Doc. No. 2TSA451034P0000 Rev B

AMC3GM with Spectra G to SRFP3XT5FP with Tmax XT

Retrofitting Spectra Plug-In Module AMC3GM 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.

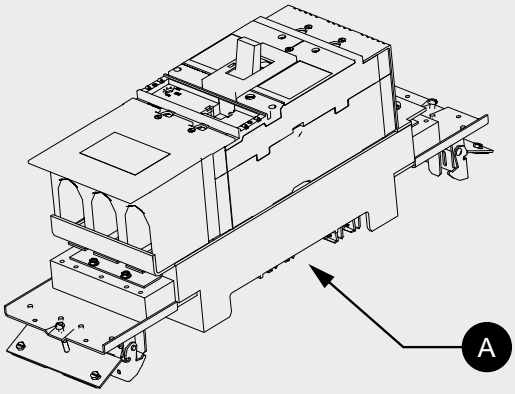
Turn OFF power ahead of the panelboard or switchboard before working inside the equipment or removing any component. Equipment is to be installed and maintained by properly trained and qualified personnel only. **Completely read through and understand these instructions before starting any retrofit activities.**

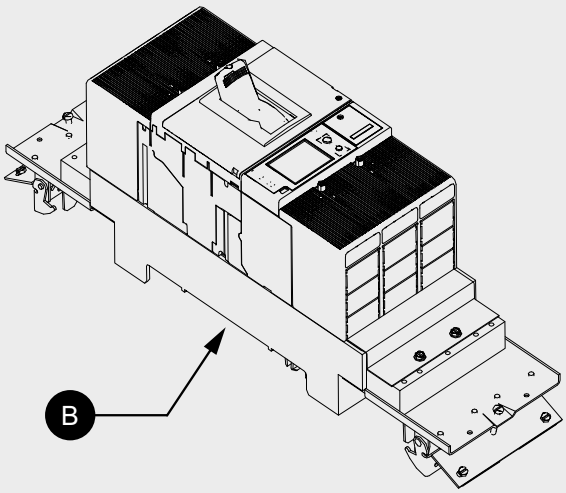
MAKING THE SYSTEM SAFE FOR PLUG-IN MODULE REMOVAL

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.

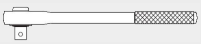




Legacy AMC3GM Module with SG Circuit Breaker	A
Retrofit SRFP3XT5 Module with XT5 Circuit Breaker	B

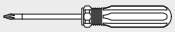
Tools Required:

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

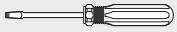


Ratchet Wrench & Torque Wrench

1/4" & 5/16" Nut Driver



2 Phillips Screwdriver



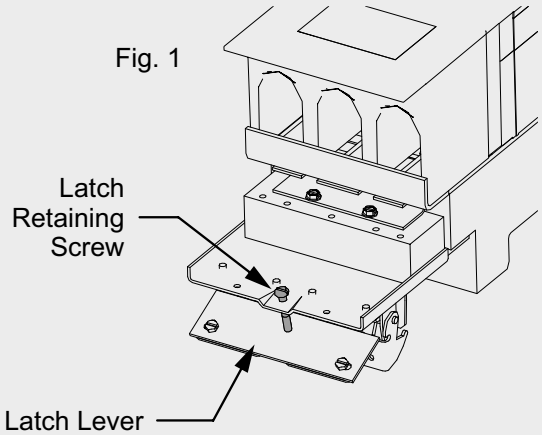
1/4 - 3/8" Flat Blade Screwdriver

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.

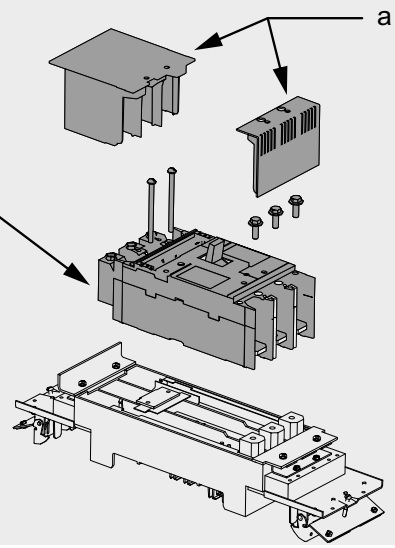
Fig. 1



2

- Remove the terminal covers (a)(Fig. 2) if equipped which are connected to the circuit breaker by two screws each.
- Remove the legacy SG circuit breaker (b)(Fig. 2) by disconnecting the two load end screws and three line terminal screws.

Fig. 2



3

- Remove insulating barriers (c)(Fig. 3) and their support brackets (d)(Fig. 3) if equipped.
- Remove the circuit breaker mounting “Z” bracket (e)(Fig. 3) and the two hex head screws used to secure it. **Save the hex head screws and flexible insulation barrier mounted below the bracket for later use.**
- Remove the six hex head screws from the top side of the module and three finger clusters (f)(Fig. 4) from the bottom of the module. **Save the finger clusters and hardware for later use.**

Fig. 3

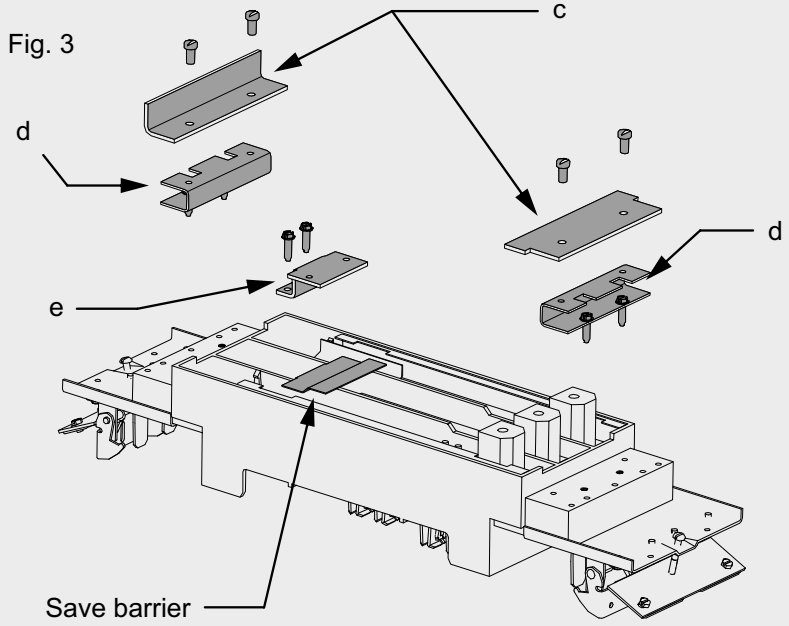
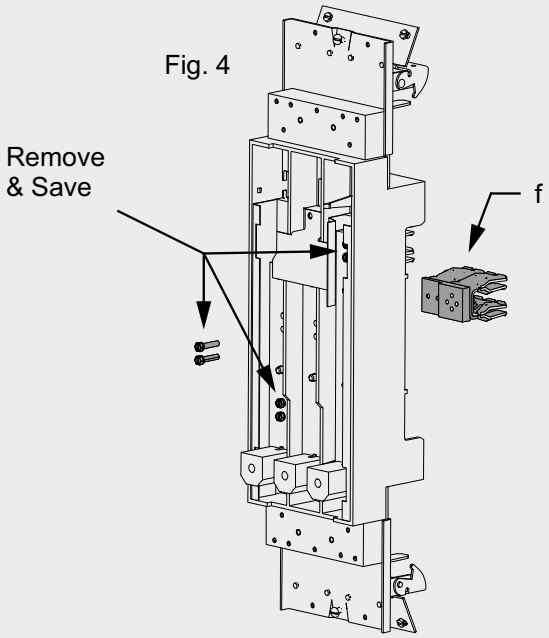


Fig. 4



4

- Remove the six 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) for later use.**

Fig. 5

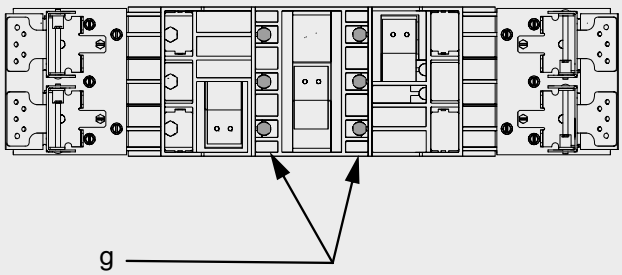
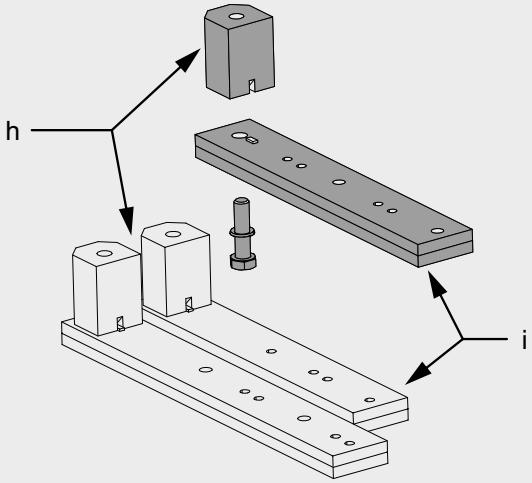


Fig. 6



5

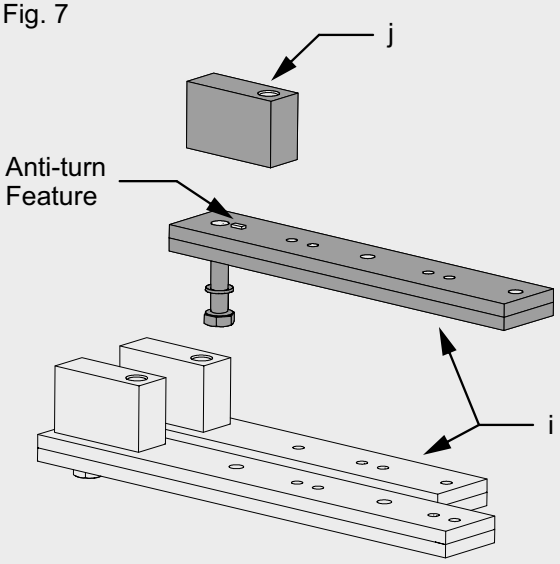
Tmax XT5 Installation

- Attach new terminal posts (j)(Fig. 7) to the module bus (i)(Fig. 7) using the 5/16” bolts and locking washers which are 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 installed over the anti-turn feature, **torque the 5/16” hardware to 100 lb-in.**

Fig. 7



6

- Install the bus and terminal post assemblies onto the module as shown in Figure 8. Use the six 1/4-20 bolts and washers (g)(Fig. 9) 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 (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.**

Fig. 8

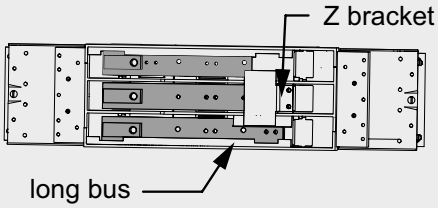
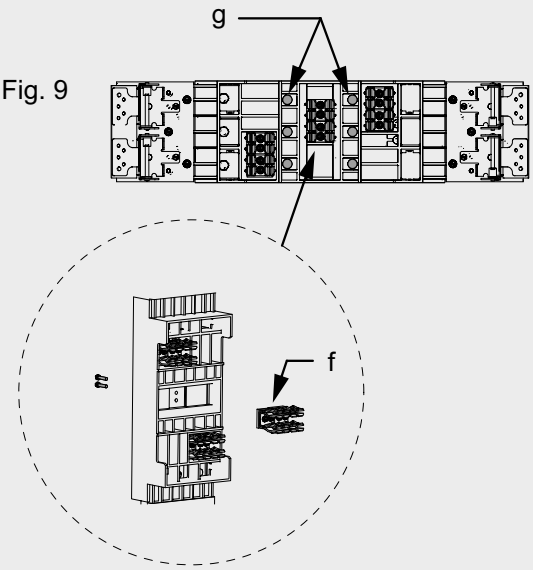


Fig. 9



7

- Position the legacy flexible barrier back onto the module which was removed in step 3.
- Install the new circuit breaker mounting “Z” bracket (k)(Fig. 10) supplied with the kit onto the module using the two hex head screws previously removed. **Torque the hex head screws to 15 lb-in.**
- Secure the module barrier (l)(Fig. 11) onto the load end of the module using two thread forming screws supplied with the kit.
- **Torque the thread forming screws to 15 lb-in.**

Fig. 10

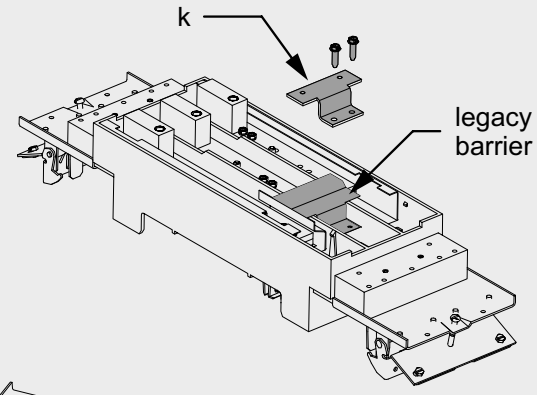
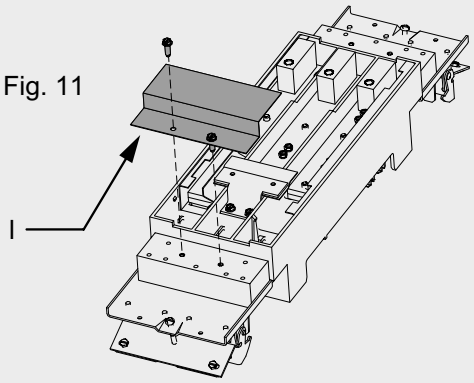


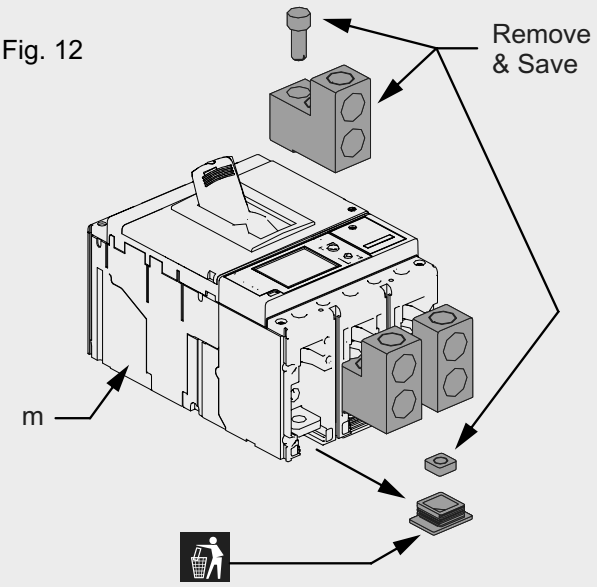
Fig. 11



8

- Prepare the XT5 circuit breaker (m)(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.

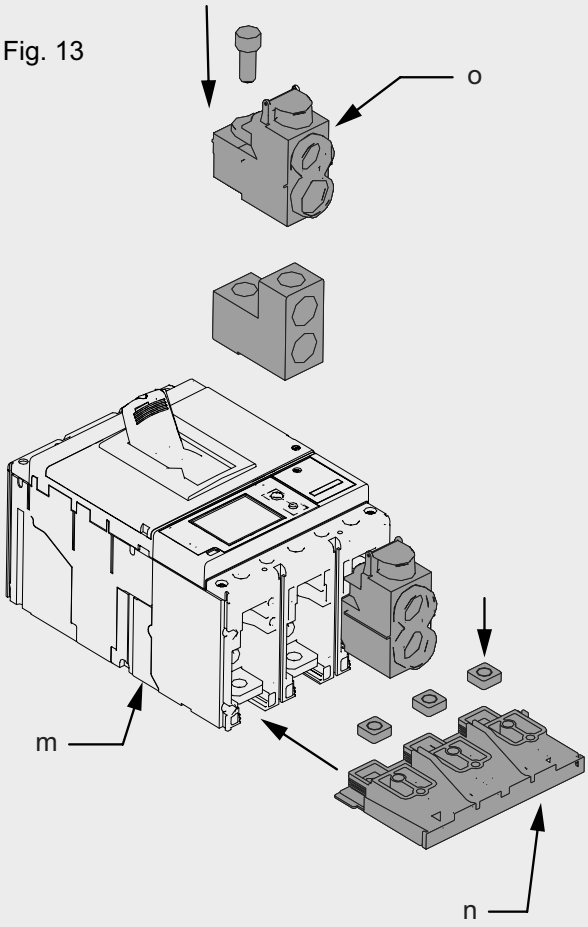
Fig. 12



9

- Place the three retaining nuts removed in the prior step into the square pockets of the XT5 back shield (n)(Fig. 13).
- Install the XT5 back shield (n) onto the circuit breaker (m)(Fig. 13) by sliding it into the grooves below the load terminals.
- Install the service entry barriers (o)(Fig. 13) and cap head bolts and spring washers (removed in the prior step) onto the lugs.
- Slide the lugs and service entry barriers (o) onto the load terminals of the XT5 circuit breaker (m). 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.**

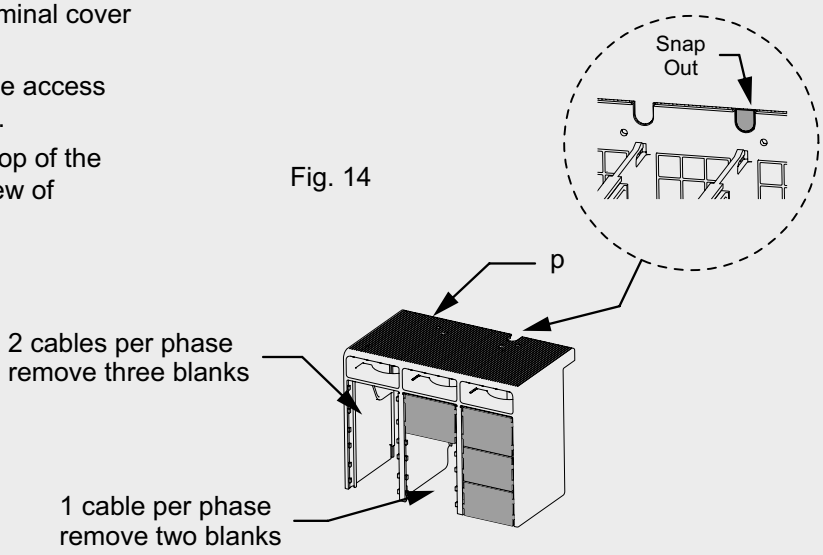
Fig. 13



10

- Prepare the circuit breaker load end terminal cover (p)(Fig. 14) for installation.
- Remove the blanking segments for cable access as required by snapping each piece out.
- Remove both half round blanks on the top of the terminal cover as shown in the detail view of Figure 14.

Fig. 14



11

- Install two hex standoffs (q)(Fig. 15) into the XT5 circuit breaker (m)(Fig. 15) line side housing holes.
- Secure the standoff barriers (r)(Fig. 15) onto the bottom of the circuit breaker and exposed thread of the hex standoff using serrated nuts (s)(Fig. 15).
- Align the standoff barriers (r) so that the side flaps face each other as shown in Figure 15.
- **Torque the hex standoffs and serrated nuts to 25 lb-in.**
- Install the XT5 circuit breaker (m)(Fig. 16) onto the module base using two more hex standoffs (q)(Fig. 16), and three M10 bolts (t)(Fig. 16) and spring washers (u)(Fig. 16) which are supplied with the circuit breaker.
- Start the hex standoffs (q) into the “Z” bracket (k)(Fig. 16) before securing the M10 hardware (t and u) into the terminal posts (j)(Fig. 16).
- With all five fasteners started, **torque the hex standoffs (q) to 25 lb-in and the M10 bolts (t) to 300 lb-in.**
- **Torque the six 1/4-20 bolts and washers (g)(Fig. 16) located on the bottom of the module to 50 lb-in.**

Fig. 15

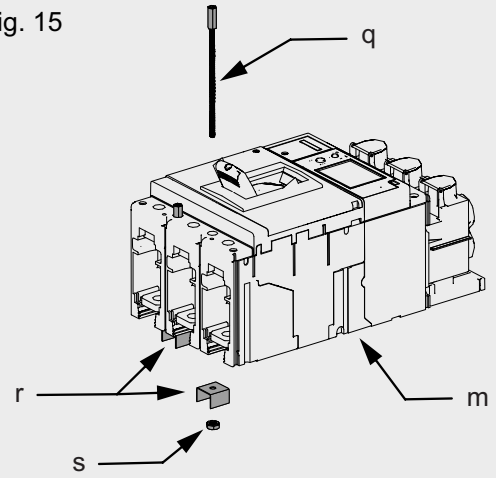
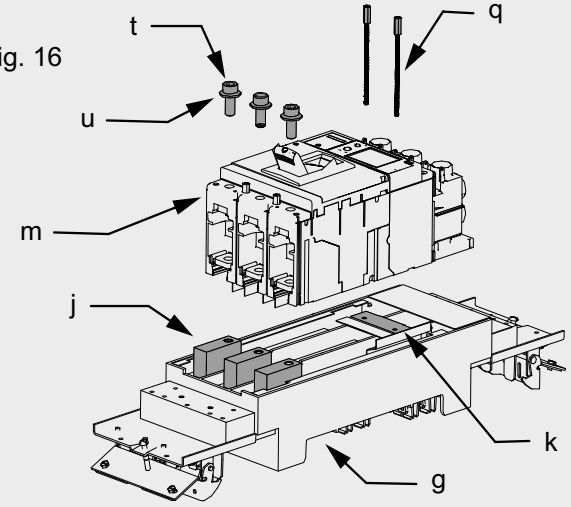


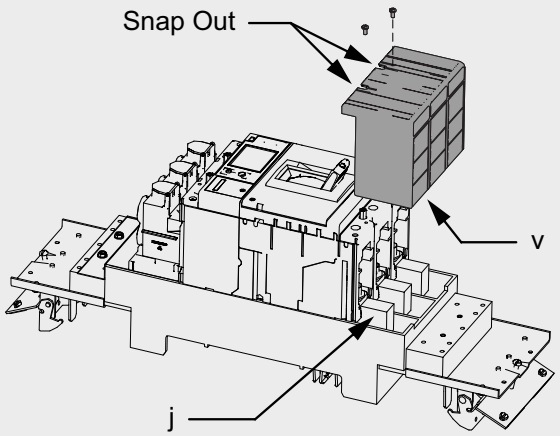
Fig. 16



12

- Install the line side terminal cover (v)(Fig.17) over the line terminal posts (j)(Fig. 17).
- Prior to sliding the cover on to the circuit breaker housing, snap out the two half round blanks on the covers top. Reference step 10 for further detail.
- Secure the line side terminal cover onto the circuit breaker using the two small screws supplied with the cover.

Fig. 17

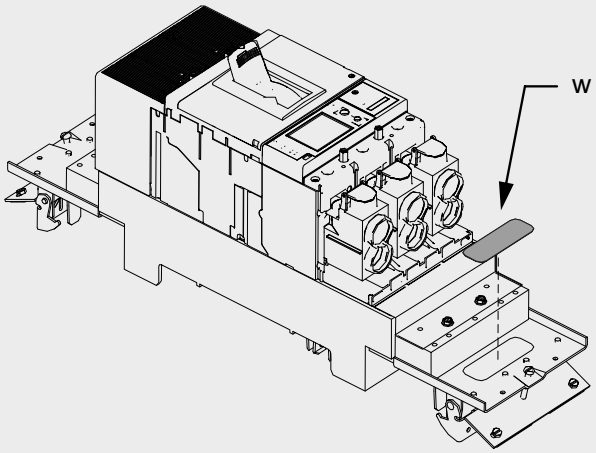


13

- Apply new circuit breaker listing label (w)(Fig. 18) directly over the Spectra label as shown. The Spectra label will list the legacy SG 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. 18



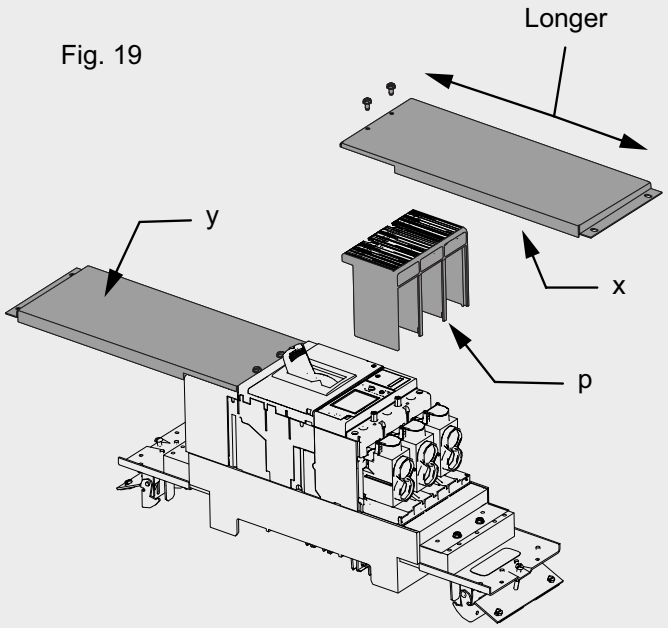
14

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.

- Slide the load end terminal cover (p)(Fig. 19) which was previously modified down over the cable lugs onto the circuit breaker housing. Secure the cover with the supplied small screws **tightening them to approximately 10 lb-in of torque.**
- Install the deadfront panels (x)(Fig. 19) and (y)(Fig. 19) onto the panelboard using the eight hex head screws supplied.
- Ensure the longer panel (x) with the label on the backside is oriented over the installed cables as is shown in Figure 19. **Note: The panelboard is not shown in Figure 19 for clarity.**
- 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.

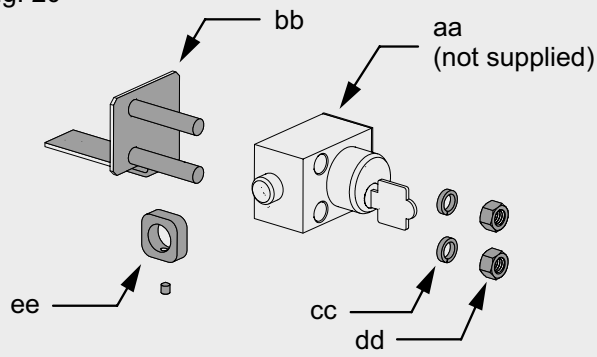
Fig. 19



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.

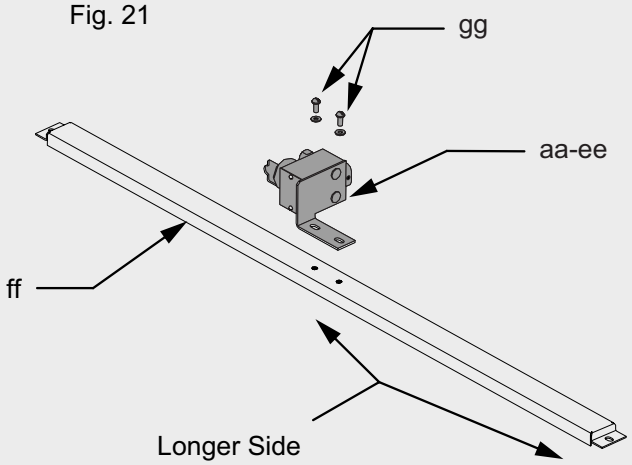
Fig. 20



17

- 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.
- Mount the bracket assembly (aa through ee) so that the lock cylinder (aa) is facing away from the “longer end” of the panel as shown in Figure 21.

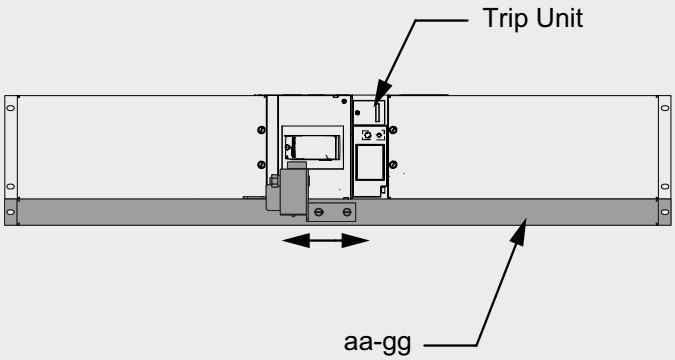
Fig. 21



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 away from 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.
- Adjust the lock cylinder and bracket assembly (aa through ee)(Fig. 22) 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. 22



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

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