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.

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 Alduti-Rupter Switch. 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 Alduti-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 and other application information can be found in S&C Specification Bulletin 761-31.

These interrupter switches are not intended for breaking fault currents.

In most applications, Alduti-Rupter Switches are capable of switching rated continuous load currents at full voltage. The ratings for the particular switch are listed on nameplates attached to the operating handle and the switch. See Figure 1.

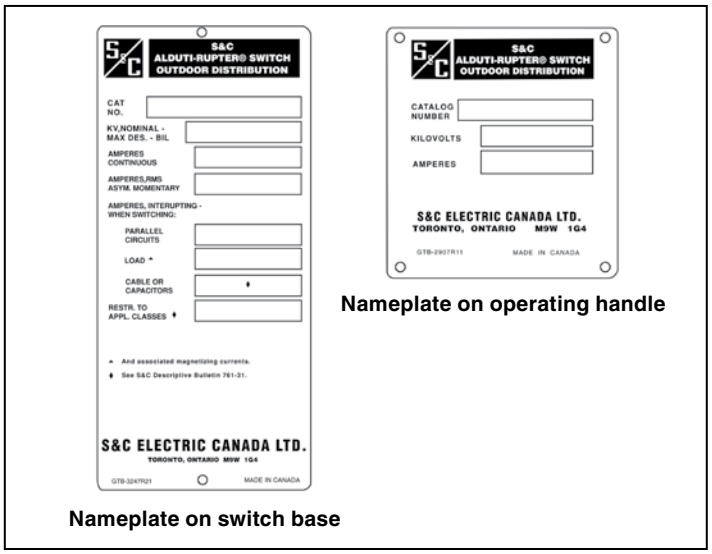


Figure 1. Switch nameplates with ratings.

Operating Considerations

Circuit-making and circuit-breaking are involved in the normal operation of these interrupter switches, and partial or precautionary opening or closing of the switch should not be attempted. If the switch is covered in ice or snow, do not "chop" the switch between the **Open** and **Closed** positions to dislodge the ice.

To operate the switch, swing the handle through its full stroke without hesitation. Do not assume the operating handle position indicates the **Open** and **Closed** positions of the interrupter switch blades. After opening or closing the switch, always make a visual check of the blade position to determine that the switch blades are in the intended position. Then, tag or padlock the operating handle in accordance with standard system operating practices. In all cases, make sure the operating handle is locked before "walking away" from the switch.

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).

Warranty Qualifications

The standard warranty is applicable to the S&C Alduti-Rupter Switch detailed in this instruction sheet except when it is power operated using a switch operator of other than S&C manufacture.

Understanding Safety-Alert Messages

Several types of safety-alert messages may appear throughout this instruction sheet and on labels and tags attached to your S&C Alduti-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 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

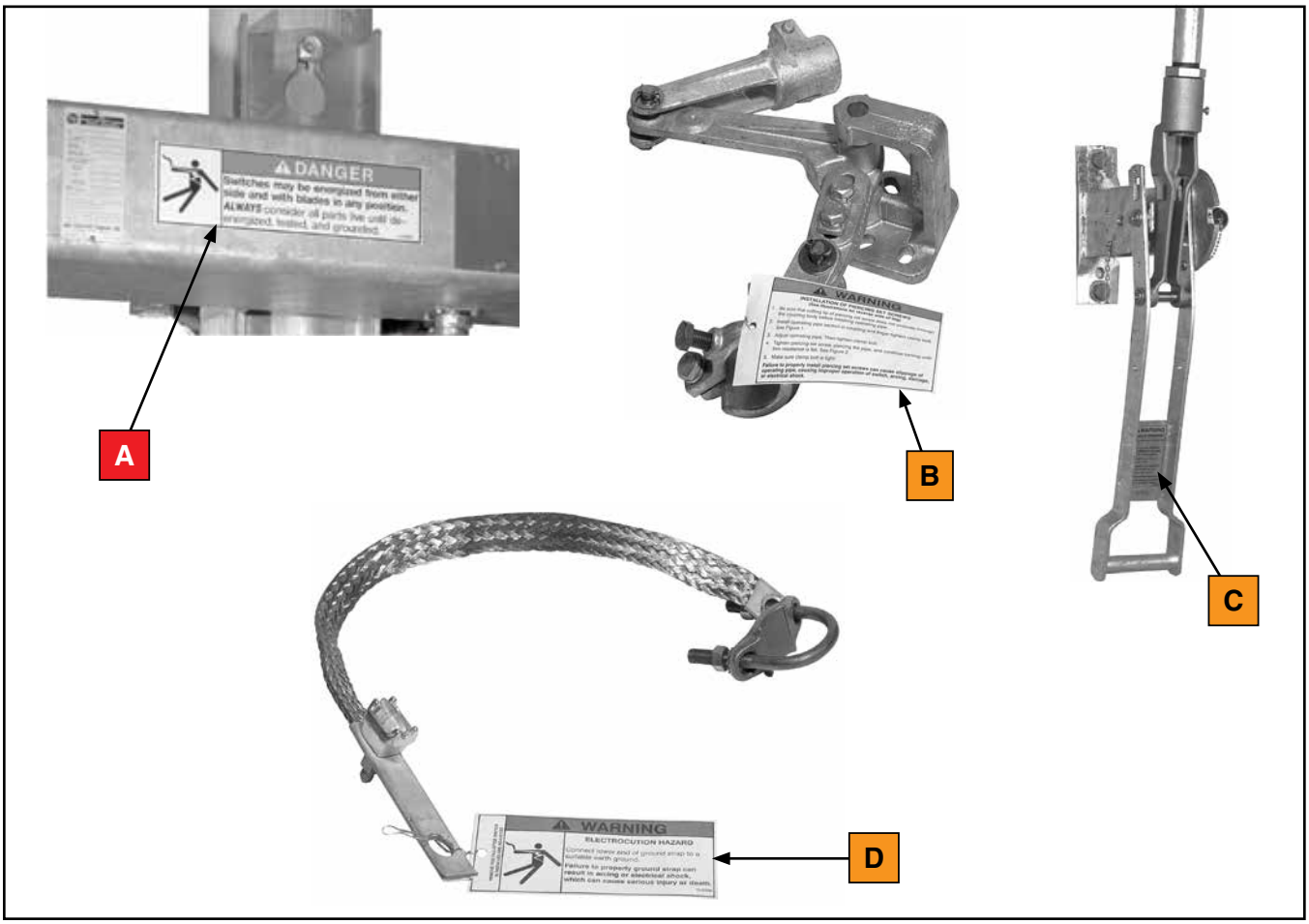
Read this instruction sheet thoroughly and carefully before installing your Alduti-Rupter Switch.	

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	Electrocution Hazard	●
B	⚠ WARNING	Piercing Set Screws	G-3176R1■
C	⚠ WARNING	Handle Operation	G-4400R5
D	⚠ WARNING	Electrocution Hazard – Grounding Strap	G-6596■

● G-6580-1 on a tiered-outboard mounting configuration switch; G-6580-2 on a vertical mounting configuration switch.
■ This part is a tag to be removed and discarded after the switch is installed and adjusted.

⚠ DANGER

Alduti-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. **LOAD-INTERRUPTER SWITCH POSITION.** Always confirm the **Open/Close** position of load-interrupter switches by visually observing the position of the blades. Switches may be energized from either side and with the blades in any position.
7. **MAINTAINING PROPER CLEARANCE.** Always maintain proper clearance from energized components.
8. **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, swing the operating handle through its full travel vigorously and without hesitation. See the "Operation" section on page 29.

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 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.

Packing

Study the erection drawing carefully and check the bill of materials to make sure all parts are at hand. When a standard mounting arrangement is specified, the shipment includes:

- Three switch poles
- Operating-pipe sections for interphase, horizontal-connecting, and vertical sections (The switch may be furnished "less operating pipe," if specified.)
- Operating-mechanism components, such as handle, guide bearings, outboard bearing, and couplings—each tagged and keyed to the bill of material for ready identification

The components included with these modifications are shown on the erection drawing bill of material under the specified "-SX" suffix. They include:

-S1 One tubular fiberglass insulating section in vertical operating shaft

-S2 One Cypoxy™ Insulator unit in vertical operating shaft

-S6 Key interlock—single lock for a "locked-open" application

-S6L Provision for key interlock—allows future addition of single lock for "locked-open" application

-S7 Auxiliary contact switch with 4 N/O and 4 N/C contacts (600 Vac, 20 A)

-S8 Provision for power operation of pole-mounted switches by S&C Switch Operator—Type AS-10

-S9 Provision for power operation of steel-structure or pedestal-mounted switches by S&C Switch Operator—Type AS-10

-S16 Provision for power operation by S&C 6801M Automatic Switch Operator

The "-V1" or "-V2" erection drawing suffix adds (one or two respectively) extra 6-foot-10-inch (208-cm) lengths of pipe and includes the appropriate number of extra couplings and guides.

Reference drawing RD-10005, detailing the various modifications, is included in addition to the erection drawing.

Power Operation: If suffix "-S8" or "-S9" is specified, S&C Instruction Sheets 769-510 and 769-511, "S&C Switch Operators—Type AS-10," are included with the switch operator shipment. Instruction Sheets 769-510 and 769-511 cover installation, operation, and adjustment of the appropriate switch operator and should be used in conjunction with this instruction sheet where applicable. If suffix "-S16" is specified, associated S&C Instruction Sheets for the 6801M Automatic Switch Operator are included with the switch operator shipment. Not all mounting arrangements are suitable for power operation; consult the nearest S&C Sales Office for details.

Handling

The crate the switch pole-units are packed in is designed to be moved and lifted using a lift truck. Raised slots in the bottom of the crate are provided for a lift truck's forks.

NOTICE

To minimize time-consuming final adjustments after installation, make sure the switch poles are in their fully **Closed** position during installation of the interphase and vertical operating pipe sections. S&C recommends tying the switch blades to their jaw contacts with wire or a cable tie.

⚠ WARNING

DO NOT lift the switch pole-units by rigging on the "live parts" or subject these parts to undue stress from slings or fall lines.

Lifting the switch by the live parts 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.

Mounting to Wood

NOTICE

When mounting to a wood structure, a spring-type washer must be used between the square washer and the nut to maintain fastener tightness in the event of wood shrinkage. See Figure 2.

Preparing the Pole

STEP 1. Drill two 11⁄16-inch (17-mm) diameter holes through the utility pole as shown, at the desired height for mounting the switch. See Figure 3. Refer to the erection drawing.

STEP 2. Insert a 5⁄8-inch diameter through-bolt (not furnished) into each hole as shown in Figure 4. *Loosely* attach a square washer, spring washer (when mounting to a wood utility pole), and nut on each bolt.

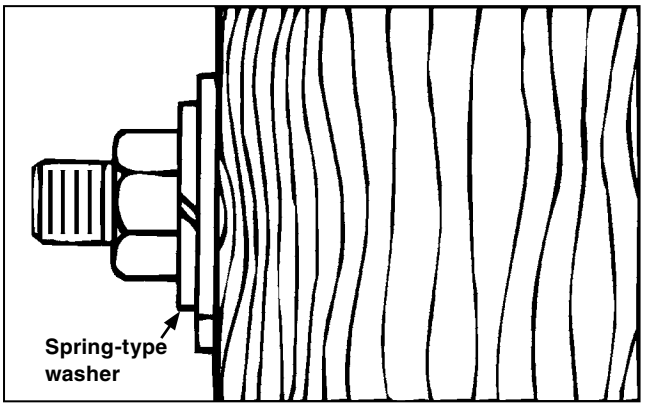


Figure 2. Applying the spring washer.

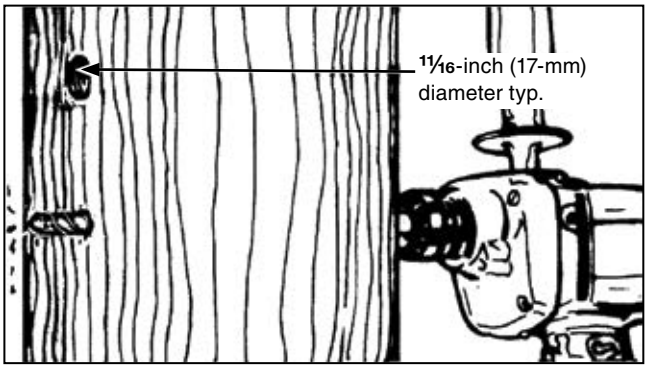


Figure 3. Drilling holes for the switch-mounting bracket.

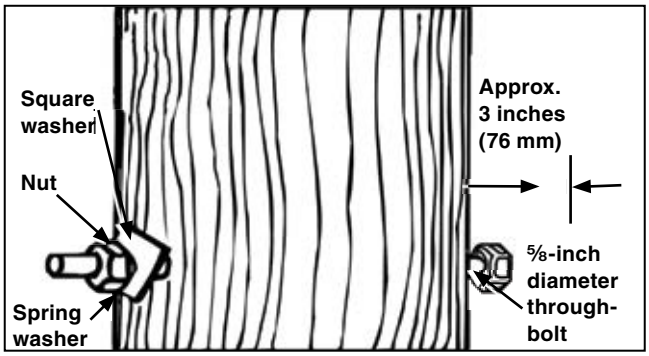


Figure 4. Installing through-bolts.

Uncrating the Switch

STEP 3. Remove the switch from its crate. See Figure 5. Protect the bearings from contamination by dirt, mud, oil, etc. If necessary, use blocks to keep the bearings clear of the ground.

For vertical mounting configuration switches proceed to Step 4.

For tiered-outboard mounting configuration switches proceed to Step 11 on page 13.

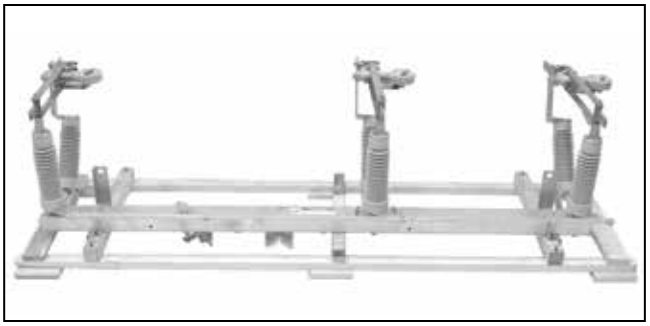


Figure 5. Uncrating the switch.

Lifting the Vertical Mounting Configuration Switch

STEP 4. To minimize time-consuming final adjustments, make sure the switch is fully closed. Tie the switch blades to their stationary main contact assemblies. See Figure 6.

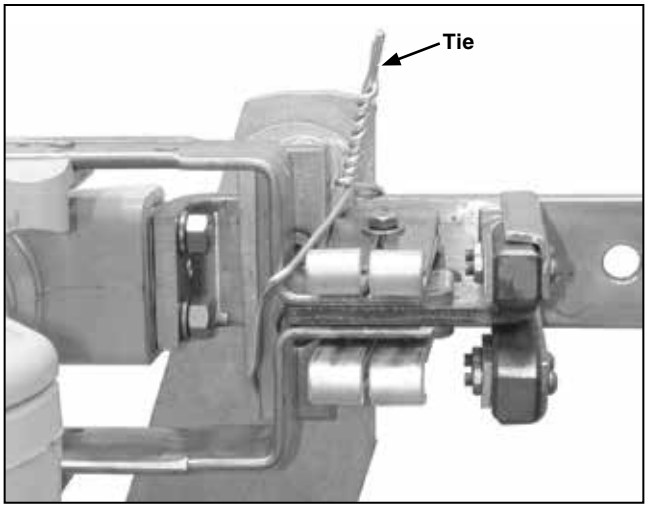


Figure 6. Tying the switch blade to the main contacts.

STEP 5.

⚠ WARNING

DO NOT lift the switch by rigging on the "live parts" or subject these parts to undue stress from slings or fall lines.

Lifting the switch by the live parts will damage the switch. Rough handling may cause damage to the blades, contacts, and/or interrupters.

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

Hoist the switch using the two lifting devices. Each lifting device consists of a lifting strap attached to a 4×4-inch (102x102-mm) wood support member that is, in turn, banded to the switch base. See Figure 7.

STEP 6. Guide the switch so the through-bolt heads enter into the keyhole slot and open slotted hole in the switch base. See Figure 8.

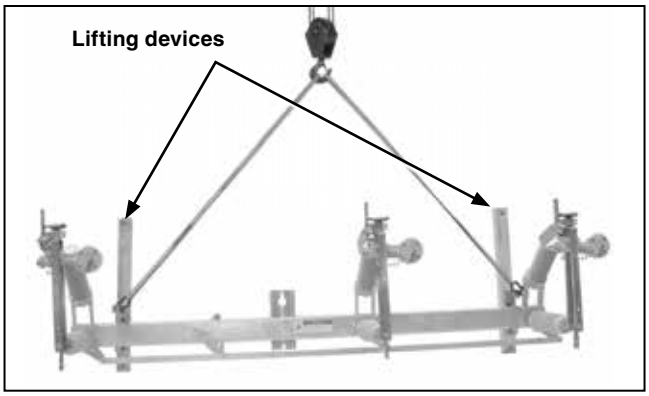


Figure 7. Hoisting the switch into position.

Figure 8. Guiding the switch.

STEP 7. *Slowly* lower the switch until it just bears on the through-bolts. Fully tighten the bolts. See Figure 9. Then, remove the lifting slings.

STEP 8. Attach the pole band to the switch base anchor brackets using the J-bolts furnished. Use a stiffening block under each nut. See Figure 10.

Use a ⅝-inch diameter lag bolt (not furnished) to secure each pole band to the utility pole.

Figure 9. Bolting the switch.

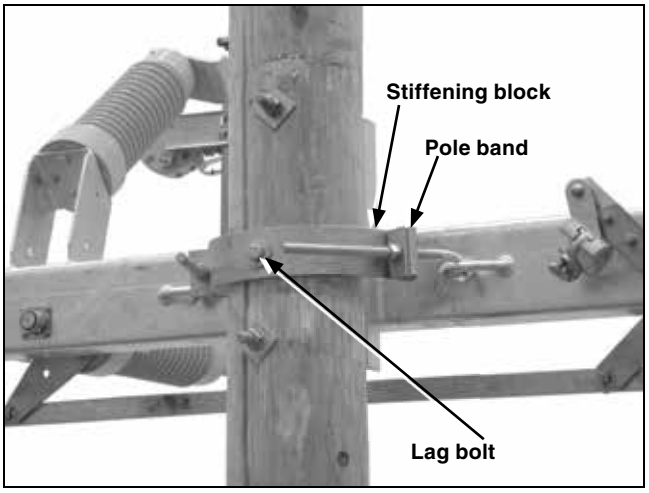


Figure 10. Attaching the pole bands.

STEP 9. Remove the wood support members, lifting straps, and banding straps provided to facilitate hoisting of the switch. See Figure 11.

STEP 10. If desired, crossarm braces (supplied by others) may be attached to the switch base. See Figure 12. Refer to the erection drawing.

NOTICE

In the case of insulated-base models, the mounting brackets for crossarm braces must be specified separately.

Proceed to the "Installing Pipe Couplings with Piercing Set Screws" section on page 17.

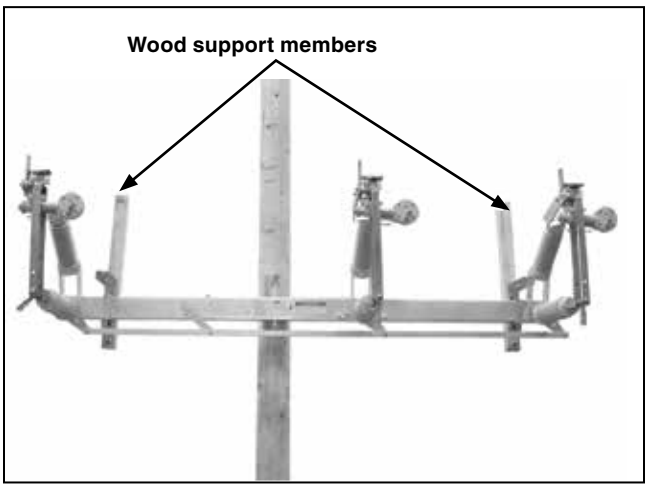


Figure 11. Removing the wood support members.

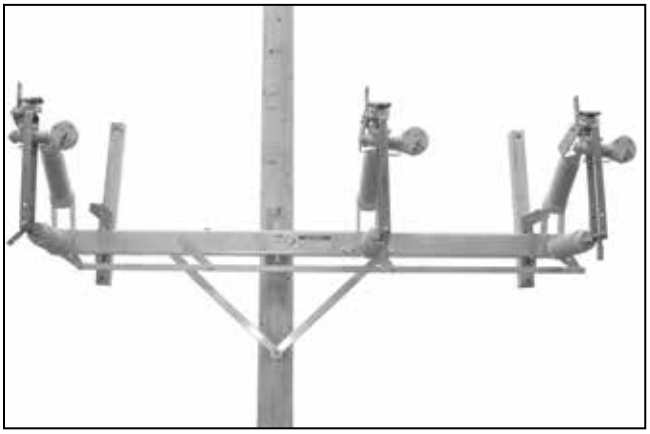


Figure 12. Attaching the crossarm braces (supplied by others) to the switch base.

Lifting the Tiered-Outboard Mounting Configuration Switch

STEP 11. To minimize time-consuming final adjustments, make sure the switch is fully closed. Tie the switch blades to their stationary main contact assemblies. See Figure 15.

STEP 12.

⚠ WARNING

DO NOT lift the switch by rigging on the "live parts" or subject these parts to undue stress from slings or fall lines.

Lifting the switch by the live parts will damage the switch. Rough handling may cause damage to the blades, contacts, and/or interrupters.

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

Hoist the switch using the two large holes in the mounting bracket at the top of the switch base. See Figure 14.

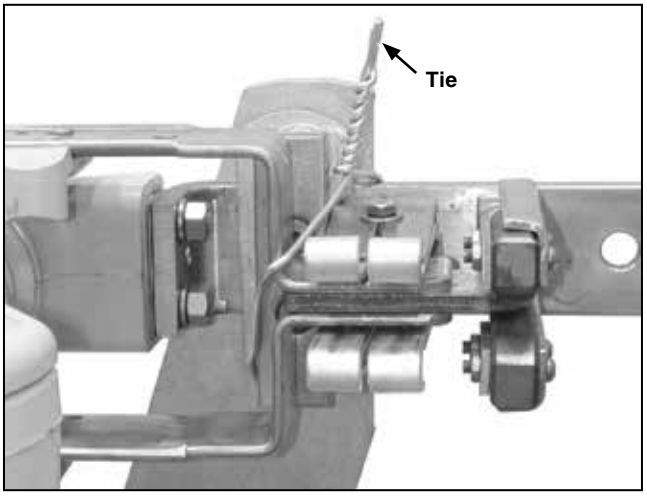


Figure 13. Tying the switch blade to the main contacts.

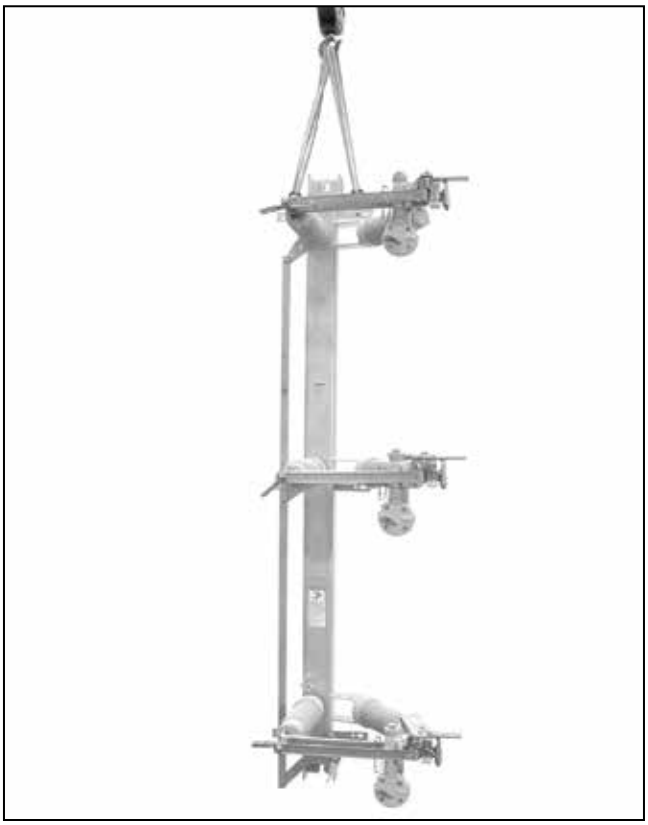


Figure 14. Hoisting the switch into position.

STEP 13. Guide the switch so the through-bolt heads enter into the keyhole slot and open slotted hole in the switch base. See Figure 15.

STEP 14. *Slowly* lower the switch until it just bears on the through-bolts. Fully tighten the bolts. See Figure 16. Then, remove the lifting slings.

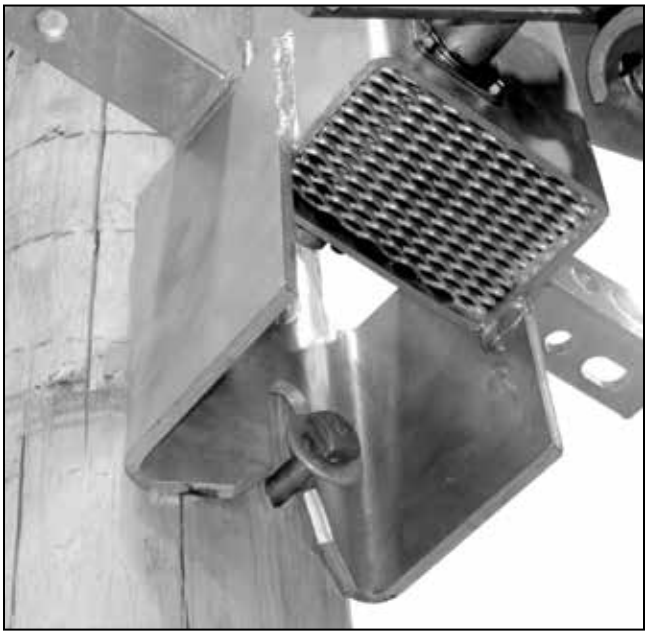


Figure 15. Guiding the switch.

Figure 16. Bolting the switch.

STEP 15. Attach the pole bands to the switch base anchor brackets using the J-bolts furnished. Use a stiffening block under each nut. See Figure 17.

Use a ⅝-inch diameter lag bolt (not furnished) to secure each pole band to the utility pole.

Proceed to the "Installing Pipe Couplings with Piercing Set Screws" section.

Installing Pipe Couplings with Piercing Set Screws

⚠ WARNING

Failure to properly install pipe couplings with piercing set screws can cause the operating pipe to slip, resulting in improper operation of the switch, arcing, equipment damage, or electrical shock.

STEP 16. To properly install piercing set screws:

(a) Make sure the cutting tip of the piercing set screw does not protrude through the body of the clamp.

(b) Insert the operating pipe section into the coupling and finger-tighten the clamp bolt(s).

(c) Adjust the operating pipe to the correct length. Then, tighten the clamp bolt(s) to final tightness.

(d) Tighten the piercing set screw, piercing the pipe; continue turning until a firm resistance is felt.

(e) Make sure the clamp bolt(s) are tight.

See Figure 18.

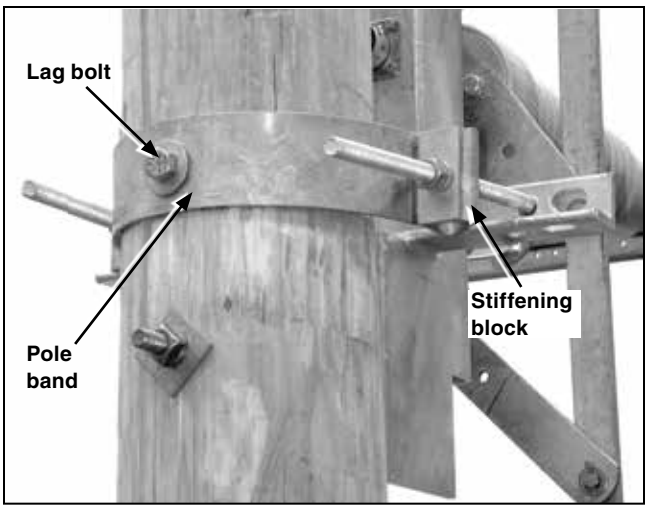


Figure 17. Attaching the pole bands.

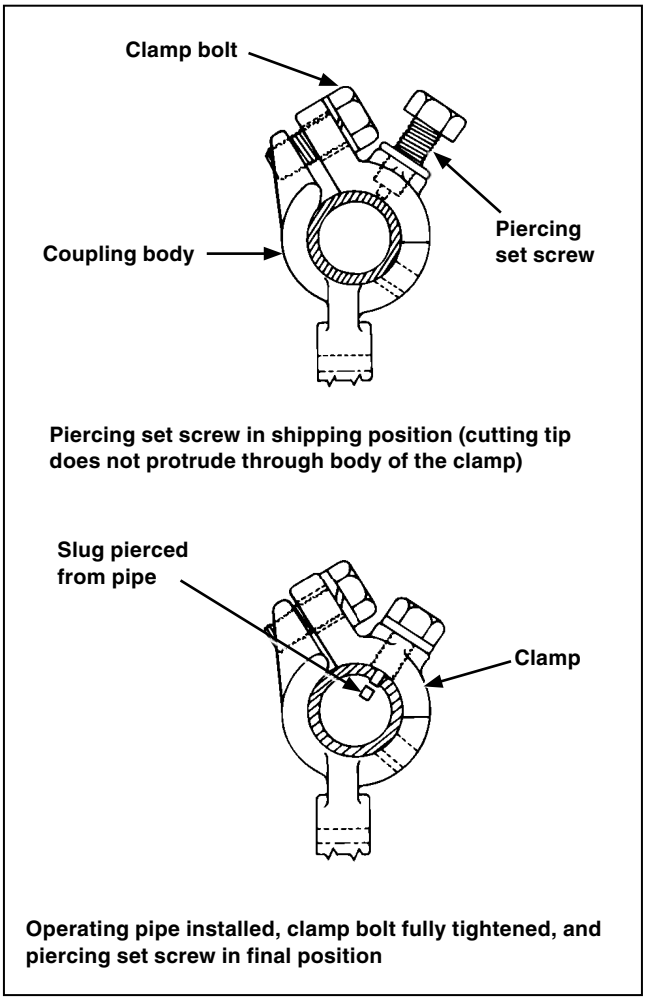


Figure 18. Installing the pipe couplings.

Installing the Vertical Operating Pipe

STEP 17. One of the pipe sections furnished is threaded at one end to accommodate the operating handle assembly. See Figure 19. Install this section of pipe *last*, with the threads at the lower end.

STEP 18. Mount the rod guide(s) with the arm pointing upward, as shown in Figure 20. When an *adjustable* rod guide is included, mount it nearest the switch.

STEP 19. Install the upper section of the vertical operating pipe between the switch drive lever and the uppermost rod guide, with the rod-guide arm pointing upward at a 45-degree angle. See Figure 21. (A positioning stud is furnished that holds the rod guide at 45 degrees.) Follow the directions in the "Installing Pipe Couplings with Piercing Set Screws" section on page 17.

Torque the clamp bolts to final tightness. Then, tighten the piercing set screws, piercing the pipe, and continue turning until a firm resistance is felt.

If more than one rod guide is used, install vertical operating-pipe sections between the rod guides in the same manner.

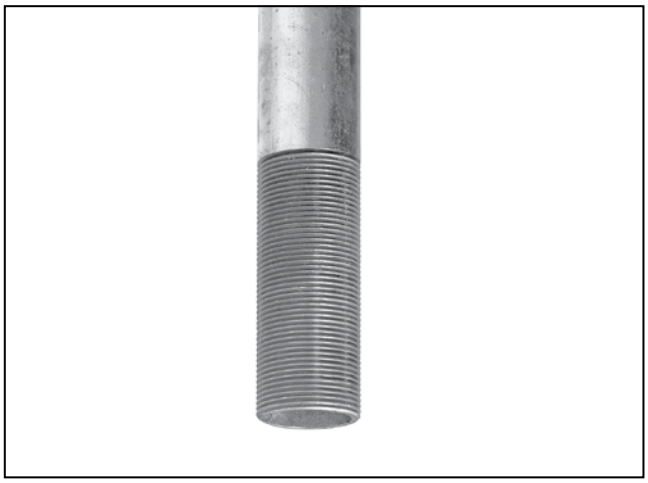


Figure 19. Threaded vertical operating pipe.

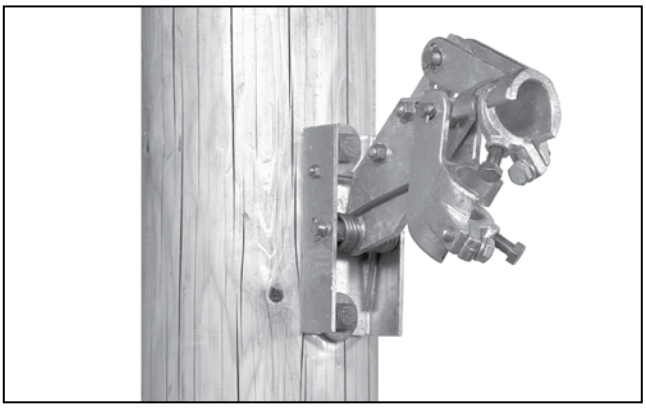


Figure 20. Attaching the rod guide.

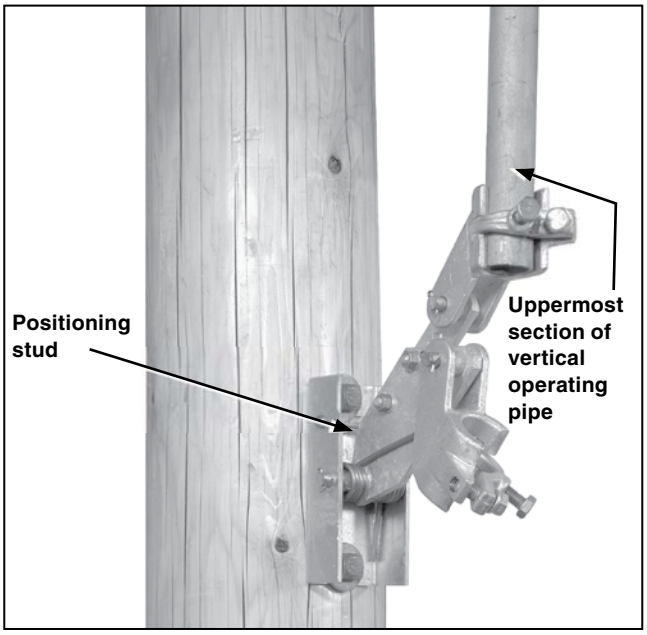


Figure 21. Installing the upper operating pipe section into the rod guide.

Installing the Operating Handle●

STEP 20. Mount the operating handle assembly as shown on the erection drawing. At the same time, use one of the mounting bolts to attach one end of the ground strap (the end with the grounding connector attached) to the handle mounting plate.■ See Figure 22.

STEP 21. Install the lowest vertical operating-pipe section by threading one end of the pipe into the coupling on the operating handle assembly. Approximately ¼ inch (6 mm) of thread should extend through the coupling. Tighten the locknut. See Figure 23.

● If suffix "-S8" is specified, refer instead to S&C Instruction Sheet 769-510, "S&C Switch Operators—Type AS-10 (Installation)." If suffix "-S16" is specified, refer instead to S&C Instruction Sheet 1045M-510, "S&C 6801M Automatic Switch Operators, Reciprocating and Rotating Switch Operation: *Installation*."

■ The grounding recommendations described in this document may differ from the standard operating and safety procedures of certain electric utility companies. Where a discrepancy exists, the operating procedures of the electric utility apply.

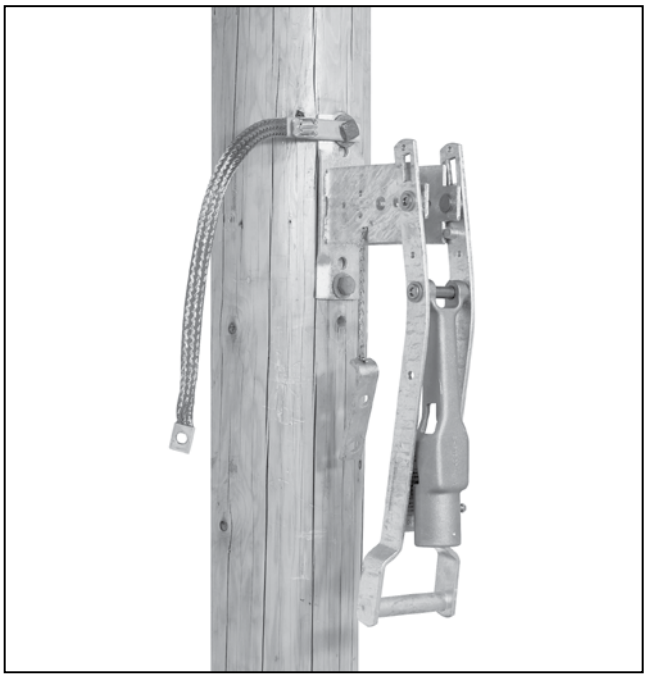


Figure 22. Mounting the operating handle.

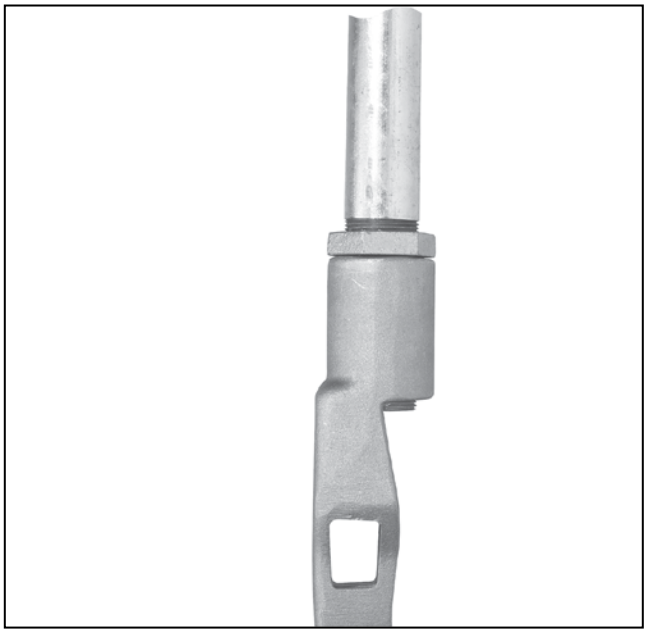


Figure 23. Installing lowest operating pipe section into operating handle assembly.

STEP 22. Insert the upper end of this pipe section in the lowest rod guide or, if only one vertical operating pipe section is used, the offset coupling attached to the switch drive lever. While holding the operating handle at a point approximately 20 degrees from the **Closed** position, torque the rod guide (or switch drive lever) coupling clamp bolt. See Figure 24.

NOTICE

Do not tighten the piercing set screw at the top of the lowest section of vertical operating pipe until satisfactory operating handle adjustment is attained.

STEP 23. Fasten the free end of the grounding strap to the lowest vertical operating-pipe section a few inches above the operating handle assembly with the U-bolt connector provided for this purpose. See Figure 25. Then, connect the lower end of the strap to a suitable earth ground, using the grounding connector provide at that end of the strap.●

● The grounding recommendations described in this document may differ from the standard operating and safety procedures of certain electric utility companies. Where a discrepancy exists, the operating procedures of the electric utility apply.

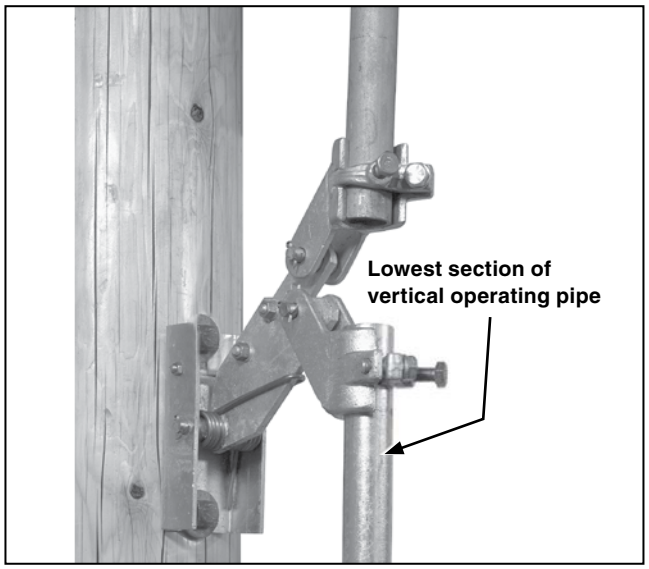


Figure 24. Installing the lowest operating pipe section into the rod guide.

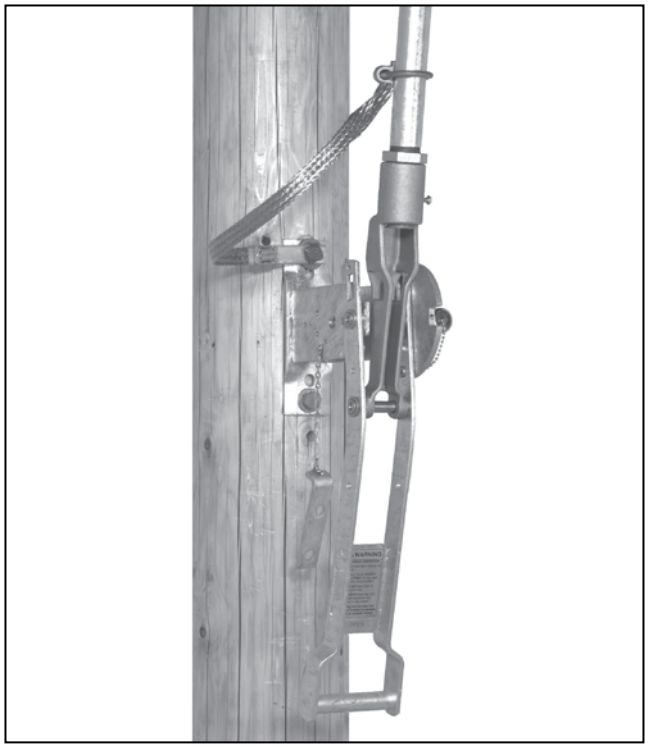


Figure 25. Attaching the grounding strap.

Checking Alignment

STEP 24. Remove the ties holding the switch blades to their stationary main contact assemblies. See Figure 26.

(a) Remove the 45-degree positioning stud from each rod guide. See Figure 21 on page 18.

(b) Open and close the switch *slowly* to make sure no operational difficulties are encountered caused by undetected damage in shipping.

⚠ WARNING

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

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

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

STEP 25. Move the operating handle *slowly* to the **Closed** position. See Figure 27. A definite resistance should be felt at the end of the stroke, indicating all slack in the operating linkage has been taken up.

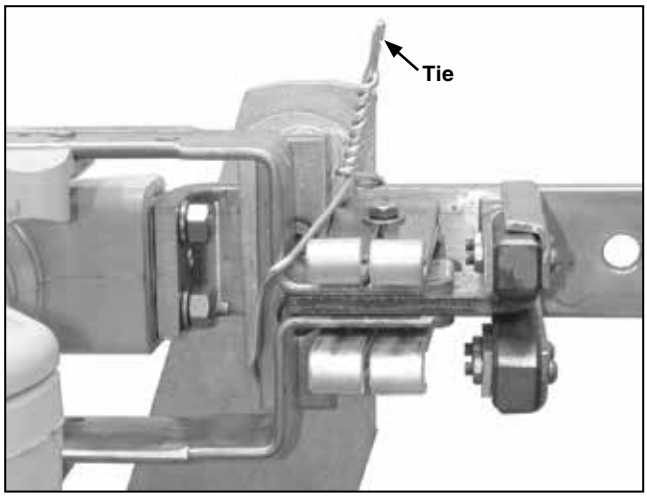


Figure 26. Removing the tie at the stationary main contact assembly.

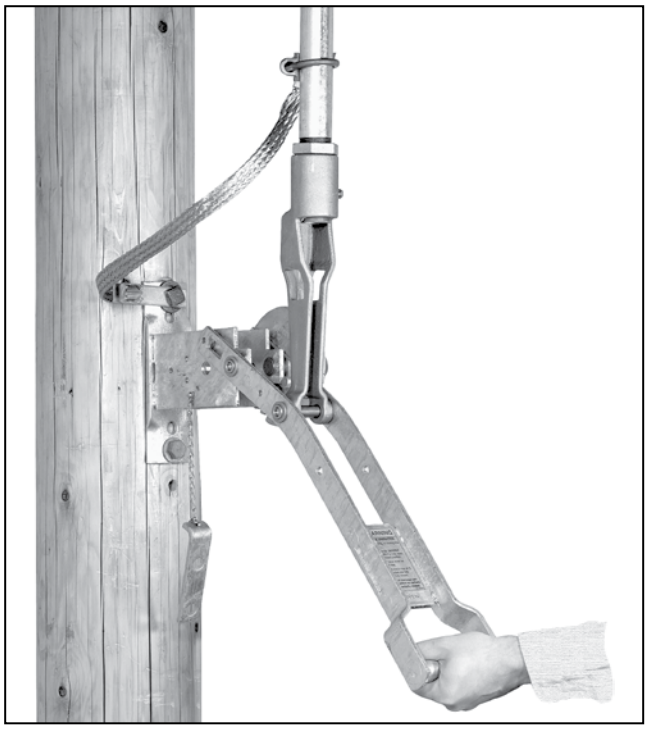


Figure 27. Verifying the slack has been taken up in the operating linkage.

STEP 26. If there is still slack, repeat the procedure in Step 21 but move the operating handle *more* than 20 degrees in the opening direction before torquing the clamp bolt on the lowest rod guide (or switch drive lever) coupling. See Figure 28.

Conversely, if considerable force is needed to move the handle to the fully **Closed** position, or if the handle does not swing 180 degrees to the fully **Open** position, loosen the clamp bolt on the lowest rod guide (or switch drive lever) coupling and move the handle to a position *less* than 20 degrees from the **Closed** position. Then, torque the clamp bolt on the lowest rod guide (or switch drive lever) coupling. Proper "resistance" in the operating linkage is essential to ensure positive switch closure.

Recheck to be sure all clamp bolts and piercing set screws have been torqued to final tightness.

If a key interlock is used (standard minor modification suffix "-S6") proceed to Step 27. Otherwise, proceed to Step 29 on page 24.

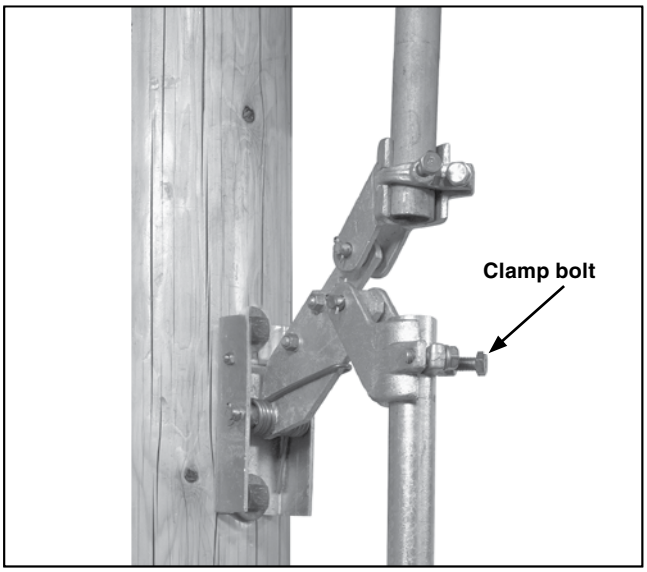


Figure 28. Torquing the clamp bolt at the lowest rod guide (or switch operating lever) coupling.

Installing the Key Interlock

STEP 27. The interlock group includes a Superior Type B4003-1 Mk II single- or multiple-key interlock (or equivalent), with zero bolt projection and ¾-inch (19-mm) bolt travel, locking disc, and interlock bracket. If "provision only" is specified, the interlock is not included.

Attach the key interlock to the interlock bracket so the interlock bolt, when extended, engages a slot in the locking disc on the operating handle. See Figure 29.

STEP 28. Block one of the two slots in the locking disc with the blocking screw provided. (The slot to be blocked depends on whether a locked-open or locked-closed arrangement is required.) See Figure 30.

NOTICE

Key interlocks are intended for proper sequencing of switch operations; they are not intended to provide security. The operating handle assembly includes a locking bar for padlocking the switch in either the **Open** or **Closed** position.

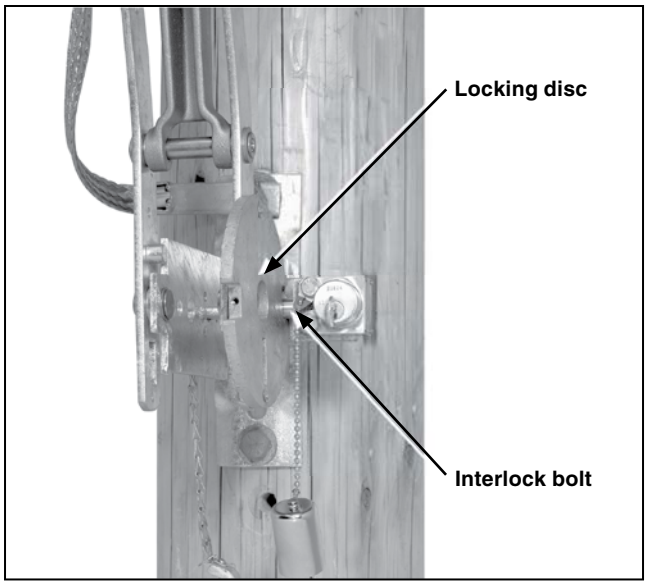


Figure 29. Attaching the key interlock to the interlock bracket.

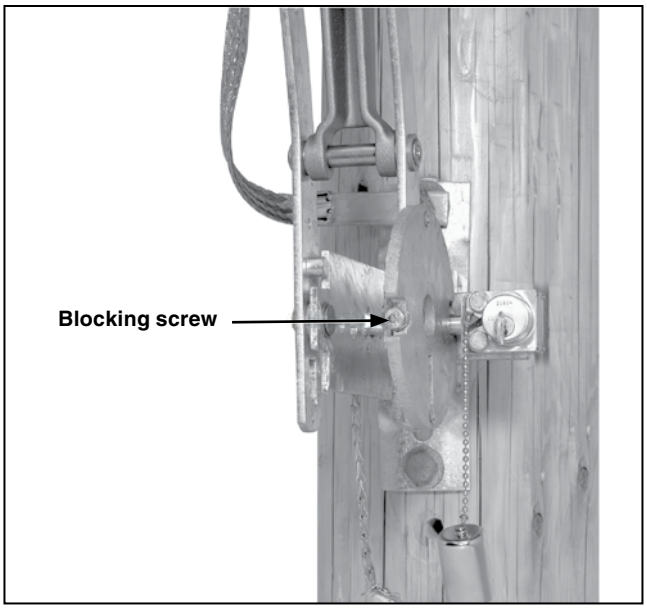


Figure 30. Blocking the slot in the interlock disc.

Checking Operation

STEP 29. Open and close the switch slowly through its full travel.

> **⚠ 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 operating handle vigorously through its full travel without hesitation at any point.
>
> **Failure to operate the switch properly can result in arcing, switch damage, serious injury, or death.**

Make sure the following conditions exist:

(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 31.

(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. See Figure 32.

In the unlikely event the above-described conditions are not met, more switch blade travel is required. Move the operating handle to its mid-position to take the strain off the operating-pipe linkage and loosen the two bolts that clamp the driven arm of the adjustable rod guide. Lengthen the driven arm one step, or 11/32-inch (9 mm), and retighten the bolts. See Figure 33. Lengthening the driven arm increases switch-blade travel. Then, readjust for full operating-handle travel as described in steps 25 and 26 on pages 21 and 22.

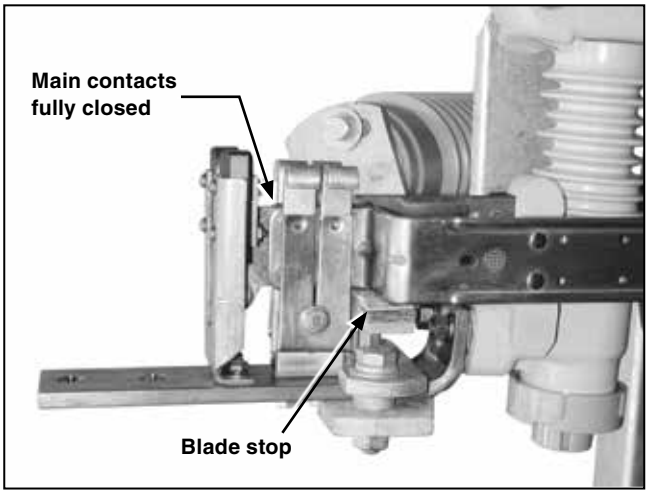


Figure 31. Checking that the blade is fully closed.

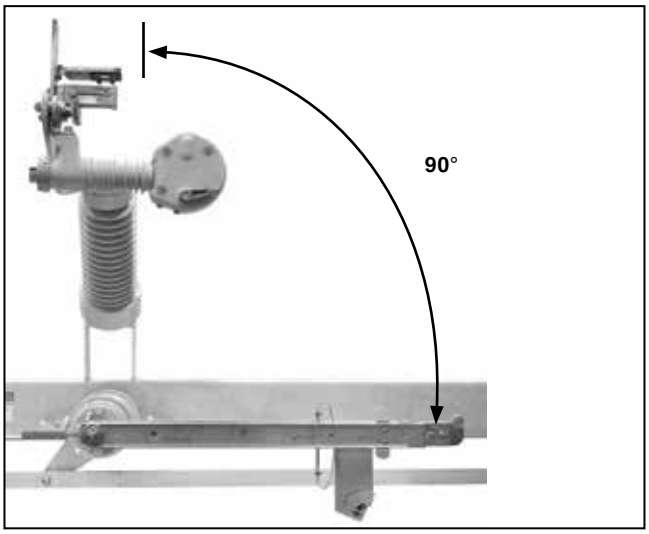


Figure 32. Checking that the switch blades are 90 degrees from the Closed position.

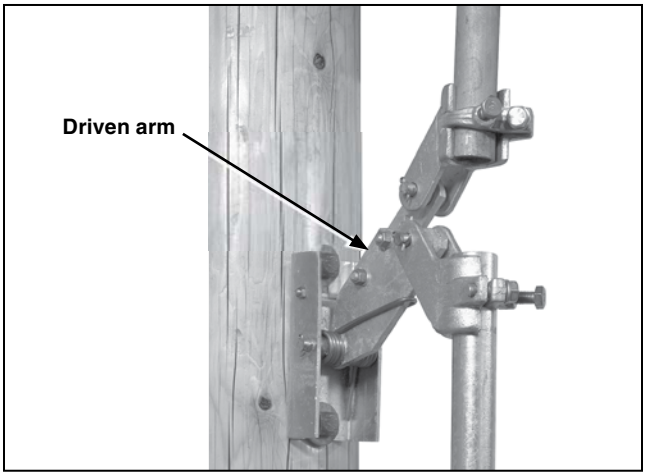


Figure 33. Lengthening the driven arm of the adjustable rod guide.

Repeat this procedure—lengthening the driven arm of the adjustable rod guide in one-step increments and readjusting for full operating handle travel—until full switch-blade travel is attained.

When satisfactory travel adjustment of the operating handle and switch have been attained, torque the bolts on the driven arm of the adjustable rod guide, and the clamp bolt on the rod guide (or switch drive lever) coupling to final tightness. Then, tighten the associated piercing set screw, piercing the pipe, and continue turning until a firm resistance is felt.

NOTICE

After readjusting, be sure to retighten the clamp bolt and piercing set screw on the pipe coupling at the rod guide (or switch driver lever) immediately above the operating handle, as well as the clamp bolts on the driven arm of the adjustable rod guide.

STEP 30. Open and close the switch *slowly* several times.

> **⚠ 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 operating handle vigorously through its full travel without hesitation at any point.
>
> **Failure to operate the switch properly can result in arcing, switch damage, serious injury, or death.**

STEP 31. Check the operation of each switch pole. The following conditions must be met:

(a) As the blade moves in the Closing direction, clearance between the blade-opening cam and the interrupter-opening lever must be within the limit shown. See Figure 34.

(b) As the blade assembly moves in the Closing direction, each blade-closing cam must make positive engagement with its respective interrupter-closing lever. See Figure 35.

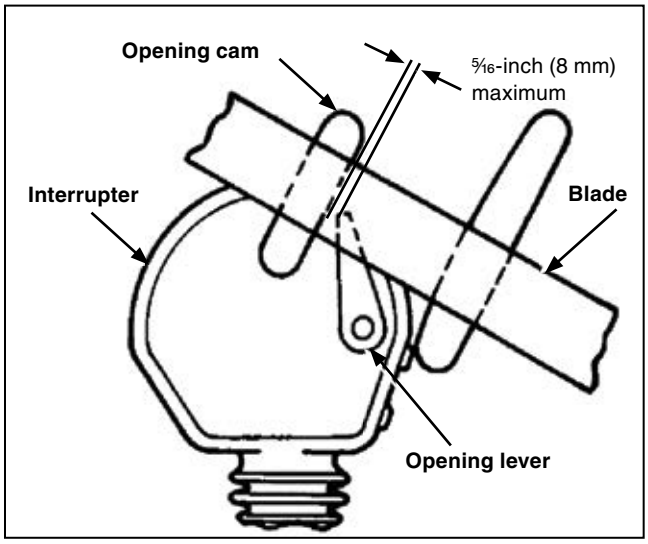


Figure 34. The blade assembly moving in the Closing direction.

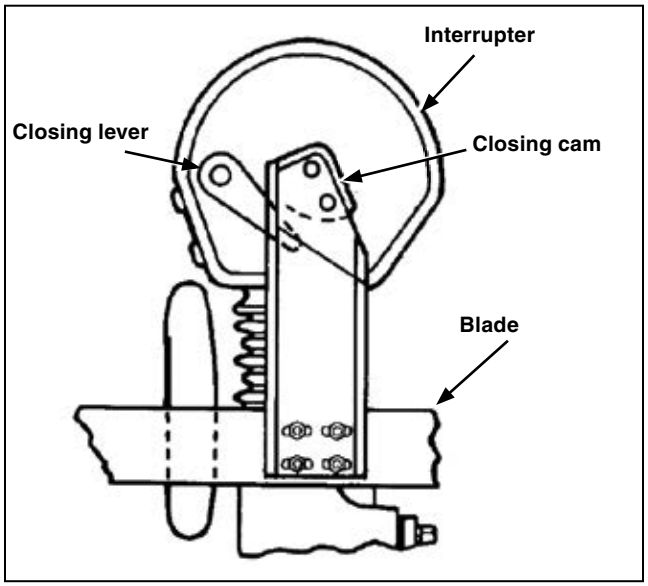


Figure 35. The blade assembly moving in the Closing direction.

(c) When the blade is in the fully **Closed** position, each blade-closing cam must overlap its respective interrupter-closing lever to prevent inadvertent opening of the interrupter, and clearance between the blade-closing cam and its respective interrupter-closing lever must be within the limit shown. See Figure 36.

(d) The interrupter must lie in a plane parallel to the sweep of the blades, and the blades must pass over the interrupter with approximately equal clearance on both sides. See Figure 37.

(e) If adjustment is required, loosen the nuts that fasten the interrupter to the jaw-contact assembly and shift the interrupter, within the confines of the mounting holes, to achieve the necessary clearances. Retighten the nuts.

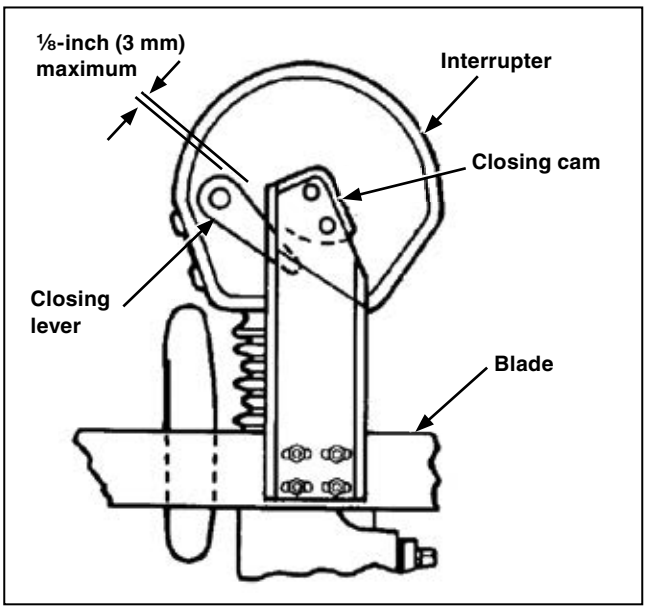


Figure 36. The blade assembly in the fully Closed position.

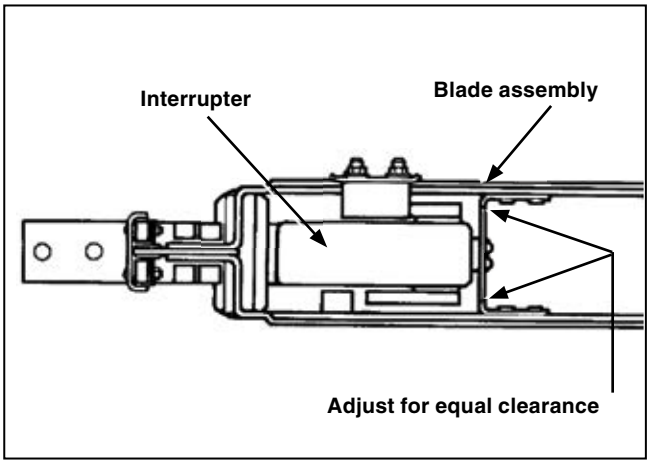


Figure 37. The blade assembly in the fully Closed position.

(f) With the switch in the fully **Closed** position, verify the minimum clearances between the blade shunt contact and the interrupter, measured to the interrupter housing as well as the interrupter skirts. See Figure 38.

(g) Move the blade in the *opening* direction and verify that each blade shunt contact firmly engages its respective interrupter contact rivets before the blade contacts disengage from the stationary main contact assemblies. See Figure 39. The shunt contacts may be bent as required to conform to these conditions.

If any of the conditions described in this step cannot be achieved, contact the nearest S&C Sales Office because it is likely that damage was sustained during shipment.

Connecting High-Voltage Conductors

When high-voltage conductors are to be connected using aluminum-alloy body connectors● the following procedures should be employed:

(a) Thoroughly wire-brush the current-transfer surfaces of each connector and immediately apply a liberal coating of Penetrox® A to the brushed surfaces.

(b) Wire-brush each terminal pad of the interrupter switch and apply a coating of Penetrox A. Then, bolt the connectors to the terminal pads.

(c) Prepare the conductors using established procedures and clamp them in their respective connectors.

● "Mass anode"-type connectors, such as the catalog number 6300 series offered by S&C, designated by the connector manufacturer as being suitable for direct attachment to copper bearing alloy terminal pads.

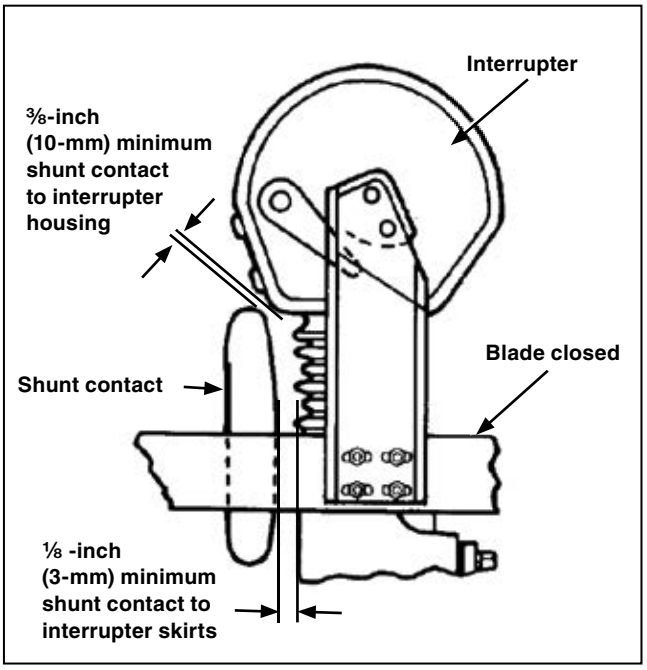


Figure 38. The blade assembly in the fully Closed position.

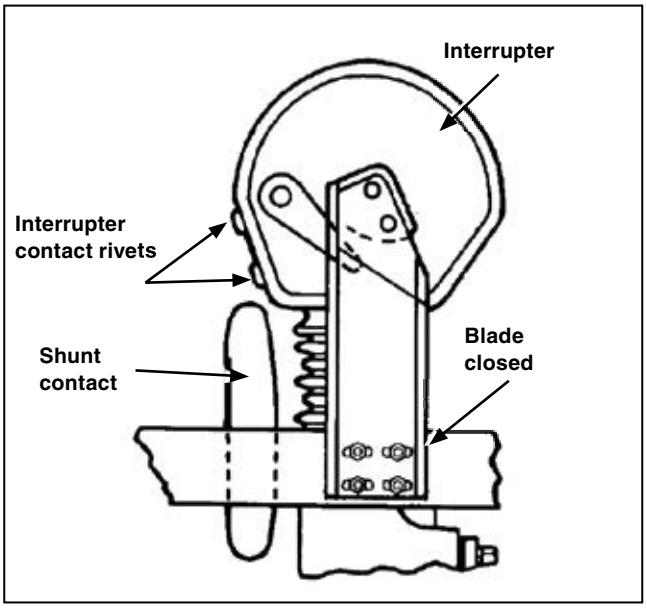


Figure 39. The blade assembly in the Opening position.

Opening and Closing the Switch

⚠ DANGER

The interrupters and terminal pads of the Alduti-Rupter Switch may be energized with the interrupters in any position. Before inspecting, servicing, or repairing this switch or working on the conductors on either side of the switch, test for voltage using proper high-voltage test equipment. Then, install suitable grounding equipment.

Failure to observe these precautions will result in serious injury or death.

NOTICE

This interrupter switch is not intended for breaking fault currents.

STEP 32. To operate the Alduti-Rupter Switch:

(a) Remove the padlock from the locking bar on the operating-handle assembly. Withdraw the locking bar. See Figure 40.

(b) If the operating handle assembly is furnished with a key interlock, disengage the interlock bolt.

(c) Swing the handle *rapidly* to the fully **Open** or fully **Closed** position. See Figure 41. Always check that all three poles are fully open or fully closed.

(d) Replace the locking bar and the padlock. Engage the key interlock, if applicable.

⚠ WARNING

When opening or closing the switch, do not slow down or stop part way. Swing the operating handle vigorously through its full travel without hesitation at any point.

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

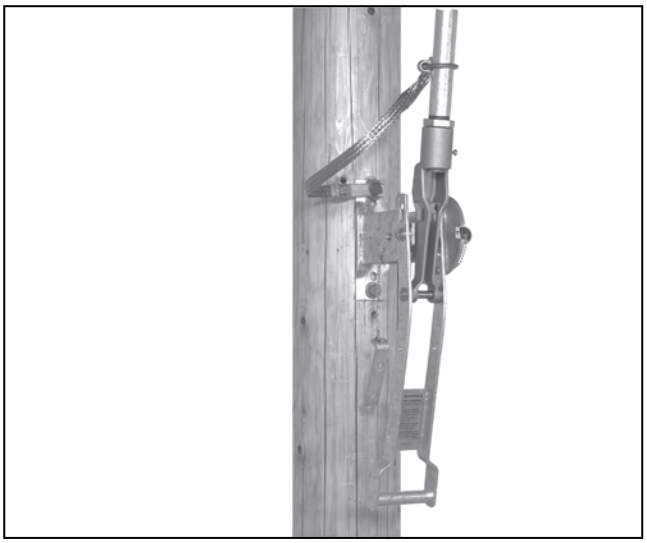


Figure 40. Withdrawing the locking bar and disengaging the key interlock bolt.

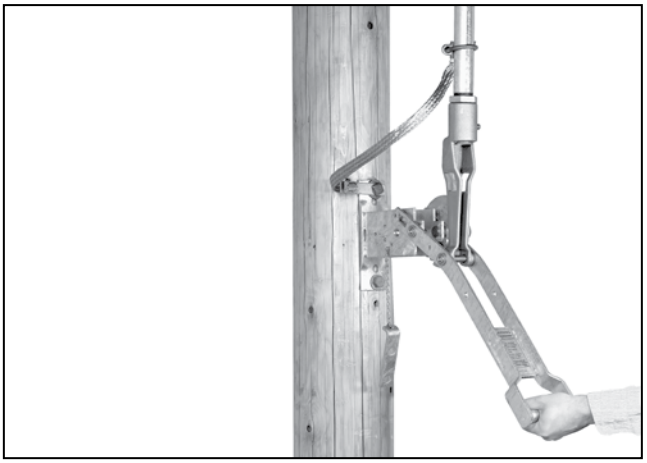


Figure 41. *Rapidly* swing the operating handle.