Installation and Maintenance

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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 Power Fuse Type SMD-2CSS. Become familiar with the Safety Information on page 3 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 the Power Fuse Type SMD-2CSS. 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 Power Fuse Type SMD-2CSS are listed in the ratings table in Specification Bulletin 212-35. The ratings are also on the label affixed to the product.

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 s 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, or call the S&C Global Support and Monitoring Center at 1-888-762-1100. Telephone numbers are also listed on S&C's website, **sandc.com**.

NOTICE

Read this instruction sheet thoroughly and carefully before installing the Power Fuse Type SMD-2CSS.

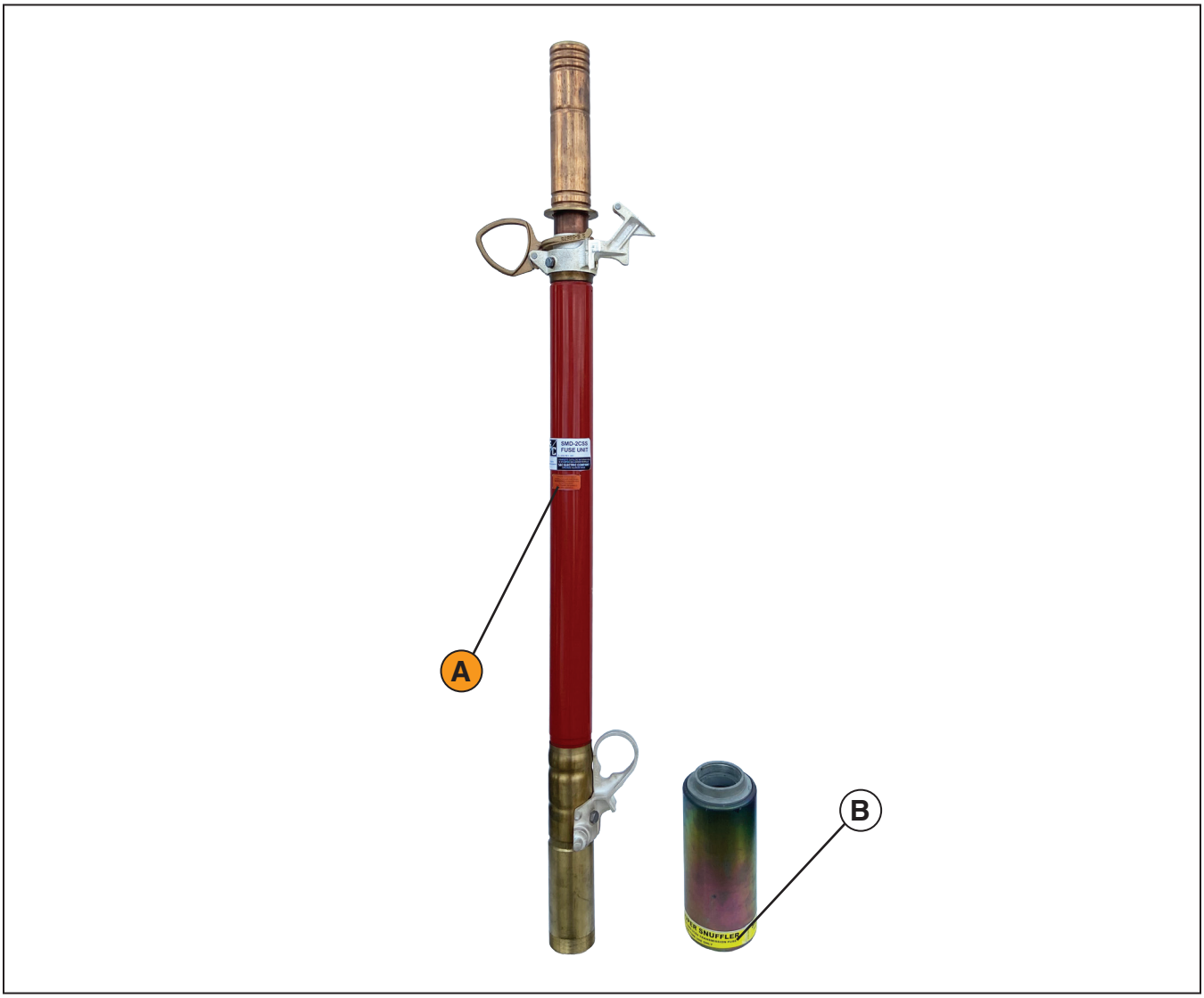


Replacement Instructions and Labels

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 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.

Location of Safety and Instruction Labels



Reorder Information for Safety Labels

Location	Safety Alert Message	Description	Part Number
A	⚠ WARNING	Assembly may be spring-loaded. Super Snuffler is required for fuse operation.	G-13250
B	INSTRUCTION	S&C Super Snuffler. For use with SMD-2CSS Transmission Fuse. One-time use only.	G-13251

⚠ DANGER



The Power Fuse Type SMD-2CSS 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 Power Fuses Type SMD-2CSS 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. **FUSES.** Make sure fuses are disconnected from all power sources (including backfeed) before inspection or replacement.

   When closed in, the fuse units will not be damaged by high humidity. Do not leave fuse units installed in the mounting hanging open.

   When in storage, these fuse units should be protected from excessive moisture.
6. **ENERGIZED COMPONENTS.** Always consider all parts live until de-energized, tested, and grounded. Voltage levels can be as high as the peak line-to-ground voltage last applied to the switchgear. Switchgear bays that have been energized or installed near energized lines should be considered live until tested and grounded.
7. **PADLOCKS.** Non-removable manual handles in high-voltage compartment doors and hinged-padlockable covers, as well as hinged-bolted panels, have provisions for padlocks that must be in place and secured at all times unless work is being performed inside the enclosure. Padlocks must be installed and secured on manual switch operating handles at all times unless the switch is being operated.
8. **METAL-ENCLOSED SWITCHGEAR.** Refer to S&C Instruction Sheet 621-500 for instructions on metal-enclosed switchgear installation and access.
9. **MAINTAINING PROPER CLEARANCE.** Always maintain proper clearance from energized components.
10. **HANDLING.**
    - Do not remove the fuse unit from its carton until ready to use.
    - Handle fuse units with care. Do not drop or throw.
    - 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.

Overview

The following instructions are for field assembly and installation of S&C Power Fuses Type SMD-2CSS in S&C Custom Metal Enclosed Switchgear.

Because of differences in interrupting ratings, fuse units of different types should not be interchanged without first contacting the nearest S&C Sales Office.

Attaching Fuse-Unit End-Fittings

Follow these steps to attach the fuse unit end-fittings:

STEP 1. Check the upper end-fitting to ensure the release tube slides freely. See Figure 1 on page 7. If it does not, use a new upper end-fitting.

STEP 2. Carefully remove the blocking assembly (if provided) from the upper end of the fuse unit.

NOTICE

Make certain the weather seal is seated in the groove located on the upper ferrule of the fuse unit.

STEP 3. Attach the upper end-fitting to the upper ferrule of the fuse unit by using the 5⁄16–18×½-inch stainless steel bolts and lock washers provided with the lower end-fitting for SMD-2CSS Fuse Units. See Figure 1 on page 7. The correct position is determined by mounting holes in the upper end-fitting.

STEP 4. Attach the lower end-fitting to the lower ferrule of the fuse unit by using the 5⁄16–18×½-inch stainless steel bolts and lock washers provided with the lower end-fitting for SMD-2CSS Fuse Units. The correct position is determined by mounting holes in the lower end-fitting.

STEP 5. ***For New End-Fittings:*** A coating of NO-OX-ID® "A-Special" Contact Lubricant (available from Sanchem, Inc.) was applied to the current-carrying contact surfaces of the upper end-fitting and lower end-fitting at the factory. Verify the presence of this oxidation-inhibiting grease and that it is still free of contaminants. If necessary, clean the contact surfaces 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.

When Reusing End-Fittings: Remove the existing coating of oxidation-inhibiting grease and dirt from the current-carrying contact surfaces of the upper end-fitting and lower end-fitting by using a nontoxic, nonflammable solvent. Inspect these surfaces for evidence of pitting. If pitting has occurred, file down any projections, abrade the surfaces 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 similar nonmetallic-filler oxidation-inhibiting grease to the current-carrying contact surfaces. If a contact has been burned, that contact and its mating contact should be replaced.

STEP 6. Screw the Super Snuffler onto the base of the fuse unit and hand-tighten.

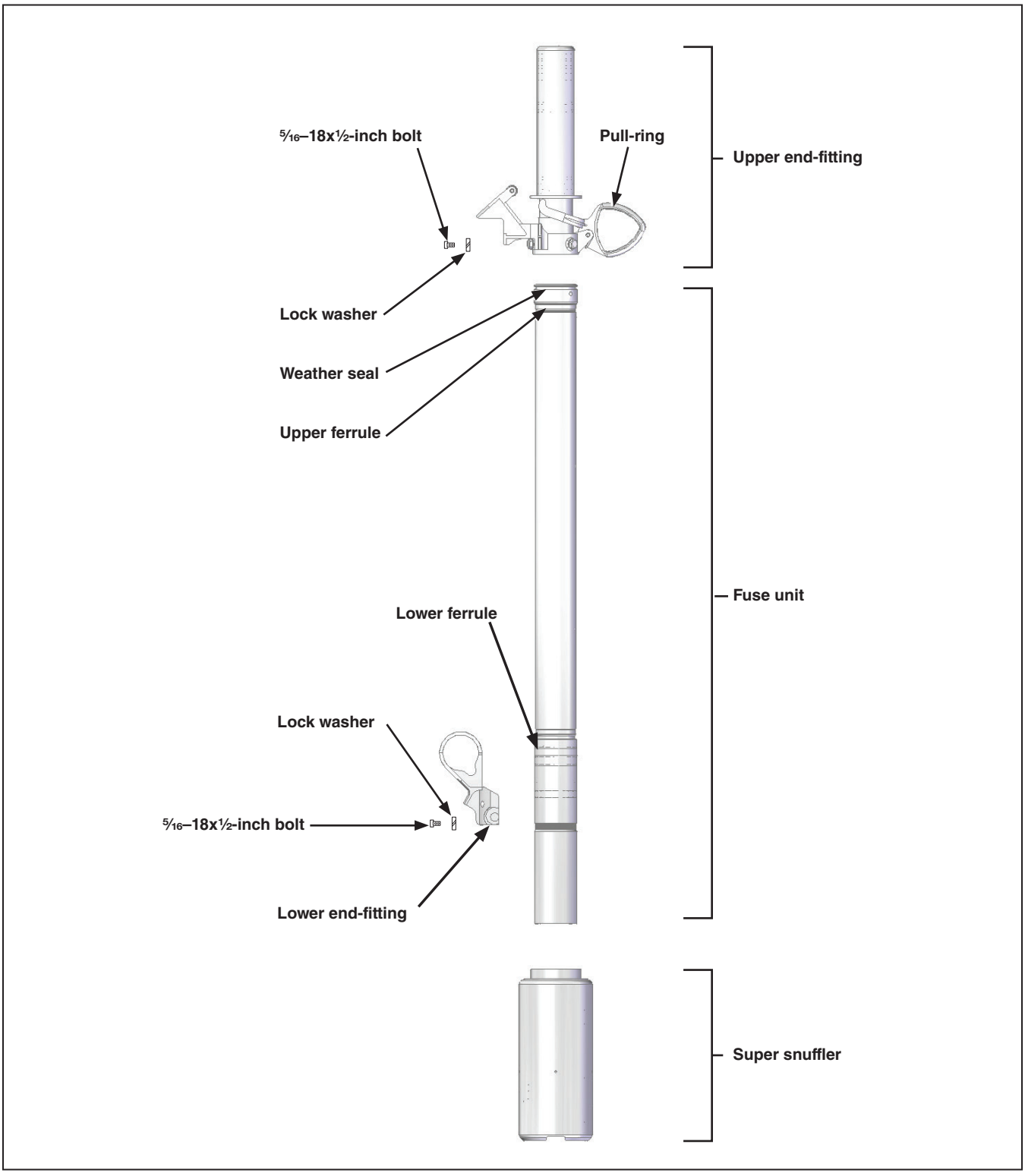


Figure 1. End-fittings for SMD-2CSS Fuse Units.

Installing and Removing Fuse-Units

⚠ DANGER

All incoming and outgoing leads to the fuse mountings must be de-energized and properly grounded before installing or removing fuse units. **Failure to de-energize the mounting will result in personal injury or death.**

Fuse installation in 46 kV Metal-Enclosed Switchgear requires entering the switchgear bay. Follow your company's standard operating procedures for working in walk-in structures.

Insert the lower end-fitting of the fuse unit into the lower-contact of the fuse mounting, using either gloved hands or a clamp tool. See Figure 2 and Figure 3. Depending on the height of the fuse mounting, a step-ladder or a second technician may be required.

To remove the fuse unit, reverse the installation procedure.



Figure 2. Installing the fuse unit into the fuse mounting using gloved hands.



Figure 3. Installing the fuse unit into the fuse mounting using a clamp tool.

Opening and Closing Fuse Units

⚠ DANGER

All incoming and outgoing leads to the fuse mountings must be de-energized and properly grounded before installing or removing fuse units. **Failure to de-energize the mounting will result in personal injury or death.**

Hookstick Operation

Opening and **Closing** operations are to be performed only on fuse mountings that have been de-energized. When using a conventional hookstick, open the fuse-unit assembly by pulling out and downward on the pull-ring. It can be eased down or permitted to drop freely. To close the fuse-unit assembly, use a conventional hookstick to engage the pull-ring and to swing the fuse unit to within 2 or 3 inches (51 to 76 mm) of the latch-and-upper-contact assembly and then move it sharply to the **Closed** position. See Figure 4.

Hand Operation

These fuse-unit assemblies can be opened and closed with gloved hands by using a similar technique to the one used in the hookstick operation. See Figure 5.



Figure 4. Closing the fuse unit into the fuse mounting using a hookstick.



Figure 5. Opening a fuse unit using gloved hands.

Replacing Blown Fuse Units

When the fuse operates, the blown fuse unit swings to the **Open** position. See Figure 6. Remove it from the mounting as described in the "Installing and Removing Fuse-Units" section on page 8. Detach the upper and lower end-fittings from the blown fuse unit and attach them to a new fuse unit, following directions in the "Attaching Fuse Unit End-Fittings" section starting on page 6. The blown fuse unit and Super Snuffler cannot be reused. Discard the used item(s).

For quick replacement of blown fuses, extra end-fittings and Super Snufflers may be purchased and attached to spare fuse units.

⚠ DANGER

All incoming and outgoing leads to the fuse mountings must be de-energized and properly grounded before installing or removing fuse units. **Failure to de-energize the mounting will result in personal injury or death.**

If practical, inspect the stationary-contact surfaces of the latch-and-upper-contact assembly and the hinge-and-lower-contact assembly.

Remove the existing coating of oxidation-inhibiting grease from these surfaces by using a nontoxic, nonflammable solvent. Inspect these surfaces for evidence of pitting. If pitting has occurred, file down any projections, abrade the surfaces until smooth with an Emory cloth or scratch brush, and wipe clean. Apply a new coating of NO-OX-ID® "A-Special"Contact Lubricant or similar nonmetallic-filler oxidation-inhibiting grease. If a contact has been burned, that contact and its mating contact should be replaced.

Double-Checking for a Blown Fuse Unit

If the vent cover at the lower end of the fuse unit is intact, do not assume the fuse unit is unblown. Double-check for a blown fuse unit by removing the upper end-fitting from the fuse unit. If the latch drive spring is extended beyond the end of the fuse unit, the fuse is blown.



Figure 6. Fuse unit in Open position.

Fuse-Unit Bore Inspection

To determine whether SMD-2CSS Fuse Units are in proper operating condition, the condition of the fuse-unit bore should be checked periodically—whenever the protection device is taken out of service for routine maintenance. SMD-2CSS Fuse Units can be easily checked in the field by using the S&C Airflow Test Instrument. See Table 1.

Table 1. Inspection Equipment and Service

Item	For Fuse Unit	Catalog Number
S&C Airflow Test Instrument—includes all necessary meters and gauges for measuring the rate of airflow through applicable SMD Fuse Units, the necessary adapters and hoses for coupling the instrument to fuse units, complete operating instructions, and a laminated 8½x11-inch card providing recommended minimum airflow values. Source air pressure is not included	SMD-2CSS	4425