

# AMC6FJ with Spectra F to SRFP6XT4FP with Tmax XT

## Retrofitting Spectra Plug-In Module AMC6FJ 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.

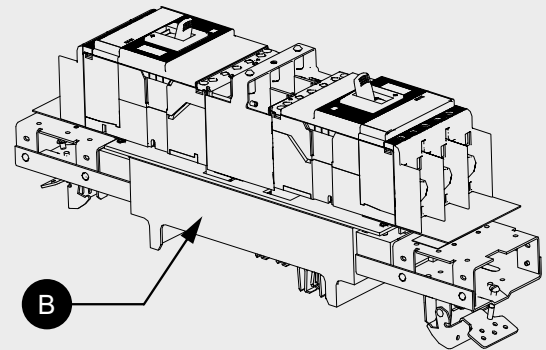
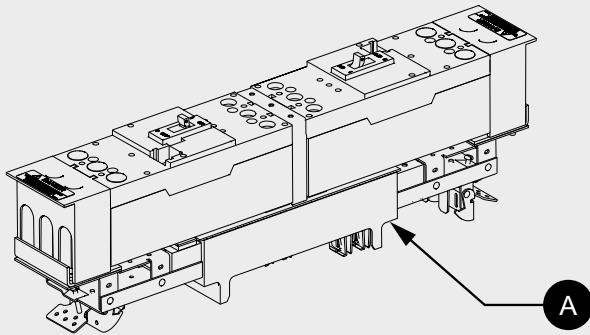
Turn OFF power ahead of the panelboard or switchboard before working inside the equipment or removing any component. Equipment is to be installed and maintained by properly trained and qualified personnel only. **Completely read through and understand these instructions before starting any retrofit activities.**

## 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:

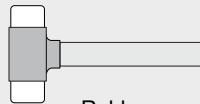
- Place the panelboard and upstream supply out of service.
- Disconnect power from the panelboard (power circuit and auxiliary circuits) and verify it is disconnected from all sources of energy.

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



Legacy AMC6FJ Module with SF Circuit Breakers	A
Retrofit SRFP6XT4 Module with XT4 Circuit Breakers	B

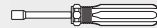
### Tools Required:



Rubber or  
Plastic Mallet



3/8" Socket  
& Torque Wrench



5/16" Nut  
Driver



# 2 Phillips  
Screwdriver



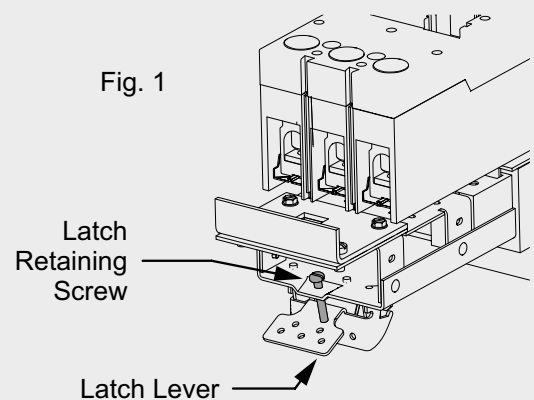
1/4 - 3/8" Flat  
Blade Screwdriver

1

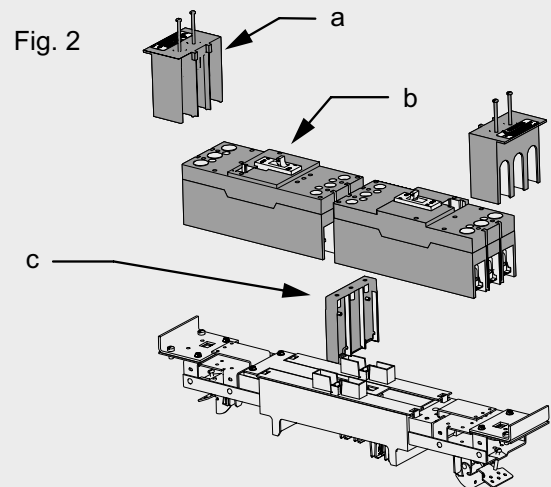
## PLUG-IN MODULE REMOVAL FROM PANELBOARD

- 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.

Fig. 1



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



- Use a flat blade screwdriver to lift the tabs on each end of the module bus covers (d)(Fig. 3) and remove them from the module.
- Remove insulating barriers (e) and (f) (Fig. 3) if equipped.
- Remove both circuit breaker mounting "L" brackets (g)(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 (h)(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

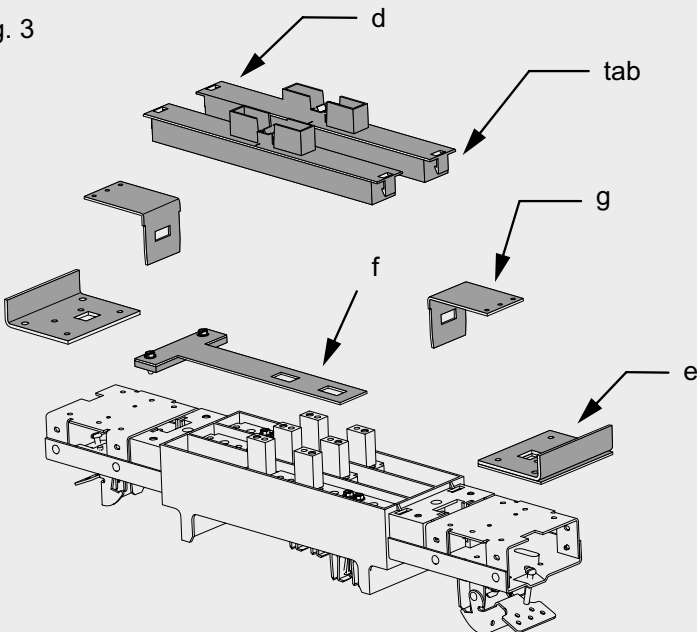
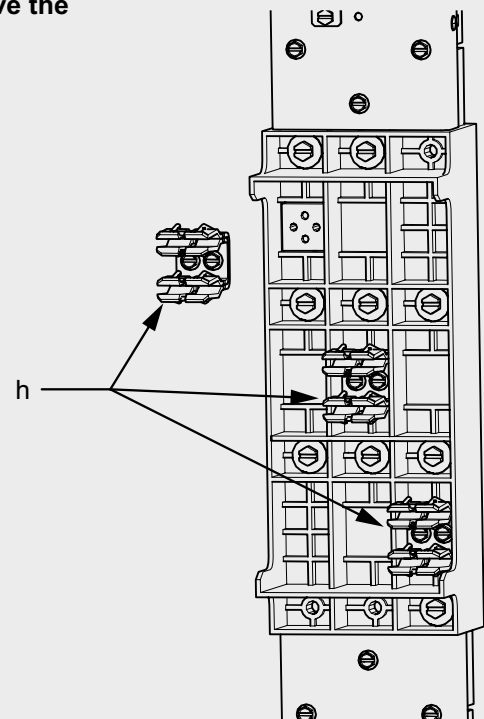


Fig. 4



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

Fig. 5

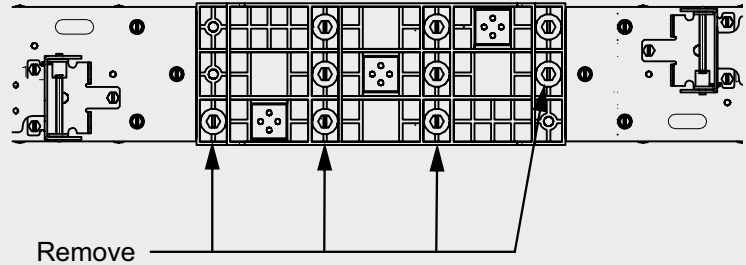
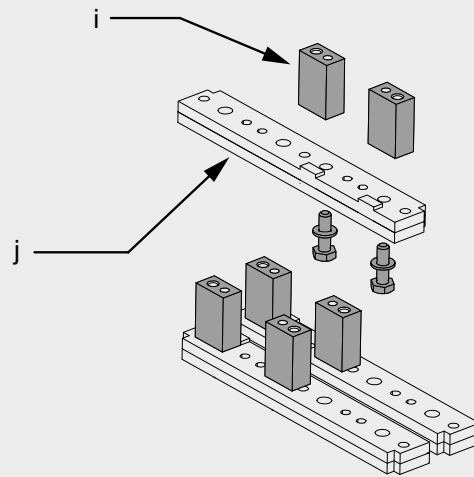


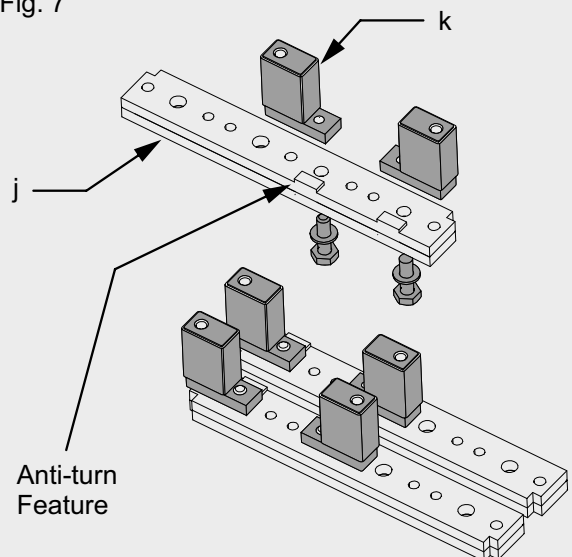
Fig. 6



## Tmax XT4 Installation

- Attach new terminal posts (k)(Fig. 7) to the module bus (j)(Fig. 7) using the hardware which was removed in step 4.
- 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 mounting screws to 85 lb-in.**

Fig. 7



- Install the bus and terminal post assemblies onto the module as shown in Figure 8. Use the 1/4-20 bolts and washers removed in step 4 to secure the bus. **Do not torque the hardware at this step as minor adjustment may be required.**
- Re-install the finger clusters (h)(Fig. 9) removed in step 3 using the 6 hex head screws originally supplied with the module. **Torque the screws to 25 lb-in.**

Fig. 8

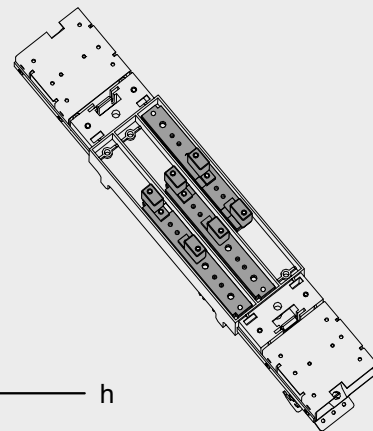
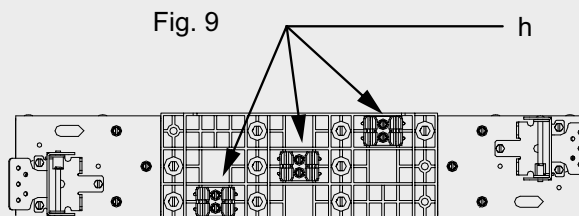


Fig. 9



- 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 brackets (o)(Fig. 10) into the slots in the base. Ensure the brackets snap into the base and the returned flat is facing out away from 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.

Fig. 10

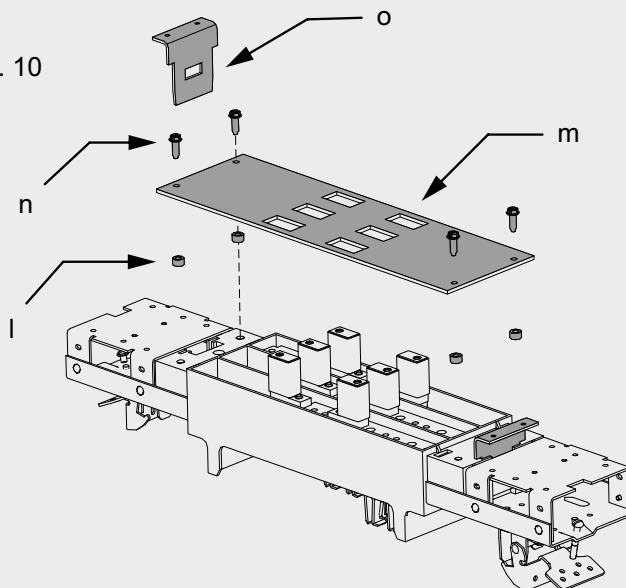
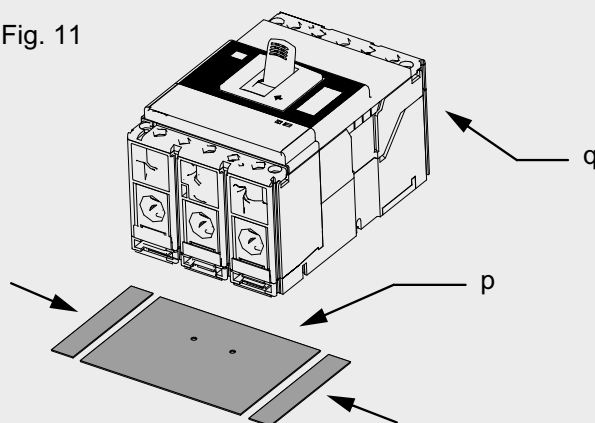
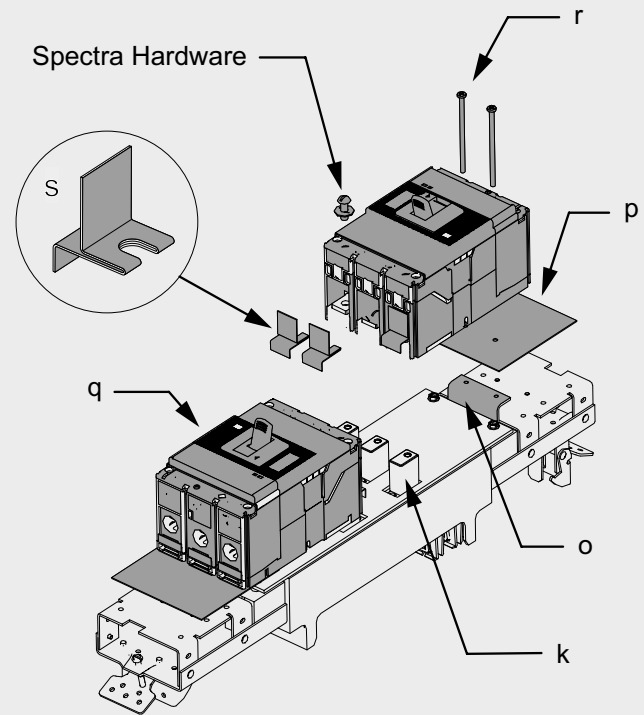


Fig. 11



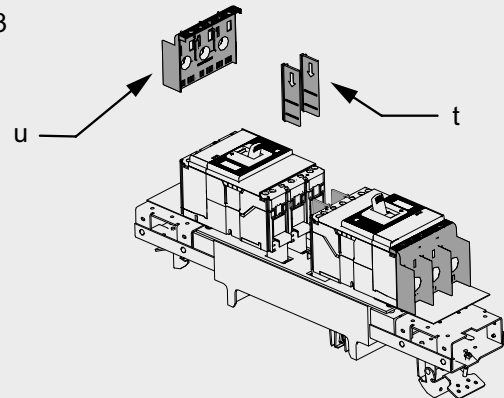
- Mount each XT4 circuit breaker (q)(Fig. 12) and rear insulation plate (p)(Fig. 12) to the mounting bracket (o)(Fig. 12) using the two screws (r)(Fig. 12) which are supplied with the circuit breaker.
- Attach the circuit breakers line terminals to the terminal posts (k)(Fig. 12) using the three screws removed from the Spectra breakers in step 2.
- Thread the Spectra screws into the terminal posts (k) only a few turns before inserting slotted barrier (s)(Fig. 12) between the washer and breaker terminal.
- When all five screws have been hand tightened, **torque the three terminal screws to 25 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 nine 1/4-20 bolts to 50 lb-in.**

Fig. 12



- Attach two line side phase barriers (t)(Fig. 13) per circuit breaker by sliding them into the slots on the breaker housing. Make sure to install the barriers with the arrow pointing down towards the module.
- Install the service entry barriers (u)(Fig. 13) on the load end of the circuit breakers by sliding the barriers into the slots on the circuit breaker housing.

Fig. 13



## INSTALLATIONS WITH ONLY ONE CIRCUIT BREAKER

- When retrofitting with only one circuit breaker mounted on the module, apply the previously installed insulation method to the unused terminal posts (k)(Fig. 12). The two approved methods are:
  - Mount the Spectra Series plastic barriers onto each terminal post and secure with nylon screws (not provided with the retrofit kit).
  - Insulate the end of the terminal posts with electrical insulation tape. The tape used must have a minimum rating of 600Vac and 105°C.

- Apply new circuit breaker listing label (v)(Fig. 14) directly over the Spectra label as shown. The Spectra label will list the legacy SE 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.**

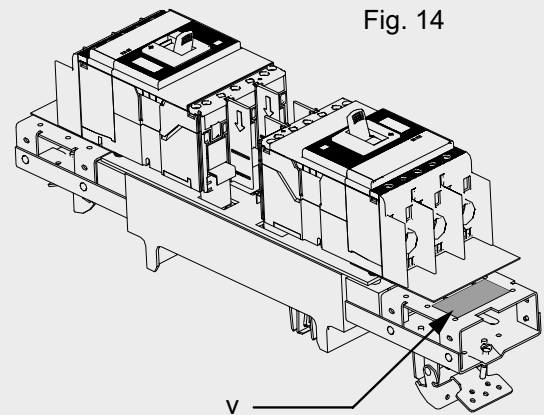
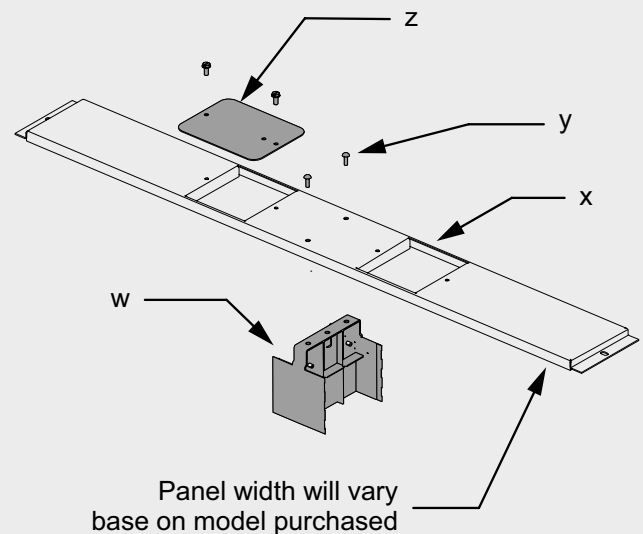


Fig. 14

- Prepare the new deadfront panel (x)(Fig. 15) by assembling the center barrier (w)(Fig. 15) using two plastic thread forming screws (y)(Fig. 15).
- Start each screw (y) by lightly tapping it through the holes in the deadfront panel (x) with a plastic or rubber mallet. Once both screws have been started, continue tapping them until the heads are flush with the panel front. **Note: A bench vice is helpful to fixture the assembly while installing the screws**
- If only one circuit breaker is being installed on the module, attach blanking plate (z)(Fig. 15) to the deadfront panel (x) using the two screws supplied to cover the unused opening.

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 assembly from step 12 by aligning the center barrier (w)(Fig. 16) between the circuit breakers (q)(Fig. 16) installed on the module.

- Ensure the phase barriers (t)(Fig. 17) are aligned in the slots of the center barrier (w).

**Note: Deadfront panel removed for clarity in the detail view.**

- Secure the deadfront panel (x)(Fig. 16) to the panelboard frame using the screws supplied in the kit.
- 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

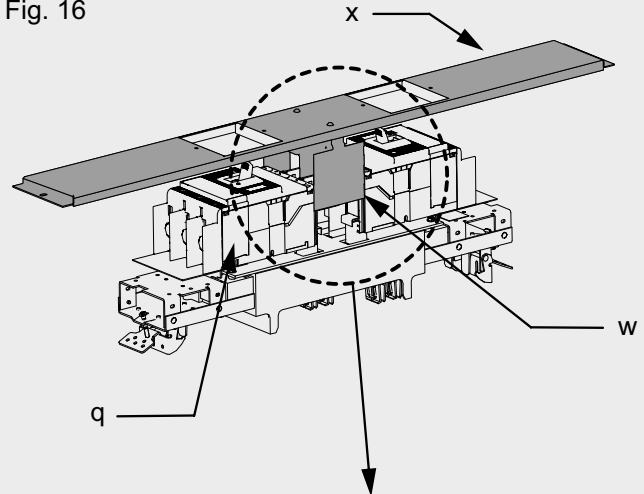
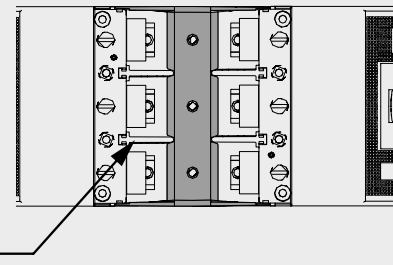


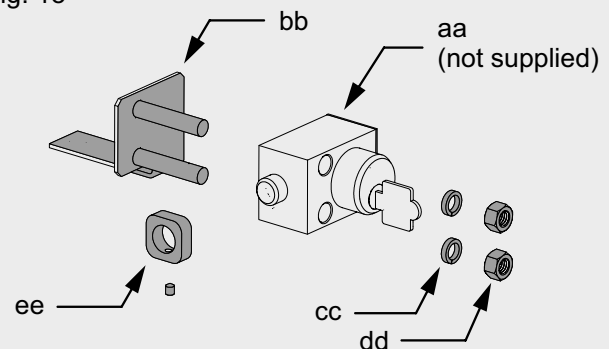
Fig. 17



## KIRK KEY INTERLOCK OPTION

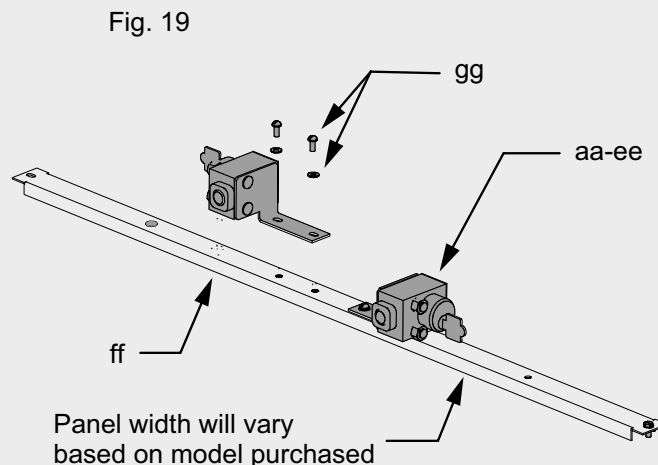
- Ensure that the panelboard has been placed out of service before removing any panels. Reference the "Making the System Safe for Removal" section on page 2 of this document before continuing.
- If the legacy installation included a Kirk Key interlock option remove the legacy lock cylinder, brackets, and filler plate from the panelboard.
- Attach the legacy lock cylinder (aa)(Fig. 18) to the new cylinder bracket (bb)(Fig. 18) using the 3/8" split lock washers (cc)(Fig. 18) and nuts (dd)(Fig. 18).
- Attach the bolt block (ee)(Fig. 18) to the lock cylinders bolt using the supplied set screw. Align the face of the block with the end of the bolt.

Fig. 18





- Attach the lock cylinder and bracket assembly (aa through ee) (Fig. 19) to the new filler plate (ff)(Fig. 19) using the screws and flat washers (gg)(Fig. 19) included in the kit.
- If two lock cylinders are required (as shown in Figure 19), assemble a second cylinder and bracket assembly following the instructions in step 15. **Note: The second assembly will be a mirror image of the first.**



- Install the complete assembly back into the panelboard directly next to the retrofit module.
- The Kirk Lock Interlock assembly can be mounted above (shown in Figure 20) or below (shown in Figure 21) the retrofit module.
- Secure the assembly to the panel board 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 21
- Adjust the lock cylinder and bracket assembly (aa through ee) 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 each lock and breaker pair, **torque the brackets screws (gg) to 30 lb-in.**

Fig. 20

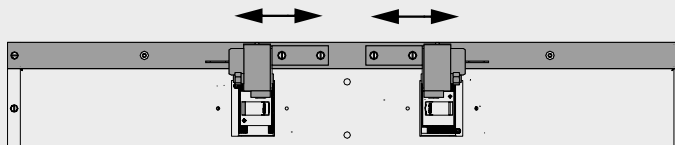
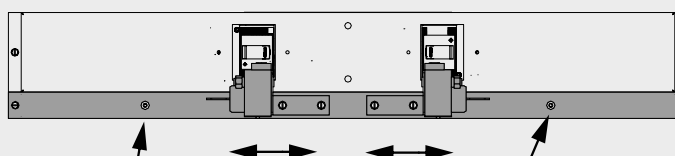


Fig. 21



Plug holes if internal brackets are not installed

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

