

S&C TripSaver® II Cutout-Mounted Recloser—Quick Operation Guide

Outdoor Distribution (15 kV and 25 kV)

⚠ DANGER

This Quick Operation Guide is not a replacement for adequate training and safety procedures for this product. Read S&C Instruction Sheets 461-502, 461-503, and 461-504 thoroughly and carefully before using this Quick Operation Guide and installing and operating your TripSaver II Cutout-Mounted Recloser. Failure to have adequate training and understanding of these instructions will lead to serious injury or death.

⚠ WARNING

The TripSaver II Cutout-Mounted Recloser must be installed, operated, and maintained by qualified persons who are knowledgeable in overhead electric power distribution equipment and the associated hazards. For more information on the requirements of a qualified person, see the “Introduction” section of S&C Instruction Sheet 461-502. These instructions are not intended to be a substitute for adequate training and experience in safety procedures for this type of equipment.

If Live Line Work is to be Performed Downstream of the TripSaver II Recloser

Place the MODE-SELECTOR lever in the **NR (non-reclose)** position by rotating the lever downward using a distribution prong until the lever locks into the vertical position as shown in Figure 1. The lever is spring-loaded to help select between the **Auto (reclose)** and **NR** position. The two halves of the red label at the base of the TripSaver II recloser will align when the MODE-SELECTOR lever is down, as shown in the Figure 7 on page 2.

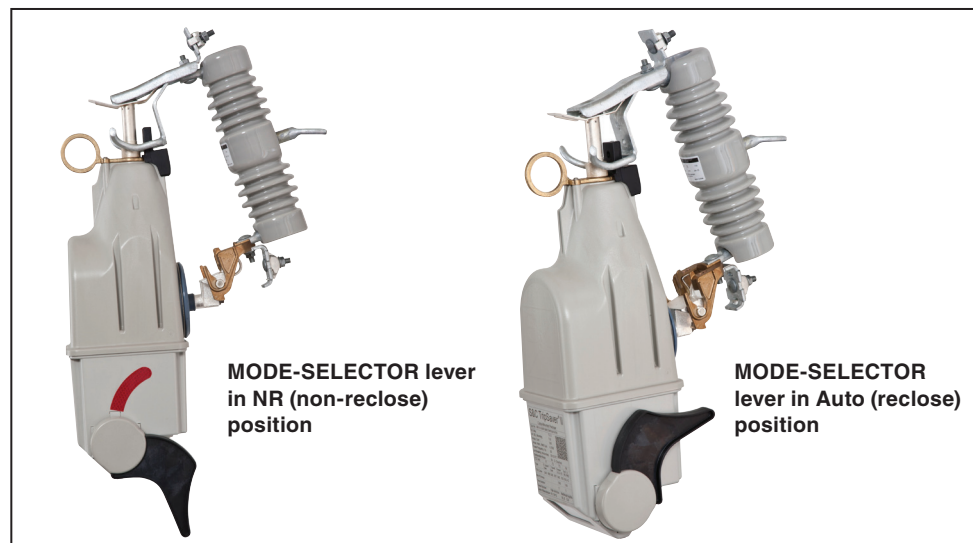


Figure 1. The Mode-Selector lever.

After line work has been completed, return the MODE-SELECTOR lever to the **Auto** position by rotating it all the way up. See Figure 1. The lever must completely cover the curved label on the body of the recloser.

If the TripSaver II recloser is equipped with a communications gateway, the **Remote Non-Reclose (R-NR)** mode can be enabled remotely via SCADA. After a recloser in **R-NR** mode drops open, at its next manual closing it will operate in **Auto** mode if the

lever is in the up position for a period of 5 minutes after re-energization, and will then revert to whatever setting it was in before it dropped open (**R-NR** or **Auto**). For further details, see Instruction Sheet 461-502.

Note: With the MODE-SELECTOR lever in the **NR** position, the recloser will operate and drop open using the instantaneous curve and the same minimum trip curve as TCC0. It will not go through the reclosing sequence.

⚠ DANGER

TripSaver II reclosers may be energized from either side and in any position. Always consider all parts live until de-energized, tested, and grounded.

When the TripSaver II Recloser has Dropped Open

STEP 1. Inspect the surrounding area and determine and resolve the cause of the fault using the information on the recloser’s LCD screen.

STEP 2. After the cause of the fault has been resolved and any necessary repairs are completed, close the TripSaver II recloser into its mounting using the “Closing the TripSaver II Recloser into Its Mounting” instructions on page 2.

Note: The MODE-SELECTOR lever can be placed in either the **Auto** position or the **NR** position before closing the TripSaver II recloser into the mounting. The recloser has a transformer-magnetizing inrush restrain feature that is always on. It is not susceptible to inrush current and will not nuisance trip on inrush when closed into the mounting.

Opening the TripSaver II Recloser with Loadbuster®— The S&C Loadbreak Tool

⚠ WARNING

DO NOT attempt to use a Loadbuster tool to open a TripSaver II recloser while climbing the pole. Engagement of a Loadbuster tool while climbing is difficult and may result in an improper opening operation, leading to arcing, faults, equipment damage, serious injury, or death.

⚠ WARNING

When operating from a bucket truck, stay at least 5 feet below the recloser. Operating the Loadbuster tool from less than 5 feet (152 cm) away is difficult and may result in improper operation, leading to arcing, faults, equipment damage, serious injury, or death.

STEP 1. Make sure the Loadbuster tool is in the **Reset** state.

STEP 2. Fasten the tool to a hookstick not less than 6 feet (183 cm) long.

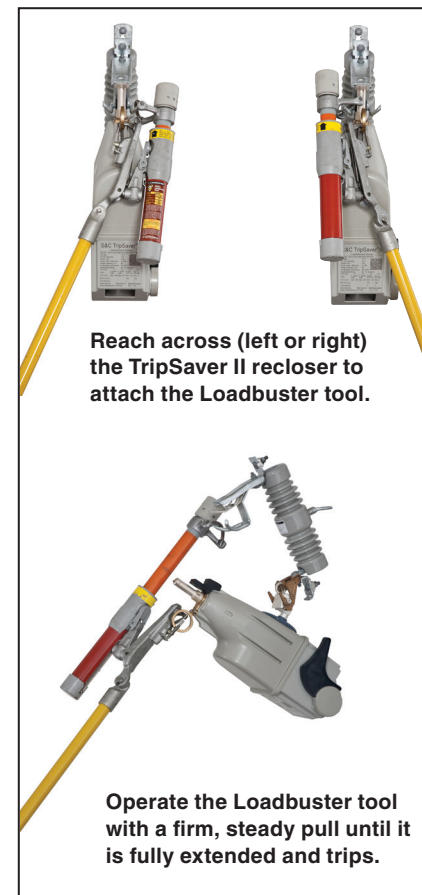


Figure 2. Operation with a Loadbuster tool.

STEP 3. Attach the Loadbuster tool so it reaches across in front of the TripSaver II recloser. Never attach the tool with its anchor hooked on the closest side of the recloser. See Figure 2.

STEP 4. Swing the Loadbuster tool toward the TripSaver II recloser and pass the Loadbuster tool pull-ring hook through the pull-ring on the recloser. The pull-ring latch will deflect, and after complete entry of the pull-ring, will spring back, locking the tool to the pull-ring and connecting the tool across the upper contacts of the TripSaver II recloser. See Figure 2.

STEP 5. To open the circuit, operate the Loadbuster tool with a firm, steady pull until it is extended to its full length. A trigger inside the tool will trip, releasing the spring and interrupting the circuit.

STEP 6. To detach the Loadbuster tool after circuit interruption, raise it slightly and disengage the anchor from the attachment hook. Then, remove the tool from the pull ring by rotating the pole. See Figure 3.

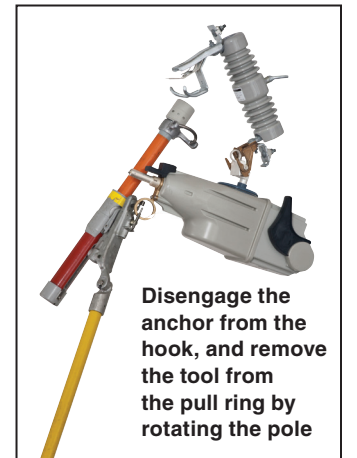


Figure 3. Disengaging the Loadbuster Tool.

Opening the TripSaver II Recloser with the Local Manual Open Feature

TripSaver II reclosers with operating firmware version 1.6 or later have a **Local Manual Open (LMO)** feature for loadbreaking without using the Loadbuster tool. This feature provides a manual-operation sequence that commands the recloser to open the vacuum-interrupter contacts and drop open. A TripSaver II recloser must have adequate power for the **LMO** feature to work.

The MODE-SELECTOR lever controls the **LMO** feature. The open command is given by toggling the MODE-SELECTOR lever between the **Auto** and **NR** position X number of times within a Y-second window when the recloser is in the vertical position. See Figure 4.

Note: The trigger values for X (operation count) and Y (operation time window) are user-configurable using the TripSaver® II Service Center Configuration Software. Confirm the X and Y values with your utility. The trigger values can be checked locally by toggling the MODE-SELECTOR lever once to show the “Additional Display Screens.”

After the TripSaver II recloser has been commanded to open, there is a 10 second window when the **LMO** feature can be canceled by any operation of the MODE-SELECTOR lever. During these 10 seconds, the LCD screen will display “LMO CANCEL?”

If the **LMO** command is not canceled within 10 seconds, a “WALK AWAY” message will appear on the LCD screen for 8 seconds, giving the operator enough time to walk clear of the pole, and comply with any operating-distance requirements specified by utility work practices. The **LMO** command CANNOT be canceled during the walk-away period.

After the walk-away period expires, the TripSaver II recloser will open the circuit and drop to the **Open** position.

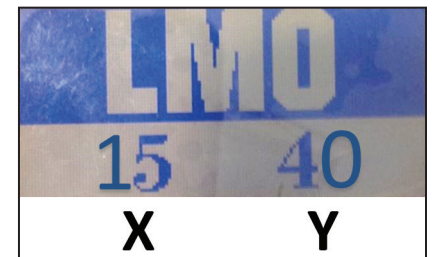


Figure 4. The Local Manual Open screen.



Closing the TripSaver II Recloser into its Mounting

⚠ WARNING

DO NOT use the curled prong of an S&C Talon™ Handling Tool to close a TripSaver II recloser. Using the curled prong of a Talon tool to close the recloser can prevent full closure, resulting in arcing, equipment damage, serious injury, or death.

To close a TripSaver II recloser into the cutout mounting:

STEP 1. Insert the distribution prong into the pull-ring.

STEP 2. Stand in front of and in line with the cutout mounting.

STEP 3. Swing the TripSaver II recloser to within approximately 45 degrees of the fully-closed position. See Figure 5. While firmly gripping the hookstick, drive the recloser closed with forward force. **Maintain the forward force until the recloser properly closes and latches into the cutout mounting.**

STEP 4. Disengage the prong from the pull-ring. Take care to avoid pulling the recloser open.

STEP 5. Verify that the MODE-SELECTOR lever is in the desired position: **Auto (reclose)** or **NR (non-reclose)**. Note that the MODE-SELECTOR lever can be placed in either the **Auto (reclose)** or **NR (non-reclose)** position before closing the TripSaver II recloser.

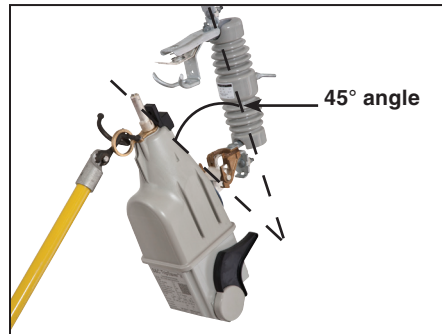


Figure 5. Closing the TripSaver II Recloser.

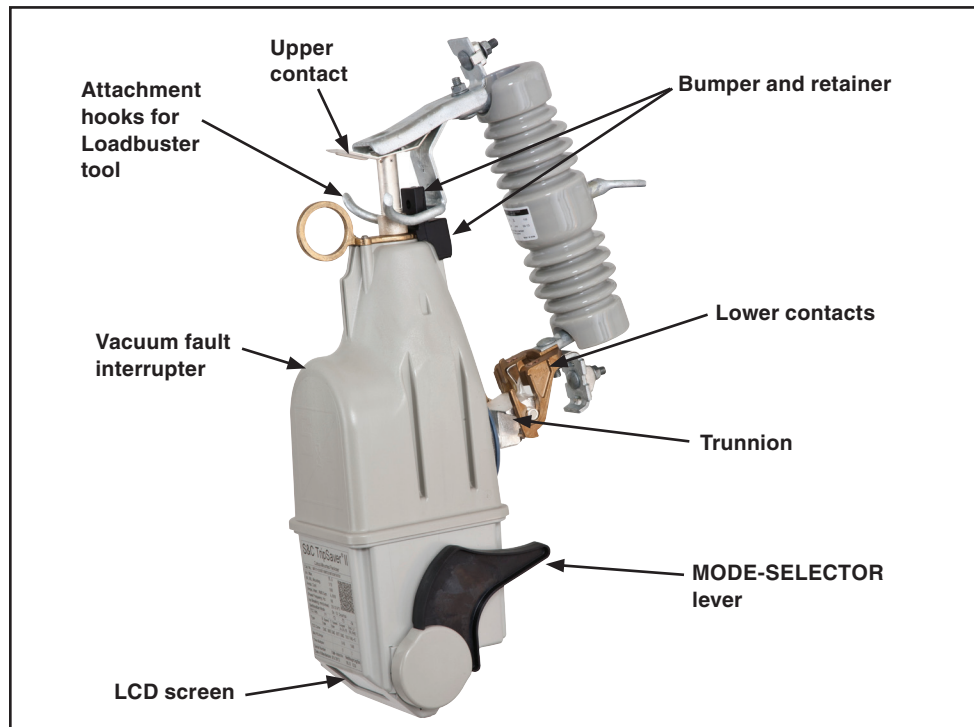


Figure 6. The TripSaver II Cutout-Mounted Recloser.

Understanding the LCD Screen

The operational status of the TripSaver II recloser is indicated on the LCD screen at the base of the recloser. When the TripSaver II recloser is energized and the control has power, the display screen shows the most recent status information. See Figure 7.

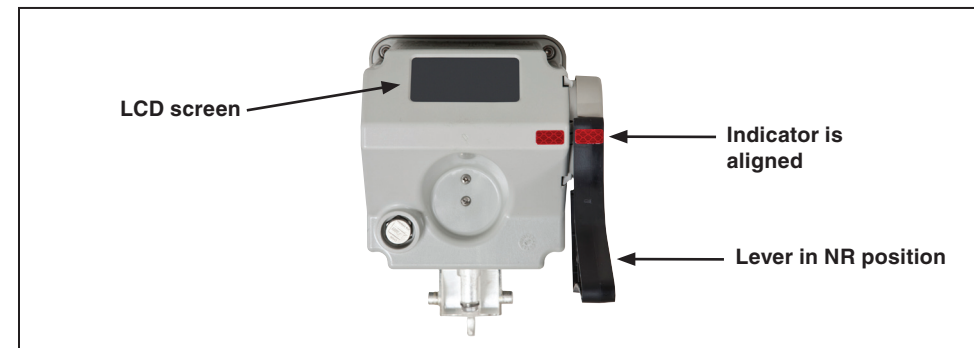


Figure 7. The base of a TripSaver II recloser.

Additional scrolling display screens can be viewed by toggling the MODE-SELECTOR lever up and down. The factory default screen is the *Primary Normal* screen.

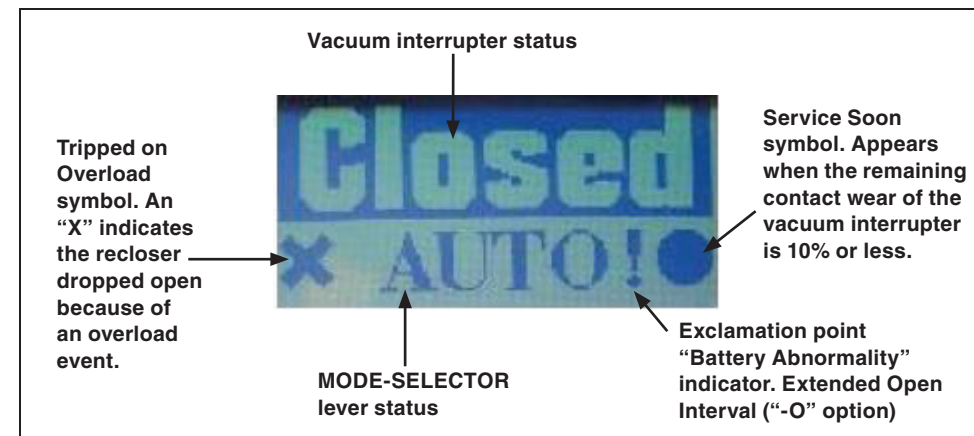


Figure 8. The *Primary Normal* LCD screen.

Additional Display Screens

When the MODE-SELECTOR lever is toggled up and down, the LCD screen scrolls through all screens and returns to the *Primary Normal* screen. These screens and the scroll time are user selectable. (User selectable screens not shown here are described in Instruction Sheet 461-502.) The factory default additional display screens are shown in Figure 9.

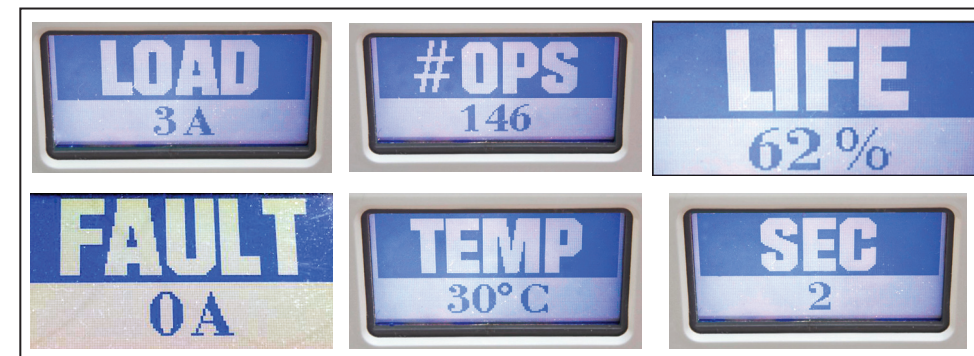


Figure 9. The LCD screens shown when the lever is toggled.

The *Software Version* screen appears when the additional display screens are scrolled, and when the *Local Manual Open* screen (see page 1) is scrolled if the **Local Manual Open** feature is enabled.

Note: There must be at least 4 amperes of load current flowing through the recloser to wake the control from its sleep state. When powered, the control can stay on as long as the current does not fall below 1.5 amperes. If less than 4 amperes of load current is available, the TripSaver II recloser will still operate should a fault occur. However, it takes a small but finite amount of time for the control to power up and issue a trip signal. This power-up time only affects TCC curves selected to respond quickly at high current levels.

Service Now screen

When the TripSaver II recloser reaches the end of its operational life, the *Service Now* screen appears in the display. See Figure 10. (An “O = open,” “I = closed” or an “X = undetermined” may appear next to the exclamation point, indicating the state of the vacuum interrupter.) The TripSaver II recloser drops open, and will not reset, preventing the recloser from being closed into its mounting. When the *Service Now* screen displays, the TripSaver II recloser should be returned to S&C Electric Company.



Figure 10. The *Service Now* screen.

NOTICE

If the TripSaver II recloser cannot be closed into its mounting and the *Service Now* screen is NOT displayed on the LCD screen, manually reset the drop-open mechanism as described in the “Troubleshooting” section of S&C Instruction Sheet 461-502. If the recloser still cannot be closed into its mounting, this indicates the recloser is in an **Operational Error** state. The TripSaver II recloser should be removed from service and returned to S&C Electric Company.

Troubleshooting

Upright in Mounting with Vacuum Interrupter Open

⚠ DANGER

The TripSaver II recloser **MUST** be removed from the pole before a manual reset is attempted. The trunnion must be manually reset using the procedure outlined in S&C Instruction Sheet 461-502 before the vacuum interrupter is reset. Failure to remove the recloser from the pole before manually resetting will lead to arcing, injury, or death.

The TripSaver II recloser can drop open with 3/4-inch (19-mm) ice formation. If the TripSaver II recloser does not drop open at the end of its operating sequence because of excessive ice buildup or for any other reason, it will remain in the upright position, with the vacuum interrupter in the **Open** position and the drop-open mechanism unlatched. The interrupter and drop-open mechanism will not reset automatically. The LCD screen will show the vacuum interrupter with an **Open** status (VI Open). Use a Loadbuster tool to open the TripSaver II recloser and remove it from its mounting. The operating mechanism and vacuum interrupter must then be manually reset. See Instruction Sheet 461-502 for instructions about manually resetting the TripSaver II recloser.

For a video about installing the TripSaver II Cutout-Mounted Recloser, visit sandc.com/videos/install-ts2.