Installation and Operation

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August 26, 2024

Qualified Persons

⚠ WARNING

Only qualified persons knowledgeable in the installation, operation, and maintenance of overhead and underground electric distribution equipment, along with all associated hazards, may install, operate, and maintain the equipment covered by this publication. A qualified person is someone 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, insulated 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 and all materials included in the product's instruction handbook before installing or operating a Type XS Fuse Cutout. Become familiar with the Safety Information on pages 4 through 5 and Safety Precautions on page 6. The latest version of this publication is available online in PDF format at **sandc.com/en/contact-us/product-literature/**.

Retain this Instruction Sheet

This instruction sheet is a permanent part of the Type XS Fuse Cutout. Designate a location where users can easily retrieve and refer to this publication.

Proper Application

⚠ WARNING

The equipment in this publication is only intended for a specific application. The application must be within the ratings furnished for the equipment. Ratings for the Type XS Fuse Cutouts are listed in the ratings table in S&C Specification Bulletin 351-31. The ratings are also on the nameplate affixed to the product.

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 PROVIDE 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).

Warranty Qualifications

The standard warranty contained in the seller's standard conditions of sale (as set forth in Price Sheet 153) does not apply to outdoor distribution Type XS Fuse Cutouts when installed in conjunction with fuse tubes or disconnect blades not manufactured by S&C, nor does it apply to S&C fuse tubes and disconnect blades installed in cutouts not manufactured by S&C.●

● Present-production design fuse tubes and disconnect blades (identifiable by the catalog number supplement "-R10" or "-R11") can be installed in conjunction with earlier-design Type XS Fuse Cutouts. Also, superseded design fuse tubes and disconnect blades (identifiable by a catalog number supplement "-R9" or lower) may be installed in conjunction with current-production Type XS Fuse Cutouts. In either case, the ratings of the complete cutout shall be that of the fuse tube or disconnect blade.

Understanding Safety-Alert Messages

Several types of safety-alert messages may appear throughout this instruction sheet and on labels and tags attached to Type XS Fuse Cutout. Become familiar with these types of messages and the importance of these various 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 any portion of this instruction sheet is unclear and assistance is needed, contact the 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

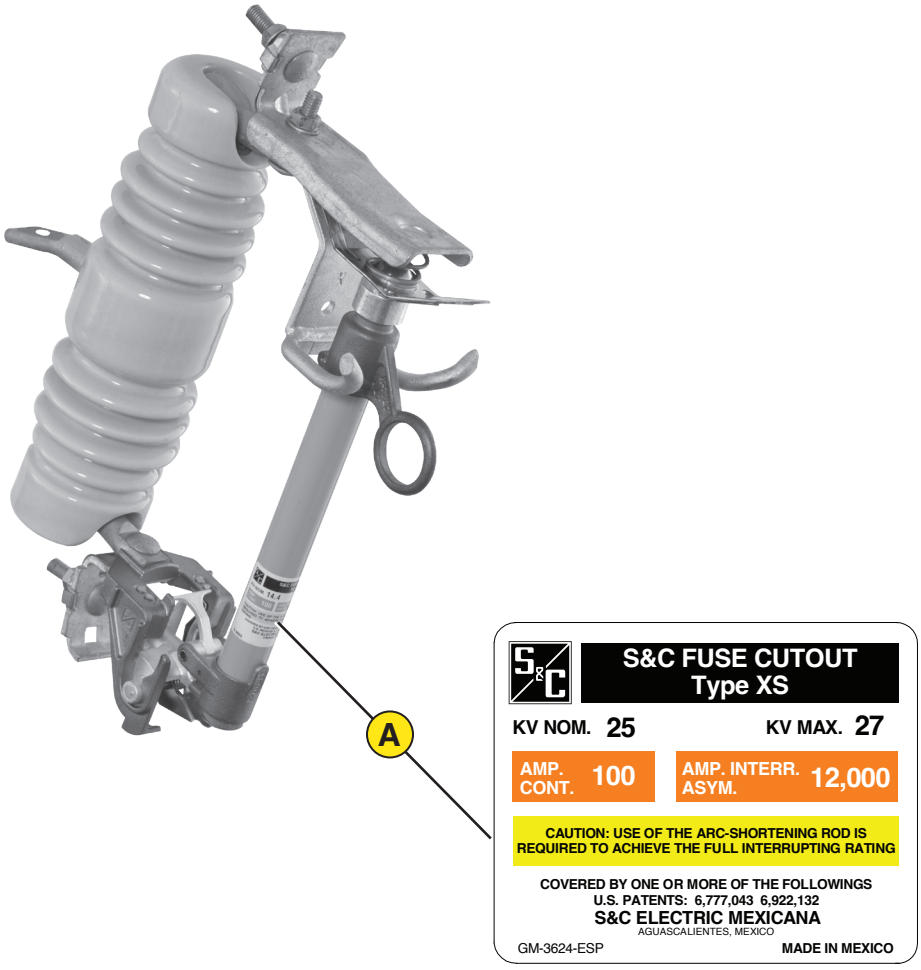
Read this instruction sheet thoroughly and carefully before installing a Type XS Fuse Cutout.

Replacement Instructions and Labels

If additional copies of this instruction sheet are required, contact the nearest S&C Sales Office, S&C Authorized Distributor, S&C Headquarters, or S&C Electric Canada Ltd.

It is important that any missing, damaged, or faded labels on the equipment be replaced immediately. Replacement labels are available by contacting the 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	⚠ CAUTION	Use of the arc-shortening rod is required to achieve...	GM-3634

⚠ DANGER

Type XS Fuse Cutouts operate 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 Type XS Fuse Cutouts 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.
7. **OPERATING TOOLS.** To close a Type XS Fuse Cutout, use a conventional insulated hookstick or S&C Universal Pole and Pole Extension fitted with an S&C Talon™ Handling Tool fitting or a distribution prong. To open the Type XS Fuse Cutout, use a Loadbuster®—The S&C Loadbreak Tool, attached to a conventional insulated hookstick or S&C Universal Pole.
8. **MAINTAINING PROPER CLEARANCE.** Always maintain proper clearance from energized components.
9. **OPERATION.** Do not attempt to open a Type XS Fuse Cutout to interrupt load current without the use of a loadbreak tool, such as the Loadbuster tool. Type XS Fuse Cutouts are designed to protect equipment and to disconnect faulted equipment from the system. Type XS Fuse Cutouts cannot protect personnel from injury or electrocution if contact is made with energized circuits or hardware.

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 all shipping pallets and/or cartons are present.

If there is visible loss and/or damage:

STEP 1. Notify the delivering carrier immediately.

STEP 2. Ask for a carrier inspection.

STEP 3. Note condition of shipment on all copies of the delivery receipt.

STEP 4. File a claim with the carrier.

If concealed damage is discovered:

STEP 1. Notify the delivering carrier within 15 days of receipt of shipment.

STEP 2. Ask for a carrier inspection.

STEP 3. File a claim with the carrier.

Also, notify S&C Electric Company in all instance of loss and/or damage.

Mounting the Fuse Cutout

⚠ WARNING

To prevent damage during transport and handling, keep the Type XS Fuse Cutout in its carton until it is ready to be installed. **Failure to do so can result in improper operation, arcing, or electric shock.**

Complete the following steps to mount the fuse cutout:

STEP 1. Attach the fuse cutout to a suitable mounting bracket, as illustrated in Figure 1. Tighten the carriage bolt nut until snug but loose enough to permit pivot adjustment. Note the placement of the external-tooth lockwasher between the mounting bracket and the center insert of the mounting.

NOTE: A mounting bracket, suitable for cross-arm, pole, or wall mounting, is furnished only if specified on the order by adding suffix "-B" or "-C" to the catalog number of the fuse cutout. See S&C Specification Bulletin 351-31 for more information.

STEP 2. Pivot the fuse cutout to a position that will provide maximum ease of operation and then securely tighten the carriage bolt nut.

STEP 3. Make electrical connections. Be sure to wire-brush any aluminum conductors and apply a coating of oxidation inhibitor before inserting the conductors in the fuse cutout connectors. Tighten the connector hardware to 20 ft/lbs (27.1 Nm).

The hinge-end parallel-groove connector can be installed with the conductor in the horizontal position (standard), as shown in Figure 2. It can also be rotated 90° for the conductor to be in the vertical position, as shown in Figure 3.

Note: See Table 2 on page 4 of S&C Specification Bulletin 351-31 for information on connectors.

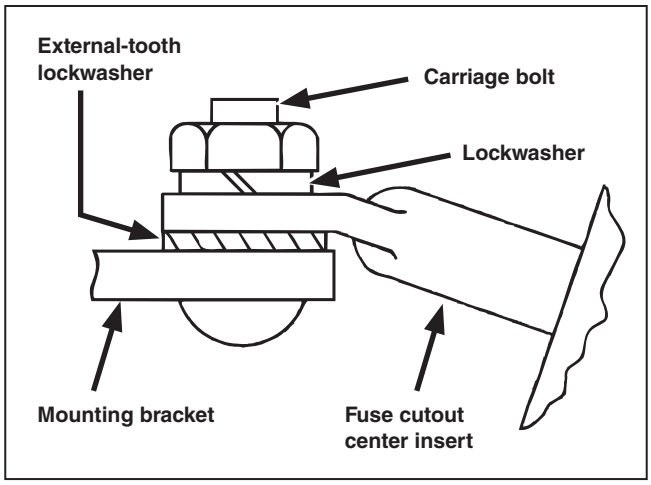


Figure 1. Detail of the fuse cutout attachment to the mounting bracket.

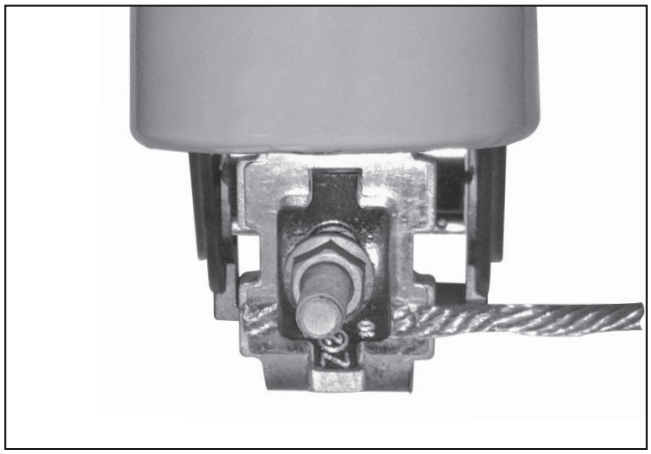


Figure 2. Conductor in the horizontal position.

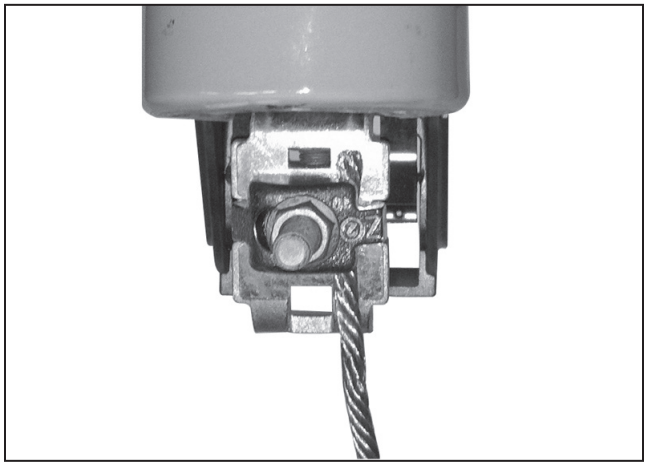


Figure 3. Conductor in the vertical position.

Installing the Fuse Link (Fuse Cutouts With an Arc-Shortening Rod)

Note: Fuse cutouts having an arc-shortening rod require the use of removable buttonhead fuse links.

Complete the following steps to install a fuse link when the fuse cutout has an arc-shortening rod:

STEP 1. Remove and discard the contact button (and washer, for fuse links so equipped) and then carefully straighten the cable.

STEP 2. Unscrew the cap on the upper ferrule of the fuse-tube assembly and retract the arc-shortening rod (attached to the cap).

STEP 3.

⚠ WARNING

Do not use a standard cap in place of a cap with an arc-shortening rod. Use of the arc-shortening rod is required to achieve the full interrupting rating. **Failure to use a cap with an arc-shortening rod for fuse cutouts that require arc-shortening rods may result in improper operation, arcing, or electric shock.**

Screw the arc-shortening rod onto the fuse link and hand-tighten. Then, slide this assembly, cable first, into the top of the fuse tube and retrieve the cable at the lower end.

STEP 4. Make electrical connections. Be sure to wire-brush any aluminum conductors and apply a coating of oxidation inhibitor before inserting the conductors in the fuse cutout connectors. Tighten the connector hardware to 20 ft/lbs (27.1 Nm).

The hinge-end parallel-groove connector can be installed with the conductor in the horizontal position (standard), as shown in Figure 2 on page 8. It can also be rotated 90° for the conductor to be in the vertical position, as shown in Figure 3 on page 8.

Note: See Table 2 on page 4 of S&C Specification Bulletin 351-31 for information on connectors.

Installing the Fuse Link (Fuse Cutouts Without an Arc-Shortening Rod)

Complete the following steps to install a fuse link when the fuse cutout doesn't have an arc-shortening rod:

STEP 1. Hand-tighten the **Contact** button on the fuse link and carefully straighten the cable.

STEP 2. Remove the cap from the upper ferrule of the fuse-tube assembly. Slide the fuse link, cable end first, into the top of the fuse-tube assembly and retrieve it at the lower end.

STEP 3. Replace the fuse-tube cap on the fuse-tube upper ferrule and tighten the cap securely using a wrench. Loosen the cable clamping nut on the trunnion. See Figure 4.

STEP 4. Rotate the flipper fully about its pivot until it reaches its stop (firm resistance is felt). See Figure 4.

Hold the flipper in this position, and feed the cable through the flipper channel and around the threaded stud in a clockwise direction, as shown in Figure 5.

Maintain tension on the fuse-link cable and firmly tighten the cable clamping nut, using a wrench. Do not overtighten the cable clamping nut.

STEP 5. Clip excess cable to within ½ inch (13 mm) of the nut.

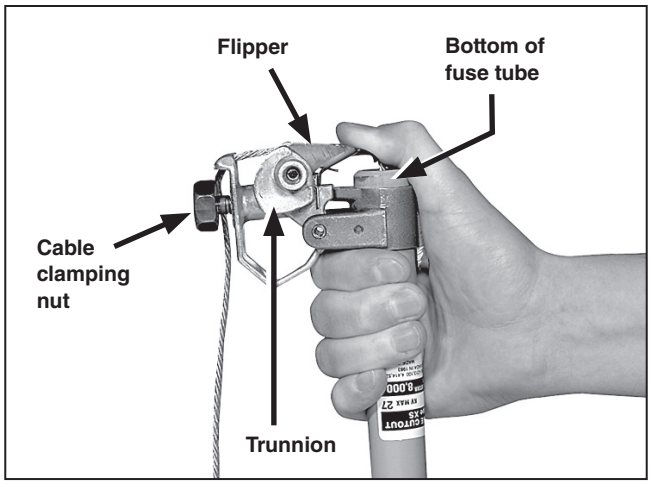


Figure 4. The flipper fully pivoted.

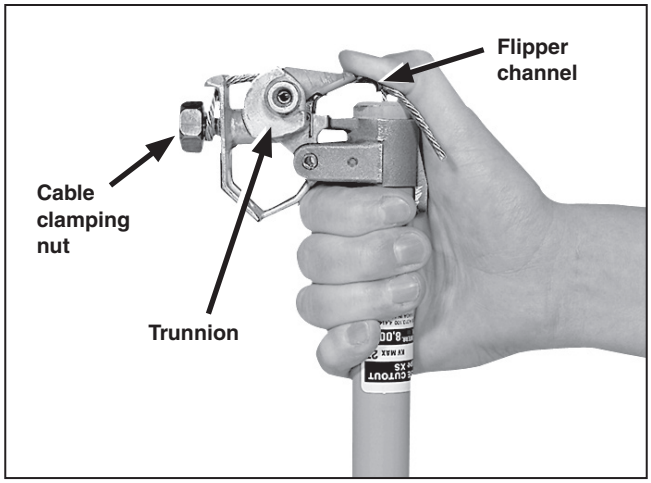


Figure 5. Cable under tension around the nut.

Installing and Closing the Fuse Tube

⚠ WARNING

Hot gases and fuse-link particles can be expelled at high velocity during fault interruption. When closing a fuse cutout, all personnel should be positioned well clear of its exhaust. **Failure to keep clear of the exhaust path of the fuse can cause serious injury.**

⚠ WARNING

Type XS Fuse Cutouts are designed to protect equipment. A fuse cutout cannot protect personnel from injury or electrocution if contact is made with energized circuits or hardware. Always use suitable protective equipment in accordance with your company's operating procedures and rules when working with energized equipment. **Failure to do so can result in serious personal injury or death.**

Complete the following steps to install and close a fuse tube:

STEP 1. After installing the fuse link as described in the previous sections, insert the prong of a hookstick into the opening under the trunnion casting band. Or, as an alternate, insert the prong in the keyhole opening in the trunnion casting band.

STEP 2. Guide the fuse tube into the fuse cutout hinge, as shown in Figure 6, and disengage the hookstick.

STEP 3. Close the fuse into the cutout mounting:

(a) Stand firmly in front of and in line with the cutout mounting. Do not operate directly underneath the cutout mounting. With a hookstick fitted with a Talon tool or distribution prong, insert the prong of the hookstick into the fuse's pull-ring. If an extendostick is being used, stand between 12 to 15 feet (3.7 to 4.6 m) away from the pole.

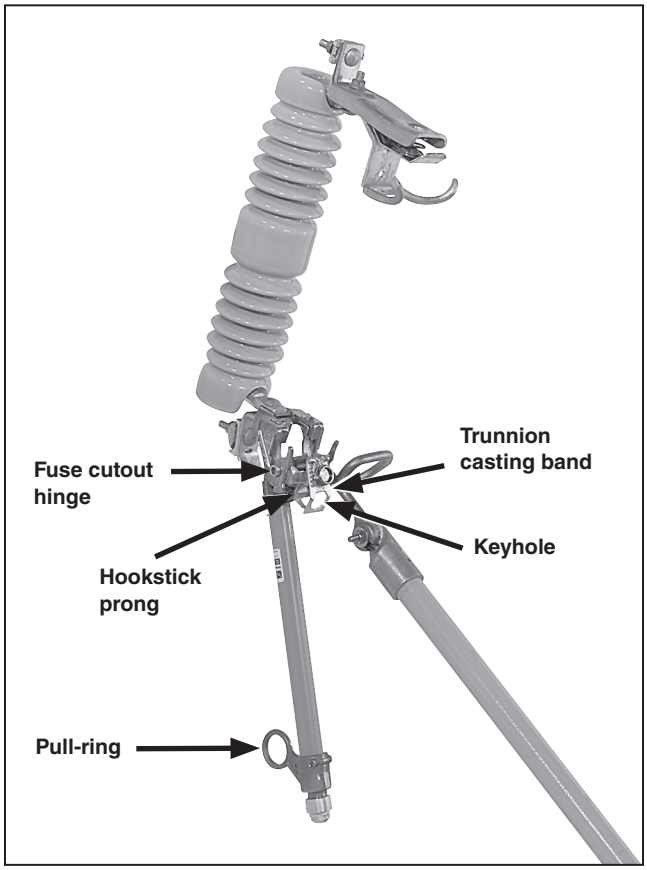


Figure 6. Installing the fuse tube.

(b) While firmly gripping the hookstick, swing the fuse unit to within approximately 45° of the fully **Closed** position. Then, while looking away, fully close the fuse while using a vigorous forward thrust.

(c) Disengage the hookstick from the pull-ring, taking care to avoid opening the fuse.

Opening the Fuse Tube

⚠ WARNING

Do not attempt to open Type XS Fuse Cutouts to interrupt load current without the use of a loadbreak tool, such as Loadbuster—The S&C Loadbreak Tool. **Doing so can cause arcing, fire, equipment damage, serious injury, or death.**

The Loadbuster tool is ideally suited for use in opening the fuse tube of Type XS Fuse Cutouts (or other fuse cutouts and disconnects designed for use with a Loadbuster tool). The Loadbuster tool is S&C's unique method of providing low-cost, positive, and convenient live-switching capability for such devices. Instructions for use of the Loadbuster tool with Type XS Fuse Cutouts are shown in the "Operating With Loadbuster®—The S&C Loadbreak Tool" section on page 13.

Following an opening operation using a Loadbuster tool, the fuse tube can be lifted out of the fuse cutout hinge using a universal pole equipped with a suitable fuse-handling fitting, such as a Talon Handling Tool or a distribution prong. See Figure 6 on page 11.

⚠ WARNING

A fuse tube should not be left in the **Open** position for an extended period of time because water may damage the fuse tube. **Energizing damaged units may cause personal injury, fire, or equipment or property damage.**

Operating with Loadbuster®— The S&C Loadbreak Tool

Complete the following steps to operate 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. Reach the Loadbuster tool across in front of the fuse cutout and hook the anchor, located at the top of the Loadbuster tool, over the attachment hook on the far side of the fuse cutout. See Figure 7.

STEP 3. Swing the Loadbuster tool toward the fuse tube and pass the Loadbuster tool's pull-ring hook through the pull-ring on the fuse tube. 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 fuse cutout.

STEP 4. To open the circuit, operate the Loadbuster tool with a firm, steady pull until it is extended to its maximum length. See Figure 8. Avoid jerking and hesitation. The resetting latch will keep it open. Generally, there will be no indication of circuit interruption, but commutation arcing may be noted at the pull-ring hook and at the anchor, particularly when interrupting load currents approaching the rating of the tool. The only sound will be that of the Loadbuster tool tripping.

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

⚠ WARNING

Improper handling of the Loadbuster tool can decrease the open gap to the point where flashover will occur. **This can result in arcing, fire, serious injury, or death.**

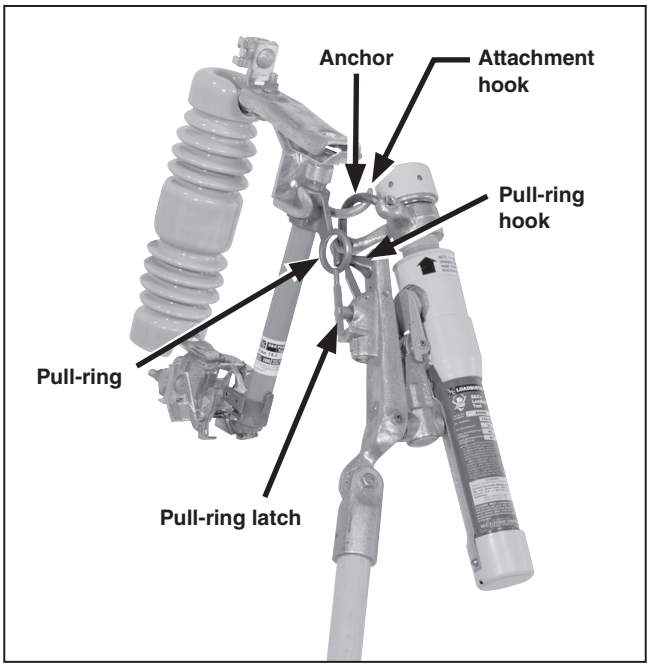


Figure 7. A Loadbuster tool connected to a Type XS Fuse Cutout, outdoor distribution.

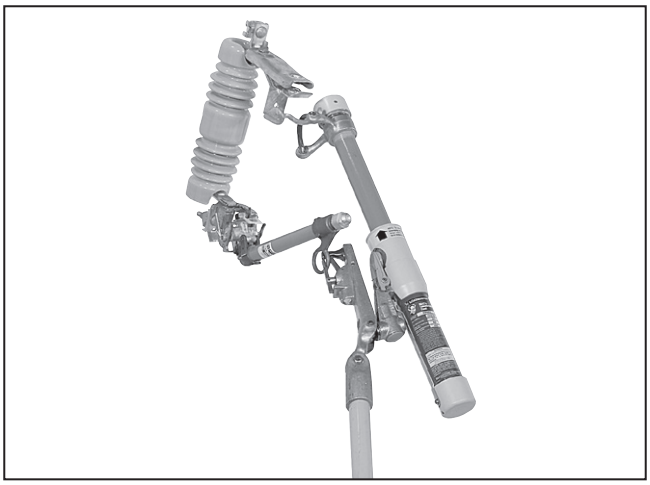


Figure 8. A Loadbuster tool in the Tripped position.

Next, bring the fuse tube toward its fully **Open** position, as illustrated in Figure 9. Then, remove the Loadbuster tool from the pull-ring by rotating the pole. This will deflect the pull-wring latch to release the pull-ring. Because the fuse tube will drop fully open by gravity, it may be preferred 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. To perform this operation easily and smoothly, always roll the Loadbuster tool so it rotates in an upward direction.

STEP 6. To reset the Loadbuster tool for the next operation, hold as shown in Figure 10. Extend the tool slightly and lift the resetting latch with a 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.

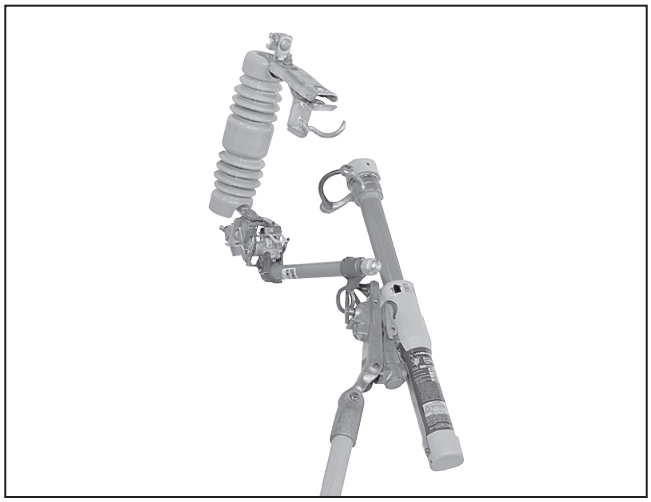


Figure 9. Detaching a Loadbuster tool from the fuse cutout.

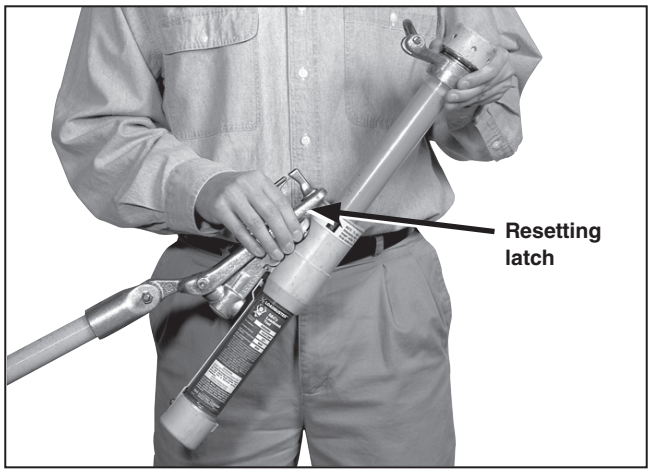


Figure 10. Resetting a Loadbuster tool.