

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 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 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 Specification Bulletin 761-31.

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 on page 3.

These interrupter switches are not intended for breaking fault currents.

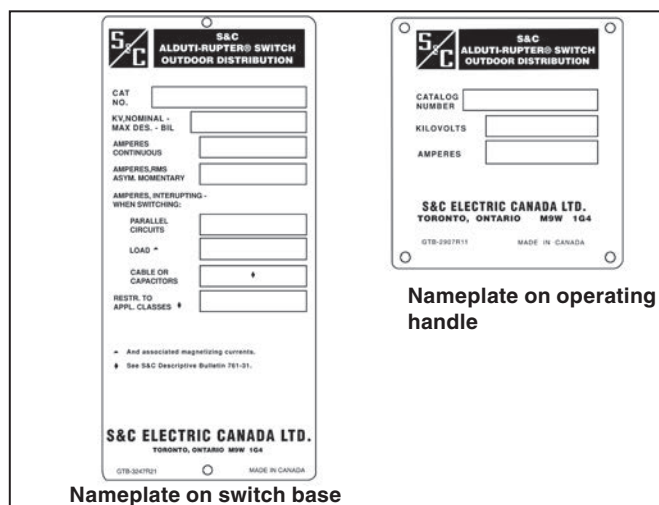


Figure 1. Switch nameplates with ratings.

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 whether 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 Alduti-Rupter Switch detailed in this instruction sheet except when it is power operated using a switch operator not manufactured by S&C.

Understanding
Safety-Alert
Messages

Several types of safety-alert messages may appear throughout this instruction sheet and on labels and tags attached to your 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 Support Center at 1-888-762-1100.

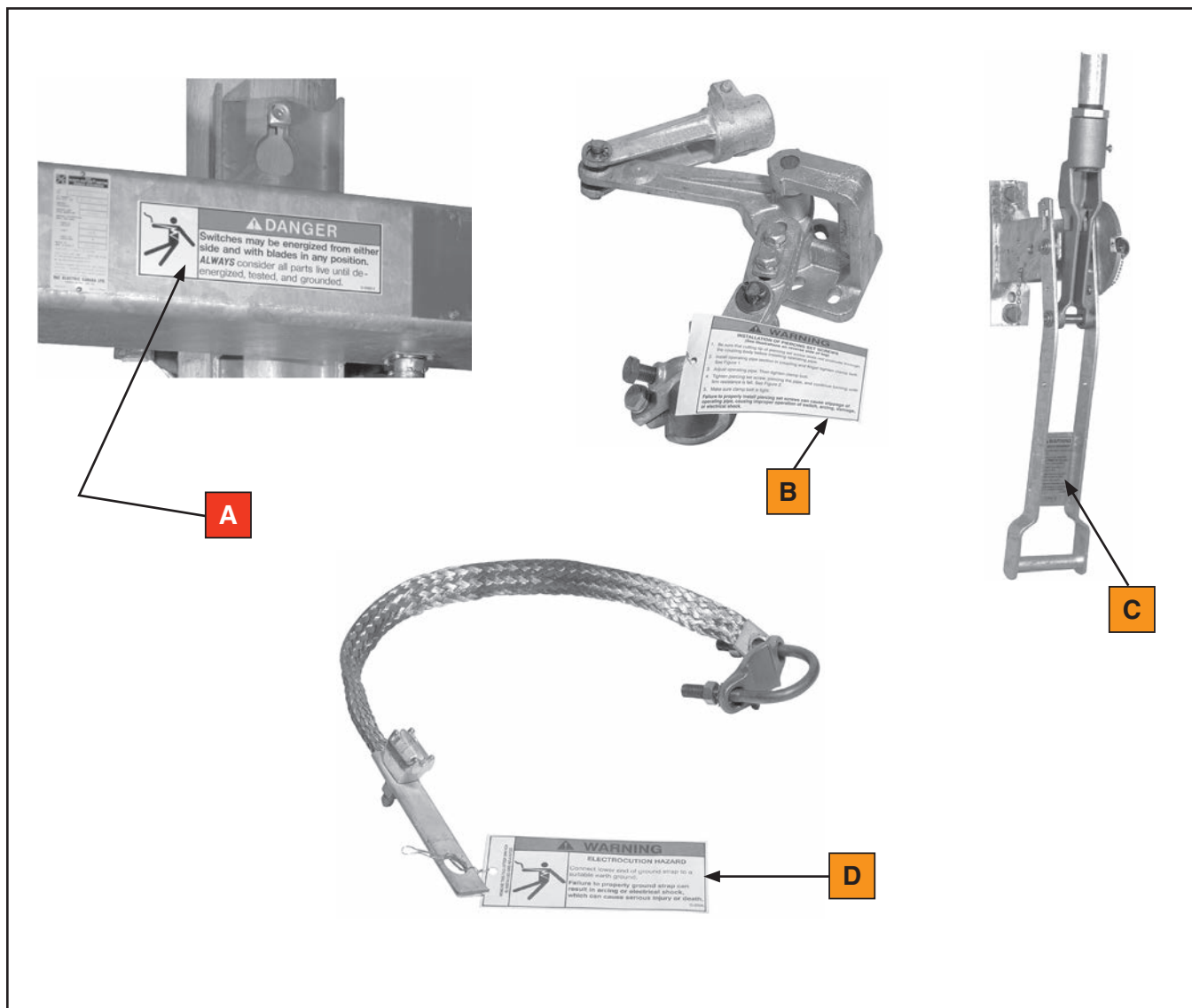
NOTICE	
Read this instruction sheet thoroughly and carefully before installing your Alduti-Rupter Switch.	

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 Information

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 tiered-outboard mounting configuration switch; G-6580-2 on 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 the condition of shipment on all copies of the delivery receipt.
4. File a claim with the carrier.

If concealed damage is discovered:

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

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

Packing

Study the erection drawing carefully and check the bill of materials to be 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 Type AS-10 Switch Operator
- S9 Provision for power operation of steel-structure or pedestal-mounted switches by Type AS-10 Switch Operator
- S16 Provision for power operation by 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.

Shipping and Handling

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.

Note: 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 $\frac{1}{4}$ -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 $\frac{5}{8}$ -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.

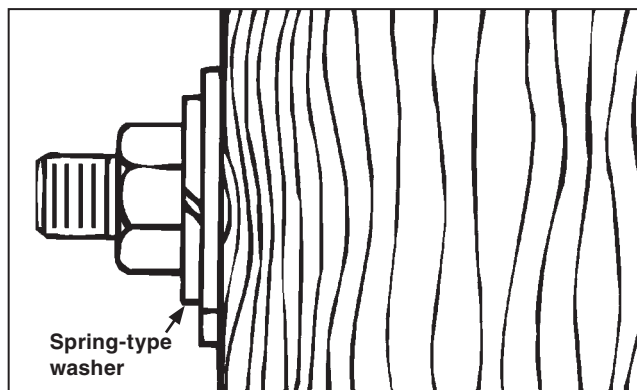


Figure 2. Applying the spring washer.

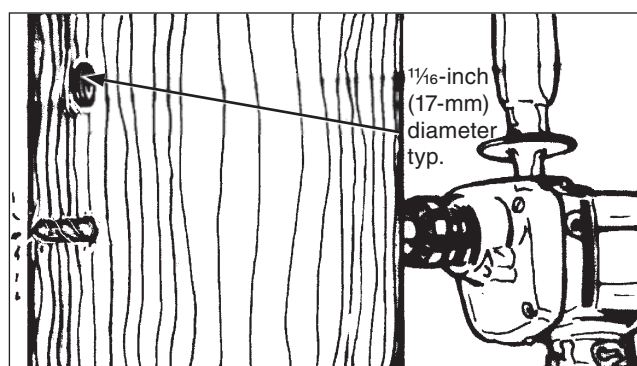


Figure 3. Drilling holes for the switch-mounting bracket.

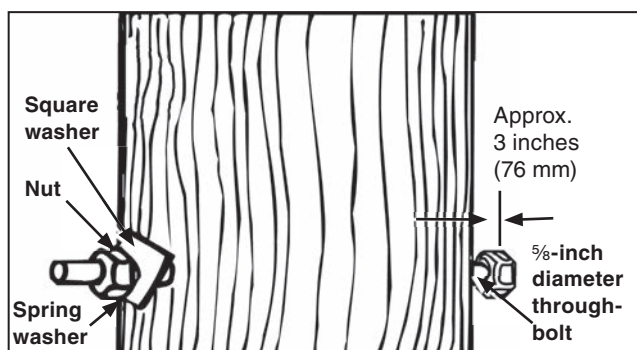


Figure 4. Installing the through-bolts.

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 below.
- For tiered-outboard mounting configuration switches proceed to Step 11 on page 13.
- For triangular mounting configuration switches, proceed to Step 16 on page 15.

Lifting 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.

STEP 5.

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.

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

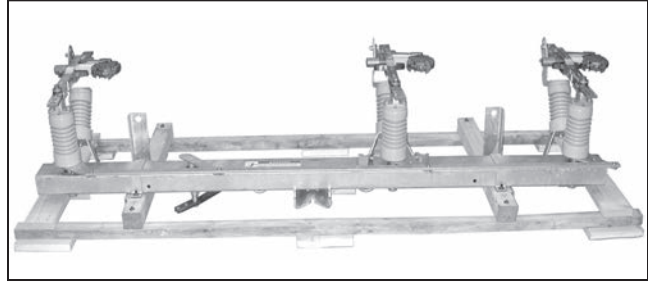


Figure 5. Uncrating the switch.

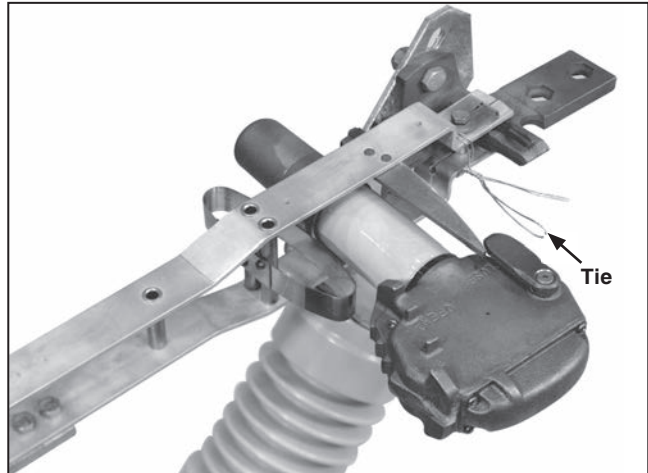


Figure 6. Tying the switch blade to the main contacts.

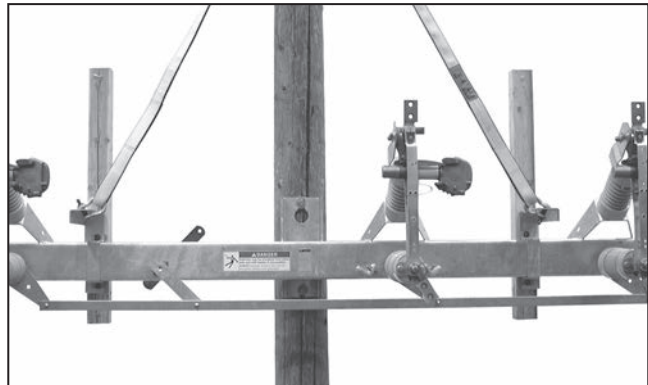


Figure 7. Hoisting the switch into position.

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.

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 bands to the switch base anchor brackets using the J-bolts furnished. Use a stiffening block under each nut. See Figure 10.

Use a $\frac{5}{8}$ -inch diameter lag bolt (not furnished) to secure each pole band to the utility pole.



Figure 8. Guiding the switch.

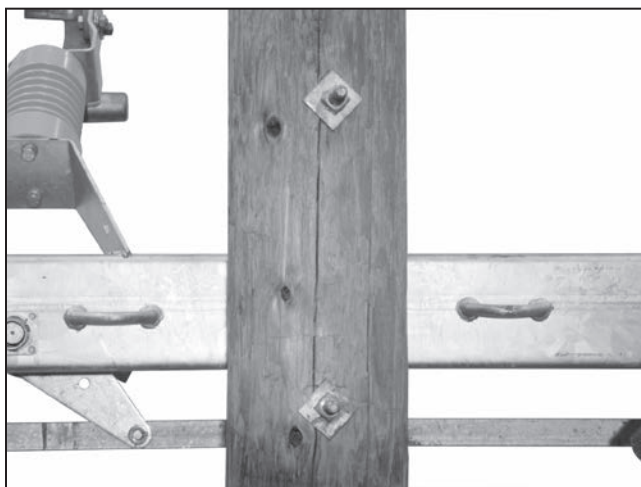


Figure 9. Bolting the switch.

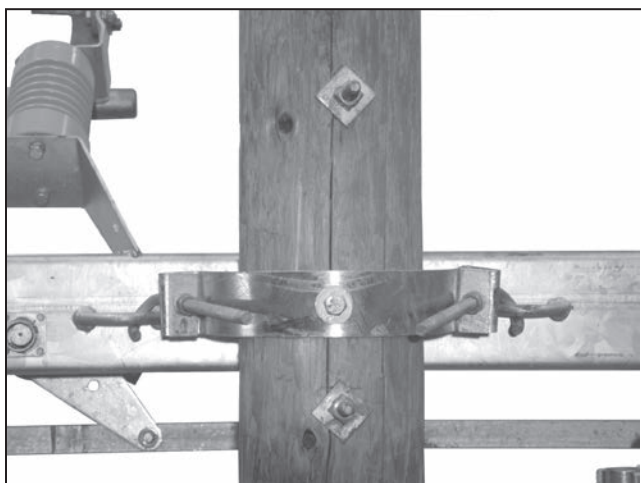


Figure 10. Attaching the pole bands.

Installation

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.

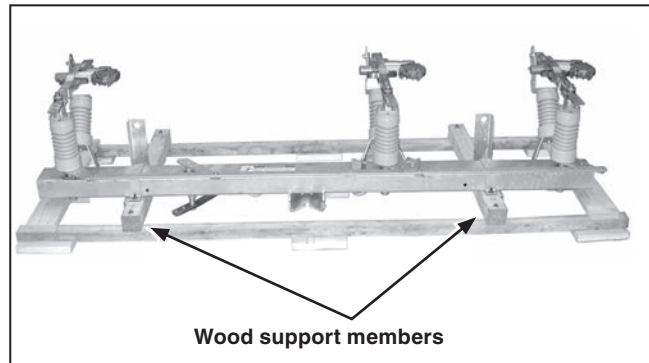


Figure 11. Removing the wood support members.

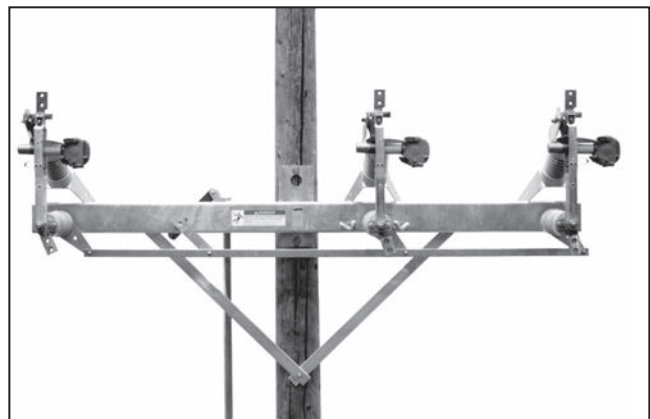


Figure 12. Attaching the crossarm braces (supplied by others) to the switch base.

Lifting 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 13.

STEP 12.

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.

Hoist the switch using the two lifting eyes attached to the outboard switch pole-unit bases. See Figure 14.

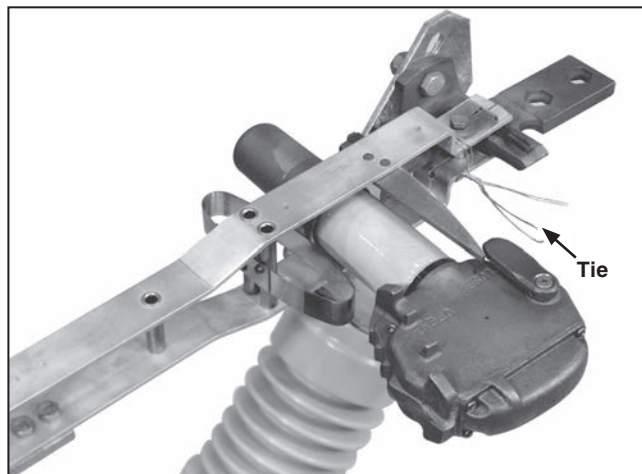


Figure 13. Tying the switch blade to the main contacts.

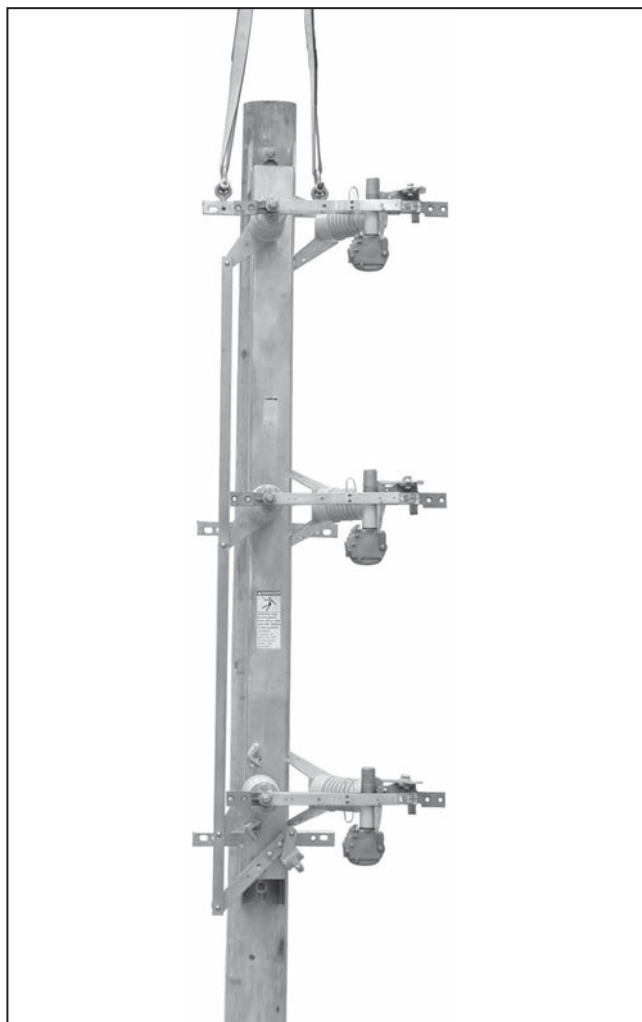


Figure 14. Hoisting the switch into position.

Installation

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.

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 $\frac{5}{8}$ -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 on page 17.



Figure 15. Guiding the switch.



Figure 16. Bolting the switch.

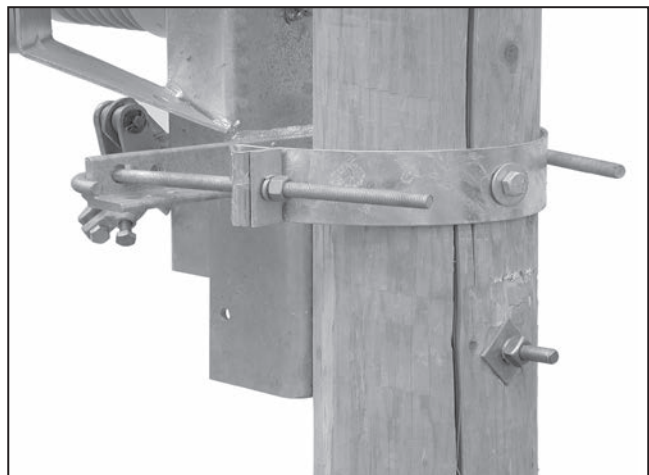


Figure 17. Attaching the pole bands.

Lifting Triangular Mounting Configuration Switch

STEP 16. 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 18.

STEP 17.

⚠ 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.

- (a) Hoist the switch using the topmost dead-ending bracket. See Figure 19.

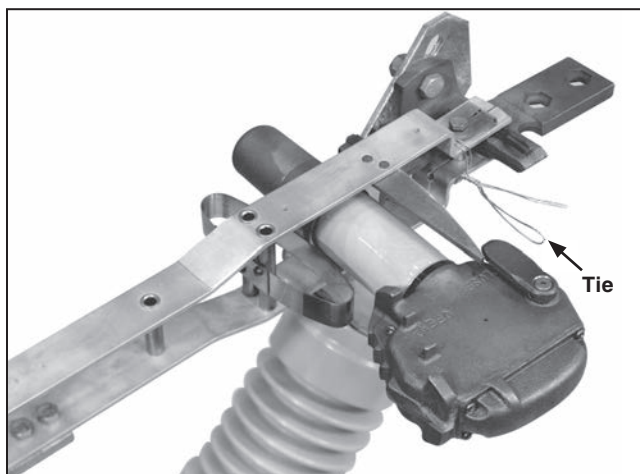


Figure 18. Tying the switch blade to the main contacts.



Figure 19. Hoisting the switch into position.

Installation

STEP 18. Guide the switch so the through-bolt heads enter into the keyhole slot and open slotted hole in the switch base. See Figure 20.

STEP 19. *Slowly* lower the switch until it just bears on the through-bolts. Fully tighten the bolts. See Figure 21. Then, remove the lifting slings.

STEP 20. Attach the pole bands to the switch base anchor brackets using the J-bolts furnished. Use a stiffening block under each nut. See Figure 22.

Use a $\frac{5}{8}$ -inch diameter lag bolt (not furnished) to secure each pole band to the utility pole.



Figure 20. Guiding the switch.



Figure 21. Bolting the switch.

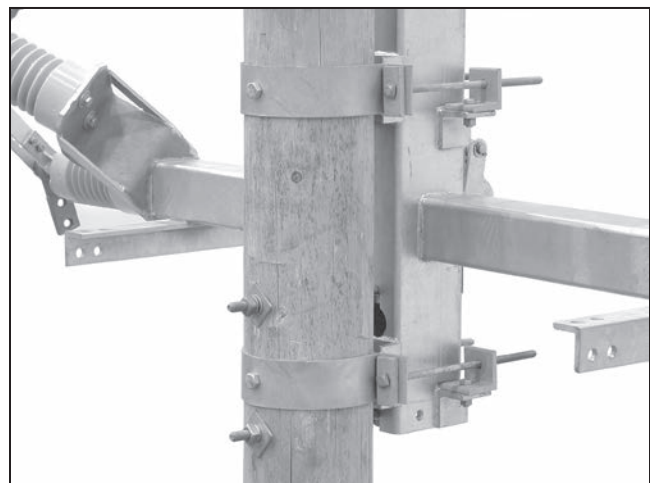


Figure 22. Attaching the pole bands.

Installing Pipe Couplings with Piercing Set Screws

⚠ WARNING

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

STEP 21. 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, and continue turning until a firm resistance is felt.
- (e) Make sure the clamp bolt(s) are tight. See Figure 23.

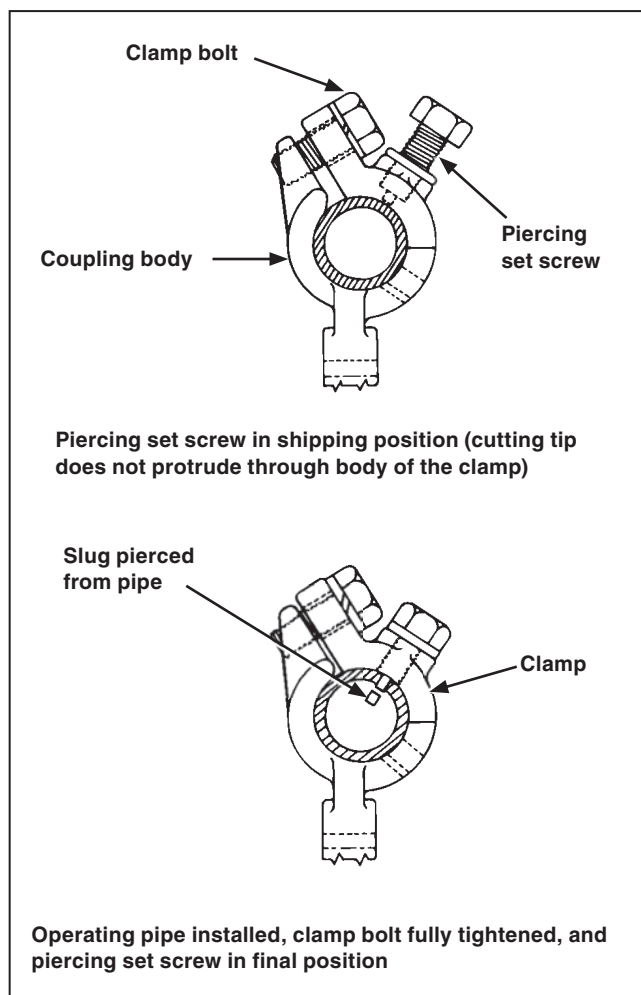


Figure 23. Installing the pipe couplings.

Installing the Vertical Operating Pipe

STEP 22. One of the pipe sections furnished is threaded at one end to accommodate the operating handle assembly. See Figure 24. Install this section of pipe *last*, with the threads at the lower end.

STEP 23. Mount the rod guide(s) with the arm pointing upward as shown in Figure 25.

When an *adjustable* rod guide is included mount it nearest the switch.

STEP 24. Install the upper section of 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 26. (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.

- (a) Tighten the clamp bolts to final tightness. Then, tighten the piercing set screws, piercing the pipe, and continue turning until a firm resistance is felt.
- (b) If more than one rod guide is used, install vertical operating-pipe sections between the rod guides in the same manner.



Figure 24. A threaded vertical operating pipe.



Figure 25. Attaching the rod guide.

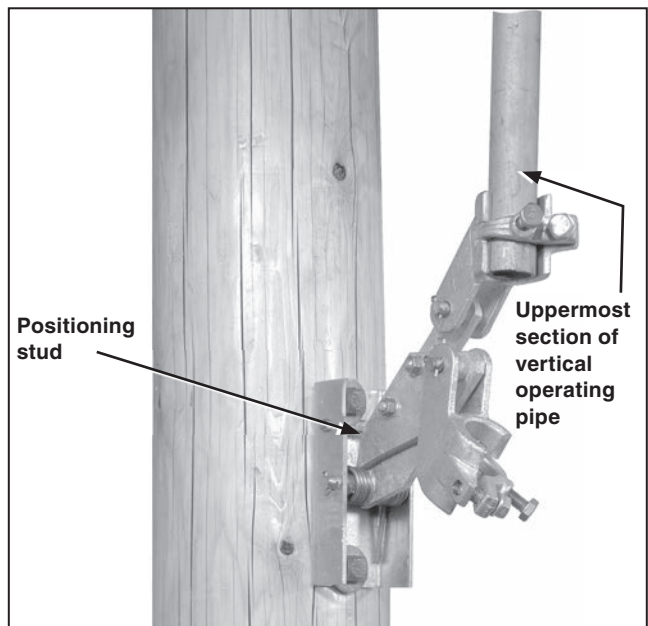


Figure 26. Installing the upper operating pipe section into the rod guide.

Installing the Operating Handle●

STEP 25. 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 27.■

STEP 26. 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 lock-nut. See Figure 28.

● If suffix “-S8” is specified, refer instead to S&C Instruction Sheet 769-510, “S&C Switch Operators—Type AS-10.” If suffix “-S16” is specified, refer instead to S&C Instruction Sheet 1045M-510, “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 27. Mounting the operating handle.

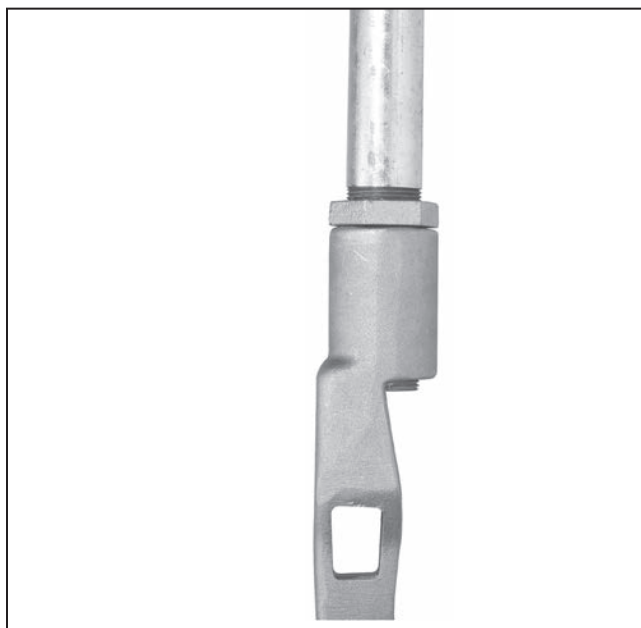


Figure 28. Installing the lowest operating pipe section into the operating handle assembly.

Installation

STEP 27. 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, tighten the rod guide (or switch drive lever) coupling clamp bolt. See Figure 29.

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 28. 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 30. Then, connect the lower end of the strap to a suitable earth ground, using the grounding connector provided 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.

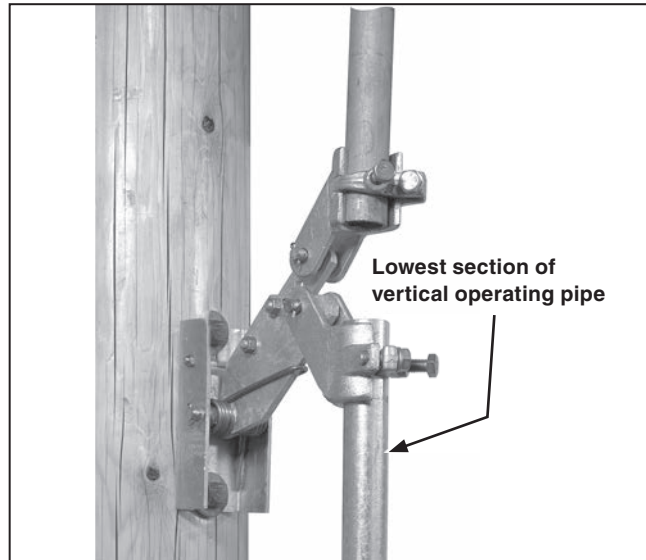


Figure 29. Installing the lowest operating pipe section into the rod guide.

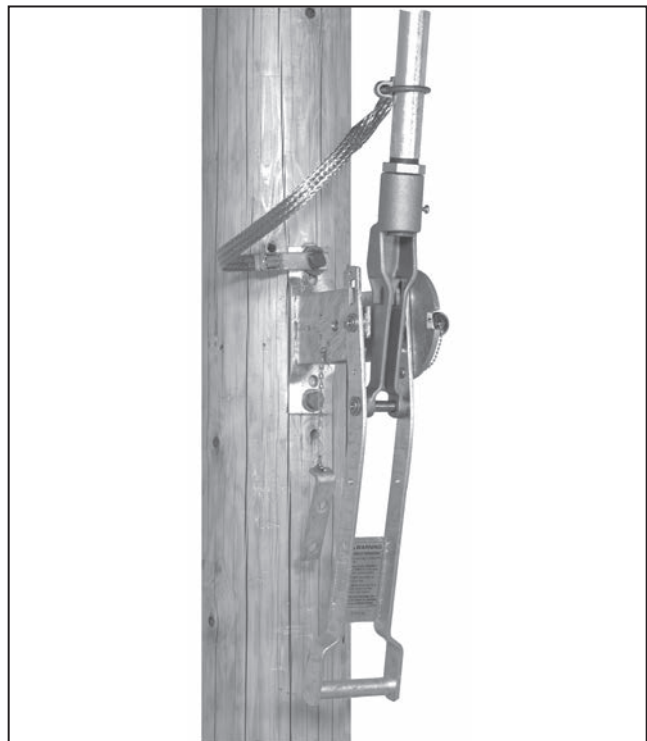


Figure 30. Attaching the grounding strap.

Checking Alignment

STEP 29. Remove the ties holding the switch blades to their stationary main contact assemblies. See Figure 31.

- (a) Remove the 45-degree positioning stud from each rod guide. See Figure 26 on page 18.
- (b) Open and close the switch slowly to make sure no operational difficulties are encountered due to 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 handle vigorously through its full travel without hesitation.

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

STEP 30. Move the operating handle *slowly* to the **Closed** position. See Figure 32. A definite resistance should be felt at the end of the stroke, indicating that all slack in the operating linkage has been taken up.

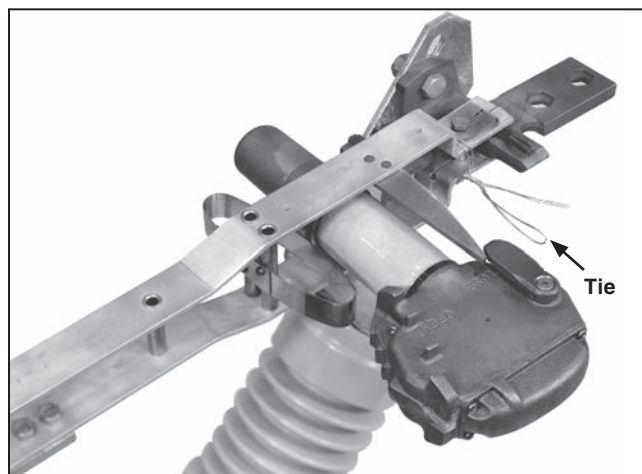


Figure 31. Removing the tie at the stationary main contact assembly.

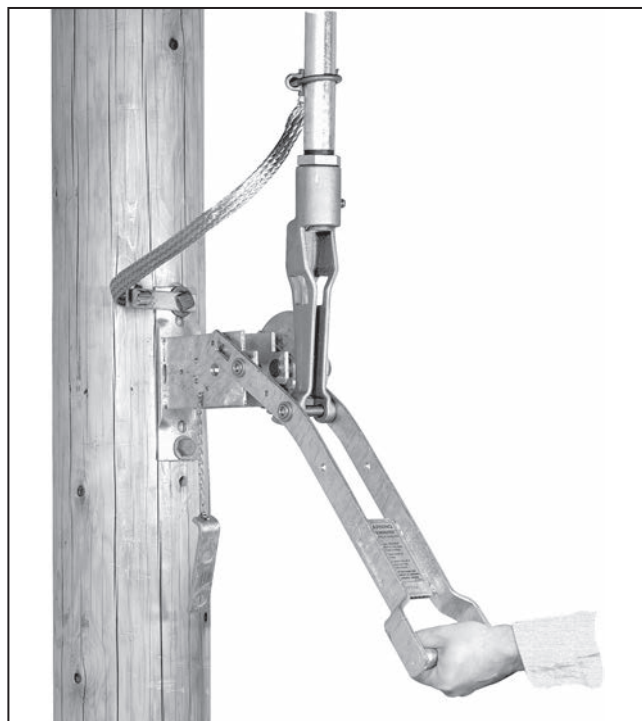


Figure 32. Verifying the slack has been taken up in the operating linkage.

STEP 31. If there is still slack, repeat the procedure in Step 27 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 33.

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, tighten 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.

STEP 32. When satisfactory operating-handle adjustment is attained, make sure the clamp bolt on the lowest rod-guide (or switch drive-lever) coupling has been tightened. Then, tighten the associated piercing set screw, piercing the pipe, and continue turning until a firm resistance is felt.

If a key interlock is used (suffix “-S6” or “-S6L”), proceed to Step 33. Otherwise, proceed to the “Checking Operation” section on page 24.

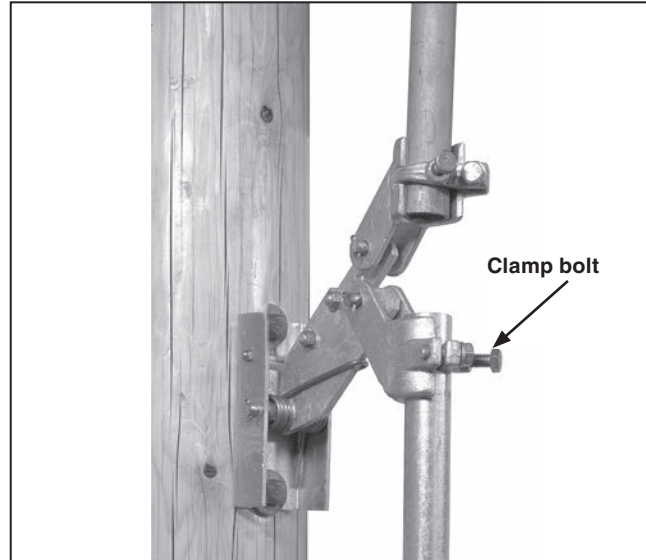


Figure 33. Torquing the clamp bolt at the lowest rod guide (or switch operating lever) coupling.

Installing the Key Interlock

STEP 33. The interlock group includes a Superior Type B4003-1 Mk II single- or multiple-key interlock (or equivalent), with zero bolt projection and $\frac{3}{4}$ -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 34.

STEP 34. 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 35.

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.

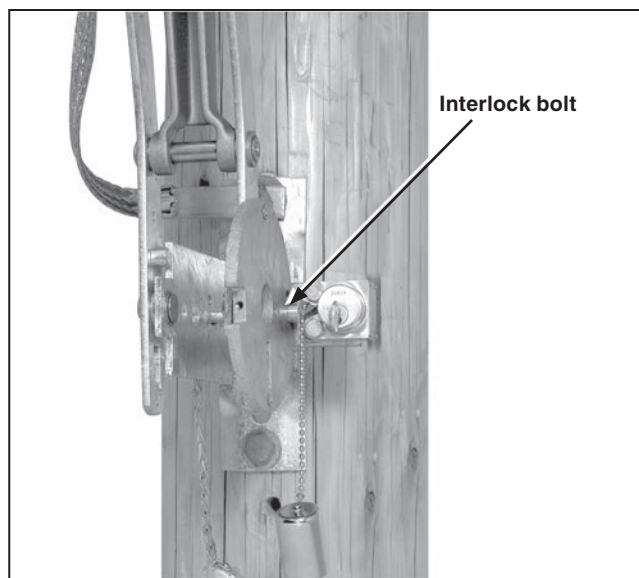


Figure 34. Attaching the key interlock to the interlock bracket.

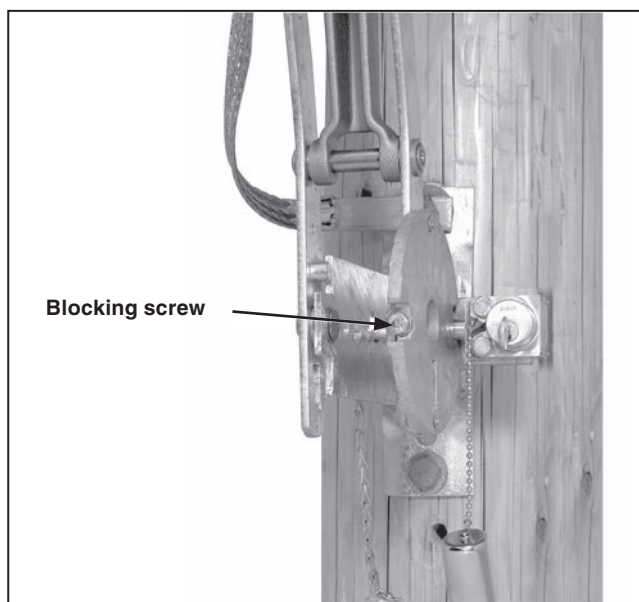


Figure 35. Blocking the slot in the interlock disc.

Checking Operation

STEP 35. 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 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 36.
- (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 37.
- (c) In the unlikely event the above-described conditions are not met, more switch blade travel is required.

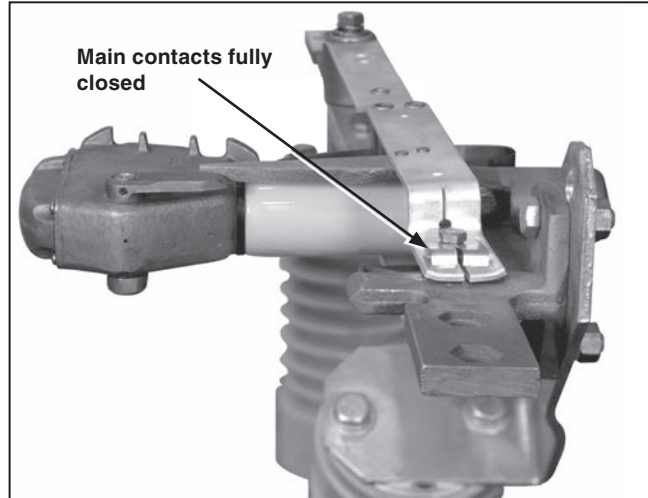


Figure 36. Checking that the blade is fully closed.

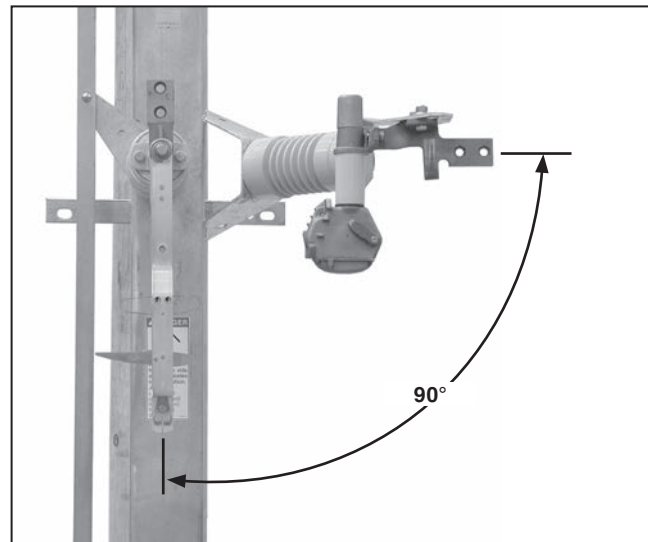


Figure 37. Checking that the switch blades are 90 degrees from the Closed position.

Move the operating handle to its mid-position to take the strain off the operating-pipe linkage. Loosen the two bolts that clamp the driven arm of the adjustable rod guide. See Figure 38.

Lengthen the driven arm of the adjustable rod guide one step, or $\frac{1}{32}$ -inch (9 mm), and retighten the bolts. Lengthening the driven arm increases switch-blade travel. Then, readjust for full operating handle travel as described on page 22.

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.

- (d) When satisfactory travel adjustment of the operating handle and switch have been attained, tighten 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, 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 and the clamp bolts on the driven arm of the adjustable rod guide.

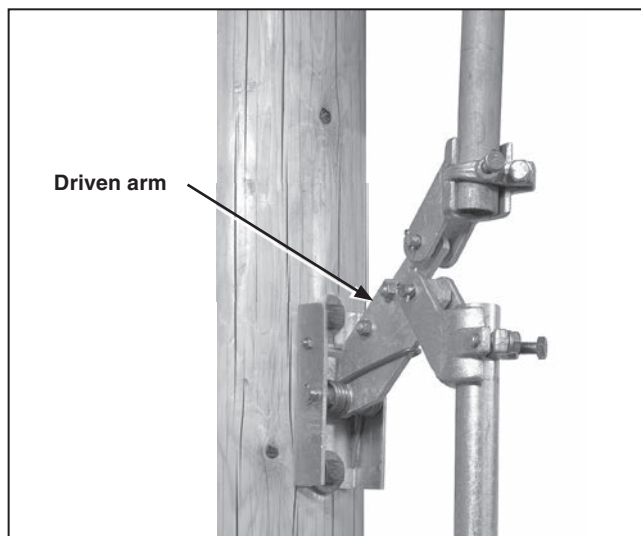


Figure 38. Lengthening the driven arm of the adjustable rod guide.

STEP 36. 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 handle vigorously through its full travel without hesitation at any point.

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

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

- 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 39.
- As the blades move in the closing direction, clearance between the blade opening cams and the interrupter opening levers must be within the limit shown. See Figure 40.

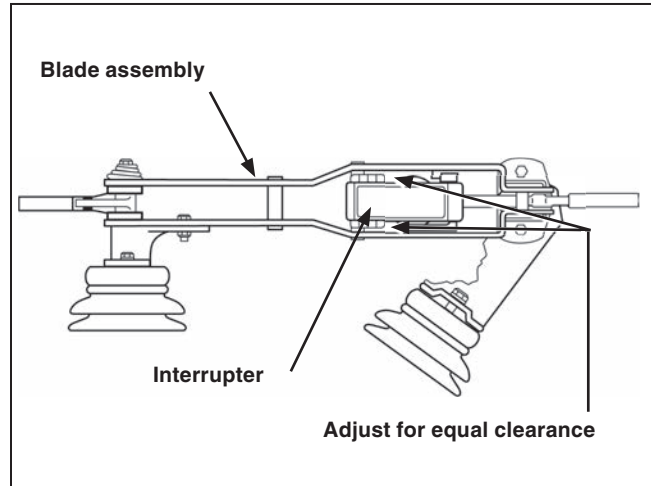


Figure 39. Blade assembly in the fully Closed position.

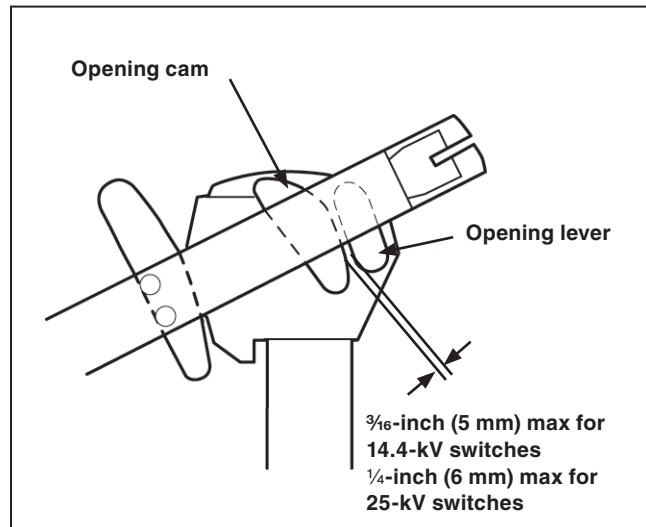


Figure 40. Blade assembly moving in the closing direction.

- (c) In the fully **Closed** position, clearance between the blade closing cams and the interrupter closing levers must be within the limit shown. See Figure 41.

Also, the clearance between the blade shunt contact and the interrupter housing must be as shown.

- (d) Move the blades in the *opening* direction and verify each blade shunt contact firmly engages its respective interrupter housing before the blade contacts disengage from the stationary main contact assemblies. See Figure 42. The shunt contacts may be bent as required to conform to these conditions.

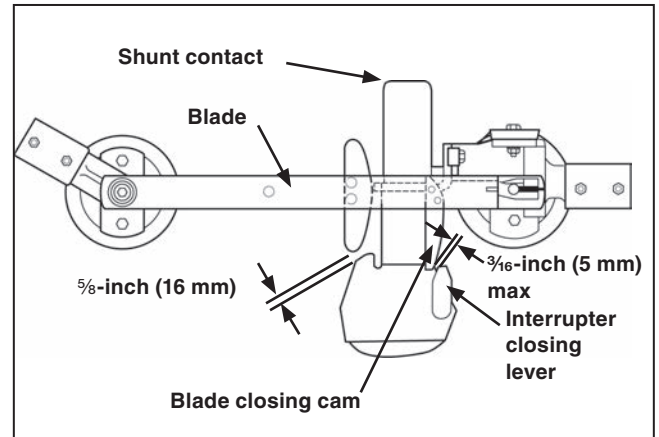


Figure 41. Blade assembly in the fully Closed position.

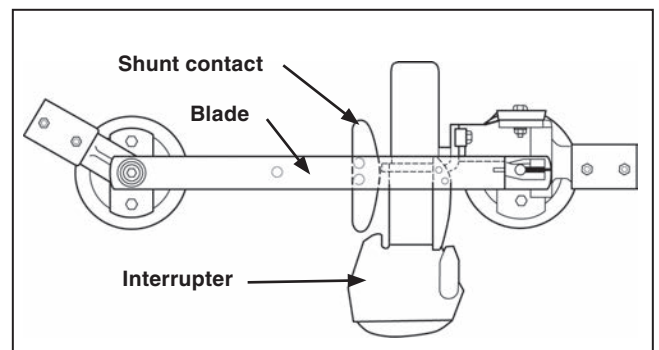


Figure 42. Blade assembly moving in the opening direction.

- (e) If adjustment is required, loosen the bolts that fasten the interrupter to the stationary main contact casting and reposition the interrupter. See Figure 43.
- (f) It also may be necessary to loosen the bolts that fasten the stationary main contact casting to its mounting bracket and slightly rotate the casting to achieve the necessary clearances. See Figure 44. Retighten the bolts, making sure the blade engages the stationary contact on-center.

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

Connecting High-Voltage Conductors

STEP 37. When high-voltage conductors are to be connected using aluminum-alloy body connectors● the following procedures should be used:

- (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 5300 series offered by S&C, designated by the connector manufacturer as being suitable for direct attachment to copper bearing alloy terminal pads.

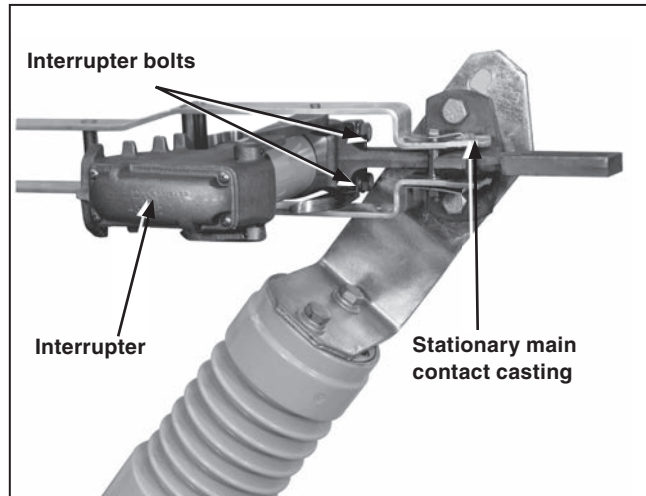


Figure 43. Adjusting the interrupter position.

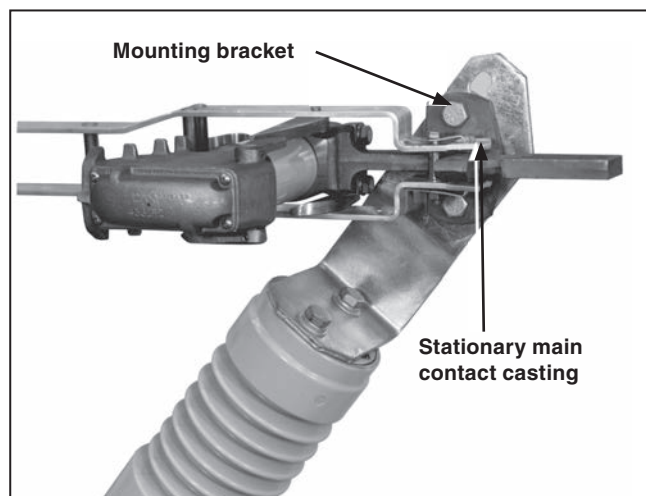


Figure 44. Adjusting the stationary main contact casting position.

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 may result in serious injury or death.

NOTICE

This interrupter switch is not intended for breaking fault currents.

STEP 38. Remove the padlock from the locking bar on the operating handle assembly. Withdraw the locking bar. See Figure 45.

- If the operating handle assembly is furnished with a key interlock, disengage the interlock.
- Swing the handle *rapidly* to the fully **Open** or fully **Closed** position. See Figure 46.
- Always check that all three poles are fully open or fully closed.
- 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.

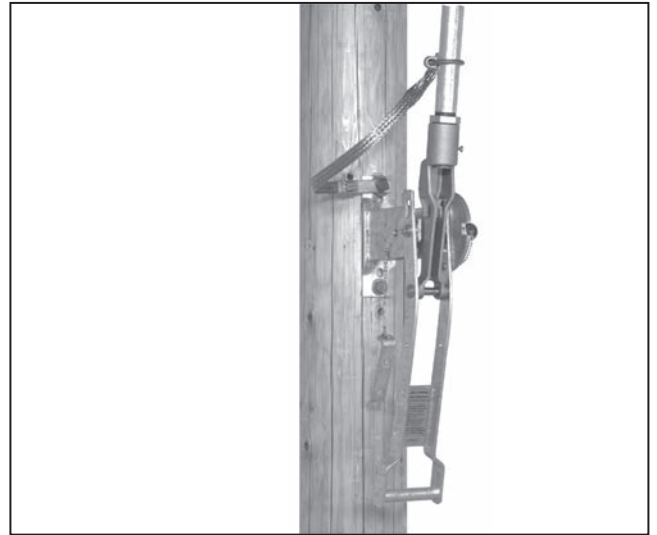


Figure 45. Withdrawing the locking bar and disengaging the key interlock bolt.



Figure 46. Swinging the operating handle rapidly.