Instructions for Operation and Maintenance

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Qualified Persons

⚠ WARNING

The equipment covered by this publication must be installed, operated, and maintained by qualified persons who are knowledgeable in the installation, operation, and maintenance of overhead electric power distribution equipment along with the associated hazards. A qualified person is one who is trained and competent in:

- The skills and techniques necessary to distinguish exposed live parts from non-live 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 the special precautionary techniques, personal protective equipment, insulating 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

Read this instruction sheet thoroughly and carefully before operating your S&C Loadbuster Tool. Familiarize yourself with "SAFETY INFORMATION" on pages 3 and 4. The latest version of this publication is available online in PDF format at www.sandc.com. Select: Support/Product Literature Library.

Retain this Instruction Sheet

This instruction sheet should be available for reference wherever and whenever Loadbuster Tool is to be used. Retain this instruction sheet in the Loadbuster Tool carrying case (optional), or designate a location where you can easily retrieve and refer to this publication.

Proper Application

⚠ CAUTION

Loadbuster Tool must only be used for specific switching applications that are within the ratings of the tool selected. Loadbuster Tool ratings are listed on a ratings label attached to the chassis of the tool.

Warranty

The warranty and/or obligations described in S&C's standard conditions of sale, as set forth in Price Sheet 150, 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 immediate purchaser's or end user's exclusive remedy and a fulfillment of all seller's liability. In no event shall seller's liability to immediate purchaser or end user exceed the price of the specific product which gives rise to 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, 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 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.

Understanding Safety-Alert Messages

There are several types of safety-alert messages which may appear throughout this instruction sheet as well as on labels and tags attached to the Loadbuster Tool. Familiarize yourself with these types of messages and the importance of the various signal words, as explained below.

⚠ DANGER

"DANGER" identifies the most serious and immediate hazards which *will likely* result in serious personal injury or death if instructions, including recommended precautions, are not followed.

⚠ WARNING

"WARNING" identifies hazards or unsafe practices which *can* result in serious personal injury or death if instructions, including recommended precautions, are not followed.

⚠ CAUTION

"CAUTION" identifies hazards or unsafe practices which *can* result in minor personal injury or product or property damage if instructions, including recommended precautions, are not followed.

NOTICE

"NOTICE" identifies important procedures or requirements that, if not followed, *can* result in product or property damage if instructions are not followed.

Following Safety Instructions

If you do not understand any portion of this instruction sheet and need assistance, contact your nearest S&C Sales Office or S&C Authorized Distributor. Their telephone numbers are listed on S&C's website www.sandc.com. Or call S&C Headquarters at (773) 338-1000; in Canada, call S&C Electric Canada Ltd. at (416) 249-9171.

NOTICE

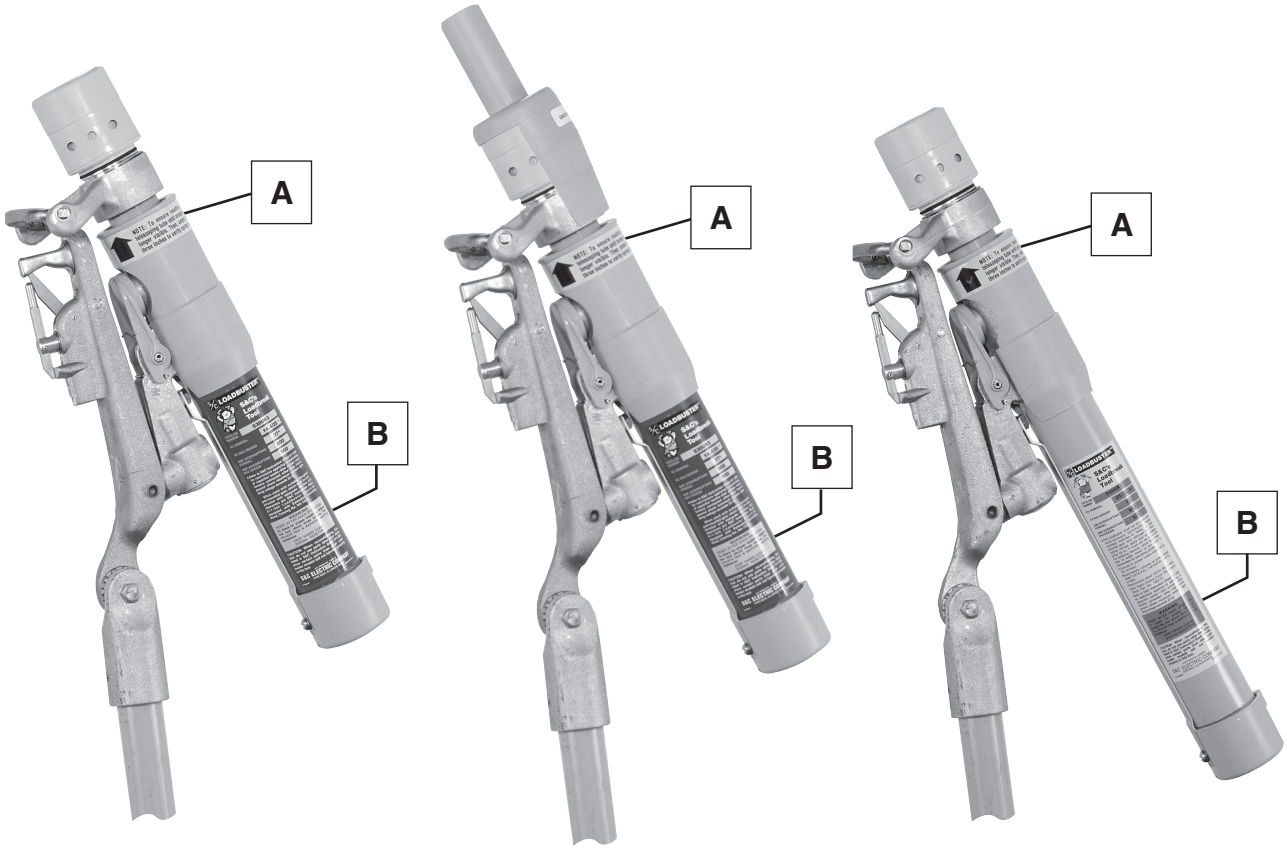
Thoroughly and carefully read this instruction sheet before operating your S&C Loadbuster Tool.

Replacement Instructions and Labels

If you need additional copies of this instruction sheet, contact your 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 your nearest S&C Sales Office, S&C Authorized Distributor, S&C Headquarters, or S&C Electric Canada Ltd.

Location of Safety Label



Reorder Information for Safety Labels

Location	Safety-Alert Message	Description	Number
A	**NOTE**	To ensure resetting, depress telescoping tube until orange band . . .	G-5840R1
B	**⚠ WARNING**	RESET AFTER EACH OPERATION – To check for proper resetting . . .	G-4401R7 (for 5300R3) G-4401R7 (for 5300R3-E) G-4320R8 (for 5400R3)

Inspection

Examine the shipment for external evidence of damage as soon after receipt as possible, preferably before removal from the carrier's conveyance. Check the bill of lading to make sure that all cartons listed thereon are present.

If there is visible loss and/or damage:

1. Notify the delivering carrier immediately.
2. Ask for a carrier inspection.
3. Note condition of shipment on all copies of the delivery receipt.
4. File a claim with the carrier.

If concealed damage is discovered:

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

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

Ratings

COMPLETE UNITS

Item	Rating				Catalog Number
	kV		Amps, Interrupting		
	Nom.	Max	Nom.	Max	
Loadbuster for use with overhead distribution devices	14.4/25	27	600	900	5300R3
Loadbuster for use in suitably designed pad-mounted gear	14.4/25	27	600	900	5300R3-E
Loadbuster for use with overhead distribution devices	25/34.5	38	600	900	5400R3

Operation Counter

Loadbusters manufactured after March 2003 are equipped with a non-resettable operation counter feature that lets you monitor the use of your tools to make more informed decisions with regard to inspection and maintenance. The operation counter is built into Loadbuster's silencer, and can be easily added to existing tools.

Enhanced Operating Life Upgrade Kits

Loadbuster Tools, Catalog Number 5300R3, 5300R3-E, and 5400R3 manufactured between May 1983 and August 2002 can be upgraded to achieve enhanced operating life of 1,500 to 2,000 operations before inspection and maintenance are required. See applicable Upgrade Kits in the table on page 20.

Application Notes

Loadbuster is a lightweight, portable loadbreak tool. When used with appropriately designed "hook-equipped" disconnects, cutouts, power fuses, fuse limiters, and pad-mounted gear, Loadbuster is suitable for these live-switching duties of single- or three-phase overhead distribution circuits through 34.5 kV and underground distribution circuits through 25 kV:

- **Transformer switching**—transformer load currents up through 600 amperes nominal, 900 amperes maximum, as well as transformer magnetizing currents associated with the applicable loads.
- **Line switching**—load splitting (parallel or loop switching) and load dropping of currents up through 600 amperes nominal, 900 amperes maximum; also line dropping (charging currents typical for distribution systems of these voltage ratings).
- **Cable switching**—load splitting (parallel or loop switching) and load dropping of currents up through 600 amperes nominal, 900 amperes maximum; also cable dropping (charging currents typical for distribution systems of these voltage ratings).
- **Capacitor bank switching**—switching of single capacitor banks as follows:

Loadbuster Catalog Number	Nominal System Voltage, kV, Three-Phase	Maximum Capacitor Bank Rating, kVAC, Three Phase		
		Solidly or Effectively Grounded System		Ungrounded System
		Single① Banks, Grounded-Wye Connected	Single① Banks, Ungrounded-Wye Connected	Single① Banks, Grounded- or Ungrounded-Wye Connected
5300R3	12 thru 14.4	1800	1800	1800
	16	2400	2400	2400
	20.8 thru 23.9	3000	▲	▲
	24.9 and 26	3600	▲	▲
5400R3	20.8 thru 23.9	3000	3000	3000
	24.9 and 26	3600	3600	3600
	27.6	3600	3600	3600
	34.5	4800	▲	▲

① Loadbusters must not be used for switching parallel ("back-to-back") capacitor banks.

▲ Loadbusters must not be used for switching ungrounded-wye connected banks—or grounded-wye connected banks on ungrounded systems—where maximum system operating voltage exceeds 18 kV for Loadbuster, Catalog Number 5300R3; or 29 kV for Loadbuster, Catalog Number 5400R3.

A Note on Single-Pole Switching

In single-pole switching of ungrounded-primary three-phase transformers or banks (or single-phase transformers connected line-to-line), circuit connections or parameters may, in some cases, produce excessive overvoltages. In particular, for the following applications above 22 kV, single-pole switching by any means—including Loadbuster—should be performed only under the conditions stated in italics:

- Switching unloaded or lightly loaded delta-connected or ungrounded-primary wye-wye connected three-phase transformers or banks (or line-to-line connected single-phase transformers), rated 150 kVA or less three-phase, or 50 kVA or less single-phase—or of any kVA rating when combined with unloaded cables or lines—where maximum system operating voltage exceeds 22 kV. *Single-pole switching should be performed only if each phase is carrying 5% load or more, or if the transformer or bank is temporarily grounded at the primary neutral during switching.*
- Switching loaded or unloaded ungrounded-primary wye-delta connected three-phase transformers or banks—alone or combined with unloaded cables or lines—where maximum system operating voltage exceeds 22 kV. *Single-pole switching should be performed only if each phase is carrying 5% load or more and if the lighting-load phase is always switched open first (or switched closed last); or if the transformer or bank is temporarily grounded at the primary neutral during switching.*

Restrictions on Overhead and Underground Use

Loadbusters must be used only with disconnects, cutouts, power fuses, fuse limiters, or pad-mounted gear which meet S&C's applicable minimum construction specifications to be found in the current revision of the following publication:

DATA BULLETIN 811-60:

Loadbuster® The S&C Loadbreak Tool Outdoor Distribution (14.4 kV through 34.5 kV)	Minimum Construction Specifications for Disconnects, Cutouts, and Power Fuses Qualifying for Use with Loadbuster

Loadbuster, Catalog Number 5400R3, rated 25/34.5 kV, must not be used with metal-enclosed switchgear, metal-enclosed switches or fuses, or pad-mounted gear, of any make.

Although the interrupting ratings of Loadbuster, Catalog Number 5400R3, rated 25/34.5 kV, are equally applicable at lower voltages, it must not be used with the following devices, since the fuse tube or blade travel of such devices is too short to accommodate the Loadbuster's operating stroke:

- Cutouts, power fuses, or fuse limiters, of any make, rated 110 kV BIL or less.
- Disconnects, cutouts, power fuses, or fuse limiters, of any make, rated 7.2/14.4 kV, 7.8/13.8 kV, 8.25 kV or less.
- Disconnects, of any make, rated 125 kV BIL or less.
- S&C Fuse Cutouts—Type XS, Station Style, Catalog Number 189131 (with or without catalog number supplements).

Loadbusters should not be used for any applications where maximum system operating voltage exceeds the Loadbuster's maximum voltage rating.

Clearance Requirements for Use in Pad-Mounted Gear

For applications of Loadbuster (Catalog Number 5300R3-E) in pad-mounted gear, the Loadbuster tool must be equipped with an extended insulating hood (Catalog Number NA-1034), and the pad-mounted gear must be equipped with rigid insulating barriers to prevent:

- Accidental contact of Loadbuster metal parts with adjacent phases during switching.
- Accidental grounding of Loadbuster metal parts to enclosure walls, door stiles, or switch mounting bases during switching.

Specifically, barriers must ensure the following minimum clearances between metal parts of the Loadbuster tool and ground during a switching operation:

Maximum System Operating Voltage, kV	Clearance, Inches (mm)
Up through 15.5	1 (26)
Above 15.5 through 27	2 (51)

Precautions

1. Never position Loadbuster so that its outer tube obscures the line of vision. (See Figures 2A and 2B for correct positioning.)
2. To coordinate Loadbuster's (Catalog Number 5300R3) maximum voltage rating of 27 kV when used with fuse cutouts, disconnects, power fuses, or fuse limiters of other manufacture, the open gap on the cutout, disconnect, fuse, or fuse limiter when the tool is ready to trip must approximate 3⅞ inches (99 mm) minimum. (For a more detailed discussion of this and other requirements, see S&C Data Bulletin 811-60.)

   To coordinate Loadbuster's (Catalog Number 5400R3) maximum voltage rating of 38 kV when used with fuse cutouts, disconnects, power fuses, or fuse limiters of other manufacture, the open gap on the cutout, disconnect, fuse, or fuse limiter when the tool is ready to trip must approximate 5¼ inches (134 mm) minimum. (For a more detailed discussion of this and other requirements, see S&C Data Bulletin 811-60.)
3. After each operation, immediately remove Loadbuster from the fuse cutout, disconnect, power fuse, fuse limiter, or pad-mounted gear and *reset* it. To reset, extend the tool slightly and lift the resetting latch with the thumb. With the latch up, press down on the inner tube assembly until the tool is closed completely so the trigger can reset itself. When properly reset, the orange paint on the inner tube assembly will no longer be visible. Check for proper resetting by extending the tool about three inches (77 mm). Throughout this travel an increasing spring resistance should be felt.

⚠ WARNING

A carrying case, Catalog Number 5380R1, is recommended for Loadbuster. The molded high-density polyethylene carrying case protects Loadbuster against potentially damaging vibration, mechanical shock, and contamination during storage or transport.

For usual operating conditions, Loadbuster is fastened to a universal pole (stick) not less than six feet long (eight feet for Catalog Number 5400R3) with the frame of the tool in line with the pole.

As shown in Figure 2A or 2B, Loadbuster must be attached so that it *reaches across in front of* the fuse cutout, disconnect, power fuse, or fuse limiter. That is, the Loadbuster anchor must be hooked to the attachment hook *on the far side* of the device. Loadbuster should *never* be attached with its anchor hooked on the closest side of the fuse cutout or other device as shown in Figure 2C or 2D. Attaching the tool in this manner would not only obscure the operator's line of vision, but could also result in placing a bending stress on the tool and make disengagement difficult.

When the Loadbuster is properly attached as shown in Figure 2A or 2B, a downward pull of the pole to open the fuse cutout, disconnect, power fuse, or fuse limiter extends the Loadbuster tool and charges an internal spring. At a predetermined point in the opening stroke, a trigger inside the tool trips, releasing the charged spring—thus separating the internal contacts and interrupting the circuit. Successful operation is independent of the speed with which the fuse cutout, disconnect, power fuse, or fuse limiter is opened.

When operating from a bucket truck, stay at least five feet below the device, and in front of fuse cutouts, fuse limiters, and vertically mounted disconnects and fuses. When disconnects are mounted inverted, approach attachment hook from the hinge end, staying well below the device to be opened so that excessive horizontal force is not exerted on the insulator. (See Figures 3 and 4 on page 10.)

Although many words and illustrations are used here to describe operation of Loadbuster, correct techniques can be mastered quite easily. It is advisable, however, to spend a reasonable amount of time practicing with Loadbuster on a de-energized fuse cutout, power fuse, fuse limiter, or disconnect.

The operating steps illustrated in Figures 5 through 8, covering opening of a power fuse, apply equally to a fuse cutout, fuse limiter, or disconnect.

Figure 2A. Correct approach.

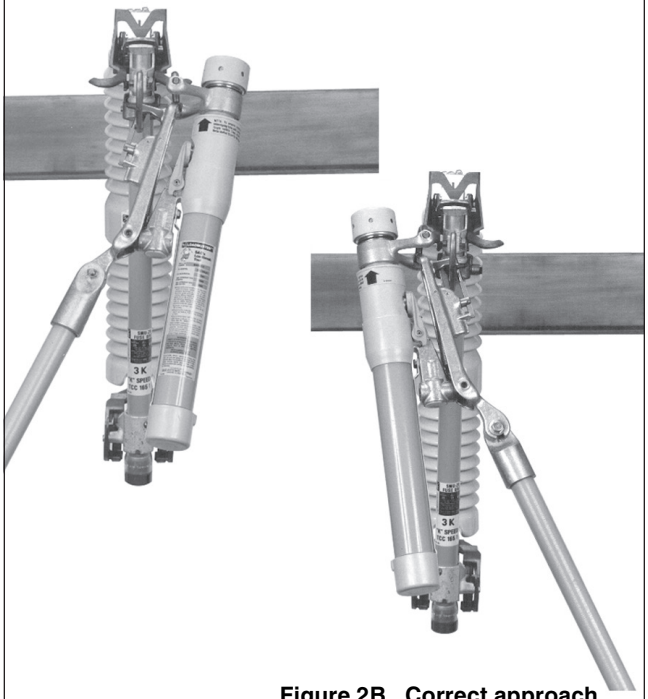


Figure 2B. Correct approach.

Figure 2C. Incorrect approach.

Figure 2D. Incorrect approach.

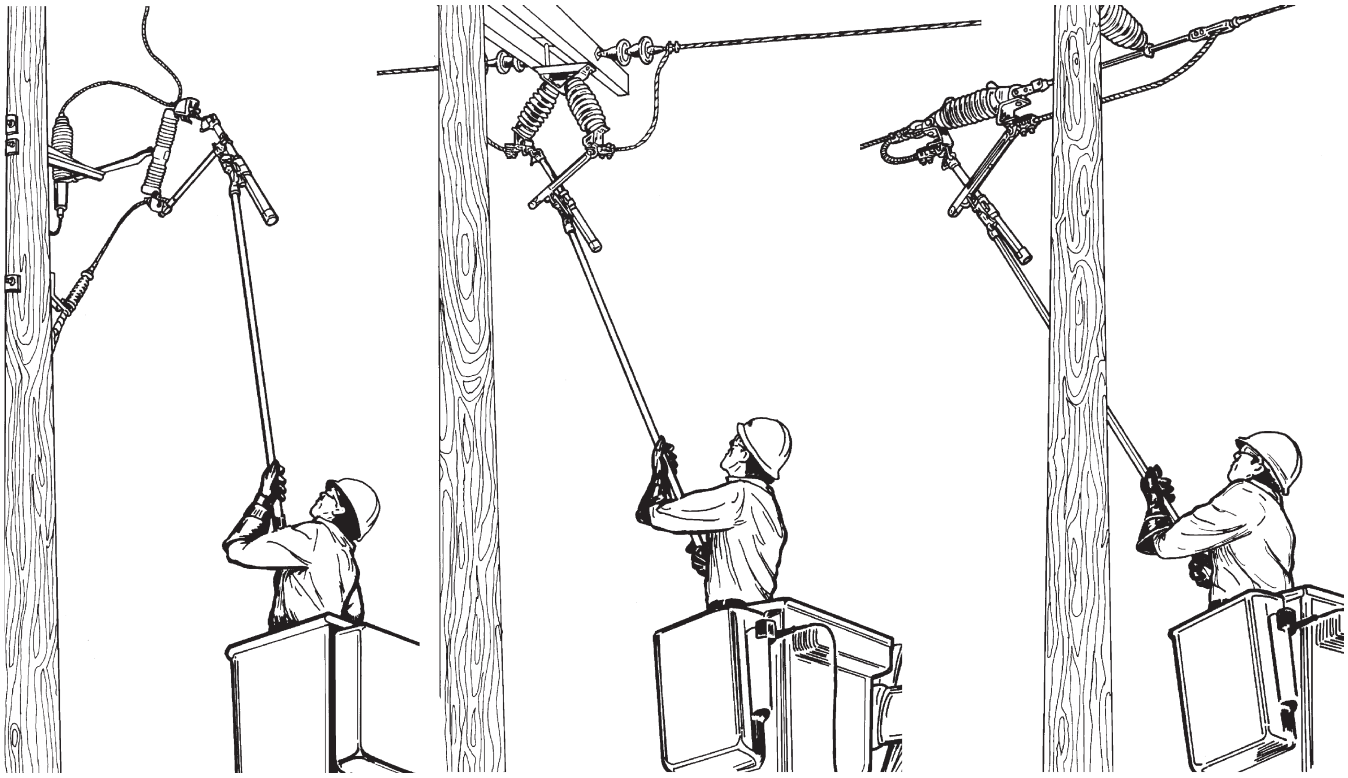


Figure 3. Recommended aerial bucket positions for operator using Loadbuster with overhead distribution devices.

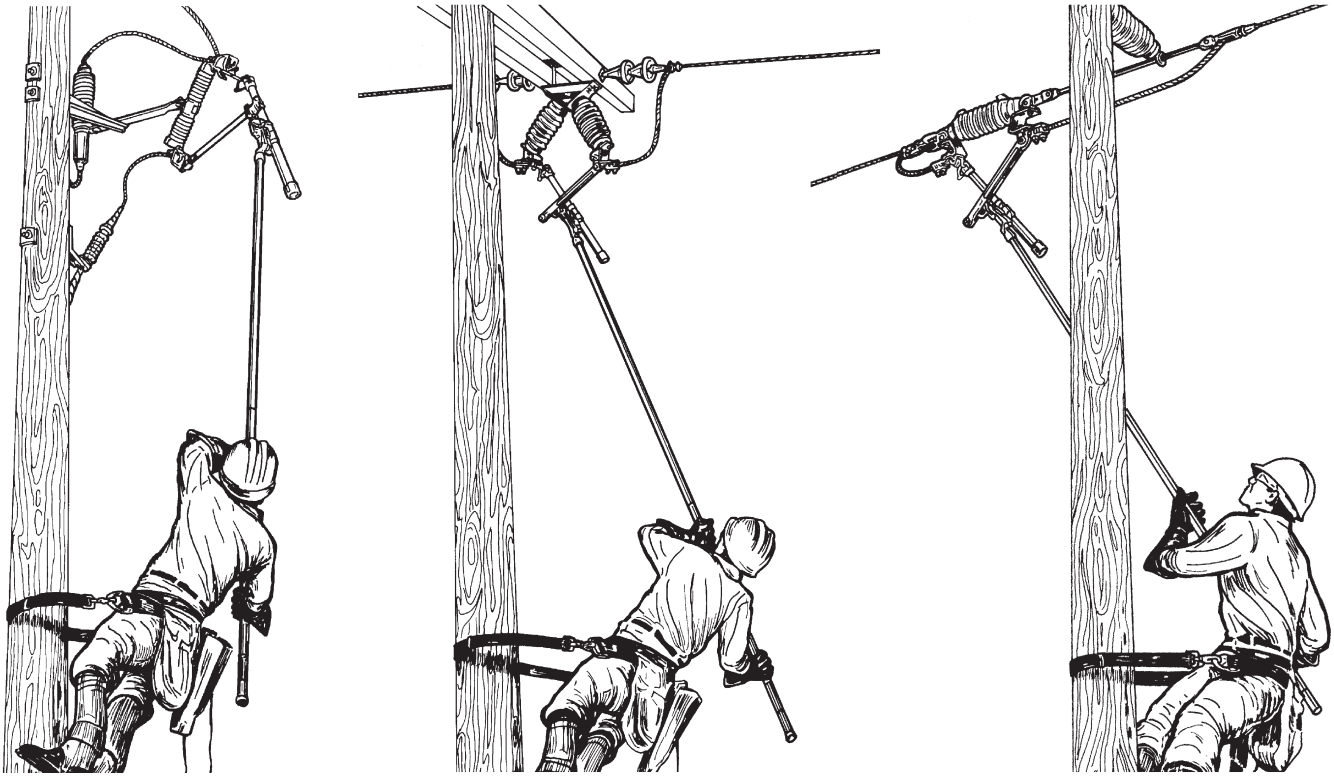


Figure 4. Recommended pole positions for operator using Loadbuster with overhead distribution devices.

Operating Sequence

Check for proper resetting of the Loadbuster by extending the tool about three inches (77 mm) by hand. Throughout this travel, an increasing spring resistance should be felt.

NOTICE

Although the text and figures which follow describe the operation of Loadbuster with SMD-20 power fuses, the procedure is equally applicable to fuse cutouts, disconnects, power fuses, and fuse limiters.

Step 1 *Reach across in front* of the power fuse with Loadbuster and hook the anchor, located at the top of Loadbuster, over the attachment hook *on the far side* of the power fuse. See Figure 5.

Step 2 Swing Loadbuster toward the power fuse and pass the Loadbuster pull-ring hook through the pull-ring on the power fuse. The pull-ring latch will deflect and upon complete entry of the pull-ring, will spring back, locking Loadbuster to the pull-ring. Loadbuster is now connected across the upper contact of the power fuse. See Figure 5.

Step 3 To open the circuit, operate Loadbuster with a firm, steady pull until it is extended to *its maximum length.* See Figure 6 on page 7. Avoid jerking and hesitation. The resetting latch will keep it open. Generally, there will be no indication of circuit interruption but commutation arcing may be noted at the pull-ring hook and at the anchor, particularly when interrupting load currents approaching the rating of the tool. The only sound will be that of Loadbuster tripping.

Step 4 To detach Loadbuster after circuit interruption, first raise it slightly and disengage the anchor from the attachment hook.

⚠ CAUTION

When Loadbuster is raised the open gap distance is reduced. Careless manipulation could decrease the open gap to the point where flashover will occur.

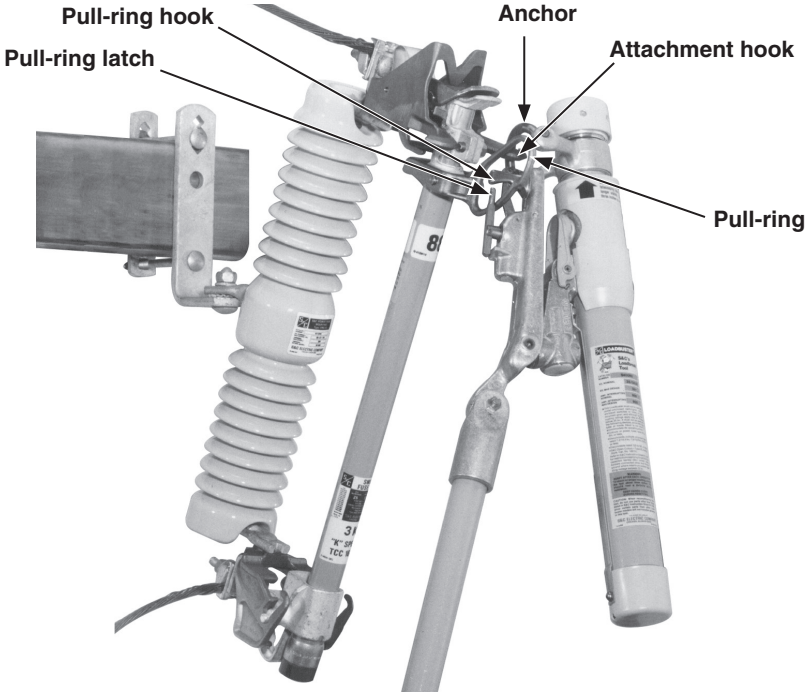


Figure 5. Loadbuster connected to S&C Power Fuse—Type SMD-20, Outdoor Distribution.

Next, bring the power fuse toward its fully open position as illustrated in Figure 7 (this procedure is recommended as uniform practice because disconnects will not necessarily open fully by gravity). Then remove Loadbuster from the pull-ring by turning the pole. This will deflect the pull-ring latch to release the pull-ring. On fuse cutouts, fuse limiters, or power fuses on which the fuse tube or power fuse will drop fully open by gravity, it may be preferred to remove Loadbuster by "rolling" it off both the attachment hook and pull-ring at the same time merely by twisting the pole after Loadbuster has been tripped and fully extended. To perform this operation easily and smoothly, always roll Loadbuster so that it rotates in an upward direction.

Figure 6. Loadbuster in tripped position.

Step 5 To reset Loadbuster for the next operation, hold as shown in Figure 8. Extend the tool slightly and lift the resetting latch with the thumb. With the latch up, press down on the inner tube assembly until the tool is closed completely so the trigger can reset itself. When reset properly, the orange paint on the inner tube assembly will no longer be visible. Check for proper resetting by extending the tool about three inches (77 mm). Throughout this travel an increasing spring resistance should be felt.

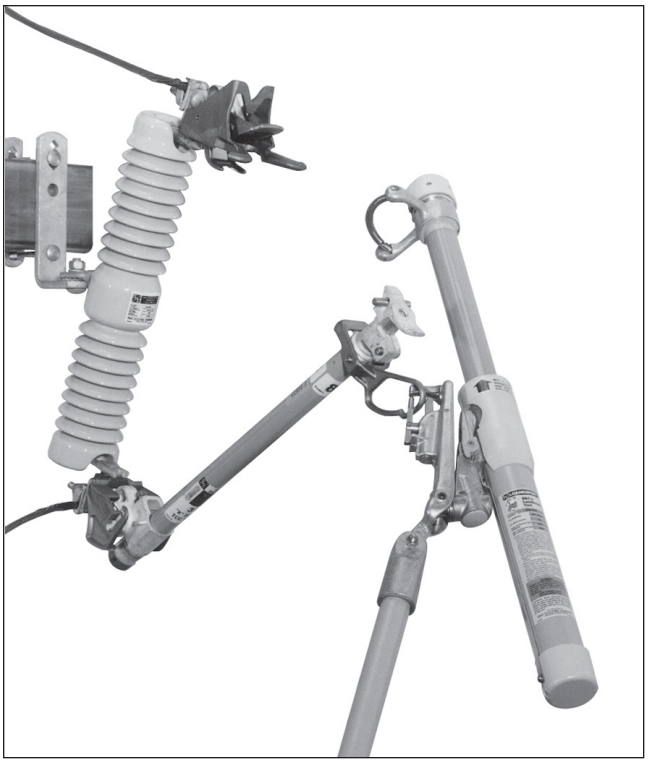


Figure 7. Detaching Loadbuster from power fuse.

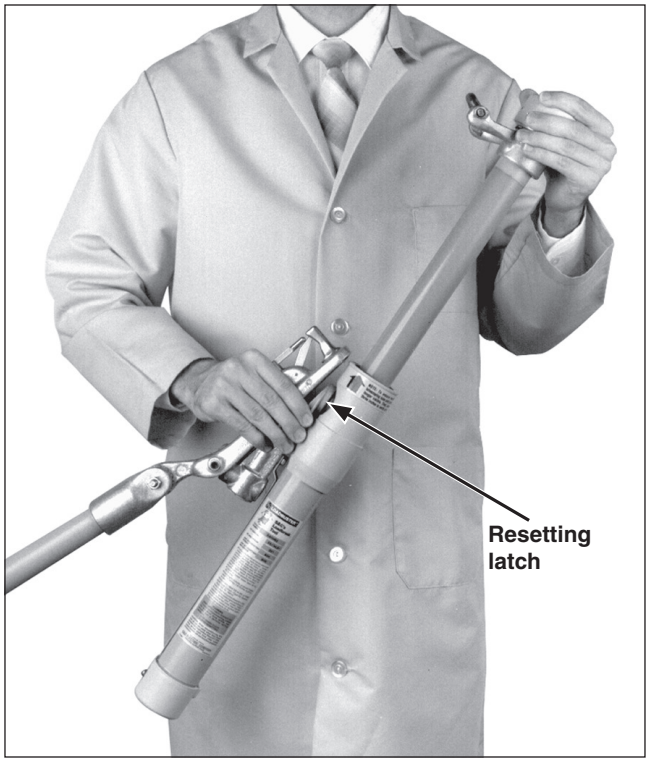


Figure 8. Resetting Loadbuster.

Loadbuster (Catalog Number 5300R3-E) makes an interrupter switch out of every power fuse or disconnect switch in pad-mounted gear suitably equipped with the attachment hook. Operation in pad-mounted gear is similar to that of overhead distribution devices in most respects.

⚠ CAUTION

Loadbuster, Catalog Number 5400R3 rated 25/34.5 kV, must not be used with metal-enclosed switchgear, metal-enclosed switches, metal-enclosed fuses, or pad-mounted gear.

Before using Loadbuster in pad-mounted gear, review "Clearance Requirements for Use in Pad-Mounted Gear," page 7. Also review information presented under "Operation—Overhead Distribution Devices," pages 9 through 13.

When using Loadbuster in pad-mounted gear, avoid any tendency to grasp the pole close to the Loadbuster end. Be sure, instead, to grasp the pole near the end opposite Loadbuster.

Although the text and figures following describe the operation of Loadbuster (Catalog Number 5300R3-E) with power fuses in pad-mounted gear, the procedure is equally applicable to that employed with disconnect switches in pad-mounted gear.

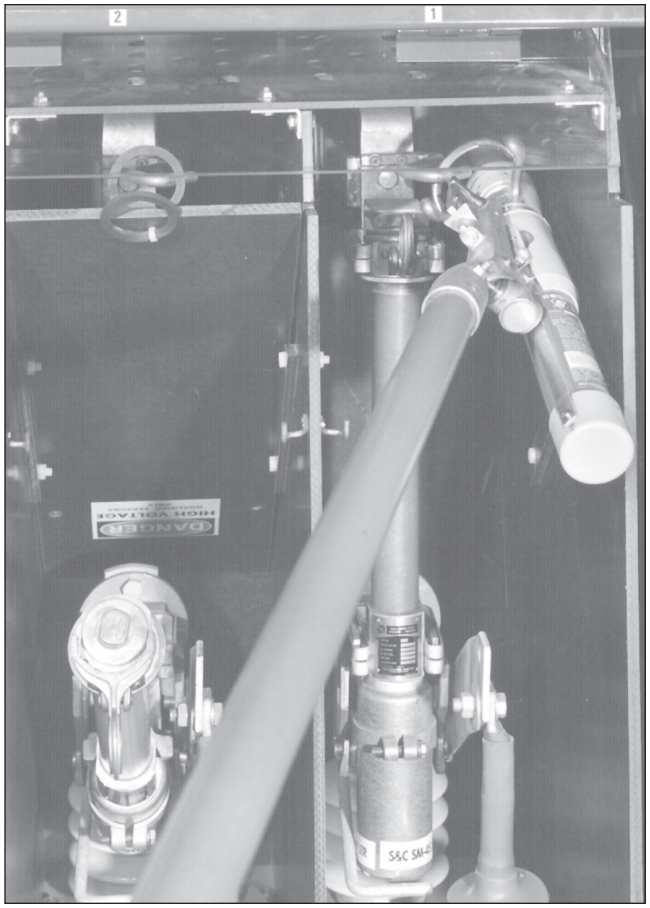


Figure 9. Loadbuster anchor connected to attachment hook.

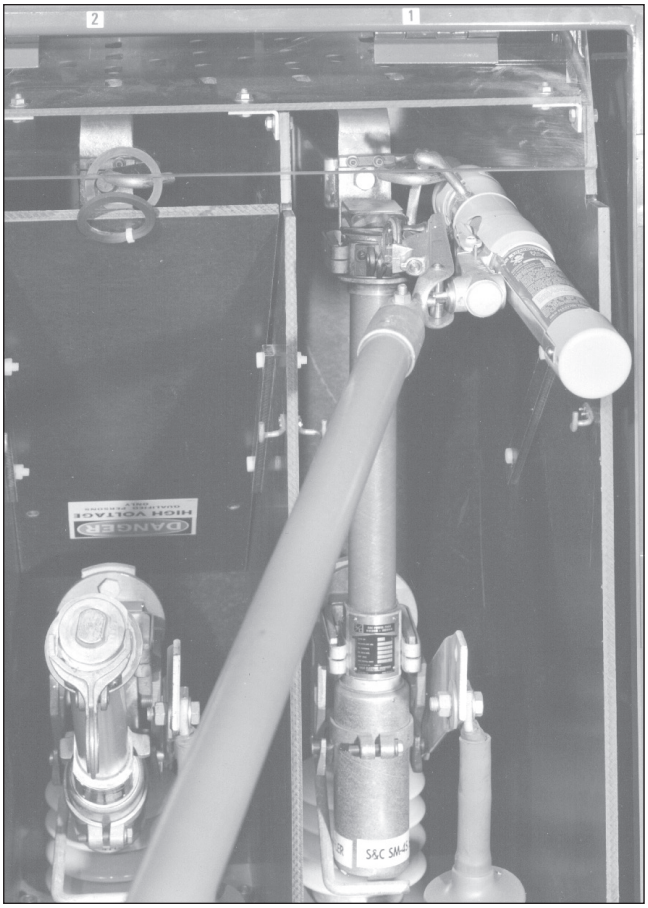


Figure 10. Loadbuster connected to power fuse.

Operating Sequence

Step 1 *Reach across in front of* the fuse unit or holder with Loadbuster and hook the anchor, located at top of Loadbuster, over the attachment hook *on the far side* of the fuse unit or holder. See Figure 9. Note that only one attachment hook is provided.

Step 2 Swing Loadbuster toward the fuse unit or holder and pass the Loadbuster pull-ring hook through the pull-ring of the fuse unit or holder. The pull-ring latch will deflect and upon complete entry of the pull-ring hook, will spring back, locking Loadbuster to the pull-ring. Loadbuster is now connected across the upper contact of the power fuse. See Figure 10.

Step 3 To open the circuit, operate Loadbuster with a firm, steady pull until it is extended to *its maximum length.* See Figure 11. Avoid jerking and hesitation. The resetting latch will keep it open. Commutation arcing may be noted at the pull-ring hook and at the anchor, but the only sound will be that of Loadbuster tripping.

Step 4 To detach Loadbuster after circuit interruption, roll the tool upward by turning the pole. See Figure 12. This will deflect the pull-ring latch to release the pull-ring hook from the pull-ring of the fuse unit or holder. Then, disengage the anchor from the attachment hook and withdraw the tool.

Step 5 Reset Loadbuster for the next operation as described in Step 5, page 13, under "Operation—Overhead Distribution Devices."

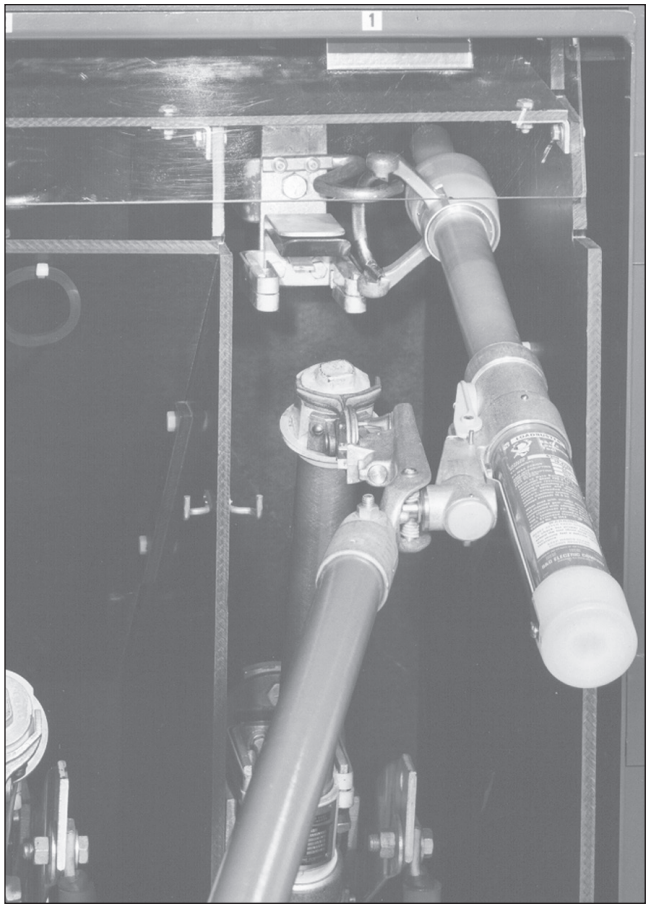


Figure 11. Loadbuster in tripped position.

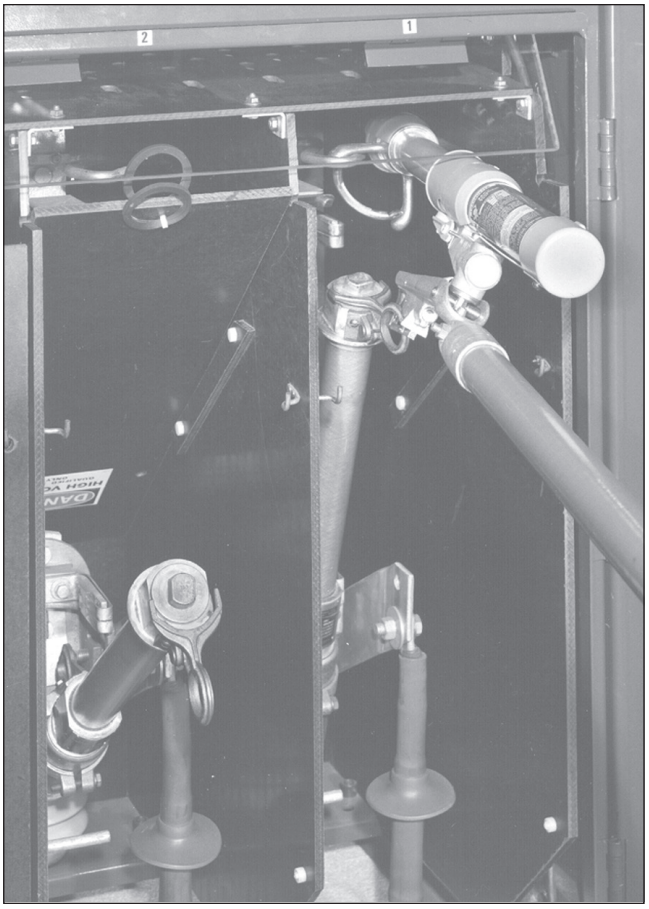


Figure 12. Detaching Loadbuster from power fuse.

Loadbuster is a sturdy and reliable tool that will provide years of excellent service, provided attention is given to replacement of certain component parts which are subject to gradual erosion or wear in the course of normal operation. Because Loadbuster does not provide any audible or visible signals that indicate the need for replacement of eroded or worn component parts, maintenance intervals must be established on the basis of the number of operations—as indicated on the non-resettable operation counter—and the severity of the switching duties. For typical usage involving varied switching duties, the maintenance procedures described on pages 20 through 22 should be performed after 1,500 to 2,000 operations. Such typical usage may include an intermixture of switching line-charging currents, distribution transformer-magnetizing currents, pole-top capacitor bank currents, and moderate parallel or loop load currents, with only occasional switching of heavier load currents. If Loadbuster is used primarily for switching of load currents approaching the rating of the tool, more frequent maintenance will be required.

When performing periodic maintenance, it is particularly important to check the moving contact assembly as explained on page 20. The degree of erosion of the trailer portion of the moving contact assembly and the condition of its flexible cable are the benchmarks that indicate the need for replacement of component parts subject to erosion or wear.

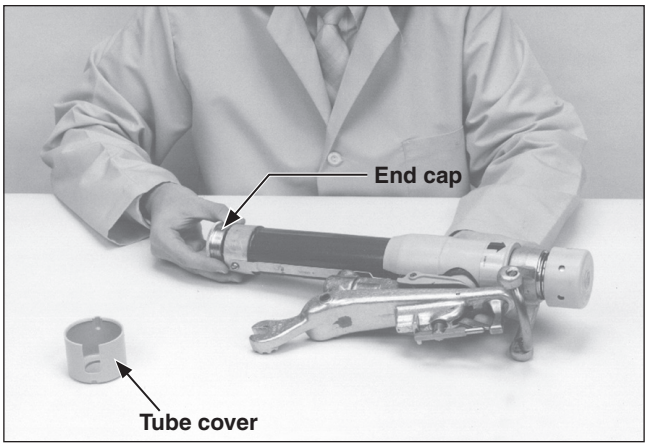
⚠ CAUTION

When reconditioning either the Catalog Number 5300 or 5400 series Loadbusters, use only the respective replacement parts listed on page 24 of this instruction sheet. Do not use replacement parts intended for the superseded Catalog Number 4700 series Loadbusters, since certain of these parts will not function properly in the Catalog Number 5300 or 5400 series Loadbusters.

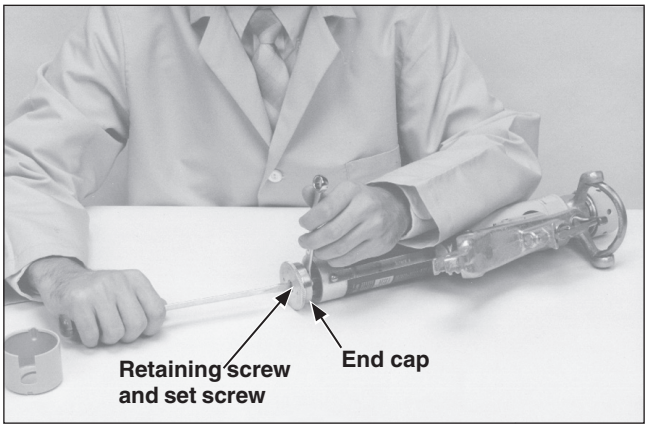
Equipment and Materials Required

1. Small screwdriver, approximately 3⁄16-inch blade.
2. Medium screwdriver, approximately 3⁄8-inch blade.
3. Open-end wrench, 7⁄16 inch.
4. Small fine-cut (No. 0) file.
5. Allen wrench, 5⁄32 inch.
6. Drift pin, 3⁄32 inch, or spanner wrench (NA-1057).
7. Fine sandpaper, 4/0 or 3/0 (not emery).
8. Mild soap and water.
9. Petroleum jelly.
10. Micrometer, 1 inch.
11. Round brush, 1-inch diameter, 10 inches long.
12. Abrasive-type powder household cleanser.
13. Household detergent.
14. DC-MOLY-GN paste lubricant.

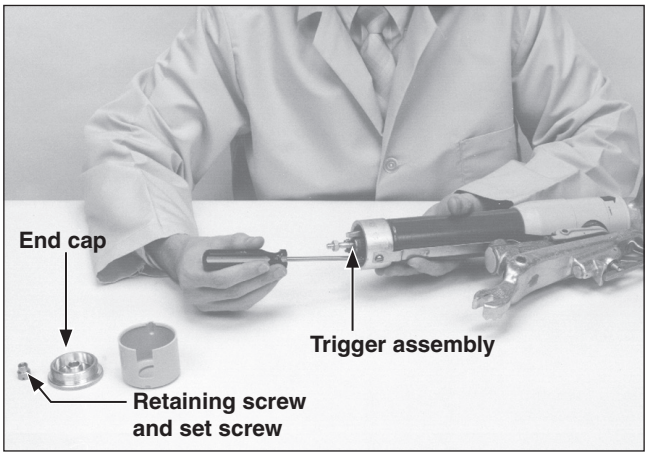
How to Disassemble Loadbuster



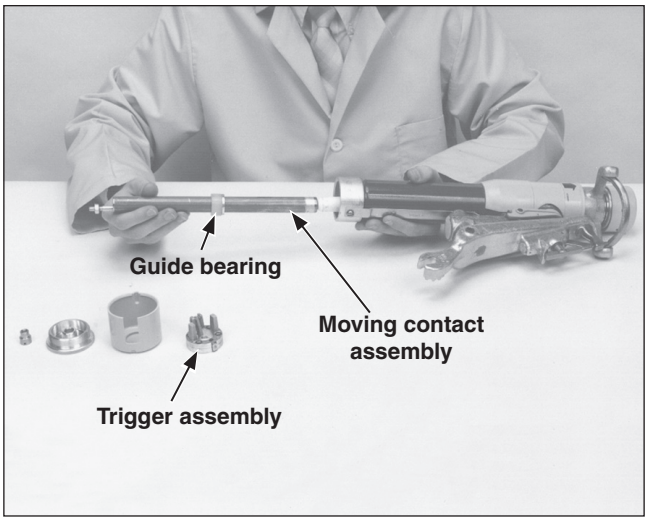
Step 1 Remove tube cover and unscrew end cap.



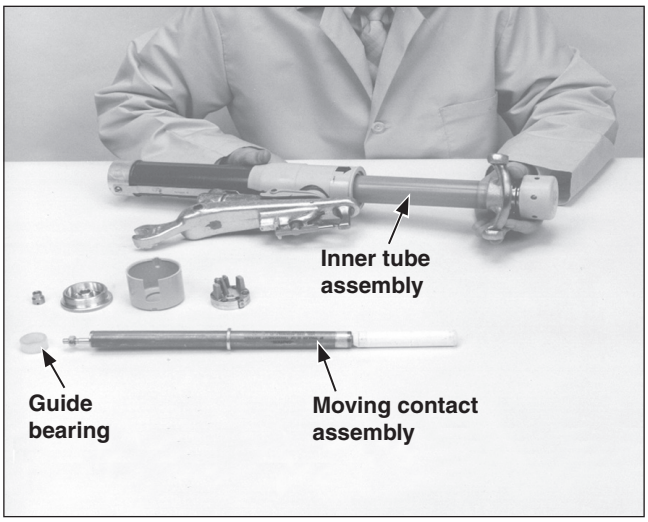
Step 2 Pull end cap out far enough to trip Loadbuster. Then, while holding the locknut on the underside of the end cap with a 7/16-inch open-end wrench, loosen and remove the set screw followed by the retaining screw, using appropriately sized screwdrivers. Remove the end cap.



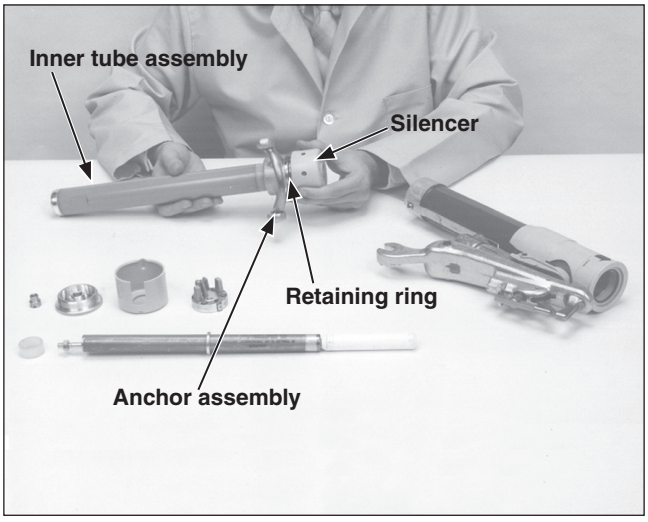
Step 3 Remove the four screws which fasten the trigger assembly to the inner tube assembly and withdraw the trigger assembly.



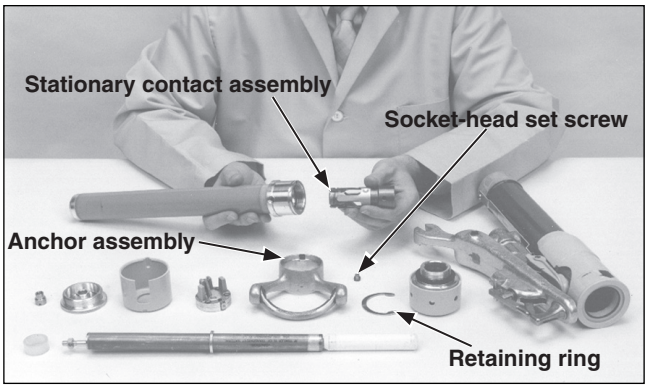
Step 4 Withdraw the moving contact assembly. Then slide off the guide bearing.



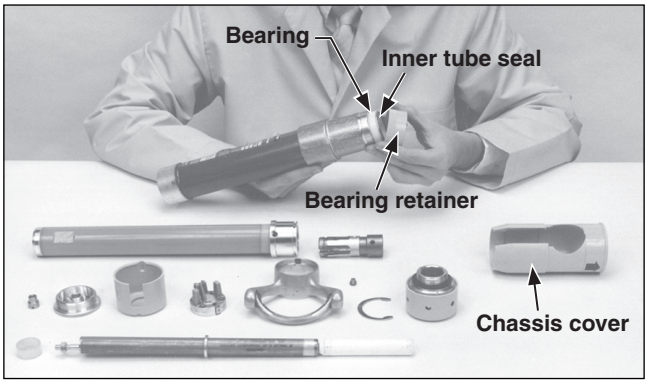
Step 5 Carefully withdraw the inner tube assembly from the chassis.



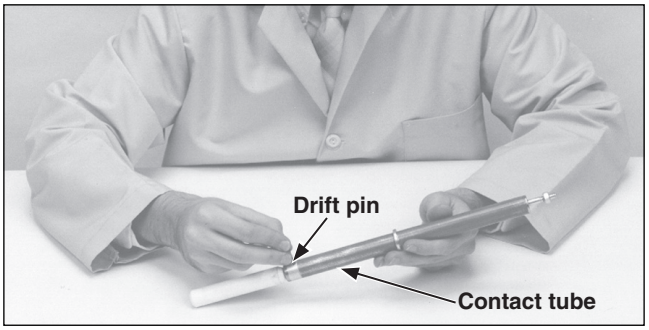
Step 6 Unscrew and remove the silencer. Then remove the retaining ring that secures the anchor assembly to the inner tube assembly. Remove the anchor assembly.

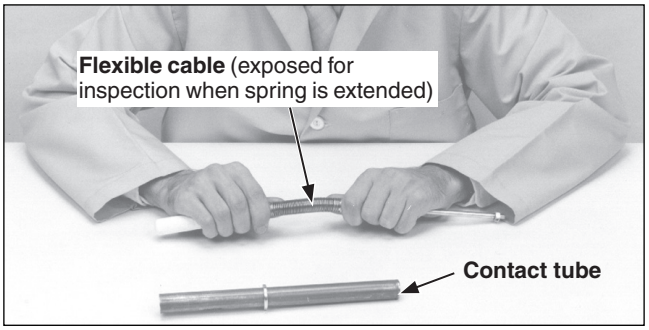


Step 7 Remove the socket-head set screw exposed by removal of the anchor assembly, releasing the stationary contact assembly. Remove the stationary contact assembly.



Step 8 Remove the chassis cover. Then, unscrew and remove the bearing retainer from the chassis. Remove the inner tube seal and the bearing.





Step 9 Unscrew the contact tube (to permit inspection of the flexible cable) by unscrewing it from the moving contact assembly using a drift pin or spanner wrench (NA-1057) in the wrenching hole as illustrated.

Maintenance Procedure

The following parts or assemblies should be carefully examined and cleaned or replaced. (See cross-section view, page 22, or exploded view, page 23, for identification of parts or assemblies.)

⚠ CAUTION

When reconditioning either the Catalog Number 5300 or 5400 series Loadbusters, use only the respective replacement parts listed on page 24 of this instruction sheet. Do not use replacement parts intended for the superseded Catalog Number 4700 series Loadbusters, since certain of these parts will not function properly in the Catalog Number 5300 or 5400 series Loadbusters.

Trigger Assembly—Examine trigger for evidence of excessive wear, broken spring, or burning or pitting of any part of the assembly; replace entire trigger assembly if necessary. Apply a light coating of DC-MOLY-GN paste lubricant to the latching area of the trigger only.

Moving Contact Assembly—Remove surface carbon deposits from the trailer and the moving contact, using water and an abrasive-type powder household cleanser. *Thoroughly rinse and dry the assembly immediately after cleaning.* Light dressing of the moving contact is permissible, but heavy filing which would change dimensions must be avoided. Examine the flexible cable for signs of wear or fraying. Then, using a micrometer, check the diameter of the trailer (exercising due care to avoid mechanical damage to the trailer). If the diameter of the trailer is 0.650 inch (16.5 mm) or less at any point (other than the chamfered ends), or if the flexible cable is frayed, replace the moving contact assembly, inner tube assembly, stationary contact assembly, guide bearing, and the silencer as a group. **Note:** Tools with a *red* dot on the trailer (manufactured prior to August, 2002) can be operated 500 to 1,000 times before inspection and maintenance are required. Tools with a *blue* dot on the trailer (manufactured during or after August, 2002) can be operated 1,500 to 2,000 times before inspection and maintenance are required.

Inner Tube Assembly—The inner tube assembly need not be replaced unless the diameter of the trailer is 0.650 inch (16.5 mm) or less as described above. If replacement is not indicated, remove surface carbon deposits from the liner of the inner tube assembly using water and an abrasive-type powder household cleanser applied with a long, round brush. *Thoroughly rinse and dry the assembly immediately after cleaning.*

Stationary Contact Assembly—Remove surface carbon deposits, using water and an abrasive-type powder household cleanser. *Thoroughly rinse and dry the assembly immediately after cleaning.* Examine for extreme pitting, erosion, or cracking. Light dressing is permissible, but heavy filing which would change dimensions must be avoided.

Anchor Assembly—Light dressing with a file is permissible to remove pitting. If severely burned, the anchor assembly should be replaced.

Chassis—Clean with a cloth and household detergent if necessary to remove grease or dirt. Examine hook frame attachment assembly for burning or pitting. Replace hook frame attachment assembly if necessary. Also, replace shunt strap if badly burned.

Inner Tube Seal—Examine the inner tube seal. If this seal is deformed or if it has been damaged in any way it should be replaced.

Bearing and Bearing Retainer—Examine these parts for evidence of mechanical damage. Replace as required.

How to Reassemble Loadbuster

Step 1 Reposition the stationary contact assembly in the inner tube assembly. Install a *new* socket-head set screw, making sure that its point engages the locating hole in the stationary contact assembly. Tighten the socket-head set screw firmly, but take care to avoid distorting the stationary contact assembly.

Step 2 Slide the bearing retainer onto the inner tube assembly. Follow this with the inner tube seal. To facilitate installation of the seal, expand its inner diameter somewhat by rotating it against a thumbnail or other smooth object. Use care to avoid damage to the seal. Application of moderate heat will make the seal more pliable. Since the composition of the seal has a "memory," it will soon return to its original shape. Therefore, immediately place the flared edge of the inner tube seal squarely against the metal insert on the lower end of the inner tube assembly. Then, using a slight twisting motion, work the inner tube seal onto the inner tube assembly taking care to avoid damage to or inversion of the seal, especially when sliding the seal past the flat area on the inner tube assembly. **Note:** The inner tube seal will not perform its intended function properly unless it is installed with its flared edge pointing toward the upper end of the inner tube assembly. Finally, slide the bearing onto the inner tube assembly.

Step 3 Insert the inner tube assembly into the chassis, lifting the resetting latch to provide clearance for the inner tube. Thread the bearing retainer firmly onto the chassis.

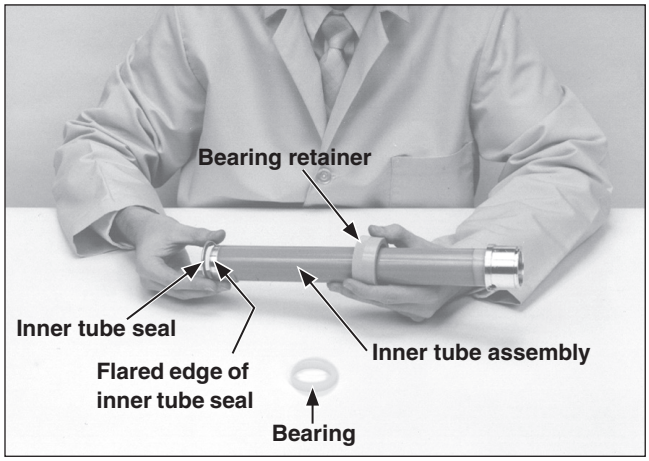
Step 4 Reinstall the chassis cover. Then, extend the inner tube assembly a few inches and reposition the anchor assembly such that the key on the anchor assembly mates with a slot in the ferrule of the inner tube assembly. Reinstall the retaining ring.

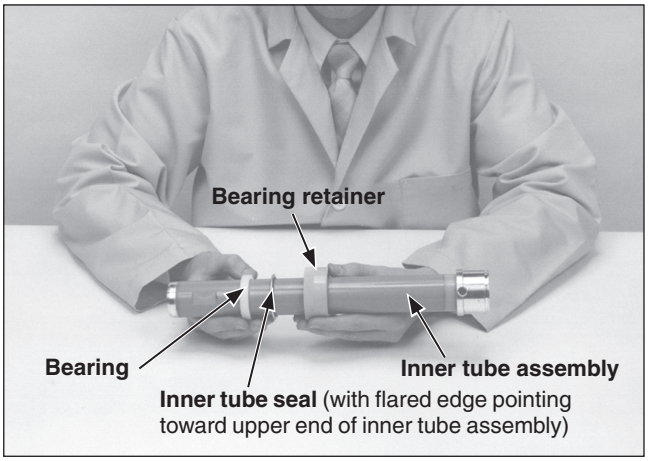
Step 5 Reinstall the silencer on the inner tube assembly. If the silencer has metal threads, apply a light coating of petroleum jelly to the threads.

Step 6 Screw the contact tube onto the moving contact assembly. Use a drift pin or spanner wrench (NA-1057) in the wrenching hole while tightening the threads. Slide the guide bearing over the open end of the contact tube.

Step 7 Insert the moving contact assembly in the inner tube assembly, trailer end first, making certain that the guide bearing is seated in the inner tube assembly.

Step 8 Rotate the anchor assembly as required to center the anchor with respect to the pull-ring hook and attach the trigger assembly *(using new hardware)* to the inner tube assembly, aligning the guide pin on the trigger assembly with the slot in the chassis.





Step 9 Using a screwdriver, depress the trigger and extend the moving contact assembly. Then, reposition the end cap and secure it to the moving contact assembly using the retaining screw and set screw. Tighten the set screw last.

Step 10 Apply a light coating of petroleum jelly to the threads of the end cap. With the tool still resting vertically on the silencer assembly, lift the chassis about ½ inch (12.7 mm), thus drawing the guide pin on the trigger assembly into the groove of the outer tube. Then screw the end cap firmly into the chassis. Reassemble the tube cover. For Loadbuster Catalog Number 5300R3-E reassemble the extended insulating hood.

Step 11 While holding tool securely, pull on the anchor assembly to trip and latch tool in the open position. Reinstall the silencer on the inner tube assembly. Lift resetting latch to reset tool. Refer to Step 5 on page 11.

Step 12 After reassembly, operate the tool several times to make sure that the trigger and resetting latch perform satisfactorily.

Step 13 Check that the trip force is between 20-27 lbs. for Loadbuster 5300R3 (20-29 lbs. for Loadbuster 5400R3), by securing the hook frame assembly and pulling open the tool using a linear spring scale attached to the anchor assembly.

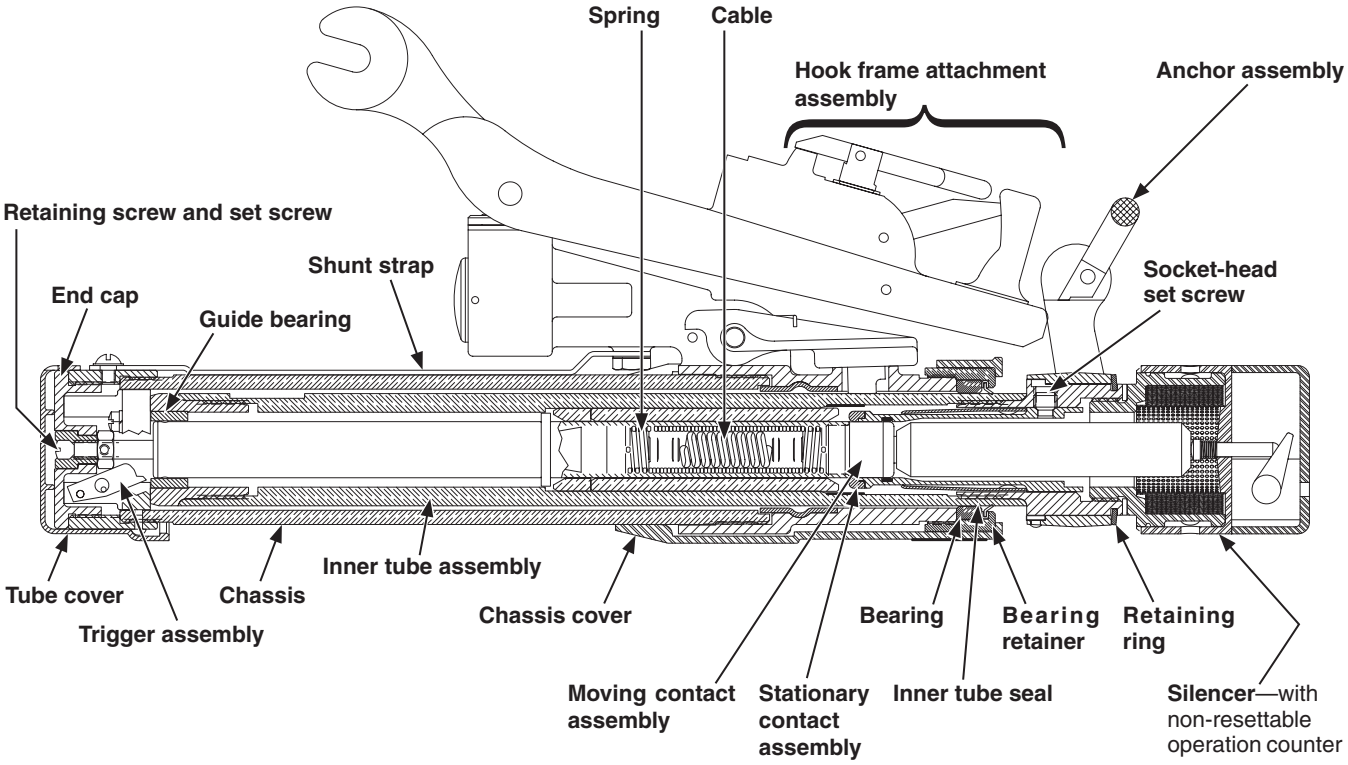


Figure 13. Cross-section view of Loadbuster.

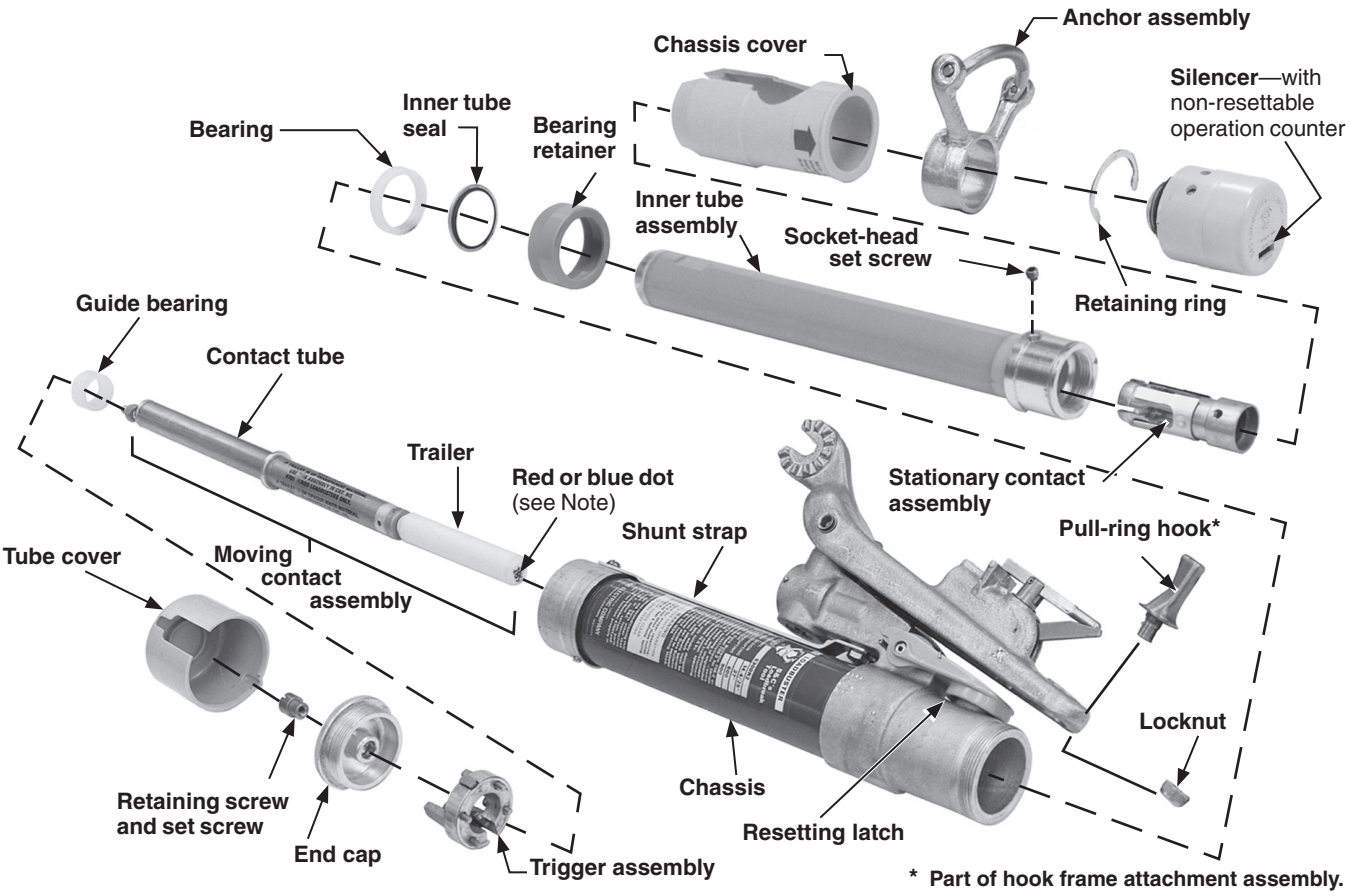


Figure 14. Exploded view of Loadbuster.

Note: Tools with a *red* dot on the trailer (manufactured prior to July 2002) can be operated 500 to 1,000 times before inspection and maintenance are required. Tools with a *blue* dot on the trailer (manufactured during or after July 2002) can be operated 1,500 to 2,000 times before inspection and maintenance are required.

PARTS FOR LOADBUSTER CATALOG NUMBERS 5300R3, 5300R3-E, and 5400R3

Item		For Use on Loadbuster Catalog Number	Catalog Number	Net Weight		
				Lbs	Oz	Gm
Chassis Parts	Complete Chassis	5300R3 and 5300R3-E	NA-1026-1	2	5½	1064
		5400R3	NA-1026-2	2	8½	1149
	End Cap Assembly (includes retaining screw and set screw)	5300R3, 5300R3-E, and 5400R3	NA-1044	—	1¾	50
	Resetting Latch Assembly (includes spring and roll pin)	5300R3, 5300R3-E, and 5400R3	NA-1045	—	1	29
	Shunt Strap (includes screw and locking washer)	5300R3 and 5300R3-E	NA-1046-1	—	½	15
		5400R3	NA-1046-2	—	¾	22
	Hook Frame Attachment Assembly (includes pull-ring hook, pivot, pivot contact, and appropriate springs and roll pins)	5300R3, 5300R3-E, and 5400R3	NA-1047	—	3	86
	Chassis Cover (includes label)	5300R3, 5300R3-E, and 5400R3	NA-1063	—	2	57
	Tube Cover	5300R3, 5300R3-E, and 5400R3	N-1125	—	½	15
Moving Contact Assembly Parts	Complete Moving Contact Assembly①	5300R3 and 5300R3-E	NA-1068-1•	—	7½	213
		5400R3	NA-1068-2•	—	9	256
	Contact Tube①	5300R3 and 5300R3-E	NA-1020-1	—	2	57
		5400R3	NA-1020-2	—	3	86
	Guide Bearing	5300R3, 5300R3-E, and 5400R3	N-1069	—	⅛	4
Inner Tube Assembly Parts	Complete Inner Tube Assembly	5300R3 and 5300R3-E	NA-1019-1	—	15¼	433
		5400R3	NA-1019-2	1	3	540
	Stationary Contact Assembly (includes socket-head set screw)	5300R3, 5300R3-E, and 5400R3	NA-1048	—	3¾	107
	Socket-Head Set Screws for Stationary Contact Assembly②	5300R3, 5300R3-E, and 5400R3	NA-1049	—	½	15
	Silencer without Operation Counter	5300R3, 5300R3-E, and 5400R3	NA-1058	—	3	85
	Silencer with Nonresettable Operation Counter	5300R3, 5300R3-E, and 5400R3	NA-1071▲	—	4	114
	Silencer Snubber	5300R3, 5300R3-E, and 5400R3	N-1165	—	¾	22
	Anchor Assembly	5300R3, 5300R3-E, and 5400R3	NA-1037	—	5¼	149
	Trigger Assembly (includes screws and washers)①	5300R3, 5300R3-E, and 5400R3	5277	—	1¼	36
	Trigger Assembly Hardware (screws and washers)②	5300R3, 5300R3-E, and 5400R3	NA-1050	—	3¼	93
	Retaining Ring	5300R3, 5300R3-E, and 5400R3	N-1140	—	¼	8
	Bearing	5300R3, 5300R3-E, and 5400R3	N-1128	—	¾	22
	Bearing Retainer	5300R3, 5300R3-E, and 5400R3	N-1127	—	¼	8
	Inner Tube Seal	5300R3, 5300R3-E, and 5400R3	NA-1023	—	¼	8
	Extended Insulating Hood for converting Loadbuster Catalog Number 5300R3 to Catalog Number 5300R3-E	5300R3	NA-1034■	—	1	29
			NA-1075◆		1	29
Upgrade Kit③ (includes moving contact assembly, silencer with non-resettable operation counter, label, and instructions)		5300R3 and 5300R3-E	NA-1073	—	12	340
		5400R3	NA-1074	—	14	395
Miscellaneous Parts	DC-MOLY-GN Lubricant, ¼-oz. tube④	5300R3, 5300R3-E, and 5400R3	0352-407	—	½	15
	Spanner Wrench⑤	5300R3, 5300R3-E, and 5400R3	NA-1057	—	3	86
Labels and Instructions	Chassis Label	5300R3 and 5300R3-E	G-4401R7	—	1	29
		5400R3	G-4320R8	—	1¼	36
	Chassis Cover Label	5300R3, 5300R3-E, and 5400R3	G-5840R1	—	¼	8
	Insulating Hood Label	5300R3-E	G-4585	—	¼	8
	Instruction Sheet	5300R3, 5300R3-E, and 5400R3	811-505	—	¾	22

① Requires DC-MOLY-GN lubricant (listed in the above table).

② Includes hardware sufficient to service 10 tools.

③ Upgraded tools can be operated 1,500 to 2,000 times before inspection and maintenance are required.

④ Contains lubricant sufficient to service approximately 10 tools.

⑤ Used to remove contact tube from moving contact assembly, to facilitate inspection of spring and cable assembly.

• Supersedes NA-1022-1 and NA-1022-2, respectively.

▲ For use on Loadbuster tools, Catalog Numbers 5300R3, 5300R3-E, and 5400R3, manufactured after June 2002.

■ Body is approximately 2⅞ inches (73 mm) in length. For use on Loadbuster Tool, Catalog Number 5300R3, manufactured *before* June 2002. NA-1034 extended insulating hood will not fit over silencer *with* non-resettable operation counter.

◆ Body is approximately 3¾ inches (95 mm) in length. For use on Loadbuster Tool, Catalog Number 5300R3, manufactured *after* June 2002. NA-1075 extended insulating hood will not fit over silencer *without* operation counter.

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