OEM Equipment
MN800010EN

Effective February 2016
Supersedes S800-51-1 August 2012

COOPER POWER SERIES

Under-oil arrester disconnector installation/operation instructions

Powering Business Worldwide

DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITY

The information, recommendations, descriptions and safety notations in this document are based on Eaton Corporation's ("Eaton") experience and judgment and may not cover all contingencies. If further information is required, an Eaton sales office should be consulted. Sale of the product shown in this literature is subject to the terms and conditions outlined in appropriate Eaton selling policies or other contractual agreement between Eaton and the purchaser.

THERE ARE NO UNDERSTANDINGS, AGREEMENTS, WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, OTHER THAN THOSE SPECIFICALLY SET OUT IN ANY EXISTING CONTRACT BETWEEN THE PARTIES. ANY SUCH CONTRACT STATES THE ENTIRE OBLIGATION OF EATON. THE CONTENTS OF THIS DOCUMENT SHALL NOT BECOME PART OF OR MODIFY ANY CONTRACT BETWEEN THE PARTIES.

In no event will Eaton be responsible to the purchaser or user in contract, in tort (including negligence), strict liability or other-wise for any special, indirect, incidental or consequential damage or loss whatsoever, including but not limited to damage or loss of use of equipment, plant or power system, cost of capital, loss of power, additional expenses in the use of existing power facilities, or claims against the purchaser or user by its customers resulting from the use of the information, recommendations and descriptions contained herein. The information contained in this manual is subject to change without notice.

Contents

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

⚠ CAUTION

The arrester disconnector should be installed only by personnel familiar with good safety practice and the handling of high voltage equipment.

General

Eaton's Cooper Power™ series arrester disconnector provides the transformer manufacturer or utility with a means of disconnecting and reconnecting the under-oil arrester ground (earth) for transformer testing. It is designed for mounting (secured from inside or outside the tank) in transformers filled with transformer oil, R-Temp™ fluid, Envirotemp™ FR3™ fluid, or an approved equivalent.

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 provide directions for meeting every possible contingency during installation, operation, or maintenance. For additional information, contact your Eaton representative.

Acceptance and initial inspection

Each fuse is in good condition when accepted by the carrier for shipment. Upon receipt, inspect the shipping container for signs of damage. Unpack the fuse 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 to minimize the possibility of damage. If the fuse is to be stored for any length of time prior to installation, provide a clean, dry storage area.

Standards

ISO 9001 Certified Quality Management System

Table 1. Voltage Ratings and Characteristics

Description	kV	kA
Standard Voltage Class	35	–
AC 60 Hz. 1 Minute Withstand (in Open Position)	50	–
BIL (Full Crest Wave) (in Open Position)	150	–
BIL (Chopped Wave) (in Open Position)	175	–
Discharge Current Withstand (in Closed Position)	–	100

Figure 1. Arrester disconnector, internally secured (bottom), externally secured (top) (shown with standard padlocking provision, in the open position).

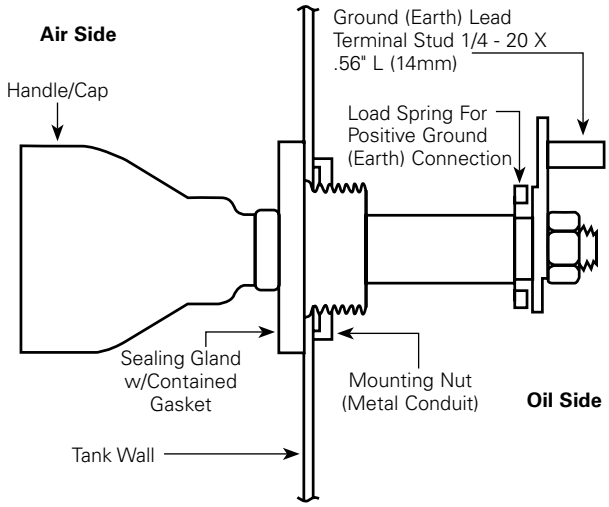

Figure 2. Arrester disconnector (shown with Internal Nut and in the open position).

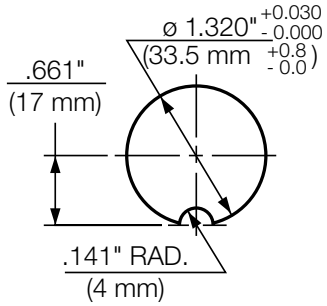

Figure 3. Mounting hole.

Installation

Sidewall mounted with the internal end completely immersed under oil:

- All parts should be inspected for damage before installation.

Internal mounting nut

- Insert the arrester disconnector through the tank hole (Fig. 3) from **outside** the tank (Fig. 4). The disconnector may have to be opened slightly to allow for assembly into larger gage tank walls. Ensure that the sealing gasket is clean and properly positioned in the sealing gland.
- Secure the disconnector with the supplied metal conduit nut. The conduit nut should be tightened to hand tight plus a 3/4 turn or a minimum of 15 ft-lbs (20 Nm). Re-tighten handle (closed position) (Fig. 6) by rotating handle 3/4 to 1 turn after handle has come in contact with the sealing gland. The disconnector should remain in the closed position unless transformer is being tested.
- The ground (earth) lead of the under-oil arrester should be secured onto the ground (earth) lead terminal of the disconnector. Recommended torque for ground (earth) terminal connection is 40 to 60 in-lbs (4.5-6.8 Nm).
- Dielectric clearances – Using the center line of the shaft, the disconnector shall be clear of all internal components and leads for a 3″ (76 mm) radius area from this center line. The shaft shall also be clear from internal components and leads behind for a 2″ (57 mm) distance when disconnector is in the open position.

External mounting nut

- Insert the arrester disconnector through the tank hole (Fig. 3) from **inside** the tank (Fig. 5). Ensure that the sealing gasket is clean and properly positioned in the sealing gland.

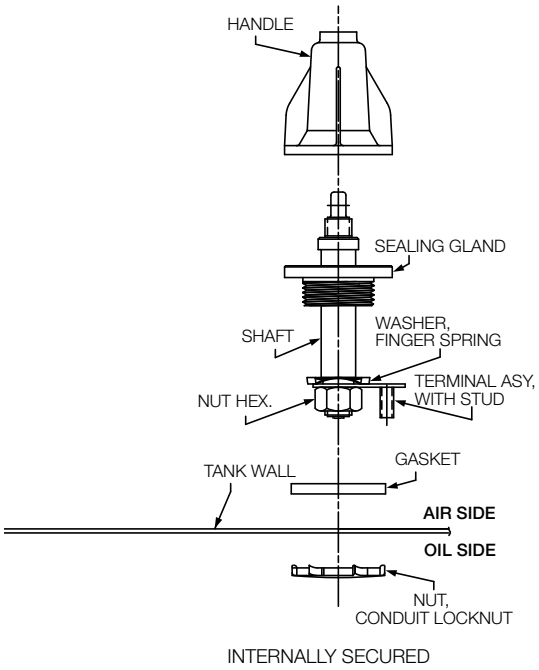

Figure 4. Internal mounting nut installation (Top view).

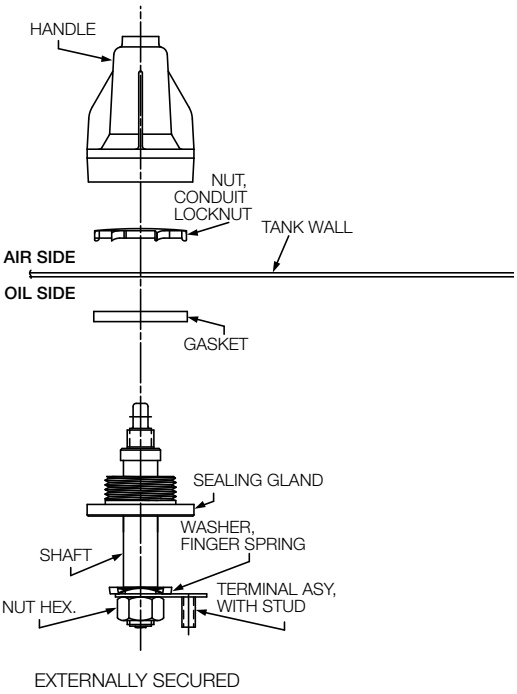

Figure 5. External mounting nut installation (Top view).

- Secure the disconnector with the supplied metal conduit nut. The conduit nut should be tightened to hand tight plus a 3/4 turn or a minimum 15 ft-lbs (20 Nm). Re-tighten handle (closed position) (Fig. 7) by rotating handle 3/4 to 1 turn after handle has come in contact with the sealing gland. The disconnector should remain in the closed position unless transformer is being tested.
- The ground (earth) lead of the under-oil arrester should be secured onto the ground (earth) lead terminal of the disconnector. Recommended torque for ground (earth) terminal connection is 40 to 60 in-lbs (4.5-6.8 Nm).

⚠ CAUTION

It is necessary that the accompanying decal be prominently displayed at or near the location of the arrester disconnector as a caution to service personnel. *Failure to do so will constitute a waiver of all warranty and indemnity obligations which may be attributable to Eaton.*

⚠ CAUTION

All leads should remain below the oil level.

- Dielectric clearances – Using the center line of the shaft, the disconnector shall be clear of all internal components and leads for a 3″ (76 mm) radius area from this center line. The shaft shall also be clear from internal components and leads behind for a 2″ (51 mm) distance when disconnector is in the open position.

Operation

The arrester disconnector is operated as follows (see Figure 6 or Figure 7):

Operating from closed to open positions

- Unscrew the handle from the shaft.
- Re-attach small diameter end of handle to shaft.
- Push handle and shaft toward the transformer until the shaft flange (adjacent to handle) is flush to the sealing gland.

Operating from open to closed positions

- Pull handle and shaft away from the transformer until a positive stop is felt (approximately 2″ or 50 mm).
- Unscrew handle and reattach to shaft with large diameter end towards the transformer. The handle should be re-tightened by rotating handle 3/4 to 1 turn after handle has come in contact with the sealing gland to assure good ground contact.

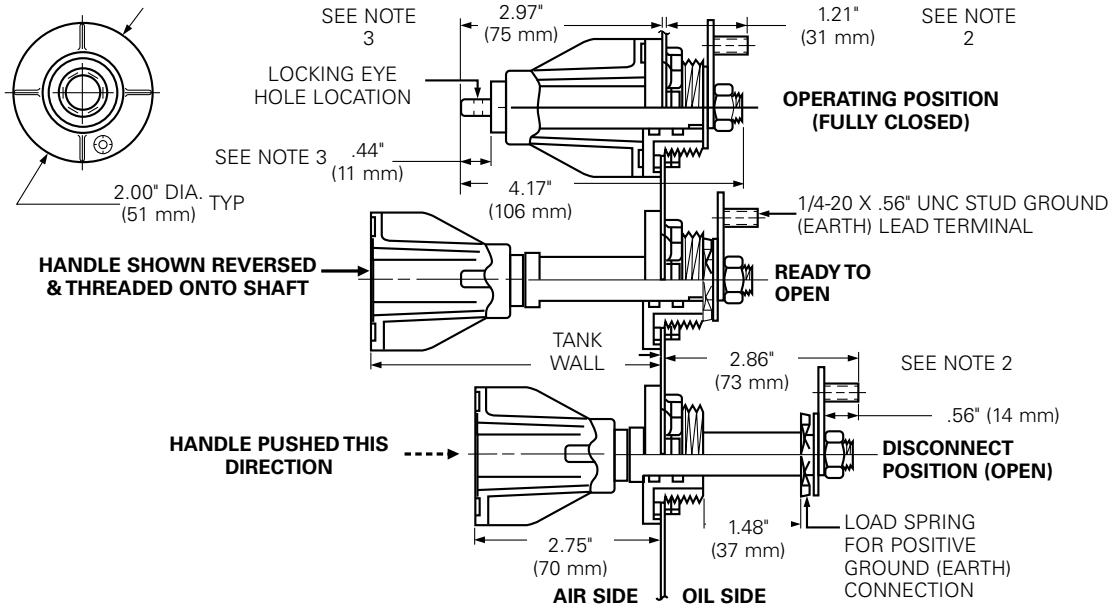

Figure 6. Arrester disconnector (internally secured) shown with standard locking provision.

Note: 1. Dimensions given are for reference only.
2. Dimensions given using a 14-gauge tank wall. Designed to accommodate tank wall thicknesses – 14-gauge to 5/16″.
3. Dimensions shown include additional .44″ (11 mm) for locking provision. Locking eye hole diameter for padlock provision is .17″ (4 mm). Without locking provision, air side extension dimension is reduced from 2.97″ (75 mm) to 2.52″ (64 mm), for the internally secured version, and 3.25″ (83 mm) to 2.81″ (71 mm), for the externally secured version.

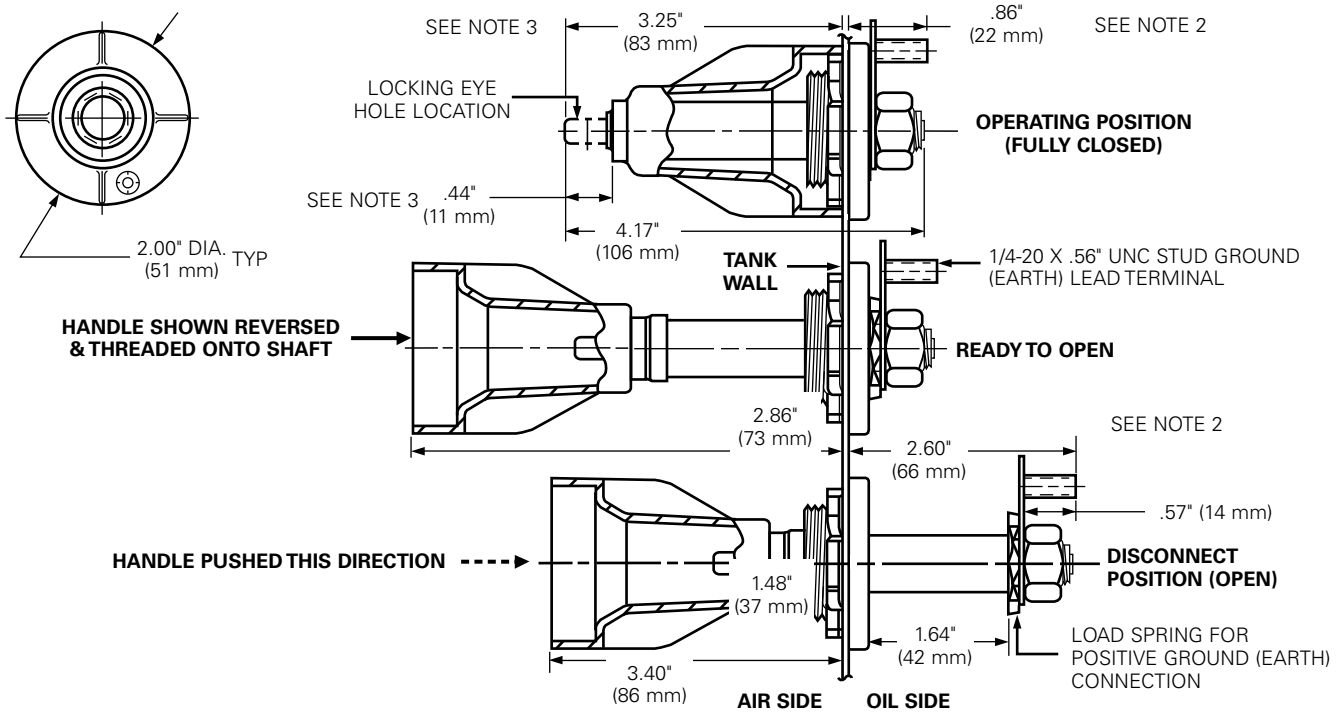

Figure 7. Arrester disconnector (externally secured) shown with standard locking provision.

Note: 1. Dimensions given are for reference only.
2. Dimensions given using a 14-gauge tank wall. Designed to accommodate tank wall thicknesses – 14-gauge to 5/16".
3. Dimensions shown include additional .44" (11 mm) for locking provision. Locking eye hole diameter for padlock provision is .17" (4 mm). Without locking provision, air side extension dimension is reduced from 2.97" (75 mm) to 2.52" (64 mm), for the internally secured version, and 3.25" (83 mm) to 2.81" (71 mm), for the externally secured version.

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

Printed in USA
Publication No. MN800010EN Rev 00
(Replaces S800511 Rev 00)

For Eaton's Cooper Power series product information call 1-877-277-4636 or visit: www.eaton.com/cooperpowerseries.

Powering Business Worldwide