

Installation and Operation

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Introduction

Qualified Persons

WARNING

Only qualified persons knowledgeable in the installation, operation, and maintenance of overhead and underground electric distribution equipment, along with all associated hazards, may install, operate, and maintain the equipment covered by this publication. A qualified person is someone trained and competent in:

- The skills and techniques necessary to distinguish exposed live parts from nonlive parts of electrical equipment
- The skills and techniques necessary to determine the proper approach distances corresponding to the voltages to which the qualified person will be exposed
- The proper use of special precautionary techniques, personal protective equipment, insulated and shielding materials, and insulated tools for working on or near exposed energized parts of electrical equipment

These instructions are intended only for such qualified persons. They are not intended to be a substitute for adequate training and experience in safety procedures for this type of equipment.

Read this Instruction Sheet

NOTICE

Thoroughly and carefully read this instruction sheet and all materials included in the product's instruction handbook before installing or operating the S&C Loadbuster Disconnect Switch. Become familiar with the Safety Information on page 3 and Safety Precautions on page 4. The latest version of this publication is available online in PDF format at sandc.com/en/contact-us/product-literature/.

Retain this Instruction Sheet

This instruction sheet is a permanent part of the S&C Loadbuster Disconnect Switch Live Parts. Designate a location where users can easily retrieve and refer to this publication.

Proper Application

WARNING

The S&C Loadbuster Disconnect Switch Live Parts described in this publication must be selected for a specific application that is within the ratings furnished for the equipment, and they must be assembled and installed in accordance with the instructions in this instruction sheet. Ratings for S&C Loadbuster Disconnect Switch Live Parts are listed on a ratings label found on the blade of the disconnect.

Understanding Safety-Alert Messages

Several types of safety-alert messages may appear throughout this instruction sheet and on labels and tags attached to the product. Become familiar with these types of messages and the importance of these signal words:

DANGER

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

WARNING

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

CAUTION

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

NOTICE

“NOTICE” identifies important procedures or requirements that can result in product or property damage if instructions are not followed.

Following Safety Instructions

If any portion of this instruction sheet is unclear and assistance is needed, contact the nearest S&C Sales Office or S&C Authorized Distributor. Their telephone numbers are listed on S&C’s website sandc.com, or call the S&C Global Support and Monitoring Center at 1-888-762-1100.

NOTICE

Read this instruction sheet thoroughly and carefully before installing and operating the S&C Loadbuster Disconnect Switch Live Parts.



Replacement Instructions and Labels

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

It is important that any missing, damaged, or faded labels on the equipment be replaced immediately. Replacement labels are available by contacting the nearest S&C Sales Office, S&C Authorized Distributor, S&C Headquarters, or S&C Electric Canada Ltd.



 **DANGER**

Loadbuster Disconnect 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 your company’s operating procedures and rules. Where a discrepancy exists, follow your company’s operating procedures and rules.

1. **QUALIFIED PERSONS.** Access to Loadbuster Disconnect Switches must be restricted only to qualified persons. See the “Qualified Persons” section on page 2.

2. **SAFETY PROCEDURES.** Always follow safe operating procedures and rules.

3. **PERSONAL PROTECTIVE EQUIPMENT.** Always use suitable protective equipment, such as rubber gloves, rubber mats, hard hats, safety glasses, and flash clothing, in accordance with safe operating procedures and rules.

4. **SAFETY LABELS.** Do not remove or obscure any of the “DANGER,” “WARNING,” “CAUTION,” or “NOTICE” labels.

5. **MAINTAINING PROPER CLEARANCE.** Always maintain proper clearance from energized components.

6. **ENERGIZED COMPONENTS.** The disconnect switch can be energized from either direction. Always consider all parts live until de-energized, tested, and grounded.

Inspection

Examine the shipment for external evidence of damage as soon after receipt as possible, preferably before removal from the carrier's conveyance. Check the bill of lading to make sure all listed shipping skids, crates, and containers are present.

If there is visible loss and/or damage:

1. Notify the delivering carrier immediately.
2. Ask for a carrier inspection.
3. Note condition of shipment on all copies of the delivery receipt.
4. File a claim with the carrier.

If concealed damage is discovered:

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

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

Ratings

Loadbuster Disconnect Switch live parts are furnished in ratings of 630 amperes and 900 amperes continuous. When assembled on an adequately designed base, the live parts have the following ratings:

- ***For disconnect switches rated 630 amperes continuous:*** The peak withstand rating is 65,000 amperes, and the 3-second rating is 16,000 amperes, RMS, symmetrical
- ***For disconnect switches rated 900 amperes continuous:*** The peak withstand rating is 65,000 amperes, and the 3-second rating is 25,000 amperes, RMS, symmetrical

Mounting Considerations

To obtain these listed ratings, the mounting base must be sufficiently rigid to preclude significant distortion when bolted to its mounting surface, maintain accurate blade alignment, ensure positive latching and smooth unlatching during forceful operation, and withstand rated momentary overcurrent.

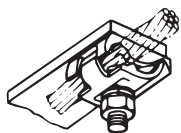
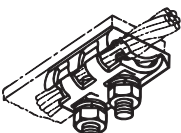
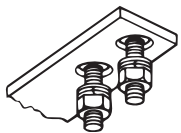
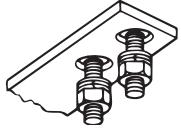
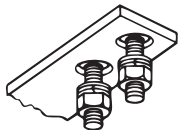
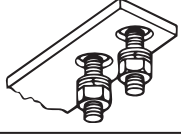
Loadbuster Disconnect Switch live parts rated 630 amperes are furnished with preassembled adapters suitable for attachment to 3-inch bolt circle insulators. Loadbuster Disconnect Switch live parts rated 900 amperes are furnished either with preassembled adapters or without such adapters. See Table 2 and Figure 2 on page 10 and Table 3 and Figure 3 on page 11.

Live parts with adapters are suitable for attachment to 3-inch bolt circle insulators. Live parts without adapters are suitable for attachment to 2½-inch bolt circle insulators. Hardware for attachment to insulators is not included.

Loadbuster Disconnect Switch live part connector options designated “-C” and “-A” are suitable for hot line tool handling. See Table 1. The terminal pad hole design prevents the connector attachment bolt(s) from turning, and the saddle member of the connector is held against, and loosely keyed to, the terminal pad by the retaining washer(s).

The clamping member of the connector is keyed to the saddle. The connector can be easily loosened and tightened by the hex nut(s) without either connector member turning in place.

Table 1. Connector Arrangements

Connector Arrangements				Catalog Number Suffix
Illustration	Disconnect Switch Continuous Current Rating, Amperes ^①	Description	Accommodating Conductor	
	630 and 900	Bronze body, tin plated. Single 1/2-13 x 2 3/4-inch galvanized steel bolt	No. 2 solid through 500 kc mil stranded copper	-C
	630 and 900	Aluminum-alloy body, tin plated. Two 1/2-13 x 2 3/4-inch galvanized steel bolts	No. 2 solid through 500 kc mil stranded copper or aluminum	-A
	630	Provision only for compression connectors. Includes two 1/2-13 x 2-inch galvanized steel bolts per terminal pad ^{②③}		-H
	630	Provision only for compression connectors. Includes two 1/2-13 x 2-inch stainless steel bolts per terminal pad ^{②③}		-J
	900	Provision only for compression connectors. Includes two 1/2-13 x 2-inch galvanized steel bolts per terminal pad ^{②③}		-G
	900	Provision only for compression connectors. Includes two 1/2-13 x 2-inch stainless steel bolts per terminal pad ^{②③}		-K

^① All disconnect switches are furnished with tinned terminal pads as a standard feature.

^② Accommodates connectors or connector tongues up through 3/4-inch (19-mm) thickness.

^③ Not suitable for hot line tool handling because the connector attachment bolts are not held captive.

Connectors

Although the bolt and the connector saddle are held captive, they nevertheless “float” so when the hex nut is tightened all mating parts are subjected to the same clamping pressure. See Figure 1.

With connector options “-G” and “-K” for disconnect switches rated 900 amperes continuous, and with connector option “-H” and “-J” for disconnect switches rated 630 amperes continuous, the attachment bolts are not captive. If multiple disconnect and connector types are available at the installation, check the catalog number etched on the nameplate and refer to Table 1 on page 7 to determine which connector goes with which disconnect installation.

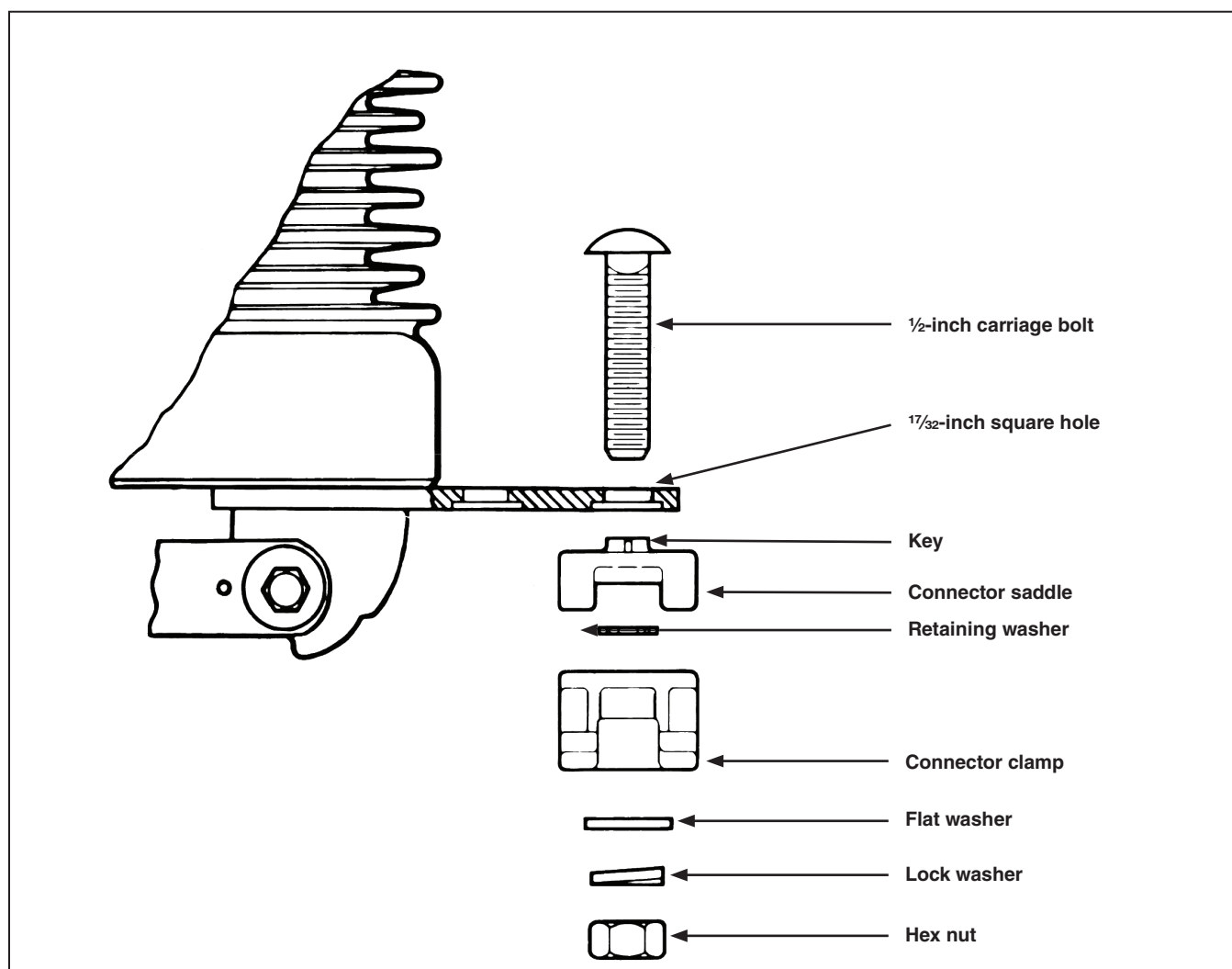


Figure 1. Terminal pad design for 630-ampere and 900-ampere disconnect switch live parts. Connector option “-C” illustrated.

Complete the following steps to install and adjust Loadbuster switch live parts:

- STEP 1.** Install the insulators on the base with a center-to-center distance as indicated by Dimension F. See Figure 2 on page 10 and Figure 3 on page 11.

Note: Insulators and attachment hardware are not included with live parts.

Insulators having directional skirts should be installed with the skirts toward the live parts if the disconnect is to be mounted vertically or inverted. For correct alignment of live parts, the tops of the insulators must lie in the same plane. Securely tighten the insulator mounting hardware.

Note: Live parts rated 630 amperes are furnished with adapters suitable for attachment to 3-inch bolt circle insulators. Do not remove these adapters.

Mount the jaw-contact assembly and the hinge-and-blade assembly on their respective insulators, with the mounting bolts snug but loose enough to permit alignment adjustments.

- STEP 2.** Make sure the blade makes an “on center” approach to the jaw contact and the jaw-contact terminal pad is in line with the hinge-end terminal pad. The blade must enter the jaw contact with no appreciable deflection to either side. Adjust by tapping at the terminal pads.

Installation and Adjustment

STEP 3. With the disconnect switch blade fully closed, adjust for proper latching as follows:

For 630-ampere live parts: Increase or decrease the hinge-to-jaw distance—Dimension F in Figure 2 and Table 2—to attain the $\frac{1}{16}$ -inch (2-mm) maximum, $\frac{1}{32}$ -inch (0.8-mm) minimum latch-to-jaw-contact spacing, as indicated in Figure 2. Securely tighten the live parts mounting bolts.

Table 2. 630 Ampere rated hinge-jaw distance

Catalog Number	Dimension F, Inches (mm)	Disconnect Switch Gap, Inches (mm)①
2650R1	12 (305)	$7\frac{1}{8}$ (181)
2660R1	15 (381)	15 (381)

① The disconnect switch gap is dependent on the type of insulators used. The values listed are applicable to disconnects using ANSI-standard station-post or Hi-F station-post insulators.

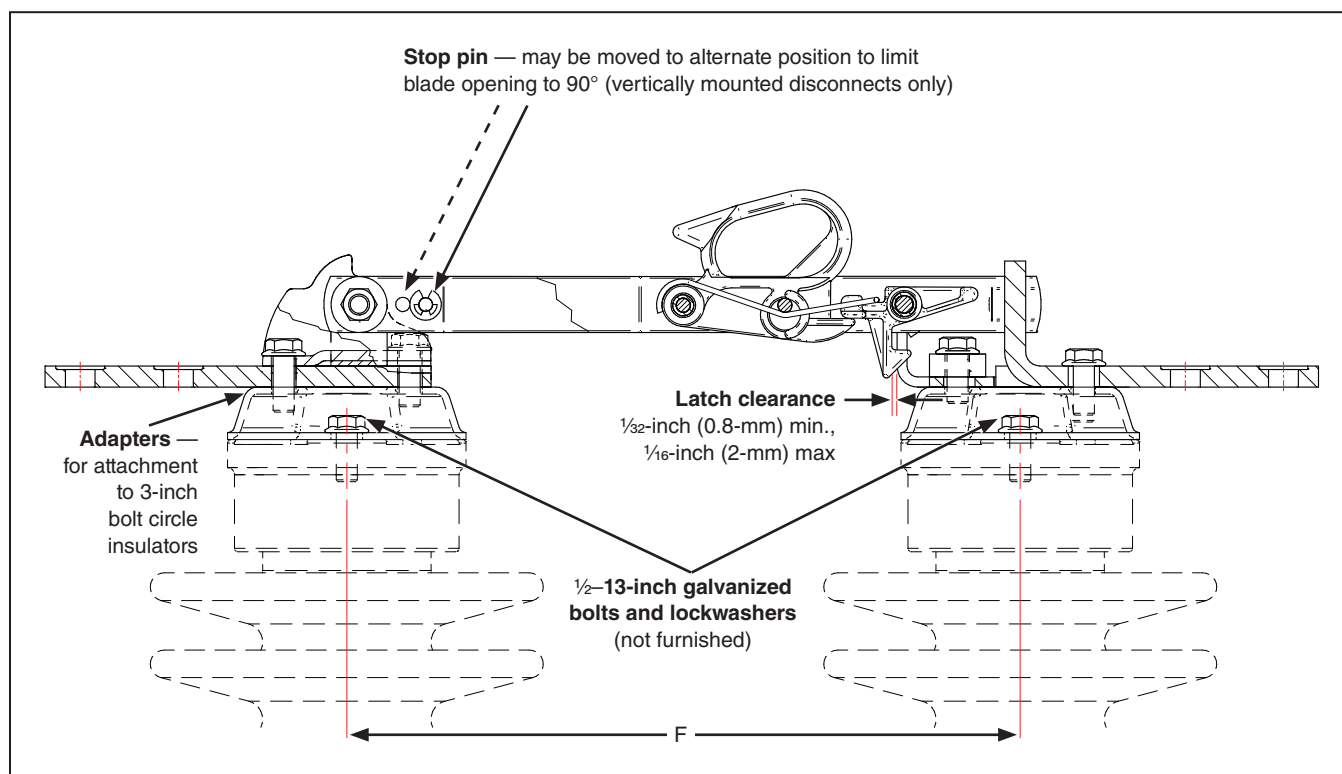


Figure 2. Loadbuster Disconnect Switch live parts rated 630 amperes.

For 900-ampere live parts: Close up the hinge-to-jaw distance—Dimension F in Figure 3 and Table 3—until the latch member on the blade touches the jaw contact or the gap is less than $\frac{1}{64}$ -inch (0.4-mm). Securely tighten the live parts mounting bolts.

Perform several opening and closing operations to check for ease of operation and positive latching. There should be an approximate $\frac{1}{4}$ -inch (6-mm) latch engagement when the disconnect is fully closed; and a quick, easy opening tug at the pull-ring should be sufficient to release the latch. If necessary, make a slight adjustment to the hinge-to-jaw distance. See Dimension F in Figure 3.

Table 3. 900 Ampere rated hinge-jaw distance

Catalog Number	Dimension F, Inches (mm)	Disconnect Switch Gap, Inches (mm) ^①
2670R1●	12 (305)	7 (178)
2671R1	12 (305)	7 (178)
2680R1●	15 (381)	10 (254)
2681R1	15 (381)	10 (254)
2690R1●	19 (483)	14 (356)
2691R1	19 (483)	14 (356)

① The disconnect switch gap is dependent on the type of insulators used. The values listed are applicable to disconnects using ANSI-standard station-post or Hi-F station-post insulators.

● Includes adapters for 3-inch bolt circle insulators.

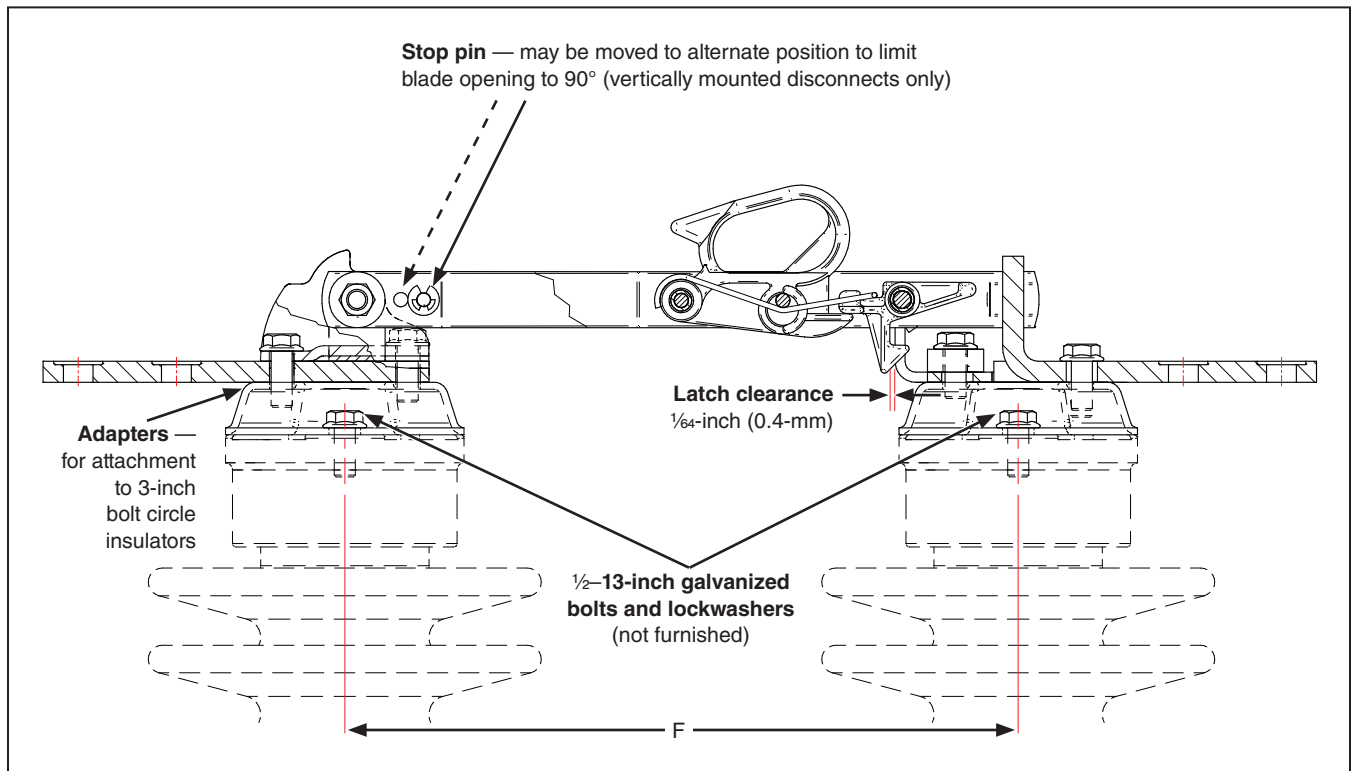


Figure 3. Loadbuster Disconnect Switch live parts rated 900 amperes.

- STEP 4.** With the disconnect switch blade fully closed, adjust for proper latching as follows:

For 630-ampere live parts: Increase or decrease the hinge-to-jaw distance—Dimension F in Figure 2 and Table 2 on page 10—to attain the $\frac{1}{16}$ -inch (2-mm) maximum, $\frac{1}{32}$ -inch (0.8-mm) minimum latch-to-jaw-contact spacing, as indicated in Figure 2 on page 10. Securely tighten the live parts mounting bolts.

For 900-ampere live parts: Close up the hinge-to-jaw distance—Dimension F in Figure 3 and Table 3 on page 11—until the latch member on the blade touches the jaw contact or the gap is less than $\frac{1}{64}$ -inch (0.4-mm). Securely tighten the live parts mounting bolts.

Perform several opening and closing operations to check for ease of operation and positive latching. There should be an approximate $\frac{1}{4}$ -inch (6-mm) latch engagement when the disconnect is fully closed; and a quick, easy opening tug at the pull-ring should be sufficient to release the latch. If necessary, make a slight adjustment to the hinge-to-jaw distance. See Dimension F in Figure 3 on page 11.

- STEP 5.** Install, or reposition, the blade stop pin in the desired location.

For 630-ampere live parts: Loadbuster Disconnect Switch Live Parts rated 630 amperes are furnished with a factory-installed blade stop pin positioned for a 160-degree blade opening angle. The stop pin may be moved to limit the blade opening to 90 degrees.

Remove the retaining ring from one end of the stop pin, and relocate pin to the alternate $\frac{1}{4}$ -inch (6-mm) diameter hole nearest the hinge. Fasten the stop pin by pressing the retaining ring over the end of the stop pin until the ring

snaps back into the groove provided. See Figure 2 on page 10.

For 900-ampere live parts: Loadbuster Disconnect Switch live parts rated 900 amperes have a built-in stop that limits blade opening to 160 degrees. A blade stop pin with retaining rings is furnished (contained in a cloth bag) and may be installed to limit blade opening to 90 degrees.

Assemble the stop pin into blade using $\frac{1}{4}$ -inch (6-mm) diameter hole nearest the hinge. Fasten the stop pin by pressing the supplied retaining rings over the end of the stop pin until the ring snaps into the groove provided. See Figure 3 on page 11.

- STEP 6.** Install the dead-ending bracket (user-supplied) to both ends of the base using $\frac{3}{16}$ -16×1-inch galvanized hardware.
- STEP 7.** Hoist the disconnect switch, and bolt it into position on the supporting structure. Do not hoist the disconnect by rigging on the live parts. If necessary, shim the disconnect base to eliminate any distortion caused by irregularities in the supporting structure.
- STEP 8.** Verify the presence of the contact lubricant applied at the factory to both jaw and hinge contact surfaces. Also, make sure this lubricant is still free of contaminants. If necessary, clean the contact surfaces with a nontoxic, nonflammable solvent and apply a fresh coating of lubricant (S&C part number 0352-006, Sanchem No-Ox-Id “A” Special, or equivalent).
- STEP 9.** Make the electrical connections. If using aluminum conductors, be sure to wire-brush them and apply a coating of oxidation inhibitor (S&C part number 0352-006, Sanchem No-Ox-Id “A” Special, or equivalent) before inserting them into the disconnect’s connectors.

Closing the Disconnect Switch

Insert a distribution prong into the pull-ring and swing the blade to within approximately 45° of the fully **Closed** position. Then, while looking away from the disconnect switch, drive the blade to the **Closed** position using a vigorous thrust. Carefully disengage the prong from the pull-ring, taking care to avoid pulling the blade open.

Opening Disconnect Switch with Loadbuster® —The S&C Loadbreak Tool

WARNING

Do not attempt to open an S&C Loadbuster Disconnect Switch to interrupt load current, without the use of a loadbreak tool such as S&C's Loadbuster tool. **An arc started by opening a disconnect switch under load without a loadbreak tool can cause arcing, equipment damage, serious injury, or death.**

Before opening the disconnect switch, check for proper resetting of the Loadbuster tool by extending the tool about three inches (76 mm) by hand. Throughout this travel, an increasing spring resistance should be felt.

- STEP 1.** Reach the Loadbuster tool across in front of the disconnect switch and hook the anchor, located at the top of Loadbuster tool, over the attachment hook on the far side of the disconnect. See Figure 4.
- STEP 2.** Swing the Loadbuster tool toward the disconnect switch and pass the Loadbuster tool's pull-ring hook through the pull-ring on the disconnect switch. The pull-ring latch will deflect and, upon complete entry of the pull-ring, will spring back, locking the Loadbuster tool to the pull-ring. The Loadbuster tool is now connected across the upper contacts of the disconnect switch.
- STEP 3.** *To open the circuit:* Operate the Loadbuster tool with a firm, steady pull until it is extended to its maximum length. See Figure 5. Avoid jerking and hesitation. The resetting latch will keep it open. Generally, there will be no indication of circuit interruption. The only sound will be that of the Loadbuster tool tripping.

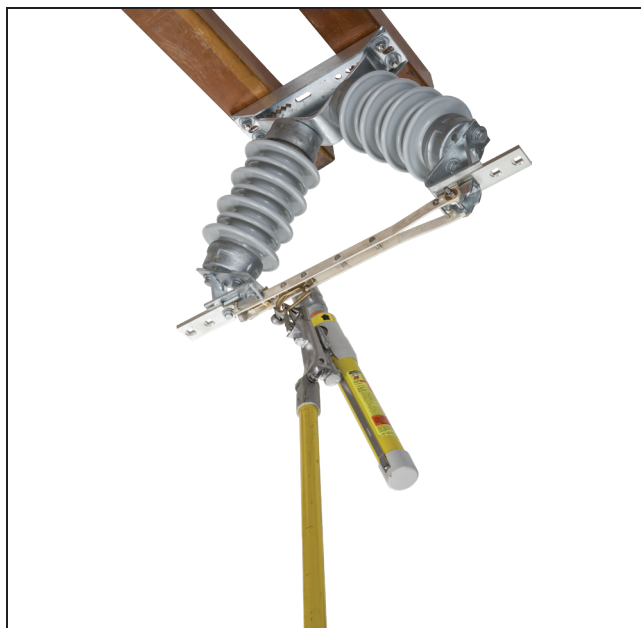


Figure 4. A Loadbuster tool connected to a Loadbuster Disconnect Switch

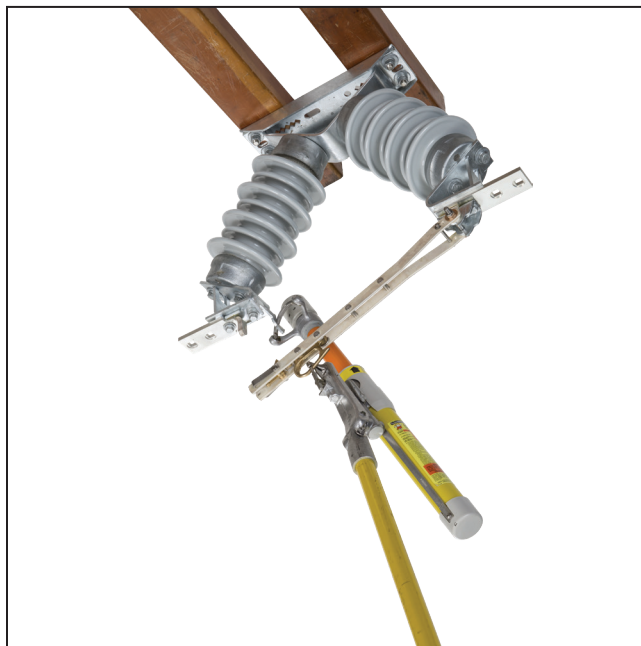


Figure 5. A Loadbuster tool in the Tripped position.

STEP 4. To detach the Loadbuster tool after circuit interruption: First raise it slightly and disengage the anchor from the attachment hook.

Next, bring the disconnect switch toward its fully **Open** position, as illustrated in Figure 6. Then, remove the Loadbuster tool from the pull-ring by rotating the pole. This will deflect the pull-ring latch to release the pull-ring. To perform this operation easily and smoothly, always roll the Loadbuster tool so it rotates in a downward direction.

 WARNING

Careless manipulation of the Loadbuster tool can decrease the open gap to the point where flashover will occur. **This can result in arcing, electrical shock, serious injury, or death.**

STEP 5. To reset the Loadbuster tool for the next operation: Hold the tool as shown in Figure 7. Extend the tool slightly and lift the resetting latch with your thumb. With the latch up, telescope the tool completely so the trigger can reset itself. Depress the telescoping tube until the orange paint on the inner tube assembly is no longer visible.

Check for proper resetting by extending the tool about 3 inches (76 mm). Throughout this travel, an increasing spring resistance should be felt.

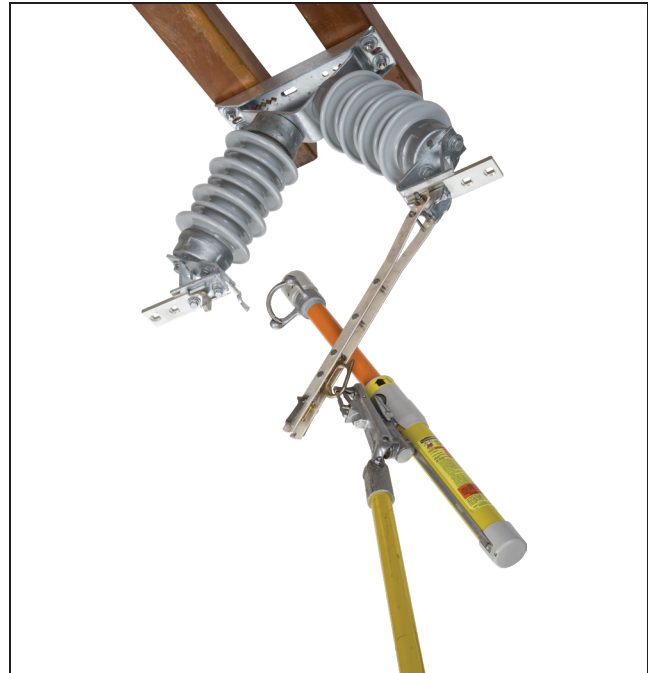


Figure 6. Detaching a Loadbuster tool from the disconnect switch

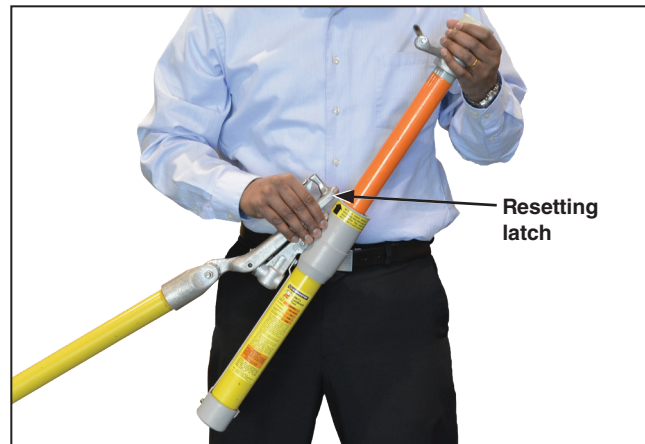


Figure 7. Resetting a Loadbuster tool