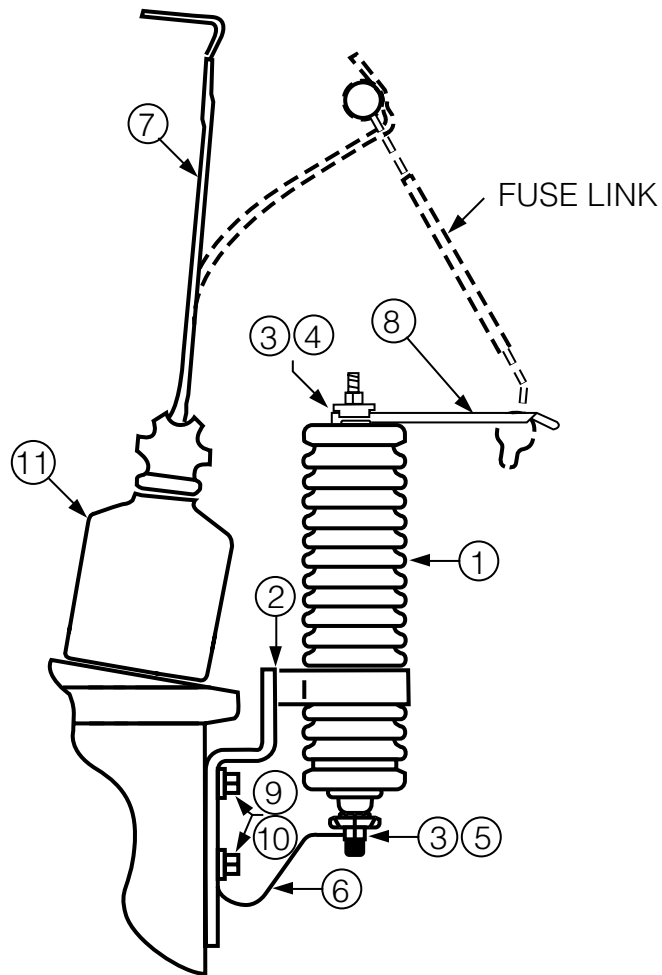


Surge arrester/flipper fuse combinations installation instructions



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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.

G122.3

Product information

Eaton's Cooper Power series arrester/flipper fuse combinations provide overvoltage and overcurrent protection to distribution systems.

CAUTION:

This arrester/fuse combination should be installed only by personnel familiar with good safety practice and the handling of highvoltage electrical equipment. These instructions are not intended to supersede or replace existing safety and operating procedures. Where applicable, the requirements of national and/or local codes and insurance underwriters must be fulfilled.

CAUTION:

Always handle surge arrester – packed or unpacked – very carefully. Do not drop, jar, or handle an arrester roughly. Dropping, jarring, and/or rough handling may damage the arrester internally and/or externally, making it incapable of adequately protecting the apparatus or circuit on which it is to be installed or it may shorten the service life of the arrester significantly.

CAUTION:

Never open an arrester. The arrester's internal components may be under spring compression and could be expelled with such force as to cause personal injury.

WARNING:

Never install a damaged arrester. A damaged arrester may misoperate violently, causing severe personal injury and property damage.

CAUTION:

Do not install an arrester if the type, voltage, and MCOV data are not exactly the same on the nameplate and the carton label because the arrester may be incapable of adequately protecting the apparatus or circuit on which it is to be installed.

CAUTION:

Make all electrical connections – ground and line – so that no mechanical stress is applied to the surge arrester. Mechanical stress may damage the arrester in such a manner that its service life is shortened significantly.

Field testing

All surge arresters must pass a complete series of production tests prior to shipment; therefore, no field testing of new units is required.

These instructions do not claim to cover all details or variations in the equipment, procedure, or process described, nor to provide directions for meeting every contingency during installation, operation, or maintenance. When additional information is desired to satisfy a problem not covered sufficiently for the user's purpose, please contact your Eaton sales engineer.

CAUTION:

Before performing any test on an arrester, contact your Eaton sales engineer. Some test procedures may damage the arrester externally and/or internally, making it incapable of protecting the apparatus or the circuit on which it is installed or shortening its service life significantly.

Removing an arrester from a circuit

WARNING:

Always consider an arrester to be energized until both the line and the ground leads have been disconnected from the circuit.

1. **Disconnect the arrester line lead(s)** from the circuit.

Note: A small amount of static charge may be retained in an arrester when it is removed from an energized circuit.

2. **Discharge the arrester** by attaching the line terminal to a temporary ground.
3. **Mark the temporary ground** to make sure it is removed before the arrester is reinstalled.
4. **Disconnect the arrester ground lead(s)** from the circuit.
5. **Disconnect the arrester** from the mounting bracket.

Mounting porcelain housed arrester/fuse combinations

Mounting porcelain housed arrester on transformer

1. Mount the surge arrester on the transformer sidewall as shown in Figure 1. Note that the grounding strap is connected to the lower of the two mounting studs.

Attaching the contact arms

1. Insert the transformer contact arm (item 7) through the optional transformer bushing wildlife protector (Item X) and into the transformer terminal connector located at the top of the transformer bushing. Position the contact arm so that the open end of the "V" faces away from the arrester as shown in Figure 1. Securely tighten the transformer terminal and lower the optional wildlife protector down over the bushing terminal.
2. Install the arrester contact arm (item 8) under the line lead clamp (item 4), as shown in Figure 2. Position the arrester contact arm so the open end of the "V" faces away from the transformer bushing (item 11).

Surge arrester/flipper fuse combinations installation instructions

- Attach the line lead to the arrester between the line lead clamp and the arrester contact arm. Torque the hex nut (item 3) to 20 ft-lbs (see Figure 2).
- Install the fuse link with the oblong end of the link toward the arrester. Various sizes and link types are available from Eaton.

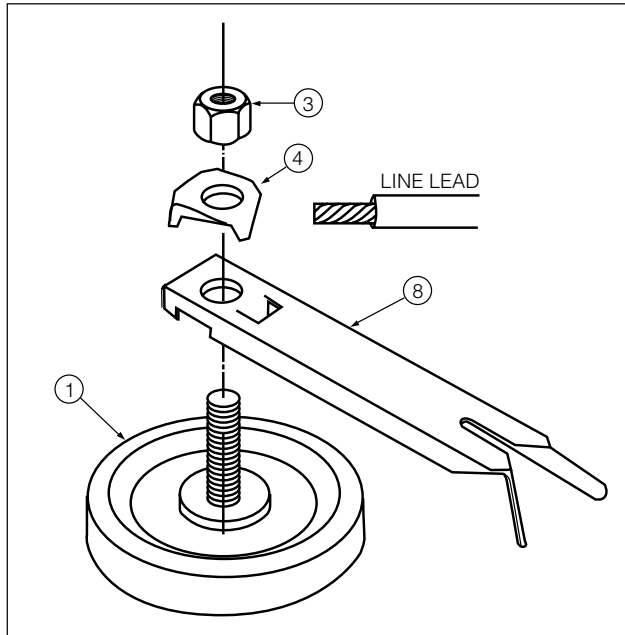


Figure 1. Detail of arrester line terminal connections.

Table 1. Porcelain housed arrester parts list

Item No.	Description
1	Surge Arrester
2	Arrester/Transformer Mounting Bracket
3	3/8" Hex Nut
4	Line Lead Clamp
5	3/8" Split Lock Washer
6	Grounding Strap
7	Transformer Contact Arm
8	Arrester Contact Arm
9	9/16" ID x 1 3/8" OD Flat Washer
10	1/2" x 3/4" Lg. Hex Bolt
11	Transformer Bushing

Items 1-6 are preassembled on the arrester.

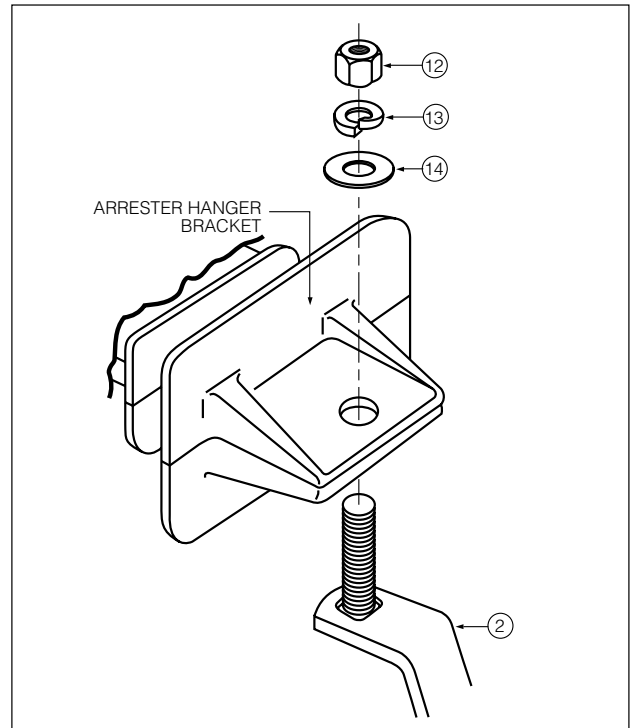


Figure 2. Mounting UltraSIL housed surge arrester to transformer

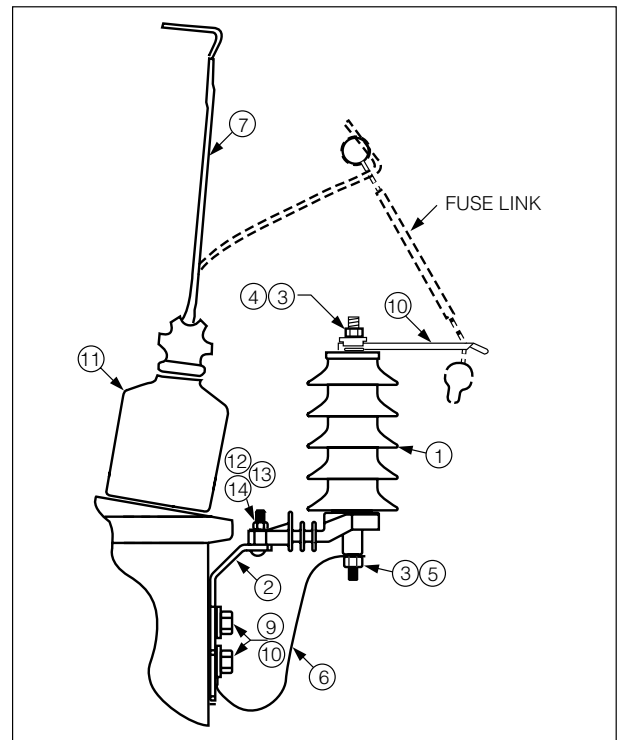


Figure 3. UltraSIL housed arrester/flipper fuse cutout assembly.

Mounting ultrasil (silicone rubber) housed arrester/fuse combinations

Mounting ultrasil housed arrester on transformer

1. Mount the surge arrester (item 1) to the transformer mounting bracket (item 2) as shown in Figure 3. Torque the hanger bracket hex nut (item 12) to 20-25 ft-lbs.
2. Attach the transformer mounting bracket to the transformer sidewall as shown in Figure 4. Note that the grounding strap (item 6) is connected to the lower of the two mounting studs.

Attaching the contact arms

1. Insert the fuse cutout transformer contact arm (Item 1) through the optional transformer bushing wildlife protector (Item 2) and into the transformer terminal connector (Item 9). Position the contact arm so that the open end of the "V" faces away from the arrester, as shown in Figure X. Tighten the transformer terminal securely and lower the optional wildlife protector down over the bushing terminal.
2. Install the arrester contact arm (item 8) under the line lead clamp (item 4) as shown in Figure 5. Position the arrester contact arm so the open end of the "V" faces away from the transformer bushing (item 13).
3. Install the hardware and line lead onto the top terminal of the arrester as shown in Figure X. Position the fuse cutout arrester contact arm (Item X) so tha the open end of the "V" is facing away from the transformer terminal as shown in Figure X. Position the line lead under the wire clamp (Item X) and torque the hex nut (Item 4) to 20 ft-lbs.
4. Install the fuse link with the oblong end of the link toward the arrester. Various sizes and link types are available from Eaton.

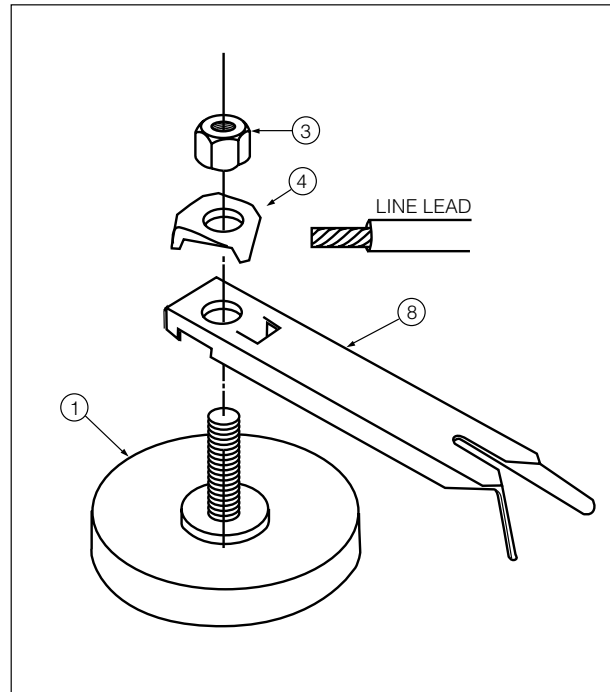


Figure 4. Detail of arrester line terminal connections.

Table 2. Polymer-housed arrester parts list

Item No.	Description
1	Surge Arrester
2	Arrester/Transformer Mounting Bracket
3	3/8" Hex Nut
4	Line Lead Clamp
5	3/8" Split Lock Washer
6	Grounding Strap
7	Transformer Contact Arm
8	Arrester Contact Arm
9	9/16" ID x 1 3/8" OD Flat Washer
10	1/2" x 3/4" Lg. Hex Bolt
11	Transformer Bushing
12	1/2" Hex Nut
13	1/2" Split Lock Washer
14	1 7/32" ID x 1 1/16" OD Flat Washer

Items 1, 3-6 are preassembled on the arrester.



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

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

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