

Installation and Replacement

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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 your Type SM-40 and Type SMD-40 Power Fuses. Become familiar with the Safety Information on pages 4 and Safety Precautions on page 5. 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 Type SM-40 and Type SMD-40 Power Fuses. Designate a location where users 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 for the Type SM-40 and Type SMD-40 Power Fuses are listed in the ratings table in Specification Bulletin 242-31. 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).

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 Type SM-40 and Type SMD-40 Power Fuses. Become familiar 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 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 Type SM-40 and Type SMD-40 Power Fuses.



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



Type SM-40 and SMD-40 Power Fuses 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 the Type SM-40 and SMD-40 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. Always maintain proper clearance from energized components.
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.

Shipping and Handling

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:

- STEP 1.** Notify the delivering carrier immediately.
- STEP 2.** Ask for carrier inspection.
- STEP 3.** Note the condition of shipment on all copies of the delivery receipt.

If concealed damage is discovered:

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

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

Installation (Fusing) in SM-40 and SMD-40 Mountings

The following instructions cover installation and replacement of SMU-40 Fuse Units used with indoor-distribution SM-40 Power Fuse mountings or with outdoor-distribution SMD-40 Power Fuse mountings. Note that appropriate end-fittings must be attached to the fuse unit before it can be installed in a mounting. Note further that, while the SMU-40 Fuse Unit can be installed in each of the aforementioned mountings, the end-fittings for use in an SMD-40 mounting are dissimilar and are not interchangeable with the end-fittings for use in SM-40 mountings. See Figure 1 on page 8 and Figure 2 on page 9.

SMU-40 Fuse Units have nondamageable silver or nickel-chrome fusible elements. Consequently, there is no need to replace unblown companion fuses on suspicion of damage following a fuse operation.

Complete the following steps to install the fuse mountings:

- STEP 1.** Slip the lower end-fitting over the upper end of the fuse unit and slide it down until the locating slot (inside the lower end-fitting) is aligned with the locating pin on the lower ferrule. Seat the lower end-fitting against the shoulder of the lower ferrule. Then, thread the silencer onto the lower end-fitting and screw it on firmly. The final fractional turn should be made with a bar or wrench handle applied to the base of the silencer.
- STEP 2.** Slip the upper end-fitting over the fuse unit. Align the locating pin (inside the upper end-fitting) with the locating slot in the fuse unit and seat the upper end-fitting firmly against the upper end of the fuse unit. Tighten the clamp screw firmly.
- STEP 3.** *For unused fuse unit end-fittings:* A coating of NO-OX ID “A Special” oxidation-inhibiting grease has been factory-applied to the contact rod of the SM-40 upper end-fitting and to the contact surface of the SMD-40 upper end-fitting. Verify the presence of this oxidation-inhibiting grease and that it is still free of contaminants. If the grease is missing or contaminated, clean the contact with a nontoxic, nonflammable solvent and apply a coating of NO-OX ID “A Special” contact lubricant or a similar nonmetallic-filler oxidation-inhibiting grease.
- STEP 4.** *For reused fuse unit end-fittings:* Remove the existing coating of oxidation-inhibiting grease and dirt from the contact using a nontoxic, nonflammable solvent. Inspect the contact for evidence of pitting. If pitting has occurred, file down any projections, abrade the surface until smooth with an abrasive cloth or scratch brush, and wipe clean.
- Apply a new coating of NO-OX ID “A Special” contact lubricant or a similar nonmetallic-filler oxidation-inhibiting grease to the contact. If the contact has been burned, install a replacement set of fuse unit end-fittings.
- STEP 5.** Follow the appropriate step(s) in the “Refusing” section to close the fuse into the mounting; Step 3 on page 8 for SM-40 Mountings and Steps 3 and 4 on page 9 for SMD-40 mountings.

Installation and Closing

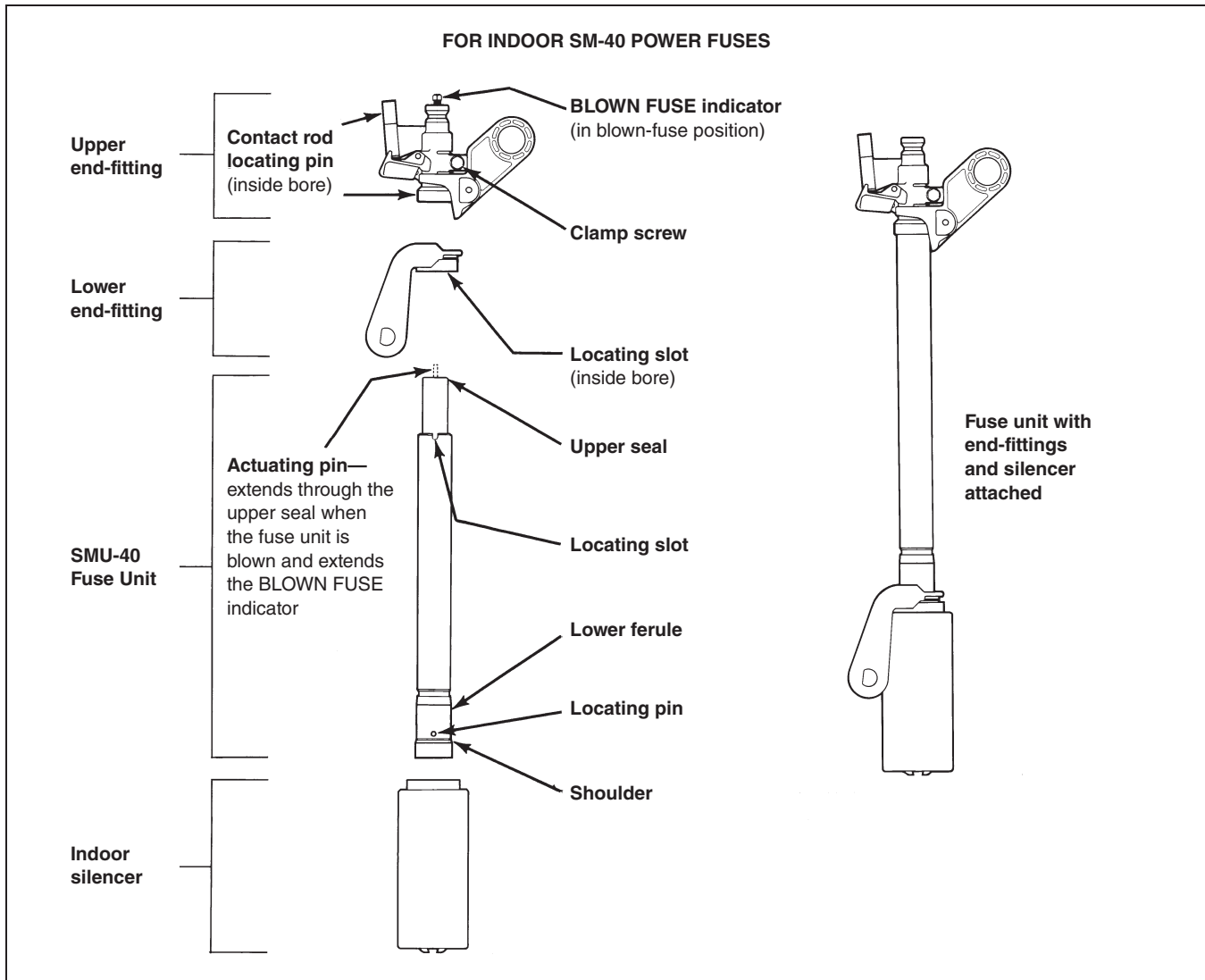


Figure 1. SMU-40 Fuse Unit with end-fittings and silencer for use in outdoor SM-40 fuse mountings.

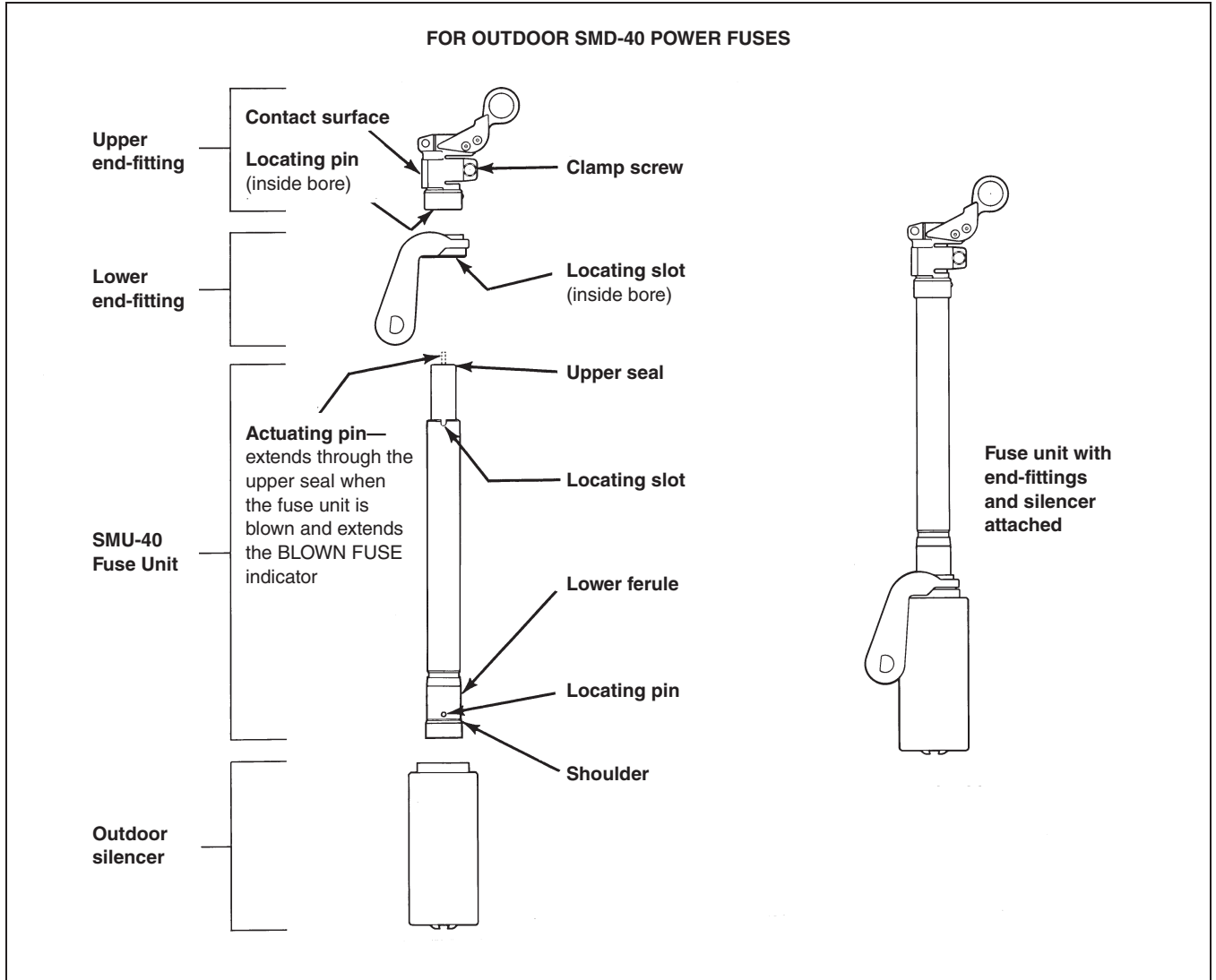


Figure 2. SMU-40 Fuse Unit with end-fittings and silencer for use in outdoor SM-40 fuse mountings.

SM-40 Mountings

 **DANGER**

DO NOT move an SMU-40 Fuse Unit to the **Open** position under load. Isolate or de-energize the SM-40 mounting before removing the SMU-40 fuse unit from the mountings. SM-40 mountings do not incorporate a live-switching device. **Failure to isolate or de-energize the fuse mounting before opening the fuse unit will cause arcing that will result in serious injury or death.**

When the fuse operates, the fuse-unit BLOWN FUSE indicator moves to the **Extended** position, providing visual evidence the fuse unit is blown. Move the fuse unit to the **Open** position and remove it from the mounting using a universal pole equipped with an S&C Grapppler™ Handling Tool.

To remove the fuse unit end-fittings:

- STEP 1.** Loosen the upper end-fitting clamp screw and pry the clamp apart slightly using a screwdriver. Slide the upper end-fitting off the upper end of the fuse unit. Then, unscrew and remove the silencer. Slide the lower end-fitting off the upper end of the fuse unit. A blown fuse unit cannot be salvaged. Discard it.
- STEP 2.** Attach the end-fittings and silencer to a new fuse unit, following the instructions given on pages 6 and 7 and illustrated in Figure 1 on page 8.
- Note:** After a high-magnitude fault, carefully inspect the inside of the silencer. If the plates at the top (threaded) end of the silencer exhibit significant erosion, replacement of the silencer is recommended.
- STEP 3.** Reinstall the fuse unit in its mounting using a universal pole equipped with an S&C Grapppler tool.

SMD-40 Mountings

DANGER

DO NOT move an SMU-40 Fuse Unit to the **Open** position under load. SMD-40 mountings do not incorporate a live-switching device. An unblown SMU-40 Fuse Unit in a SMD-40 mounting must not be moved to the **Open** position without first opening a series-interrupting and isolating switch or, for mountings equipped with Loadbuster®—The S&C Loadbreak Tool attachment hooks without using the Loadbuster tool. **Failure to isolate or de-energize the fuse mounting or use a Loadbuster tool before opening the fuse unit will cause arcing that will result in serious injury or death.**

When the fuse operates, the fuse unit swings to a 45° **Open** position. Remove it from the mounting using a universal pole equipped with an S&C Large Clamp.

To remove the fuse unit end-fittings:

- STEP 1.** Loosen the upper-end-fitting clamp screw and pry the clamp apart slightly using a screwdriver. Slide the upper end-fitting off the upper end of the fuse unit. Then, unscrew and remove the silencer. Slide the lower end-fitting off the upper end of the fuse unit. A blown fuse unit cannot be salvaged. Discard it.
- STEP 2.** Attach the end-fittings and silencer to a new fuse unit following the instructions given on pages 6 and 7 and illustrated in Figure 1 on page 8.

Note: After a high-magnitude fault, carefully inspect the inside of the silencer. If the plates at the top (threaded) end of the silencer exhibit significant erosion, replacement of the silencer is recommended.

STEP 3. Reinstall the fuse unit in its mounting using a universal pole equipped with an S&C Large Clamp.

STEP 4. Close the fuse into the mounting.

- (a) Stand firmly in front of and in line with the SMD-40 mounting. Do not operate directly underneath the SMD-40 Mounting. With a hookstick fitted with a distribution prong, insert the prong into the pull-ring on the fuse unit's upper end-fitting. If an extendo stick is being used, stand between 12 to 15 feet (3.7 to 4.6 m) away from the pole.
- (b) While firmly gripping the hookstick, swing the fuse unit to within approximately 45° of the fully **Closed** position. Then, while looking away, fully close the fuse while using a vigorous forward thrust.

Disengage the hookstick from the pull-ring, taking care to avoid opening the fuse.

Refinishing

The exterior finish of the fuse-unit tubes should be inspected periodically for weather damage. If the finish has become discontinuous or if deep scratches are evident, the tube should be resurfaced using the fuse unit recoating kit available from the factory. See instructions below.

This kit contains two components: a ½-pint can of Light Gray Enamel 9611 and a ½-pint can of Hardener 2191. This kit is sufficient for two coats on 10 fuse units. A 1-pint can of thinner is also available for use with this kit (ordered separately).

- STEP 1.** Before resurfacing, sand off the old finish with No. 1 sandpaper. Smooth the surface with No. 0 sandpaper. Remove any oil or grease with a nontoxic, nonflammable solvent and allow to dry. Do not immerse the fuse unit in solvent.
- STEP 2.** Mix together only the amount of enamel and hardener immediately needed. Add thinner as required.
- STEP 3.** Spray or brush coat the fuse unit tube, taking care not to coat the fuse tube ferrules. Allow the tube to air dry for several minutes, and then apply a second coat. Air dry for several minutes after applying the second coat. **DO NOT BAKE FINISH.**
- STEP 4.** Discard any mixed finish not used.