

AMC3KM with Spectra K to SRFP3XT7FP with Tmax XT

Retrofitting Spectra Plug-In Module AMC3KM with Tmax XT molded case circuit breakers in Spectra Series Power Panels.

This retrofitting kit is designed to replace Spectra K molded case circuit breakers in Spectra Series Power Panelboards. It allows a Tmax XT molded case circuit breaker of the size indicated in Table A to be attached to the original plug-in module and installed into a Spectra panelboard enclosure.

Table A

Legacy	Legacy Rating	Tmax	New Max Rating
Spectra K	1200A, 600V	XT7	1200A, 600V

Full correspondence of the electrical characteristics are guaranteed (rated voltage and current excluding derating if indicated in the table above, and breaking capacity) so long as the kit is chosen in accordance with the specifications in the ABB technical catalogues dedicated to retrofitting products.

ATTENTION !

The following instructions concern the sole assembly of the retrofitting kit. They do not substitute for the instructions in the operation and maintenance manuals of the Tmax XT molded case circuit breakers. Refer to the ABB website for further information on the Tmax XT molded case circuit breaker line.

IMPORTANT !

Retrofitting allows an obsolete control and protection device to be replaced, but does not allow the ratings of the original panelboard to be altered in any way. The retrofitting kits are dimensioned and validated for the obsolete device performances which may be lower than the Tmax XT ratings. 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 retrofitting, operation, or maintenance. Should further information be desired or should particular problems arise that are not covered sufficiently for the purchaser's purposes, please consult with ABB for further information.



WARNING! : Danger of electrical shock or injury.

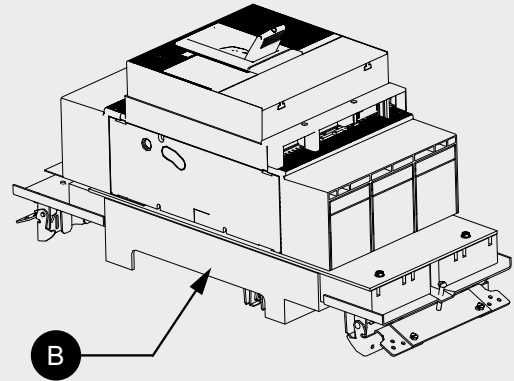
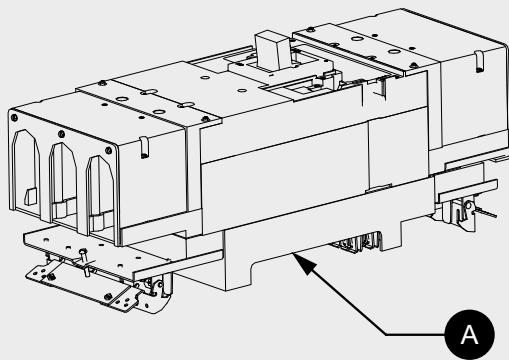
Turn OFF power ahead of the panelboard or switchboard before working inside the equipment or removing any component. Equipment is to be installed and maintained by properly trained and qualified personnel only.
Completely read through and understand these instructions before starting any retrofit activities.

MAKING THE SYSTEM SAFE FOR PLUG-IN MODULE REMOVAL

The following warnings and precautions must be respected before attempting to retrofit a plug-in module:

- Place the panelboard and upstream supply out of service.
- Disconnect power from the panelboard (power circuit and auxiliary circuits) and verify it is disconnected from all sources of energy.

Note: The trained personnel in charge of the retrofitting operations must use appropriate safety equipment.



Legacy AMC3KM Module with SK Circuit Breaker	A
Retrofit SRFP3XT7 Module with XT7 Circuit Breaker	B

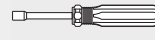
Tools Required:



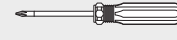
5/16" Hex, 3/8", 7/16"
& 9/16" Socket



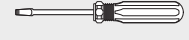
Ratchet Wrench
& Torque Wrench



5/16"
Nut Driver



#1 & 2 Phillips
Screwdriver



1/4 - 3/8" Flat
Blade Screwdriver



3/32" Allen
Wrench



Knife or
Box Cutter



T Square or
Straight Edge



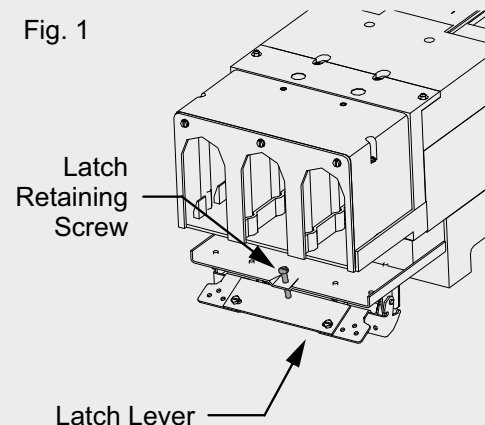
Nibbler or
Angle Grinder

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PLUG-IN MODULE REMOVAL FROM PANELBOARD

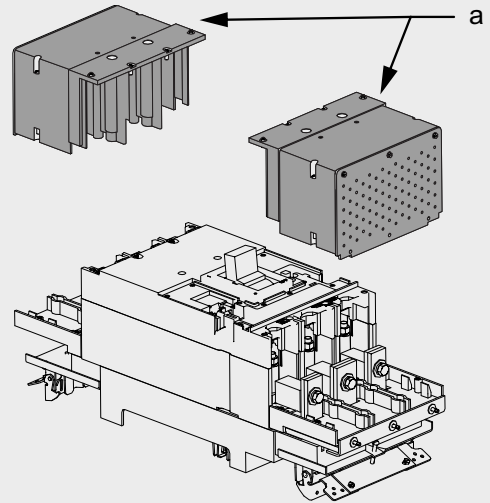
- Remove the four piece front or door from the panelboard.
- Remove the deadfront panel which covers the module to be retrofit.
- Remove all power cables and auxiliary wiring connected to the module.
- Loosen both latch retaining screws on either end of the module shown in Figure 1.
- Pull both latch levers and the module from the panelboard.

Fig. 1



- Remove the terminal covers (a)(Fig. 2) if equipped which are connected to the circuit breaker.

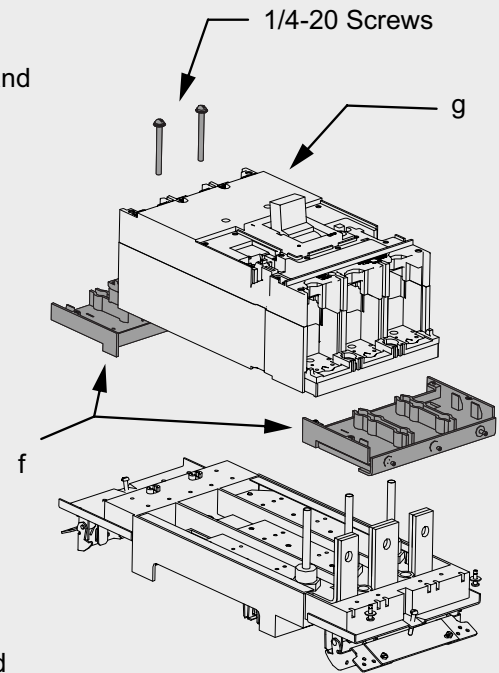
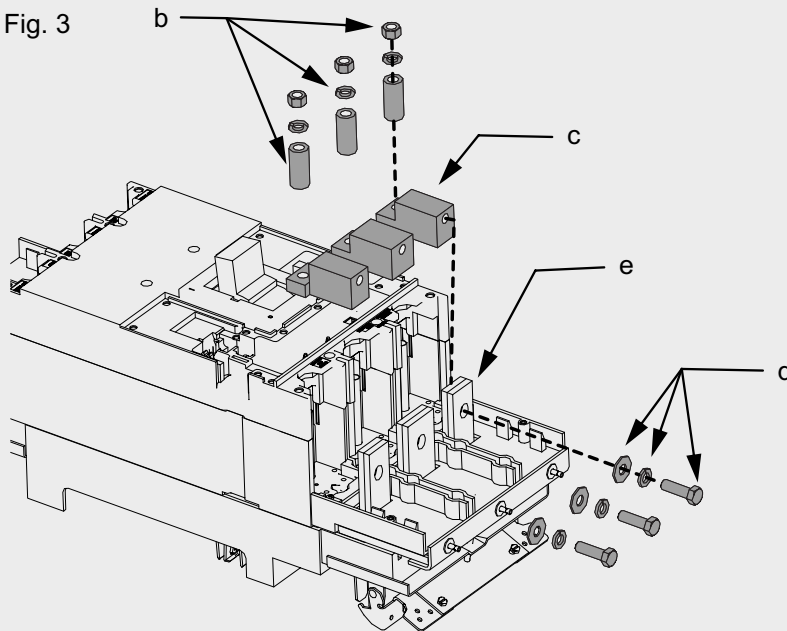
Fig. 2



- Remove the 3/8" hardware (b)(Fig. 3) which secure the line terminal posts (c)(Fig. 3) to the circuit breaker terminals.
- Remove the 3/8" bolts, lock, and flat washers (d)(Fig. 3) which secure the line terminal posts (c) to the module bus (e)(Fig. 3).
- Once free, remove the line terminal posts (c) from the module.
- Remove the SK circuit breaker (g)(Fig. 4) from the module by removing the two 1/4-20 screws located between the load lugs and then lifting the circuit breaker off the module.
- Remove the terminal barriers (f)(Fig. 4) if equipped.

Fig. 4

Fig. 3



- Remove the three finger clusters (h)(Fig. 5) from the bottom of the module by removing the 10-32 hex head screws. **Save the finger clusters (h) and hardware for later use.**
- Free the module bus (e)(not shown) from the plastic base by removing the ten 1/4-20 bolts and washers (i)(Fig. 6).
- **Save the module bus hardware (i) for later use.**

Fig. 5

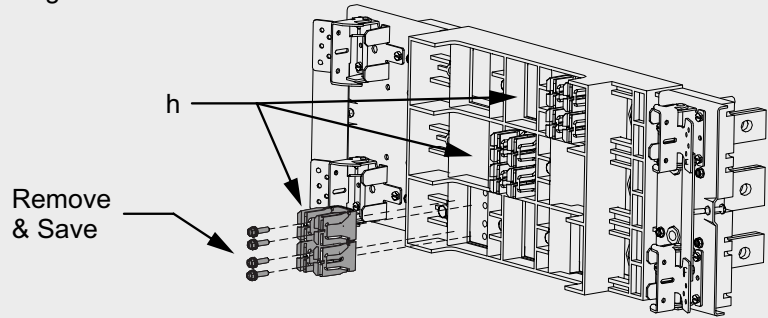
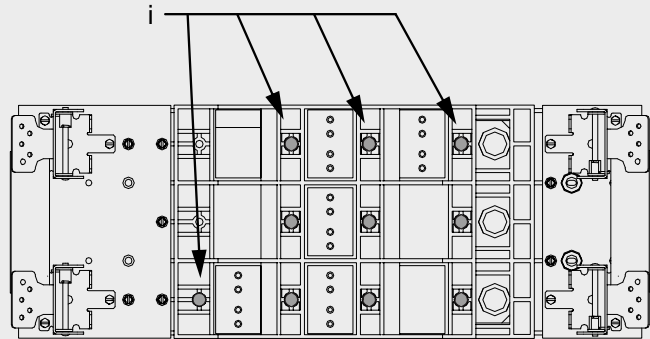


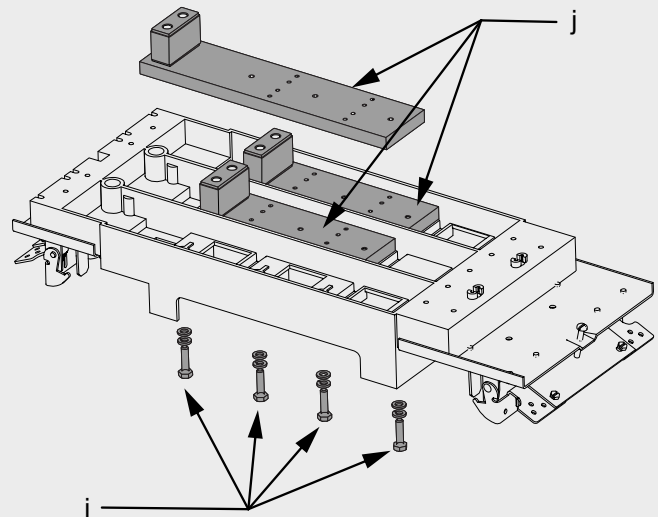
Fig. 6



Tmax XT7 Installation

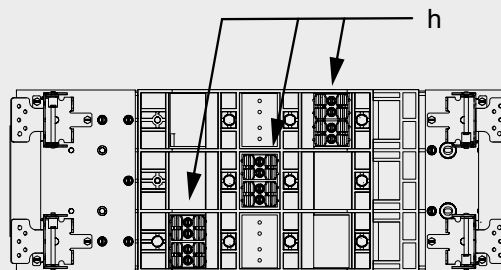
- Install the new module bus (j)(Fig. 7) onto the module.
- Ensure the longer bus assembly is installed in an outer pole location as shown in Figure 7.
- Secure the bus to the module using the 1/4-20 hardware (i)(Fig. 7) which was removed in step 4. **Note: do not torque the hardware at this time as minor adjustments may be required.**

Fig. 7

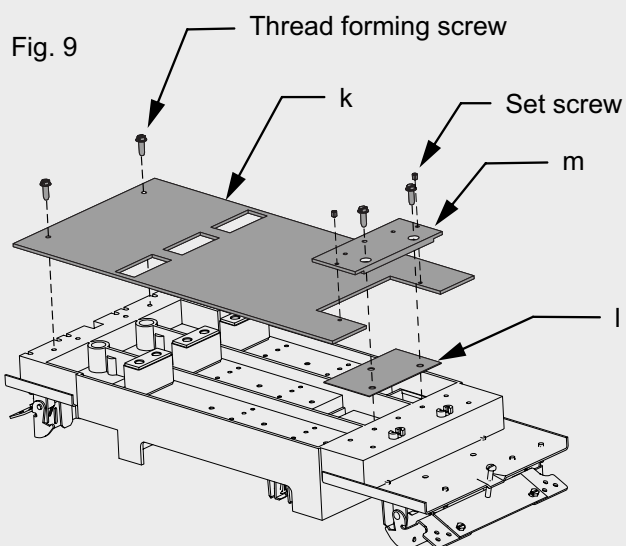


- Re-install the finger clusters (h)(Fig. 8) onto the module using the twelve hex head screws removed in step 4. **Torque the 10-32 screws to 25 lb-in.**
- Note: Ensure that the one finger cluster (h) is installed per module bus as shown. Additional tapped holes are provided if the module is being installed in a single phase panel for load balancing.

Fig. 8

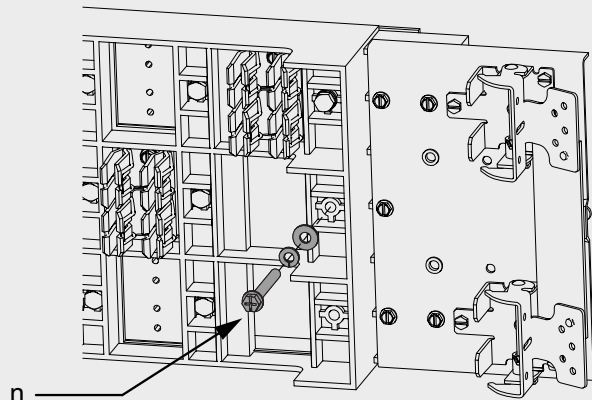


- Install the module barrier (k)(Fig. 9) onto the module using two thread forming hex head screws.
- Place the mounting plate insulator (l)(Fig. 9) onto the module and the circuit breaker mounting plate (m)(Fig. 9) directly onto it. Secure both the insulator and plate to the module using two thread forming hex head screws.
- **Torque all four thread forming screws to 15 lb-in.**
- Install two set screws into the circuit breaker mounting plate (m) to secure the end of the module barrier (k). Screw both set screws in until the heads are flush with the top of the mounting plate (m).

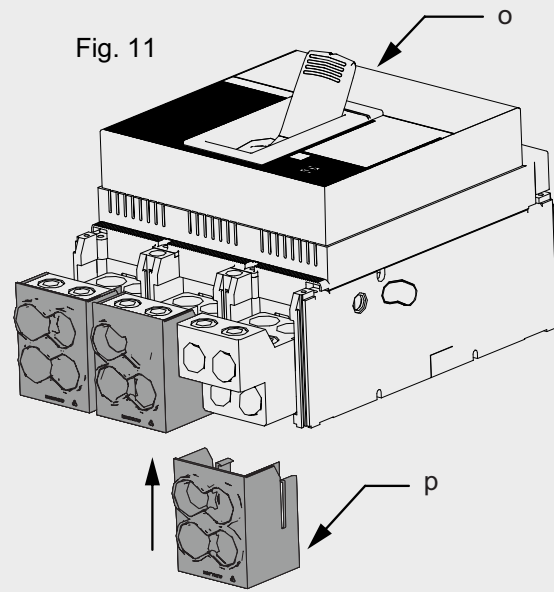


- Flip the module over to install the circuit breaker mounting plate bolt, lock, and flat washer (n)(Fig 10). Feed the bolt up through the center phase hole in the module base and thread it into the mounting plate (m).
- **Torque the mounting plate bolt (n) to 50 lb-in.**

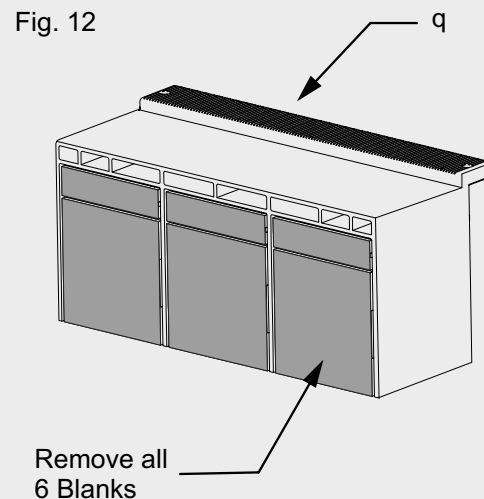
Fig. 10



- Install the service entry barriers (p)(Fig. 11) onto the load lugs of the XT7 circuit breaker (o)(Fig. 11).
- The service entry barriers slide over the load lugs from the bottom and snap into place when properly installed.
- NOTE: The service entry barriers are supplied with hole plugs to cover any unused cable openings. Install the hole plugs as required if all cable openings will not be used.



- Prepare the load end terminal cover (q)(Fig. 12) by snapping out the six blanks to allow access for the power cables.
- Use a knife to remove any sharp tabs which may be left behind from the blanks.



- Prepare the insulation sheet (r)(Fig. 13) supplied with the XT7 circuit breaker (o)(Fig.13) by placing it under load end of the circuit breaker.
- Align the holes in the insulation sheet (r) to the mounting holes in the circuit breaker (o) as shown in Figure 13.
- Score the insulation sheet (r) with a knife using the circuit breaker (o) as a guide as shown in Figure 14.
Note: A straightedge is helpful to extend the score line past the end of the circuit breaker.
- Snap off the two side sections created by the score line and discard them.

Fig. 13

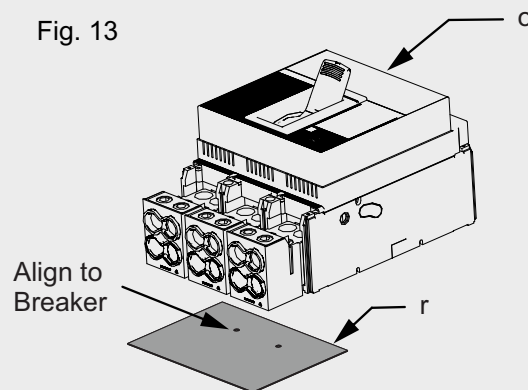
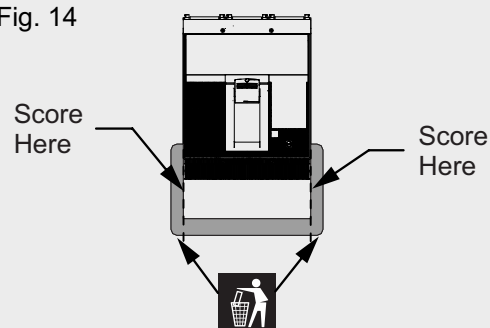
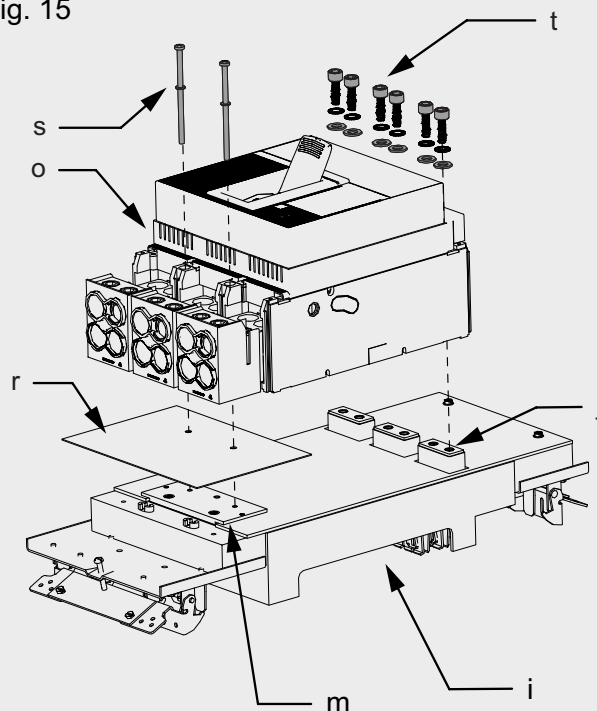


Fig. 14



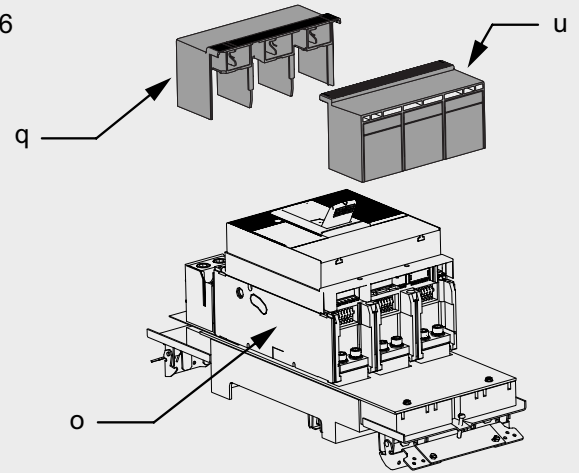
- Install the XT7 circuit breaker (o)(Fig. 15) onto the module base securing the housing to the mounting plate (m)(Fig. 15) and line terminals to the module bus (j)(Fig. 15).
- Ensure the insulation sheet (r)(Fig. 15) is mounted between the circuit breaker (o) and mounting plate (m).
- Secure the circuit breaker housing to the mounting plate (m) using the two M5 screws and washers (s)(Fig. 15) supplied with the kit.
- Secure the circuit breakers line terminals to the module bus using the 3/8-16" cap head bolts, locking and flat washers (t)(Fig. 15) supplied with the kit.
- **Torque the M5 screws to 15 lb-in and the 3/8" bolts to 330 lb-in.**
- **Torque the 1/4-20 hardware (i)(not shown) on the bottom of the module to 50 lb-in.**

Fig. 15



- Install the line end terminal cover (u)(Fig. 16) onto the XT7 circuit breaker (o)(Fig. 16) by sliding it down into the slots on the housing. Secure the cover using the two screw supplied with it.
- Verify the load end terminal cover (q)(Fig. 16) fits onto circuit breaker housing and that the required cable access to the lugs is available. **Do not secure the load end cover at this time.**

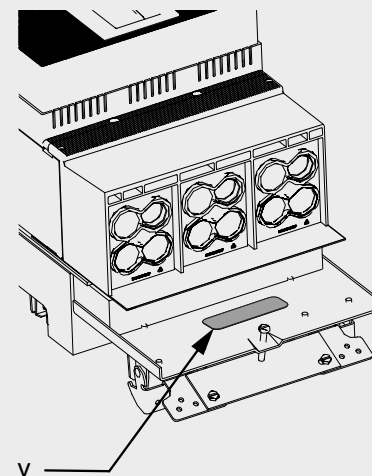
Fig. 16



- Apply new circuit breaker listing label (v)(Fig. 17) directly over the Spectra label as shown. The Spectra label will list the legacy SK breakers which could previously be mounted on the module.

Do not place the label over the interrupting capacity label as those values do not change

Fig. 17

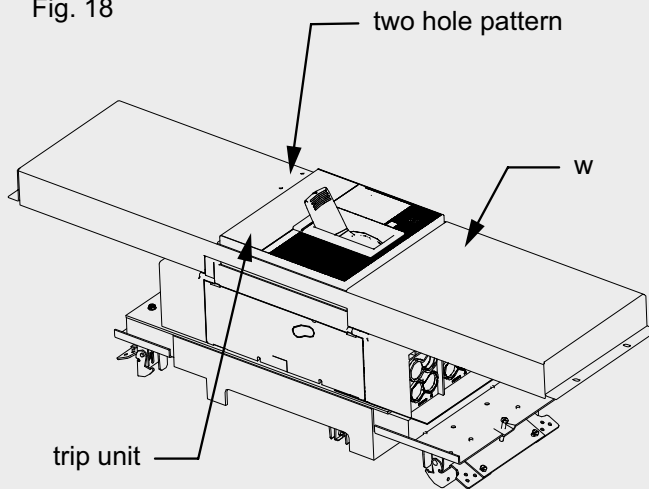


PLUG-IN MODULE INSTALLATION INTO A PANELBOARD

- Verify that the upstream supply and panelboard are still out of service and that all sources of energy (primary and auxiliary) are disconnected.
- Install the module back into the panelboard by holding both latch levers in and pressing the module onto the panelboard bus.
- Tighten both latch lever screws (reference Figure 1 in step 1) to lock the module onto the panelboard frame.
- Re-install the power cables and auxiliary wiring if equipped to the circuit breaker. Torque the cable lugs to the value listed on the front of the circuit breaker.
- Install the load end terminal cover (q)(Fig. 16) onto the circuit breaker (o)(Fig. 16) by sliding it down into the slots on the housing. Secure the cover using the two screw supplied with it.

- Install the deadfront panel (w)(Fig. 18) over the XT7 retrofit module so that the two hole pattern shown in Figure 18 is on the trip unit side of the circuit breaker. **Note: The panelboard is not shown in Figure 18 for clarity.**
- Secure the deadfront panel (w) to the panelboard using the four screws supplied with the kit.
- Verify all tools and legacy components which are no longer needed have been removed from the panelboard.
- Ensure all power cables and auxiliary wiring which were removed or displaced for the installation have been reconnected or removed.
- If the door or four piece front has been removed, replace it in the reverse order it was removed.
- Re-energize the panelboard according to accepted procedures for startup of new equipment.

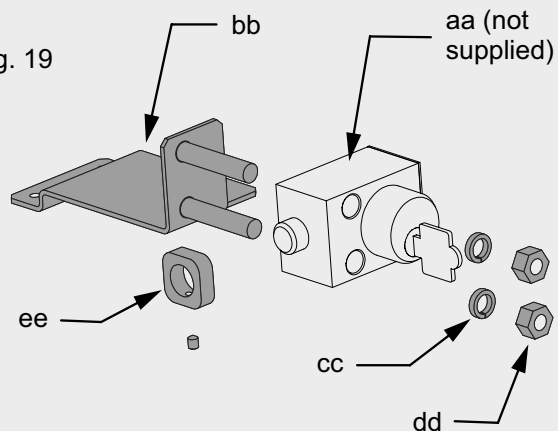
Fig. 18



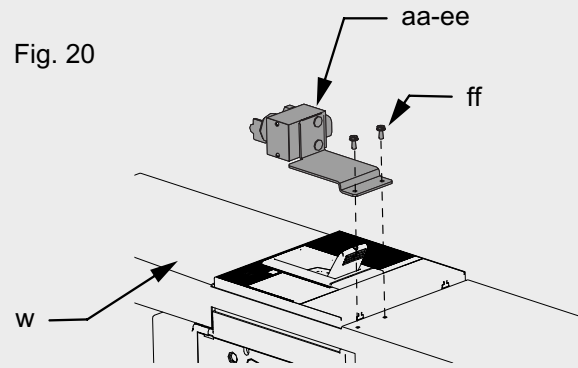
KIRK KEY INTERLOCK OPTION

- Ensure that the panelboard has been placed out of service before removing any panels. Reference the “Making the System Safe for Removal” section on page 2 of this document before continuing.
- If the legacy installation included a Kirk Key interlock option remove the legacy lock cylinder, brackets, and filler plate (if equipped) from the panelboard.
- Attach the legacy lock cylinder (aa)(Fig. 19) to the new cylinder bracket (bb)(Fig. 19) using the 3/8” split lock washers (cc)(Fig. 19) and nuts (dd)(Fig. 19).
- Attach the bolt block (ee)(Fig. 19) to the lock cylinders bolt using the supplied set screw. Align the face of the block with the end of the bolt.

Fig. 19

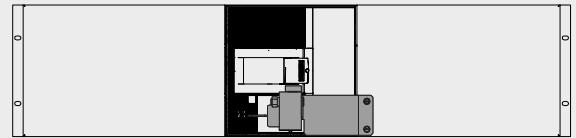


- Attach the lock cylinder and bracket assembly (aa through ee) (Fig. 20) to the XT7 retrofit deadfront panel (w)(Fig. 20) using the thread forming screws (ff)(Fig. 20) included in the kit.



- Verify that when the lock cylinder bolt is fully extended and the key has been removed the circuit breaker is not able to close. **Note: the circuit breaker shown in Figure 21 is in the ON position with the key trapped in the cylinder.**

Fig. 21



40"W PANELBOARD WITH DOOR AND KIRK LOCK INTERLOCK

- Retrofit installations that occur in 40"W panelboards that have either the flat door or door-in-door configuration **and** a Kirk Lock Interlock option require door modification.
- For installations where the XT7 power cables exit from the circuit breaker on the left side of the panelboard, measure and mark a line 15" from the left side of the panel. Cutout template (gg)(Fig. 22) is shown in the measured position.
- To position the cutout template (gg) vertically, open the door and measure from the bottom of the panelboard up to the top side of the XT7 handle. Add 0.5" to the measurement, close the door and mark the summed dimension as shown in Figure 23. **Note: Measurements can be rounded to the nearest 1/8".**

Fig. 22

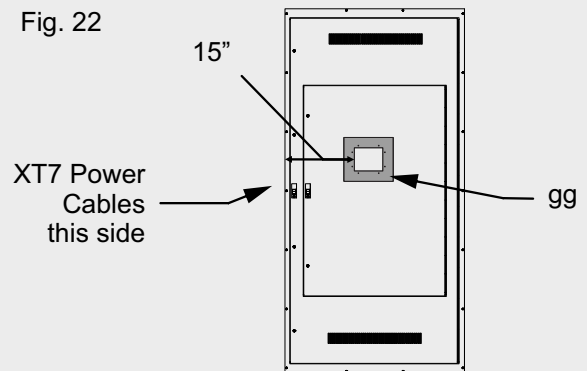
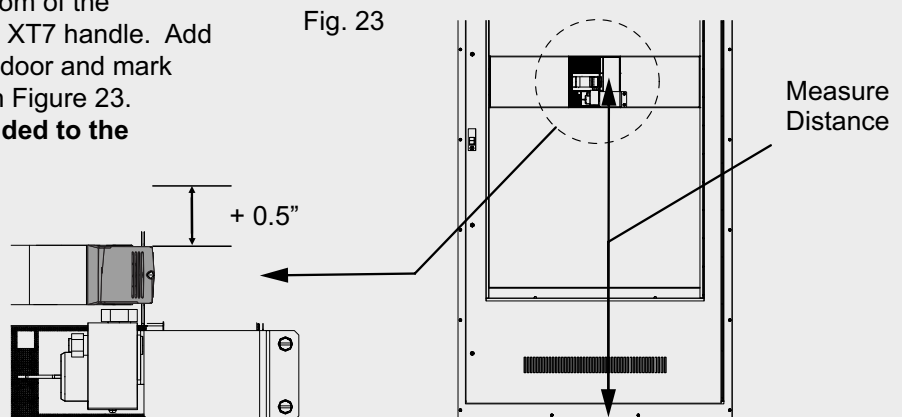


Fig. 23



- For installations where the XT7 power cables exit from the circuit breaker on the right side of the panelboard, measure and mark a line 15" from the right side of the panel. Cutout template (gg)(Fig. 24) is shown in the measured position.
- To position the cutout template (gg) vertically, open the door and measure from the bottom of the panelboard up to the bottom side of the XT7 handle. Subtract 0.5" from the measurement, close the door and mark the reduced dimension as shown in Figure 25. **Note: Measurements can be rounded to the nearest 1/8".**

Fig. 24

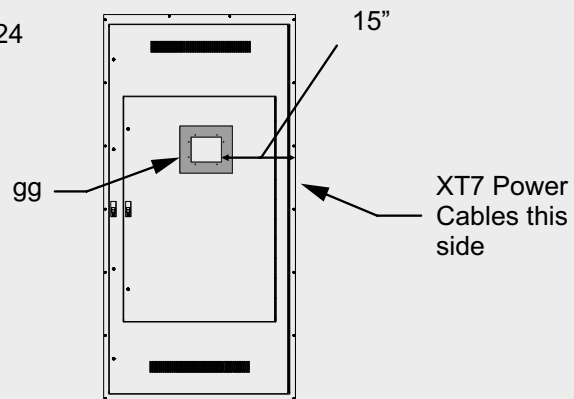
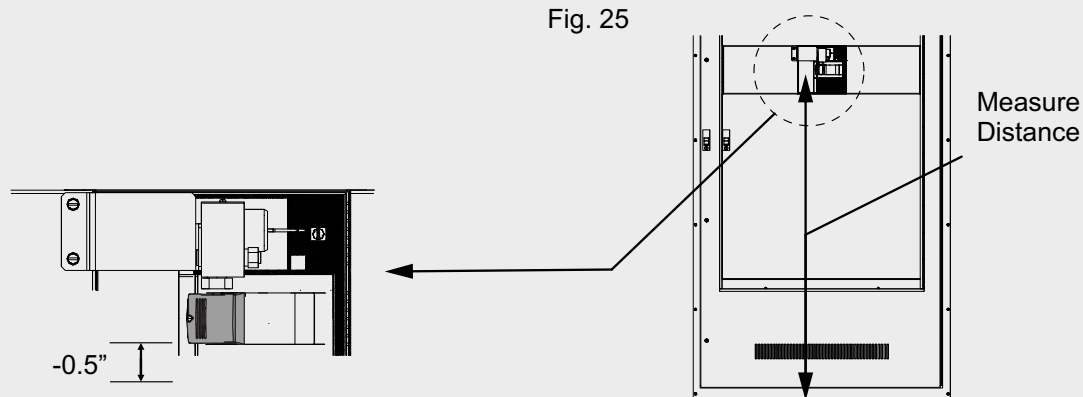
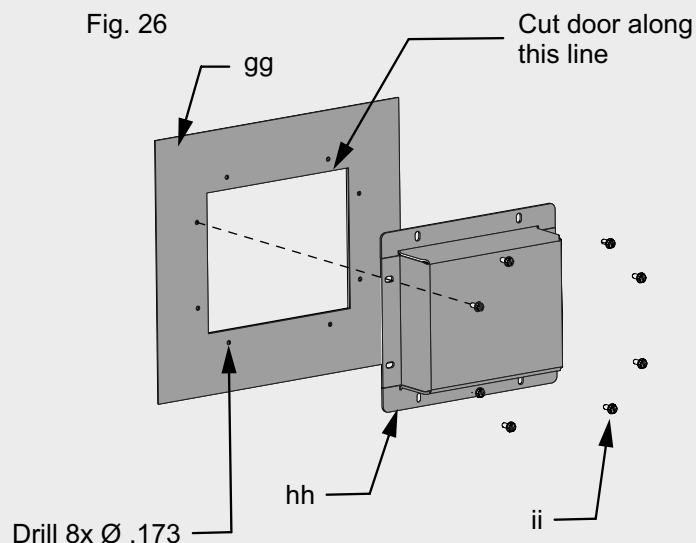


Fig. 25



- Align the cutout template (gg)(Fig. 26) to the marks made in steps 19 or 20 and stick the template to the outside of the door.
- Using the template, cut the door along the "PANEL CUT LINES" and drill the 8 marked holes with a 0.173" drill bit. **Note: It is suggested to remove the door from the panelboard to make the cut. Metal shavings that are produced from the cutting process are EXTREMELY hazardous to the safe operation of the enclosed circuitry.**
- Remove the cutout template from the door and any sharp points or burrs made by the cut with a file.
- Secure the door adapter (hh)(Fig. 26) to the panelboard door using the thread forming screws (ii)(Fig. 26) supplied in the kit. Start all 8 screws before fully tightening them.

Fig. 26



For more information please contact your local ABB Field Representative or Service Center listed below:

ABB Inc.
1555 Scott Street
Senatobia, MS 38668
Phone: 1-662-562-0700