

INSTALLATION INSTRUCTIONS

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

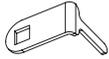
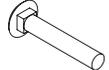
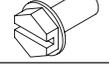
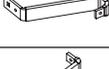
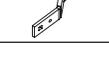
General

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 single 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	2
8		Hex Terminal Screw 1/4-20 x 0.50L Socket Head	3
9		Link - X type	1
10		Link - Y type	1

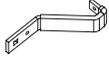
Item	Part	Description	Qty.
11		Link - Z type	1
12		Strap spacer	3
13		Filler plate	1
14		Support cover	2
15		Kit Terminal Cover, XT4 (HTC)	1

Table 1. Retrofit kit

Required Tools

Below listed tools are required for installation

Item	Part	Description
1		Torque wrench

STEP 1 (left and right side cable entry)

Prepare the breaker, refer to document 1SDH000722R0003 for more information. Install the appropriate lugs in load side as shown in figure 1a. Use the insulating plate while mounting the breaker on panel. Use the Phase barriers (2x) in line side as shown in figure 1a.

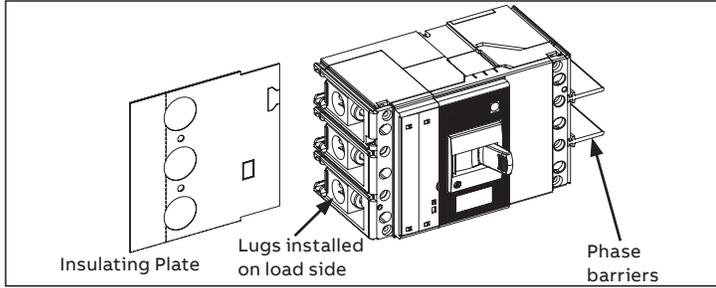


Figure 1a. Breaker preparation

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.º 1SDH000722R0003 – Section 7 for more details.

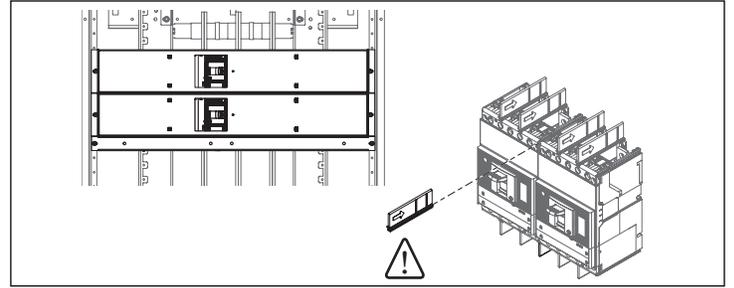


Figure 1b. Breaker additional phase barriers

STEP 2 (left and right side cable entry)

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 2a for left side cable entry and figure 2b for right side cable entry.

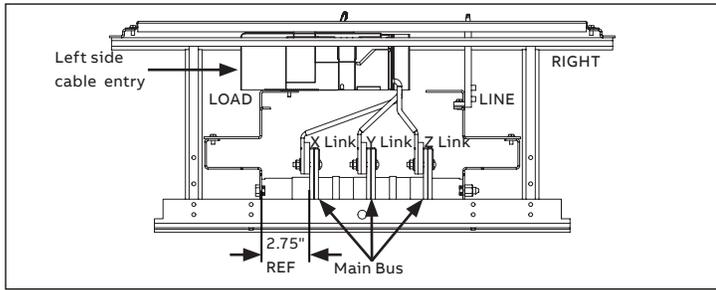


Figure 2a. Single branch, XT4 Breaker; Left side cable entry, Assembly end view

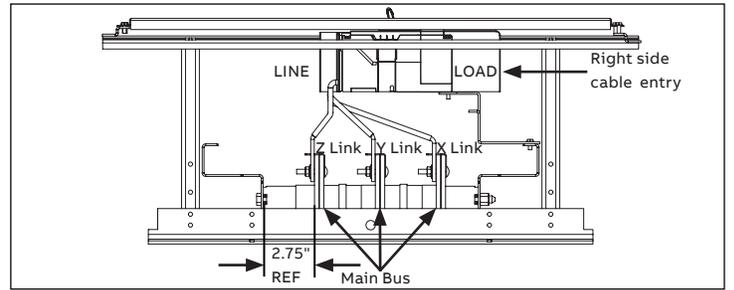


Figure 2b. Single branch, XT4 Breaker; Right side cable entry, Assembly end view

STEP 3 (left side cable entry)

Install the strap spacer [12], busbar link - X, Y and Z type [9,10,11] with the corresponding holes in the vertical bus, as shown in Figure 3a. Fasten each strap assembly loosely to the vertical bus with carriage bolts [2], antiturn clip [1], Belleville washers [3] and nuts [4].

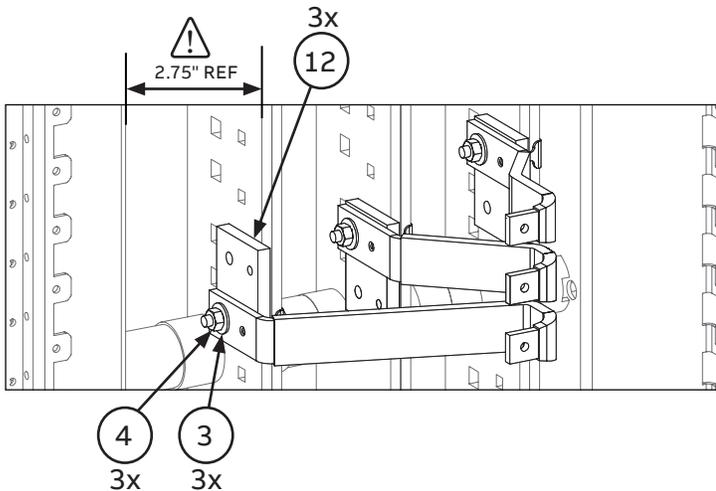
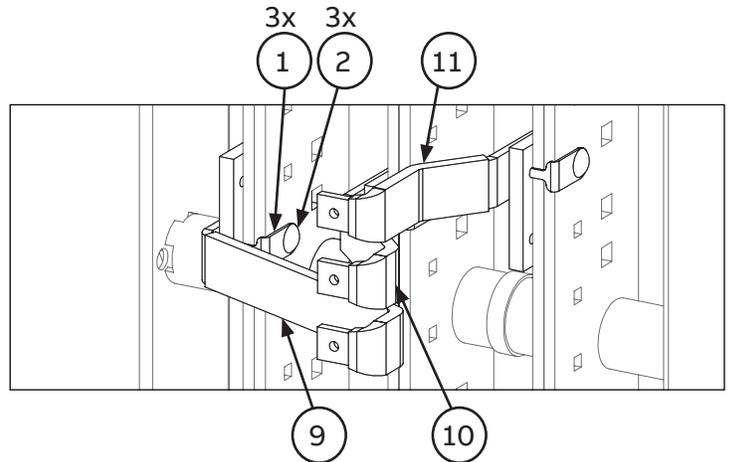


Figure 3a. Installation of link x, y and z type; left side cable entry



STEP 3 (right side cable entry)

Install the link - X, Y and Z type [9,10,11] with the corresponding holes in the vertical bus, as shown in Figure 3b. Fasten each strap assembly loosely to the vertical bus with carriage bolts [2], antiturn clip [1], Belleville washers [3] and nuts [4].

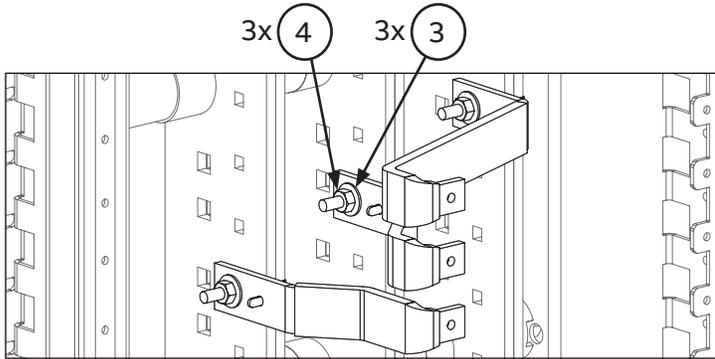
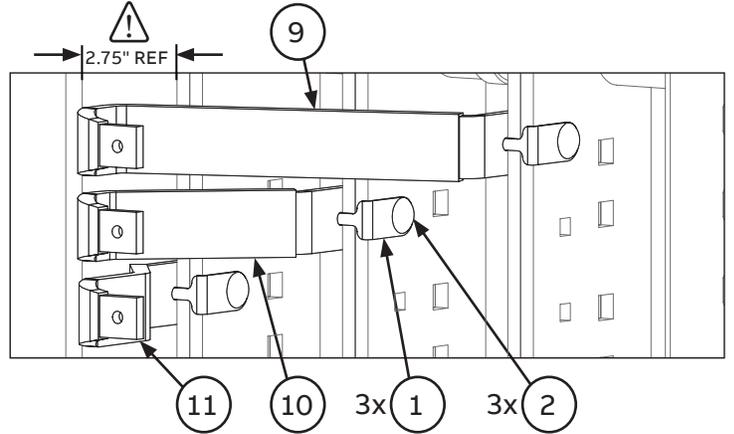


Figure 3b. Installation of link x, y and z type; right side cable entry



STEP 4 (left and right side cable entry)

Install the breaker mounting bracket [5] on the bus support rail with the thread forming screw [6], torque the screw [6] to 30 lb-in. refer figure 4.

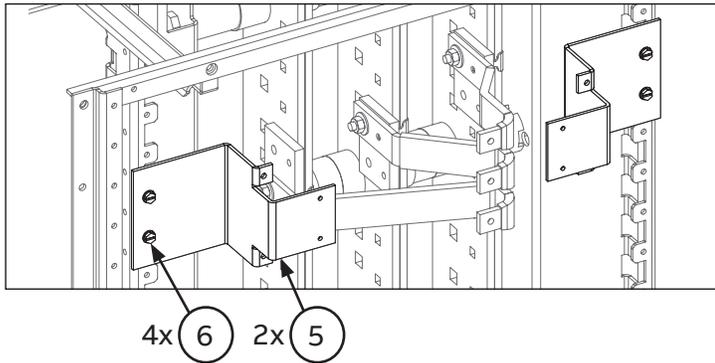


Figure 4. Installation of mounting bracket

STEP 5 (left and right side cable entry)

Note: This is an optional step.

Install the support cover [14] on the mounting bracket [5] with the thread forming screw [6], torque the screw [6] to 30 lb-in. refer figure 5.

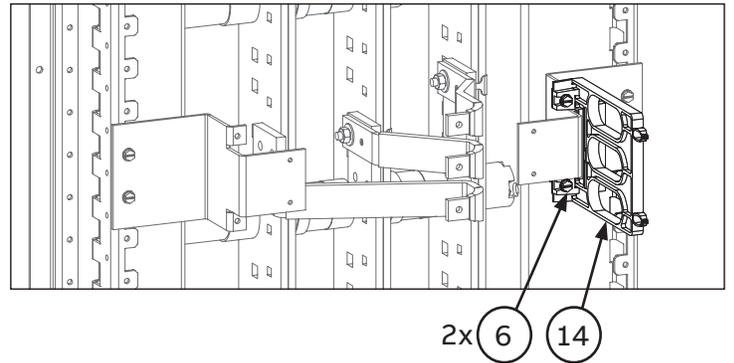


Figure 5. Installation of support cover

STEP 6 (left and right side cable entry)

Install the insulating plate, pre-assembled breaker with mounting screw [7], torque the mounting screw [7] to 9 lb-in. Fasten the breaker to busbar with the hex terminal socket head screw [8], torque the screw to specification in document 1SDH000722R0003. Refer figure 6.

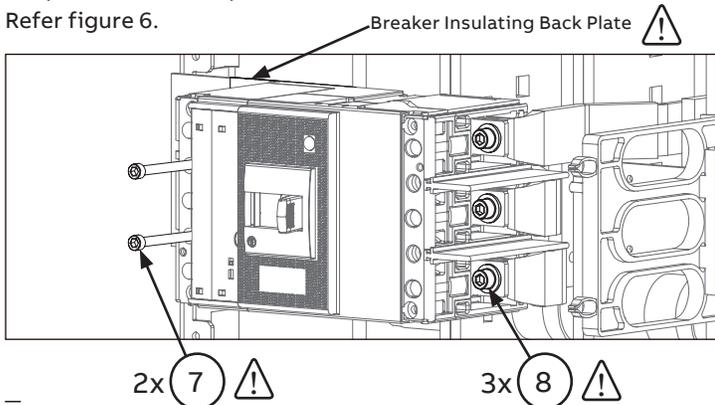


Figure 6. Installation of breaker

STEP 7 (left and right side cable entry)

Remove the plastic wall (knock out) in terminal cover (15) and install the XT4 terminal cover on load side (slide down in as shown in figure 7).

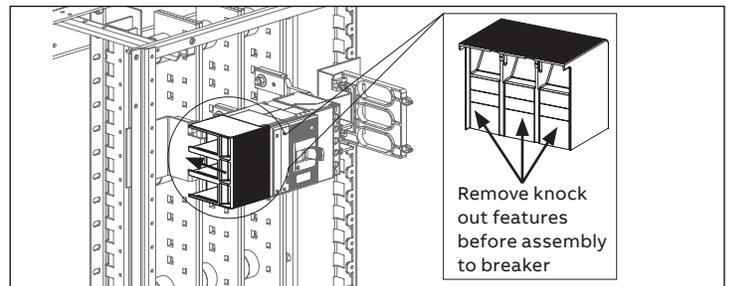


Figure 7. Installation of terminal cover

STEP 8 (left and right side cable entry)

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.

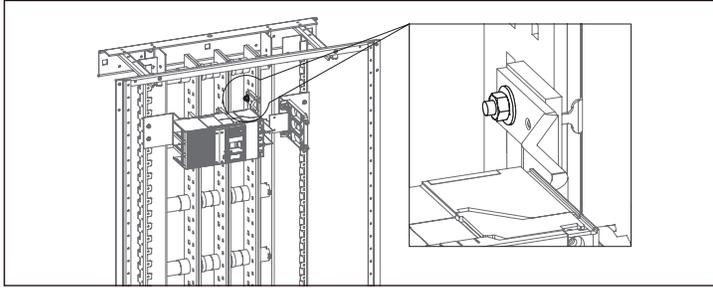


Figure 8. Tighten the straps

STEP10: Optional - Kirk lock mounting kit assembly

Pre-assemble Kirk lock mounting kit assembly as shown in figure 10a.

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

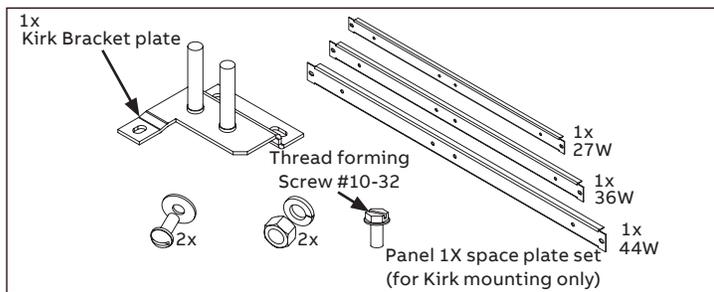


Figure 10a: XT4 Kirk lock mounting kit assembly

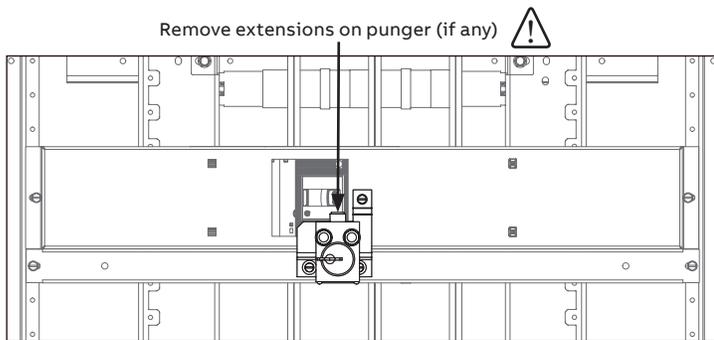


Figure 10c: Left side cable entry, XT4 Kirk lock installation on panel

STEP 9 (left and right side cable entry)

Install the filler plate [13] to panel with thread forming screw [6], torque the screw [6] to 30 lb-in. refer figure 9.

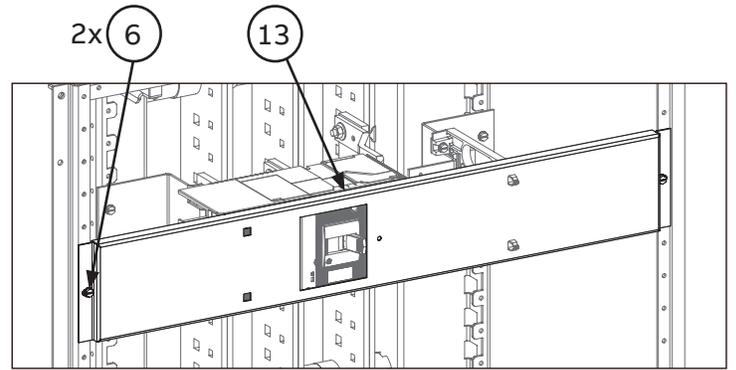


Figure 9. Installation of filler plate

STEP 10 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 the figure 10b.

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.

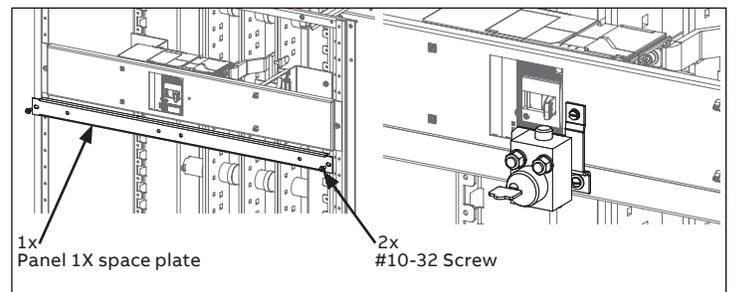


Figure 10b: XT4 Kirk lock installation on panel

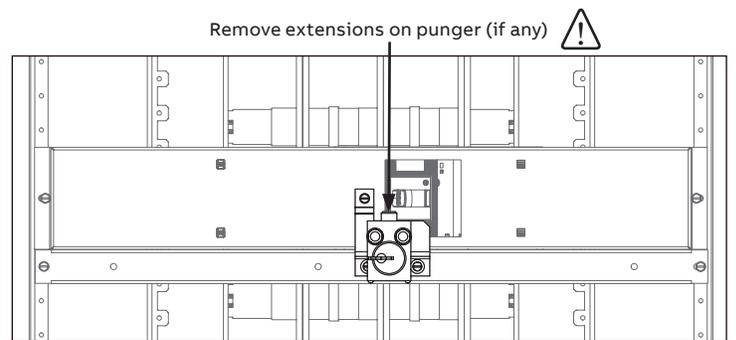


Figure 10d: Right side cable entry, XT4 Kirk lock set mounted on panel

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.