

Manual or Hostick Operable, Padlockable 150 A Tap-Changer Switch Installation Instructions



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Contents

DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITY	ii
SAFETY FOR LIFE	iv
SAFETY INFORMATION	iv
Safety instructions	iv
PRODUCT INFORMATION	1
Introduction	1
Read this manual first	1
Additional information	1
Acceptance and initial inspection	1
Handling and storage	1
Quality standards	1
INSTALLATION INSTRUCTIONS	1
General mounting description	1
Torque requirements	1
Clearances	1
Mechanical strength	1
Operating locations	2
Operation	2
Electrical ratings	2
DIMENSIONS	2
Notes	4



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.

NOTICE

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's Cooper Power Series 150 A externally-operated, single- and three-phase tap-changer switches are designed for use in distribution transformers filled with transformer oil, Envirotemp FR3, or an approved equivalent.

Tap-changer switches are used to regulate induced voltage of the primary and to maintain constant secondary voltages.

Read this manual first

Read and understand the content 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 tap-changer switch is in good condition when accepted by the carrier for shipment. Upon receipt, inspect the shipping container for signs of damage. Unpack the tap-changer switch and inspect it thoroughly for damage incurred during shipment. If damage is discovered, file a complaint with the carrier immediately.

Handling and storage

Be careful during handling and storage of the tap-changer switch to minimize the possibility of damage. If the switch 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

Installation Instructions

General mounting description

Sidewall mounted, in oil. Use a 1.325-inch hole size with keyed slot. Sealing is accomplished with gasket on inside of tank and conduit nut on protruding threads through tank wall.

Torque requirements

Sealing nut - 80 to 120 inch pounds; i.e., ¼ to ½ turn after nut is finger tight.

Index plate nut - 54 to 60 inch pounds.

Clearances

Mechanical - external handle clear of obstructions.

Table 1. Dielectric dimensions

kV BIL	Mounting clearance to gnd. or between phases (in oil)
95	1.1"
125	1.5"
150	2.5"

Mechanical strength

Lead Training - designed to support leads sized per rating of switch. Standard dielectric dimensions for lead separation should be followed. Connection of leads either to bolt tabs or crimped into connectors (if supplied). Ring tongue terminals available from #16-14 through #6. Bolt tab designed to accept 1/2"-20 bolt and ring tongue terminals through #4.

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Operating locations

Decal included is to be located on the tank wall near the switch operating handle as a warning to service personnel.

Failure to do so will constitute a waiver of all warranty and indemnity obligations attributable to Eaton.

Note: Switches include two decals. These decals are supplied bound together and scored for separation. Separate decals and apply only the decal with the coding for your application.

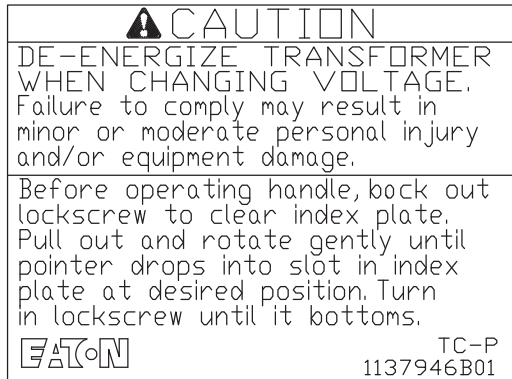


Figure 1. Tap-changer switch applications



Switch is non-loadbreak!

Operation

The switch position is changed as follows:

- Pull out handle to clear index plate.
- Rotate to desired position, allowing pointer to drop into slot of index plate.
- If padlockable feature is to be used, change switch position, then tighten lock screw until it bottoms. Padlocking may then be accomplished through the hole provided.
- Padlock must be removed and screw backed out before switch can again be operated.

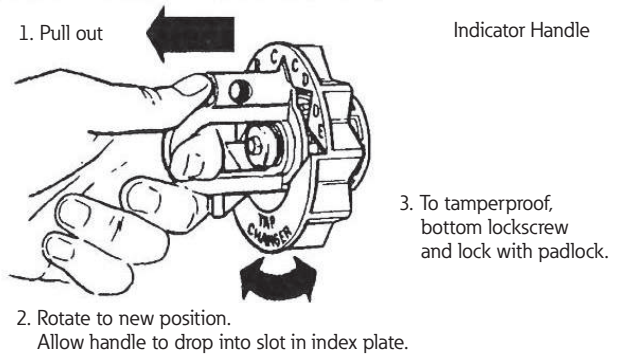


Figure 2. Indicator handle

Electrical ratings

Table 2. Electrical ratings

Description	Rating
Impulse withstand	150 kV BIL
60 Hz 1-minute withstand	50 kV
Continuous current	150 A

Dimensions

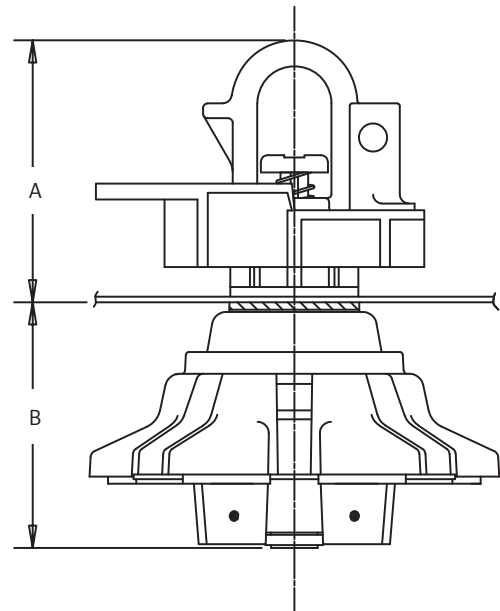


Figure 3. Switch with hotstick handle, gasket, and frontplate

Table 3. Switch Dimensions

Figure	A inches (mm)	B inches (mm)
3	3.53 (89.7)	3.31 (84.1)
4	3.53 (89.7)	9.155 (232.54)

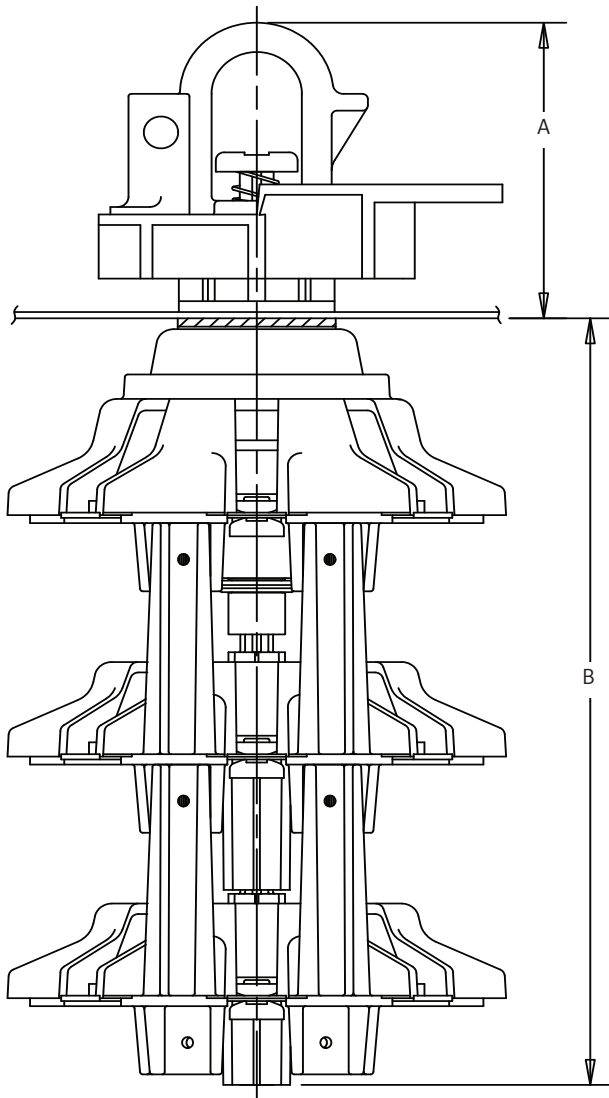


Figure 4. Switch with hostick handle, gasket, and frontplate

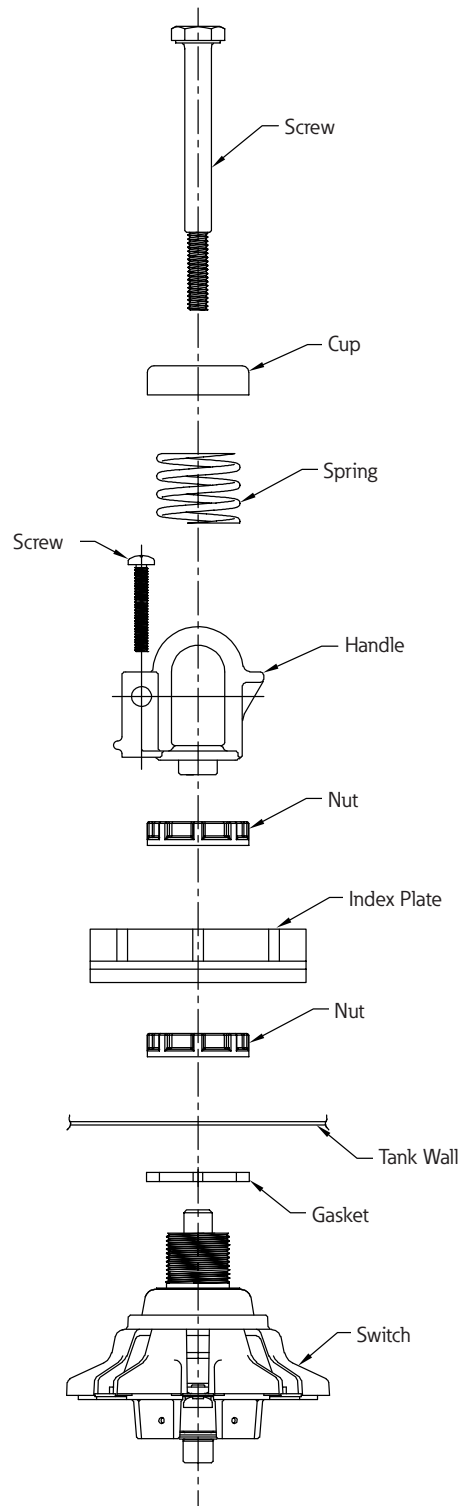


Figure 5. Hotstick handle assembly (exploded view)

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Table 4. Contact Dimensions

Contact type	C inches (mm)
Bolt tab	5.52 (140.2)
Bolt tab W 1.4-20 stud	5.52 (140.2)
#14-16	6.62 (168.2)
#10-12	6.62 (168.2)
#8	6.62 (168.2)
#6	6.88 (174.8)

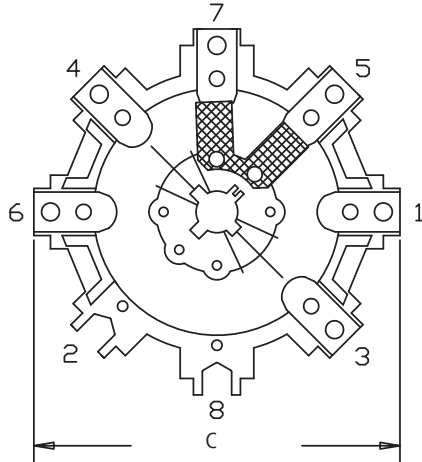
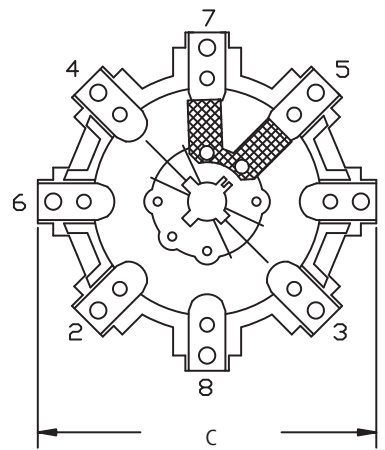
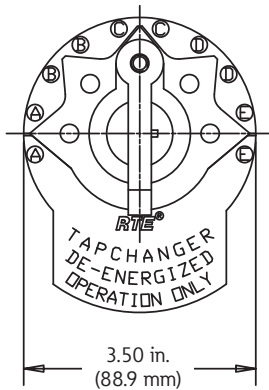
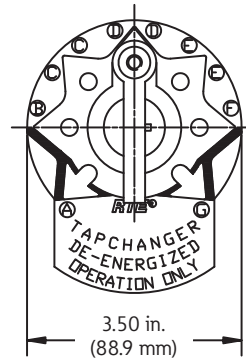


Figure 7. 7-position indicator/contact configuration**

** 7-position index shown without position decal, contact factory for variations available.

Figure 6. 5-position indicator/contact configuration*

* Typical 5-position markings shown, contact factory for other variations.

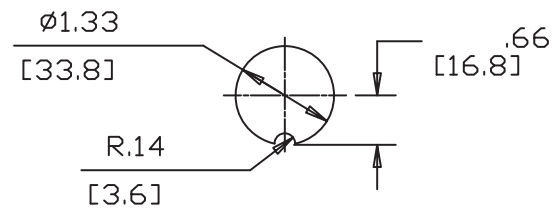


Figure 8. Mounting hole

Notes

- Switch can be used on 14-gage to 0.25" thick front plate.
- Refer to catalog section *CA80010EN* for switch catalog numbers.

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