

# AMC6GB with Spectra G to SRFP6XT5FP with Tmax XT

## Retrofitting Spectra Plug-In Module AMC6GB with Tmax XT molded case circuit breakers in Spectra Series Power Panels.

This retrofitting kit is designed to replace Spectra G 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 G	600A, 600V	XT5	600A, 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.

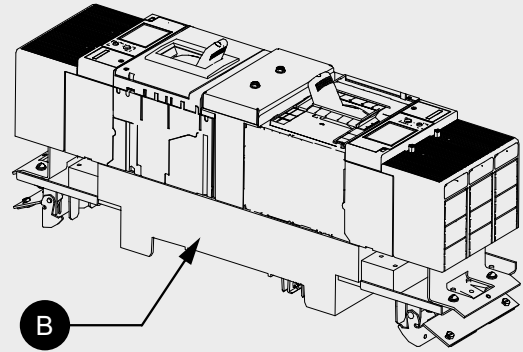
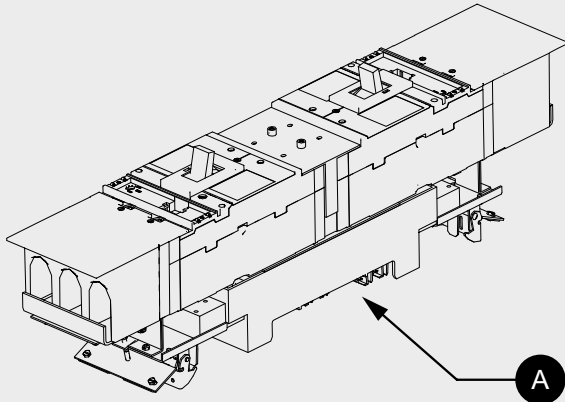
Turn OFF power ahead of the panelboard or switchboard before working inside the equipment or removing any component. Equipment is to be installed and maintained by properly trained and qualified personnel only. **Completely read through and understand these instructions before starting any retrofit activities.**

## 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 AMC6GB Module with SG Circuit Breakers	<b>A</b>
Retrofit SRFP6XT5FP Module with XT5 Circuit Breakers	<b>B</b>

### Tools Required:



8mm Hex, 7/16"  
& 1/2" Socket



Ratchet Wrench  
& Torque Wrench



1/4" & 5/16"  
Nut Driver



# 2 Phillips  
Screwdriver



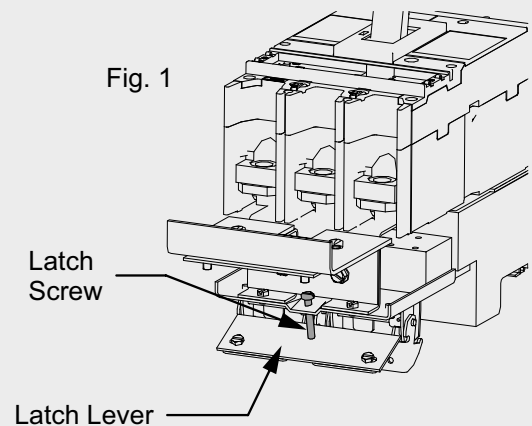
1/4 - 3/8" Flat  
Blade Screwdriver

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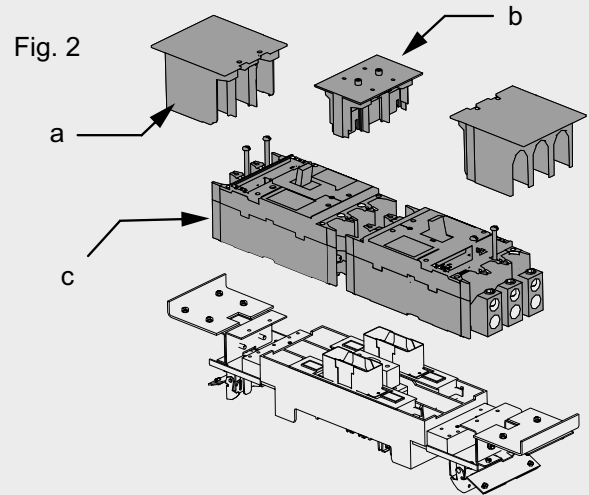
## PLUG-IN MODULE REMOVAL FROM PANELBOARD

- 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. Note: Load terminal covers if equipped will need to be removed.
- Completely remove both latch retaining screws on either end of the module shown in Figure 1.
- Pull both latch levers and the module from the panelboard.

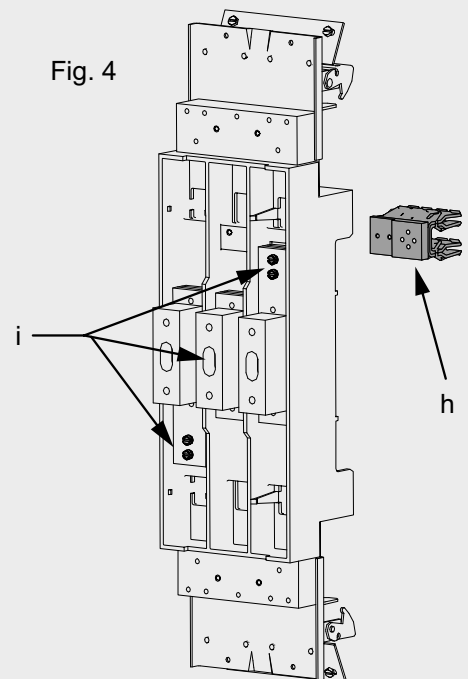
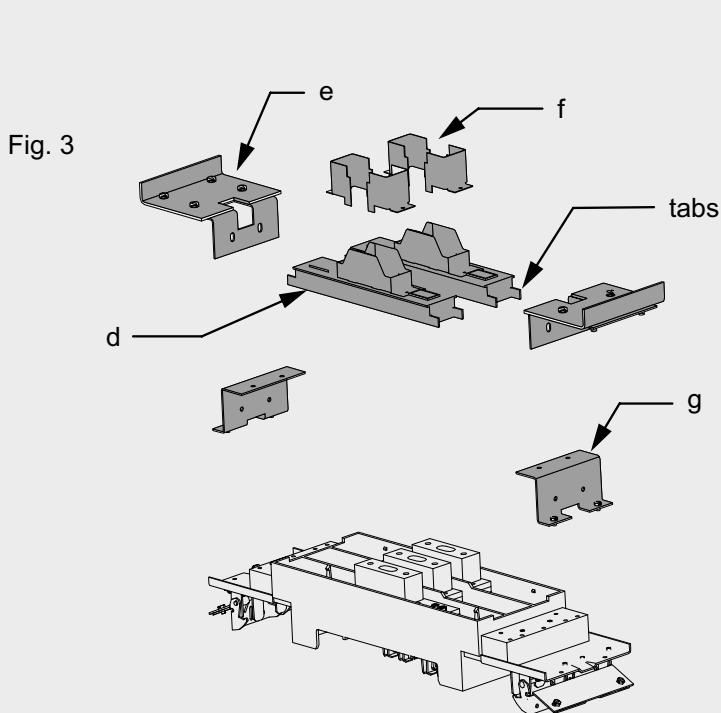
Fig. 1



- Remove both load terminal covers (a)(Fig. 2) if equipped.
- Remove the center barrier (b)(Fig. 2) mounted between the circuit breakers.
- Remove the legacy SG circuit breakers (c)(Fig. 2) by disconnecting the two load end screws and three line terminal screws on each breaker.



- 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 “Z” brackets (g)(Fig. 3) from the module base.
- Turn the module on its end to access the finger clusters (h)(Fig. 4) and finger cluster screws (i)(Fig. 4). Remove the six finger cluster screws and three finger clusters from the module. **Save the finger clusters and hardware for later use.**



- Remove all six 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 (j)(Fig. 6) from the module bus (k)(Fig. 6) on each assembly.
- **Save all three module bus pieces (k) for later use.**

Fig. 5

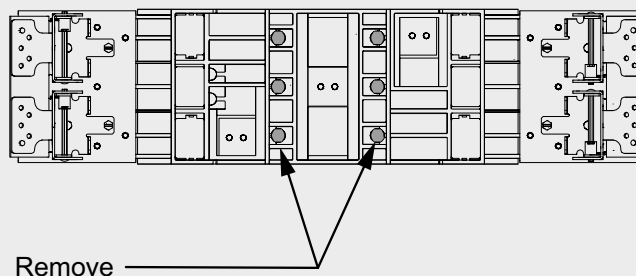
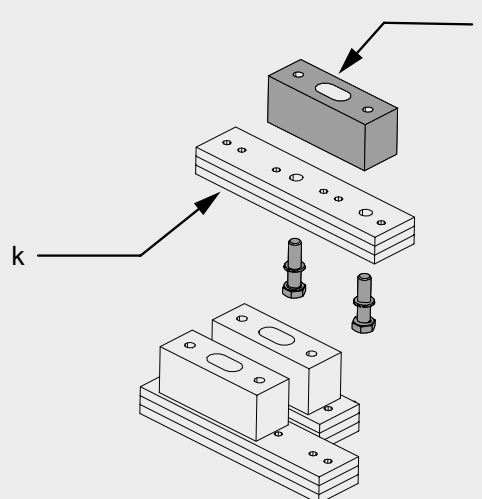


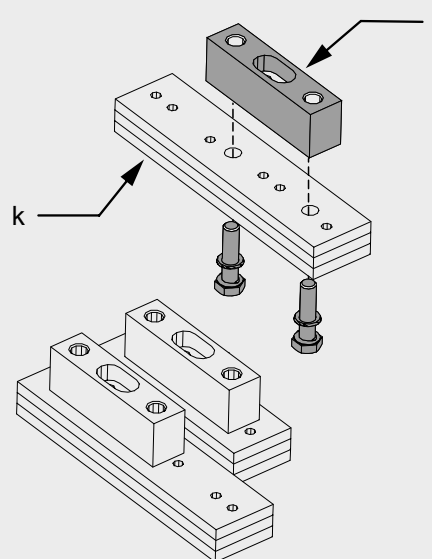
Fig. 6



## Tmax XT5 Installation

- Attach new terminal posts (l)(Fig. 7) to the module bus (k)(Fig. 7) using the new 5/16-18 x 1.25"L bolts and locking washers which are supplied with the kit.
- Ensure the new terminal posts are installed in the holes as shown. Note, the center phase bus will be shorter than the outer phases.
- With the new terminal posts bolted to the module bus, **torque the 5/16-18 mounting screws to 100 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 (i) originally supplied with the module. **Torque the screws to 25 lb-in.**

Fig. 8

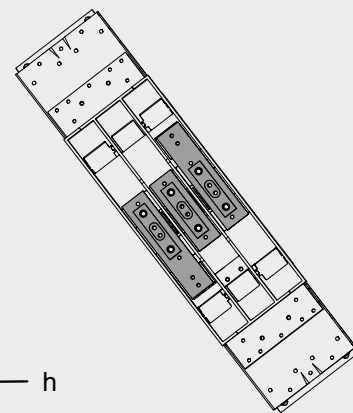
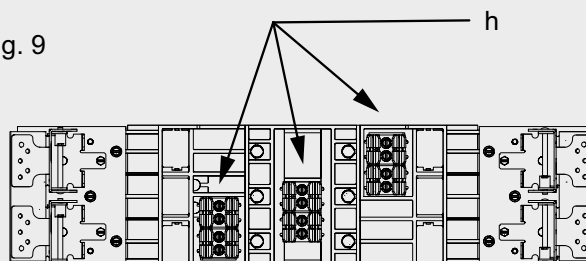


Fig. 9



- Install the circuit breaker mounting brackets (m)(Fig. 10) onto the latch plates of the module using the supplied 10-32 screws (n)(Fig. 10), flat washers (o)(Fig. 10), and serrated nuts (p)(Fig. 10).
- Do not torque the hardware at this time as minor adjustments may be necessary.
- Install the new latch screw (q)(Fig. 11) in the circuit breaker mounting plate (m). Only thread the screw in a few turns so the module can be installed in the panelboard later.

Fig. 10

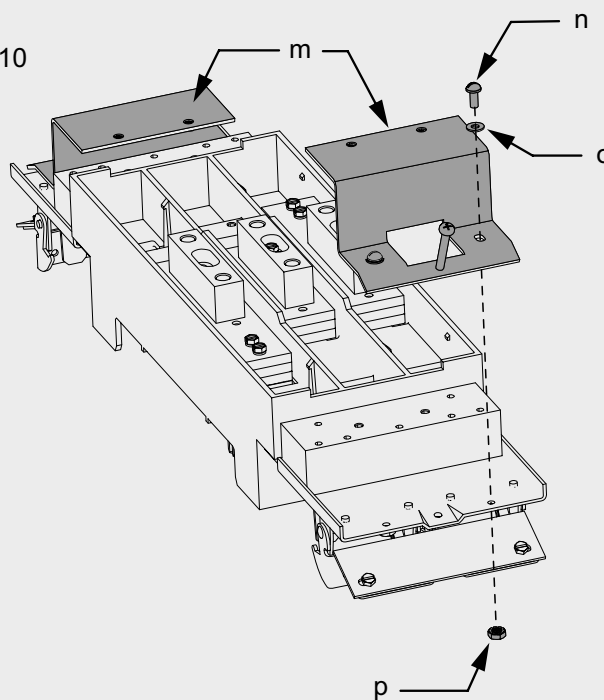
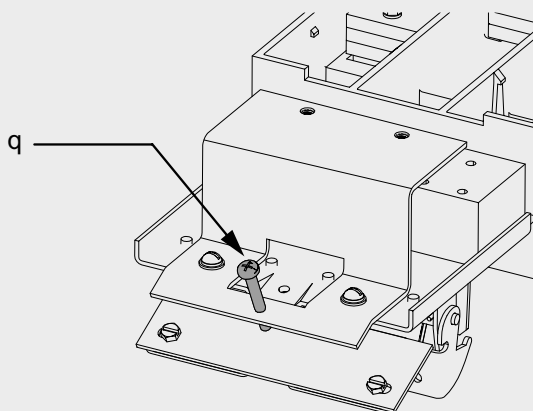
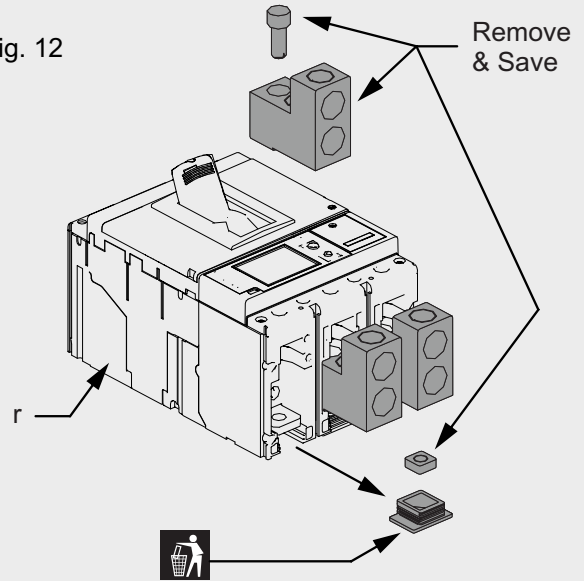


Fig. 11



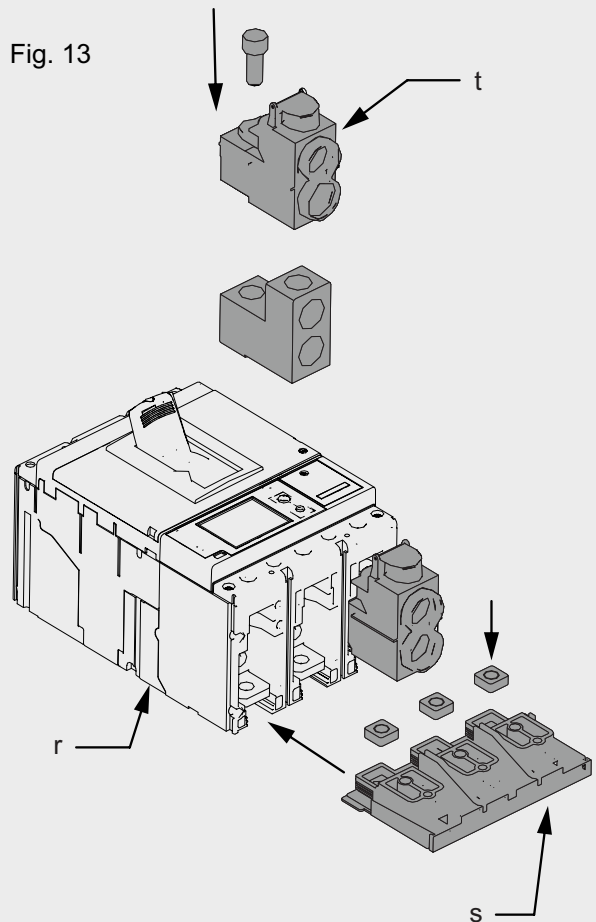
- Prepare the XT5 circuit breakers (r)(Fig. 12) by removing all three cap head bolts, spring washers, and load lugs (**save for later use**).
- Slide the retaining nuts and plastic housings out of the terminal pockets on the circuit breaker. **Save the retaining nut for later use.**
- Discard the plastic barriers installed on the lugs if present.

Fig. 12

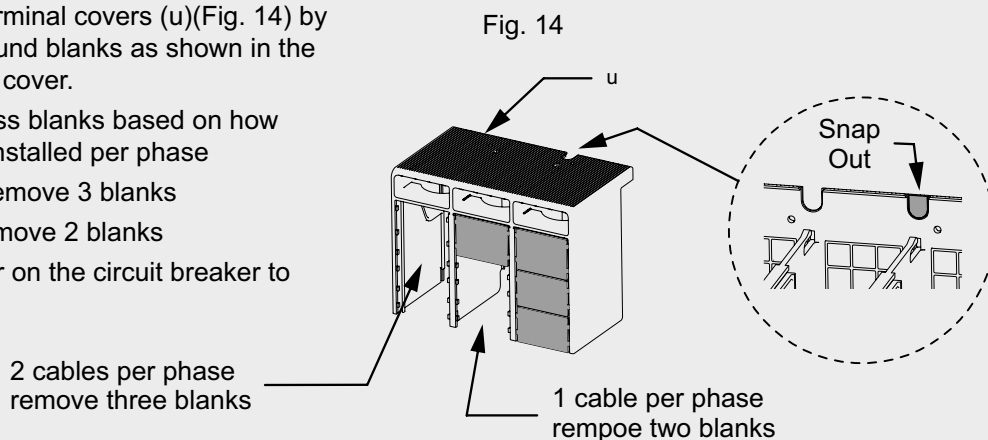


- Place the three retaining nuts removed in the prior step into the square pockets of the XT5 back shield (s)(Fig. 13).
- Install the XT5 back shield (s) onto the circuit breaker (r)(Fig. 13) by sliding it into the grooves below the load terminals.
- Install the service entry barriers (t)(Fig. 13) and cap head bolts and spring washers (removed in the prior step) onto the lugs.
- Slide the lugs and service entry barriers (t) onto the load terminals of the XT5 circuit breaker (r). The cap head bolts should drop down into the hole on the load terminals.
- Loosely thread all three cap head bolts into the retaining nuts. **Torque the cap head bolts to 300 lb-in.**

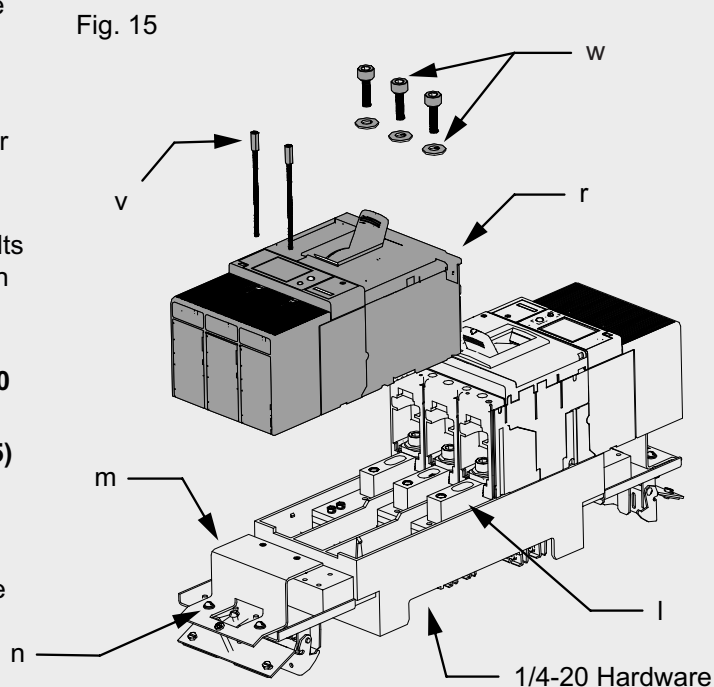
Fig. 13



- Prepare the load end terminal covers (u)(Fig. 14) by snapping out the half round blanks as shown in the detail view on top of the cover.
- Remove the cable access blanks based on how many cables are to be installed per phase
  - 2 cables / phase - remove 3 blanks
  - 1 cable / phase - remove 2 blanks
- Install the terminal cover on the circuit breaker to check its fit for step 11.



- Mount the XT5 circuit breakers (r)(Fig. 15) onto the mounting brackets (m)(Fig. 15) and line terminal posts (l)(Fig. 15).
- Secure the circuit breaker housing to the mounting bracket (m) using two hex standoffs (v)(Fig. 15) per assembly.
- Secure the circuit breaker line terminals to the terminal posts (l) using three M10 x 16mm long bolts and three spring washers (w)(Fig. 15) supplied with the circuit breaker.
- Once all five fasteners have been hand tightened, **torque the hex standoffs to 25 lb-in and the M10 bolts to 300 lb-in.**
- **Torque the mounting bracket screws (n)(Fig. 15) to 25 lb-in and the 1/4-20 bolts securing the module bus (located on the bottom of the module) to 50 lb-in.**
- Remove both load end terminal covers (u) after the circuit breakers (r) have been installed.

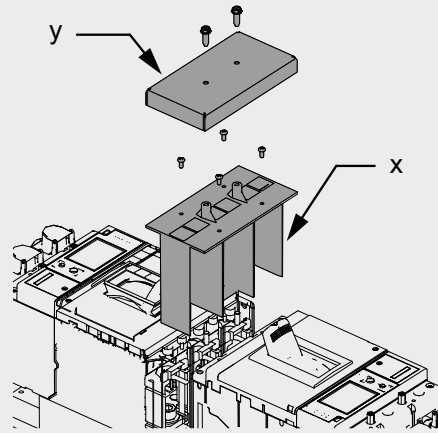


## INSTALLATIONS WITH ONLY ONE CIRCUIT BREAKER

- When retrofitting with only one circuit breaker mounted on the module special provisions must be made:
  - Both the module bus (k) and terminal posts (l) will be at panelboard voltage and need to be covered.
  - Insulate the exposed end of the module bus and terminal posts with electrical insulation tape. The tape used must have a minimum rating of 600Vac and 105°C.

- Install the center barrier (x)(Fig. 16) by sliding it down in between the circuit breakers (r) until it rests flush on top of the housings.
- Secure the center barrier (x) with the four small screws supplied with in kit setting them to **approximately 10 lb-in of torque.**
- Secure the center deadfront panel (y)(Fig. 16) to the center barrier (x) using two supplied plastic thread forming screws.
- Torque the two thread forming screws to **10 lb-in of torque.**

Fig. 16



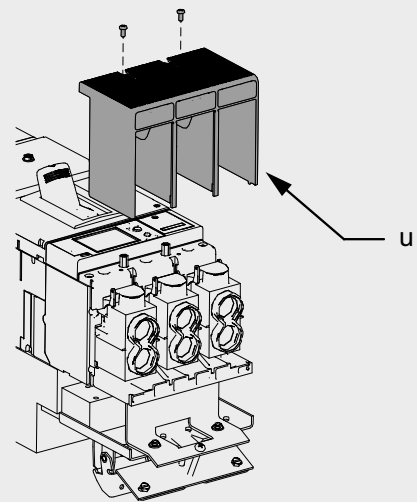
### PLUG-IN MODULE INSTALLATION INTO A PANELBOARD

- 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 11 in step 7) 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.

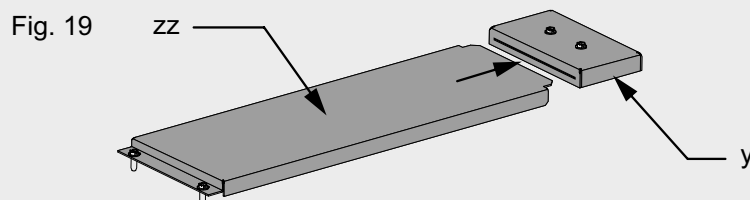
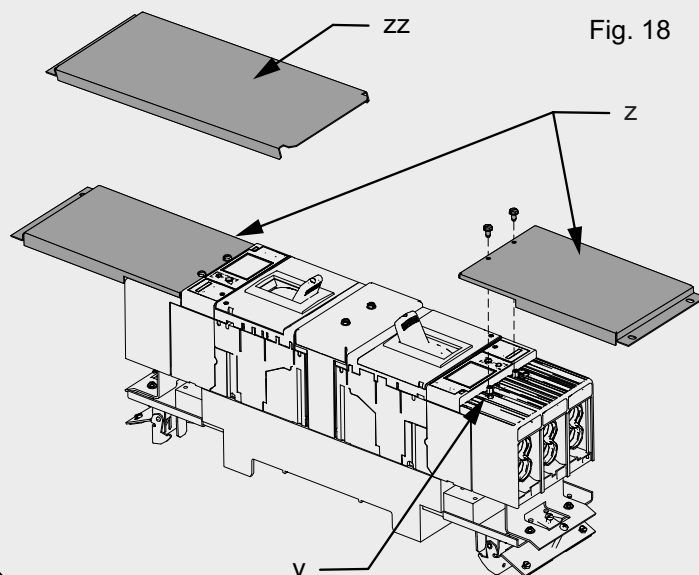
- With the module installed in the panelboard and power cables connected to the circuit breakers lugs install the load end terminal covers (u)(Fig. 17).
- Slide the cover down onto the circuit breaker housing until it is fully seated.
- Secure the cover in place using the two screws supplied with the terminal cover.
- **Torque the screws to approximately 10 lb-in.**

**Note:** The retrofit module is shown outside the panelboard without cables for clarity.

Fig. 17



- Install the deadfront filler panels (z)(Fig. 18) onto the retrofit module.
- Secure the panels (z) onto the hex standoffs (v)(Fig. 18) and panelboard frame (not shown) using four supplied screws.
- If the retrofit module has been installed with only one circuit breaker mounted, use blanking plate (zz)(Fig. 18 and 19) instead of the second deadfront panel.
- Slot the end of the blanking plate (zz) into the center dead front panel (y)(Fig. 19) and secure the opposite end to the panelboard frame with the supplied screws.
- **Torque all the screws to 25 lb-in.**

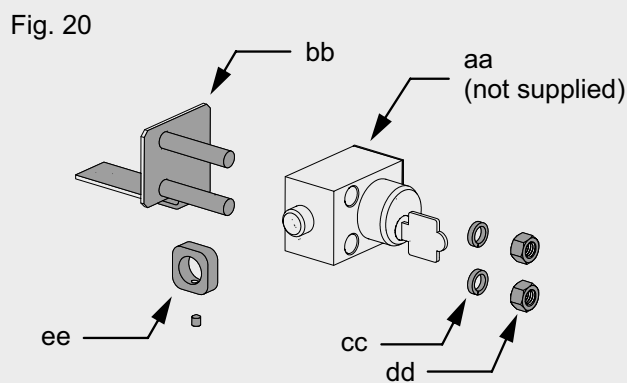


## PANELBOARD RETROFITTING COMPLETION AND START UP

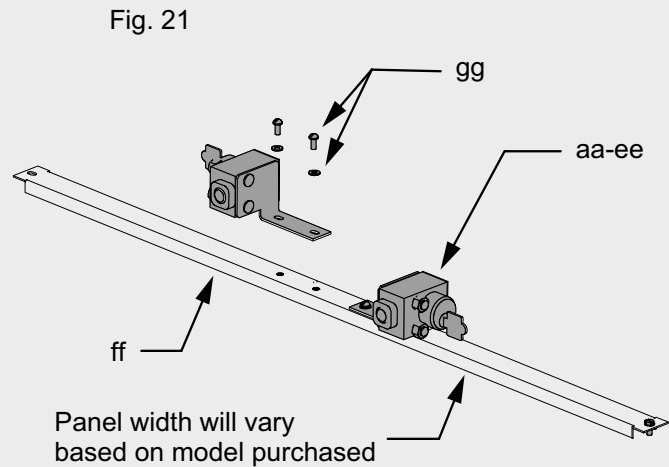
- Verify all tools and legacy components which are no longer needed have been removed from the panelboard.
- Ensure all power cables and auxiliary wiring which were removed or displaced for the installation have been reconnected or removed.
- If the door or four piece front were removed during the installation, re-install it in the reverse order it was removed.
- Re-energize the panelboard according to accepted procedures for startup of new equipment.

## 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. 20) to the new cylinder bracket (bb)(Fig. 20) using the 3/8" split lock washers (cc)(Fig. 20) and nuts (dd)(Fig. 20).
- Attach the bolt block (ee)(Fig. 20) to the lock cylinders bolt using the supplied set screw. Align the face of the block with the end of the bolt.



- Attach the lock cylinder and bracket assembly (aa through ee) (Fig. 21) to the new filler plate (ff)(Fig. 21) using the screws and flat washers (gg)(Fig. 21) included in the kit.
- If two lock cylinders are required (as shown in Figure 21), assemble a second cylinder and bracket assembly following the instructions in step 18. **Note: The second assembly will be a mirror image of the first.**



- Install the complete assembly back onto the panelboard directly next to the retrofit module.
- The Kirk Lock Interlock assembly can be mounted below (shown in Figure 22) or above (shown in Figure 23) the retrofit module.
- Secure the assembly to the panelboard using the two hex head screws supplied in the kit.
- 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 cylinder 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. 22

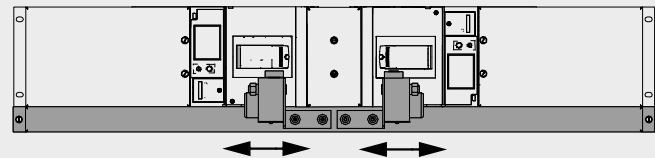
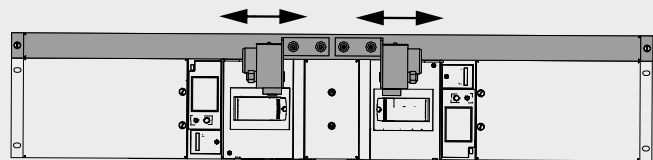


Fig. 23



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

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