HX-CB loadbreak fuse cutout installation 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. G122.3

Product information

Introduction

Eaton's Cooper Power™ series HX-CB loadbreak fuse cutout provides superior performance with the combination of the field-proven HX cutout and a compact, low profile loadbreak interrupter.

The HX-CB loadbreak fuse cutout operating information applies to cutouts with fuse holders, disconnect blades, and current-limiting fuse assemblies. The loadbreak fuse cutout is factory adjusted to provide proper operation. Care must be taken to avoid damaging the loadbreak module or handling the cutout by the loadbreak module during installation.

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 can not cover all details or variations in the equipment, procedures, or processes described nor 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 fuse cutout is completely assembled, tested, and inspected at the factory. It is in good condition when accepted by the carrier for shipment. Upon receipt, inspect the shipping container for signs of damage. Unpack the fuse cutout and inspect it 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 fuse cutout to minimize the possibility of damage. If the fuse cutout 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

⚠ CAUTION

The HX-CB fuse cutout is designed to be operated in accordance with normal safe operating procedures. These instructions are not intended to supersede or replace existing safety and operating procedures. The HX fuse cutout should be installed and serviced only by personnel knowledgeable of good safety practices and fully trained on the installation and application of HX-CB cutout fuses.

Loadbreak module must be in the unlatched position before installing the fuse holder, disconnect blade or current limiting fuse assemblies in the cutout hinge.

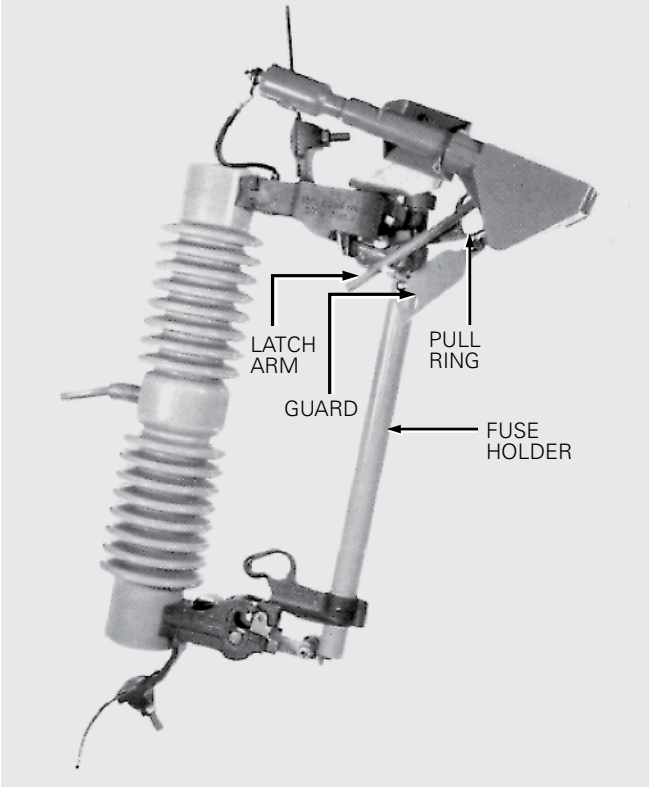

Figure 1. HX-CB loadbreak fuse cutout.

Prior to installation

Perform the following operational check to insure the loadbreak module was not damaged during shipping and is in proper working order.

Operational check for cutouts with fuse holders

Remove fuse holder from the body and install the fuse link per the instructions supplied with the fuse holder.

⚠ CAUTION

Loadbreak module must be in the unlatched position before attempting operational check in Step 1 thru Step 4.

Step 1.

Swing fuse holder towards closed position

- With fused fuse holder* in the cutout hinge and in the open position, slowly swing the fuse holder (or disconnect blades or current-limiting fuse assemblies) towards the closed position until the operating arm is in the position shown in Figure 2.
- The operating arm should touch the guard or be a maximum of 1/8 inch below the guard.

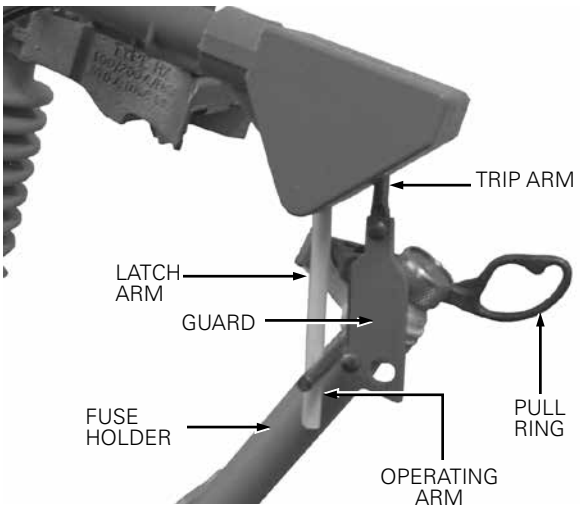

Figure 2. HX-CB loadbreak fuse cutout.

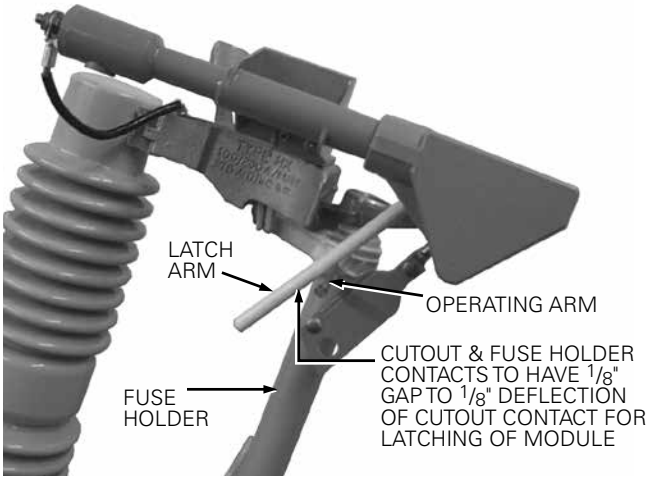

Figure 3. HX-CB loadbreak fuse cutout.

Step 2.

Move fuse holder to closed position

- Slowly move the fuse holder* to the closed position. See Figure 3. The operating arm should be resting against the latch arm.
- There is no parallel current path through the loadbreak module in this position. The loadbreak module is now in the latched position.

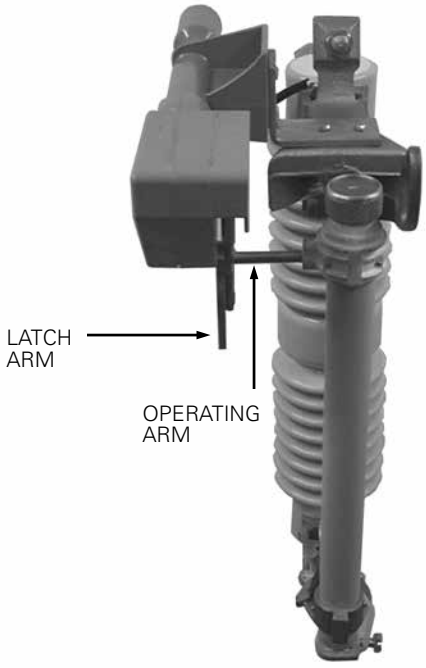

Figure 4. Loadbreak fuse cutout.

Step 3.

Swing holder open

- Pull down on the pull ring to release the fuse holder (or disconnect blades or current-limiting fuse assemblies) and slowly swing it open. The operating arm will engage the trip arm and maintain contact until the loadbreak module operates.

Note: If no sound is heard during the operation of the loadbreak module, the module is not functioning properly. Shipping damage may have occurred. Notify carrier and obtain authorization to return the cutout.

Step 4.

Move fuse holder side to side

- With the loadbreak module in the unlatched position as shown in Figure 2, move the fuse holder (or disconnect blades or current-limiting fuse assemblies) side-to-side. The operating arm must always overlap the latch arm. See Figure 4.
- If the operating arm can miss the latched arm, shipping damage may have occurred. Notify carrier and obtain authorization to return the cutout.
- While the loadbreak module may be operated from any convenient position, optimum operation is obtained with the operator below and in front of the cutout.

⚠ CAUTION

Prescribed company safety rules should be adhered to at all times when operating fuse cutouts under energized conditions.

⚠ CAUTION

When the HX-CB Loadbreak Cutout is closed to energize a circuit, it should not be opened immediately. A delay in reopening is required to allow the possibility of a fuse link, current-limiting fuse, or other overcurrent protective device to operate in the event the circuit is faulted.

Cutout installation instructions

Mounting cutout or disconnect

Step 1

Inspect porcelain

- Before mounting the cutout, make sure the porcelain is not cracked or chipped.
- Do not install a cutout if any hardware is loose, bent, distorted or out of alignment.

Step 2

Mount cutout

- Mount the cutout on a suitable mounting bracket.
- Position the lock washers. See Figure 5.

Note: DO NOT mount this cutout in vaults or other enclosed areas. Ionized gases are generated during fault clearing operations and may cause electrical flash in enclosed spaces.

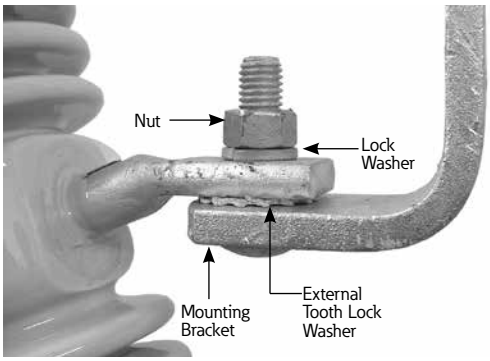

Figure 5. Cutout mounting.

Step 3

Position Cutout

- Pivot the cutout in a position that will provide ease of operation, maximum electrical clearance and venting clearance before securely tightening the carriage bolt nut.

⚠ CAUTION

Only qualified personnel should operate and inspect an open cutout. Such personnel should observe company safety procedures and wear protective equipment. Operator should be positioned away from the exhaust path when closing cutout.

Installing fuse holder or disconnect blade

Step 1

Insert switchstick hook

- Insert the hook of the switchstick into the lifting loop. The fuse holder or blade will hang on the hook in a position to be installed.

Step 2

Guide fuse holder

- Guide the fuse holder lower casting trunnion into the cutout hinge and disengage switchstick. Figure 6.

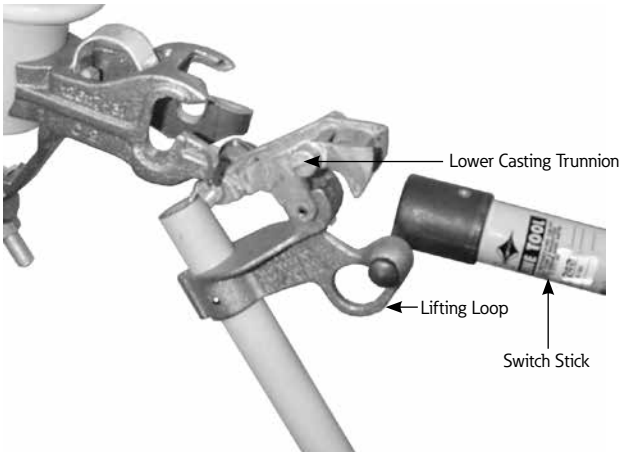

Figure 6. Attaching the fuse holder.

Step 3

Close fuse holder

- Place the hook of switchstick under the pull ring and swing the fuse holder to a 45° angle from the closed position.
- Then with head down and to one side of vent exhaust pattern, quickly and with a vigorous thrust on switchstick, push fuse holder to a closed position. Figure 7.

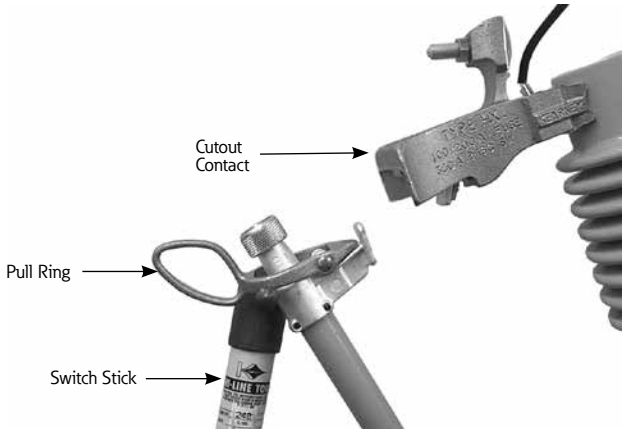

Figure 7. Closing the fuse holder.

Step 4

Remove switchstick

- Carefully remove switchstick from fuse holder to avoid pulling fuse holder open.

⚠ CAUTION

Fuse holder should not be left hanging in the open position, as it may retain water.

Cutout-arresters

Cutout-arrester combinations consist of a distribution arrester and HX cutout mounted on a common L bracket to be installed as a completed assembly. See Figure 8.

- During shipping and rough handling the units may get out of adjustment.
- Before mounting or during mounting, the arrester should be in same plane as the cutout with all nuts and bolts tight.

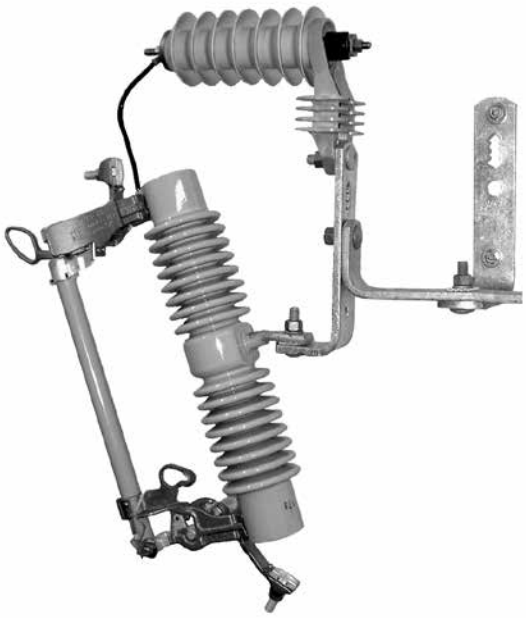

Figure 8. Cutout-arrester combination.

Installing fuse links in 100 A fuseholder

Step 1.

Remove cap/install link

- Remove cap and operated link. Replace link with appropriate rating in fuse tube.
- Make sure the contact button is secured on the fuse link and carefully straighten the fuse cable.

Step 2.

Replace Cap

- Slide the straightened fuse link cable end into the fuse holder, replace and tighten the cap.

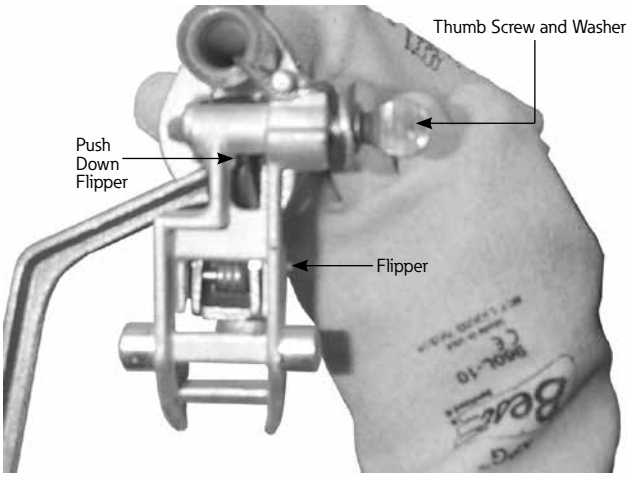

Figure 9. Replacing the fuse link.

Step 3.

Loosen thumb screw and depress flipper

- Loosen thumb screw and remove old cable. Install fuse cable under thumbscrew washer.
- Press flipper downward on the lower tube casting. Hold in this position for Step 4. See Figure 9.

Step 4.

Secure fuse link

- Dress fuse link cable around post on flipper and then around thumbscrew in a clockwise direction.
- Maintain tension on fuse link cable and with flipper firmly depressed, cross the fuse cable over itself and tighten the thumbscrew. See Figure 10.

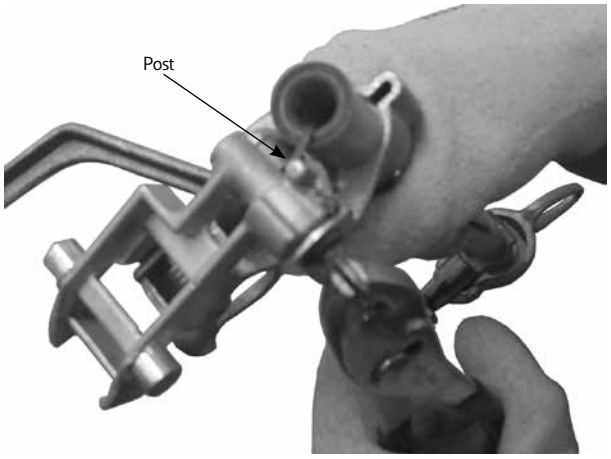

Figure 10. Installing a new fuse link.

Step 5.

Clip Excess Cable

- Clip excess fuse cable to within approximately 1/2" of the thumbscrew washer.

Installing fuse links in 200 A fuseholder

CAUTION

Use only the ampere size and types of fuse links specified by your company

Step 1.

Check fuse link

- Make sure the contact button is secured on the fuse link and carefully straighten the fuse cable.

Figure 11. Installing a fuse link in a 200 A fuse holder.

Step 2.

Clamp Bolt Assembly

- Loosen the clamping bolt to raise the link clamp. Do not try to remove clamping bolt.

Step 3.

Remove cap

- Remove the cap from fuse holder and slide the straightened fuse link cable into the fuse tube and through the fuse cable box terminal, then replace the cap. See Figure 11.

CAUTION

Do not use 100 ampere or smaller fuse link in 200-ampere fuse holders. Such application could lead to failure of the cutout to clear fault currents. Replace operated or partially operated expendable caps with new expendable caps.

Figure 12. Secure fuse link leader..

Step 4.

Secure fuse link

- With link clamp held down over the tube bore, pull the end of the fuse cable tightly and tighten clamping bolt. See Figure 12.

Step 5.

Clip excess cable

- Clip excess fuse cable to within approximately 1/2" of the box terminal.

Maintenance

Refer to IEEE Std C37.48™ standard, Guide for Application, Operation, and Maintenance of High-Voltage Fuses, for maintenance of the HX-CB loadbreak fuse cutout.

Operation

The opening of the loadbreak cutout can be achieved by using a switchstick hook in the pull ring of the fuse holder (or disconnect blades or current-limiting fuse assemblies) and pulling down with a continuous, rapid motion. This will release the fuse holder (or disconnect blades or current-limiting fuse assemblies) operate the loadbreak module and bring the fuse holder into a fully open position.

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