Installation and Operation

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★ Also applicable to three-pole vertical-break style switches rated 14.4 kV, 2400 amperes continuous.

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.

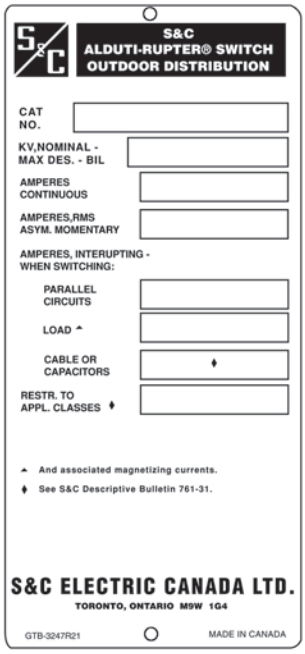
In most applications, Alduti-Rupter Switches are capable of switching rated continuous load currents at full voltage. The ratings for the particular switch are listed on nameplates attached to the operating handle and the switch. See Figure 1 on page 3.

These interrupter switches are *not* intended for breaking fault currents.

Operating Considerations

Circuit-making and circuit-breaking is 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** position of the interrupter switch blades. After opening or closing the switch, always make a visual check of the blade position to determine 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.



Nameplate on switch base

Nameplate on operating handle

Figure 1. Switch nameplates with 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).

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 Center at 1-888-762-1100.

NOTICE

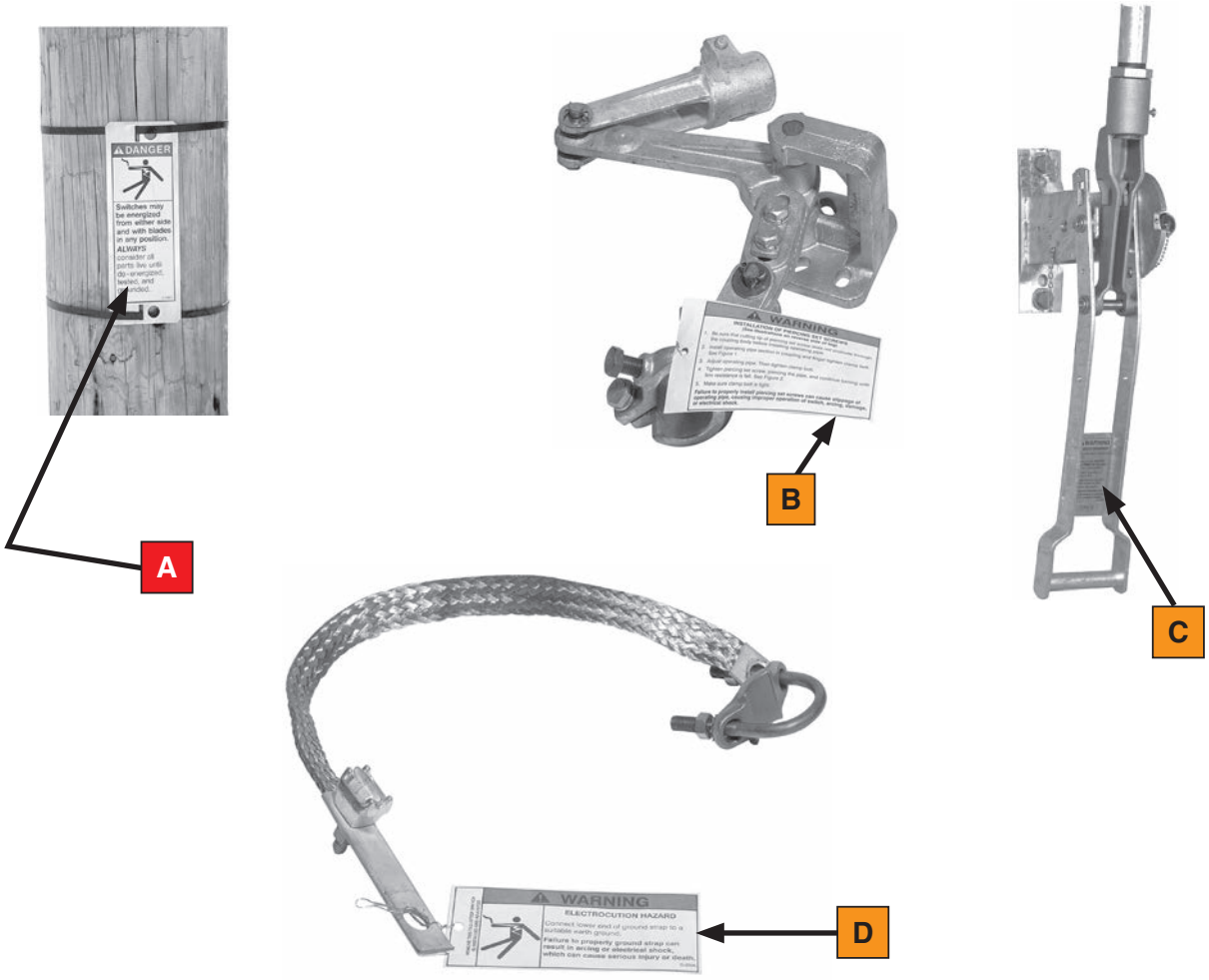
Read this instruction sheet thoroughly and carefully before installing an Alduti-Rupter Switch.

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	G-6580-1
B	⚠ WARNING	Piercing Set Screws	G-3176R1●
C	⚠ WARNING	Handle Operation	G-4400R5
D	⚠ WARNING	Electrocution Hazard—Grounding Strap	G-6596●

● 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 26.

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, rod guides, 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 of pole-mounted switches 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.

Drawing RD-10009 , 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, "Type AS-10 Switch Operators," 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 crates the switch pole-units are packed in are designed to be moved and lifted using a lift truck. Raised slots in the bottom of the crates 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

Follow these steps when 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.

Uncrating the Switch

STEP 1. Remove the switch poles from their crates and arrange them on the ground in the same order in which they will be mounted on the structure. Protect the bearings from contamination by dirt, mud, oil, etc. If necessary, use blocks to keep the bearings clear of the ground.

Attaching Couplings to the Switch Poles

STEP 2. Attach the pipe couplings to the hex-crimped, galvanized-steel pipe operating shaft of each switch pole. Torque the clamp bolts to final tightness. See Figure 3.

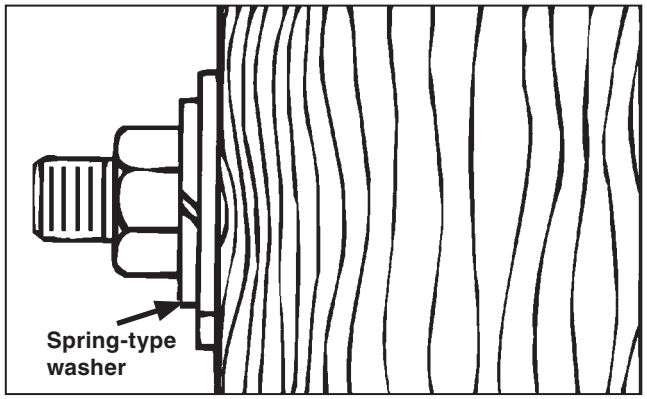


Figure 2. Applying the spring washer.

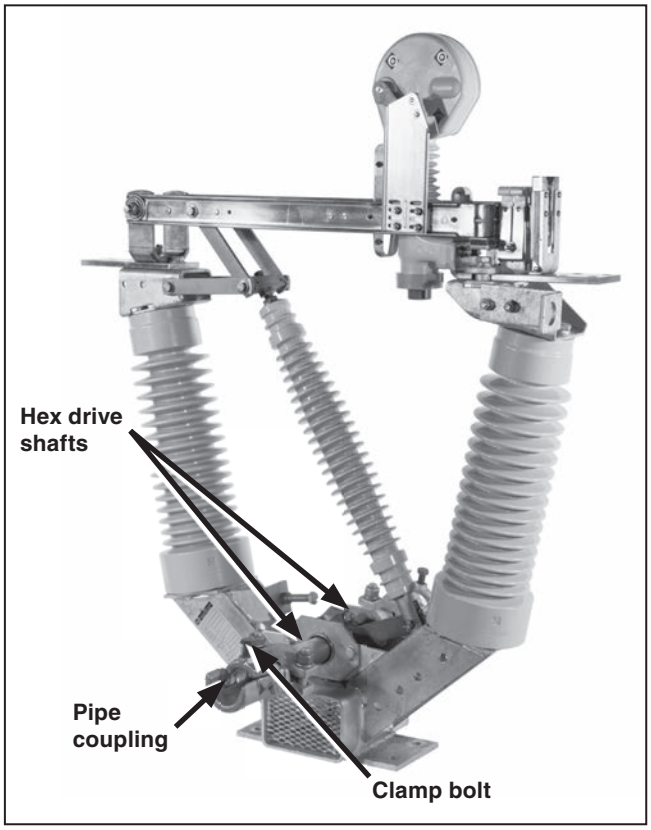


Figure 3. Attaching the pipe couplings to the switch hex-crimped galvanized steel pipe operating shafts.

Mounting the Support Members

Follow these steps when mounting support members:

STEP 3. Mount the support members (supplied by others or ordered separately) on the structure for the switch pole-units and the horizontal-pipe bearing. See Figure 4.

Lifting the Switch

⚠ WARNING

DO NOT lift the switch poles by rigging to the live parts. Avoid allowing the switch poles to swing while lifting.

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.

STEP 4. Hoist the switch poles using the lifting angles provided and bolt them into position on their supporting members as shown on the erection drawing. See Figure 5.

Remove the lifting angles.

⚠ CAUTION

Make sure the surfaces on which the switch pole bases are mounted are flat and true. Mounting to an uneven surface can cause the bases to twist, placing undue strain on the insulators and throwing the blades out of alignment, resulting in difficulties operating the switch. Use shims as required.

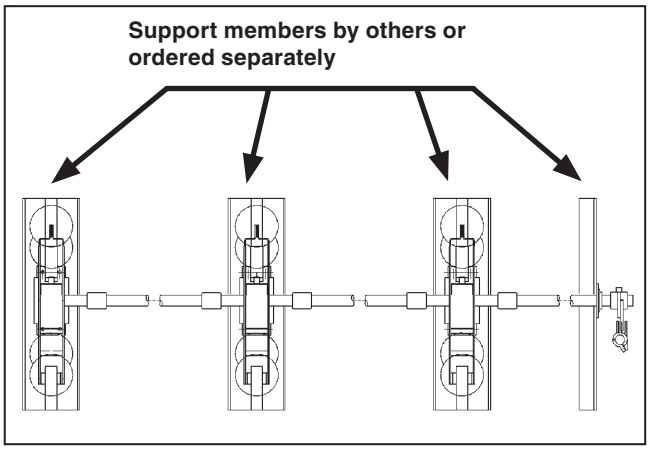


Figure 4. The support members.

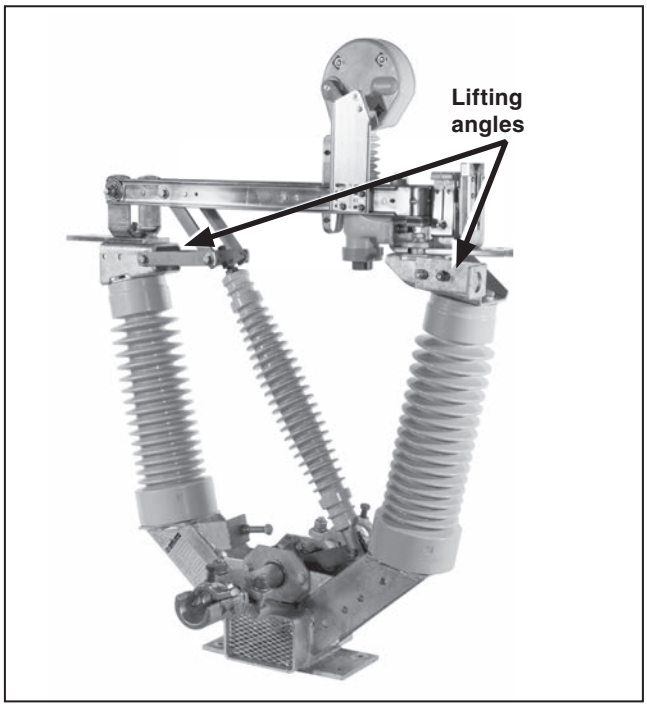


Figure 5. Hoisting the switch pole into position.

STEP 5. Mount the horizontal-pipe bearing on its support member as shown on the erection drawing. See Figure 6.

STEP 6. To minimize time-consuming final adjustments, make sure each switch pole is fully closed with blades against their blade stops and the switch drive lever within 1⁄16-inch (2 mm) of the closed stop-bolt. Tie the switch blades to their stationary main contact assemblies. See Figure 7.

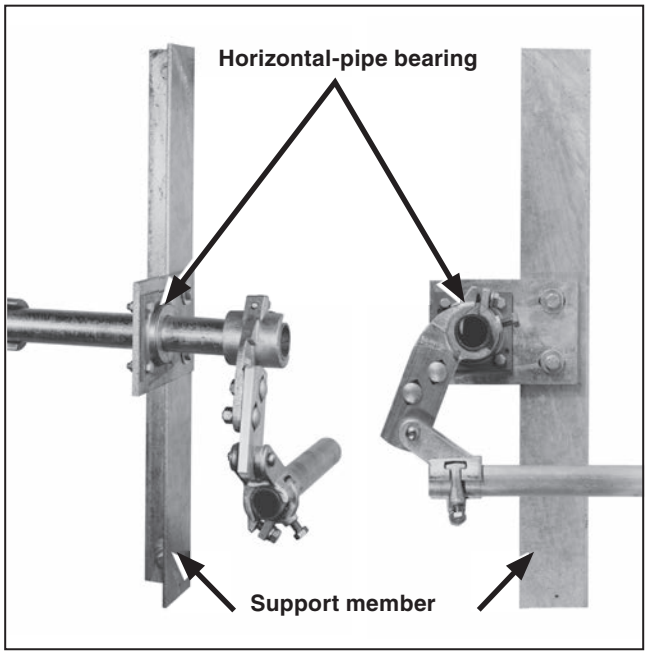


Figure 6. Mounting the horizontal-pipe bearing.

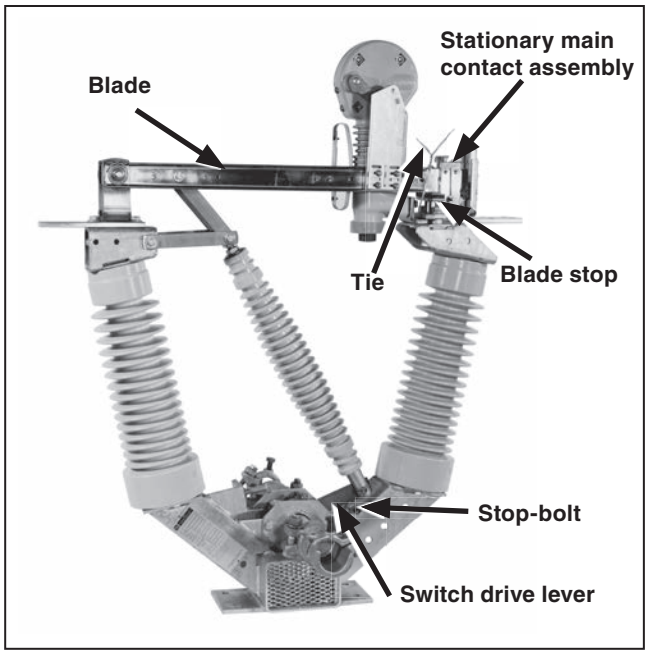


Figure 7. Tying the switch blade to the stationary main contact assembly.

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 7. To properly install piercing set screws:

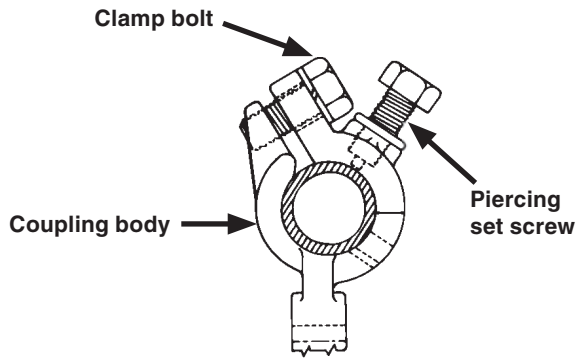
(a) Make sure the cutting tip of the piercing set screw does not protrude through the body of the clamp.

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

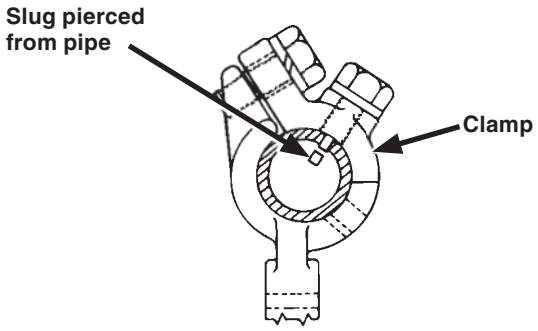
(c) Adjust the operating pipe to the correct length. Then, tighten the clamp bolt(s) to final tightness.

(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 8.



Piercing set screw in shipping position (cutting tip does not protrude through body of the clamp)



Operating pipe installed, clamp bolt fully tightened, and piercing set screw in final position

Figure 8. Installing the pipe couplings with piercing set screws.

Installing the Interphase Pipe

Follow these steps when installing the interphase pipe:

STEP 8. Install the interphase and, if applicable, the outboard pipe sections as shown on the erection drawing. See Figure 9. Follow the directions in the "Installing Pipe Couplings with Piercing Set Screws" section on page 12.

Torque the clamp bolt of each pipe-coupling clamp to final tightness, but do not tighten the associated piercing set screw, until so directed in Step 23 on page 21, after the mechanism has been adjusted to attain full closure of all three poles.

STEP 9. Attach the interphase drive lever to the interphase (or outboard) pipe section in the position shown on the erection drawing. See Figure 10.

Make sure the lever is at the 45-degree position, as indicated on the erection drawing. Torque the coupling clamp bolt to final tightness. Then, tighten the piercing set screw, piercing the pipe, and continue until a firm resistance is felt.

NOTICE

For the most favorable mechanical advantage, the interphase drive lever should be within 5 degrees of the 45-degree position when the switch is in the **Open** position as well as in the **Closed** position.

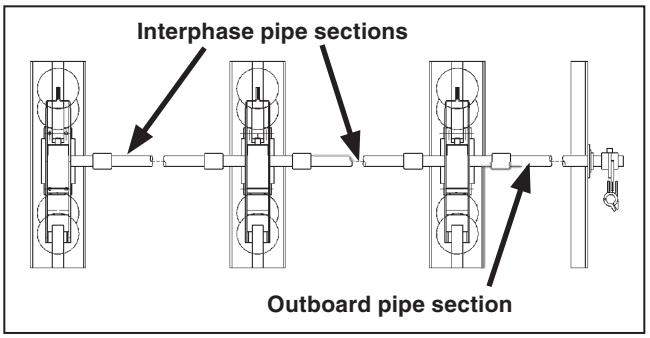


Figure 9. Pipe connecting switch poles.

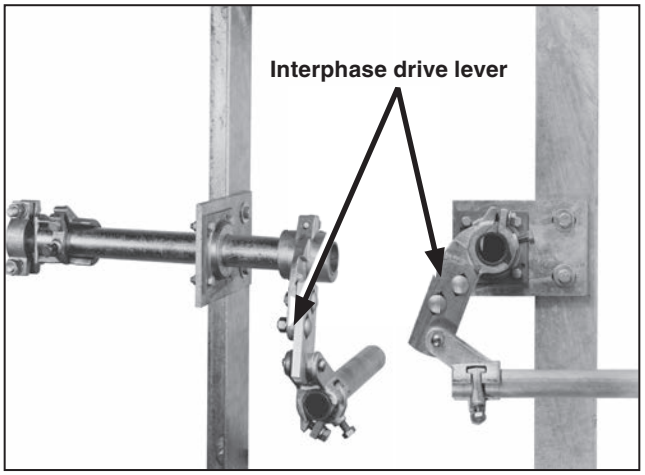


Figure 10. Interphase drive lever installation.

Installing the Vertical Operating Pipe

Follow these steps when installing the vertical operating pipe:

STEP 10. One of the pipe sections furnished is threaded at one end to accommodate the operating handle assembly. See Figure 11. Install this section of pipe last, with the threads at the lower end.

If only one vertical operating-pipe section is required, proceed to Step 13 on page 15.

STEP 11. Position and install the rod guide(s) with the arm pointing upward on the pole or structure in accordance with the dimension shown on the erection drawing. See Figure 12. A positioning stud is furnished which holds the rod guide arm at 45 degrees.

STEP 12. Install the upper section of vertical operating pipe between the interphase drive lever coupling and the uppermost rod guide, with the rod-guide arm pointing upward at a 45-degree angle. See Figure 13. (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 12.

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 11. A threaded vertical operating pipe.

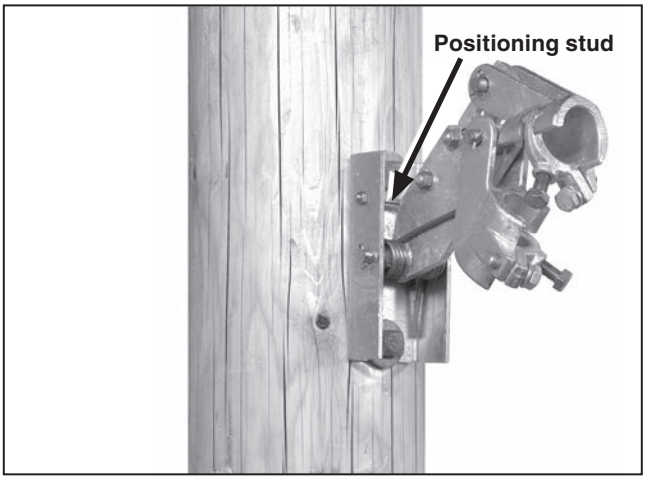


Figure 12. Attaching the rod guide.

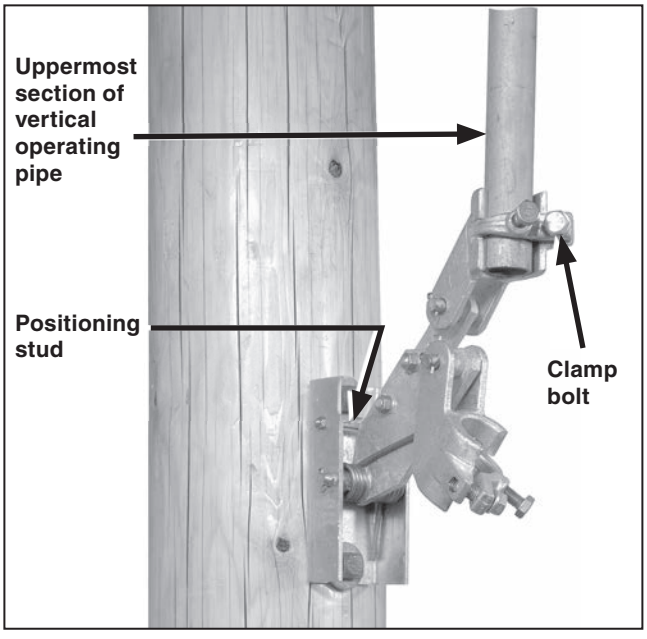


Figure 13. Installing the upper operating pipe section into the rod guide.

Installing the Operating Handle●

Follow these steps when installing the operating handle:

STEP 13. 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 14.

STEP 14. 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 15.

● If suffix "-S8" or "-S9" is specified, refer instead to S&C Instruction Sheet 769-510, "Type AS-10 Switch Operators." 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.

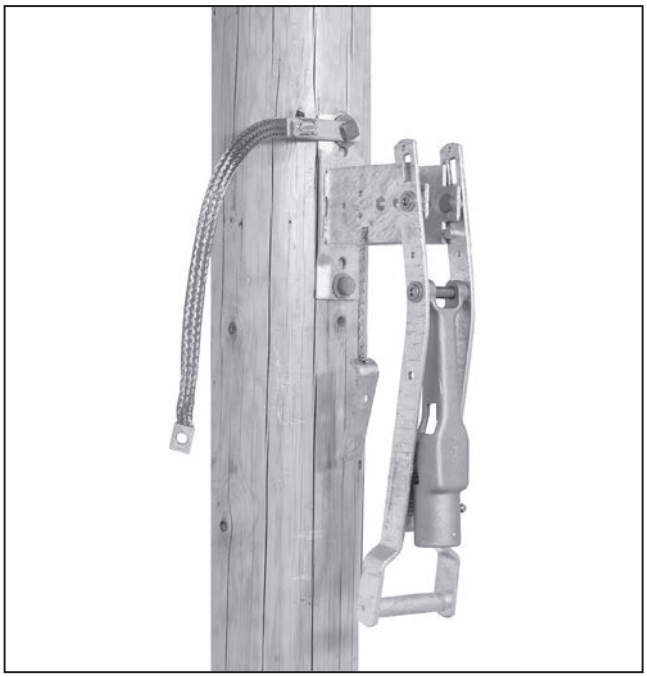


Figure 14. Mounting the operating handle.

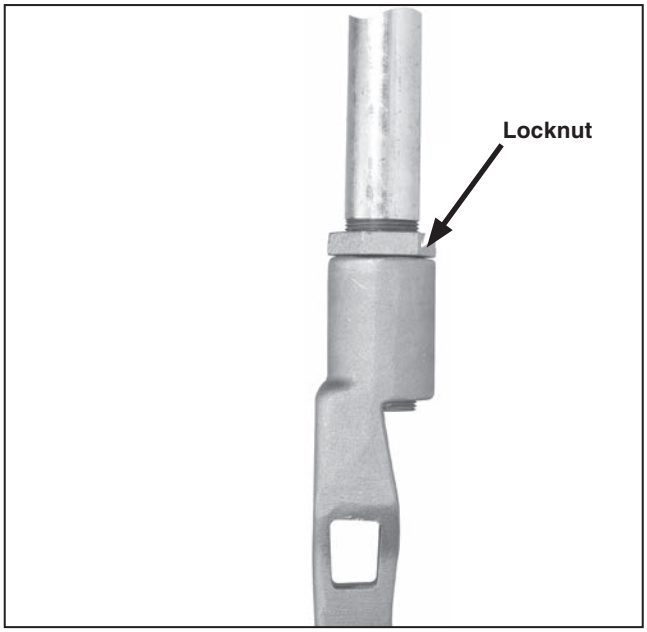


Figure 15. Installing the lowest operating pipe section into the operating handle assembly.

STEP 15. Insert the upper end of this pipe section in the lowest rod guide or—if only one vertical operating-pipe section is used—the interphase drive lever coupling and, while holding the operating handle at a point approximately 20 degrees from the **Closed** position, torque the rod guide (or interphase drive lever) coupling clamp bolt. See Figure 16.

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 in the "Checking Alignment" section on page 17.

STEP 16. 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 17. 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.

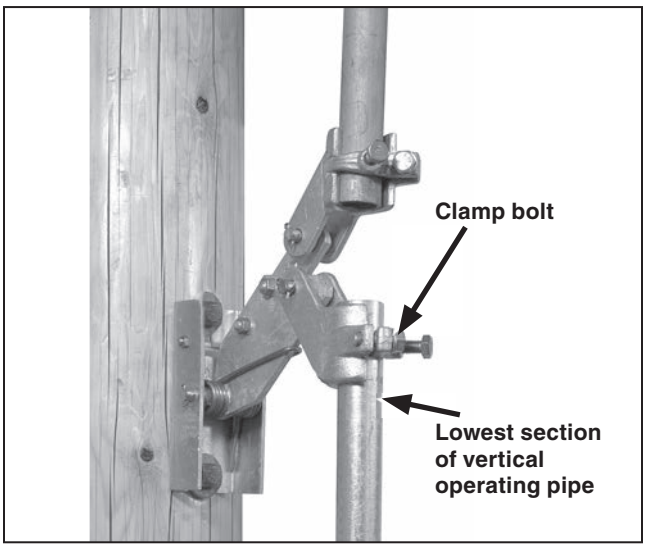


Figure 16. Installing the lowest operating pipe section into the rod guide (or interphase drive lever) coupling.

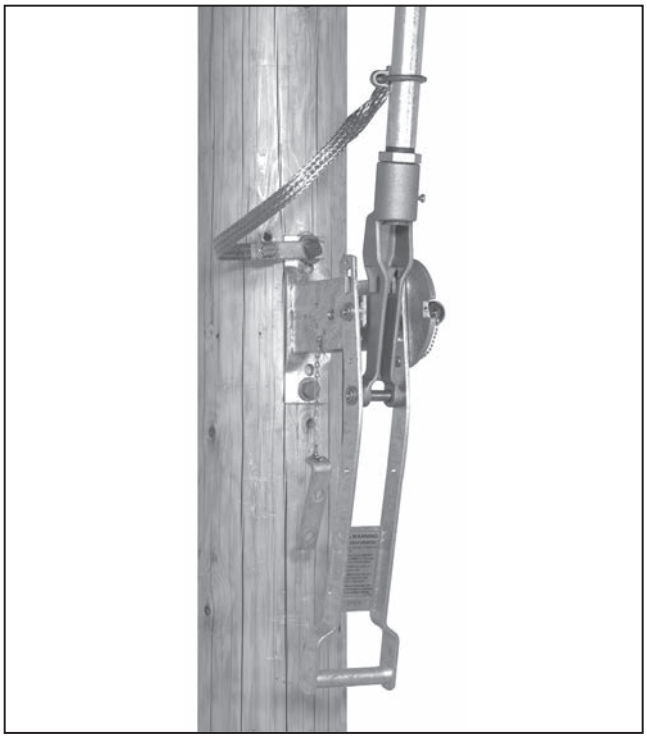


Figure 17. Attaching the grounding strap.

Checking Alignment

Follow these steps when checking alignment:

STEP 17. Remove the ties holding the switch blades to their stationary main contact assemblies. See Figure 18.

Remove the 45-degree positioning stud from each rod guide. See Figure 13 on page 14.

Open and close the switch *slowly* to make sure no operational difficulties are encountered because of 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.
>
> Arcing and damage to the switch will occur if the energized switch is operated slowly or left in the partially **Open** or **Closed** position.

STEP 18. Move the operating handle slowly to the closed position. See Figure 19. A definite resistance should be felt at the end of the stroke, indicating all slack in the operating linkage has been taken up.

STEP 19. If there is still slack, repeat the procedure in Step 15 on page 16 but move the operating handle more than 20 degrees in the opening direction before torquing the clamp bolt on the lowest rod guide (or interphase drive lever) coupling. See Figure 20.

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 interphase 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 interphase drive lever) coupling. Proper "resistance" in the operating linkage during a closing operation is essential to ensure positive switch closure.

If a key interlock is used (suffix "-S6" or "-S6L"), proceed to Step 20. Otherwise, proceed to the "Checking Operation" section on page 19.

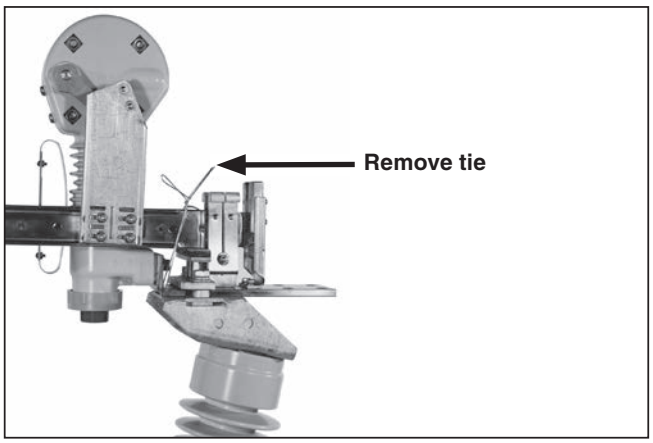


Figure 18. Removing the tie at the stationary main contact assembly.

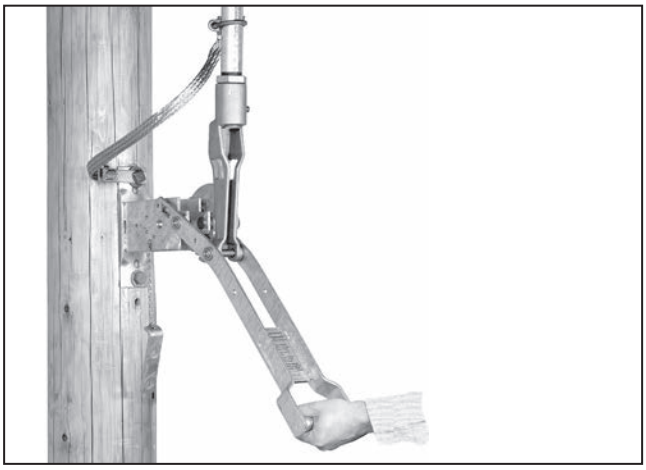


Figure 19. Verifying the slack has been taken up in the operating linkage.

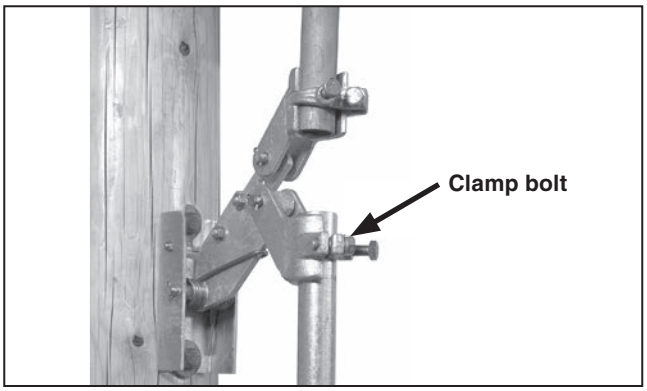


Figure 20. Torquing the clamp bolt at the lowest rod guide (or interphase drive lever) coupling.

Installing the Key Interlock

Follow these steps when installing the key interlock:

STEP 20. 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 21.

STEP 21. 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 22.

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 the **Open** or **Closed** position.

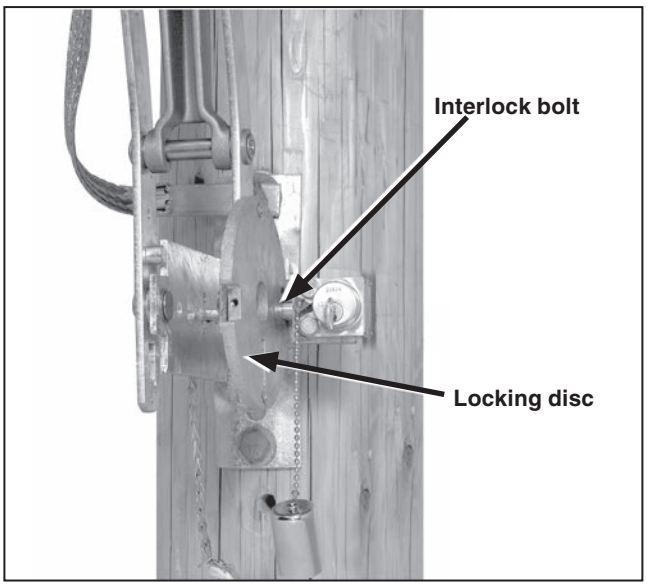


Figure 21. Attaching the key interlock to the interlock bracket.

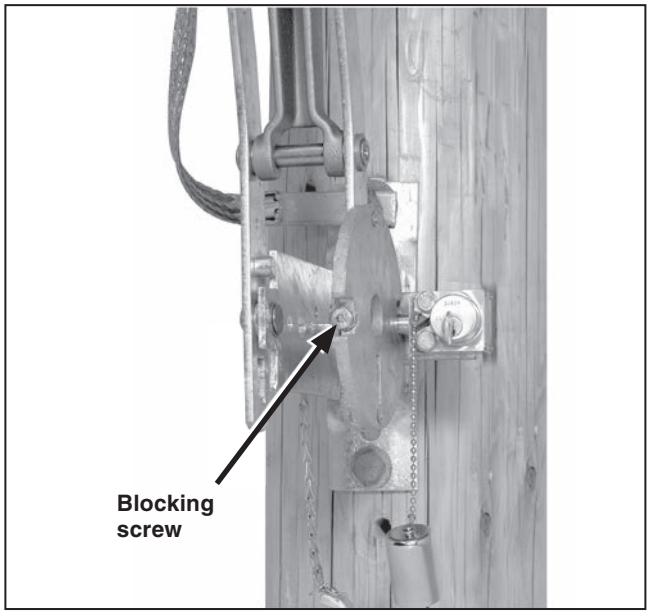


Figure 22. The blocking slot in the locking disc.

Checking Operation

Follow these steps when checking operation:

STEP 22. 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.
>
> Arcing and damage to the switch will occur if the energized switch is operated slowly or left in the partially **Open** or **Closed** position.

Check to 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 fully closed with the blades against their blade stops. See Figure 23.

(b) Each switch drive lever is within 1/16-inch (2 mm) of the closed stop-bolt. See Figure 24.

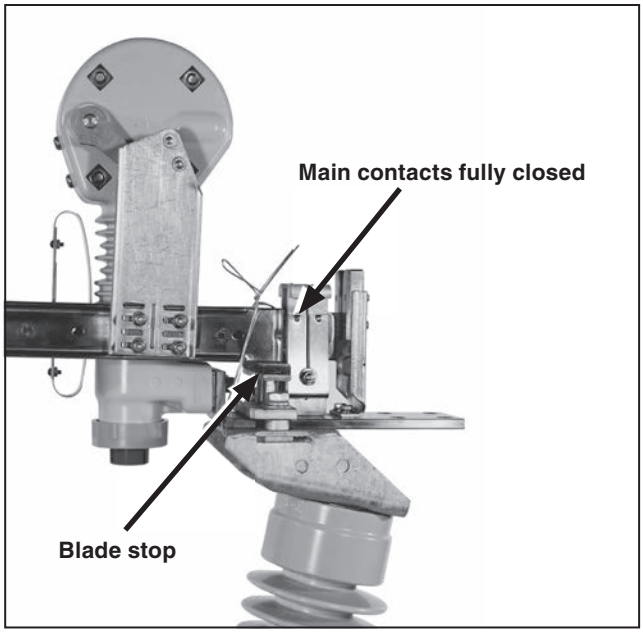


Figure 23. Checking that the blade is fully closed.

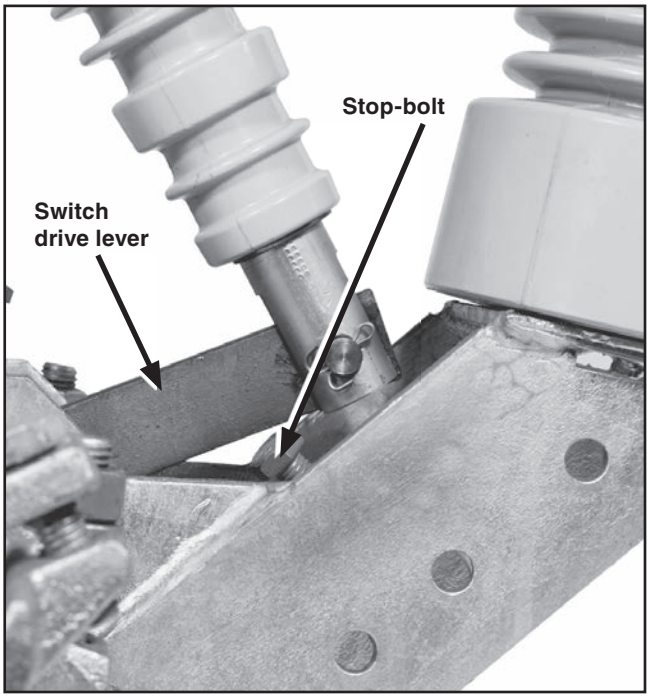


Figure 24. Verifying the switch drive lever assembly is within 1/16-inch (2 mm) of the closed stop-bolt.

In the unlikely event that only one or two switch poles are fully closed, loosen the clamp bolt(s) on the interphase pipe coupling(s) with the switch in the **Closed** position. Push the switch blade(s) against the blade stop(s), and torque the clamp bolt of each pipe-coupling clamp to final tightness. Then, tighten the associated piercing set screws, piercing the pipe, and continue turning until a firm resistance is felt. See Figure 25.

(c) With the operating handle as far as it will go in the opening direction, each switch drive lever should lie snugly against its open stop. See Figure 26. There should be perceptible tension in the operating pipe, locking the switch open.

In the unlikely event these 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 nuts that clamp the adjustable arm of the interphase drive lever. See Figure 27.

Shorten the adjustable lever arm one step, or 11⁄32-inch (9 mm) and retighten the bolts. Shortening the adjustable lever arm increases switch-blade travel. Then, readjust for full operating handle travel as described on page 17.

Repeat this procedure—shortening the adjustable lever arm of the interphase drive lever in one-step increments and readjusting for full operating handle travel—until full switch-blade travel is attained as described in (a) through (c).

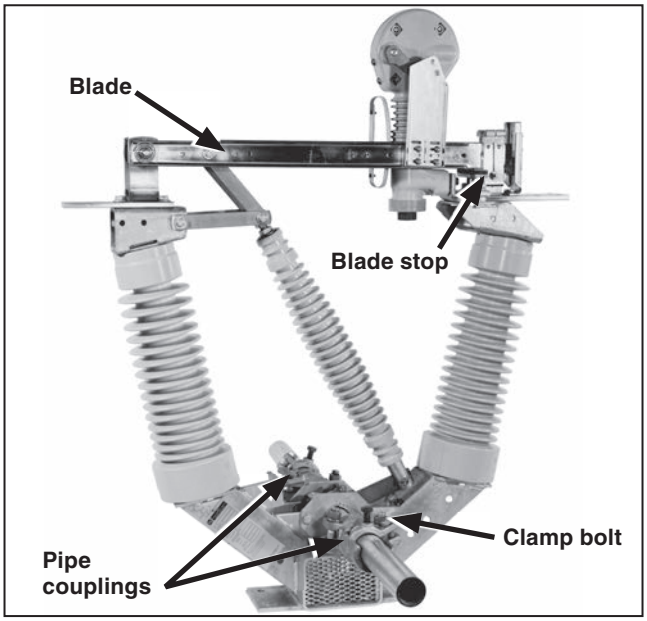


Figure 25. Adjusting the interphase pipe.

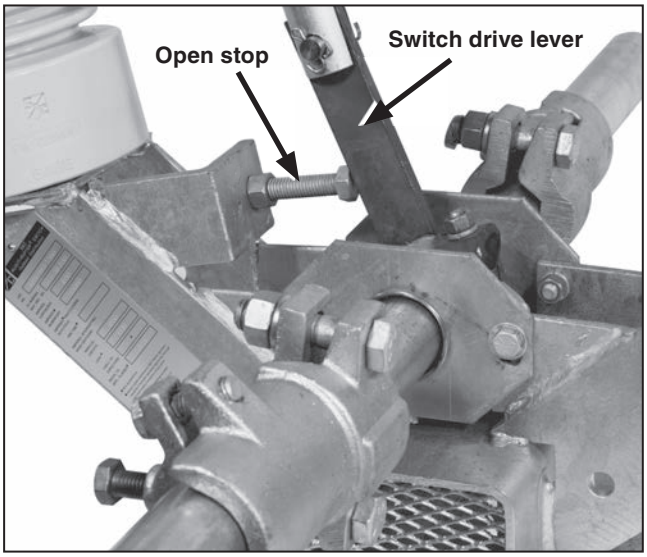


Figure 26. Verifying the switch drive lever is against its open stop.

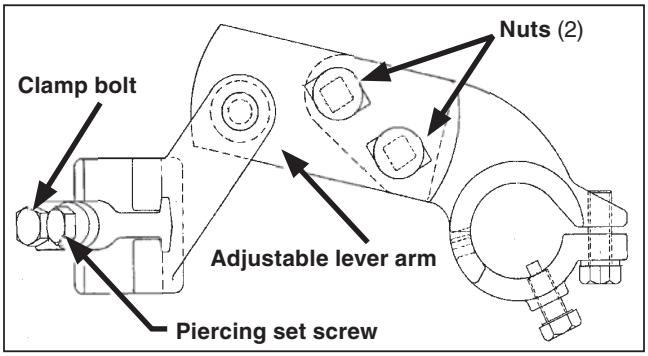


Figure 27. Shortening the adjustable lever arm of the interphase drive lever.

STEP 23. When satisfactory travel adjustment of the operating handle and switch have been attained, torque the nuts on the adjustable lever arm of the interphase drive lever and the clamp bolt on the rod guide (or interphase drive lever) coupling to final tightness. Then, tighten the associated piercing set screws, piercing the pipe, and continue turning until a firm resistance is felt. See Figure 28.

NOTICE

After readjusting, be sure to retighten the clamp bolt and piercing set screw on the pipe coupling at the rod guide (or interphase drive lever) coupling immediately above the operating handle, the nuts on the adjustable lever arm of the interphase drive lever, and the clamp bolts and piercing set screws on the interphase pipe couplings.

NOTICE

For the most favorable mechanical advantage, the interphase drive lever should be within 5 degrees of the 45-degree position when the switch is in the **Open** position as well as in the **Closed** position.

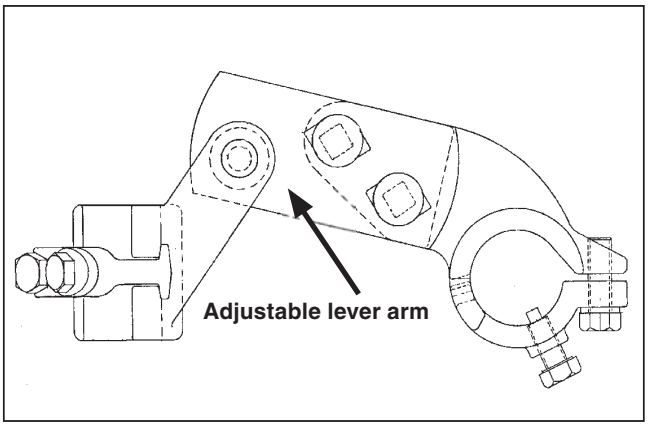


Figure 28. Torquing the nuts on the adjustable lever arm of the interphase drive lever.

STEP 24. Open and close the switch *slowly* several times.

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

⚠ 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.

Arcing and damage to the switch will occur if the energized switch is operated slowly or left in the partially **Open** or **Closed** position.

(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 29.

(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 30.

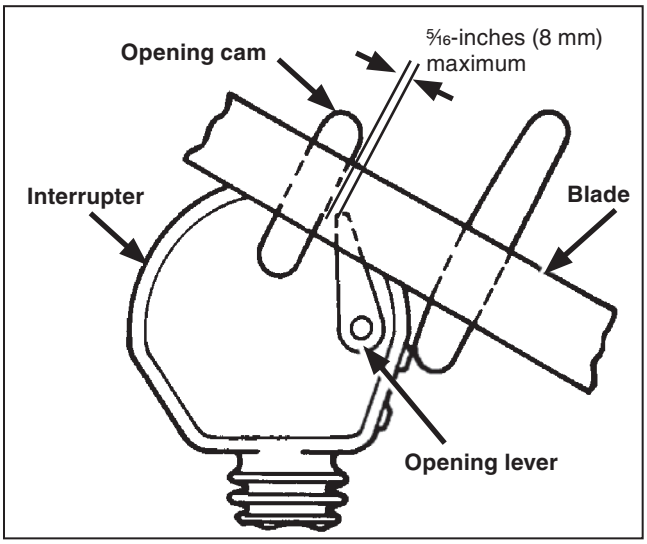


Figure 29. The blade assembly moving in the closing direction.

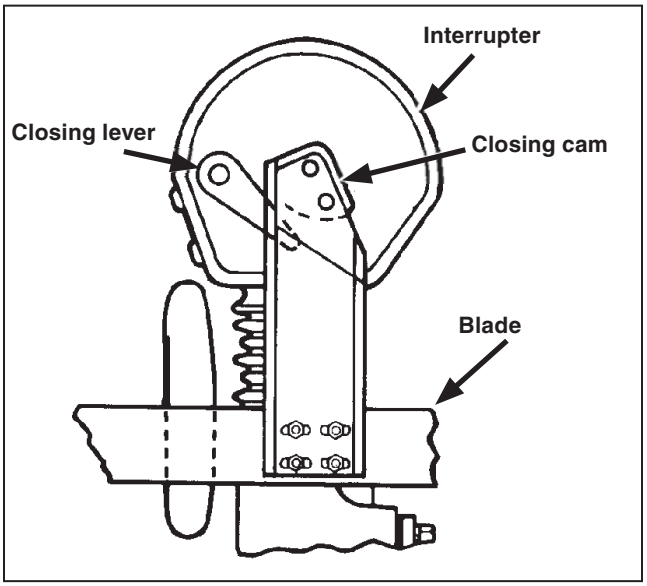


Figure 30. The blade assembly moving in the closing direction.

(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 31.

(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 32.

(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.

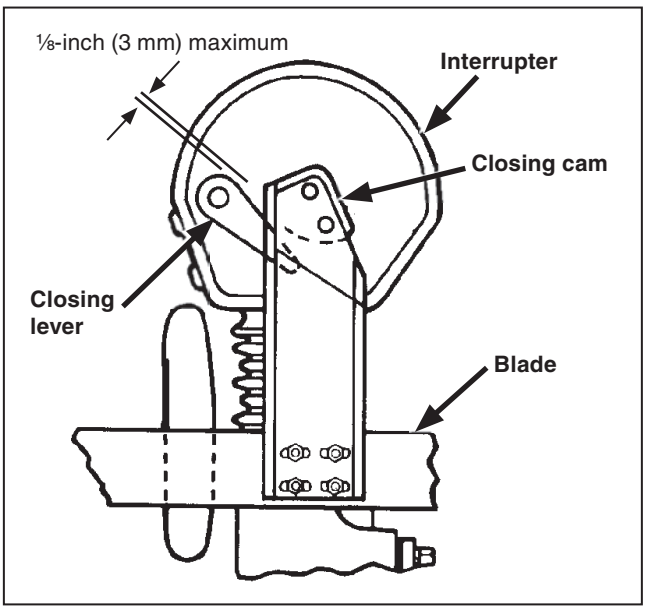


Figure 31. The blade assembly in the fully Closed position.

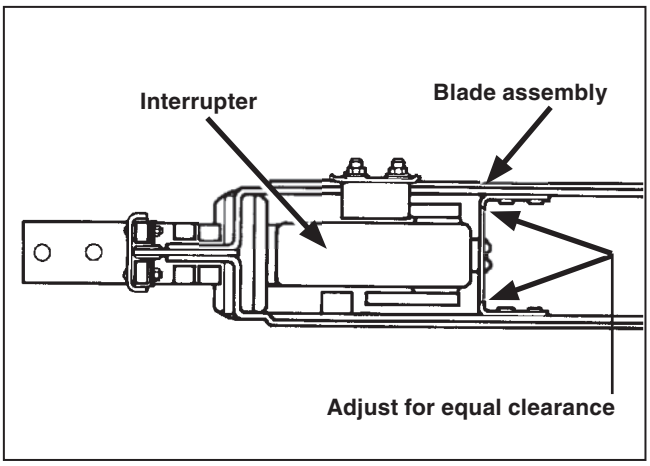


Figure 32. The blade assembly in the fully Closed position.

(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 33.

(g) Move the blade in the *opening* direction and verify each blade shunt contact firmly engages its respective interrupter contact rivets before the blade contacts disengage from the stationary main contact assemblies. See Figure 34. 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 damage likely was sustained during shipment.

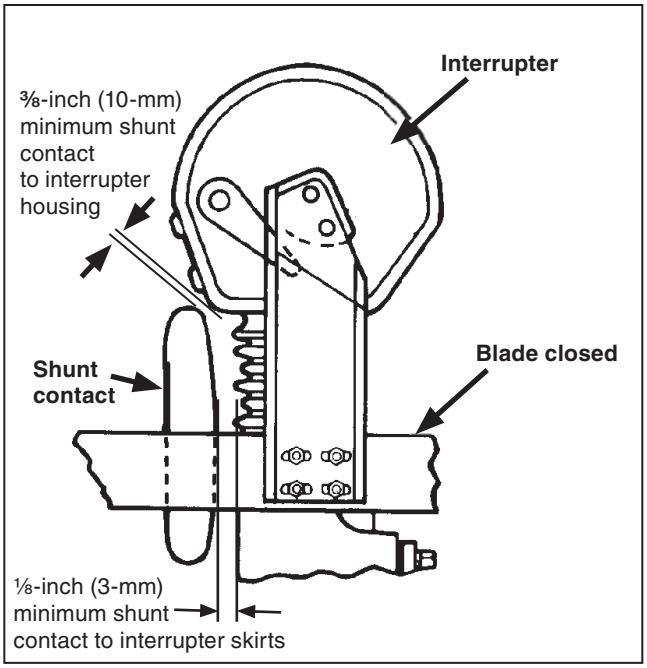


Figure 33. The blade assembly in the fully Closed position.

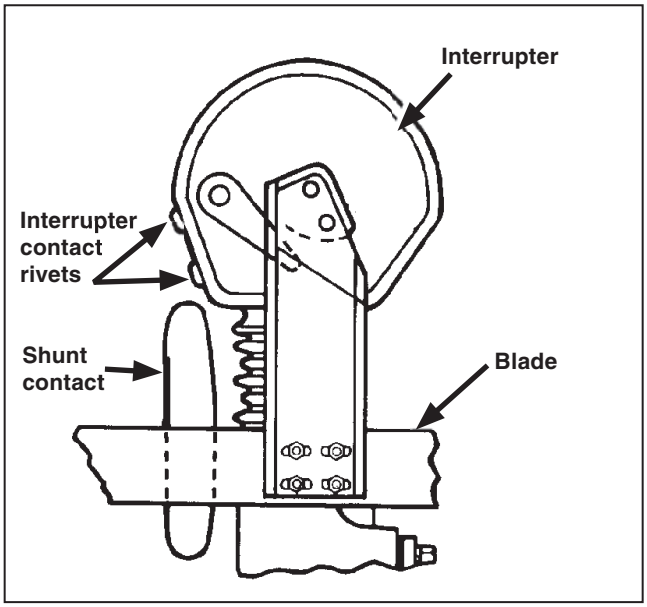


Figure 34. The blade assembly moving in the Opening direction.

STEP 25. Attach the danger label to the pole or structure using two straps or bolts (furnished by others). See Figure 35.

Position the danger label within 3 feet (91 cm) of the switch pole-units and in full view of line crews when viewed from the front of the switch.

For switches that mount on two poles, attach another danger label to the second pole in the same manner.

Figure 35. Attaching the danger label to the pole or structure.

Connecting the High-Voltage Conductors

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

- Thoroughly wire-brush the current-transfer surfaces of each connector and immediately apply a liberal coating of Penetrox® A to the brushed surfaces.
- Wire-brush each terminal pad of the interrupter switch and apply a coating of Penetrox A. Then, bolt the connectors to the terminal pads.
- 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, that have been designated by the connector manufacturer as being suitable for direct attachment to copper bearing alloy terminal pads.

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 26. 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 36.

(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 37.

(d) Always check that all three poles are fully open or fully closed.

(e) 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. Arcing can occur if the switch is partially open or partially closed.

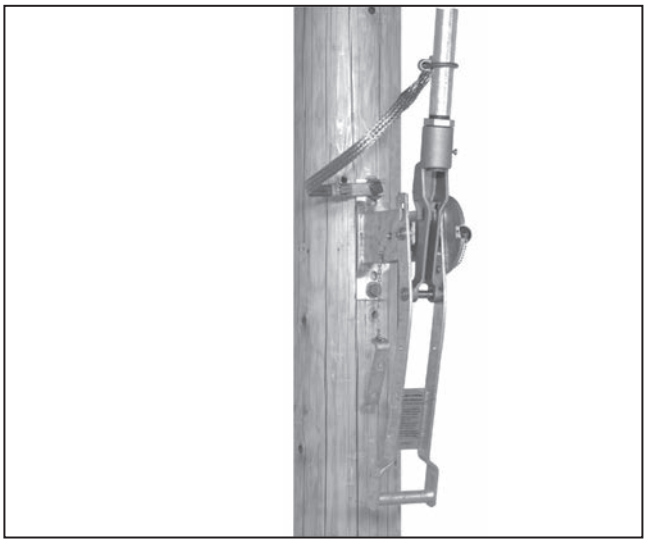


Figure 36. Withdrawing the locking bar and disengaging the key interlock bolt.

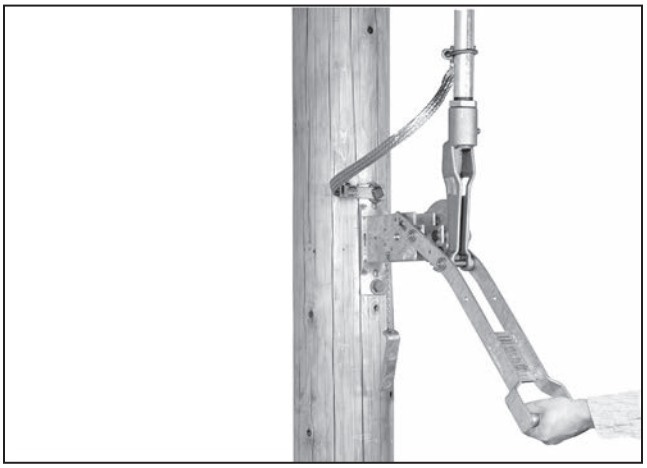


Figure 37. Swinging the operating handle rapidly.