Operation

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★For use with S&C Alduti-Rupter® Switches

May 13, 2024

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 S&C Type AS-1A Switch Operators. Become familiar with the Safety Information and Safety Precautions on pages 4 through 6. 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 Type AS-1A Switch Operator. 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 Type AS-1A Switch Operators are listed in the ratings table in Specification Bulletin 769-31. 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).

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 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

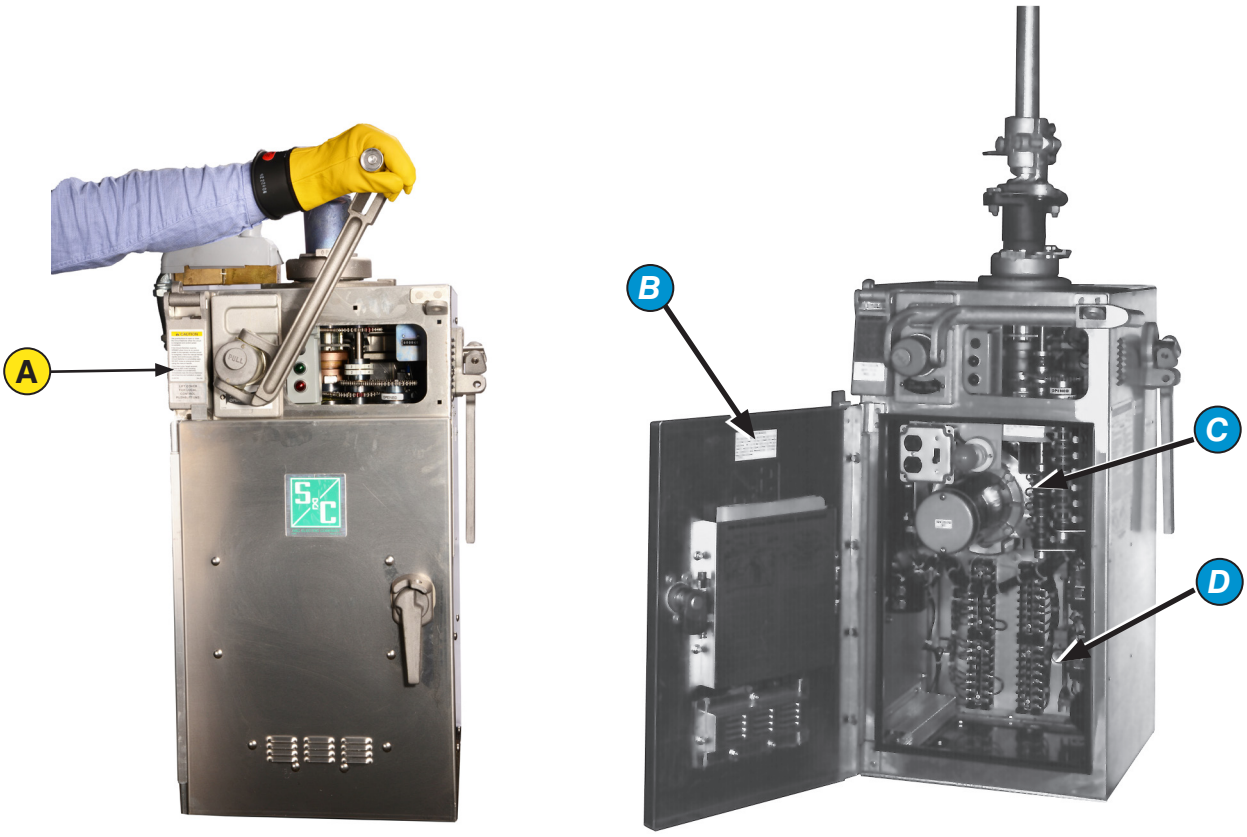
Read this instruction sheet thoroughly and carefully before operating Type AS-1A Switch Operators.

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.

Location of Safety Labels



Reorder Information for Safety Labels

Location	Safety Alert Message	Description	Part Number
A	⚠ CAUTION	Use pushbuttons to open or close the Circuit-Switcher....	G-4892R2
B	*NOTICE*	The S&C Instruction Sheet is a permanent part of your S&C Equipment....	G-3733R2
C	*NOTICE*	Auxiliary switch cams are individually adjustable. Check the auxiliary switch cams...	G-4747R2
D	*NOTICE*	This contactor or relay has been blocked to prevent damage during shipment.	G-3684●

● This tag is to be removed and discarded after the switch is installed and adjusted.

⚠ DANGER

Alduti-Rupter 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 Alduti-Rupter 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. **OPERATING MECHANISM.** Power-operated Alduti-Rupter Switches contain fast-moving parts that can severely injure fingers. Do not remove or disassemble unless directed by S&C Electric Company.
6. **ENERGIZED COMPONENTS.** Always consider all parts of the Alduti-Rupter Switch live until de-energized, tested, and grounded. Voltage levels can be as high as the peak line-to-ground voltage last applied to the unit. Units that have been energized or installed near energized lines should be considered live until tested and grounded.
7. **GROUNDING.** The Alduti-Rupter Switch must be connected to a suitable earth ground at the base of the utility pole, or to a suitable building ground for testing, before energizing the switch and at all times when energized. The vertical operating shaft above the Type AS-1A Switch Operator must also be connected to a suitable earth ground.

   The ground wire(s) must be bonded to the system neutral, if present. If the system neutral is not present, proper precautions must be taken to ensure the local earth ground, or building ground, cannot be severed or removed.
8. **SWITCH POSITION.** Always confirm the **Open/Close** position of each switch.
   - Switches and terminal pads may be energized from either side.
   - Switches and terminal pads may be energized with the switches in any position.
9. **MAINTAINING PROPER CLEARANCE.** Always maintain proper clearance from energized components.

The high-speed S&C Type AS-1A Switch Operator has an operating time not exceeding 0.75 seconds. It is expressly designed for power operation of outdoor-distribution Alduti-Rupter Switches, including those with power fuses, having rotating-type operating mechanisms.

The Type AS-1A Switch Operator's high operating speed provides sufficient moving-contact velocity in the Alduti-Rupter Switch interrupters to ensure full interrupting capability and long operating life. The operator's high operating speed also provides adequate closing velocity for 25/34.5-kV and 34.5-kV three-pole side-break integer-style and three-pole vertical-break integer-style switches so the side-break integer-style switches have a one-time duty cycle fault-closing rating of 15,000 amperes RMS asymmetrical, and the vertical-break integer-style switches have one-time duty-cycle fault-closing ratings of 20,000 or 30,000 amperes RMS asymmetrical for switches rated 600 amperes or 1200 amperes respectively.

Note: For power operation of Alduti-Rupter Switches and Alduti-Rupter Switches with power fuses having reciprocating operating mechanisms, the S&C Type AS-10 Switch Operator is offered.

⚠ WARNING

Unauthorized changes should not be made to the wiring of the Type AS-1A Switch Operator. Should a control-circuit revision become desirable, it should be made ONLY on the authority of a revised wiring diagram approved by both the user and S&C Electric Company. **Unauthorized changes may make the function of the operator unpredictable, causing damage to the operator, associated Alduti-Rupter Switch, and possible serious personal injury.**

Table 1. Types AS-1A Switch Operators

Application		Motor and Control Voltage	Maximum Operating Time, Seconds①	Minimum Locked-Rotor Torque at Rated Control Voltage, Inch-Lbs.	Accelerating Current, Amperes	Catalog Number	Schematic Wiring Diagram Drawing Number
High-Voltage Device	Rating of High-Voltage Device						
Alduti-Rupter Switch	7.2 kV thru 46 kV	12 Vdc	0.75●	18 500	—	38854R4■	CDR-3127R1
		48 Vdc	0.75	21 500	80	38847R4-A	CDR-3113R1
		125 Vdc	0.75	21 500	30	38847R4-B	
		115 V 60 Hz	0.75	18 000	46	38847R4-D	CDR-3128R1▲
		230 V 60 Hz	0.75	18 000	23	38847R4-E	

① Based on minimum battery and external control wire size requirements specified in S&C Data Bulletin 753-60; operating time will be less if a larger-than-minimum battery size and/or external control wire size is used.

● Applicable to Alduti-Rupter Switches with operating-mechanism rotation of 90 degrees; operating time will be greater if the switch has increased operating-mechanism rotation. Typical running speed of the switch operator output shaft is 26 revolutions per minute.

■ Includes 12-Vdc battery and constant-burden battery charger for connection to an S&C 30-Volt-Ampere Potential Device or other 120-Volt 60-Hertz source.

▲ CDR-3205R1 for catalog numbers 38847R4-D and 38847R4-E when furnished with source-transfer control compatibility (suffix "-U1").

S&C Type AS-1A Switch Operators include the following features as standard:

- A built-in internal decoupling mechanism, operable by integral external selector handle, with padlocking provisions and automatic mechanical locking of the output shaft
- A laminated safety-plate window that permits "visible air-gap" verification of complete disengagement of the output shaft
- Externally operable **Open/Close** buttons with a padlockable cover
- A built-in, nonremovable, foldaway manual operating handle
- Mechanical position indicators for both the switch operator and the Alduti-Rupter Switch **Open** and **Closed** positions
- A non-reset electric **Operation** counter
- A laminated safety-plate window for inspection of the built in internal decoupling mechanism, the mechanical position indicators, and the **Operation** counter (and POSITION INDICATING lamps, if furnished as accessories)
- Foolproof recoupling (It's impossible with position-indexing drums to couple the switch operator and the Alduti-Rupter Switch "unsynchronized.")
- Fingertip-precision adjustment of the output-shaft rotation using self-locking spring-biased cams
- An eight-pole auxiliary switch, coupled to the motor, with fingertip-precision adjustment of individual contacts using self-locking spring-biased cams
- Antifriction bearings throughout; tapered roller bearings for all high-torque gear-train shafts
- Two-pole pull-out fuse holders for a space heater and (except for 12-Vdc models) a motor circuit (For 12-Vdc models, a two-pole disconnect switch is used in series with a motor-circuit fuse.)
- A weatherproof, dust-proof enclosure equipped with a 120/240-Vac space heater, factory-connected for 240-Vac operation, that can readily be field-reconnected for 120-Vac operation
- A tamper-resistant design that includes a welded enclosure; baffled louvers; gasketed, flanged door openings; a cam-action door latch; and provisions for padlocking
- Foul-weather accessibility to the enclosure interior (Access is by door rather than removing panels of an enclosure.)

S&C Switch Operator catalog number 38854R4 includes a 12-Vdc battery and a constant-burden battery charger for connection to an S&C 30-Volt-Ampere Potential Device or other 120-Volt 60-Hertz source.

Switch operator catalog numbers are suffixed with one or more letters. The first letter following the catalog number designates the motor and control voltage (except for catalog number 38854R4):

Suffix	Voltage
"-A"	48 Vdc
"-B"	125 Vdc
"-D"	115 Volts 60 Hertz
"-E"	230 Volts 60 Hertz

Other suffix letters that may be added to the switch operator catalog number indicate the inclusion of optional accessories. Refer to S&C Specification Bulletin 769-31 for full descriptions.

Become familiar with the parts of the Type AS-1A Switch Operator as shown in Figure 1 on page 9, Figure 2 on page 10, and Figure 3 on page 11.

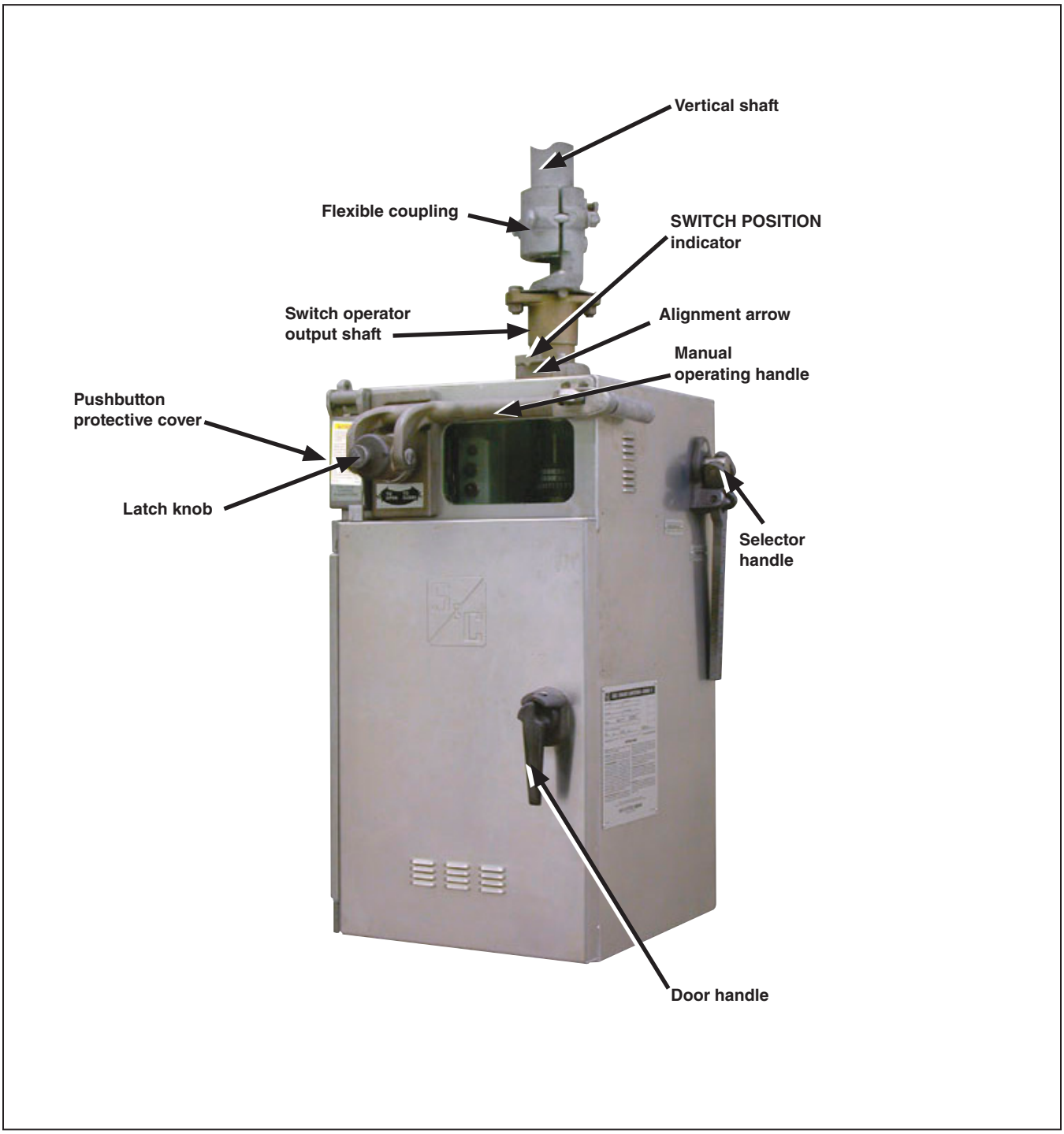


Figure 1. An external view of a Type AS-1A Switch Operator with the door closed.

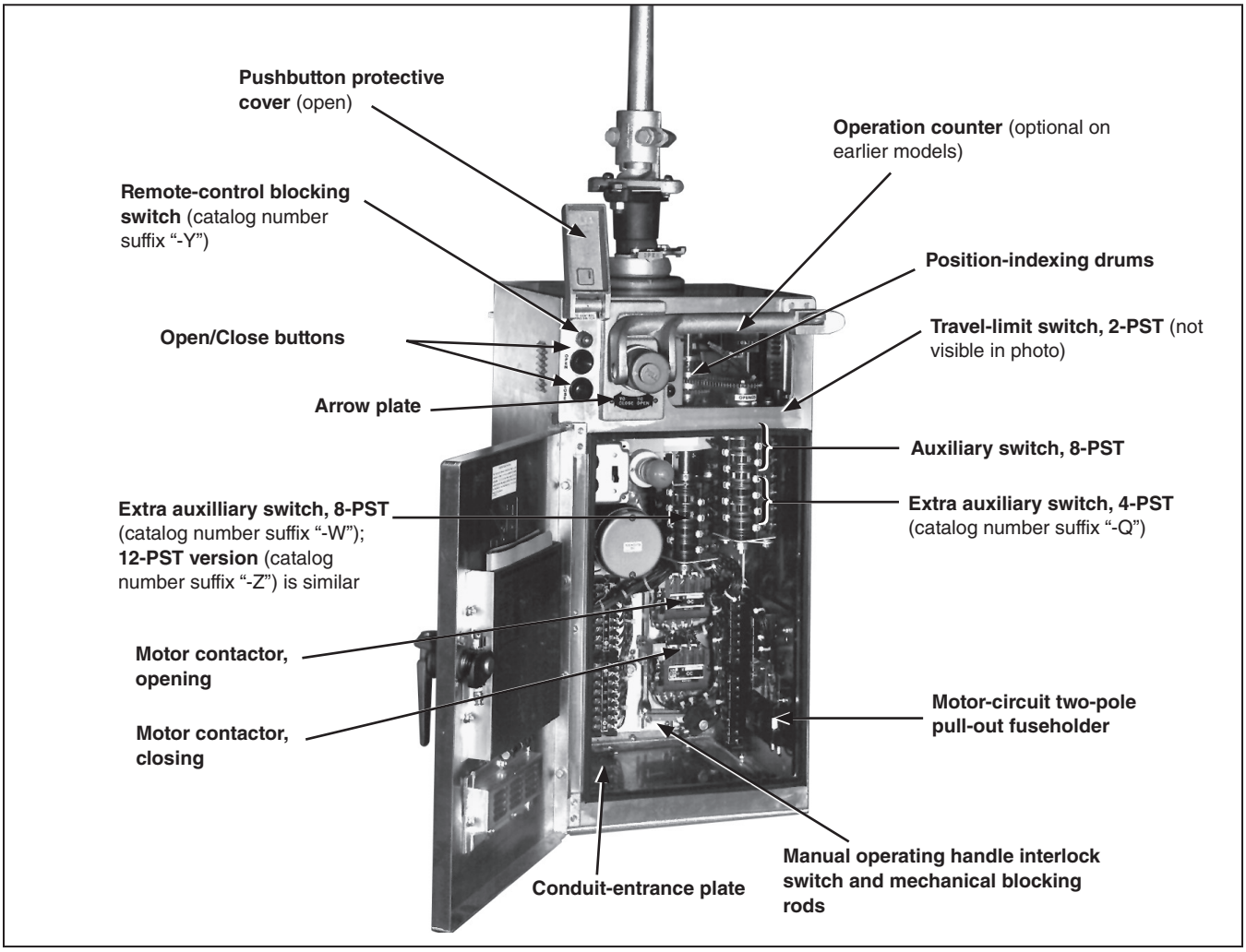


Figure 2. An interior view of a Type AS-1A Switch Operator with the door open.

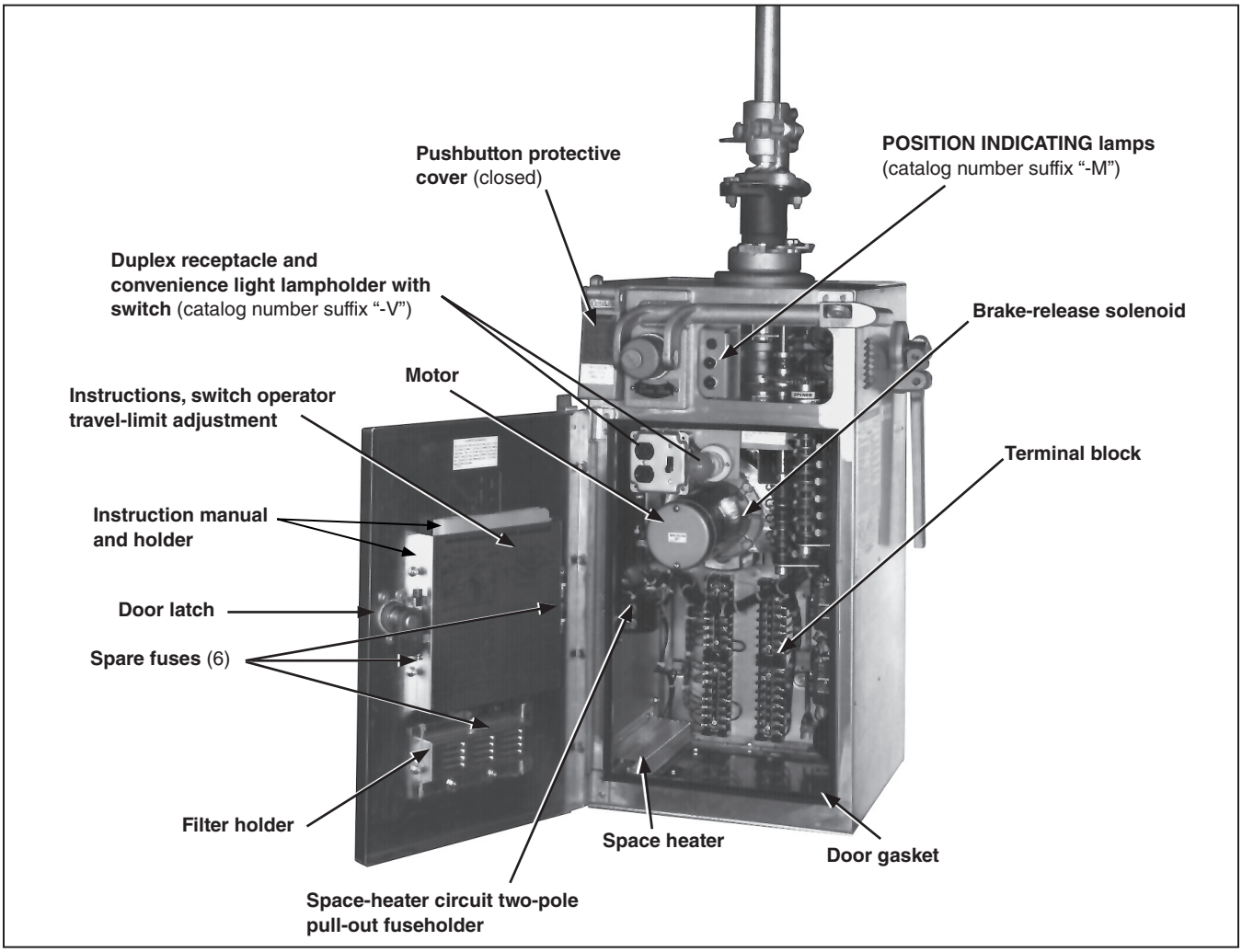


Figure 3. An interior view of a Type AS-1A Switch Operator

NOTICE

These illustrations are not applicable to 12-Vdc models. Those models use a number of different component parts and a different internal layout. Among the differences is inclusion of a constant-burden battery charger mounted on a swingout panel and the use of a separate two-pole control-source disconnect switch in series with control-source fuses (located on the inside rear wall) in lieu of the motor-circuit two-pole pull-out fuse holder. Those models also include a separate compartment beneath the enclosure that houses the 12-Vdc battery.

Checking the Switch Operator and Alduti-Rupter Switch Positions Before Operation

Do not assume the switch operator position necessarily indicates the **Open** or **Closed** position of the Alduti-Rupter Switch. Upon completion of an opening or closing operation (electrical or manual), make sure the following conditions exist:

- The switch operator position indicator, Figure 6 on page 16, signals "OPEN" or "CLOSED" to indicate that the switch operator has moved through a complete operation. Also note the POSITION INDICATING lamps, Figure 3 on page 11, if furnished.
- The Alduti-Rupter Switch position indicator, located on the switch operator output shaft, Figure 1 on page 9, is in agreement with the SWITCH OPERATOR POSITION indicator. That is, both indicators should simultaneously show "OPEN" or "CLOSED."
- The blades on all three poles of the Alduti-Rupter Switch are fully open or fully closed (by visual verification).

Then, tag and padlock the switch operator in accordance with standard system operating procedures. In all cases, make sure the switch operator is padlocked before "walking away."

Electrical Operation

Complete the following steps to open or close the interrupter switch electronically:

STEP 1. Unlock and lift the external pushbutton protective cover.●

STEP 2. Press the appropriate pushbutton.■ See Figure 2 on page 10.

Alternatively, the switch operator may be activated by operating associated, remotely located control switches. (No instructions are included for activating the switch operator by means of remotely located control switches because control schemes vary with different installations. With any given installation, however, it may be possible and desirable to effect such operation. Instructions presented in this document cover operation at the switch operator only.)

● For switch operators with an optional remote-control blocking switch (suffix "-Y"), opening the pushbutton protective cover prevents remote operation of the switch operator.

■ OPEN/CLOSE buttons are not included on switch operators specified with catalog number suffix "-J."

Manual Operation

⚠ WARNING

DO NOT manually open or close the switch operator while the Alduti-Rupter Switch is energized.

Operating the switch under reduced operating speed may cause excessive arcing, resulting in shortened interrupter life, damage to the interrupters, or personal injury.

If switch operator control voltage is not available and emergency manual opening is absolutely necessary, crank the manual operating handle rapidly throughout its full travel. ***Do not*** stop or hesitate part way. Never close the switch manually.

If switch-operator control voltage is not available and high-voltage circuit conditions permit emergency manual opening, crank the manual operating handle rapidly and continuously through its full travel. Manual closing of an energized Alduti-Rupter Switch should be avoided because of the possibility of closing into a fault.

STEP 1. To open the Alduti-Rupter Switch manually, pull the latch knob on the hub of the manual operating handle and pivot the handle forward slightly from its **Storage** position. Release the latch knob while continuing to pivot the handle forward to lock it into the **Cranking** position. See Figure 4 on page 14. As the handle is pivoted forward, the motor brake is mechanically released, both leads of the control source are automatically disconnected, and—except for 12-Vdc models—both the "opening" and "closing" motor contactors are mechanically blocked in the **Open** position.

If desired, during manual operation, the switch operator may also be disconnected from the control source by removing the motor-circuit two-pole pullout fuse holder located on the right-hand inside wall of the enclosure.

STEP 2. To return the manual operating handle to its **Storage** position, pull the latch knob and pivot the handle approximately 90 degrees. The handle will then be disengaged from the switch operator and may be rotated freely in either direction to its **Storage** position. Complete the handle storage by pivoting the operating handle backward approximately 90 degrees until it latches in the **Storage** position.

Note: The manual operating handle may be disengaged from the switch-operator mechanism at any position of the handle.

STEP 3. The handle may be padlocked in its **Storage** position.

Final Checks Before Walking Away

So the switch operator is ready for normal power operation of the Alduti-Rupter Switch by remote automatic or supervisory control, make sure the following conditions exist:

- The selector handle is in the **Coupled** position.
- The manual operating handle is in its **Storage** position.
- The two-pole pull-out fuse holders for the motor circuit and space-heater circuit are inserted.
- The pushbutton protective cover is closed.
- The switch operator is tagged and padlocked in accordance with standard system operating procedures.

Using the Manual Operating Handle

The manual operating handle is used during switch operator adjustment. Become familiar with the operation of the manual operating handle, as described on the switch operator nameplate on the right-hand side of the enclosure.

⚠ WARNING

DO NOT manually open or close the switch operator while the Alduti-Rupter Switch is energized.

Operating the switch under reduced operating speed may cause excessive arcing, resulting in shortened interrupter life, damage to the interrupters, or personal injury.

If switch operator control voltage is not available and emergency manual opening is absolutely necessary, crank the manual operating handle rapidly throughout its full travel. ***Do not*** stop or hesitate part way. Never close the switch manually.

STEP 1. Pull the latch knob on the hub of the manual operating handle and pivot the handle forward slightly from its **Storage** position.

STEP 2. Release the latch knob while continuing to pivot the handle forward to lock it into the **Cranking** position. See Figure 4. (As the handle is pivoted forward and the motor brake is mechanically released, both leads of the control source are automatically disconnected, and—except for 12-Vdc models—both the "opening" and "closing" motor contactors are mechanically blocked in the **Open** position.)

STEP 3. Crank the handle in the direction shown on the arrow plate for the **Open** position.

If desired, during manual operation, the switch operator may also be disconnected from the control source by removing the motor-circuit two-pole pull-out fuse holder, located on the right-hand inside wall of the enclosure.

STEP 4. To return the manual operating handle to its **Storage** position, pull the latch knob and pivot the handle approximately 90 degrees. The handle will then be disengaged from the switch operator and may be rotated freely in either direction to its **Storage** position.

Complete the handle storage by pivoting the operating handle backward approximately 90 degrees until it latches in the **Storage** position. Always padlock the handle in its **Storage** position.

Note: The manual operating handle may be disengaged from the switch operator mechanism at any position of the handle.

Figure 4. Manual operation.

Using the Selector Handle (Coupling and Decoupling)

The selector handle will be used during switch operator adjustment. The integral external selector handle, for operation of the built-in internal decoupling mechanism, is located on the right-hand side of the switch operator enclosure. Become familiar with the operation of the selector handle, as described on the switch operator nameplate on the right-hand side of the enclosure. See Figure 1 on page 9.

To decouple the switch operator from the switch:

STEP 1. Swing the selector handle upright and *slowly* rotate it clockwise 50 degrees to the **Decoupled** position. See Figure 5. This decouples the switch operator mechanism from the switch operator output shaft.

STEP 2. Lower the selector handle to engage the locking tab. When thus decoupled, the switch operator may be operated either manually or electronically without operating the Alduti-Rupter Switch.

When the selector handle is in the **Decoupled** position, the output shaft is prevented from moving by a mechanical locking device located within the switch operator enclosure.

During the intermediate segment of the selector handle travel, which includes the position at which actual disengagement (or engagement) of the internal decoupling mechanism occurs, the motor circuit source leads are momentarily disconnected and (except for 12-Vdc models) both the "opening" and "closing" motor contactors are mechanically blocked in the **Open** position.

Visual inspection, through the observation window, will verify whether the internal decoupling mechanism is in the **Coupled** or **Decoupled** position. See Figure 6 on page 16.

STEP 3. Padlock the selector handle in either position.

Figure 5. Selector handle operation.

To couple the switch operator to the switch:

STEP 1. Manually operate the switch operator to bring it to the same **Open** or **Closed** position as the Alduti-Rupter Switch. The SWITCH OPERATOR POSITION indicator, seen through the observation window, will show when the approximate **Open** or **Closed** position has been attained. See Figure 6.

STEP 2. Turn the manual operating handle slowly until the position-indexing drums are numerically aligned to move the switch operator to the exact position for coupling.

STEP 3. Swing the selector handle upright and rotate it counterclockwise to the **Coupled** position.

STEP 4. Lower the handle to engage the locking tab. The selector handle is now in the **Coupled** position.

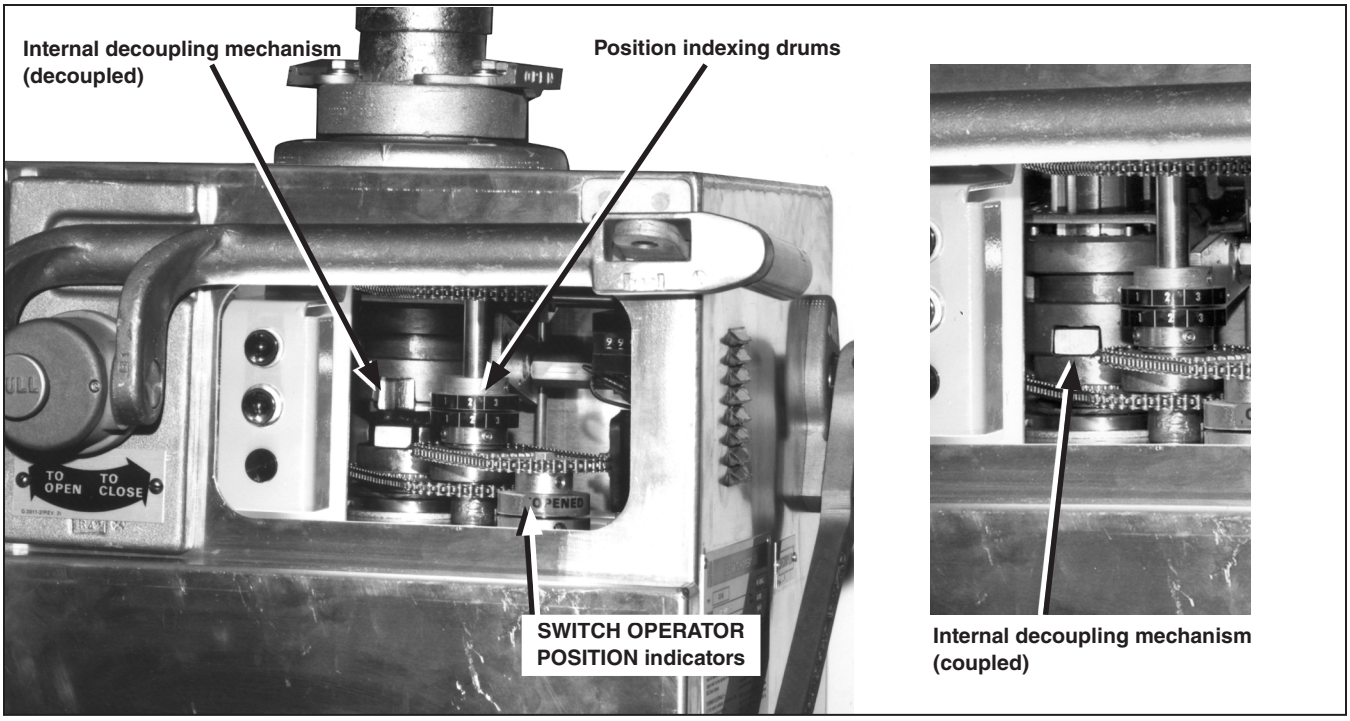


Figure 6. Views of the switch operator through the observation window.

To ensure continued proper performance of the Type AS-1A Switch Operator, it should be inspected every five years. De-energize the associated Alduti-Rupter Switch and perform the following switch operator inspection procedures:

STEP 1. Check for evidence of water ingress, damage, and excessive corrosion or wear.

STEP 2. Check ease of operation during slow, manual cranking using the switch operator manual operating handle.

STEP 3. Check electrical operation, coupled and decoupled.

STEP 4. Check for loose wiring inside the enclosure and for proper functioning of POSITION INDICATING lamps, **Operation** counter, CONVENIENCE lamp, etc.

STEP 5. Check operation of brake and readjust if necessary. See Figure 7 on page 18. The procedure for doing this is as follows:

(a) Place the selector handle in the **Decoupled** position.

(b) Remove the two-pole pull-out fuse holders for the motor circuit and space-heater circuit.

(c) Disconnect the linkage rod by removing the ¼–20×1¼-inch hex-head screw, lockwasher, flat washer, and spacer-bushing from the end of the brake lever, as shown in Detail A. Be careful not to lose these parts.

(d) Raise the brake lever and measure the vertical free play, as shown in Detail B in Figure 7 on page 18. This dimension should be ⅝-inch (16 mm) to ¾-inch (19 mm). Should the measurement be outside this range, brake-wear compensation is required; proceed to Step 5(d). If the measurement is within this range, reattach the linkage rod and tighten the ¼–20×1¼-inch hex-head screw securely; proceed to Step 5(i).

(e) Remove the four ⅝–18×1¼-inch screws used to attach the motor, withdraw the motor, and carefully rest its shaft on the floor of the enclosure. Be careful not to lose the square key or tubular spacer (if furnished), which may remain on the motor shaft.

Note: 115-Vac and 230-Vac motors use a ¼-inch–20 socket-head set screw on the side of the brake disc hub, as shown in Detail C in Figure 7 on page 18. Loosen this set screw approximately one-half turn, using a ⅛-inch Allen wrench, before removing the motor.

(f) Using a ⅜₂-inch Allen wrench, loosen the pad assembly socket-head set screw on the side of the caliper assembly approximately one-half turn. See Detail A in Figure 7 on page 18.

(g) Using a ⅝₆-inch Allen wrench, rotate the pad assembly clockwise until the free play at the end of the brake lever is ⅝-inch (16 mm) to ¾-inch (19 mm), as shown in Detail B in Figure 7 on page 18. Now, tighten the ⅜₂-inch pad assembly socket-head set screw.

(h) Insert the spacer-bushing through the angle bracket and brake lever, and reattach the linkage rod using the ¼–20×¼-inch hex-head screw, lockwasher, and flat washer. Tighten the screw securely.

(i) Insert the square key in the keyway, as shown in Detail A in Figure 7 on page 18. Slip the tubular spacer (if furnished) over the motor shaft and reinstall the motor. Position the motor so the two weep holes on the side of the housing face downward. Replace the four ⅝₆–18×1¼-inch screws used to attach the motor and tighten them securely

(j) On 115-Vac and 230-Vac motors, also retighten the ¼–20-inch sockethead set screw on the side of the brake disc hub. Check the operation of the brake linkage as follows:

Pull the latch knob on the hub of the manual operating handle and slowly pivot the handle forward from its **Storage** position toward its **Cranking** position until the brake disc can be rotated by hand. Be careful not to get grease on the brake disc.

Now, measure the distance the end of the brake lever travels from the point of initial brake release to the bottom of its stroke (which occurs when the handle locks into the **Cranking** position). This dimension should be ⅛-inch (3 mm) to ¼-inch (6 mm) See Detail D in Figure 7 on page 18. Should the measurement be outside this range, refer to the nearest S&C Sales Office.

Because the Type AS-1A Switch Operator may be conveniently decoupled from the Alduti-Rupter Switch, elective exercising of the operator may be performed at any time without requiring an outage or switching to an alternate source.

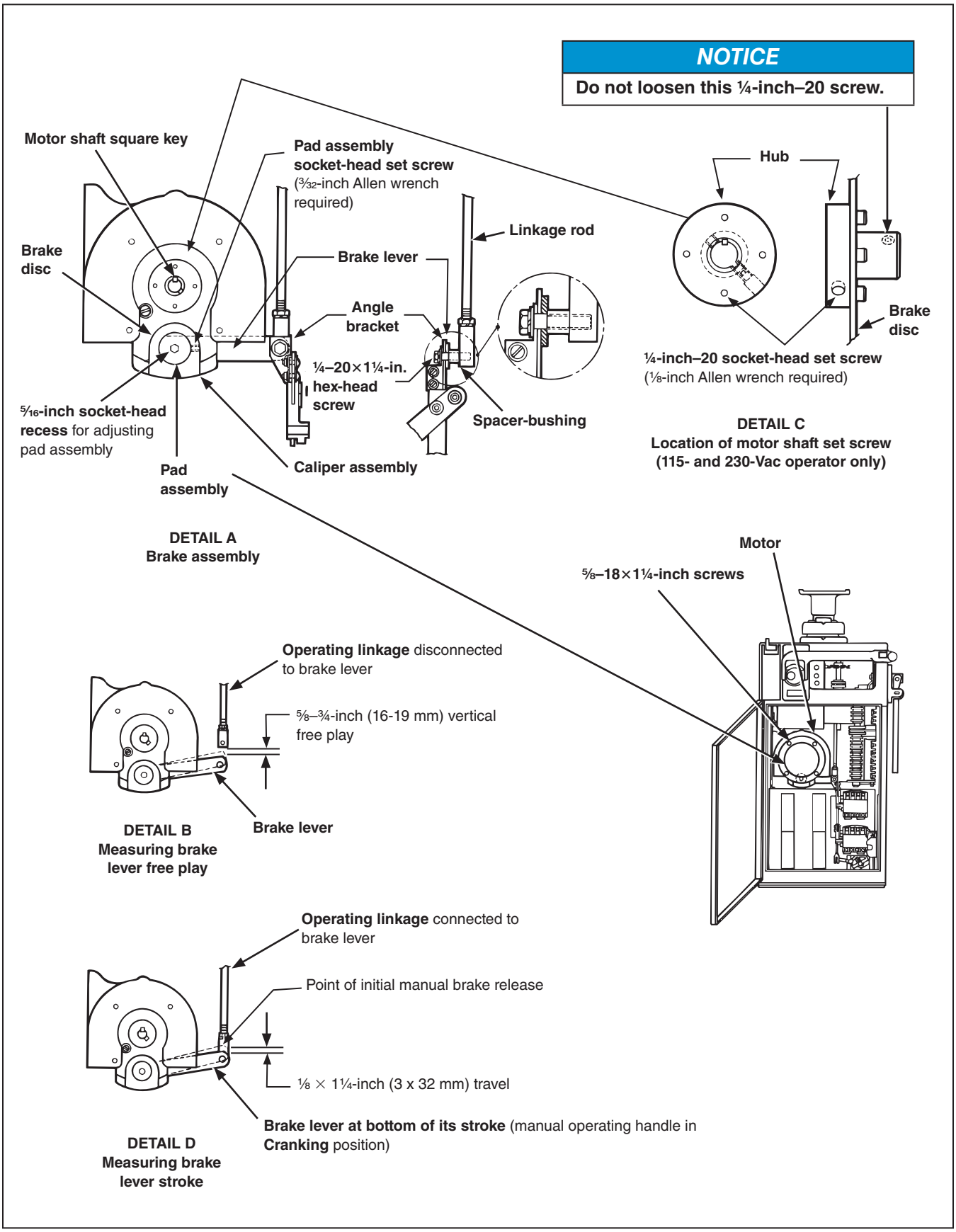


Figure 7. Brake inspection procedure.