Installation and Operation

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Qualified Persons

⚠ WARNING

Only qualified persons who are knowledgeable in the installation, operation, and maintenance of distribution fusing equipment, along with all associated hazards, may install, operate, and maintain the equipment covered by this publication. A qualified person is someone who is trained and competent in:

- The skills and techniques necessary to distinguish exposed live parts from nonlive parts of electrical equipment
- The skills and techniques necessary to determine the proper approach distances corresponding to the voltages to which the qualified person will be exposed
- The proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electrical equipment

These instructions are intended ONLY for such qualified persons. They are not intended to be a substitute for adequate training and experience in safety procedures for this type of equipment.

Read this Instruction Sheet

NOTICE

Thoroughly and carefully read this instruction sheet before installing or operating your VacuFuse Self-Resetting Interrupter. Familiarize yourself with the Safety Information and Safety Precautions on pages 5 through 7. The latest version of this publication is available online in PDF format at **sandc.com/en/support/product-literature/**.

Retain this Instruction Sheet

This instruction sheet is a permanent part of your VacuFuse Self-Resetting Interrupter. Designate a location where you can easily retrieve and refer to this publication.

Video

A video of the installation and operation procedures in this instruction sheet is available at **sandc.com/vacufuse-video**. The goal of the video is to provide a clear and simple visual reference. In no way is the video meant as a complete replacement of these written instructions.

Proper Application

⚠ WARNING

The VacuFuse Self-Resetting Interrupter is only intended for the protection of distribution transformers. The application must be within the ratings furnished for the equipment. Ratings for the VacuFuse Self-Resetting Interrupter are listed in the ratings table in Specification Bulletin 465-31. They are also etched on the body of the interrupter.

The VacuFuse Self-Resetting Interrupter, selected for a specific application, should have a maximum voltage rating equal to or greater than system line-to-line voltage when used in phase-to-phase applications. The VacuFuse Self-Resetting Interrupter can be applied on the primary side of 5-kV overhead distribution transformers up to 25 kVA, 15-kV transformers up to 75 kVA, and 25-kV transformers up to 150 kVA when mounted in a present-production 125- or 150-BIL cutout mounting. For the difference between present-production and earlier-production cutout mountings, see Figures 1 and 2.

Figure 1. Present-production ("-R10" or "-R11") S&C-provided Type XS Fuse Cutout mounting.

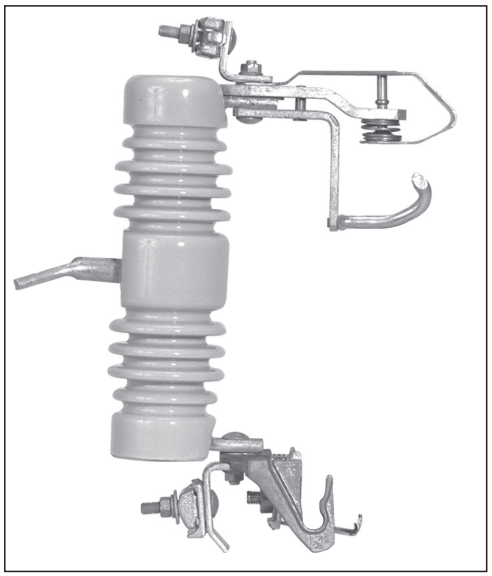


Figure 2. Earlier-production ("-R9") S&C Type XS Fuse Cutout mounting. "-R8" and earlier versions have a similar upper contact.

Operating Considerations

The VacuFuse Self-Resetting Interrupter is factory-set with a fuse link TCC curve, an open interval between the initial trip (TCC0) and the first test (TCC1) of between 0.5 and 5 seconds, as well as the sequence reset time (between 30 seconds and 15 minutes).

The sequence of operation is as follows: the recloser will open once in response to the fuse link curve (TCC0) and will have an open interval lasting a factory-programmed number of seconds. Then, it will close, and the fuse-link curve will again become active (TCC1). If the fault is still on the line, the VacuFuse Self-Resetting Interrupter will open and lock open. If fault current is not still on the line, the Sequence Reset Timer will begin timing. If another fault occurs during this time, the VacuFuse Self-Resetting Interrupter will open and lock open. If this timer expires without the VacuFuse interrupter detecting fault current, the VacuFuse interrupter will reset to TCC0.

The VacuFuse Self-Resetting Interrupter will operate on the fuse-link curve differently depending on the position of the MODE SELECTOR lever. For more information, see the "Setting the MODE SELECTOR Lever" section on page 16.

Warranty

The warranty and/or obligations described in S&C's Price Sheet 150 "Standard Conditions of Sale–Immediate Purchasers in the United States" (or Price Sheet 153, "Standard Conditions of Sale–Immediate Purchasers Outside the United States"), plus any special warranty provisions, as set forth in the applicable product-line specification bulletin, are exclusive. The remedies provided in the former for breach of these warranties shall constitute the immediate purchaser's or end user's exclusive remedy and a fulfillment of the seller's entire liability. In no event shall the seller's liability to the immediate purchaser or end user exceed the price of the specific product that gives rise to the immediate purchaser's or end user's claim. All other warranties, whether express or implied or arising by operation of law, course of dealing, usage of trade or otherwise, are excluded. The only warranties are those stated in Price Sheet 150 (or Price Sheet 153), and THERE ARE NO EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ANY EXPRESS WARRANTY OR OTHER OBLIGATION PROVIDED IN PRICE SHEET 150 (OR PRICE SHEET 153) IS GRANTED ONLY TO THE IMMEDIATE PURCHASER AND END USER, AS DEFINED THEREIN. OTHER THAN AN END USER, NO REMOTE PURCHASER MAY RELY ON ANY AFFIRMATION OF FACT OR PROMISE THAT RELATES TO THE GOODS DESCRIBED HEREIN, ANY DESCRIPTION THAT RELATES TO THE GOODS, OR ANY REMEDIAL PROMISE INCLUDED IN PRICE SHEET 150 (or PRICE SHEET 153).

Understanding Safety-Alert Messages

Several types of safety-alert messages may appear throughout this instruction sheet and on labels and tags attached to the VacuFuse Self-Resetting Interrupter. Familiarize yourself with these messages and the importance of these signal words:

⚠ DANGER

"DANGER" identifies the most serious and immediate hazards that will likely result in serious personal injury or death if instructions, including recommended precautions, are not followed.

⚠ WARNING

"WARNING" identifies hazards or unsafe practices that can result in serious personal injury or death if instructions, including recommended precautions, are not followed.

⚠ CAUTION

"CAUTION" identifies hazards or unsafe practices that can result in minor personal injury if instructions, including recommended precautions, are not followed.

NOTICE

"NOTICE" identifies important procedures or requirements that can result in product or property damage if instructions are not followed.

Following Safety Instructions

If you do not understand any portion of this instruction sheet and need assistance, contact your nearest S&C Sales Office or S&C Authorized Distributor. Their telephone numbers are listed on S&C's website **sandc.com**, or call the S&C Global Support and Monitoring Center at 1-888-762-1100.

NOTICE

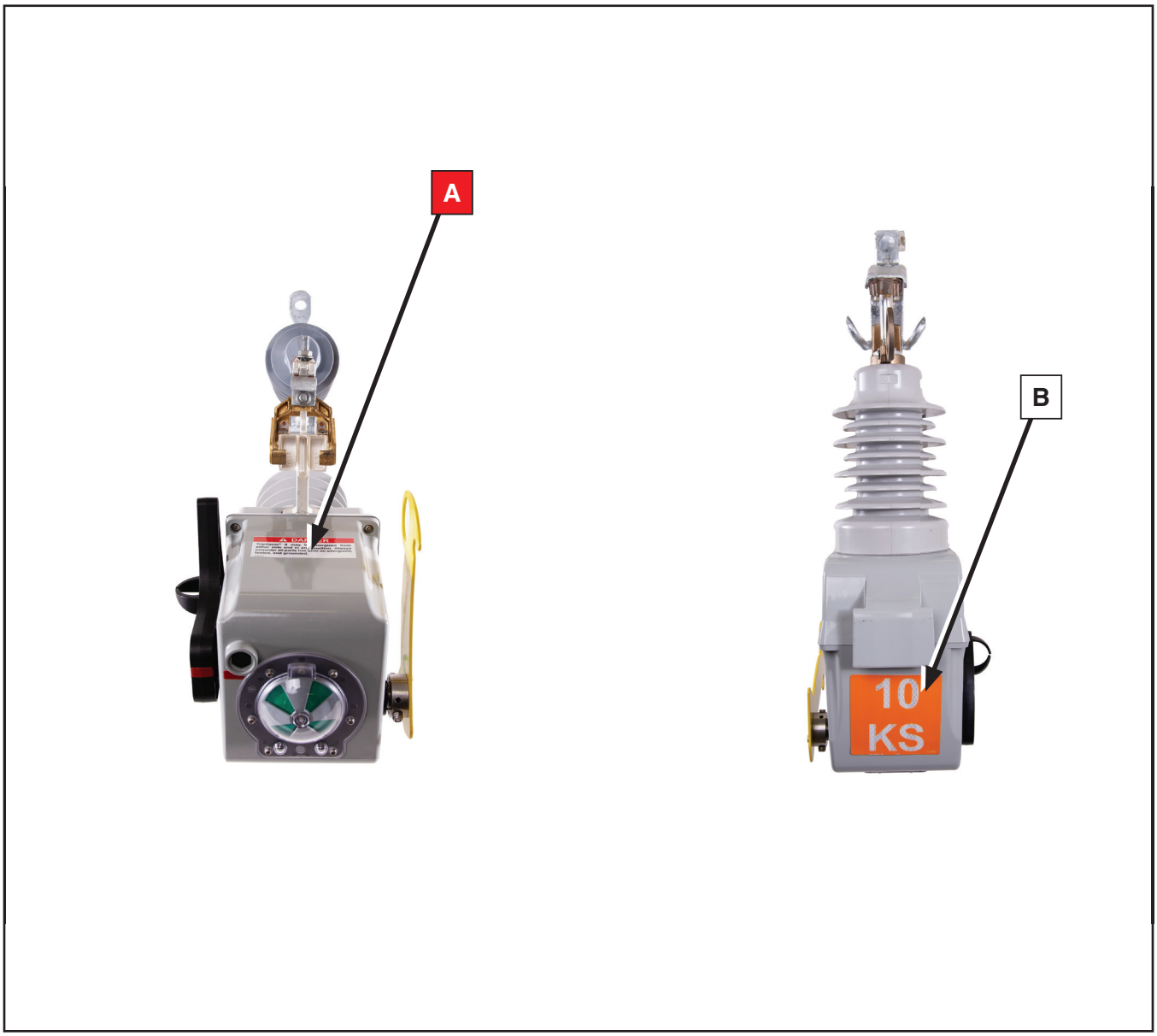
Read this instruction sheet thoroughly an carefully before operating the VacuFuse Self-Resetting Interrupter.

Replacement Instructions and Labels

If additional copies of this instruction sheet are needed, contact your nearest S&C Sales Office, S&C Authorized Distributor, S&C Headquarters, or S&C Electric Canada Ltd. The latest version is available online in PDF format at **sandc.com/en/Support/Product-Literature/**.

It is important that any missing, damaged, or faded labels on the equipment be replaced immediately. Replacement labels are available by contacting your nearest S&C Sales Office, S&C Authorized Distributor, S&C Headquarters, or S&C Electric Canada Ltd

Location of Safety Labels



Reorder Information for Safety Labels

Location	Safety Alert Message	Description	Part Number
A	⚠ DANGER	VacuFuse® Self-Resetting Interrupter may be energized...	G-9740
B	Fuse Link TCC Curve	(Label displaying the VacuFuse interrupter's protection curve.)	●

● Optional label. For more information, contact S&C Electric Company.

⚠ DANGER

The VacuFuse Self-Resetting Interrupter operates at high voltage. Failure to observe the precautions below will result in serious personal injury or death.

Some of these precautions may differ from your company's operating procedures and rules. Where a discrepancy exists, follow your company's operating procedures and rules.

1. **QUALIFIED PERSONS.** Access to the VacuFuse Self-Resetting Interrupter must be restricted only to qualified persons. See the "Qualified Persons" section on page 2.
2. **SAFETY PROCEDURES.** Always follow safe operating procedures and rules.
3. **PERSONAL PROTECTIVE EQUIPMENT.** Always use suitable protective equipment, such as rubber gloves, rubber mats, hard hats, safety glasses, and flash clothing, in accordance with safe operating procedures and rules.
4. **SAFETY LABELS.** Do not remove or obscure any of the "DANGER," "WARNING," "CAUTION," or "NOTICE" labels and tags. Remove tags ONLY if instructed to do so.
5. **ENERGIZED COMPONENTS.** Always consider all parts live until de-energized, tested, and grounded.
6. **OPERATING TOOLS.** To close a VacuFuse Self-Resetting Interrupter, use a conventional insulated hotstick or an S&C Universal Pole and Pole Extension fitted with a Talon™ Handling Tool or distribution prong. An extendo-stick also can be used after proper training and practice. When energized or installed near energized lines, contacts should be considered live until tested and grounded.
7. **MAINTAINING PROPER CLEARANCE.** Always maintain proper clearance from energized components.
8. **DO NOT DISASSEMBLE** the VacuFuse Self-Resetting Interrupter. There are no customer-serviceable parts inside the VacuFuse interrupter and disassembling the VacuFuse interrupter will void the warranty.

Inspection

Examine the shipment for external evidence of damage as soon after receipt as possible, preferably before removal from the carrier's conveyance. Check the bill of lading to make sure the shipping skids, crates, and containers listed are present. If there is visible loss or damage:

1. Notify the delivering carrier immediately.
2. Ask for a carrier inspection.
3. Note the condition of shipment on all copies of the delivery receipt.
4. File a claim with the carrier.

If concealed damage is discovered:

1. Notify the delivering carrier within 15 days of receipt of shipment.
2. Ask for a carrier inspection.
3. File a claim with the carrier.

Also, notify S&C Electric Company in all instances of loss or damage.

Packing

A complete VacuFuse Self-Resetting Interrupter consists of the following components:

- The VacuFuse Self-Resetting Interrupter
- A present-production "-R10" Type XS Cutout Mounting and miscellaneous mounting hardware for securing the VacuFuse Self-Resetting Interrupter to the pole

Handling

NOTICE

DO NOT DROP the VacuFuse Self-Resetting Interrupter or subject any of its parts to undue stress during installation. Only remove a VacuFuse Self-Resetting Interrupter from the carton immediately before installation.

Storage

VacuFuse Self-Resetting Interrupters are shipped on pallets banded with plastic wrap. This packaging is designed to protect the VacuFuse interrupters from freight damage. This packaging is not suitable for outdoor storage as it can pool water and damage VacuFuse interrupters. After receipt, VacuFuse interrupters should be stored indoors in their shipping packaging. Storing VacuFuse interrupters outdoors in the shipping packaging will void the warranty.

Returning

When returning the VacuFuse Self-Resetting Interrupter for any reason, place the VacuFuse interrupter in the original shipping carton to prevent damage during shipment. If additional shipping cartons are required, contact the nearest S&C Sales Office, S&C Authorized Distributor, or S&C Headquarters.

Before Starting

Familiarize yourself with the parts of the VacuFuse Self-Resetting Interrupter. See Figure 3.

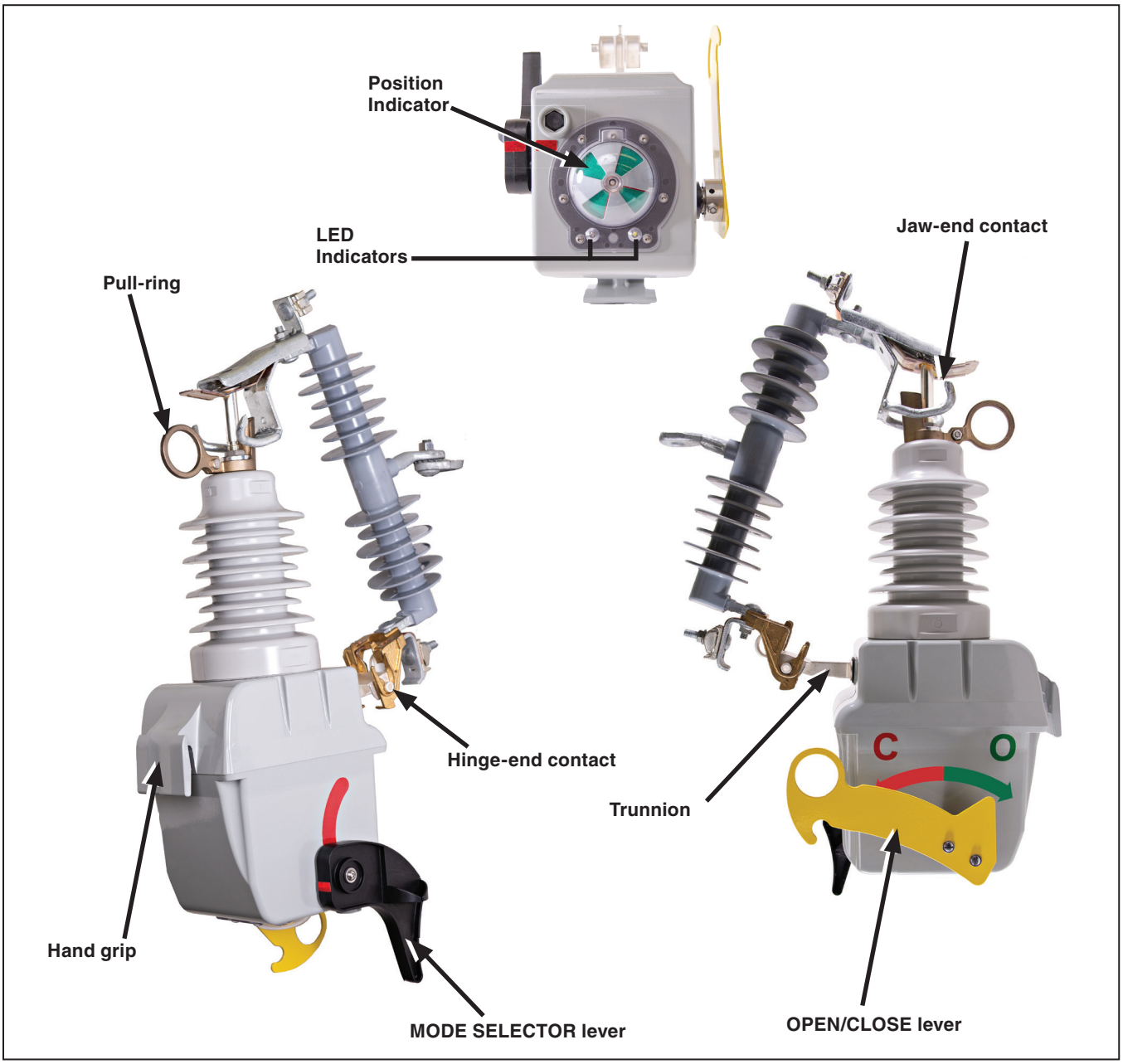


Figure 3. VacuFuse Self-Resetting Interrupter—Overview.

Installing a VacuFuse Self-Resetting Interrupter into the Cutout Mounting

⚠ WARNING

Provide training to line crews on the use of both a hotstick and an extendostick before installing or operating the VacuFuse Self-Resetting Interrupter. The VacuFuse interrupter is different from other cutout-mounted devices. Failure to properly handle a VacuFuse interrupter with a hotstick and/or an extendostick may lead to serious injury or death.

STEP 1. ***If using an existing S&C cutout mounting or other approved cutout mounting:*** Visually inspect the cutout mounting for damage or excessive wear, particularly in the upper **and** lower contact areas. If ANY damage is visible, replace the cutout mounting before proceeding. DO NOT install and/or energize a VacuFuse Self-Resetting Interrupter into a damaged cutout mounting.

If installing in a new S&C cutout mounting: For overhead pole-top style VacuFuse Self-Resetting Interrupters, attach the mounting to its mounting bracket, as illustrated in Figure 4. A mounting bracket, suitable for crossarm, pole, or wall mounting, is furnished only if specified through the addition of catalog number suffix "-B" or "-C" to the VacuFuse interrupter catalog number.

Note the placement of the external-tooth lockwasher between the mounting bracket and the center insert of the mounting. Pivot the mounting bracket to a position that will provide maximum ease of operation, and then securely tighten the carriage-bolt nut.

STEP 2. Make the electrical connections to the cutout mounting. If aluminum conductors are used, be sure to wire-brush them and apply a coating of oxidation inhibitor before inserting them into the connectors.

STEP 3. ***Installation Using Insulated Gloves***: With the OPEN/CLOSE lever in the **Open** position, insert the VacuFuse Self-Resetting Interrupter into a 125-kV BIL- or a 150-kV BIL-rated mounting with gloved hands, as shown in Figures 5 and 6. Guide the trunnion into the hinge of the cutout mounting, as shown in Figure 6.

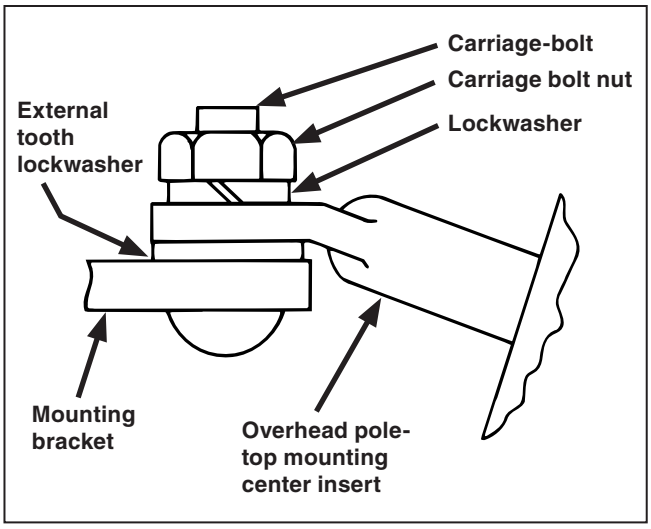


Figure 4. Attaching an overhead pole-top style VacuFuse interrupter cutout mounting to the mounting bracket.

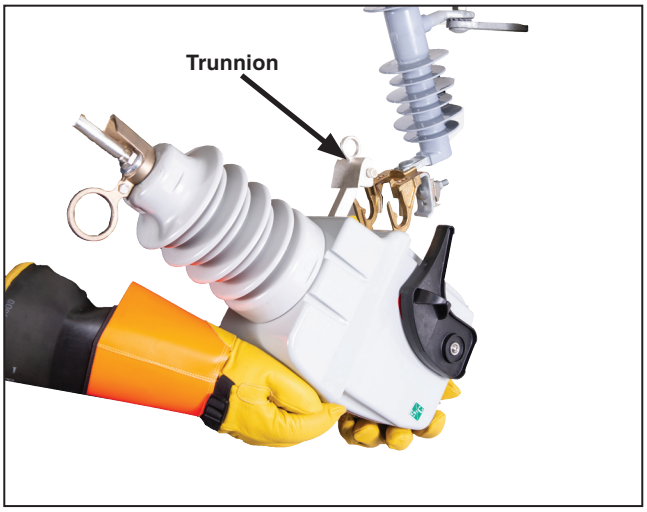


Figure 5. Bringing the trunnion close to the hinge of the cutout mounting.

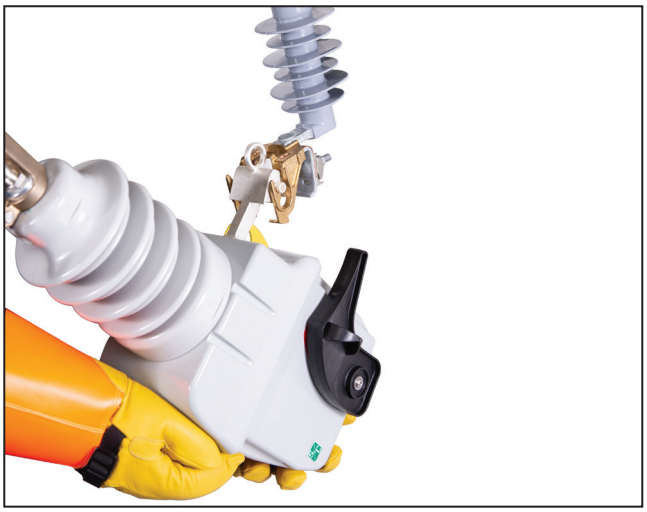


Figure 6. Guiding the trunnion into the hinge of the cutout mounting using gloved hands.

Closing the VacuFuse Interrupter into the Cutout Mounting

Special attention should be paid to how the VacuFuse Self-Resetting Interrupter behaves when being closed.

When the MODE SELECTOR lever is in the Auto (up) position: The behavior of the VacuFuse Self-Resetting Interrupter when being closed into the cutout mounting depends on the reason why the interrupter powered down. If the previous power-down reason was because the interrupter operated to the **Locked Open** position, either because of a trip-to-lockout or a manual open, then the VacuFuse Self-Resetting Interrupter will operate in **Non-Reclose** (NR) mode for the first 10 seconds. If a fault is not present on the line, after 10 seconds the VacuFuse Self-Resetting Interrupter will revert to **Auto** mode. If a fault is present in the first 10 seconds, the VacuFuse Self-Resetting Interrupter will trip and lock out.

If the previous power-down reason was not because of a **Locked Open** condition—for example, a power loss when the unit was in **Auto** mode—the device will operate in **Auto** mode. If a fault is present, the device will trip and enter its test sequence.

When closing with the MODE SELECTOR lever down: The VacuFuse Self-Resetting Interrupter will operate in **Non-Reclose** mode until the MODE SELECTOR lever is moved to the **Auto** (up) position. The active TCC will be the instantaneous curve.

To close a VacuFuse Self-Resetting Interrupter into its mounting:

STEP 1. Confirm the VacuFuse Self-Resetting Interrupter is in the **Open** position by viewing its **Position** indicator. See the "Understanding the LED Indicators and Position Indicator" section on page 14 for more information. Stand firmly in front of and in line with the cutout mounting. Do not operate standing directly underneath the VacuFuse Self-Resetting Interrupter. If using an extendostick, stand from 6 to 10 feet (183 to 305 cm) away from the pole.

STEP 2. Insert the straight prong of a Talon Handling Tool or a distribution prong into the pull-ring.

STEP 3. Swing the VacuFuse interrupter to within approximately 45 degrees of the fully **Closed** position, as shown in Figure 7.

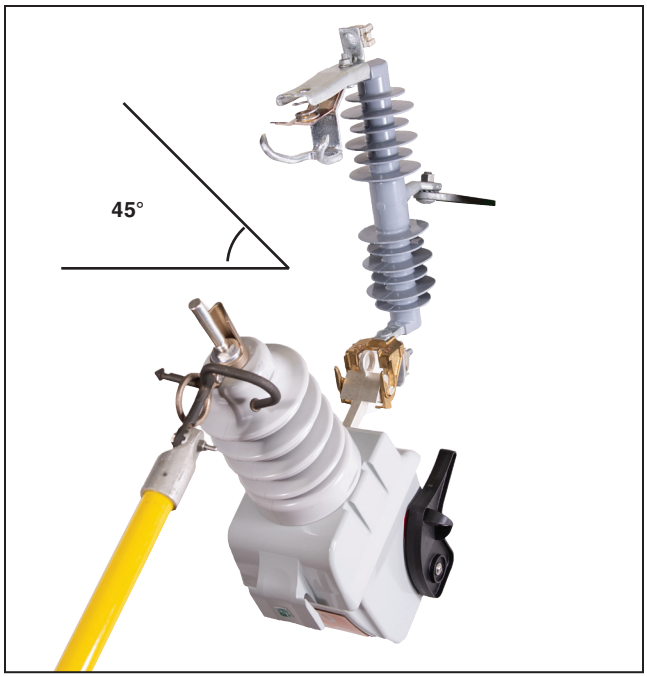


Figure 7. Swinging the VacuFuse interrupter to within approximately 45 degrees of the fully Closed position.

STEP 4. While firmly gripping the stick, drive the VacuFuse Self-Resetting Interrupter closed with forward force. Maintain the forward force until the VacuFuse interrupter properly closes and latches into the cutout mounting.

STEP 5. Disengage the prong from the pull-ring, taking care to avoid pulling the VacuFuse interrupter open.

STEP 6. Verify the MODE SELECTOR lever is in the proper position for the application, either in the **Auto** or **NR** mode. See Figure 8. See the "Setting the MODE SELECTOR Lever" section on page 16. Pull the OPEN/CLOSE lever down to close the VacuFuse interrupter and energize the transformer.

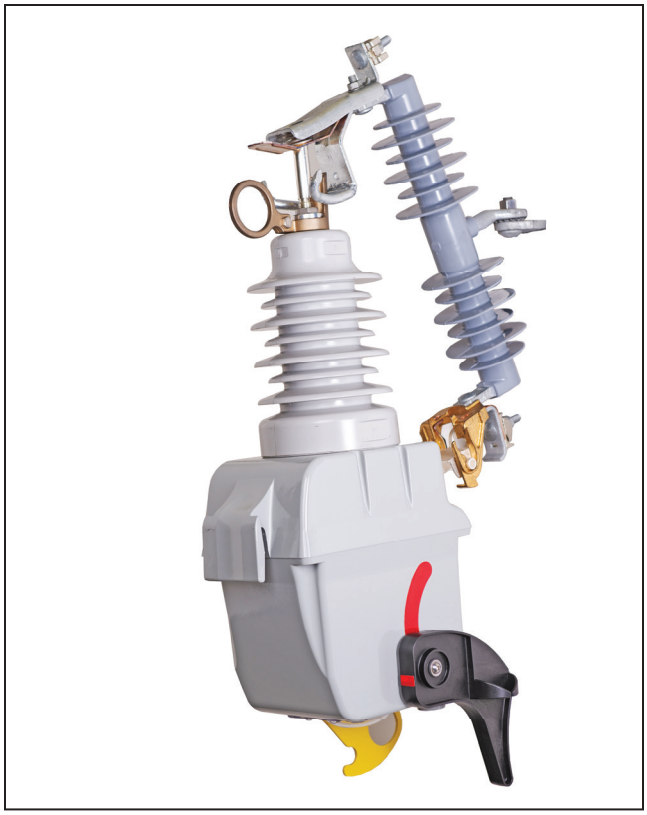


Figure 8. The MODE SELECTOR lever in the NR mode position.

If the VacuFuse Self-Resetting Interrupter is Found Open

⚠ WARNING

Do not close the VacuFuse Self-Resetting Interrupter found in the **Open** position using the OPEN/CLOSE lever until the cause of the fault current has been determined and repaired. The VacuFuse interrupter is designed to protect distribution transformers from internal and external fault current. Closing without repairing the fault could result in equipment damage, injury, or death.

After responding to an overcurrent event, in either the **Auto** or the **NR** mode, the VacuFuse interrupter's vacuum interrupter will open and the **Position** indicator will show a green target. Opening the vacuum interrupter disconnects the VacuFuse interrupter's sensing and display functions from line power, and all LEDs will be inoperative after one minute. See Figure 9.

Follow these steps if the VacuFuse Self-Resetting Interrupter has operated and is in the **Open** position:

STEP 1. Remove the VacuFuse Self-Resetting Interrupter from its mounting, if required by utility practice, following the steps in the "Removing the VacuFuse Interrupter from the Cutout Mounting" section starting on page 18.

STEP 2. Determine and resolve the cause of the fault.

STEP 3. After the cause of the fault has been determined and after any necessary repairs have been completed, install the VacuFuse Self-Resetting Interrupter to its mounting and close it into the mounting following the steps in the "Installation" section starting on page 9.

If Maintenance is to be Performed on the Transformer

Follow these steps if maintenance is to be performed on the transformer:

STEP 1. Open the vacuum interrupter inside the VacuFuse Self-Resetting Interrupter by pushing up on the OPEN/CLOSE lever firmly using the straight prong of the Talon tool or a distribution prong. See Figure 10.

Figure 9. A VacuFuse Self-Resetting Interrupter in the Open position.

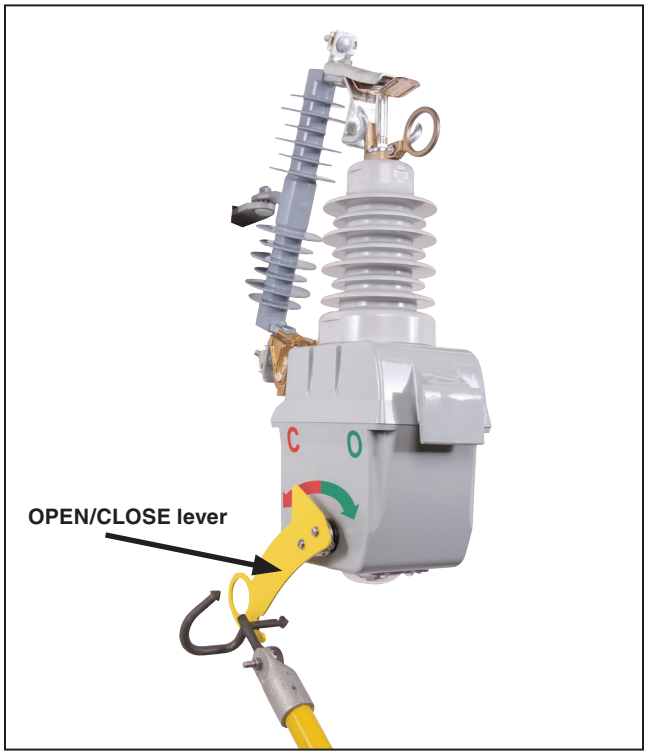


Figure 10. Opening the VacuFuse interrupter by pushing up on the OPEN/CLOSE lever.

STEP 2. Remove the VacuFuse Self-Resetting Interrupter from its mounting, if required, following the steps in the "Removing the VacuFuse Interrupter from the Cutout Mounting" section starting on page 18. This creates a visible "open gap" showing the transformer is isolated from the feeder. Depending on your utility's standard practices, additional grounds may be required.

STEP 3. Follow your utility's standard practice for performing transformer maintenance. After any necessary maintenance or repairs have been completed, install the VacuFuse Self-Resetting Interrupter to its mounting and close it into the mounting following the steps in the "Installation" section starting on page 9.

Understanding the LED Indicators and Position Indicator

LED Indicators

There are two LED indicators on the base of the VacuFuse interrupter. See Figures 11 and 12.

The HEALTH INDICATOR LED is white and indicates the "health" state of the VacuFuse interrupter. When the VacuFuse interrupter is powered, the LED will flash white at a 30-second interval to indicate a healthy condition. If the VacuFuse interrupter is in an unhealthy state, the white LED will "fast blink" at a one-second interval. If the LED is off, that indicates the MODE SELECTOR lever is down or the VacuFuse Self-Resetting Interrupter is no longer powered.

The NR (Non-Reclose) LED is amber and will flash at a 2-second interval when the VacuFuse interrupter is in **NR** mode. See the "Setting the MODE SELECTOR Lever" section on page 16 for more details about the modes. When the VacuFuse interrupter is in the **Auto** mode, the amber LED remains off.

NOTICE

At least 1.0 ampere of primary current must be flowing through the VacuFuse Self-Resetting Interrupter to power the control from its sleep state and illuminate the HEALTH INDICATOR and NR LEDs. When powered, the control will remain powered if the transformer primary current does not fall below 1.0 ampere. If less than 1.0 ampere of primary current is present, the VacuFuse Self-Resetting Interrupter will still respond properly to fault current.

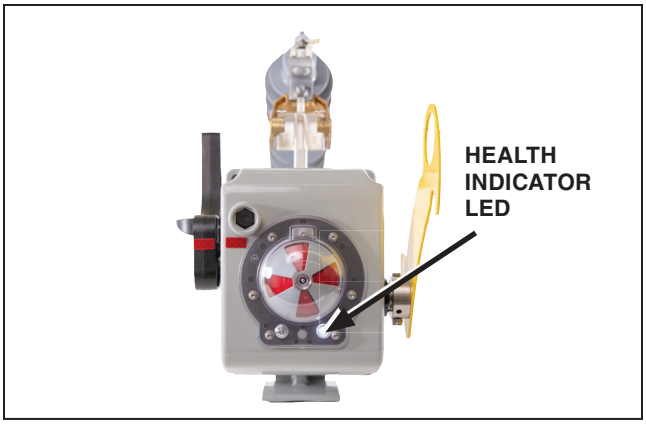


Figure 11. The HEALTH INDICATOR LED.

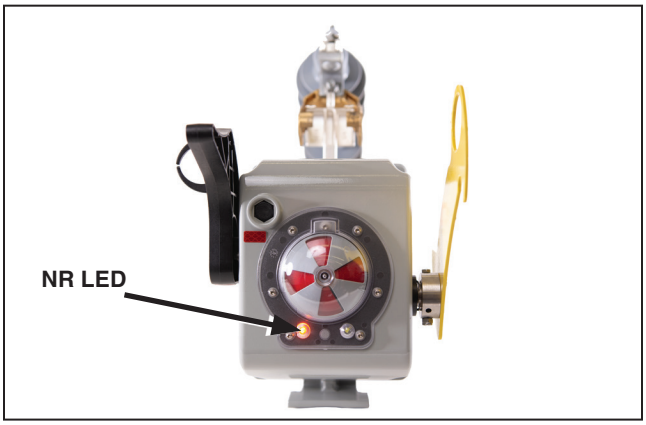


Figure 12. The NR (Non-Reclose) LED.

Position Indicator

The POSITION indicator is located on the base of the VacuFuse interrupter's housing. It is a highly reflective visible red or green target that indicates the mechanical position of the vacuum interrupter inside the VacuFuse Self-Resetting Interrupter. The target is green when the vacuum interrupter is in the **Open** position and red when the vacuum interrupter is in the **Closed** position. See Figures 13 and 14.

NOTICE

Catalog number option "-F1" reverses the colors of the POSITION indicator to red for the **Open** position and green for the **Closed** position. This option is only available to Canadian utilities requiring reversed colors on their system.

Do not refer to the position of the OPEN/CLOSE lever to know the position of the vacuum interrupter. If the transformer is manually closed into fault current, the VacuFuse interrupter will trip open in response, leaving the lever in the **Closed** position when the vacuum interrupter is in the **Open** position. Always observe the POSITION indicator to know the position of the VacuFuse interrupter's vacuum interrupter.

Opening and Closing the VacuFuse Interrupter

⚠ WARNING

Do not close the VacuFuse Self-Resetting Interrupter found in the **Open** position using the OPEN/CLOSE lever until the cause of the fault current has been determined and repaired. The VacuFuse interrupter is designed to protect distribution transformers from internal and external fault current. Manual closing without repairing the fault could result in equipment damage, injury, or death.

The vacuum interrupter inside the VacuFuse Self-Resetting Interrupter can be opened or closed using the yellow OPEN/CLOSE lever on the side of the VacuFuse interrupter.

The VacuFuse Self-Resetting Interrupter will not "drop out" of the cutout mounting when the vacuum interrupter is in the **Open** position. It will remain upright in the cutout mounting until manually removed.

To Open: Push the notched side of the yellow OPEN/CLOSE lever up firmly using the straight prong of the Talon tool or a distribution prong. The vacuum interrupter inside the VacuFuse interrupter will open, and the POSITION indicator will show the green target. See Figure 15.

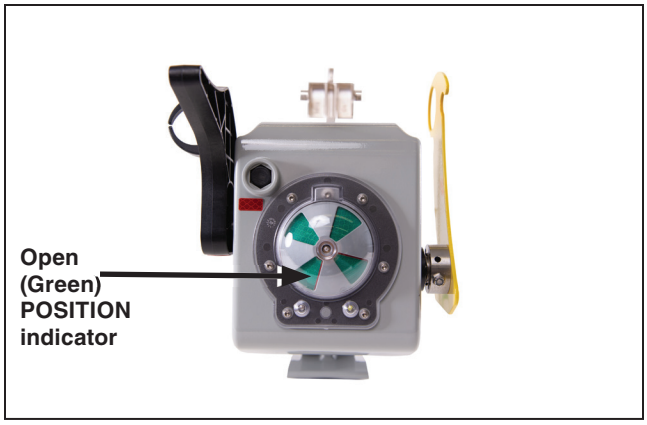


Figure 13. The VacuFuse interrupter with the POSITION indicator in the Open position.

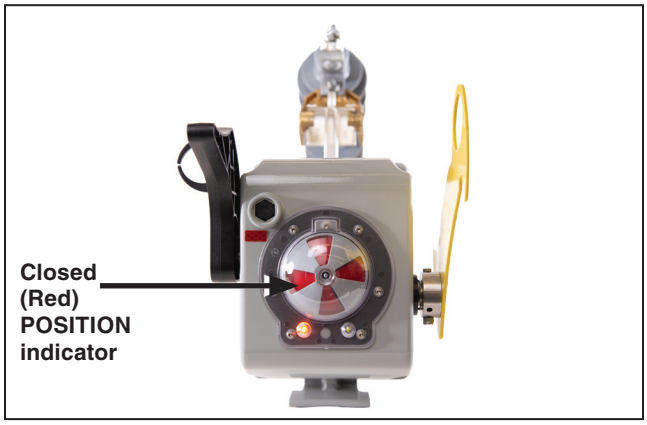


Figure 14. The VacuFuse interrupter with POSITION indicator in the Closed position.

Figure 15. Opening the VacuFuse interrupter by pushing up on the OPEN/CLOSE lever.

To Close: Pull the pull-ring of the yellow OPEN/CLOSE lever down firmly using the straight prong of the Talon tool or a distribution prong. The vacuum interrupter inside the VacuFuse interrupter will close, and the POSITION indicator will show the red target. See Figure 16. If the VacuFuse interrupter is inadvertently closed into a fault, the vacuum interrupter will trip open independently of any force still applied to OPEN/CLOSE lever.

To Reset the OPEN/CLOSE Lever After Manually Closing into Fault Current: If the transformer is manually closed into fault current, the VacuFuse interrupter will trip open in response, leaving the lever in the **Closed** position when the vacuum interrupter is in the **Open** position. The lever can be "reset" by operating it into the **Open** position while the vacuum interrupter is in the **Open** position.

Setting the MODE SELECTOR Lever

Before leaving the VacuFuse Self-Resetting Interrupter, verify the MODE SELECTOR lever is in the desired position. The MODE SELECTOR lever has two positions. Figure 17 shows the MODE SELECTOR lever up in the **Auto** mode position. Figure 18 on page 17 shows the MODE SELECTOR lever down in the **NR** (non-reclose) mode position.

Auto Mode—In the **Auto** mode, the VacuFuse interrupter will respond to fault current according to its preset TCC curve. The VacuFuse interrupter will perform one reclosing operation (two trip operations total) to lockout. The open interval between trip operations is user-specified and factory set between 0.5 and 5 seconds.

The protection sequence reset time is a user-specified and factory-set interval between 30 seconds and 15 minutes. If a fault persists to the end of the protection sequence, the vacuum interrupter inside the VacuFuse interrupter will remain in the **Open/Lockout** state until manually closed. The VacuFuse Self-Resetting Interrupter will NOT drop out of the mounting and will remain upright in the cutout mounting.

The VacuFuse Self-Resetting Interrupter is in the **Auto** mode when the curved label on the side of the VacuFuse interrupter's housing is fully covered and the label on the bottom of the lever aligns with the label on the bottom of the VacuFuse interrupter's housing. See Figure 17 and Figure 11 on page 14.

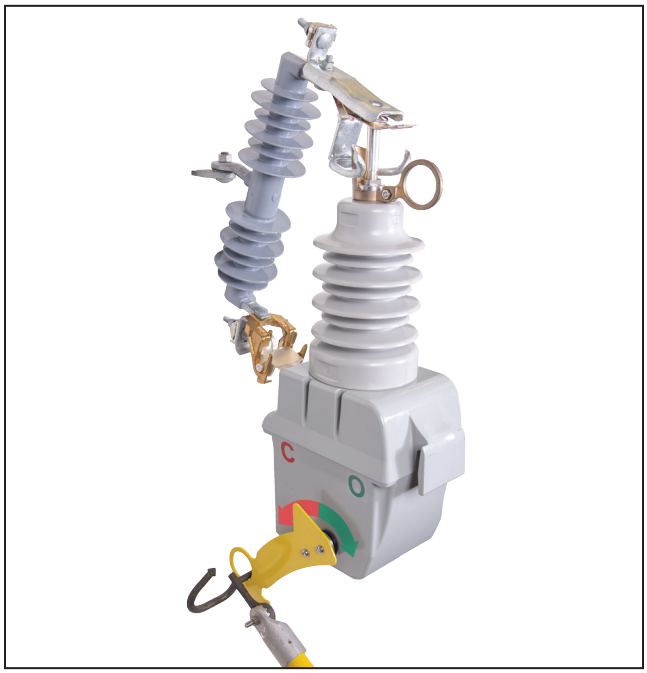


Figure 16. Closing the VacuFuse interrupter by pulling down on the OPEN/CLOSE lever.

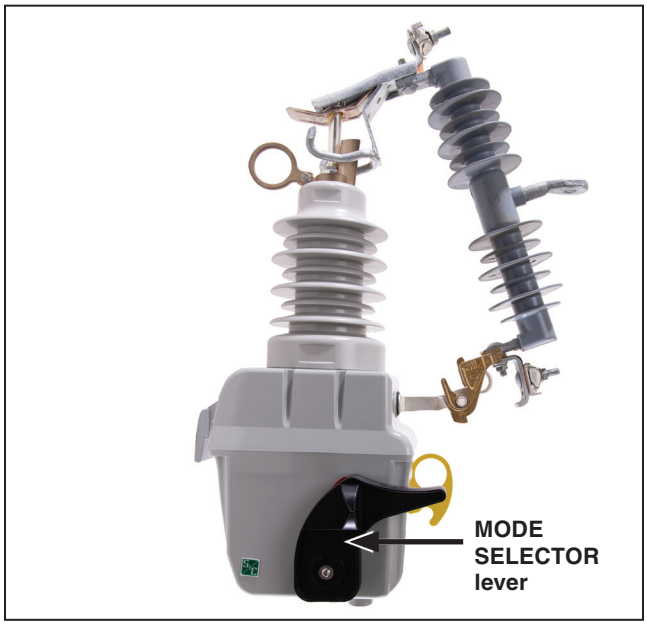


Figure 17. The MODE SELECTOR lever in the Auto mode position.

NR (non-reclose) Mode—In the **NR** mode, the VacuFuse Self-Resetting Interrupter will operate using the "instantaneous" curve. The VacuFuse interrupter will lock out and not attempt to reclose if a fault occurs while **NR** mode is selected. The VacuFuse Self-Resetting Interrupter is in the **NR** mode when the curved line is visible on the side of the VacuFuse interrupter's housing. The NR LED on the base of the VacuFuse interrupter will blink at a 2-second interval. See the "Understanding the LED Indicators and Position Indicator" section on page 14. See Figure 18.

To place the MODE SELECTOR lever in the **NR** mode:

Rotate the MODE SELECTOR lever downward using the straight prong of a Talon Handling Tool or a distribution prong. See Figure 19. The lever will lock into the vertical position.

To place the MODE SELECTOR lever in the **Auto** mode: Rotate the MODE SELECTOR lever to the **Up** position using the straight prong of a Talon Handling Tool or a distribution prong. See Figure 20 on page 18. The lever must completely cover the curved label on the housing of the VacuFuse Self-Resetting Interrupter.

NOTICE

The MODE SELECTOR lever pictured in Figures 17 through 20 is shown with a tag clip. This tag clip can be used to apply a tag to the equipment. A tag can also be applied to the OPEN/CLOSE lever and to the VacuFuse interrupter's pull-ring when the VacuFuse interrupter is in the "dropout" position. **Tagging in any of these places does not mechanically lockout the equipment.**

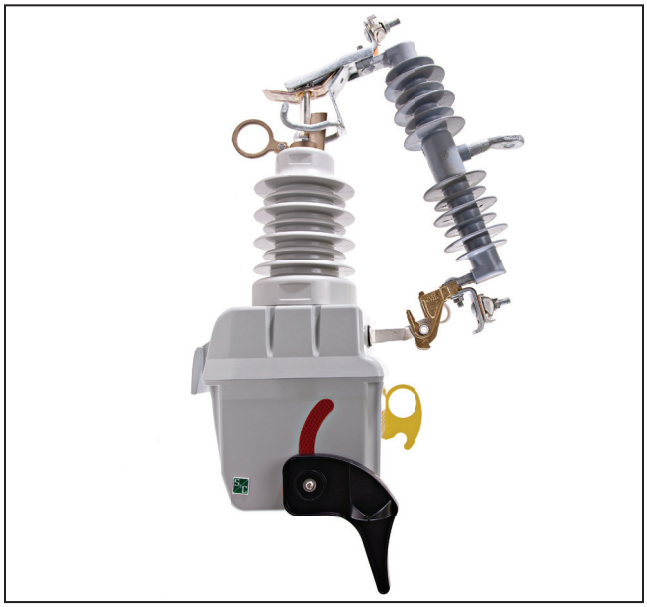


Figure 18. The MODE SELECTOR lever in the NR (non-reclose) mode position.

Figure 19. Rotating the MODE SELECTOR lever downward to the NR mode position.

Removing the VacuFuse Interrupter from the Cutout Mounting

⚠ WARNING

DO NOT attempt to remove a VacuFuse Self-Resetting Interrupter from its cutout mounting with the vacuum interrupter in the **Closed** position. The vacuum interrupter is in the **Closed** position when the POSITION indicator at the base of the VacuFuse interrupter displays a red target. Removing the VacuFuse interrupter from its cutout mounting with the vacuum interrupter in the **Closed** position may cause arcing, equipment damage, serious injury, or death.

To remove the VacuFuse interrupter from its cutout mounting:

STEP 1. Open the vacuum interrupter inside the VacuFuse interrupter by pushing up on the notch of the yellow OPEN/CLOSE lever. Confirm the POSITION indicator at the base of the VacuFuse interrupter displays a green target.

STEP 2. Attach a Talon Handling Tool or a distribution prong to a short hotstick. Using the straight prong of the Talon tool or a distribution prong, pull the pull-ring forward until the VacuFuse interrupter disengages from the closed-into-cutout position. A swift, firm pull will be required.

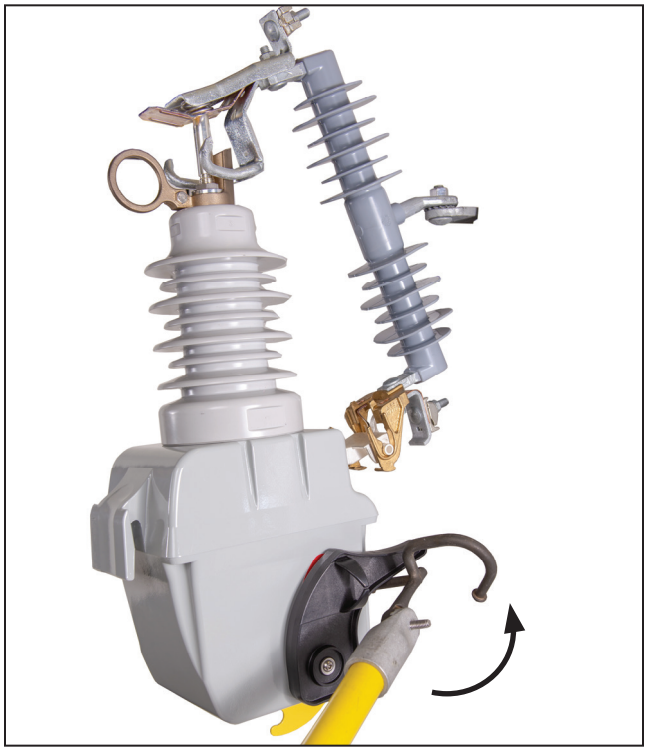


Figure 20. Rotating the MODE SELECTOR lever upward to the Auto mode position.

STEP 3. ***Removal Using Insulated Gloves:*** Remove the VacuFuse Self-Resetting Interrupter from a 125-kV BIL-rated or a 150-kV BIL-rated cutout mounting with gloved hands as shown in Figures 21 and 22.

Figure 21. Lifting the trunnion out of the hinge of the cutout mounting using gloved hands.

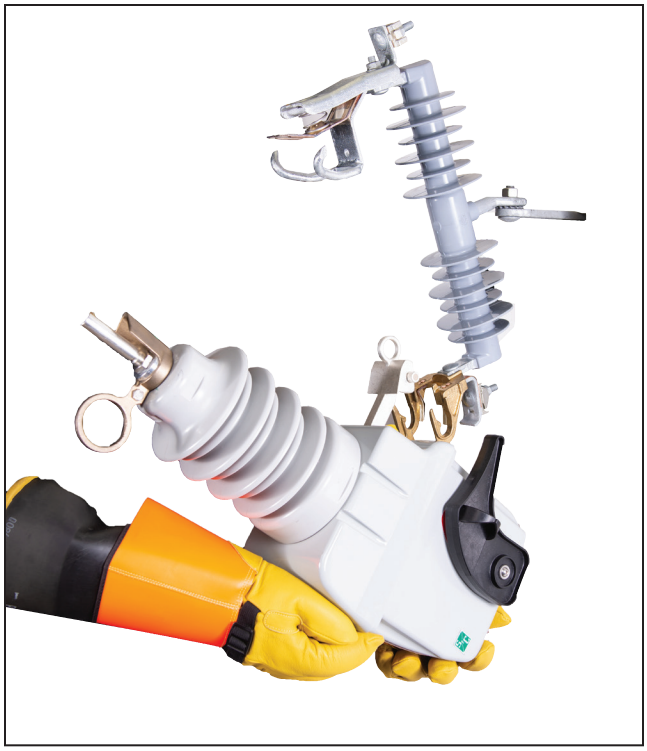


Figure 22. Removing the VacuFuse interrupter.

Table 1. Troubleshooting

Condition	Description	Action
The vacuum interrupter is in the **Closed** (red target) position and the white LED is fast-blinking at one-second intervals.	The VacuFuse interrupter is in **Abnormal** mode and may no longer be capable of interrupting fault current.	Open the VacuFuse interrupter using the OPEN/CLOSE lever. If the VacuFuse interrupter will not open, bypass or de-energize the VacuFuse interrupter and remove it from its cutout mounting or open and de-energize it using Loadbuster®—The S&C Loadbreak Tool. Return the VacuFuse interrupter to S&C Electric Company for service.
The vacuum interrupter cannot be closed using the VacuFuse interrupter's OPEN/CLOSE lever.	The VacuFuse interrupter is in **Abnormal** mode.	Remove the VacuFuse interrupter from its cutout mounting and return it to S&C Electric Company for service.

Removing the VacuFuse Interrupter from the Cutout Mounting Using Loadbuster®–The S&C Loadbreak Tool

If the VacuFuse Self-Resetting Interrupter is in its cutout mounting with the vacuum interrupter in the **Closed** position and operating the OPEN/CLOSE lever to the **Open** position does not work, or the VacuFuse interrupter is to be removed from its cutout mounting in the **Closed** position for any other reason, it may be safely removed using a Loadbuster tool.

Following opening operation with the Loadbuster tool, the VacuFuse interrupter can be lifted out of the mounting with gloved hands.

⚠ WARNING

DO NOT attempt to open a VacuFuse Self-Resetting Interrupter in the **Closed** position without using a loadbreak tool such as a Loadbuster tool. An arc started by opening a VacuFuse Self-Resetting Interrupter under load without a loadbreak tool can cause equipment damage, serious injury, or death.

⚠ WARNING

DO NOT attempt to use a Loadbuster tool to open a VacuFuse Self-Resetting Interrupter while climbing the pole. Engagement of a Loadbuster tool in this position is difficult and may result in improper opening operation, leading to arcing, faults, equipment damage, serious injury, or death.

⚠ WARNING

Stay at least 5 feet (152 cm) below the VacuFuse interrupter when operating the Loadbuster tool from a bucket truck. Operating the Loadbuster tool from less than 5 feet away is difficult and may result in an improper opening operation, leading to arcing, faults, equipment damage, serious injury, or death.

Follow these steps when using a Loadbuster tool:

STEP 1. Check for proper resetting of the Loadbuster tool by extending the tool about 3 inches (76 mm) by hand. Throughout this travel, an increasing spring resistance should be felt.

STEP 2. Fasten the Loadbuster tool to an S&C Universal Pole not less than 6 feet (183 cm) long [8 feet (244 cm) for catalog number 5400R3] with the frame of the tool in line with the pole. As shown in Figures 23 and 24, the Loadbuster tool must

Figure 23. A correct fastening approach.

Figure 24. A correct fastening approach.

be attached so it reaches across the front of the VacuFuse Self-Resetting Interrupter and the Loadbuster tool's anchor must be hooked to the attachment hook on the far side of the VacuFuse interrupter.

The Loadbuster tool should never be attached with its anchor hooked on the closest side of the VacuFuse interrupter, as shown in Figures 25 and 26. Attaching the tool in this manner will not only obscure the operator's line of vision, but it could also result in bending stress on the tool, causing improper disengagement.

Figure 25. An incorrect fastening approach.

Figure 26. An incorrect fastening approach.

STEP 3. Swing the Loadbuster tool toward the VacuFuse Self-Resetting Interrupter and pass the Loadbuster pull-ring hook through the pull-ring on the VacuFuse Self-Resetting Interrupter. The pull-ring latch will deflect and, upon complete entry of the pull-ring, will spring back, locking the Loadbuster tool to the pull-ring. The Loadbuster tool is now connected across the upper contacts of the VacuFuse Self-Resetting Interrupter, as shown in Figures 23 and 24 on page 21.

STEP 4. To open the circuit, operate the Loadbuster tool with a firm, steady pull until it is extended to its maximum length. A downward pull to open the VacuFuse Self-Resetting Interrupter extends the Loadbuster tool and charges the tool's internal spring.

At a predetermined point in the opening stroke, a trigger inside the tool will trip, releasing the charged spring, separating the internal contacts and interrupting the circuit. See Figure 27. Successful operation is independent of the speed with which the VacuFuse Self-Resetting Interrupter is opened. Avoid jerking and hesitation. The resetting latch will keep it open. Generally, there is no indication of circuit interruption, the only sound is that of the Loadbuster tool tripping.

⚠ WARNING

Use care when operating the Loadbuster tool. Careless manipulation of the Loadbuster tool can decrease the open gap to the point where a flashover will occur. This can result in arcing, electrical shock, serious injury, or death.

STEP 5. To detach the Loadbuster tool after circuit interruption, first raise it slightly and disengage the anchor from the attachment hook.

STEP 6. Bring the VacuFuse Self-Resetting Interrupter toward the dropout position. Then, remove the Loadbuster tool from the pull-ring by rotating the pole. This will deflect the pull-ring latch to release the pull-ring.

Because the VacuFuse Self-Resetting Interrupter will drop fully open from gravity, it may be preferable to remove the Loadbuster tool by "rolling" it off both the attachment hook and pull-ring at the same time by twisting the pole after the Loadbuster tool has been tripped and fully extended.

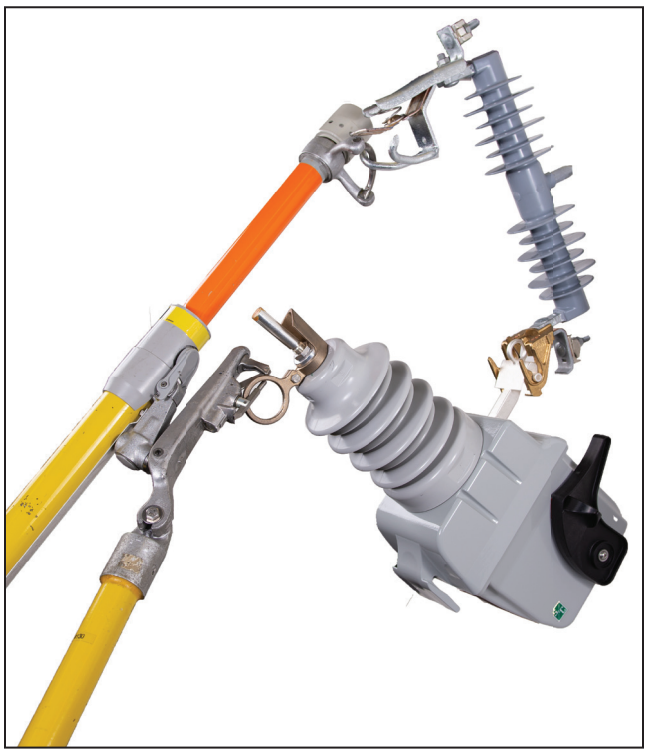


Figure 27. The Loadbuster tool attached to a VacuFuse Self-Resetting Interrupter.

To perform this operation smoothly, always roll the Loadbuster tool so that it rotates in an upward direction.

STEP 7. To reset the Loadbuster tool for the next operation, hold it as shown in Figure 28. Extend the tool slightly and lift the resetting latch with your thumb. With the latch up, telescope the tool completely so the trigger can reset itself. Depress the telescoping tube until the orange paint on the inner tube assembly is no longer visible.

Check for proper resetting by extending the tool about 3 inches (76 mm). Throughout this travel, an increasing spring resistance should be felt.

Note: When the VacuFuse Self-Resetting Interrupter is opened with a Loadbuster tool, the vacuum interrupter inside the VacuFuse interrupter will not be triggered open and will remain closed.

Figure 28. Resetting a Loadbuster tool.