

Installation, Replacement, and Maintenance

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Introduction

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 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 S&C Instruction Handbook before installing or operating your S&C Type SM-20 Power Fuse live parts. Familiarize yourself with the Safety Information and Safety Precautions on pages 4 and 5. 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 S&C Type SM-20 Power Fuse live parts. 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 power fuse application. The application must be within the ratings furnished for the equipment. Ratings for the S&C Type SM-20 Power Fuses are listed in the ratings table in Specification Bulletin 252-31. The ratings are also on the nameplate affixed to the product.

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**

For the standard warranty contained in the seller's standard conditions of sale (as set forth in Price Sheet 150) to apply to live parts when purchased separately, the live parts must be assembled on mountings in accordance with instructions found in this publication. Furthermore, when installed in indoor, outdoor, or indoor-outdoor enclosures not manufactured by S&C, the enclosures must be constructed in accordance with S&C's applicable minimum construction specifications found in the current revision of the following publication:

INFORMATION BULLETIN 252-62:

S&C Type SM Power Fuses Indoor
Distribution (4.16 kV through 34.5 kV)

Minimum Construction Specifications for
Indoor and Outdoor, Metal Enclosures
with Fuses.

With respect to S&C live parts, when installed in submersible enclosures not manufactured by S&C, the warranty does not apply unless enclosures are furnished by an approved supplier and are of watertight construction, providing proper electrical clearances and proper space for fuse handling.

The standard warranty contained in the seller's standard conditions of sale (as set forth in Price Sheet 150) does not apply when fuses not manufactured by S&C are used in conjunction with S&C live parts or when S&C fuse units are used in mountings not manufactured by S&C.

Safety Information

Understanding Safety-Alert Messages

Several types of safety-alert messages may appear throughout this instruction sheet and on labels and tags attached to your S&C Type SM-20 Power Fuse. 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 Monitoring and Support Center at 1-888-762-1100.

NOTICE

Read this instruction sheet thoroughly and carefully before installing your S&C Type SM-20 Power Fuse.



Replacement Instructions and Labels

If requiring additional copies of this instruction sheet, 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.

⚠ DANGER



S&C Type SM-20 Power Fuses contain 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 S&C Type SM-20 Power Fuses 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, arc-flash clothing, and fall-protection, 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 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. **MAINTAINING PROPER CLEARANCE.** Always maintain proper clearance from energized components.
7. **Do not remove the fuse unit from its carton until ready to use.**
8. **Handle fuse units with care.** Do not drop or throw them.
9. **Do not place hand over the upper seal of the fuse unit when handling.** There is the remote possibility that the current-responsive section of the fuse unit may have been weakened in shipping or handling. As a result, the spring-loaded actuating pin may be unpredictably released and driven forcibly through the upper seal.

Installation and Adjustment

Follow these steps to install and adjust S&C Type SM-20 Power Fuses with live parts:

STEP 1. Install insulators (not included with live parts) with center-to-center distances as indicated by Dimension “F1” or “F2,” in Figure 1, as applicable.

Note: To obtain correct adjustment of live parts, tops of insulators must lie in the same plane.

STEP 2. Mount the latch-and-upper-contact assembly on one insulator with the two mounting bolts●

snug but loose enough to permit movement of the assembly within the confines of the mounting slots.

STEP 3. Mount the hinge-and-lower-contact assembly on its insulator with the two mounting bolts● snug but loose enough to permit movement of the assembly within the confines of the mounting holes or slots, as applicable. See Figure 1.

STEP 4. Install an SMU-20 Fuse Unit assembly (fuse unit with end-fittings attached as directed in S&C

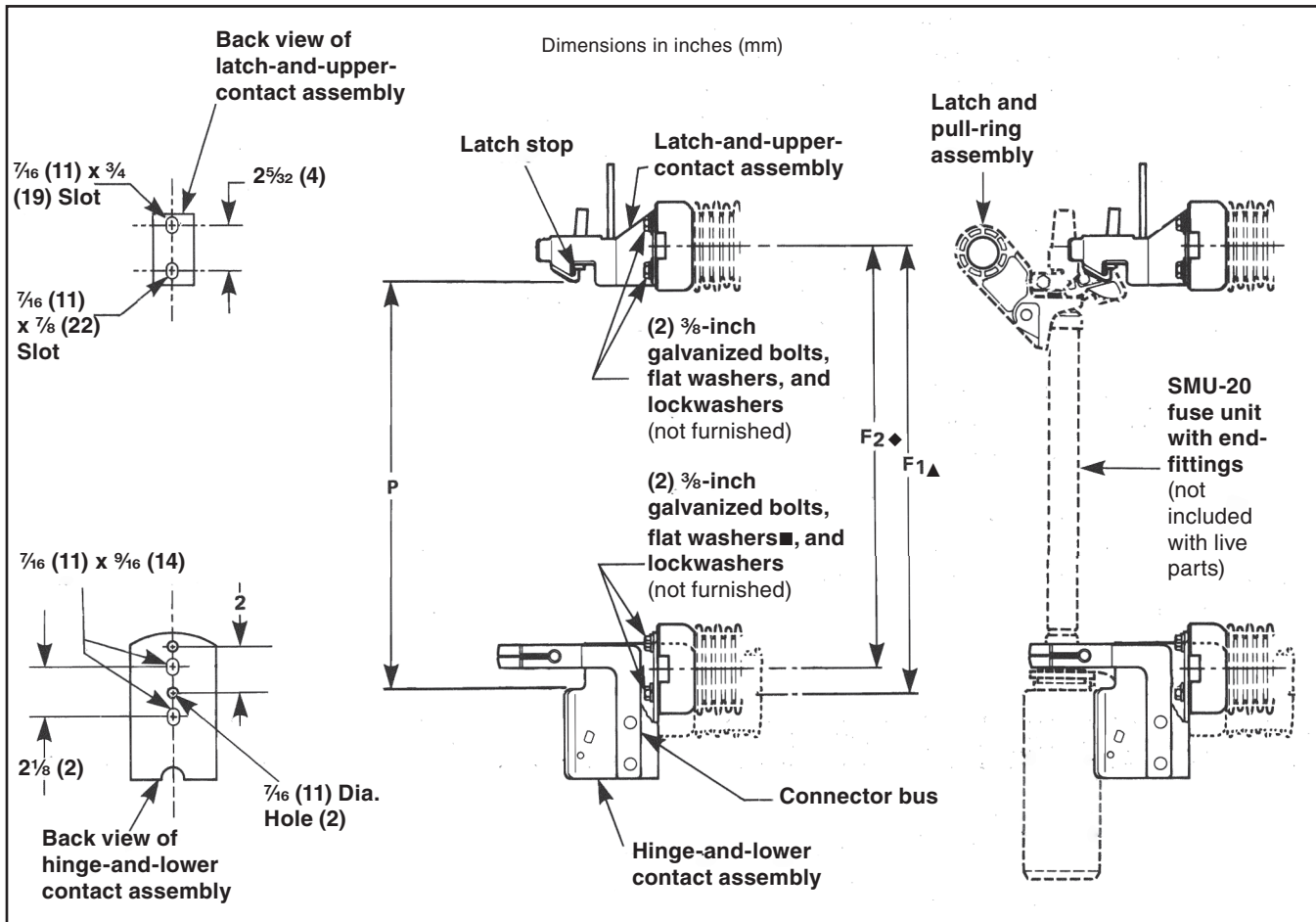


Figure 1. Dimensions for mounting live parts for SM-20 Power Fuses.

● 3/8-inch galvanized bolts, flat washers, and lockwashers (not furnished).

■ Flat washers are required when using the mounting slots in the hinge-and-lower-contact assembly.

▲ Using slotted mounting holes on hinge-and-lower-contact assembly (accommodates 2-inch (51-mm) or 2 1/4-inch (57-mm) bolt circle insulators).

◆ Using round mounting holes on hinge-and-lower-contact assembly (accommodates 2-inch (51-mm) bolt circle insulators only).

Power Fuse Type	Rating kV Nominal	Dimensions in Inches, +0, -1/16 inch (mm)		
		F1▲	F2◆	P
SM-20	13.8	18 3/4 (476)	18 (457)	17 7/16 (443)
	25	22 1/4 (565)	21 1/2 (546)	20 15/16 (532)
	34.5	28 1/4 (718)	27 1/2 (699)	26 15/16 (684)

Instruction Sheet 252-550) in the hinge-and-lower-contact assembly and carefully close the fuse unit into the latch-and-upper-contact assembly. Take care to guide the fuse tube during closing so the contact rod on the fuse-unit upper end-fitting approaches the latch-and-upper-contact assembly on center. See Figure 2. With the fuse unit in the fully **Closed** position, tighten both hinge-and-lower-contact assembly mounting bolts.

STEP 5. With the fuse unit still in the fully **Closed** position, accurately measure the distance between the lower edge of the latch stop on the latch-and-upper-contact assembly and the “shoulder” on the hinge-and-lower-contact assembly (Dimension “P” in Figure 1). Move the latch-and-upper-contact assembly toward or away from the hinge-and-lower-contact assembly as required to bring this dimension within the limits specified in Figure 1 on page 6.

Note: Make sure Dimension “P” is maintained on both sides of the latch-and-upper-contact assembly. Fully tighten both latch-and-upper-contact assembly mounting bolts.

STEP 6. Using a conventional hookstick (or an S&C Universal Pole equipped with a Grappler® Handling Tool●), operate the fuse-unit assembly by moving it from the **Closed** position to the **Open** position and back again. Make sure the fuse-unit assembly enters the latch-and-upper-contact assembly on center, as described in Step 4, and that not more than a 3/16-inch (5 mm) clearance exists between the latch stop on the latch-and-upper contact assembly and the latch on the fuse-unit end-fitting, with the fuse unit in the **Closed** position. See Figure 3.

● The Grappler tool is especially suited for use with disconnect-style Type SM and SML Power Fuses.

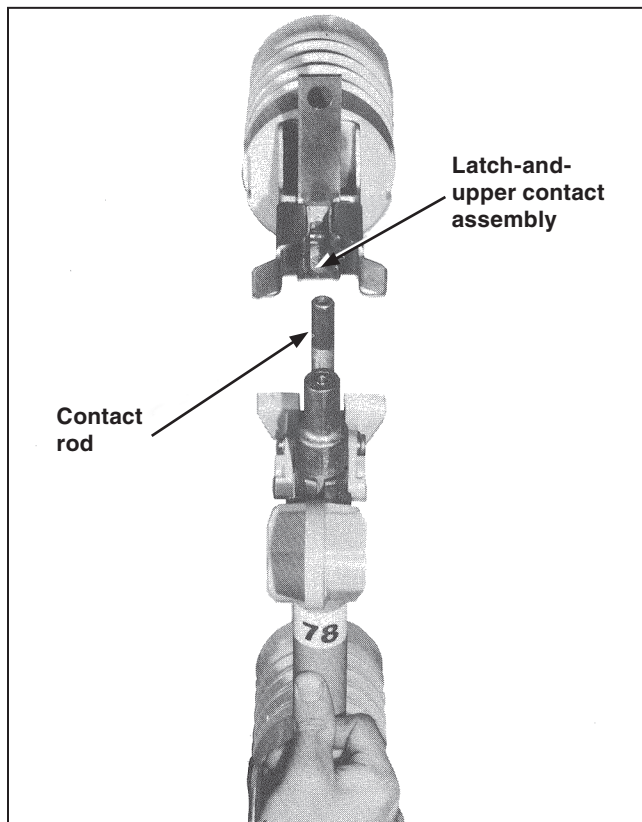


Figure 2. On-center entry of a fuse-unit assembly into the latch-and upper contact assembly.

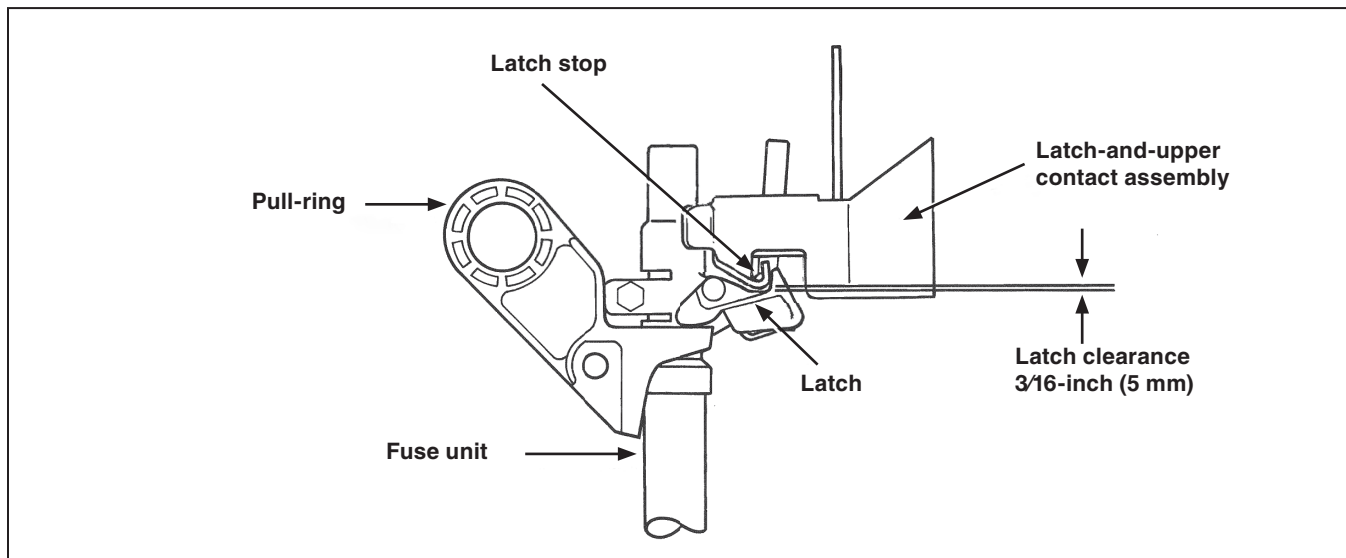


Figure 3. Proper latching configuration.