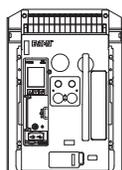
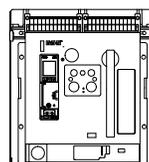


# Insulated case circuit breakers - pop-out trip indicators

## Instructions apply to:



UL489 : PD-NF  
IEC : PD-NF, IZMX16



UL489 : PD-RF  
IEC : PD-RF, IZMX40

### WARNING

- (1) ONLY QUALIFIED ELECTRICAL PERSONNEL SHOULD BE PERMITTED TO WORK ON THE EQUIPMENT.
  - (2) ALWAYS DE-ENERGIZE PRIMARY AND SECONDARY CIRCUITS IF A CIRCUIT BREAKER CANNOT BE REMOVED TO A SAFE WORK LOCATION.
  - (3) DRAWOUT CIRCUIT BREAKERS SHOULD BE LEVERED (RACKED) OUT TO THE DISCONNECT POSITION.
  - (4) ALL CIRCUIT BREAKERS SHOULD BE SWITCHED TO THE OFF POSITION AND MECHANISM SPRINGS DISCHARGED.
- FAILURE TO FOLLOW THESE STEPS FOR ALL PROCEDURES DESCRIBED IN THIS INSTRUCTION LEAFLET COULD RESULT IN DEATH, BODILY INJURY, OR PROPERTY DAMAGE.

### WARNING

THE INSTRUCTIONS CONTAINED IN THIS IL AND ON PRODUCT LABELS HAVE TO BE FOLLOWED. OBSERVE THE FIVE SAFETY RULES:

- DISCONNECTING
- ENSURE THAT DEVICES CANNOT BE ACCIDENTALLY RESTARTED
- VERIFY ISOLATION FROM THE SUPPLY
- EARTHING AND SHORT-CIRCUITING
- COVERING OR PROVIDING BARRIERS TO ADJACENT LIVE PARTS

DISCONNECT THE EQUIPMENT FROM THE SUPPLY. USE ONLY AUTHORIZED SPARE PARTS IN THE REPAIR OF THE EQUIPMENT. THE SPECIFIED MAINTENANCE INTERVALS AS WELL AS THE INSTRUCTIONS FOR REPAIR AND EXCHANGE MUST BE STRICTLY ADHERED TO PREVENT INJURY TO PERSONNEL AND DAMAGE TO THE SWITCHBOARD.

**Section 1: General information**

The optional pop-out mechanical trip indicator, located to the right of the trip unit on the breaker's front faceplate, operates by releasing and popping out any time the breaker trips due to an overcurrent condition (Figure 1). Three versions of the pop-out trip indicator are available:

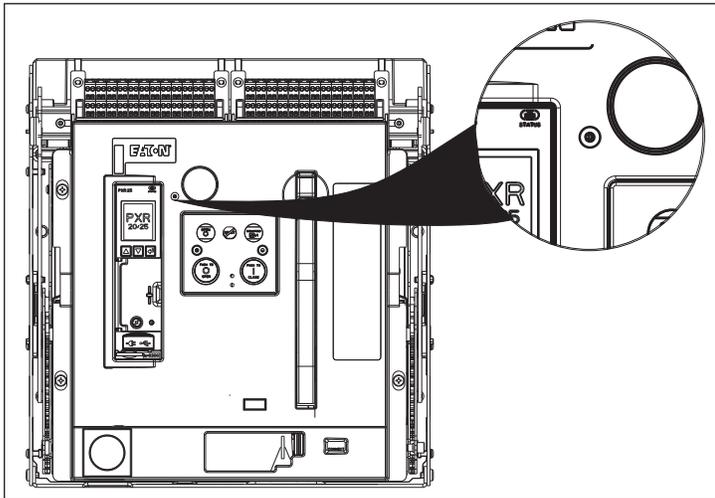
**Version 1:** The non-interlocking indicator will not prevent the breaker from being reclosed. The indicator is reset manually by pushing it back in.

**Version 2:** The interlocking pop-out indicator must be pushed in and reset before the breaker can be reclosed.

**Version 3:** The remote reset interlocking pop-out indicator may be reset manually or remotely.

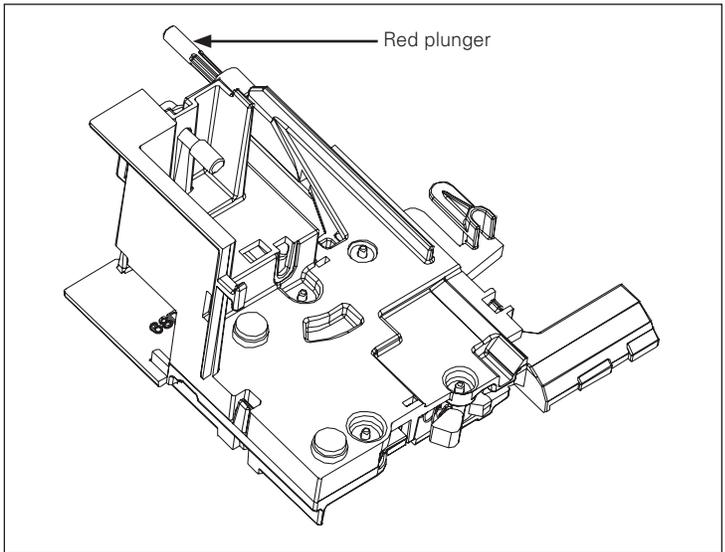
When resetting any version, ensure that the button is fully reset to a hard stop.

An optional overcurrent trip switch (bell alarm) can be used in conjunction with either mechanical trip indicator. The overcurrent trip switch operates off the position of the mechanical trip indicator, and is reset when the indicator is reset.

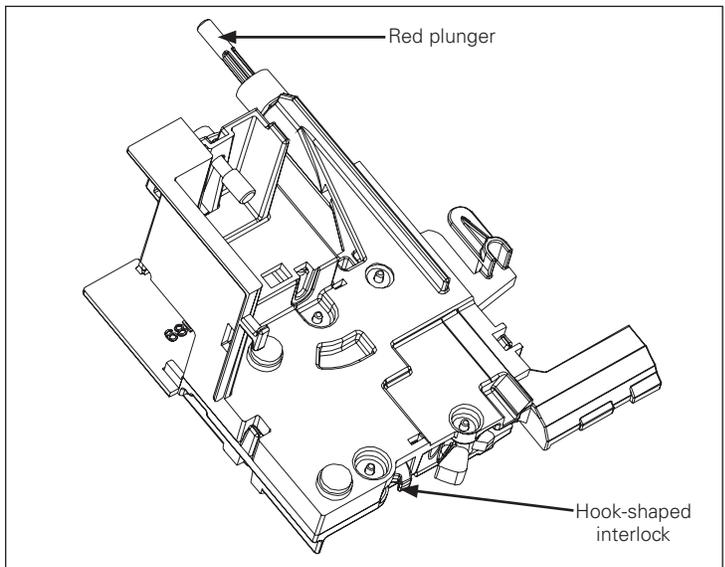


**Figure 1. Installed pop-out trip indicator shown.**

Become familiar with the pop-out trip indicator being used. Figure 2 illustrates the non-interlocking indicator version and Figure 3 illustrates the interlocking indicator version. Both indicators look very similar externally. The only noticeable difference between the two is a small molded hook-shaped device on the interlocking indicator version. This hook operates the interlocking feature. Both indicators are, however, installed and removed in the same way.



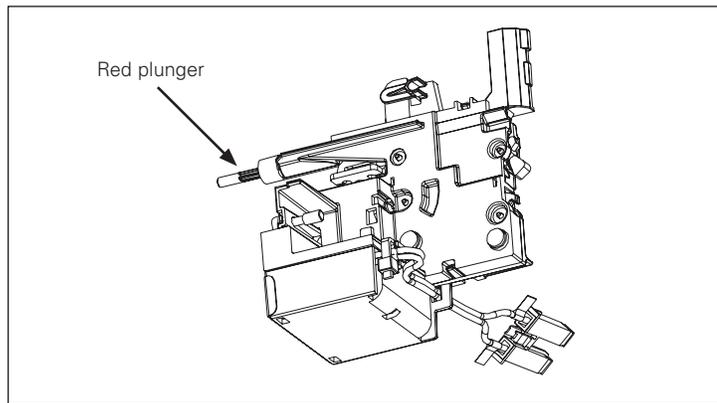
**Figure 2. Non-interlocking pop-out trip indicator shown.**



**Figure 3. Interlocking pop-out trip indicator shown.**

**Table 1. Remote reset ratings**

Control voltage	Frequency	Operational voltage (range 70–110%)	Inrush power consumption (VA)	Reset closing time (ms)
24	DC	17–26	500	25
110–127	50–60 Hz	77–140	540	25
110–125	DC	77–138	540	25
208–240	50–60 Hz	146–264	500	25
220–250	DC	154–275	515	25

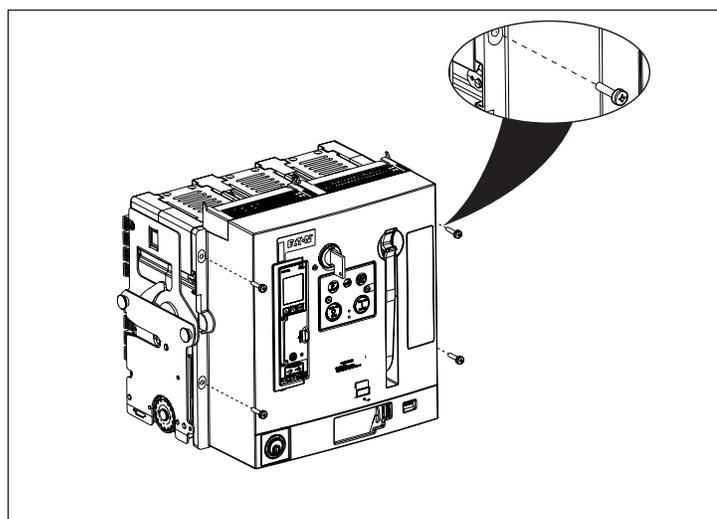


**Figure 4. Remote reset interlock indicator shown.**

## Section 2: Installation of pop-out trip indicator

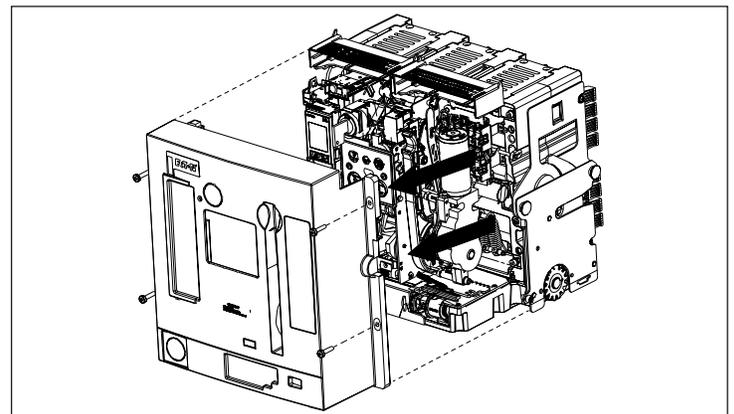
Proceed with the following nine steps.

**Step 1:** Remove the four screws holding the front cover in place (two on each side of the cover).



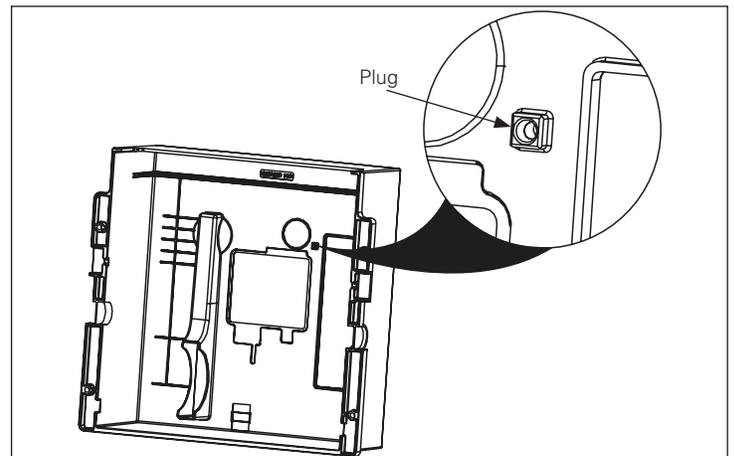
**Figure 5. Step 1.**

**Step 2:** Remove the front cover. Pull down on the charging handle to simplify removal.



**Figure 6. Step 2.**

**Step 3:** Remove the plug in the breaker cover. This will allow the red plunger to pass through the cover.



**Figure 7. Step 3.**

**Step 4:** Slide the left accessory tray (used for mounting accessories such as ST, UVR, and OTS) approximately 1 in. (25.4mm) to the left by depressing the thumb tab and sliding the tray out. This will create sufficient room to install the trip indicator.

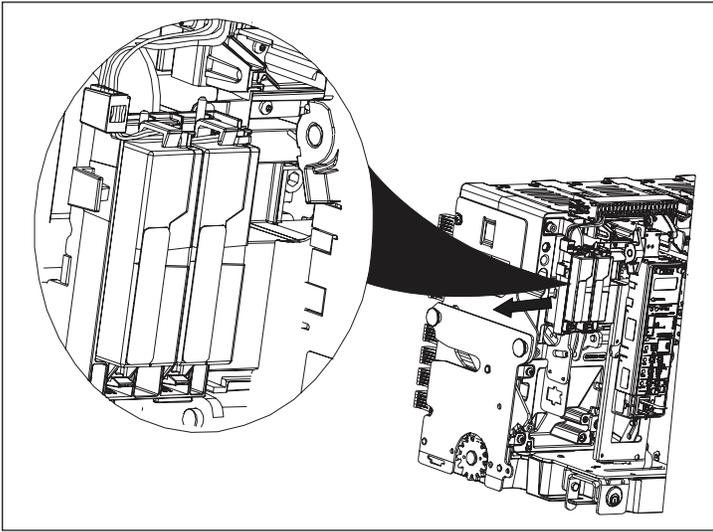


Figure 8. Step 4.

**Step 5:** Locate and identify the mounting slot in the side plate where the indicator will be mounted. The indicator will slide down the slot and snap into place when the notch is reached near the end of the slot.

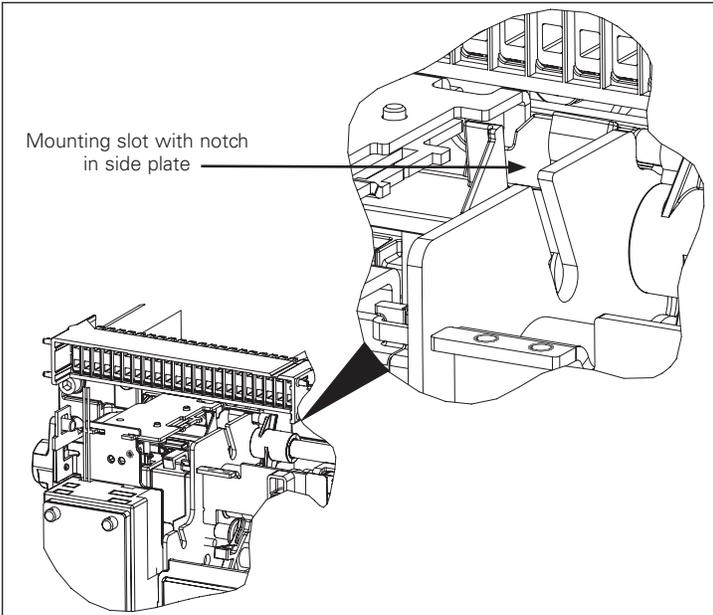


Figure 9. Step 5.

**Step 6:** Position the pop-out indicator at the top of the slot and slide it down the mounting slot. If it is advantageous, a small flat-blade screwdriver can be used on the body of the indicator to push it down the mounting slot.

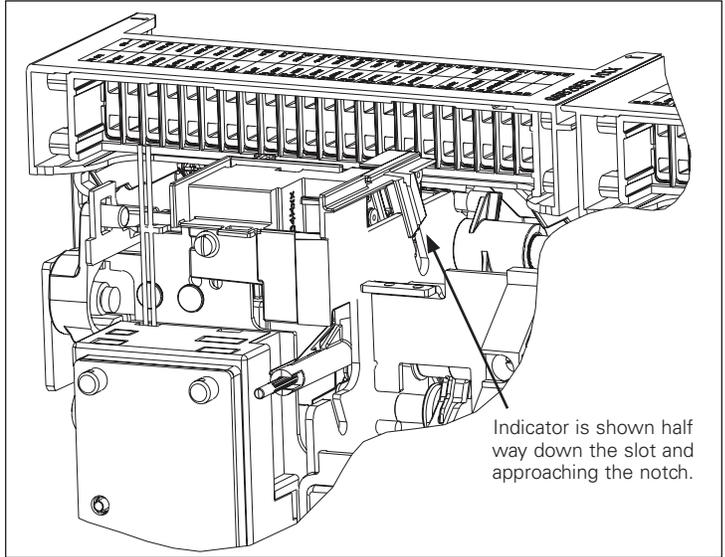


Figure 10. Step 6.

**Step 7:** After the indicator is in the mounting slot, push the indicator toward the load end of the breaker into the notch. The indicator will snap into its mounted position in the notch. A click sound will be heard indicating a successful installation. The installed pop-out indicator will appear as shown. Tighten the captive mounting screw. Torque to 1-2 in.-lbs (0.11-2.11 N•m).

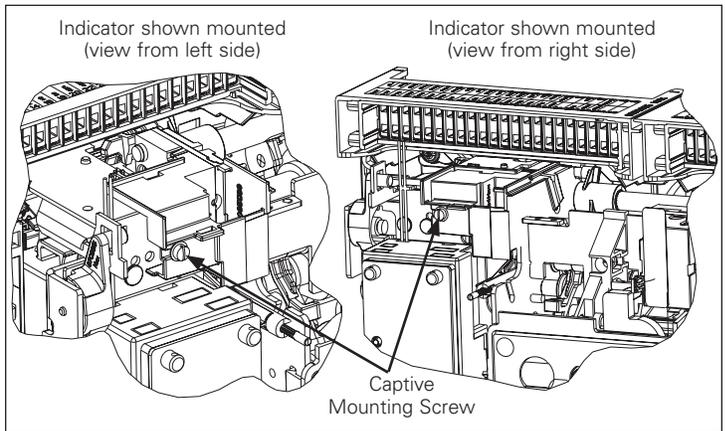


Figure 11. Step 7.

**Step 8:** Slide the left accessory tray, partially removed previously in Step 4 of Section 2, back into place.

**Step 9:** Replace the front cover, and secure it in place with the four mounting screws previously removed in Step 1.

**CAUTION**

**WHEN REPLACING THE FRONT COVER, ENSURE THAT THE HOLE IN THE FRONT COVER IS ALIGNED WITH THE TRIP INDICATOR BUTTON. FAILURE TO DO SO COULD RESULT IN DAMAGE TO THE INDICATOR AND/OR FAULTY OPERATION OF THE INDICATOR.**

## Section 3: Removal of pop-out trip indicator

Proceed with the following eight steps.

**Step 1:** If necessary, remove the front cover from the breaker by performing Steps 1 and 2 of Section 2.

**Step 2:** Locate the trip indicator mounted in the side plate.

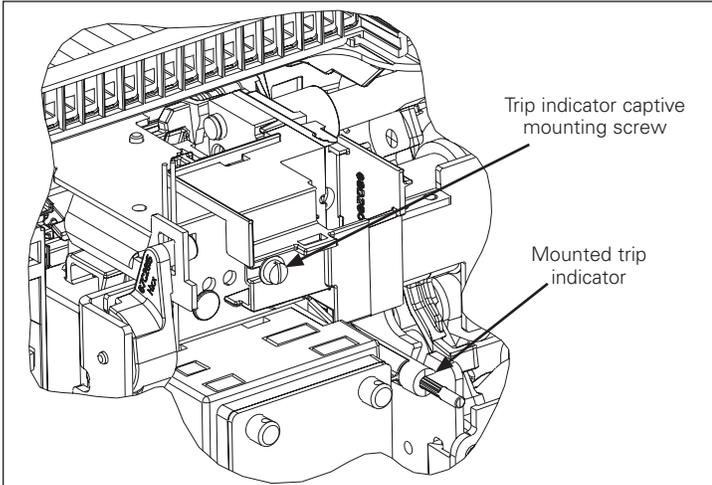


Figure 12. Step 2.

**Step 3:** Partially slide out the left accessory tray approximately 1 in. (25.4mm). The secondary wires do not need to be disconnected. This step is necessary to avoid any interference with accessory devices, particularly overcurrent trip switches (bell alarms), in the left accessory tray during the removal of the pop-out trip indicator.

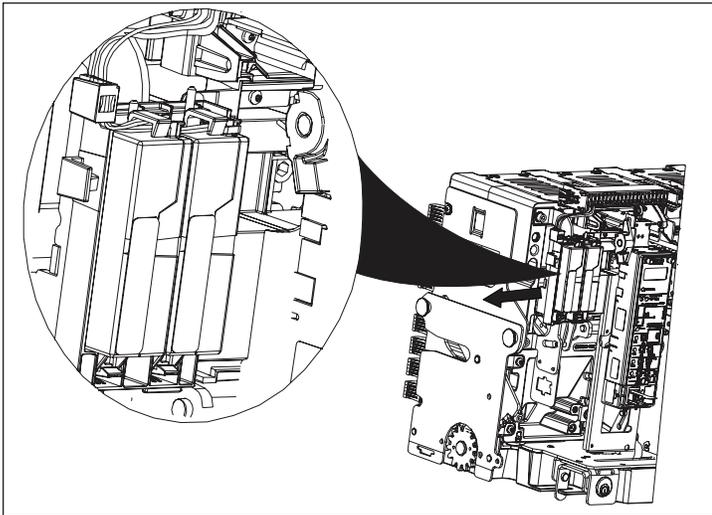


Figure 13. Step 3.

**Step 4:** Loosen the captive mounting screw (see Figure 12).

**Step 5:** Note the small locking tab (see Figure 14) that locks the pop-out indicator into its mounted position in the mounting notch in the side plate.

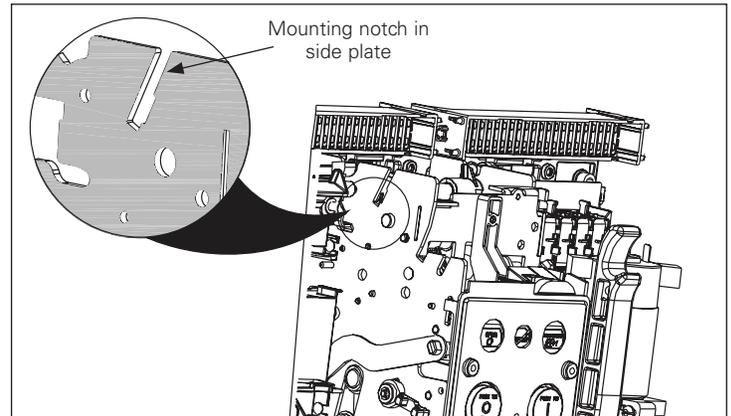


Figure 14. Step 5.

**Step 6:** It is recommended that Step 7 be read and understood before performing Step 6, since both steps are performed in a nearly simultaneous manner. Removal of the indicator at this point can be simplified through the use of a small screwdriver. First push the indicator's locking tab toward the rear of the breaker with a screwdriver as shown. This will unlock the indicator from its mounted position. Hold the locking tab in this release position with the screwdriver.

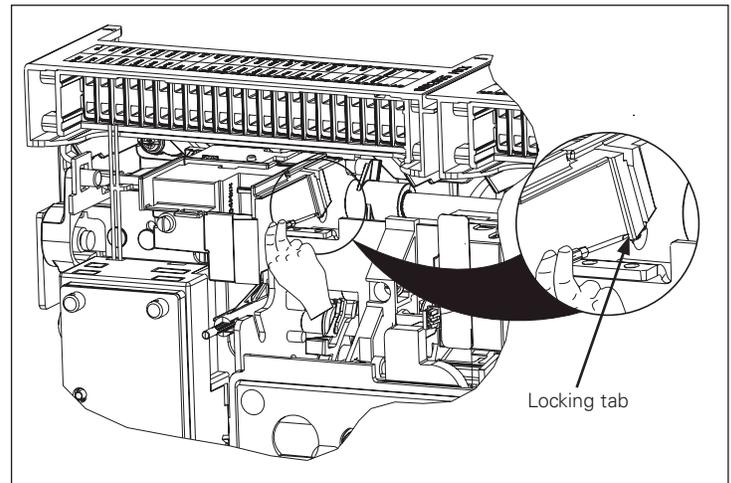


Figure 15. Step 6.

**Step 7:** While holding the locking tab in the pushed back (unlocked) position just described in Step 6, pry the trip indicator up along the angled slot. The body of the trip indicator is accessed from the other side of the side plate as shown.

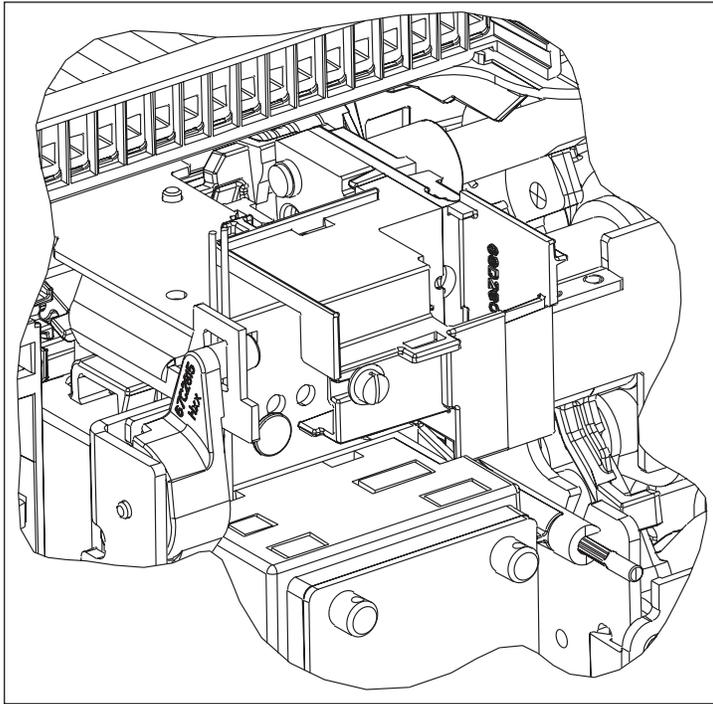


Figure 16. Step 7.

**Step 8:** Once the trip indicator is released from its mounting notch, the trip indicator can be completely removed by pushing it up and out of the mounting slot.

**Step 9:** To install a new pop-out trip indicator, follow Steps 3 through 9 of Section 2.

## Section 4: Accessory secondary connections

### CAUTION

**IDENTIFICATION WIRE NUMBERS MUST MATCH THE IDENTIFICATION NUMBERS ON THE SECONDARY BLOCK/PLATE.**

### General information

1. Some electrical accessory leads are tagged with numbers associated with the applicable connection diagram located in instruction book TD013001EN. Leads are also supplied with keyed secondary connector plugs to ensure proper connections (Figure 17). If the trip indicator leads are not labeled, pre-printed labels are provided in the trip indicator kit.
2. Secondary connections are made by plugging the connector plugs into the appropriate location with a matching number label. A connector plug already connected can be removed by squeezing two release tabs together with small needle nose pliers and pulling out (Figure 18).

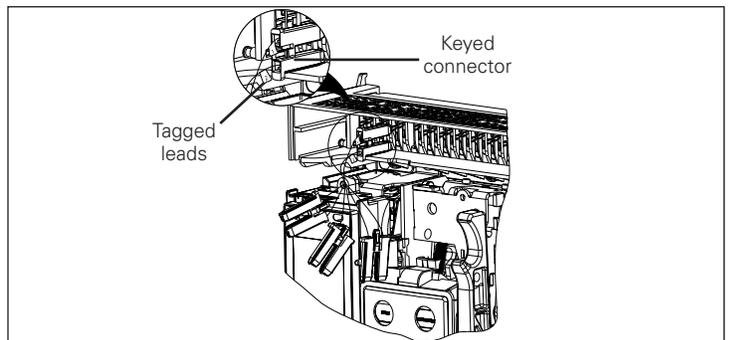


Figure 17. Leads and connectors.

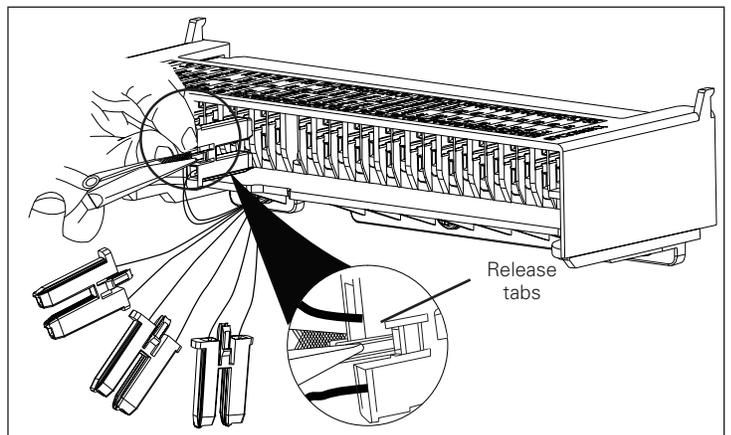


Figure 18. Connector plug removal.

### Fixed breaker connections

Proceed with the following five steps:

**Step 1:** Become familiar with the fixed terminal block DIN rail type mounting plate where secondary connections are made.

**Note:** Secondary connection points have numerical and descriptive laser-etched identifications.

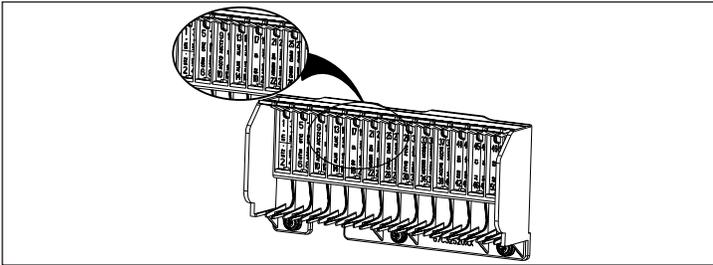


Figure 19. Step 1.

**Step 2:** Plug the accessory connector plug into the fixed secondary terminal block.

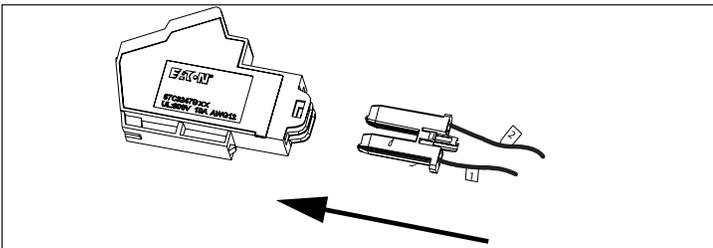


Figure 20. Step 2.

**Step 3:** Identify the correct mounting location on the fixed terminal block mounting plate for mounting the fixed secondary terminal block. Insert the bottom end of the fixed secondary terminal block into the proper location on the DIN rail type mounting plate.

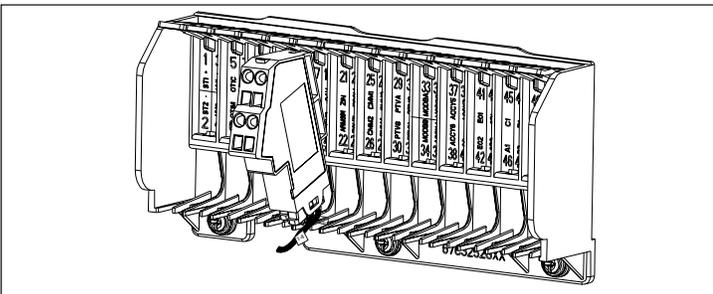


Figure 21. Step 3

**Step 4:** Rotate the top end of the terminal block in until it engages the appropriate flexible mounting tab at the top of the mounting plate with a clicking sound.

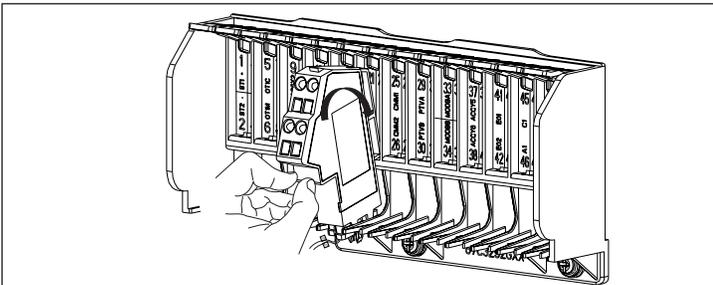


Figure 22. Step 4.

**IMPORTANT**

**TO REMOVE RIGHT AND LEFT ACCESSORY TRAYS OR ANY OTHER ELECTRICAL ACCESSORY, THE APPROPRIATE ACCESSORY CONNECTOR PLUG MUST FIRST BE DISCONNECTED.**

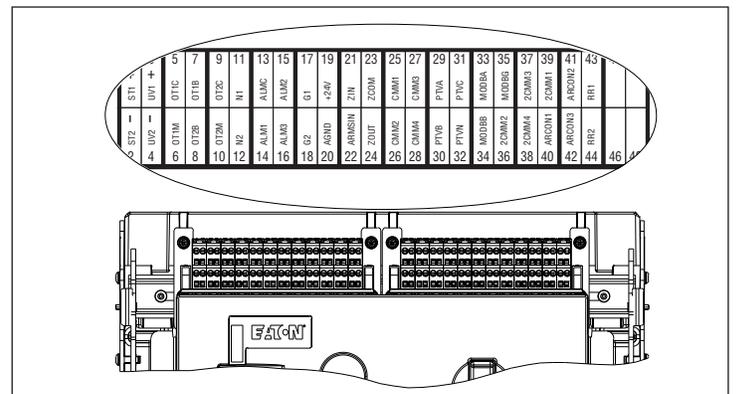
**Step 5:** To remove an accessory plug on a fixed circuit breaker, the appropriate fixed secondary terminal block must first be removed. To remove a fixed secondary terminal block, lift up on the small flexible mounting tab at the top of the fixed terminal block mounting plate, and rotate the terminal block out in the opposite direction shown in step 4. Once the terminal block is removed, the accessory connector plug can be unplugged from the bottom of the terminal block. Refer to Item 2 and Figure 18 under the heading "General Information" in Section 4 for detailed assistance with the removal.

**Drawout breaker connections**

Proceed with the following three steps.

**Step 1:** Become familiar with the drawout secondary plug housing where secondary connections are made.

**Note:** Secondary connection points have numerical and descriptive laser-etched identifications on top of the housing directly matching the plug-in locations below.



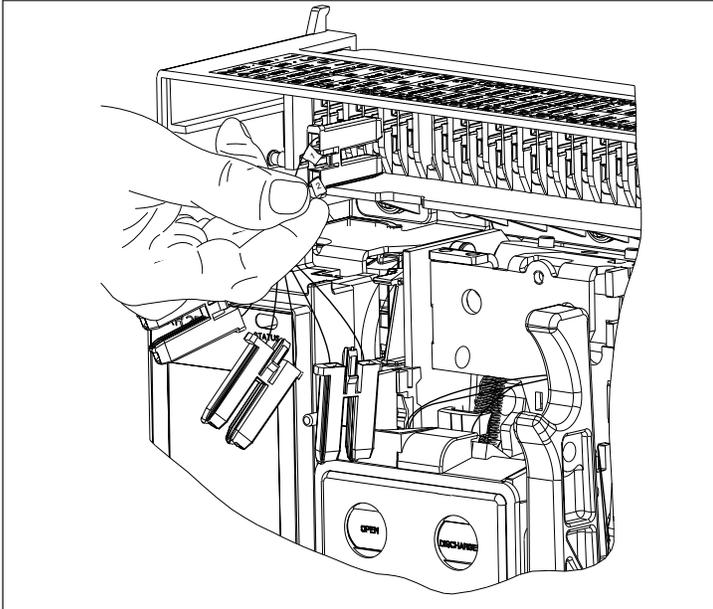


Figure 24. Step 2.

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**⚠ IMPORTANT**

**TO REMOVE RIGHT AND LEFT ACCESSORY TRAYS OR ANY OTHER ELECTRICAL ACCESSORY, THE APPROPRIATE ACCESSORY CONNECTOR PLUG MUST FIRST BE DISCONNECTED.**

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**Step 3:** To remove an accessory connector plug on a drawout circuit breaker, unplug it from its secondary plug housing. Refer to Item 2 and Figure 18 under the heading “General information” in this section for detailed assistance with the removal.

**Notes:**

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Printed in USA  
Publication No. IL0131126EN/LNT16  
Part No: IL0131126ENH02  
January 2019