Current-Limiting NX® Fuse Guard Tool Operating 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

General

The NX® Fault Guard tool is a device that allows temporary connection of a current-limiting fuse in series with a load while it is being energized. The tool will limit the available energy to the load in case of a fault thus minimizing the expulsion blast and protecting the lineman in case of catastrophic transformer failure.

The Fault Guard tool with the self-retracting electrical cable is for use with distribution transformers protected by open-fuse cutouts. The companion model, equipped with a metal stirrup, is for use with self-protected transformers.

Application

1. Check the fuse size in the tool against the schedule that relates transformer kVA to fuse sizes.
2. Make sure that the actuator is intact (see Figure 2). The actuator can be seen through the opening in the lower end of the tool. The actuator is the small phenolic cylinder that protrudes from the bottom of the fuse. An expended fuse will have a broken actuator.
3. Using either a universal-type or shotgun-type switchstick, hook the lifting eye of the tool. Raise the tool to the line and hang it by the hotline clamp (see Figure 3).
4. Hook the open-fuse cutout pullring (or connect the hotline clamp from the transformer bushing lead to the stirrup on the lower-end fitting of the tool) (see Figure 4).

⚠ WARNING

"Fuzzing" at the cutout pullring (or clamp/stirrup connection) and non-operation of the current-limiting fuse in the tool indicates that no fault is present and the circuit may be safely energized (see Figure 5). The lack of fuzzing can indicate either a faulted load or an open fuse in the tool. IF THERE IS NO FUZZING, DO NOT ENERGIZE THE CIRCUIT!

5. If a fault is present, the current-limiting fuse in the tool operates as indicated by a small report from the actuator resembling that of a low-caliber firearm. A visual verification of actuator operation can also be made (Step 2).
6. After the fault is cleared and the expended fuse in the Fault Guard tool is replaced, retest the circuit following Step 1 through Step 5.
7. If there is no indication of a fault, close the cutout and unhook the pullring (or remove the hotline clamp from the transformer bushing lead to the stirrup of the tool), and then remove the tool from the line (see Figure 6).

Figure 1. NX Fault Guard tool for use with self-protected transformers (left). NX Fault Guard tool for use with openfuse protected transformers (right).

Figure 2. Actuator intact.

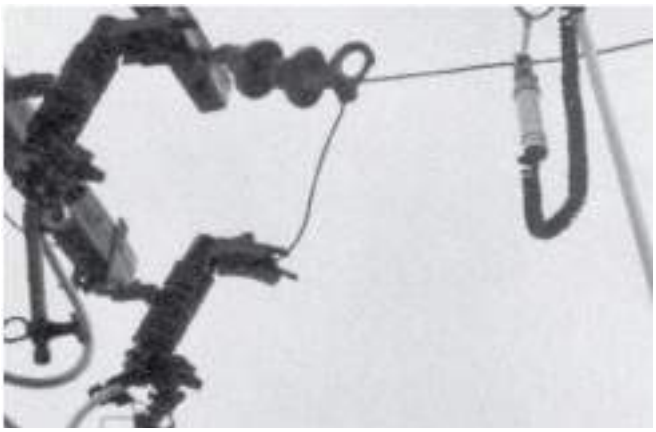

Figure 3. Tool hanging by hotline clamp.

Figure 4. Hook open-fuse cutout pullring.

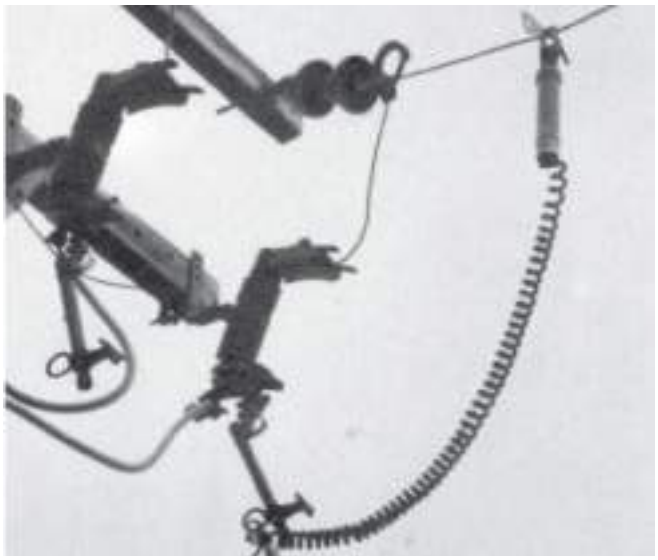

Figure 5. NX fault guard tool in place for energization.

Fuse Replacement

1. Verify that the replacement fuse size is correct for the transformer kva rating.
2. Remove the metal cover over the actuator from the replacement fuse (see Figure 7).
3. Place the lower end fitting against the end of the fuse with the actuator so that the captive screws line up with the holes on the fuse bottom and the sides of the fitting line up with the sides of the fuse. Tighten the screws into the holes (see Figure 8).
4. Place the upper end fitting (with the hotline clamp) over the top of the fuse and tighten the set screws (see Figure 9).

⚠ CAUTION

This product as designed and packaged by Eaton has been classified by the USDOT as Not Regulated as an Explosive. The metal actuator cover must be held in place by at least one screw to maintain this classification when an un-operated fuse is transported.

Figure 6. Removal of NX fault guard tool.

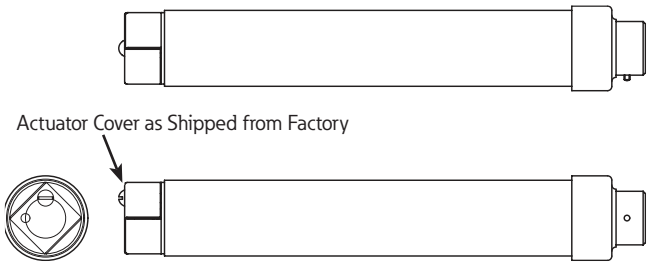

Figure 7. NXD fuse shown with actuator cover for retention during transportation.

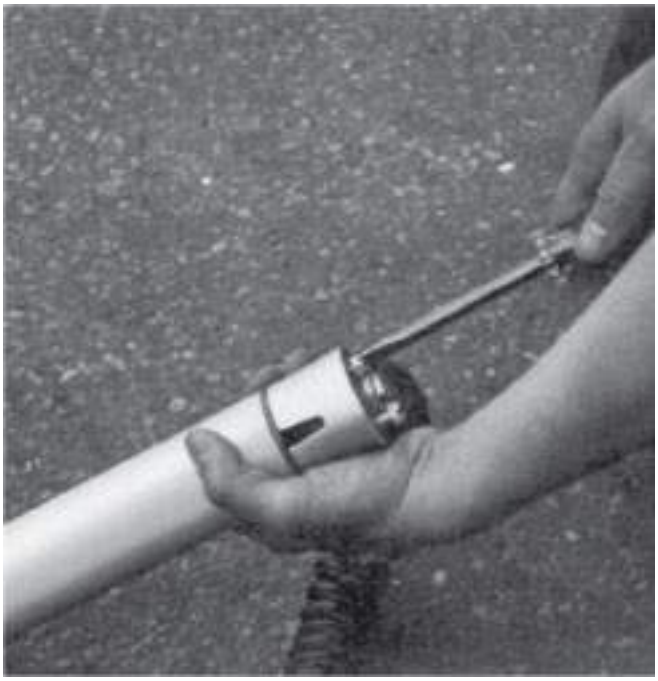

Figure 8. Tool hanging by hotline clamp.

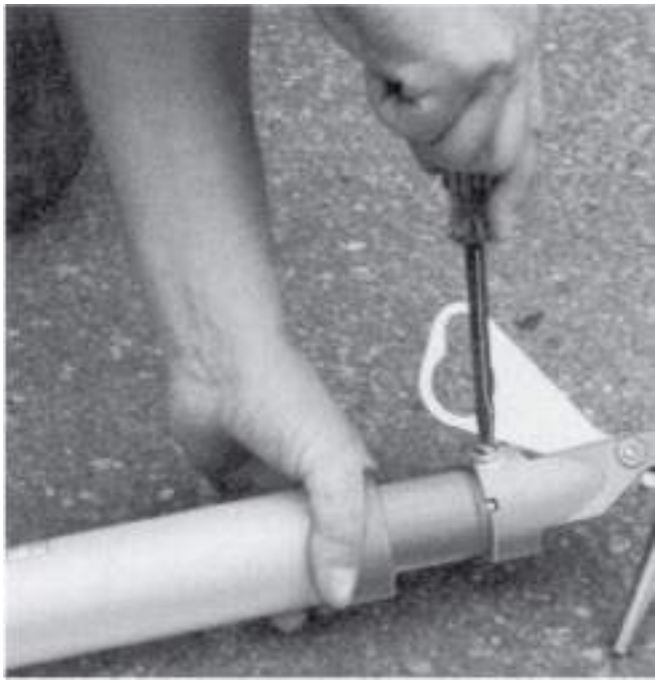

Figure 9. Hook open-fuse cutout pullring.

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