

AMC3FJ with Spectra F to SRFP3XT4FP with Tmax XT

Retrofitting Spectra Plug-In Module AMC3FJ with Tmax XT molded case circuit breakers in Spectra Series Power Panels.

This retrofitting kit is designed to replace Spectra F 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 F	250A, 600V	XT4	250A, 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.

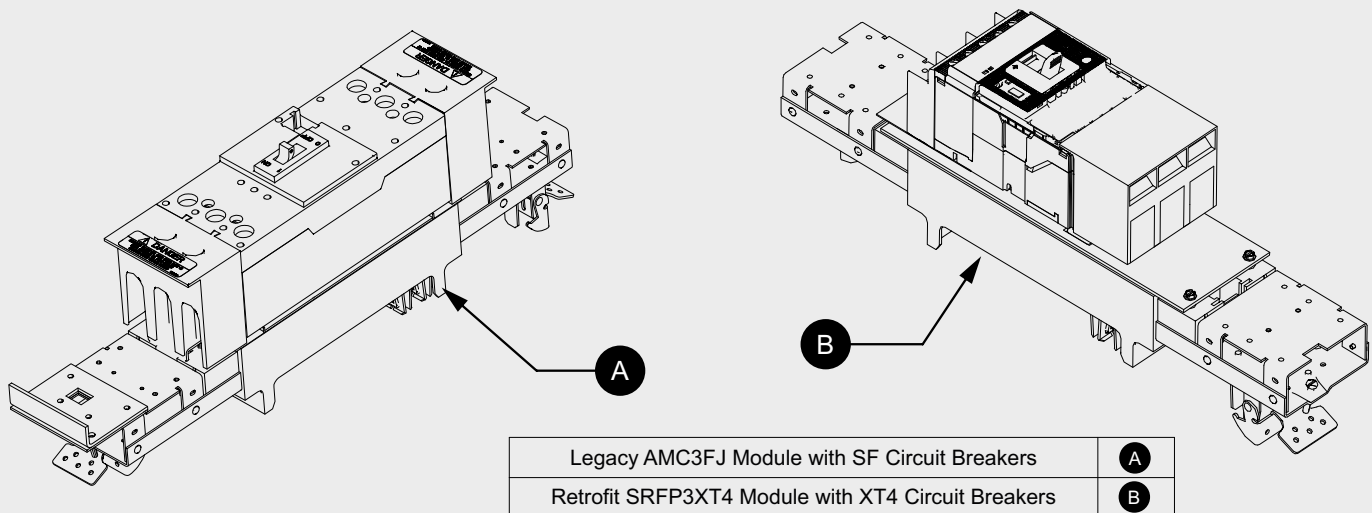
Turn OFF power ahead of the panelboard or switchboard before working inside the equipment or removing any component. Equipment is to be installed and maintained by properly trained and qualified personnel only. **Completely read through and understand these instructions before starting any retrofit activities.**

MAKING THE SYSTEM SAFE FOR PLUG-IN MODULE REMOVAL

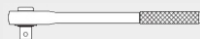
The following warnings and precautions must be respected before attempting to retrofit a plug-in module:

- 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.

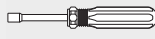
Note: The trained personnel in charge of the retrofitting operations must use appropriate safety equipment.



Tools Required:



3/8" Socket
& Torque Wrench



5/16" Nut
Driver



2 Phillips
Screwdriver

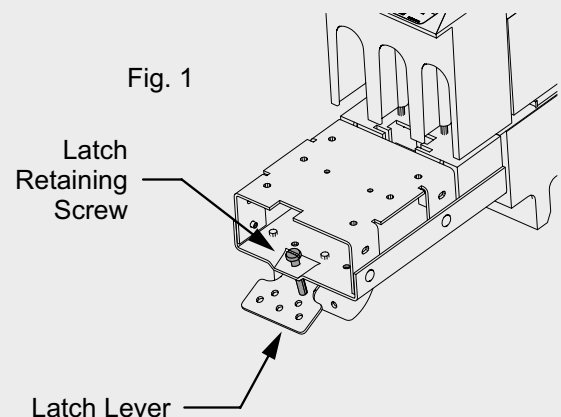


1/4 - 3/8" Flat
Blade Screwdriver

1

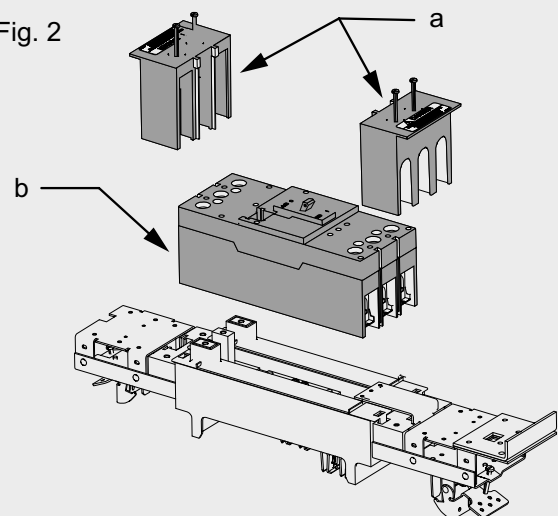
PLUG-IN MODULE REMOVAL FROM PANELBOARD

- 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.



- Remove the load terminal covers (a)(Fig. 2) if equipped which are connected to the module by two screws each.
- Remove the legacy SF circuit breaker (b)(Fig. 2) by disconnecting the two load end screws and three line terminal screws. **Save the three line terminal screws for later use.**

Fig. 2



- Use a flat blade screwdriver to lift the tabs on each end of the module bus covers (c)(Fig. 3) and remove them from the module.
- Remove insulating barrier (d)(Fig. 3) if equipped.
- Remove the circuit breaker mounting “L” bracket (e)(Fig. 3) by depressing the modules retaining clip with a flat blade screw driver. The retaining clip can be accessed from the end of the module above the latch retaining screw.
- Turn the module over to access the finger clusters (f)(Fig. 4). Remove the six hex head screws and three finger clusters from the module. **Save the finger clusters and hardware for later use.**

Fig. 3

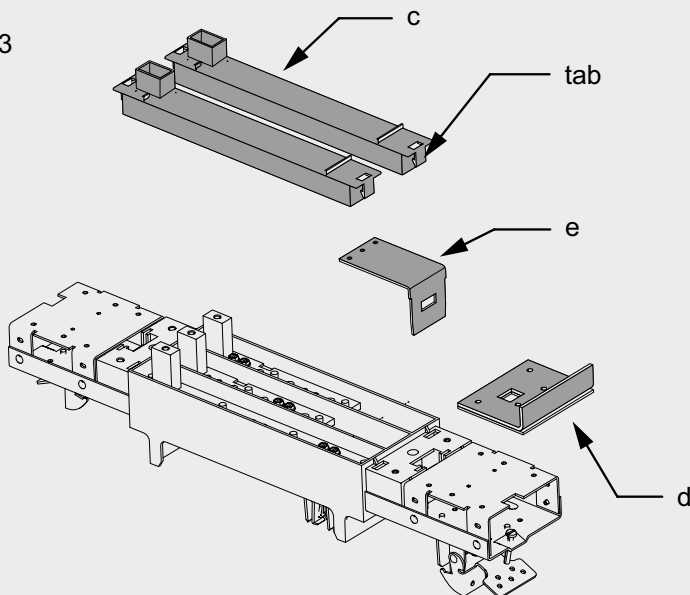
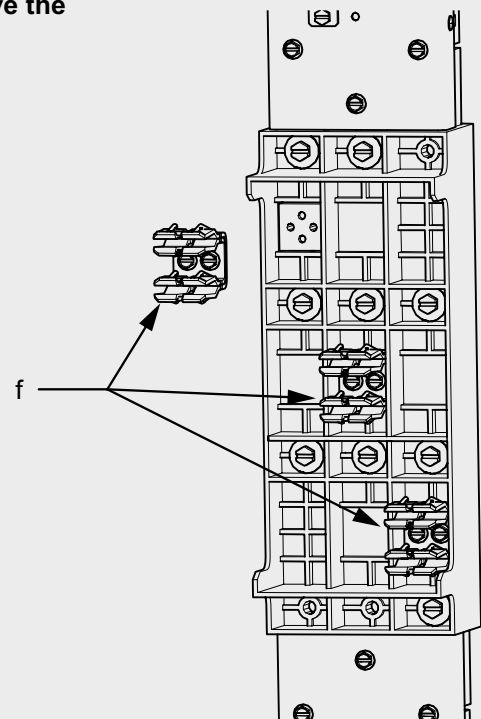


Fig. 4



- Remove all ten 1/4-20 bolts and washers (g)(Fig. 5) to free the module bus assembly from the module base. **Save the hardware (g) for later use.**
- Remove each bus and terminal post assembly from the module base. Separate the terminal posts (h)(Fig. 6) from the module bus (i)(Fig. 6) on each assembly.
- **Save all three module bus pieces (i) and the 1/4-20 hex head hardware for later use.**

Fig. 5

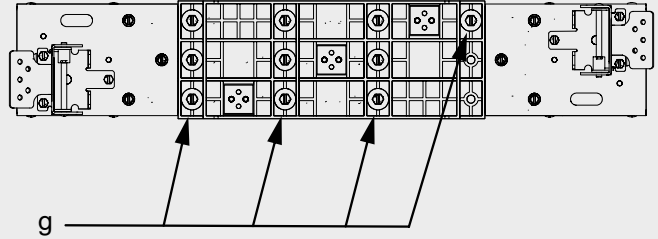
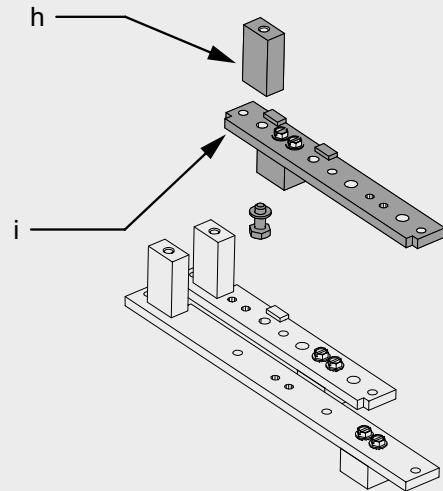


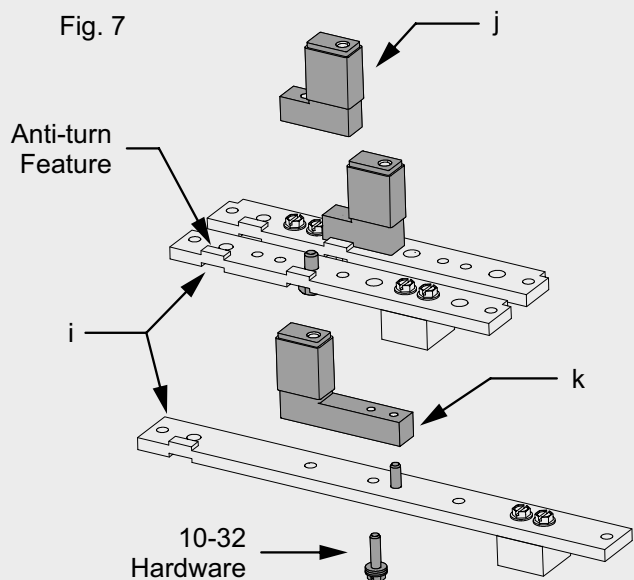
Fig. 6



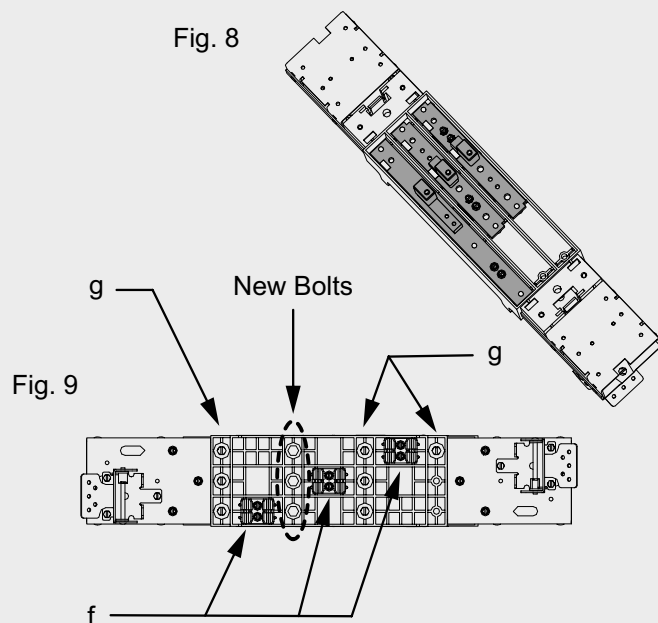
Tmax XT4 Installation

- Attach two new terminal posts (j)(Fig. 7) to the module bus (i)(Fig. 7) using the 1/4-20 hardware which was removed in step 4.
- Attach new long terminal post (k)(Fig. 7) to the long module bus (i)(Fig. 7) using two 10-32 hex head screws supplied with the kit.
- The anti-turn feature on the bus must face up towards the new terminal post. Ensure the posts are mounted in the hole location shown in Figure 7.
- With the new terminal posts squared up to the anti-turn feature, **torque the 1/4-20 screws to 85 lb-in and the 10-32 screws to 50 lb-in.**

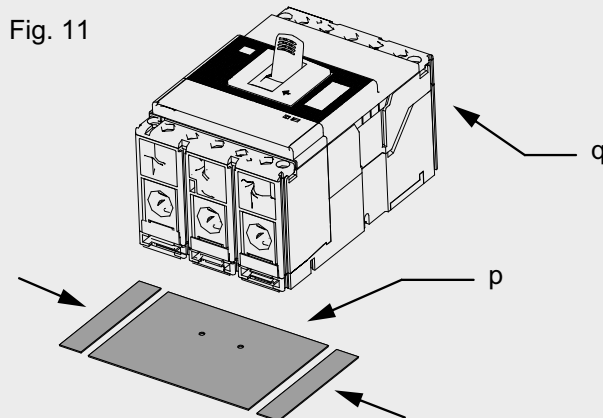
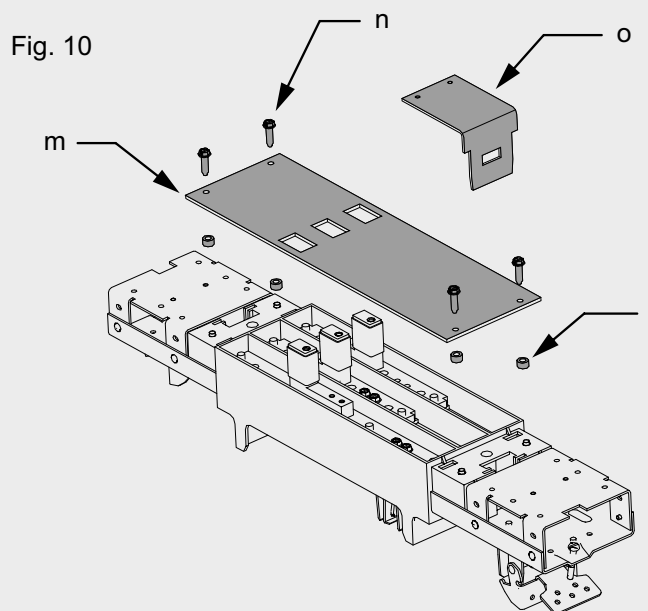
Fig. 7



- Install the bus and terminal post assemblies onto the module as shown in Figure 8. Use seven of the 1/4-20 bolts and washers (g)(Fig. 9) removed in step 4 to secure the bus.
- Replace the remaining three bolts with new shorter 1/4-20 bolts supplied with the kit. The three new bolts will be mounted directly under the terminal posts as shown in Figure 9.
- **Do not torque the hardware at this step as minor adjustment may be required.**
- Re-install the finger clusters (f)(Fig. 9) removed in step 3 using the 6 hex head screws originally supplied with the module. **Torque the screws to 25 lb-in.**

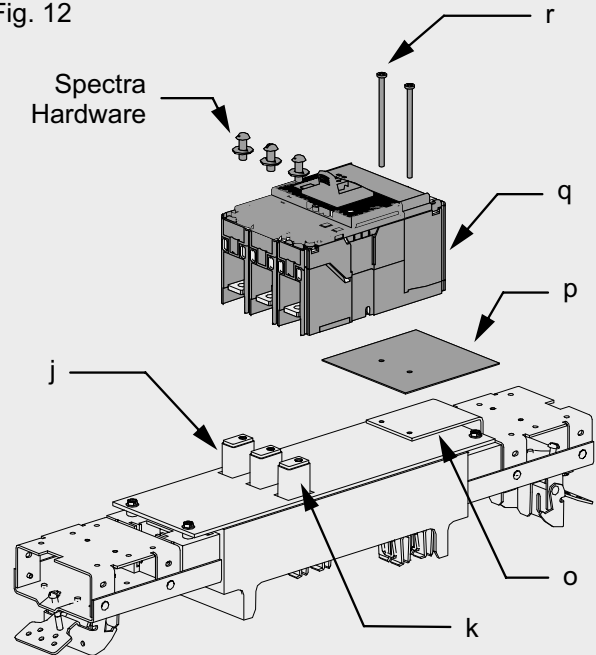


- Attach the module barrier (m)(Fig. 10) to the module base using spacers (l)(Fig. 10) and thread forming screws (n)(Fig. 10). **Torque the thread forming screws to 15 lb-in.**
- Install the circuit breaker mounting bracket (o)(Fig. 10) into the slot in the base. Ensure the bracket snaps into the base and the returned flat is facing in towards the center of the module.
- Remove an XT4 circuit breaker (q)(Fig. 11) and rear insulation plate (p)(Fig. 11) from their packaging. Prepare the rear insulation plate by snapping off the side extensions (detailed by arrows in Figure 11). The rear insulation sheet will now be the same width as the circuit breaker.



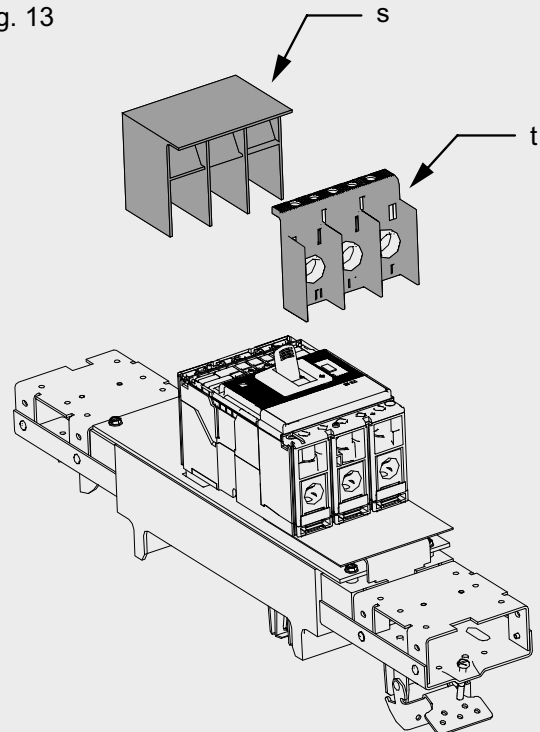
- Mount the XT4 circuit breaker (q)(Fig. 12) and rear insulation plate (p)(Fig. 12) to the mounting bracket (o)(Fig. 12) using the two screws (r)(Fig. 12) which are supplied with the circuit breaker.
- Attach the circuit breakers line terminals to the terminal posts (j and k)(Fig. 12) using the three screws removed from the Spectra breakers in step 2.
- When all five screws have been hand tightened, **torque the three terminal screws to 85 lb-in and then the two mounting bracket screws (r) to 10 lb-in.**
- With the circuit breakers installed, flip the module over and **torque all ten 1/4-20 bolts to 50 lb-in.**

Fig. 12



- Attach the line side terminal cover (s)(Fig. 13) to the circuit breaker by sliding it into the slots on the breaker housing. Secure the terminal cover with the supplied screw.
- Install the service entry barrier (t)(Fig. 13) on the load end of the circuit breaker by sliding the barrier into the slots on the circuit breaker housing.

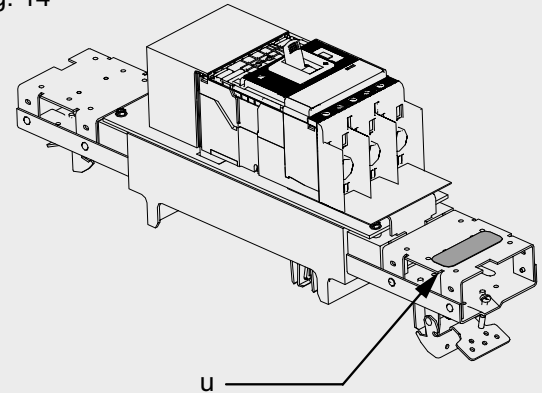
Fig. 13



- Apply new circuit breaker listing label (u)(Fig. 14) directly over the Spectra label as shown. The Spectra label will list the legacy SF breakers which could previously be mounted on the module.

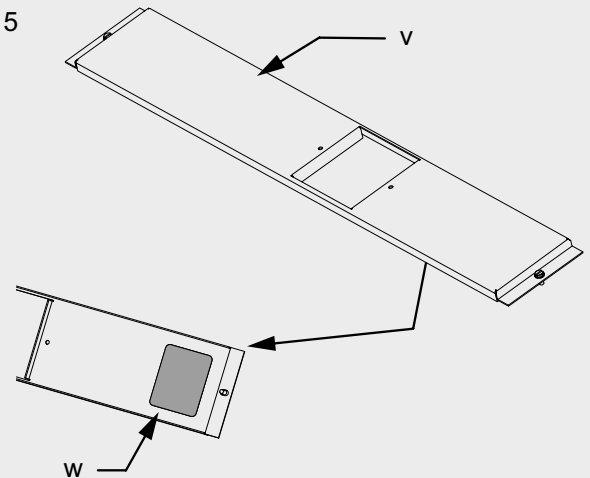
Do not place the label over the interrupting capacity label as those values do not change.

Fig. 14



- The retrofit kit will contain a new dead front panel (v)(Fig. 15) and two hex head screws for attaching it to the panelboard frame.
- The “load end” of the panel can be identified by the ID label (w)(Fig. 15) located on the backside. When installing the panel in the next steps, be sure to orient the label over the cables attached to the circuit breaker.

Fig. 15

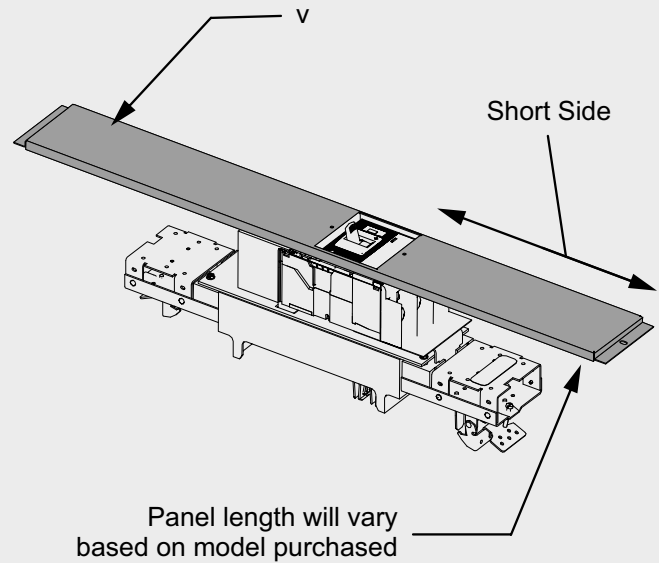


PLUG-IN MODULE INSTALLATION INTO A PANELBOARD

- 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 breakers. Torque the cable lugs to the value listed on the front of the circuit breaker.

- Install the deadfront panel (v)(Fig. 16) onto the panelboard using the two hex head screws supplied.
- Ensure the shorter end of the panel (with label (w) on the backside) is oriented over the installed cables as is shown in Figure 16. **Note: The panelboard is not shown in Figure 16 for clarity.**
- 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.

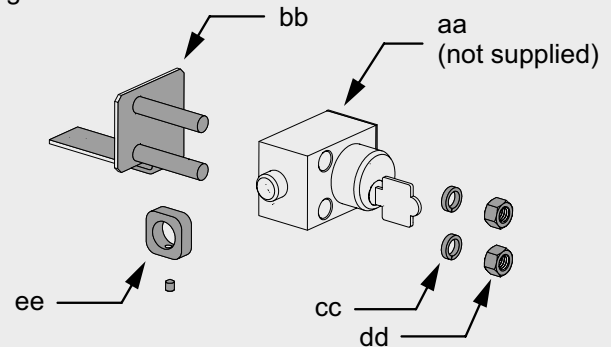
Fig. 16



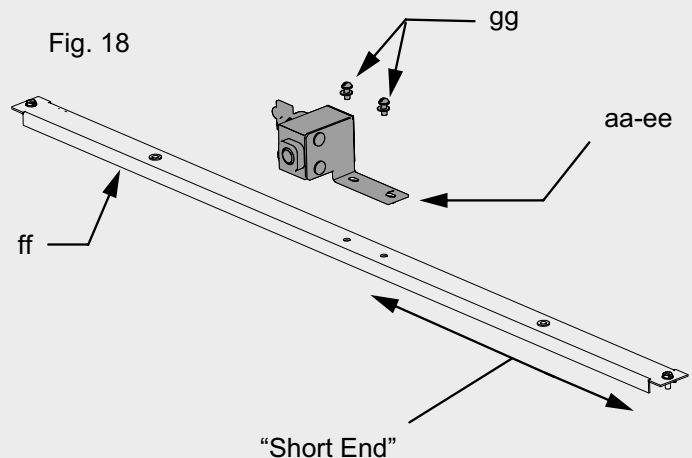
KIRK KEY INTERLOCK OPTION

- 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 from the panelboard.
- Attach the legacy lock cylinder (aa)(Fig. 17) to the new cylinder bracket (bb)(Fig. 17) using the 3/8" split lock washers (cc)(Fig. 17) and nuts (dd)(Fig. 17).
- Attach the bolt block (ee)(Fig. 17) to the lock cylinders bolt using the supplied set screw. Align the face of the block with the end of the bolt.

Fig. 17

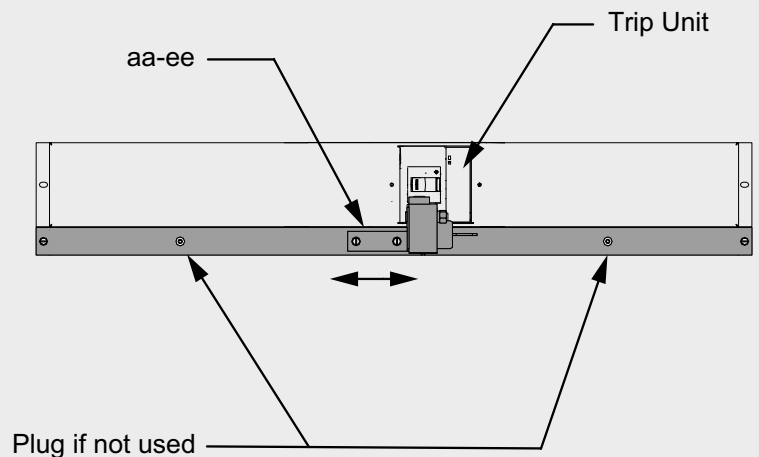


- Attach the lock cylinder and bracket assembly (aa through ee) (Fig. 18) to the new filler plate (ff)(Fig. 18) using the screws and flat washers (gg)(Fig. 18) included in the kit.
- Mount the bracket assembly (aa through ee) so that the lock cylinder (aa) is facing away from the “short end” of the panel as shown in Figure 18.



- Install the complete assembly back into the panelboard directly next to the retrofit module.
- The Kirk Lock Interlock assembly must be mounted so that the key is pointing towards the circuit breakers trip unit.
Note: The retrofit module may need to be moved up or down one space to locate the Kirk Lock Interlock Assembly correctly.
- Secure the assembly to the panelboard using the two hex head screws supplied in the kit. If the panelboard is not equipped with additional mounting brackets, plug the filler plate holes with the supplied plugs detailed in Figure 19.
- Adjust the lock cylinder and bracket assembly (aa through ee)(Fig. 19) to the left or right if needed so that the bolt block (ee) interferes with the circuit breaker handle.
- Verify that when the lock cylinders bolt is fully extended and the key has been removed the circuit breaker is not able to close.
- After verifying the lock and breaker pair, **torque the brackets screws (gg) to 30 lb-in.**

Fig. 19



For more information please contact your local ABB Field
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