INSTRUCTIONS
For Field Replacement

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INTRODUCTION

The equipment covered by this publication must be selected for a specific application and it must be installed, operated, and maintained by qualified persons who are thoroughly trained and who understand any hazards that may be involved. This publication is written only for such qualified persons and is not intended to be a substitute for adequate training and experience in safety procedures for this type of equipment.

This publication provides instructions for field removal of the Type AT-12 control which was originally furnished in S&C Source-Transfer PMH Pad-Mounted Gear having an “R3” supplement to the catalog number, and its replacement with Micro-AT Source-Transfer Control Catalog Number 39080.

Before proceeding, refer to the catalog number of the pad-mounted gear, which is stamped on the nameplate affixed to the enclosure door. For retrofitting S&C Source-Transfer PMH Pad-Mounted Gear having an “R1” or “R2” supplement to the catalog number, refer to S&C Instruction Sheet 663-510. For retrofitting S&C Source-Transfer PMH Pad-Mounted Gear having an “R4” supplement to the catalog number, refer to S&C Instruction Sheet 663-512.

These instructions apply only in instances where the pad-mounted gear was furnished with Type AT-12 Source-Transfer Control Part Number TA-1360-1 through -16. They may also apply in instances where the pad-mounted gear was furnished with a special Type AT-12 Source-Transfer Control having a part number of the form “QTA-XXXX,” such applications must be reviewed and approved by S&C to verify their suitability for retrofitting. Applications involving special pad-mounted gear (units having a catalog number of the form “CDA-XXXXXX” or “CD-XXXXXX,” or having an “-SXX” or “-QXXX” suffix to the catalog number) must also be reviewed and approved by S&C.

Refer to S&C Instruction Sheet 515-500 for instructions on field programming and operation of the Micro-AT Source-Transfer Control.

Mechanical Antiparalleling Feature

If the pad-mounted gear was furnished with optional mechanical antiparalleling feature (Catalog Number Suffix “-C7” or “-C17”), this feature must be disconnected and permanently removed, in order to accommodate the Micro-AT Source-Transfer Control. Instructions for removal of the mechanical antiparalleling feature are also contained in this publication.

Retrofit Kit

A retrofit kit is required for installing the Micro-AT Source-Transfer Control. For 14.4-kv pad-mounted gear, Retrofit Kit Catalog Number SDA-2393 is used. For 25-kv pad-mounted gear, Retrofit Kit Catalog Number SDA-2400 is used. Each retrofit kit contains parts for use with “R1,” “R2,” “R3,” and “R4” vintages of pad-mounted gear. Thus, a number of parts will be left over following the retrofit installation.

When installing the Micro-AT Source-Transfer Control in 14.4-kv pad-mounted gear, the front panel assembly of the control must be removed and subsequently reattached. The control is susceptible to damage from static charges during this process. For this reason, a 3M 8501 Portable Static-Dissipative Field
INTRODUCTION — Continued

Service Kit is included with Retrofit Kit Catalog Number SDA-2393. This kit includes a wrist strap for connecting the person installing the Micro-AT Source-Transfer Control, along with a static-dissipative work mat, to the same ground point.

As 3M's instructions point out, the use of a static-dissipative work surface is effective for removing static from conductive objects like the human body and metal parts. It is not effective on nonconductive objects such as synthetic clothing, plastic coffee cups, cigarette packs, vinyl work order envelopes, or common plastics—which can carry large amounts of static charge. Care should thus be taken to keep such material as far away from the work area as possible.

Tools Required

- ½-inch ratchet-type socket wrench and open-end wrench for #10—32 hex-head cap screws and hex nuts.
- 3/16-inch ratchet-type socket wrench and open-end wrench for ¼"—20 hex-head cap screws and hex nuts.

REMOVING THE TYPE AT-12 SOURCE-TRANSFER CONTROL

Step 1
Open the doors to the low-voltage control compartment and secure them with the door holders.

Step 2
The door for the left-hand side of the low-voltage control compartment is secured at the top and bottom by two %"—16 x 1" truss-head zinc-plated machine screws. The screw at the bottom will interfere with the Micro-AT Source-Transfer Control when it is installed, and must be replaced with a shorter screw. Remove and discard the bottom screw and install the %"—16 x ¾” truss-head zinc-plated machine screw (furnished in the retrofit kit).

Step 3
Place the manual/automatic operation selector switch on the Type AT-12 Source-Transfer Control faceplate in the “MANUAL” position. See Figure 1.

Step 4
If the pad-mounted gear is furnished with optional decoupling feature (Catalog Number Suffix “C8’’): Decouple each stored-energy operator using the utility tool furnished. For each stored-energy operator, open the hinged cover labeled “Decoupling Socket.” Insert the utility tool all the way into the socket to depress the spring-loaded locking pin. While maintaining the locking pin depressed, turn the utility tool counterclockwise 5 to 7 complete turns, until firm resistance is felt and the “DECOUPLED” target is centered in the indicator port. See Figure 2. Remove the tool.

Step 5
Remove the bolted cover labeled “Source-Transfer Control Switches and Timers” to gain access to the programming panel of the Type AT-12 Source-Transfer Control. See Figure 4. Discard this cover. (The retrofit kit includes a cover assembly for the Micro-AT Source-Transfer Control which will cover this opening.)

Step 6
Measure and record the difference in voltage-sensor signals between Phase 1 of the preferred source and Phase 1 of the alternate source, by inserting the voltmeter test probes into the appropriate test jacks on the programming panel. See Figure 4. Similarly, measure and record the difference in voltage-sensor
Figure 1. S&C Type AT-12 Source-Transfer Control faceplate.
signals between Phase 2 of the preferred source and Phase 2 of the alternate source. Then measure and record the difference in voltage-sensor signals between Phase 3 of the preferred source and Phase 3 of the alternate source. If any measurement exceeds 0.75 volts, the sequence of rotation of the two signal sources is different; refer to Drawing RD-3631 (furnished in the retrofit kit) and make the necessary voltage-sensor signal input change to Main Wiring Harness Part Number SDA-2333 (also furnished in the retrofit kit).

**Step 7**
Remove the input plug from the input receptacle located below the programming panel and immediately transfer it to the shorting receptacle. See Figure 4.

**CAUTION**
Failure to immediately place the input plug on the shorting receptacle may result in damage to the voltage sensors and voltage limiters that will render the automatic-transfer scheme inoperative.

This procedure short-circuits and isolates the secondaries of the voltage sensors and also isolates the current sensors utilized with the optional overcurrent-lockout feature (Catalog Number Suffix "-Y2" or "-Y3"), if furnished.

**Step 8**
Remove the left-hand switch compartment plug and right-hand switch compartment plug from the preferred-source receptacle and alternate-source receptacle on the programming panel. Make note of which source is the "preferred" and which is the "alternate," so that the Micro-AT Source-Transfer Control can be set accordingly. See Figure 4. Also, if the pad-mounted gear has been furnished with optional remote-indication feature (Catalog Number Suffix "-Y4"), remove the remote-indication output plug from its associated receptacle on the programming panel.

**Step 9**
Make note of the timer-adjustment dial settings on the programming panel, as well as the settings of the operating-mode selector switches on the programming panel, so that the Micro-AT Source-Transfer Control can be set accordingly. See Figure 4.
Timer-adjustment dials

Remote-indication receptacle (not visible) provided with optional remote-indication feature (Catalog Number Suffix "-Y4")

Voltage-sensor signal adjustment screws and test jacks

Selector switch included with the optional open-phase detection feature (Catalog Number Suffix "-Y1" or "-Y3")

Input plug (signal-voltage, control-voltage, and current-sensing input circuits)

Preferred-source and alternate-source connector plugs—interchangeable, to allow selection of either source as preferred

Shorting receptacle

Pushbutton test switches to simulate loss of source voltage and, when the optional overcurrent-lockout feature (Catalog Number Suffix "-Y2" or "-Y3") is included, an overcurrent condition

Operating-mode selector switches for return transfer

Voltage-sensor signal adjustment and measurements for preferred and alternate sources

Figure 4. Type AT-12 Source-Transfer Control programming panel with bolted cover removed, showing adjustment, measurement, testing, and programming features of the control.
Step 10
If the pad-mounted gear is furnished with optional decoupling feature (Catalog Number Suffix "CS"): Discharge each stored-energy operator quick-make, quick-break mechanism using the utility tool furnished. For each stored-energy operator, open the emergency trip access cover and insert the utility tool into the socket on the shaft. Turn the utility tool in the direction indicated to either trip open or trip closed, as appropriate. See Figure 3.

Step 11
For pad-mounted gear models having horizontally split access panels as shown in Figure 6: Remove the switch operator access panels from both the left-hand and right-hand sides of the low-voltage control compartment, using the following procedure.
(a) Remove the bolted cover labeled “Terminal Blocks” on each side. See Figure 6.
(b) Mark the positions of the upper, middle, and bottom stationary door latches on the center channel, as well as the position of the top stationary door latch on the top of the right-hand side, to facilitate reassembly. See Figure 6.
(c) Detach all four stationary door latches by removing the \( \frac{5}{8} \times 1\)“ hex-head zinc-plated cap screws and hex nuts that secure the latches in place. Retain the hardware. See Figure 6.
(d) The top switch operator access panel on each side is secured by four \( \frac{3}{4} \times 20\)“ hex-head stainless-steel cap screws, lockwashers, and flat washers. See Figure 6. Two wire leads are connected to the charging-shaft access port switch on the back of each panel. Remove the four screws and associated lockwashers and flat washers from each top switch operator access panel, taking care not to damage the wire leads or to bend the terminals of the access port switch. Retain the hardware. Mark the positions of the leads and disconnect them.

**CAUTION**

Failure to mark the original positions of the wire leads may result in improper reconnection that will render the pad-mounted gear inoperative.
**Operator target** indicates whether stored-energy operator is in switch-open or switch-closed position and whether quick-make, quick-break mechanism is charged or discharged.

Remote-control receptacle (Catalog Number Suffix "-Cl1")

Open/close pushbuttons

Middle stationary door latch

**Bolted cover** provides access to the AT-12 control's programming panel

**Hinged cover** provides access to reverse-drive hub and, if decoupling feature (Catalog Number Suffix "-C8") is furnished, to decoupling sockets

Type AT-12 Source-Transfer Control

Terminal-block compartment

**5/8"-18 x 1" hex-head zinc-plated cap screws and hex nuts**

Emergency-trip access cover

Upper stationary door latch

Top stationary door latch

Operation counter

Top switch operator access panel

Bottom switch operator access panel

**Utility tool** used for emergency manual tripping and, if optional decoupling feature is furnished, for decoupling stored-energy operator from interrupter switch

Bottom stationary door latch

Decoupling indicator (furnished with optional decoupling feature)

Charging shaft

Middle stationary door latch

**5/8"-20 x 1/4" hex-head stainless-steel cap screws, lockwashers, and flat washers**

Figure 6. Low-voltage control compartment of pad-mounted gear models having horizontally split access panels.
(e) *If the pad-mounted gear is furnished with optional decoupling feature (Catalog Number Suffix "-C8"):* Open the hinged cover labeled "Decoupling Socket" on each side. On the left-hand side only, mark the position of the hinge plate on the bottom switch operator access panel, to facilitate reassembly. See Figure 2. (The retrofit kit includes a replacement bottom switch operator access panel for the right-hand side, so there's no need to mark the position of the hinge plate on the existing bottom switch operator access panel on this side.)

(f) *If the pad-mounted gear is furnished with optional decoupling feature (Catalog Number Suffix "-C8"):* Remove the two \( \frac{1}{4}''-20 \times \frac{1}{2}'' \) round-head stainless-steel screws that secure each hinge plate to its associated bottom switch operator access panel. See Figure 2. *If the pad-mounted gear is not furnished with optional decoupling feature:* Remove the two \( \frac{1}{4}''-20 \times \frac{3}{8}'' \) hex-head stainless-steel cap screws, lockwashers, and flat washers located near the center of each switch operator vertical access panel. See Figure 5. Retain the hardware.

(g) Detach the bottom switch operator access panel on each side by removing the three or four \( \frac{1}{4}''-20 \times \frac{3}{8}'' \) hex-head stainless-steel cap screws, lockwashers, and flat washers that secure each panel. See Figure 6. Retain the hardware. Discard the right-hand side bottom switch operator access panel.

(h) Proceed to Step 13.

**Step 12**

*For pad-mounted gear models having vertically split access panels as shown in Figure 7:* Remove the switch operator vertical access panels from both the left-hand and right-hand sides of the low-voltage control compartment, using the following procedure.

(a) Remove the bolted cover labeled "Terminal Blocks" on each side. See Figure 7.

(b) *If the pad-mounted gear is furnished with optional decoupling feature (Catalog Number Suffix "-C8"):* Open the hinged cover labeled "Decoupling Socket" on each side and mark the position of each hinge plate on its associated switch operator vertical access panel, to facilitate reassembly. See Figure 2.

(c) *If the pad-mounted gear is furnished with optional decoupling feature (Catalog Number Suffix "-C8"):* Remove the two \( \frac{1}{4}''-20 \times \frac{3}{8}'' \) round-head stainless-steel screws that secure each hinge plate to its associated switch operator vertical access panel. See Figure 2. *If the pad-mounted gear is not furnished with optional decoupling feature:* Remove the two \( \frac{1}{4}''-20 \times \frac{3}{8}'' \) hex-head stainless-steel cap screws, lockwashers, and flat washers from each switch operator vertical access panel, taking care not to damage the wire leads or to bend the terminals of the access port switch. Retain the hardware. Mark the positions of the leads and disconnect them.

**CAUTION**

Failure to mark the original positions of the wire leads may result in improper reconnection that will render the pad-mounted gear inoperative.

(e) Remove the lower-center access panel surrounding the Type AT-12 Source Transfer Control faceplate, which is secured at the bottom by a \( \frac{1}{4}''-20 \times \frac{3}{8}'' \) hex-head stainless-steel cap screw, lockwasher, and flat washer. See Figure 7. Discard the access panel but retain the hardware.
Removing the Type AT-12 Source-Transfer Control — Continued

Operator target indicates whether stored-energy operator is in switch-open or switch-closed position and whether quick-make, quick-break mechanism is charged or discharged.

Open/close pushbuttons

Remote-control receptacle (Catalog Number Suffix "-C11")

Emergency-trip access cover

Charging shaft

Operation selector

Operation counter

Switch-position target

Terminal-block compartment

Type AT-12 Source-Transfer Control

Bolted cover provides access to the AT-12 control's programming panel

Decoupling indicator (furnished with optional decoupling feature)

Hinged cover provides access to reverse-drive hub and, if decoupling feature (Catalog Number Suffix "-C8") is furnished, to decoupling sockets

Utility tool used for emergency manual tripping and, if optional decoupling feature is furnished, for decoupling stored-energy operator from interrupter switch.

Figure 7. Low-voltage control compartment of pad-mounted gear models having vertically split access panels.
Step 13
Disconnect the ground wire on the right side of the Type AT-12 Source-Transfer Control enclosure. See Figure 8.

Step 14
Remove the four \( \frac{3}{16}" \times 1" \) hex-head zinc-plated cap screws, lockwashers, and flat washers at the top and bottom of the Type AT-12 Source-Transfer Control enclosure, which secure the control to the upper mounting bracket and to the lower-left and lower-right mounting brackets. See Figure 9. Discard the hardware.

Step 15
Remove the Type AT-12 Source-Transfer Control from the low-voltage control compartment by sliding it forward, to the right, and out from behind the center channel.

Step 16
The lower-left mounting bracket of the Type AT-12 Source-Transfer Control is secured by two weld studs and two \( \frac{3}{16}" \times 20 \) zinc-plated serrated hex nuts. See Figure 9. Remove the hex nuts and rest the lower-left mounting bracket in the bottom of the low-voltage control compartment. Retain the hardware. Do not disconnect the wiring harnesses from the mounting bracket at this time.

Step 17
The lower-right mounting bracket of the Type AT-12 Source-Transfer Control is secured by a weld stud and a \( \frac{3}{16}" \times 20 \) zinc-plated serrated hex nut. See Figure 9. Remove and discard the lower-right mounting bracket. Retain the hardware.

Step 18
For pad-mounted gear models having vertically split access panels as shown in Figure 7: To avoid interference with the Micro-AT control, it will be necessary to break off the \( \frac{3}{16}" \times 18 \) weld stud on the inside of the center channel. See Section “B-B” on Drawing RD-3582 (furnished in the retrofit kit). Attach a flat washer and hex nut to the weld stud. Then tighten the hex nut, using a deep-well socket, until the weld fails . . . the break must be within \( \frac{1}{8} \) inch of the center channel.

Step 19
For pad-mounted gear models not furnished with optimal mechanical antiparalleling feature (i.e., those models not having Catalog Number Suffix “-C7” or “-C17”): To avoid interference with the Micro-AT control, it will be necessary to break off the two \( \frac{3}{16}" \times 18 \times 1" \) weld studs on the back wall of the low-voltage control compartment, to which the lower mounting plate of the antiparalleling mechanism (on units having this option) is attached. See Figure 10 and Sections “A-A” and “B-B” on Drawing RD-3582 (furnished in the retrofit kit).

Attach a flat washer and hex nut to each of the two weld studs. Tighten each hex nut, using a deep-well socket, until the weld fails . . . the break must be within \( \frac{1}{8} \) inch of the back wall. Proceed to “INSTALLING THE MICRO-AT SOURCE-TRANSFER CONTROL.”
Figure 8. Disconnecting ground wire on Type AT-12 Source-Transfer Control.

$\frac{3}{8}"-20 \times 1"$
hex-head
zinc-plated
cap screws,
lockwashers,
and flat washers

Upper mounting bracket

Ground wire

Figure 9. Removing Type AT-12 Source-Transfer Control. Pad-mounted gear model having an "R2" supplement to the catalog number is illustrated.
S&C Source-Transfer
PMH Pad-Mounted Gear
Outdoor Distribution (14.4 kv and 25 kv)

REMOVING THE MECHANICAL ANTIPARALLELING FEATURE

If the pad-mounted gear is furnished with optional mechanical antiparalleling feature (Catalog Number Suffix "-C7" or "-C17"), this feature must be disconnected and permanently removed using the following procedure, in order to accommodate the Micro-AT Source-Transfer Control.

**Step 1**
Remove and discard the \( \frac{1}{8}" \times \frac{3}{8}" \) stainless-steel cotter pin which connects each link of the antiparalleling mechanism to its respective switch drive lever. See Figure 10.

**Step 2**
Remove and discard the four \( \frac{5}{16}" - 18 \) zinc-plated serrated hex nuts which are used to attach the upper and lower mounting plates of the antiparalleling mechanism. See Figure 10. Discard the antiparalleling mechanism.

**Step 3**
To avoid interference with the Micro-AT control, it will be necessary to break off the two \( \frac{5}{16}" - 18 \times 1" \) weld studs on the back wall of the low-voltage control compartment, to which the lower mounting plate of the antiparalleling mechanism is attached. See Figure 10 and Sections “A-A” and “B-B” on Drawing RD-3582 (furnished in the retrofit kit).

Attach a flat washer and hex nut to each of the two weld studs. Tighten each hex nut, using a deep-well socket, until the weld fails...the break must be within \( \frac{3}{8} \) inch of the back wall.

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Figure 10. Removing mechanical antiparalleling feature.
INSTALLING THE MICRO-AT SOURCE-TRANSFER CONTROL

Step 1
The ground wire, which was formerly connected to the Type AT-12 Source-Transfer Control, must be rerouted across the center channel to the left-hand side of the low-voltage control compartment. Carefully cut the tie wraps securing the ground wire to the main wiring harness as necessary, and weave the ground wire across the center channel and over to the left-hand side. See Figures 8 and 11.

Step 2
Install Lower Mounting Bracket Assembly Part Number SDA-2391 (furnished in the retrofit kit), using the following procedure.

(a) Attach the receptacle end of Input Extension Wiring Harness “D” Part Number SDA-2363 (furnished in the retrofit kit) to the back of the lower-left mounting bracket assembly. See Figure 11. Orient the receptacle so that the keyways are positioned identically with those of the input receptacle on the lower-left mounting bracket for the Type AT-12 Source-Transfer Control. Use two #6—32 x ½” round-head stainless-steel machine screws and self-locking hex nuts (furnished in the retrofit kit) to secure the receptacle.

(b) Attach the lower mounting bracket assembly to the two weld studs which were formerly used to attach the lower-left mounting bracket for the Type AT-12 Source-Transfer Control, on the left-hand side of the low-voltage control compartment. See Figure 11. Use two ¼”-20 zinc-plated serrated hex nuts to secure the lower mounting bracket assembly. Finger-tighten the hex nuts.

(c) Attach the plug end of Extension Wiring Harness “C” Part Number SDA-2364 (furnished in the retrofit kit) to the shorting receptacle on the lower mounting bracket assembly. See Figure 11.

Figure 11. Installing lower mounting bracket assembly. Pad-mounted gear model having an “R2” supplement to the catalog number is illustrated.
Step 3
Disconnect the input plug from the shorting receptacle on the lower-left mounting bracket of the Type AT-12 Source-Transfer Control and immediately reconnect it to the receptacle end of Extension Wiring Harness "C." See Figure 12.

Failure to immediately place the input plug on the shorting receptacle may result in damage to the voltage sensors and voltage limiters that will render the automatic-transfer scheme inoperative.

Step 4
Remove and discard the two #6-32 × ⅛" round-head stainless-steel machine screws and self-locking hex nuts which secure the input receptacle to the lower-left mounting bracket for the Type AT-12 Source-Transfer Control. Discard the lower-left mounting bracket. See Figure 11. Connect the input receptacle to the plug end of Input Extension Wiring Harness "D." See Figure 12.

Step 5
Remove and discard the two existing ⅜"-16 × 1" zinc-plated hex-head cap screws, lockwashers, and flat washers securing the upper mounting bracket for the Type AT-12 Source-Transfer Control to the gearbox mounting flange on the left-hand side of the low-voltage control compartment only. See Figure 13.

For pad-mounted gear models manufactured after June 6, 1987: Remove and discard the two #10-32 × ¾" flat-head stainless-steel machine screws, flat washers, and self-locking hex nuts securing each of the two existing shock-mount assemblies to the upper mounting bracket for the Type AT-12 Source-Transfer Control. See Section "B-B" on Drawing RD-3582 (furnished in the retrofit kit). Remove and discard the shock-mount assemblies for the Type AT-12 Source-Transfer Control. Do not remove the upper mounting bracket for the Type AT-12 Source-Transfer Control.

Step 6
Install the upper mounting bracket assembly consisting of AT Mounting Bracket Part Number SD-2849 and Bracket Part Number SD-2844 (furnished in the retrofit kit), using the following procedure.
(a) Fasten together the two brackets using two shock-mount bushings and four ¼"-20 zinc-plated
INSTALLING THE MICRO-AT SOURCE-TRANSFER CONTROL

serrated hex nuts (furnished in the retrofit kit). See Figure 14. Orient Bracket Part Number SD-2844 so that the slotted holes will be positioned toward the right when the assembly is installed on the Micro-AT Source-Transfer Control enclosure. Securely tighten the two hex nuts adjacent to Bracket Part Number SD-2844. Finger-tighten the two hex nuts adjacent to Bracket Part Number SD-2849.

(b) Loosely attach the upper mounting bracket assembly to the top of the Micro-AT Source-Transfer Control enclosure using two \( \frac{3}{4}" - 20 \times \frac{3}{4}" \) zinc-plated serrated hex-head cap screws (furnished in the retrofit kit). See Figure 14.

(c) For pad-mounted gear models rated 25 kv, proceed to Step 8.

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Figure 13. Removing hardware securing upper mounting bracket for Type AT-12 Source-Transfer Control on left-hand side of low-voltage control compartment.

Figure 14. Installing upper mounting bracket assembly.
Step 7
For pad-mounted gear models rated 14.4 kv: To avoid interference during installation, it will be necessary to temporarily remove the front panel assembly of the Micro-AT Source-Transfer Control. Since the control will then be susceptible to damage from static charges, a 3M 8501 Portable Static-Dissipative Field Service Kit has been included in Retrofit Kit Catalog Number SDA-2393. The static-dissipative kit must be utilized until the front panel assembly is reattached in Step 12. Set up the static-dissipative kit and remove the front panel assembly of the Micro-AT Source-Transfer Control using the following procedure.

(a) Open up the static-dissipative work mat in front of the low-voltage control compartment. See Figure 15.
(b) Place the Micro-AT Source-Transfer Control on the static-dissipative work mat. See Figure 15.

(c) Attach the ground cord assembly onto the work mat by means of the large black snap. Attach the alligator clip on the shorter of the two wire leads to the aluminum clip on the gearbox mounting assembly, on the left-hand side of the low-voltage control compartment. See Figure 15.
(d) Slip on the elastic wrist strap and attach the band so that it fits snugly, but comfortably. Attach the longer of the two wire leads on the ground cord assembly to the wrist band by means of the small plastic snap. See Figure 15.
(e) Remove the four #8—32 hex nuts which secure the front panel assembly to the Micro-AT Source-Transfer Control enclosure. See Figure 15. Retain the hardware. Carefully disconnect the ribbon connector from the receptacle on the back of the front panel assembly. See Figure 18. Place the front panel assembly on the static-dissipative work mat.
Figure 15. Setting up 3M 8501 Portable Static-Dissipative Field Service Kit prior to removing front panel assembly of Micro-AT Source-Transfer Control. Applicable only to pad-mounted gear models rated 14.4 kv.
Step 8
Attach the ground wire to the Micro-AT Source-Transfer Control enclosure. See Figure 16.

Step 9
Install the Micro-AT Source-Transfer Control enclosure from the left-hand side of the low-voltage control compartment. Slide it across the center channel, and into place. See Figure 17.

Step 10
Fasten the upper mounting bracket assembly on the Micro-AT Source-Transfer Control to the gearbox mounting flange and upper mounting bracket for the Type AT-12 Source-Transfer Control with two \( \frac{3}{8} \)"—16 \times 1" zinc-plated hex-head cap screws, lockwashers, and flat washers (furnished in the retrofit kit). See Figure 17. Finger-tighten the cap screws.

Step 11
Loosely attach the Micro-AT Source-Transfer Control enclosure to the lower mounting bracket assembly using a \( \frac{3}{4} \)"—20 \times 1\( \frac{1}{2} \)" hex-head stainless-steel cap screw, lockwasher, flat washer, and Shock-Mount Insert Part Number S-89795 (furnished in the retrofit kit). See Figure 17. There should be an approximate \( \frac{3}{8} \)" gap between the top surface of the mounting bracket assembly and the bottom surface of the Micro-AT Source-Transfer Control enclosure. For pad-mounted gear models rated 25 kv, proceed to Step 13.

Figure 16. Connecting ground wire to Micro-AT Source-Transfer Control.

Figure 17. Installing Micro-AT Source-Transfer Control.
Step 12
For pad-mounted gear models rated 14.4 kv: Reattach the front panel assembly of the Micro-AT Source-Transfer Control using the following procedure.

(a) Carefully reconnect the ribbon connector from the Micro-AT Source-Transfer Control enclosure to the receptacle on the back of the front panel assembly. See Figure 18.

(b) Secure the front panel assembly to the enclosure using the four #8—32 hex nuts retained from Step 7(e). See Figure 19.

(c) Remove the wrist strap and detach the ground cord assembly lead from the aluminum clip on the gearbox mounting assembly. Then remove the static-dissipative kit from the work area.

Step 13
Adjust the mounting brackets as necessary so that the Micro-AT Source-Transfer Control enclosure is square with the center channel and within 1/8 inch of the back wall of the low-voltage control compartment. Then securely tighten all hardware.

Step 14
Place the manual/automatic operation selector switch on the Micro-AT Source-Transfer Control in the “MANUAL” position.

Step 15
Install Main Wiring Harness Part Number SDA-2333 (furnished in the retrofit kit) by mating each rectangular connector on the harness to its corresponding receptacle on the side of the Micro-AT Source-Transfer Control enclosure, starting at the bottom. See Figure 19. Do not twist the wiring harness or remove any of the wire ties on it. Connect the ground lug on the Main Wiring Harness to the mounting stud of ground bus, under operator mounting bracket.

Figure 18. Attaching ribbon connector from Micro-AT Source-Transfer Control enclosure to receptacle on back of front panel assembly, on pad-mounted gear models rated 14.4 kv.

Figure 19. Installing front panel assembly on pad-mounted gear models rated 14.4 kv, and installing harnesses.
Wiring Harness to one of the mounting studs at either end of the ground bus, located under the capacitor mounting bracket. Refer to Drawing RD-3617 (furnished in the retrofit kit). Route the Main Wiring Harness along the existing wiring as required.

**Step 16**

For pad-mounted gear models furnished with optional remote indication feature (Catalog Number Suffix “Y4”): Install Remote Indication Wiring Harness Part Number SDA-2408 (furnished separately) by mating its rectangular connector to the corresponding receptacle on the side of the Micro-AT Source-Transfer Control enclosure. See Figure 19. Do not twist the wiring harness or remove any of the wire ties on it.

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**Figure 20. Installing partition.**

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\(\frac{1}{4}" - 20 \times \frac{7}{16}"\) zinc-plated serrated hex-head cap screw and serrated hex nut (for pad-mounted gear models manufactured before June 6, 1987)

or

Two #10—\(32 \times \frac{7}{16}"\) hex-head stainless-steel cap screws, two flat washers, and self-locking hex nuts (for pad-mounted gear models manufactured after June 6, 1987)

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Top

Partition Part Number SD-2883

Bottom

“L” Bracket Part Number SD-2772

Two #10—\(32 \times \frac{7}{16}"\) hex-head stainless-steel cap screws, two flat washers, and self-locking hex nuts

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Step 17
Install Partition Part Number SD-2883 (furnished in the retrofit kit) in the right-hand side of the low-voltage control compartment, using the following procedure,
(a) For pad-mounted gear models manufactured before June 6, 1987: Attach the top of the partition to the upper mounting bracket for the Type AT-12 Source-Transfer Control using a 2 1/8" x 20 x 1/2" zinc-plated serrated hex-head cap screw and serrated hex nut. See Figure 20 (top). For pad-mounted gear models manufactured after June 6, 1987: Attach the top of the partition to the upper mounting bracket for the Type AT-12 Source-Transfer Control using two #10-32 x 3/4" hex-head stainless-steel cap screws, two flat washers, and self-locking hex nuts. See Figure 20 (top). Finger-tighten the screws.
(b) Attach, to the bottom of the partition, "L" Bracket Part Number SD-2772 using two #10-32 x 3/4" hex-head stainless-steel cap screws, two flat washers, and self-locking hex nuts. See Figure 20 (bottom). Finger-tighten the screws.
(c) Attach the "L" bracket to the lower mounting bracket assembly using two #10-32 x 3/4" hex-head stainless-steel cap screws, two flat washers, and self-locking hex nuts. See Figure 20 (bottom). Securely tighten all the screws.

Step 18
Refer to Drawing RD-3617 Sheet 1 of 2 (furnished in the retrofit kit) and perform the rewiring procedure indicated for the existing wiring in the left-hand side of the low-voltage control compartment.

Step 19
Refer to Drawing RD-3617 Sheet 2 of 2 (furnished in the retrofit kit) and perform the rewiring procedure indicated for the existing wiring in the right-hand side of the low-voltage control compartment.

Step 20
Connect the left-hand switch compartment plug and the right-hand switch compartment plug to the preferred-source receptacle and alternate-source receptacle on Main Wiring Harness Part Number SDA-2333, based on the settings noted previously. See Figure 21. For pad-mounted gear models furnished with optional remote indication feature (Catalog Number Suffix "Y4"): Connect the remote indication plug to the receptacle on Remote Indication Wiring Harness Part Number SDA-2408.

Step 21
Temporarily reconnect the wire leads to the charging-shaft access port switches on the back of the switch operator access panels for the left-hand and right-hand sides. See Figure 23. Loosely reattach the access panels. Then remove the input plug from the shorting receptacle and immediately transfer it to the input receptacle. See Figure 21.

⚠️ CAUTION
Failure to immediately place the input plug on the input receptacle may result in damage to the voltage sensors and voltage limiters that will render the automatic-transfer scheme inoperative.

Step 22
Refer to S&C Instruction Sheet 515-500 and perform the field adjustment and programming procedures for the Micro-AT Source-Transfer Control as outlined therein. Then perform the operational testing as outlined therein.

⚠️ CAUTION
If the pad-mounted gear is not furnished with decoupling feature, operational testing will result in temporary service interruptions.
Step 23
After operational testing has been completed on the Micro-AT Source-Transfer Control, again place the manual/automatic operation selector switch on the Micro-AT Source-Transfer Control in the “MANUAL” position. If the “EVENT” lamp is lit, extinguish it by following the procedure discussed in the “DIAGNOSTIC TOOLS” section of S&C Instruction Sheet 515-500.

Step 24
Disconnect the wire leads from the back of the switch operator access panels. Then remove the input plug from the input receptacle and immediately transfer it to the shorting receptacle.

**CAUTION**

Failure to immediately place the input plug on the input receptacle may result in damage to the voltage sensors and voltage limiters that will render the automatic-transfer scheme inoperative.

For pad-mounted gear models having vertically split access panels, proceed to Step 26.

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Figure 21. Connecting left-hand and right-hand switch compartment plugs to the preferred-source and alternate-source receptacles. Pad-mounted gear model having horizontally split access panels is illustrated.
Step 25
For pad-mounted gear models having horizontally split access panels: Replace the switch operator access panels on the left-hand and right-hand sides of the low-voltage control compartment, using the following procedure.

(a) Reattach the bottom switch operator access panel for the left-hand side using three ⅜"—20 × ⅝" hex-head stainless-steel cap screws, lockwashers, and flat washers. Be sure to line up the decoupler indicator and switch-position target with their respective port openings. See Figure 22.

(b) For models rated 14.4 kV: Attach the replacement bottom switch operator access panel for the right-hand side, Part Number SDA-2388 (furnished in the retrofit kit), using three ⅜"—20 × ⅝" hex-head stainless-steel cap screws, lockwashers, and flat washers. Be sure to line up the decoupler indicator and switch-position target with their respective port openings. See Figure 22.

(c) If the pad-mounted gear is furnished with optional decoupling feature (Catalog Number Suffix ‘-CS’): Reattach the hinged covers to the bottom switch operator access panels for the left hand and right-hand sides, Part Number SDA-2399 (furnished in the retrofit kit), using three ⅜"—20 × ⅝" hex-head stainless-steel cap screws, lockwashers, and flat washers. Be sure to line up the decoupler indicator and switch-position target with their respective port openings. See Figure 22.

Figure 22. Replacing switch operator access panels. Arrangement shown is typical for pad-mounted gear models having horizontally split access panels.
hand sides by securing each hinge plate using two 
1/4"—20 X 1/2" round-head screws. See Figure 2. If 
the pad-mounted gear is not furnished with 
optional decoupling feature: Replace the two 
1/4"—20 X 1/2" hex-head stainless-steel cap screws, 
lockwashers, and flat washers located near the 
center of each bottom switch operator access panel. 
See Figure 5.

(d) Reconnect the wire leads to the charging-shaft 
access port switch on the back of the top switch 
operator access panel for the left-hand side. See 
Figure 23. Then reattach this access panel with 
four 1/4"—20 X 3/8" hex-head stainless-steel cap 
screws, lockwashers, and flat washers. Be sure that 
the emergency-trip shaft and operator target are 
centered in their respective port openings. See 
Figure 22. Also be sure to connect the chain for 
the manual charging handle to the screw in the 
lower left-hand corner of the access panel. See 
Figure 22.

(e) Reconnect the wire leads to the charging-shaft 
access port switch on the back of the top switch 
operator access panel for the right-hand side. See 
Figure 23. Then reattach this access panel with four 
1/4"—20 X 3/8" hex-head stainless-steel cap screws, 
lockwashers, and flat washers. Be sure that the 
emergency-trip shaft and operator target are 
centered in their respective port openings. See 
Figure 22. Also be sure to connect the chain for 
the utility tool to the screw in the lower right-hand 
corner of the access panel. See Figure 22.

(f) Loosely reattach the four stationary door latches 
using 3/16"—18 X 1" hex-head zinc-plated cap screws 
and hex nuts. Make sure that each latch is properly 
aligned with the positioning marks made previously. 
See Figure 22.

(g) Slowly close the right-hand door and observe the 
positions of the latching parts on the door relative
to the stationary door latches. The 3/16-inch and 1/4-inch clearances indicated in Figure 24 must be maintained. Readjust each stationary latch as necessary until these clearances are achieved. Then torque the 3/16"-18 x 1" hex-head zinc-plated cap screws to 24 to 28 foot-pounds.

(h) Proceed to Step 27.

Step 26
For pad-mounted gear models having vertically split access panels: Replace the switch operator vertical access panels on the left-hand and right-hand sides of the low-voltage control compartment, using the following procedure.

(a) Reconnect the wire leads to the charging-shaft access port switch on the back of the switch operator vertical access panel for the left-hand side. See Figure 23. Then reattach this access panel with five 1/4"-20 x 3/4" hex-head stainless-steel cap screws, lockwashers, and flat washers. Be sure that the emergency-trip shaft, operator target, switch-position target, and decoupler indicator are centered in their respective port openings. See Figure 7. Also be sure to connect the chain for the manual charging handle to the screw on the right-hand side of the access panel, near the center of the panel. See Figure 7.

(b) Reconnect the wire leads to the charging-shaft access port switch on the back of the switch operator vertical access panel for the right-hand side. See Figure 23. Then reattach this access panel with five 1/4"-20 x 3/4" hex-head stainless-steel cap screws, lockwashers, and flat washers. Be sure that the emergency-trip shaft, operator target, switch-position target, and decoupler indicator are centered in their respective port openings. See Figure 7. Also be sure to connect the chain for the utility tool to the screw on the left-hand side of the access panel, near the center of the panel. See Figure 7.

(c) If the pad-mounted gear is furnished with optional decoupling feature (Catalog Number Suffix "-C3"): Reattach each hinged cover by securing its hinge plate to the associated vertical access panel using two 1/4"-20 x 1/2" round-head screws. See Figure 2. If the pad-mounted gear is not furnished with optional decoupling feature: Replace the two 5/8"-20 x 1/2" hex-head stainless-steel cap screws, lockwashers, and flat washers located near the center of each switch operator vertical access panel. See Figure 5.
S&C Source-Transfer
PMH Pad-Mounted Gear
Outdoor Distribution (14.4 kv and 25 kv)

Replacing Type AT-12 Control
With Micro-AT™ Control
In Gear Having “R3”
Supplement to the Catalog Number

INSTALLING THE MICRO-AT SOURCE-TRANSFER CONTROL — Continued

Step 27
Replace the terminal-block access covers on the left-hand and right-hand sides of the low-voltage control compartment.

Step 28
Remove the input plug from the shorting receptacle and immediately transfer it to the input receptacle. See Figure 21.

⚠️ CAUTION
Failure to immediately place the input plug on the input receptacle may result in damage to the voltage sensors and voltage limiters that will render the automatic-transfer scheme inoperative.

Step 29
Attach the access cover assembly on the right-hand side of the low-voltage control compartment, using the following procedure.

(a) For models rated 14.4 kv: Attach Access Cover Assembly Part Number SDA-2384 (furnished in the retrofit kit). See Figure 22. Secure the access cover at the top with a knurled screw, retainer, neoprene washer, and nut.

(b) For models rated 25 kv: Attach Access Cover Assembly Part Number SDA-2396 (furnished in the retrofit kit). See Figure 22. Secure the access cover at the top with a knurled screw, retainer, neoprene washer, and nut.

Step 30
Attach the cover assembly for the Micro-AT Source-Transfer Control on the left-hand side of the low-voltage control compartment, using the following procedure.

(a) For models rated 14.4 kv: Attach Cover Assembly Part Number SDA-2387 (furnished in the retrofit kit). See Figure 22. Secure the cover assembly at the top with a knurled screw, retainer, neoprene washer, and nut. The front panel assembly of the Micro-AT Source-Transfer Control should be approximately centered in the opening of the cover assembly and the connectors of the Main Wiring Harness should not be exposed. If necessary, loosen the hardware which retains the Micro-AT Source-Transfer Control enclosure, reposition the enclosure, and then securely retighten the hardware.

(b) For models rated 25 kv: Attach Cover Assembly Part Number SDA-2398 (furnished in the retrofit kit). See Figure 22. Secure the cover assembly at the top with a knurled screw, retainer, neoprene washer, and nut. The front panel assembly of the Micro-AT Source-Transfer Control should be approximately centered in the opening of the cover assembly and the connectors of the Main Wiring Harness should not be exposed. If necessary, loosen the hardware which retains the Micro-AT Source-Transfer Control enclosure, reposition the enclosure, and then securely retighten the hardware.
Step 31
For pad-mounted gear models furnished with optional
decoupling feature (Catalog Number Suffix “C8”):
Couple each stored-energy operator, using the following
procedure.
(a) Place the manual/automatic operation selector
switch on the Micro-AT Source-Transfer Control
in the “MANUAL” position.
(b) Make sure that the stored-energy operators are in
the same positions (open or closed) as their
associated Mini-Rupter Switches by observing the
switch-position and operator-position targets. See
Figure 2. If required, use the open/close pushbut-
tons (provided control power is available) to
reposition the operator(s).
(c) For each stored-energy operator, open the hinged
cover labeled “Decoupling Socket.” Insert the utility
tool furnished all the way into the socket to depress
the spring-loaded locking pin. While maintaining
the locking pin depressed, turn the utility tool
clockwise 5 to 7 complete turns, until firm
resistance is felt and the “COUPLED” target is
centered in the indicator port. See Figure 2. Remove
the tool. Then close the hinged cover and secure
it with the knurled screw.

Step 32
Place the manual/automatic operation selector switch
on the Micro-AT Source-Transfer Control in the
“AUTOMATIC” position and confirm that the
automatic-transfer “ready” indicator lamp is
illuminated.

Step 34
Close and padlock the doors to the low-voltage control
compartment. Make sure that the doors to the high-
voltage compartments are also closed and padlocked.