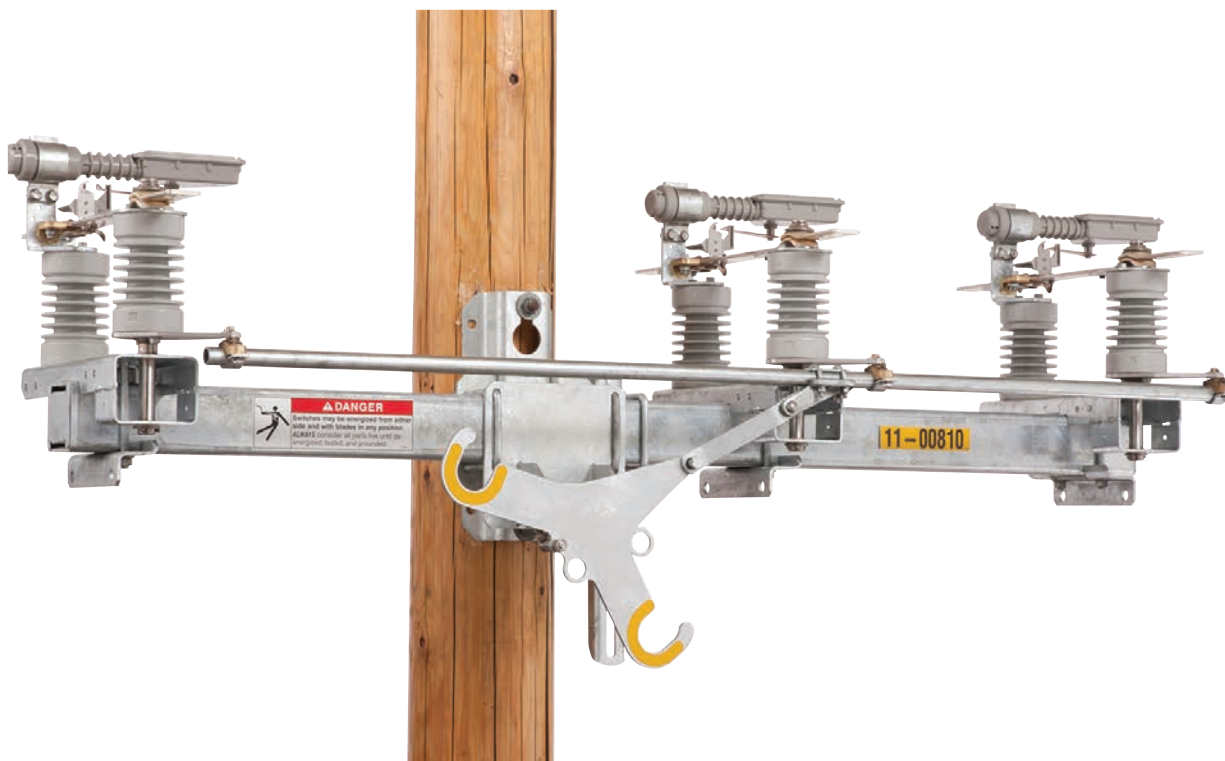


Installation and Operation

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Qualified Persons

⚠ WARNING

Only qualified persons who are 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 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, 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.

Operating Considerations

Circuit-making and circuit-breaking are involved in the normal operation of these interrupter switches and, as a result, precautionary “partway” opening or closing is undesirable. To operate manually, swing the operating handle through its full stroke without hesitation. Do not assume the operating-handle position necessarily indicates the **Open** or **Closed** position of the interrupter-switch blades. Upon completion of an opening or closing operation, visually check the position of the interrupter-switch blades to determine the intended position has been attained, then tag or padlock the operating handle in accordance with standard system operating procedures. In all cases make certain the operating handle is locked before “walking away.”

Note: These interrupter switches are not intended for breaking fault currents.

If the switch is covered in ice or snow, do not “chop” the switch between the **Open** and **Closed** position to dislodge ice and snow. 14.4-kV and 25-kV Omni-Rupter Switches in the upright mounting configuration can achieve a ¾-inch (19-mm) ice-breaking capability on opening and closing without ice shields. 34.5-kV Omni-Rupter switches in the upright mounting configuration can achieve a ½-inch (13-mm) ice-breaking capability on opening and closing only with the addition of ice shields. 14.4-kV and 25-kV Omni-Rupter Switches in the inverted mounting configuration have a ¾-inch (19-mm) ice-break capability with ice shields.

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 your Omni-Rupter Switch. Familiarize yourself with the Safety Information and Safety Precautions on pages 4 through 6. 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 Omni-Rupter Switch. Designate a location where you 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 Omni-Rupter Switch are listed in the ratings table in Specification Bulletin 765-31.

In most applications, these interrupter switches are capable of switching rated continuous load currents at full voltage. Consequently, no interlocking with secondary protective equipment is required. Omni-Rupter Switches rated 14.4 kV and 25 kV can carry up to 1000 amperes on a continuous basis for ambient temperatures to 104°F (40°C) with a minimum wind velocity of 2 feet per second (0.61 meters per second). Emergency interrupting performance may be expected for currents to 1000 amperes; refer to Specification Bulletin 765-31 for detailed information concerning interrupting ratings.

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).

Safety Information

Understanding
Safety-Alert Messages

Several types of safety-alert messages may appear throughout this instruction sheet and on labels and tags attached to the Omni-Rupter Switch. Familiarize yourself with these types of messages and the importance of these various signal words:

 **DANGER**

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

 **WARNING**

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

 **CAUTION**

“CAUTION” identifies hazards or unsafe practices which can result in minor personal injury or product or property damage if instructions, including recommended precautions, are not followed.

NOTICE


“NOTICE” identifies important procedures or requirements that, if not followed, 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

Thoroughly and carefully read this instruction sheet before operating an Omni-Rupter Switch.

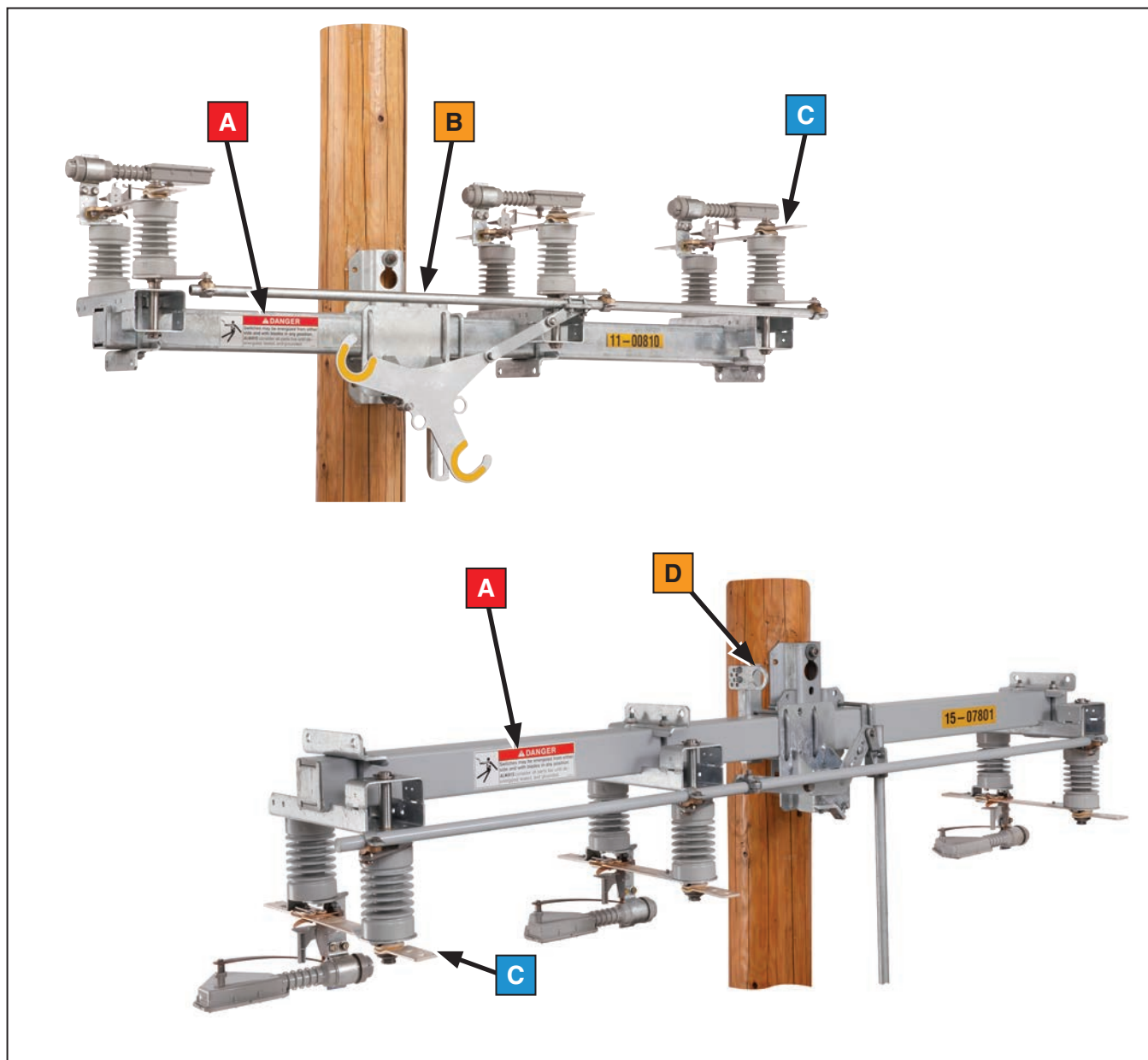


Replacement
Instructions
and Labels

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.

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	Switches may be energized from either side and with blades in any position.	G-6580-2●
B	⚠ WARNING	Lifting Instructions	G-5928R3■
C	NOTICE	Instructions for Connecting Conductors to Terminal Pads	G-9391■
D	⚠ WARNING	Lifting Instructions	G-10218■

● This label is placed on both sides of switch base on opposite ends.

■ This is a tag to be removed and discarded after the switch is installed and adjusted.

DANGER



Omni-Rupter Switches 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 company operating procedures and rules. Where a discrepancy exists, users should follow their company's operating procedures and rules.

1. **QUALIFIED PERSONS.** Access to switches and controls 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 AND TAGS.** 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 TOOL.** To open and close the hookstick operated Omni-Rupter, use a conventional insulated hookstick or S&C Universal Pole and Pole Extension fitted with a heavy-duty prong such as the S&C Substation Prong or equivalent.
7. **INTERRUPTER SWITCH POSITION.** Always confirm the **Open/Close** position of interrupter switches by visually observing the position of the blades. Switches may be energized from either side and with the blades in any position.
8. **MAINTAINING PROPER CLEARANCE.** Always maintain proper clearance from energized components.
9. **OPERATION.** Circuit-making and circuit-breaking are involved in the normal operation of this interrupter switch and, as a result, "partway" opening or closing is undesirable. To operate, pull the appropriate "hook" of the hookstick mechanism down through its full travel vigorously and without hesitation. See the "To Open and Close" section on page 25.

Packing

The hookstick-operated Omni-Rupter Switch includes the following:

- A three-pole hookstick group-operated integer-style upright or inverted mounted switch
- Miscellaneous mounting hardware (less through-bolts) for securing the Omni-Rupter Switch to the pole

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 all listed shipping skids, crates, and containers are present:

If there is visible loss and/or damage:

1. Notify the delivering carrier immediately.
2. Ask for a carrier inspection.
3. Note 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 and/or damage.

Handling

⚠ WARNING

DO NOT use the lifting bracket to lift the crated switch from the truck or conveyance.

The lifting bracket will only hold the weight of the switch and will *NOT* hold the weight of the crated switch and associated packing materials.

Failure to uncrate the switch before lifting with the lifting bracket may cause damage to the switch or personal injury.

The crate is designed to be moved and lifted using a lift truck. Indentations of the bottom of the crate are provided for the truck's forks. See Figure 1.

Switches in the upright, upright with extra mounting pole clearance, and inverted mounting configurations are provided with a single-point lifting bracket that is permanently attached to the switch base. This lifting bracket is retractable on switches in upright mounting configurations. See Figure 4 on page 10.

Secure the lifting slings to the switch before unbolting the switch from its crate. Remove all packing materials before lifting the switch.

⚠ CAUTION

For switches in the upright mounting configuration:

To maintain proper electrical clearance, make sure the lifting bracket is placed in the retracted (lowered) position after installation.

Failure to do so may increase risk of flashover.

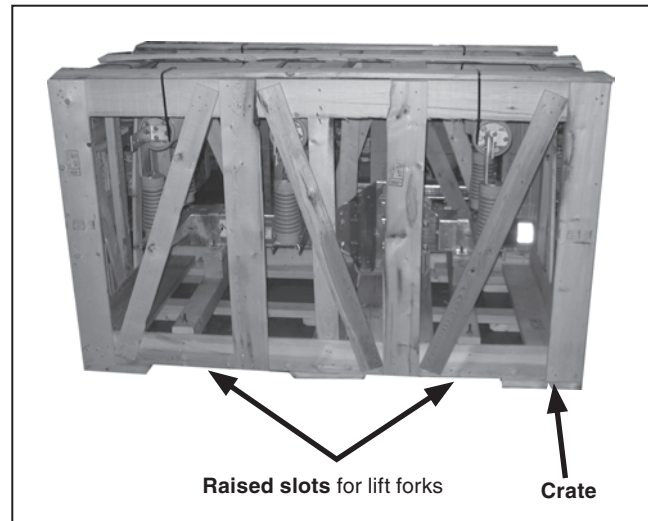


Figure 1. The shipping crate.

Operating Mechanism Assembly

The operating mechanism may be shipped partially disassembled, so some minor reassembly is required to prepare the switch for installation. Because the switch and mechanism are fully assembled and adjusted at the factory, no adjustments should be required after this assembly.

WARNING

To avoid hand injury during the minor reassembly of the operating mechanism, exercise care when opening and closing the switch.

Rotate the handle slowly and avoid placing hands and fingers where they may be pinched by the toggle mechanism.

- STEP 1.** Remove the tape securing the operating-handle linkage, as shown in Figure 2.
- STEP 2.** With the switch in a partially **Open** position, use the pin and cotter pin provided to connect the operating handle and linkage, as shown in Figure 3.

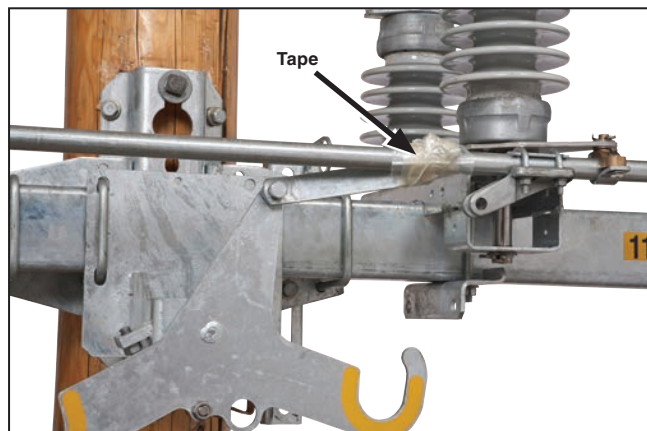


Figure 2. Removal of tape securing the operating linkage.

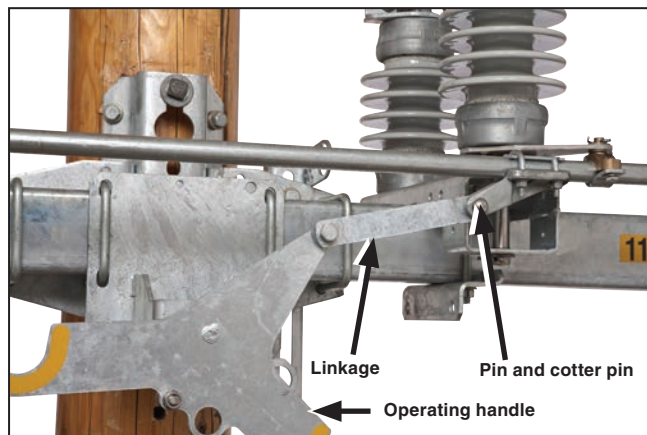


Figure 3. Install pin and cotter pin to connect linkage.

Installation

Mounting to Wood

When mounting the switch to a wood pole, S&C recommends placing suitably sized square washers under the nuts. S&C also recommends using spring-type washers between the square washers and nuts to compensate for wood-pole shrinkage and thus maintain fastener tightness.

Square and spring-type washers are not included with the switch.

STEP 3. Drill two $\frac{1}{16}$ -inch diameter holes in the utility pole at the desired height for mounting the switch. Refer to the erection drawing for details.

STEP 4. Insert two $\frac{5}{8}$ -inch diameter through-bolts (not furnished) in the holes drilled in Step 3 and secure loosely with the necessary square washers and nuts in such a manner that the heads of the bolts project sufficiently from the face of the pole to engage the switch-base mounting bracket.

Mounting the Switch Assembly

Note: For the inverted mounting configuration, Step 5 is on page 11.

Upright Mounting Configurations

STEP 5.

⚠ WARNING

Lift the switch using the lifting bracket provided. Do not allow lifting slings to stress switch parts. Avoid allowing the switch to swing while lifting.

Lifting the switch by the live parts or pole-unit bases will damage the switch. Rough handling may cause damage to the blades and contacts.

Failure to lift the switch properly can result in switch damage, causing improper operation, arcing, or electrical shock.

Switches in the upright mounting configuration are provided with a retractable single-point lifting bracket permanently attached to the switch base. See Figure 4.

- (a) Make sure the switch is fully closed.
- (b) Attach lifting slings **ONLY** to the single-point lifting bracket.

- (c) Lift the switch as shown in Figure 4 until the lifting slings are just taut.
- (d) Unbolt the switch base from the shipping skid.
- (e) Slowly and carefully lift the switch to the proper mounting height.
- (f) Guide the switch so the through-bolts projecting from the utility pole slip into the holes in the switch pole-mounting bracket. (The pole-mounting bracket is provided with a keyhole and an open slotted-hole for ease of installation.)
- (g) Lower the switch so that the pole-mounting bracket bears down on the through-bolts.
- (h) Securely tighten the through-bolts. Install the two $\frac{1}{2}$ -inch-diameter lag screws on the front of the mounting bracket, diagonally from each other. See Figure 5 on page 11.
- (i) Remove the lifting sling from the single-point lifting bracket. Lower the lifting bracket.

If desired, a crossarm brace (user-furnished) may be attached to the base. Mounting brackets for crossarm braces must be specified separately. Contact your local S&C Sales Office for details.

⚠ CAUTION

To maintain proper electrical clearance, make sure the lifting bracket is placed in the retracted (lowered) position after installation.

Failure to do so may increase risk of flashover.

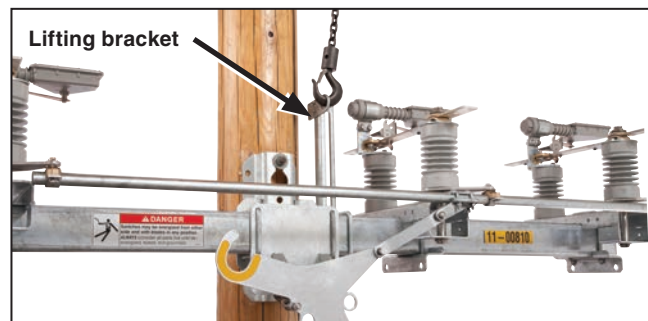


Figure 4. Hoisting the Omni-Rupter Switch into position, upright mounting configuration.

Inverted Mounting Configuration
STEP 5.

⚠ WARNING

Lift the switch using the lifting bracket provided. Do not allow lifting slings to stress switch parts. Avoid allowing the switch to swing while lifting.

Lifting the switch by the base or mounting bracket may cause damage to the switch. Rough handling may cause damage to the blades and contacts.

Failure to lift the switch properly can result in switch damage, causing improper operation, arcing, or electrical shock.

Switches in the inverted mounting configuration are provided with a single-point lifting bracket permanently attached to the switch base. See Figure 6. To install the switch onto the pole:

- (a) Make sure the switch is fully closed.
- (b) Attach lifting slings *only* to the single-point lifting bracket.
- (c) Lift the switch until the lifting slings are just taut as shown in Figure 6.
- (d) Unbolt the switch base from the shipping supports.
- (e) Slowly and carefully lift the switch to the proper mounting height.
- (f) Guide the switch so the through-bolts projecting from the utility pole slip into the holes in the switch's pole-mounting bracket. (The pole-mounting bracket is provided with a keyhole and an open slotted hole for ease of installation.)
- (g) Lower the switch so the pole-mounting bracket bears down on the through-bolts.



Figure 5. Typical mounting bracket attachment detail.

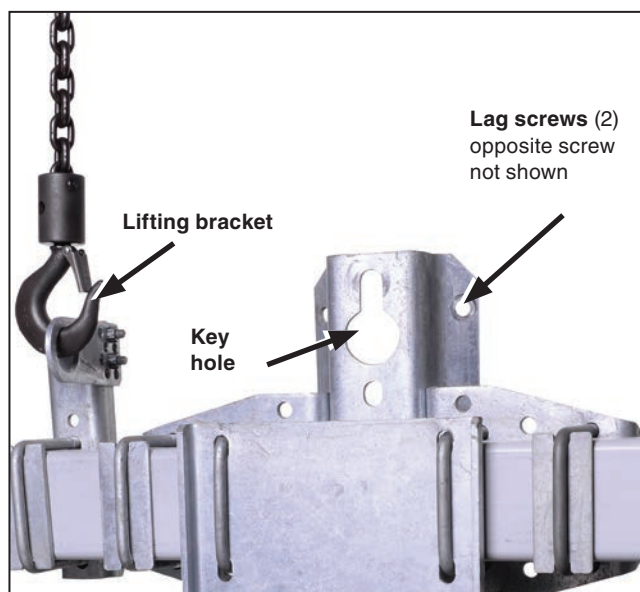


Figure 6. Hoisting the inverted mounting configuration Omni-Rupter Switch into position.

- (h) Securely tighten the through-bolts. Install the two ½-inch diameter lag screws on the front of the mounting bracket, diagonally from each other. See Figure 5 on page 11.
- (i) Remove the lifting sling from the single-point lifting bracket.
- (j) If desired, a crossarm brace (user-furnished) may be attached to the base. Mounting brackets for crossarm braces must be specified separately. Contact your local S&C Sales Office for details.

Installing the Optional Pole Band

STEP 6. Secure the pole band (optional) to the mounting bracket on the switch, using the J-bolts provided. See Figure 7. Two ¼ × 1 × 3-inch stiffening blocks are furnished to be used behind the pole-band flanges and underneath the J-bolt nuts. Lag the pole band to the back side of the pole through the hole in the center of the band using one of the five ½-inch-diameter lag screws provided. Then, lag the mounting bracket to the pole using the four remaining ½-inch lag screws as shown in Figure 7.

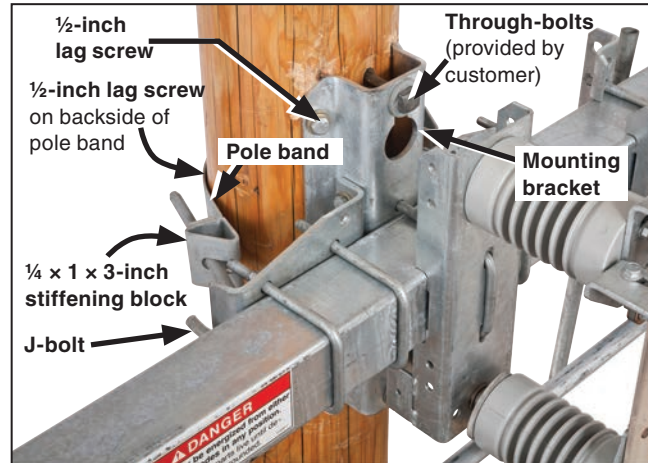


Figure 7. Typical pole-band (catalog number suffix “-P1”) attachment detail. Vertical mounting configuration shown; upright and inverted are similar.

Installing the Optional Wildlife Protection (Catalog Number Suffix “-W”)

⚠ DANGER

De-energize the switch and ground it at all six terminals before installing the wildlife protection option.

The **Wildlife Protection** option is not designed to be installed on energized equipment.

Failure to do so could lead to serious injury or death.

The **Wildlife Protection** option helps prevent climbing or perching animals from making phase-to-grounded part contact. See Figures 8 and 9. A typical wildlife protection installation includes:

- Six wildlife disks

On switches in the upright mounting configuration:

- One pole-mounting bracket cover
- Two base covers (three base covers on switches with extra mounting pole clearance) (Base covers are not included on switches with insulated bases.)
- One fiberglass interphase operating rod, pre-installed

NOTICE

S&C recommends installing the **Wildlife Protection** option after the switch is secured to the utility pole.

Damage to the **Wildlife Protection** option may occur if lifting slings strain the wildlife disks during handling.

In Figures 8 and 9, a typical installation of the **Wildlife Protection** option is illustrated. The fiberglass operating rod will be pre-installed at the factory. Consult the RD drawing accompanying the switch-installation instructions for details specific to your switch that may differ from the instructions on pages 14 through 18. Following are instructions for a typical field installation of the **Wildlife Protection** option.

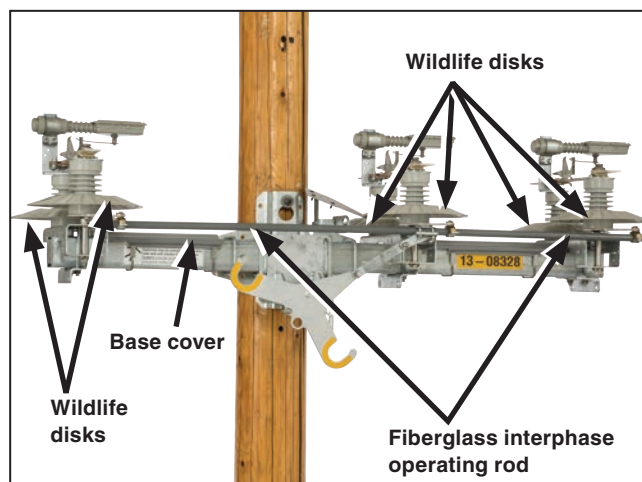


Figure 8. A 14.4-kV Omni-Rupter Switch with optional wildlife protection (catalog number suffix “-W”), upright mounting configuration.

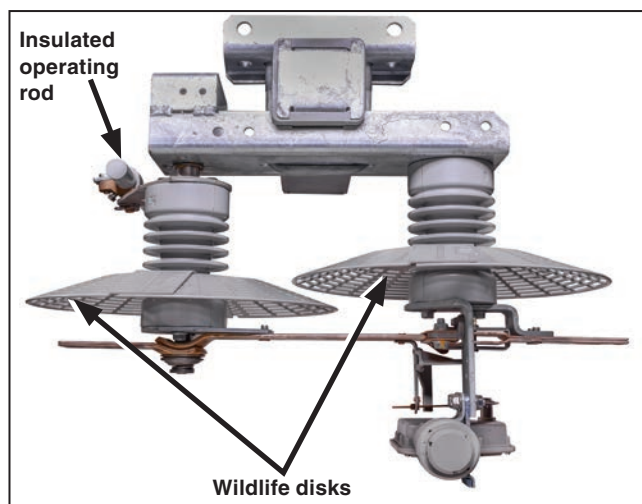


Figure 9. A 14.4-kV Omni-Rupter Switch with optional wildlife protection (catalog number suffix “-W”), inverted mounting configuration, single-phase shown.

Installing the Base Covers

Base covers are only used on switches in the upright mounting configuration. Skip to the “Installing the Wildlife Disks” section starting on page 15 for switches in the inverted mounting configuration.

- STEP 7.** With the switch in the closed position, place the base covers onto the steel base of the switch in the positions shown on the associated RD drawing. If optional surge arrester mounting provisions (catalog number suffix “-A1” or “-A2”) have been specified for the switch, cutouts will be provided in the base covers to fit around the arrester mounting brackets.
- STEP 8.** Hook one end of the spring clip assembly into the lip on the edge of one side of the base cover. See Figure 10. Bring the spring clip underneath the switch base and stretch it until it can be hooked into the lip on the edge of the opposite side of the base cover. Make sure the spring clip is approximately $\frac{1}{2}$ -inch (13-mm) from the edge of the base cover. See Figure 11. Install the remaining spring clips on their respective base covers in accordance with the supplied RD drawing.

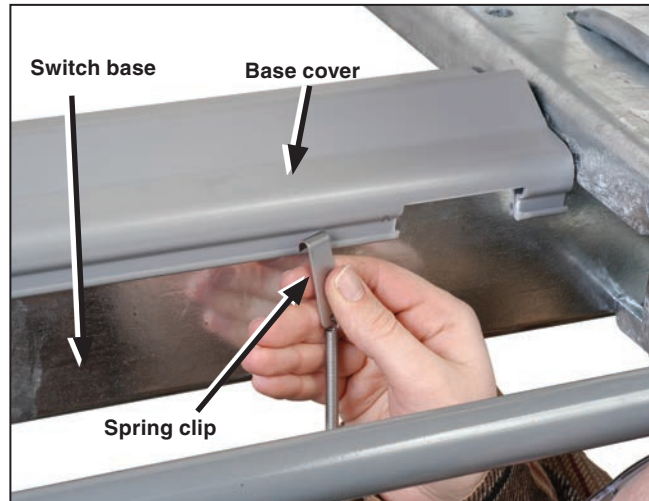


Figure 10. Hook one end of spring clip into base cover lip. Stretch underneath base and hook on opposite side.

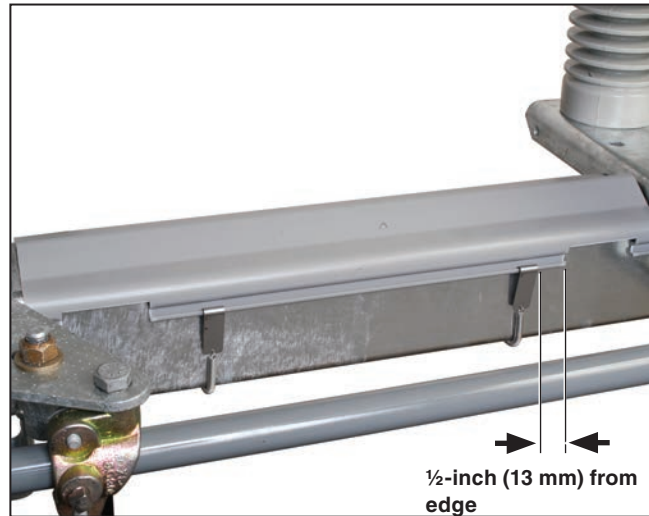


Figure 11. Make sure clips are installed approximately $\frac{1}{2}$ -inch (13 mm) from edge of cover.

Installing the Wildlife Disks

Before installing the wildlife disks, determine the proper placement of the disks on the switch blade and contact insulators.

On Upright 14.4-kV Omni-Rupter Switches

(Porcelain and Cypoxy™ Insulators)

Install the wildlife disk to the bottom skirt root of the insulator on both the blade and contact ends of the switch. When the wildlife disks are properly installed, the disks will overlap slightly, as shown in Figure 12.

On Upright 25-kV Omni-Rupter Switches

(Porcelain and Cypoxy Insulators)

Blade end of the switch: Install the wildlife disk on the bottom skirt root of the insulator.

Contact end of the switch: Count up two skirts from the base and install the wildlife disk to the insulator. When the wildlife disks are installed properly, they will be at approximately the same height. See Figure 13.

On Upright 34.5-kV Omni-Rupter Switches

(Porcelain and Cypoxy Insulators)

Count up two skirts from the base and install the wildlife disks on the third skirt root from the base of the insulator on both the blade and contact ends of the switch. When the wildlife disks are properly installed, the disks will overlap slightly.

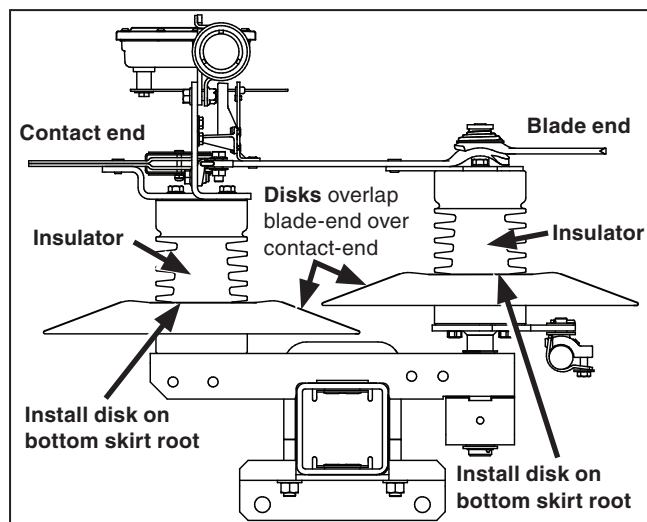


Figure 12. Wildlife disk placement on 14.4-kV Omni-Rupter Switches.

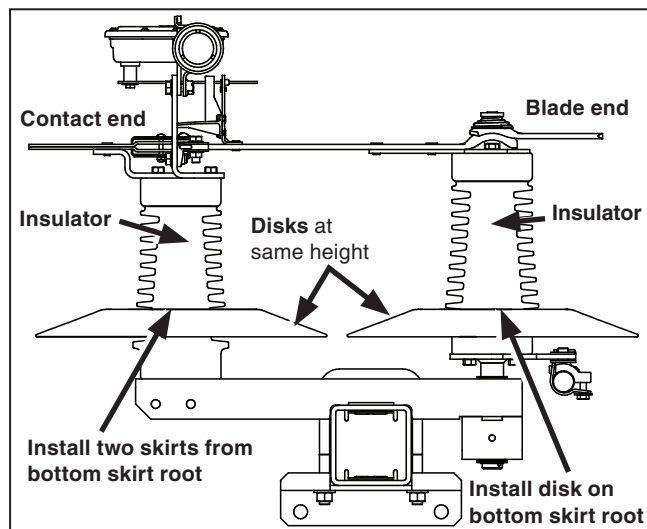


Figure 13. Wildlife disk placement on 25-kV Omni-Rupter Switches.

On Inverted 14.4-kV Omni-Rupter Switches (Porcelain and Cypoxy Insulators)

Install the wildlife disk to the lowest skirt of the insulator on both the blade and contact ends of the switch. When the wildlife disks are installed properly, the disks will slightly overlap, as shown in Figure 14.

On Inverted 25-kV Omni-Rupter Switches (Porcelain and Cypoxy Insulators)

Contact end of the switch: Install the wildlife disk on the bottom skirt of the insulator.

Blade end of the switch: Count up three skirts from the live parts and install the wildlife disk to the insulator on the blade end. When the wildlife disks are installed properly, they will be at approximately the same height. See Figure 15.

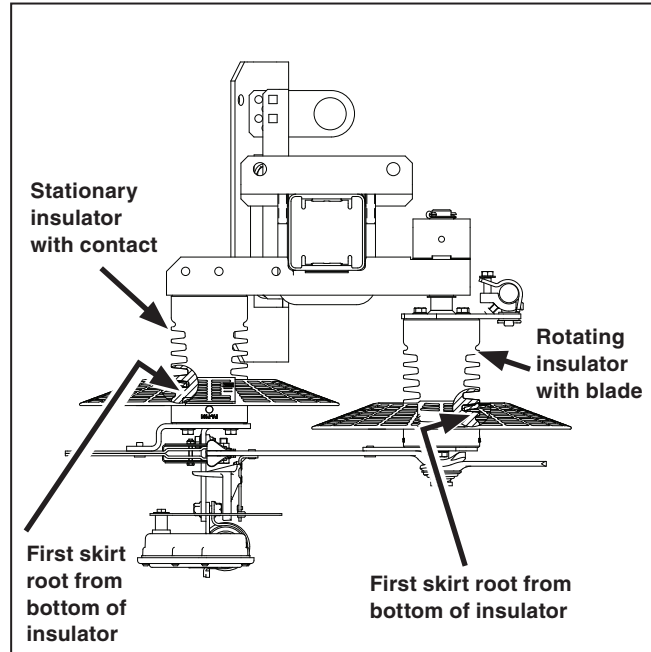


Figure 14. Wildlife disk placement on 14.4-kV Omni-Rupter Switch, inverted mounting configuration.

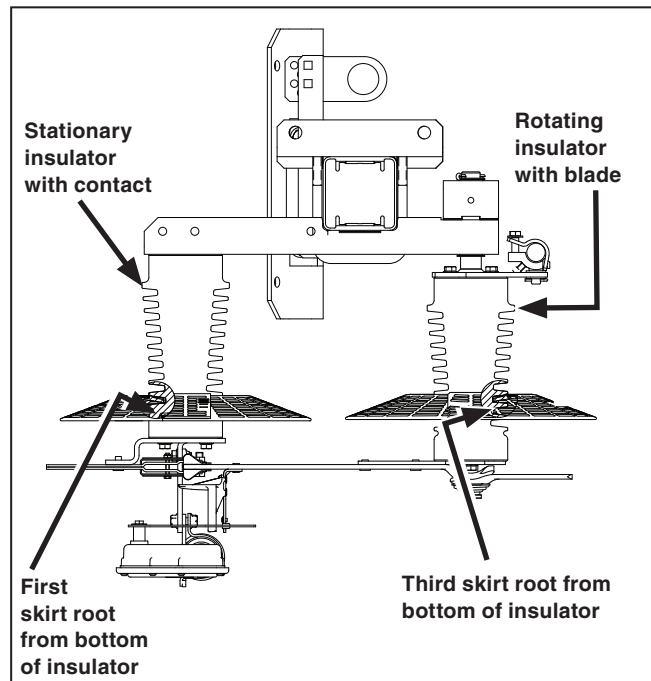


Figure 15. Wildlife disk placement on 25-kV Omni-Rupter Switch, inverted mounting configuration.

STEP 9. Upright mounting configuration shown; inverted mounting configuration is similar. For 34.5-kV Omni-Rupter Switches, refer to the separate installation instructions provided with the wildlife disks.

- (a) To assemble the disks, fit the disk around the insulator on the blade end of the switch. See Figure 16. Then, insert the locking tabs of one-half of the disk into the open slot on the other half to create a secure overlapping fit. Repeat the procedure on the opposite side of the disk. When the halves are correctly assembled, the S&C logo will be on top of the disk on both sides. See Figure 17.
- (b) Starting with the outside locking tabs first, squeeze the overlapping sides together until the tabs audibly snap into place.
- (c) Push the two halves of the disk together in toward the insulator so the disk fits the insulator as close as possible. See Figure 18. Snap the upper locking tab firmly into place. Both tabs should protrude through the open slot, as shown in Figure 17.
- (d) Repeat Steps 9(a) through 9(c) to install the wildlife disks on the insulators on the contact end of the switch.

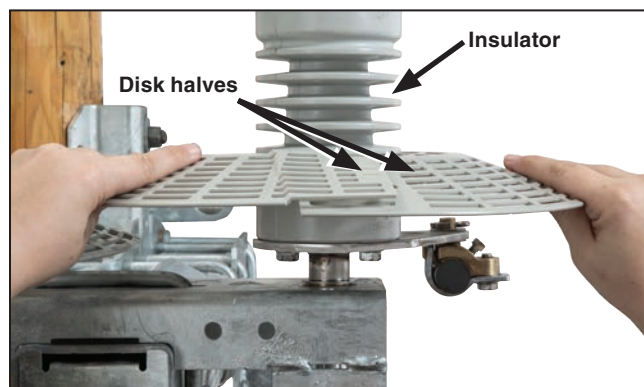


Figure 16. Fit the disk halves around the insulator.

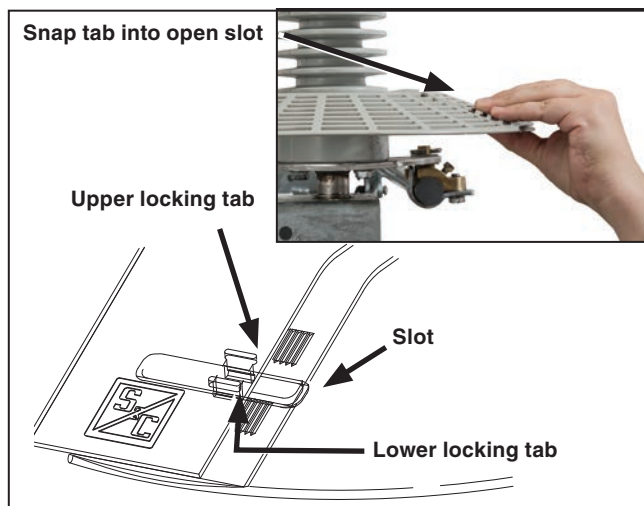


Figure 17. Snap lower tab into open slot.

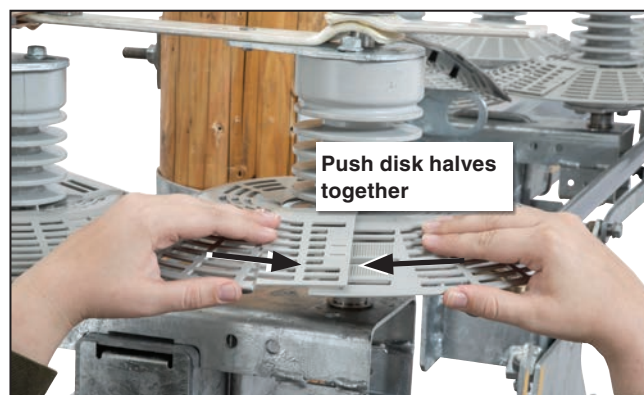


Figure 18. Push disk halves together. Snap upper tab into place. Disk halves should fit as tight against the insulator as possible.

For Omni-Rupter Switches in the upright mounting configuration:

- (e) After installing the wildlife disks, install the pole-mounting bracket cover with the snap rivets provided. See Figure 19.

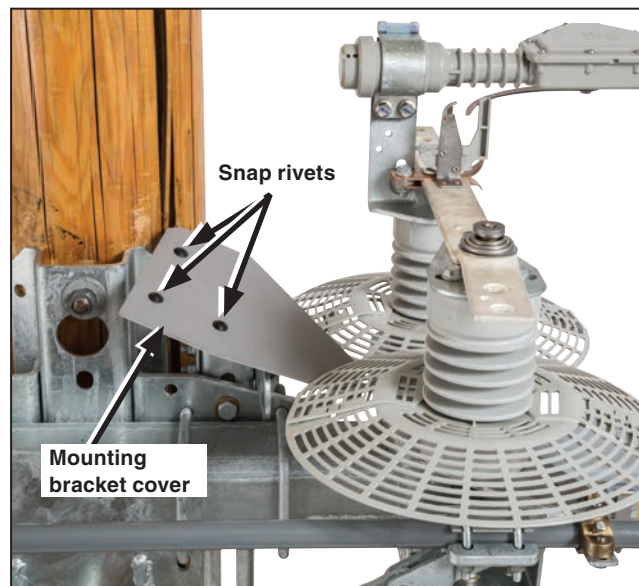


Figure 19. The pole-mounting bracket cover.

Checking Operation

STEP 10. Open and close the interrupter switch by pulling the hookstick operating mechanism slowly through its full travel. Make sure the following conditions exist:

⚠ WARNING

Open and close the switch slowly only when checking operation or making adjustments to the de-energized switch.

When opening or closing an energized switch, swing the handle vigorously through its full travel without hesitation.

Failure to operate the switch properly can result in arcing, switch damage, serious injury, or death.

- (a) With the operating handle as far as it will go in the closing direction, all main contacts of the interrupter switch are in the fully **Closed** position. See Figure 20.
- (b) With the operating handle as far as it will go in the opening direction, the switch blades are 90 degrees from the **Closed** position (perpendicular to the switch mounting-weldment). See Figure 21.

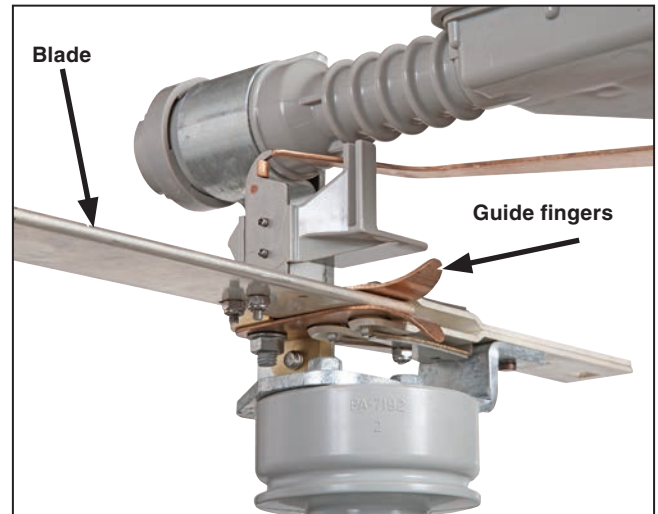


Figure 20. Blade and contact assembly in the fully Closed position.

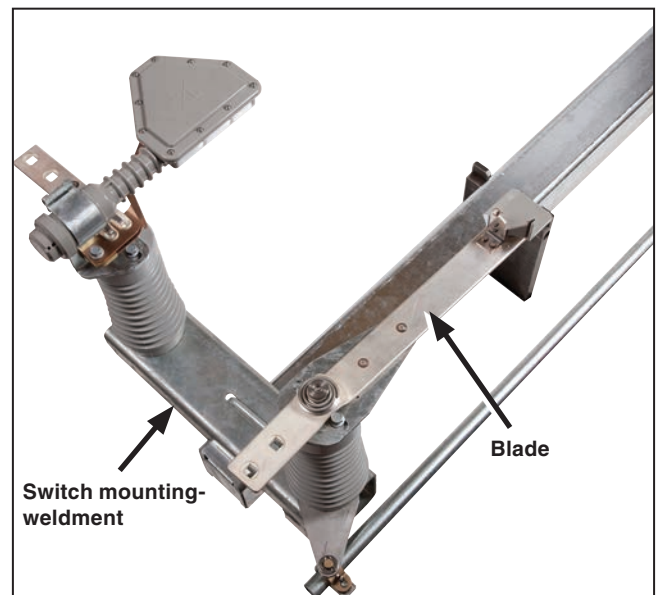


Figure 21. Blade at 90 degrees from switch mounting-weldment position.

STEP 11. Open and close the switch to verify the hookstick operating handle is positively retained in both the **Closed** and **Open** position.

Closed: In the **Closed** position, the operating handle and linkage is in toggle, as shown in Figure 22. The handle stop pin is resting against the stop bolt. The red toggle indicator should *not* be visible below the switch. There should be 30-45 pounds of force required to move the handle out of toggle.

NOTICE

If the toggle-indicator label is still visible, pull the hookstick firmly closed. The toggle-indicator label will be fully covered when closed. See Figures 22 and 23. A visible toggle indicator indicates the switch is not fully closed. Improper closure could overheat the contacts.

Open: In the **Open** position, a lesser but still noticeable force is required to initiate the closing of the switch. See Figure 23. The toggle-indicator label will be visible below the switch.

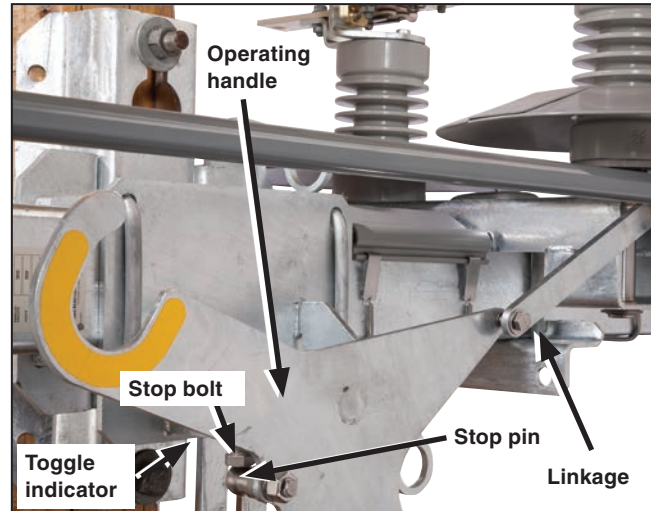


Figure 22. Linkage in the Toggle position.

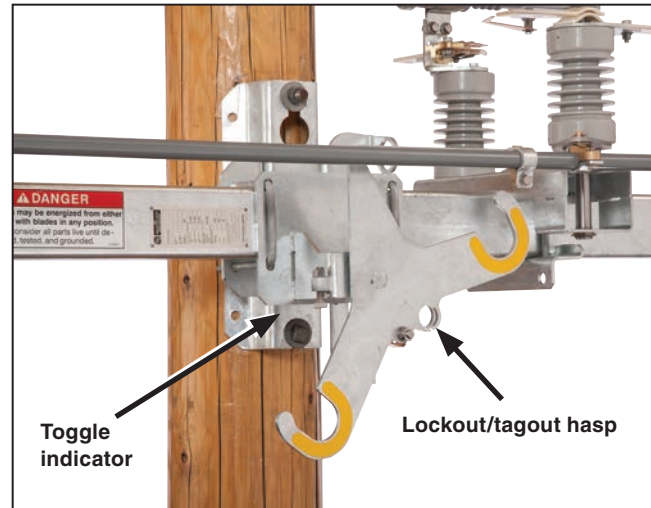


Figure 23. The lockout/tagout hasp of the hookstick handle should align with the hasp on the base.

STEP 12. Open and close the switch and examine the interrupter and blade alignment. The interrupter and interrupter shunt arm must be parallel to the sweep of the blade on each phase. See Figure 24.

STEP 13. Slowly open the switch. The following conditions should be met on each phase:

- (a) As the blades move towards the **Open** position, the operating cam shunt contact should engage the interrupter shunt arm on the copper-bronze contact surface of the shunt contact. See Figure 25.
- (b) When the blade reaches its full travel the interrupter shunt arm will be released and will quickly snap back to the **Closed** position and reset for the next operation. See Figure 24.

STEP 14. Slowly close the switch. The following conditions should be met on each phase:

- (a) The interrupter shunt arm should be guided into position by the curved back of the shunt contact. See Figure 26 on page 22.

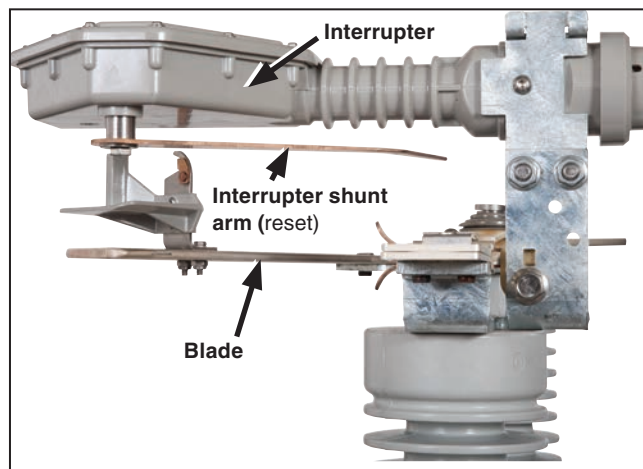


Figure 24. The interrupter and interrupter shunt arm is parallel to the sweep of the blade.

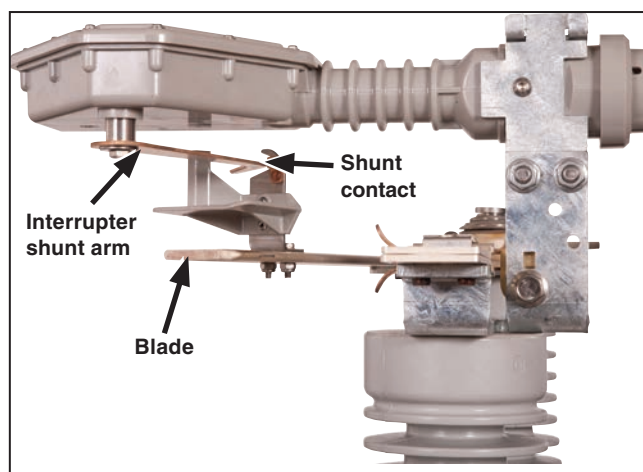


Figure 25. The shunt contact should engage the interrupter shunt arm on the copper-bronze contact surface of the shunt contact.

- (b) The blade should move into the jaw contact guide fingers on center. See Figure 27.
- (c) When the switch is fully closed, the interrupter shunt arms are resting no more than $\frac{1}{8}$ -inch (3 mm) from the auxiliary return arms of the multipurpose operating cams, and the shunt arms and return arms do not touch each other. See Figure 28.

NOTICE

If any of the conditions described above cannot be achieved, damage likely was sustained during shipping or storage. Contact the nearest S&C Sales Office for assistance.

NOTICE

Omni-Rupter Switches specified with the optional harsh environment contacts (catalog number suffix “-C”) have greaseless and self-lubricating graphite-impregnated blades. **DO NOT** apply grease to the blade contacts.

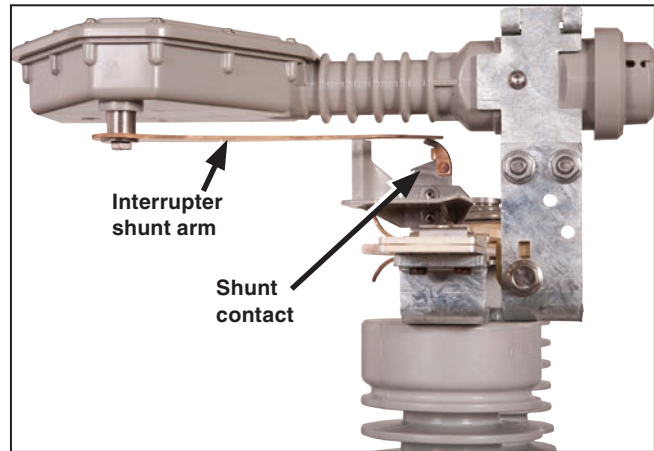


Figure 26. Interrupter shunt arm will be guided into position by the shunt contact.

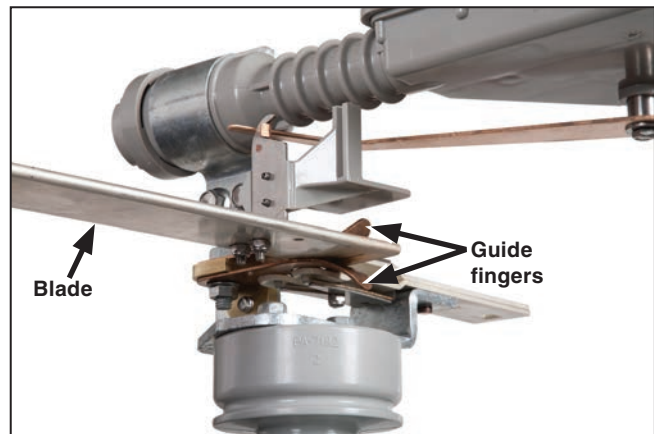


Figure 27. During closing, make sure the blade enters the guide fingers on center.

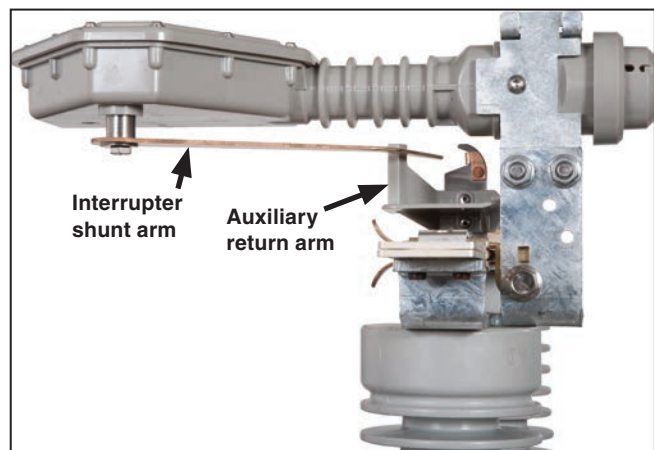


Figure 28. The interrupter shunt arm should be no more than $\frac{1}{8}$ -inch (3 mm) away from the auxiliary return arm but not touching the auxiliary return arm.

Dead-Ending Conductors

Dead-ending provisions are standard on Omni-Rupter Switches that have upright, upright extra mounting pole clearance, or inverted mounting configurations. When dead-ending to these brackets, a pole band and extension-link assemblies● are required. See Figure 29.

Maximum dead-end loading for S&C dead-ending brackets where pull-off forces are applied to both sides of the switch is 8,000 pounds per conductor for switches with steel or insulated bases in upright, upright extra mounting-pole clearance, triangular, and inverted mounting configurations. Maximum single-side dead-end loading are shown in Tables 1 and 2.

Table 1. Maximum Single-Side Dead-End Loading for Steel-Base Switches

Mounting Configuration	Pounds per Conductor (kg)		
	14.4 kV	25 kV	34.5 kV
Upright	2000 (907)	2000 (907)	1500 (680)
Upright extra mounting-pole clearance	1500 (680)	1500 (680)	N/A
Inverted	1500 (680)	1000 (454)	1500 (680)

Table 2. Maximum Single-Side Dead-End Loading for Insulated-Base Switches

Mounting Configuration	Pounds per Conductor (kg)		
	14.4 kV	25 kV	34.5 kV
Upright	750 (340)	500 (227)	250 (113)
Upright extra mounting-pole clearance	750 (340)	500 (227)	N/A
Inverted	500 (227)	250 (113)	1500 (680)

● A pole band can be specified by adding suffix “-P1” to the catalog number. Extension-link assemblies can be provided by adding suffix “-D” to the catalog number of the switch or by using equivalent user-furnished extension means.

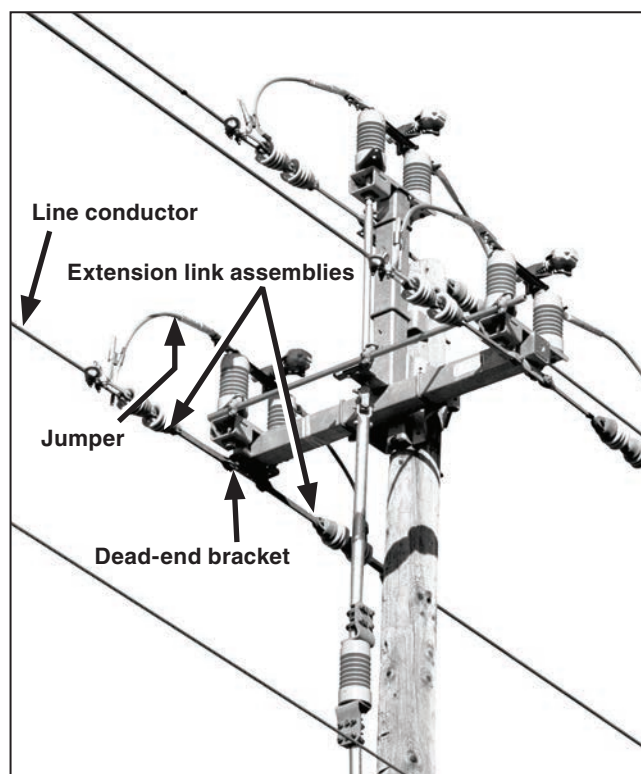


Figure 29. Dead-ending bracket (triangular mounting configuration shown).

Connecting High-Voltage Conductors

⚠ DANGER

Conductors must be de-energized and grounded in accordance with standard system operating practice.

Failure to do so can result in serious injury or death.

The Omni-Rupter Switch terminal pads are silver-plated and do not require abrasive cleaning as a part of their preparation. Wipe any dirt or grease from the surface, and apply a thick coating of Burndy Corporation's Penetrox® A or other appropriate conductor preparation compound.

NOTICE

DO NOT wire-brush the terminal pads. Wire brushing may scratch the plating.

STEP 15. When high-voltage conductors are to be connected using aluminum-alloy connectors●, use the following procedures:

- (a) Thoroughly wire-brush the current-transfer surfaces of each connector and then immediately apply a liberal coating of conductor preparation compound to the brushed surfaces. *Do not* wire-brush the Omni-Rupter Switch terminal pads.
- (b) Place the hinge-end articulating terminal pad in the center-neutral position. See Figure 30.

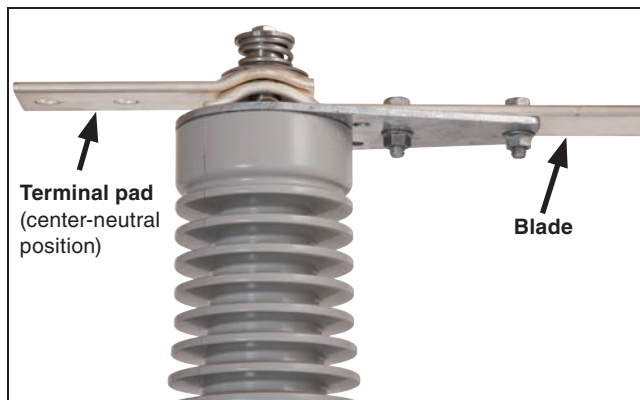


Figure 30. Place articulating terminal pad in the center-neutral position.

- (c) Prepare the conductors using the manufacturer's or utility's standard procedures and clamp them in their respective connectors.
- (d) Attach the connectors to the terminal pads. Allow the articulating terminal pad to "settle" naturally with the weight of the conductor.

For other types of connector, follow the manufacturer's recommended preparation procedure before connecting to Omni-Rupter Switch terminal pads. See Figure 31.

NOTICE

To avoid overloading the terminal pads, S&C recommends making the jumper connection to the line conductor *before* securing jumper fasteners to the terminal pad.

- "Mass-anode" type connectors, such as the catalog number 5300 series S&C offers, the connector manufacturer has designated as being suitable for direct attachment to copper alloy terminal pads.

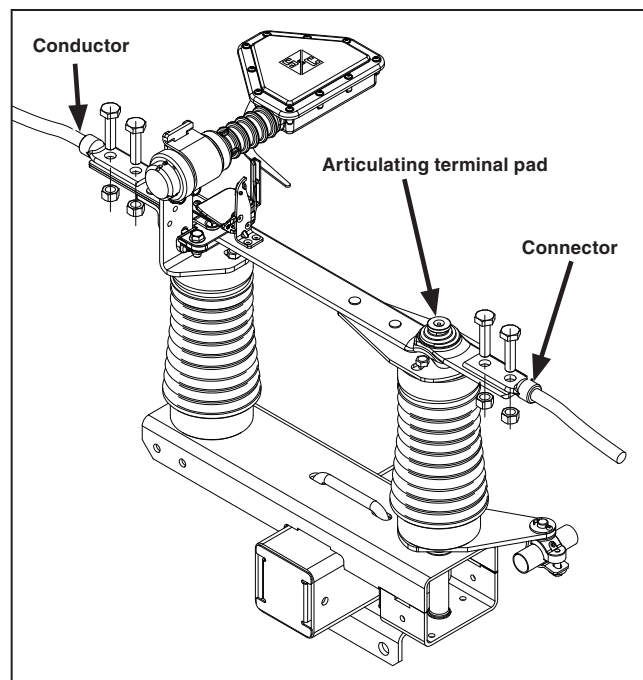


Figure 31. Attach conductors to terminal pads. Do not overload the terminal pads. (Typical conductor attachment.)

To Open and Close

To manipulate the hookstick mechanism, use a conventional insulated hookstick or S&C Universal Pole and Pole Extension (if required) fitted with a heavy-duty hook tool, such as the S&C Substation Prong or equivalent.

To Open: Using a vigorous downward force, pull the appropriate “hook” of the hookstick mechanism through the full operating stroke of the switch without hesitation. Be prepared to apply additional force to maintain full speed when operating effort increases as the switch blades engage the interrupters. See Figure 32. Check the toggle indicator at the base of the switch to make sure the red indicator is fully exposed. See Figure 33.

To Close: Using a vigorous downward force, pull the appropriate “hook” of the hookstick mechanism through the full operating stroke of the switch without hesitation. Be prepared to apply additional force at the end of the operating stroke, putting the operating linkage into its over-toggle position. Check the toggle indicator at the base of the switch to make sure the red indicator is fully covered. See Figure 34.

⚠ WARNING

DO NOT operate the Omni-Rupter Switch slowly, “partway,” or use a “chopping” motion when operating the switch.

When in service, the Omni-Rupter Switch should always be opened or closed vigorously through its full travel without hesitation at any point to avoid arcing and personal injury.

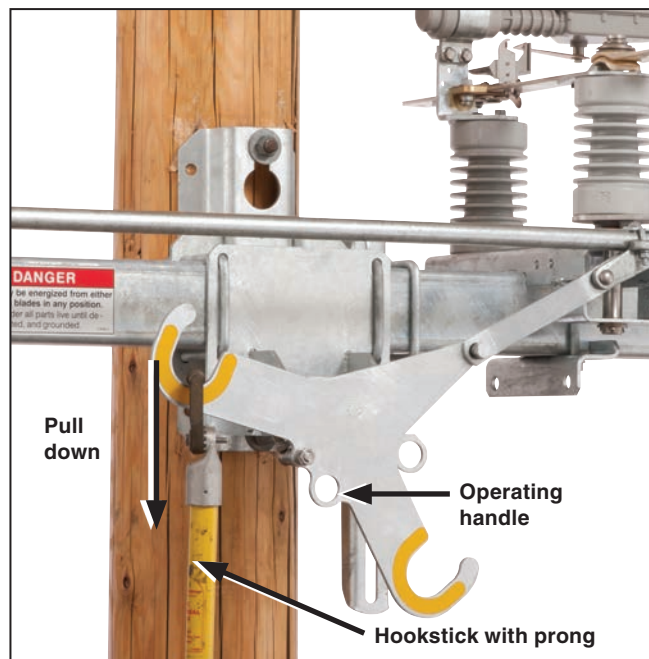


Figure 32. Firmly pull operating handle with hookstick.

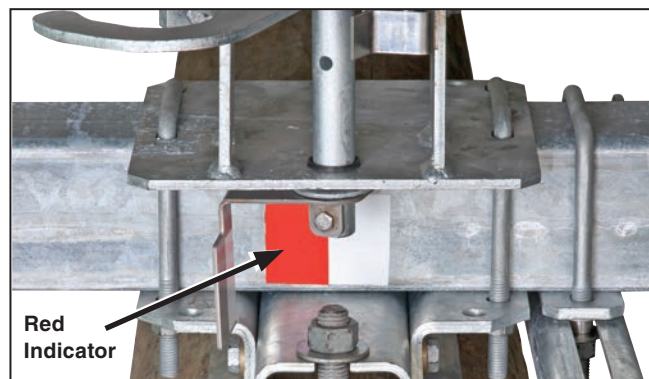


Figure 33. Toggle indicator in the Open position.

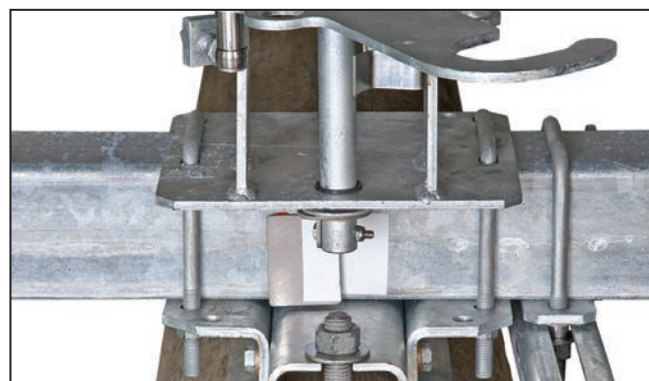


Figure 34. Toggle indicator in closed position.

Lockout Hasp and Optional Hookstick Operated Lockout/Tagout Device

Hookstick-operated switches are provided with a hasp that can be used to lock the switch in the **Open** position. It can accommodate a padlock or other hook-style lockout/tagout device. See Figure 35. Use standard utility operating practices and procedures for lockout/tagout of the switch.

Catalog number suffix “-H2” provides the switch with a hookstick-operated lockout device that locks the switch in the **Open** position. See Figures 36 and 37.

To Lock Open: With the switch in the **Open** position, use an insulated hookstick and prong to pull the orange hookstick tab down revealing the green **Locked** indicator on the switch base. This will lock the switch in the **Open** position. The hasp on the operating hookstick can also be used to add a padlock or other tagout device.

To Close: Push the orange hookstick tab up until it locks into place and the green **Locked** indicator in the switch base is no longer visible. This will release the hookstick operating mechanism. The switch can then be opened and closed per standard utility operating practices.

As a safety feature, if the **Lockout/Tagout** tab is pulled when the switch is in the **Closed** position, the operating mechanism will NOT be locked in **Closed** position and will be carried into the **Open** and **Locked** position when the switch is operated next.

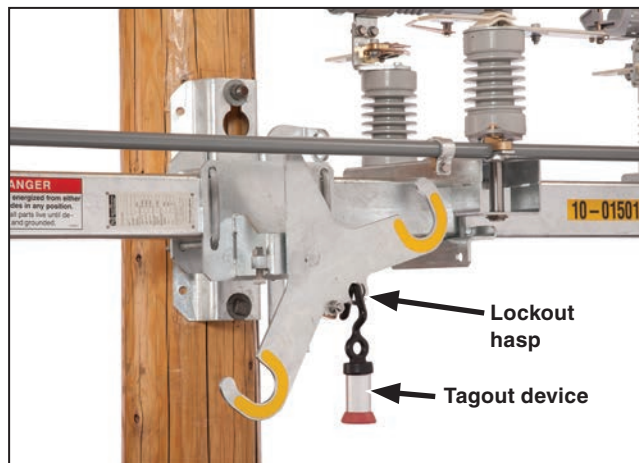


Figure 35. Hookstick in the Open position with hookstick tagout device installed.

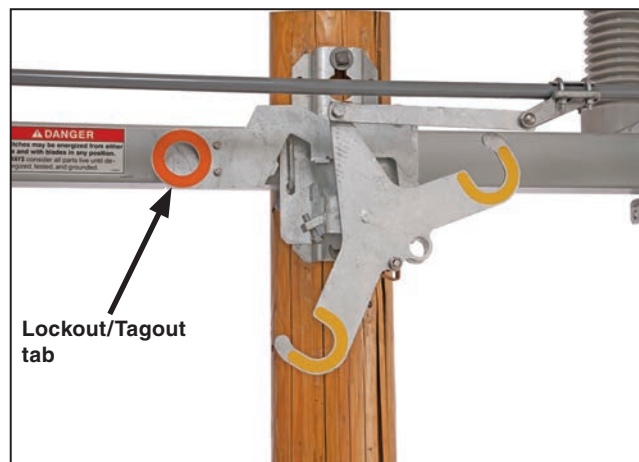


Figure 36. Optional lockout/tagout device in the Closed position.

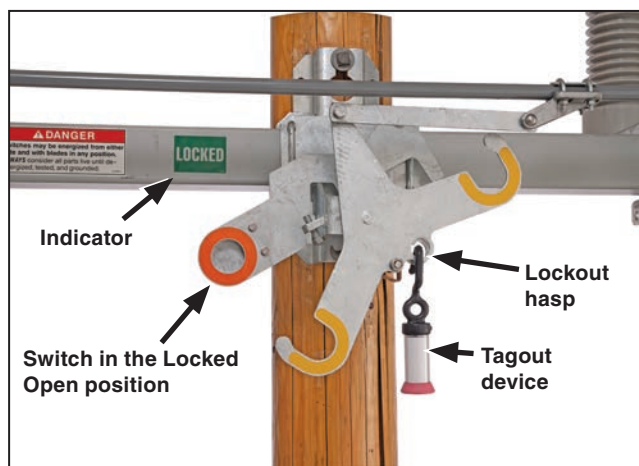


Figure 37. Optional lockout/tagout device in the Open and Locked position.