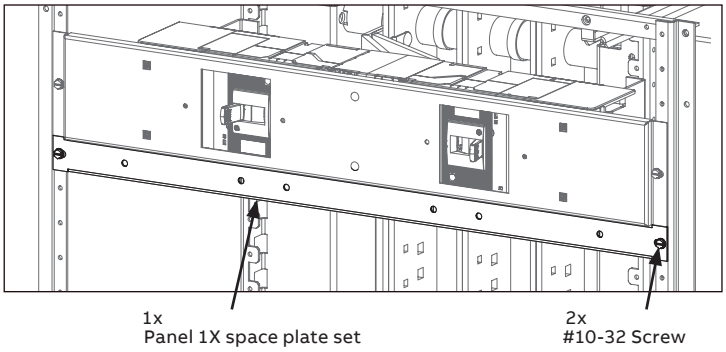


Figure 14b: XT4 Kirk lock set mounted on panel

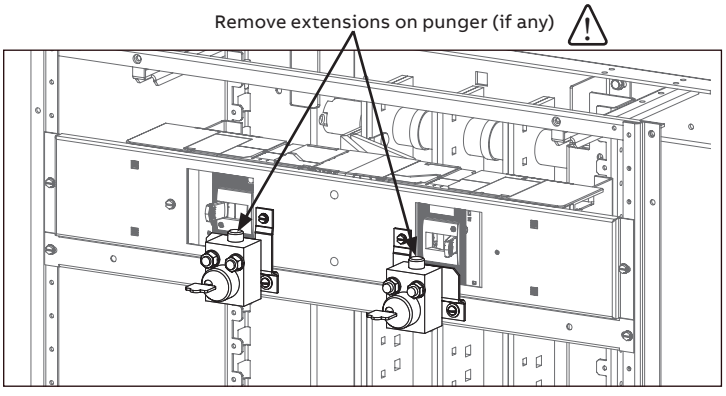


Figure 14c: XT4 Kirk lock set mounted on panel

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