

Types R, W, WV and RV reclosers, KA869R and KA835W series trip coils replacement instructions



Powering Business Worldwide

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Safety for life



Eaton meets or exceeds all applicable industry standards relating to product safety in its Cooper Power™ series products. We actively promote safe practices in the use and maintenance of our products through our service literature, instructional training programs, and the continuous efforts of all Eaton employees involved in product design, manufacture, marketing, and service.

We strongly urge that you always follow all locally approved safety procedures and safety instructions when working around high voltage lines and equipment, and support our “Safety For Life” mission.

Safety information

The instructions in this manual are not intended as a substitute for proper training or adequate experience in the safe operation of the equipment described. Only competent technicians who are familiar with this equipment should install, operate, and service it.

A competent technician has these qualifications:

- Is thoroughly familiar with these instructions.
- Is trained in industry-accepted high and low-voltage safe operating practices and procedures.
- Is trained and authorized to energize, de-energize, clear, and ground power distribution equipment.
- Is trained in the care and use of protective equipment such as arc flash clothing, safety glasses, face shield, hard hat, rubber gloves, clampstick, hotstick, etc.

Following is important safety information. For safe installation and operation of this equipment, be sure to read and understand all cautions and warnings.

Hazard Statement Definitions

This manual may contain four types of hazard statements:

DANGER

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in equipment damage only.

Safety instructions

Following are general caution and warning statements that apply to this equipment. Additional statements, related to specific tasks and procedures, are located throughout the manual.

DANGER

Hazardous voltage. Contact with hazardous voltage will cause death or severe personal injury. Follow all locally approved safety procedures when working around high- and low-voltage lines and equipment.

G103.3

WARNING

Before installing, operating, maintaining, or testing this equipment, carefully read and understand the contents of this manual. Improper operation, handling or maintenance can result in death, severe personal injury, and equipment damage.

G101.0

WARNING

This equipment is not intended to protect human life. Follow all locally approved procedures and safety practices when installing or operating this equipment. Failure to comply can result in death, severe personal injury and equipment damage.

G102.1

WARNING

Power distribution and transmission equipment must be properly selected for the intended application. It must be installed and serviced by competent personnel who have been trained and understand proper safety procedures. These instructions are written for such personnel and are not a substitute for adequate training and experience in safety procedures. Failure to properly select, install or maintain power distribution and transmission equipment can result in death, severe personal injury, and equipment damage.

G122.2

Product information

Introduction

Eaton's Service Information MN280020EN provides installation instructions for KA869R, Series Trip Coil Kit for its Cooper Power™ series Type R and RV reclosers, and KA835W, Series Trip Coil Kit for its Cooper Power series Type W and WV reclosers. Before installing, carefully read and understand the contents of this manual.

Read this manual first

Read and understand the contents of this manual and follow all locally approved procedures and safety practices before installing or operating this equipment.

Additional information

These instructions cannot cover all details or variations in the equipment, procedures, or process described nor to provide directions for meeting every possible contingency during installation, operation, or maintenance. For additional information, please contact your Eaton representative.

Acceptance and initial inspection

Each coil kit is in good condition at the factory and when accepted by the carrier for shipment.

Upon receipt, inspect the carton for signs of damage. Unpack the kit(s) and inspect thoroughly for damage incurred during shipment. If damage is discovered, file a claim with the carrier immediately.

Handling and storage

Be careful during handling and storage of the kit to minimize the possibility of damage. If the valve is to be stored for any length of time prior to installation, provide a clean, dry storage area.

Quality standards

ISO 9001 Certified Quality Management System

Description

KA869R series-trip coils can be replaced only in Type R reclosers beginning with serial no. R-9000 and above and all Type RV reclosers. Replacement of KA835W coils is confined to Type W reclosers beginning with serial no. W-2000 or CP57 and all Type WV reclosers. Two coil kits are furnished for replacements to change recloser minimum trip ratings. Two coils in one kit are for substitution in Phase A and Phase B interrupters. The separate one coil kit for Phase C, the interrupter furthest away from the sleethood, has a coil with an opposite wind because of its different position on the interrupter.

Series-trip solenoids can be equipped with either standard coils or an alternate coil. Standard coils are used to achieve tripping at approximately 200 percent of full-load ratings. Alternate 400S and 560X coils are used to achieve tripping at approximately 140 percent of full-load ratings. The same basic procedure is used to dismantle either solenoid.

For additional information on recloser disassembly, reassembly, and testing procedures, refer to the appropriate instruction manual.

- *Service Information S280-30-2 Type R Maintenance Instructions*
- *Service Information S280-30-3 Type W (below Serial No. 7333) or S280-30-8 (Serial No. 7334 and above*) Maintenance Instructions*
- *Service Information S280-30-9 Types RV (Serial No. 4111 and above*) and Type WV (Serial No. 901 and above*) Maintenance Instructions*

Table 1. Ordering Information

Kit Description	Catalog Number.
Type R Reclosers, Series Trip Coil Kit Serial numbers 9000 and above	KA869R
Type RV Reclosers, Series Trip Coil Kit All Serial Numbers	
Type W reclosers, Series Trip Coil Kit Serial numbers 2000 and above*	KA803W
Type WV reclosers, Series Trip Coil Kit All Serial Numbers	

*or beginning with CP57

Installation procedure

⚠ WARNING

Hazardous voltage. De-energize the switchgear before installing this kit. Follow all locally approved safety practices and procedures when working around high voltage lines and equipment. Failure to comply can result in contact with high voltage, which will cause death or severe personal injury.

T232.3

⚠ CAUTION

Equipment damage. Refer to the specific switchgear unit maintenance manual for tanking/untanking procedures and related instructions. Failure to follow these instructions could result in equipment damage or personal injury.

T238.0

CAUTION

Follow all locally approved safety practices when lifting and mounting the equipment. Use the tapped lifting provisions provided. Lift the load smoothly and do not allow the load to shift. Improper lifting can result in equipment damage.

G126.0

Disassembly

Refer to the appropriate maintenance manuals referenced on page 1 of this publication for step-by-step procedures to remove the recloser from service, and for specific disassembly and reassembly procedures.

The entire installation process should be conducted in a clean environment, such as a repair shop.

1. Bypass, trip, and de-energize the recloser.
2. Carefully transport the unit to a suitable service facility.

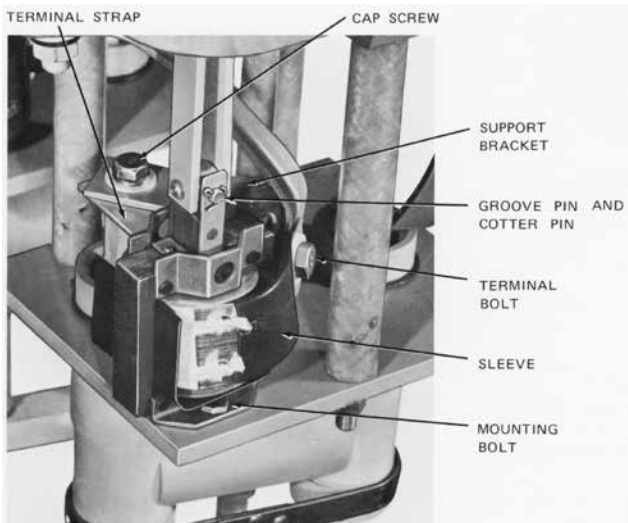


Figure 1. Series trip solenoid with standard coil.

CAUTION

Equipment damage. Recloser must be open (yellow operating handle, under sleethood, down) before untanking. Tripping the mechanism out of oil will cause excessive mechanical shock to the operating mechanism, which will cause accelerated wear and/or damage to the mechanism.

T202.0

CAUTION

Equipment damage. Keep work areas clean to prevent debris from accumulating on or in the hydraulic mechanism during disassembly and reassembly procedures. Failure to comply can result in hydraulic failure and recloser misoperation.

T254.0

IMPORTANT

When installing this kit, use a clean, lint free cloth to prevent contamination of the hydraulic mechanism during series trip coil replacement.

3. With the recloser in the open position, untank the recloser by loosening the head bolts and washers on the head casting. Carefully lift the head assembly out of the tank using the lifting lug(s).
4. Remove cotter pin and slide out the groove pin that connects the insulated operating links and the solenoid plunger (Figure 1).
5. Remove the terminal that fastens both the bushing lead and the outer coil terminal to the support bracket (Figure 1). Note that for 400S and 560 S coils there is no support bracket.
6. Remove the cap screw that fastens both the terminal and the fiber end of the support bracket to the contact nut of the generator contact tube.
7. Remove the two frame-mounting bolts that secure the solenoid frame to the mounting board and lift the entire solenoid assembly off the mounting board.

⚠ CAUTION

Dielectric failure, equipment damage. Never use volatile solutions, detergents, or water-soluble cleaners when cleaning the interior of this equipment. These cleaners will contaminate the insulating oil, reducing its dielectric strength. Operation with contaminated insulating oil can result in internal flashovers that will cause equipment damage and possible personal injury.

T201.2

8. Lift out the solenoid plunger, guide clips, and guide channels. Slide the upper insulation washer as far as it will go in the direction of the terminal strap. Lift the coil slightly and pull it out of the solenoid frame (Figure 2). Wipe off any carbon deposits on these parts with a clean lint-free cloth. Replace any damaged parts at this time.

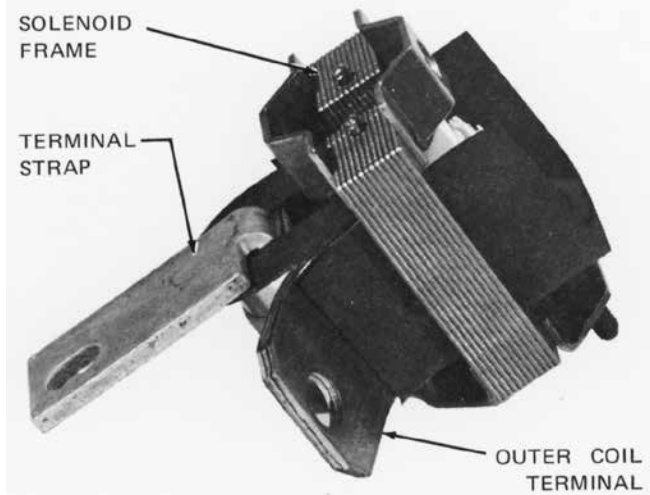
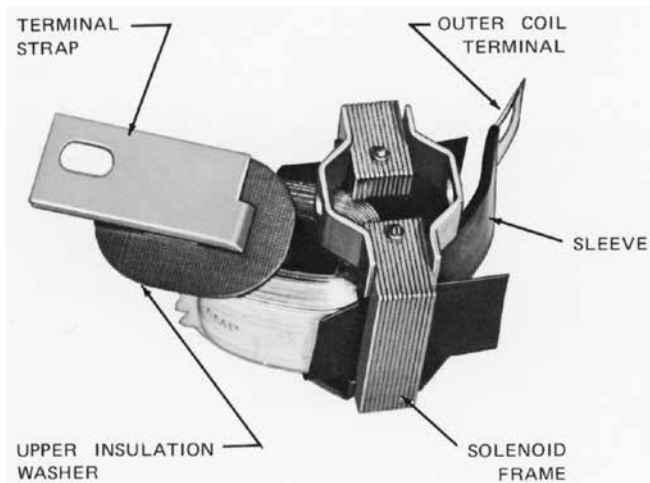


Figure 2. Solenoid reassembly—Standard and 400X/500X coils.

Replacement

Check upper coil washer before replacing coils. For coils 280 amperes and below, the upper and lower coil washers are identical. For the 400- and 560-ampere coils a washer with a larger center slot (1-17/32" long instead of 1-7/32") is substituted for the upper washer. The bottom remains the same for all coils.

1. Place the lower insulation washer in position (Figure 3). Pass the upper insulation washer over the terminal strap and position it on top of the coil shown in Figure 2-A. Push the coil into the solenoid frame and slide the upper washer into its normal position. Note that in 400X and 560X coils the outer coil is not wrapped around the outside of the solenoid frame, due to the extra one-half turn required inside the frame. Thus, the coil is pushed into the solenoid frame as shown in Figure 2-B. Replace in order the guide channels, guide clips, and solenoid plunger.
2. Place the solenoid assembly back on the mounting board and secure it with two frame-mounting bolts.
3. Connect the operating links to the plunger with groove pin and replace the cotter pin.
4. A separate sleeve is provided with each coil to insulate the outer coil terminal from the frame. Slide sleeve over this outer coil as illustrated.
5. Connect the terminals to the contact tube and the bushing lead to complete reassembly. If 400X or 560X coils are being installed, no support bracket (Figure 1) is required.
6. Retank the recloser and return to service.

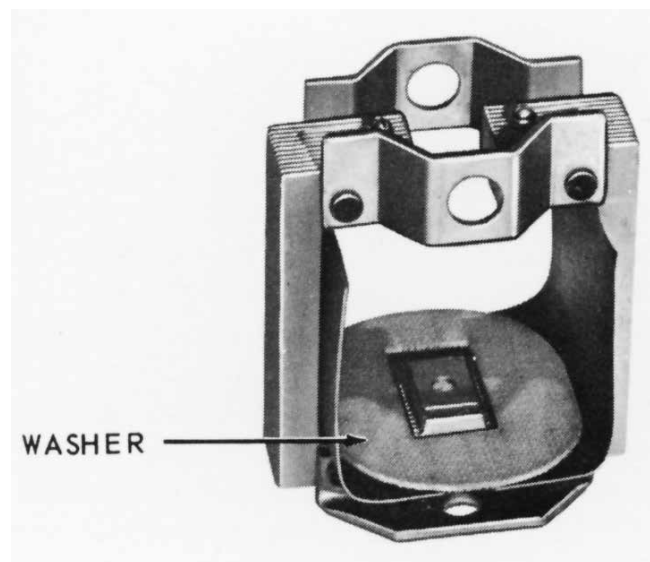


Figure 3. Placement of lower insulation washer.



Eaton
1000 Eaton Boulevard
Cleveland, OH 44122
United States
Eaton.com

**Eaton's Cooper Power Systems
Division**
2300 Badger Drive
Waukesha, WI 53188
United States
Eaton.com/cooperpowerseries

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