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COOPER POWER
SERIES

35 kV three-phase bushing retrofit kit installation instructions

EATON

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 provides instructions for removing the existing contact tube and gas valve from a 35 kV, 200 A three-phase rated Cooper Power™ series apparatus bushing and installing a new contact tube and gas valve.

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 three-phase bushing retrofit kit is in good condition when accepted by the carrier for shipment. Upon receipt, inspect the shipping container for signs of damage. Unpack the three-phase bushing kit 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 retrofit kit to minimize the possibility of damage. If the retrofit kit 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

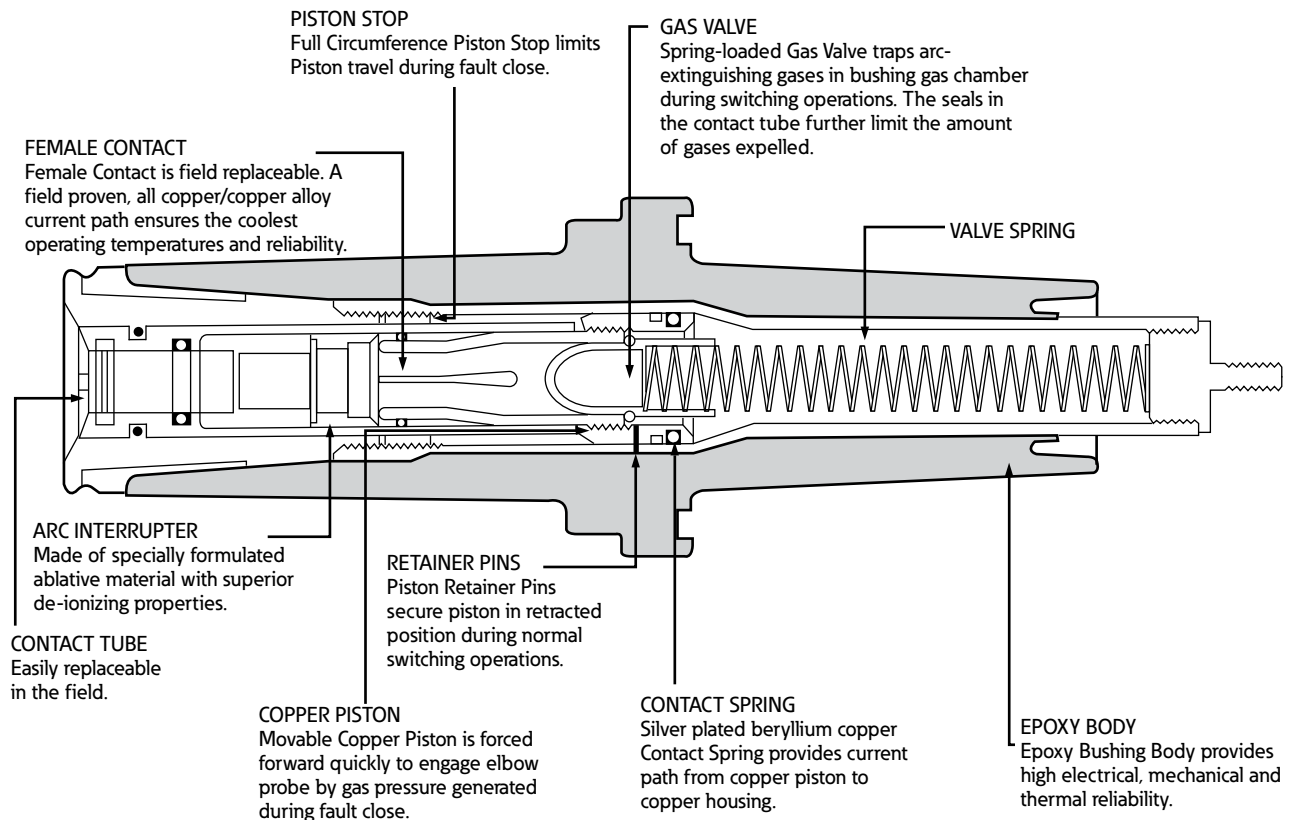


Figure 1. Line illustration of three-phase apparatus bushing.

⚠ WARNING

High Voltage. All associated apparatus must be de-energized during installation or maintenance. Failure to comply may result in death, severe personal injury, and equipment damage.

Installation instructions

Step 1

Remove the contact tube

- Engage the driving blades of the contact tube removal wrench into two of the slots at the end of the contact tube. See Figure 2.
- While applying pressure to the torque tool to prevent disengagement from the slots, rotate the contact tube counterclockwise. Approximately six revolutions will be required to remove contact tube.
- Discard the contact tube.

Note: If you are not able to remove the contact tube, there are two possible causes:

1. Contact tube slots are stripped and the wrench cannot be engaged.
2. The contact tube removal force required is so large that the retainer pin securing the piston breaks. In this case, the contact rotates freely but does not back out.

If either of these two items has occurred, the bushing will need to be replaced.

Step 2

Remove the gas valve

- Remove the gas valve and valve spring from the bushing. If you cannot obtain the gas valve/spring, push valve back in and let the spring push it out to where you can grab it. See Figure 2.
- Discard the gas valve.

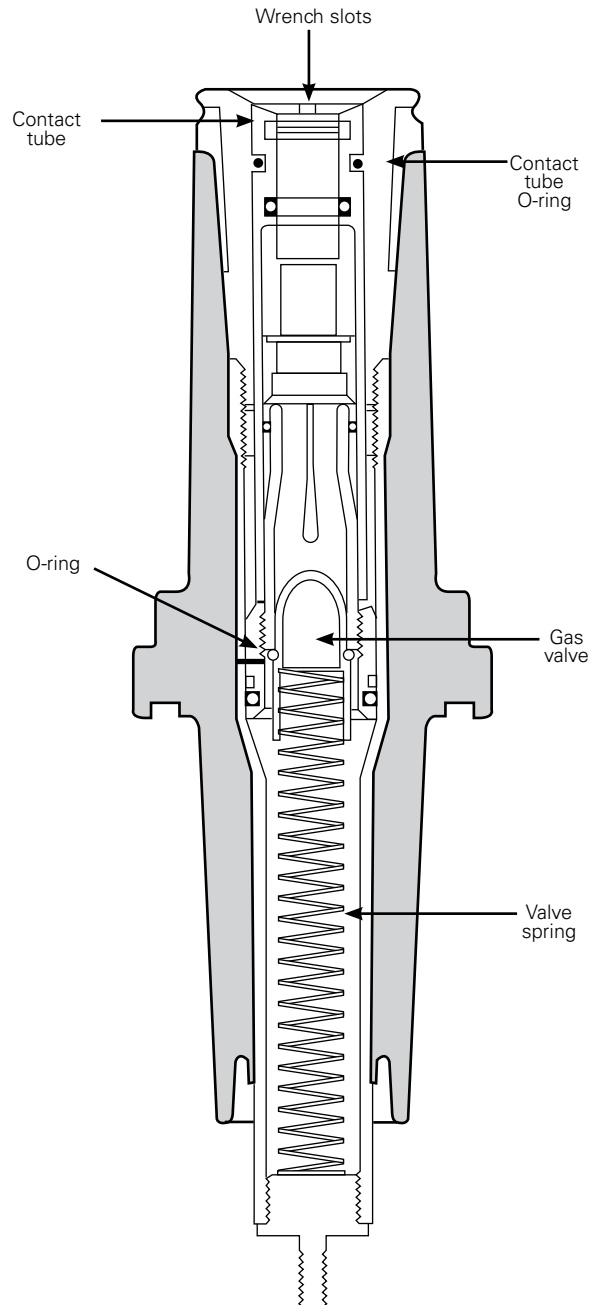


Figure 2. Installation of contact spring/gas valve into bushing.

Step 3

Install the new gas valve

- Assemble the O-Ring into the groove in the new gas valve.
- Lubricate the O-Ring with silicone grease.
- Assemble the new gas valve onto the valve spring. Install the valve spring/gas valve into the bushing. See Figure 2.

Note: Ensure the gas valve is engaged to the valve spring after installation.

Step 4

Install the new contact tube

- Apply silicone grease to the O-ring on the contact tube.
- Insert the contact tube partially into the bushing and engage the wrench into the slots at the end of the contact tube.
- Rotate the contact tube clockwise as you install it. Rotating the contact tube clockwise aids passage of the O-ring into the bushing.
- Engage the threads of the contact tube into the threads of the piston. Ensure the wrench is fully installed into the slots at the end of the contact tube. Torque the contact tube in to 15 ft-lbs.



CAUTION

If the contact tube be torqued in to 15 ft-lbs., the retainer pin is broken and the bushing must be removed and replaced. Dispose of the old bushing. Failure to comply could result in personal injury or equipment damage.



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