

QD8 Quik-Drive tap-changer VR or VL reversing switch stationary contact assembly kit number 5791646A48 installation instructions



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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's Cooper Power™ series QD8 Quik-Drive tap-changer VR or VL reversing switch stationary contact assembly kit and installation instruction provides instructions for replacing the VR or VL reversing switch stationary contacts on the polymer model of the QD8 Quik-Drive tap-changer. Each QD8 tap-changer has one VR and one VL reversing switch stationary contact.

### 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.

### Acceptance and initial inspection

Each kit is in good condition when accepted by the carrier for shipment. Upon receipt, inspect the shipping container for signs of damage. Unpack the kit and inspect it thoroughly for damage incurred during shipment. If damaged is discovered, file a claim with the carrier immediately.

### Handling and storage

Be careful during handling and storage of the kit to minimize the possibility of damage. If the kit 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

### 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 representative.

## Parts supplied

Item	Part Number	Description	Qty
1	0791646A48	VR or VL Reversing Switch Stationary Contact	1
2	0800005001Z	Belleville Washer	2
3	0892568A02	Jam Nut	2

## Tools required

- 3/8 inch drive ratchet wrench
- 3/8 inch drive extension
- 3/8 inch socket
- 3/4 inch deep-well socket
- Torque wrench for in-lbs

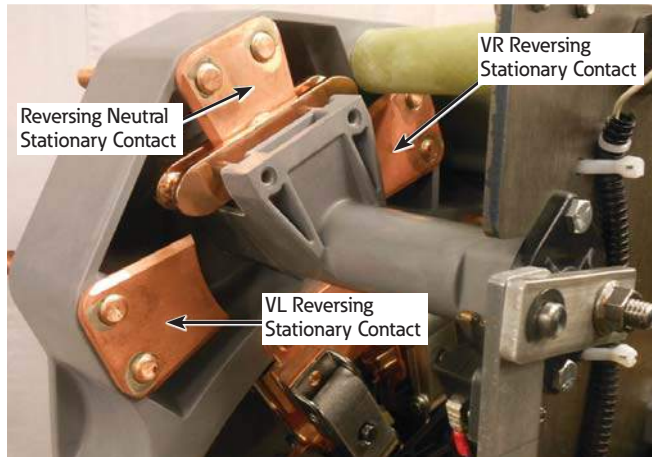


**Figure 1. VL or VR reversing stationary contact**

## Installation procedure

### VR or VL reversing switch stationary contact removal and installation

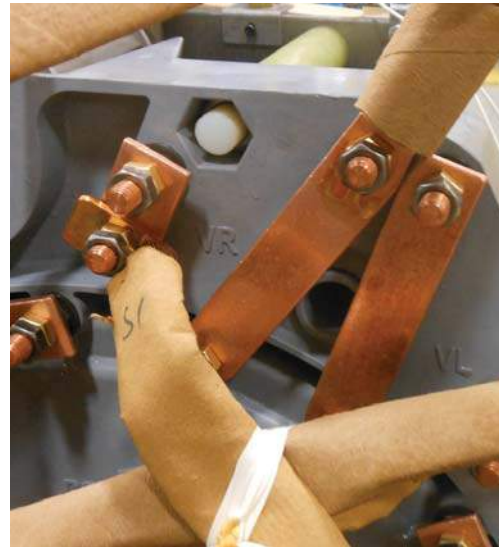
1. This procedure may be completed without removal of the tap changer from the voltage regulator. Carefully follow the procedures for partially untanking a voltage regulator in the document MN225008EN, VR-32 voltage regulator with Quik-Drive tap-changer installation, operation, and maintenance instructions.



**Figure 2. VR and VL reversing switch stationary contact locations**

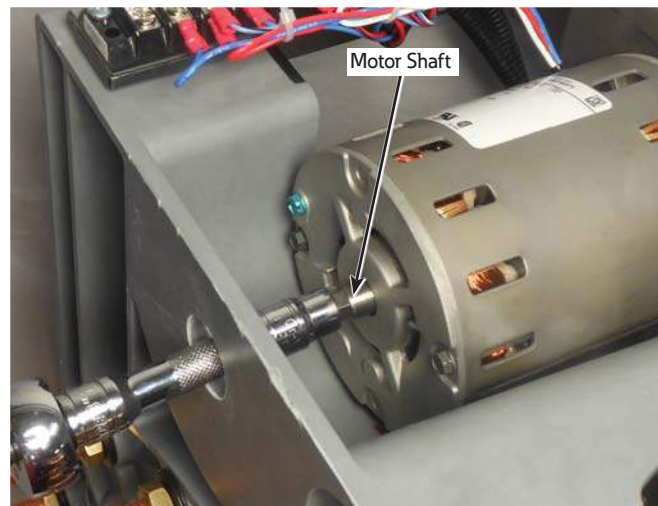
**Note:** A sheet wrapped around and below the tap changer can be used to catch dropped hardware before it falls into the tank.

2. Carefully mark the leads before any disassembly. Photos can be helpful to assist in remembering the arrangement of the connections. See Figure 3.
3. Using a 3/4" wrench, remove the nuts and jam nuts holding the leads and copper bars from the contacts to be replaced and then remove the connections.



**Figure 3. Take note of connections before disassembly**

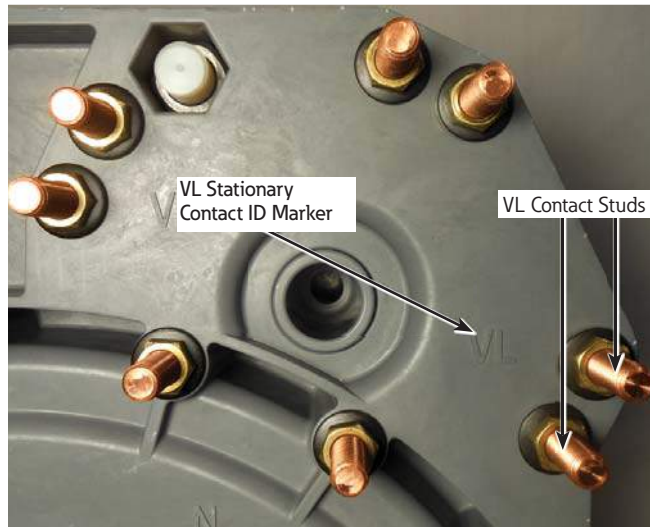
4. If the reversing movable contacts are setting on the VR or VL reversing switch stationary contact, place a 3/8" socket onto the rear shaft of the motor. See Figure 4. Using a ratchet, rotate the motor shaft to move the reversing movable contacts off of the reversing switch stationary contacts. It may be necessary to rotate the tap changer through several positions before the movable reversing contact will begin to move.



**Figure 4. Motor and reversing movable contact rotation**

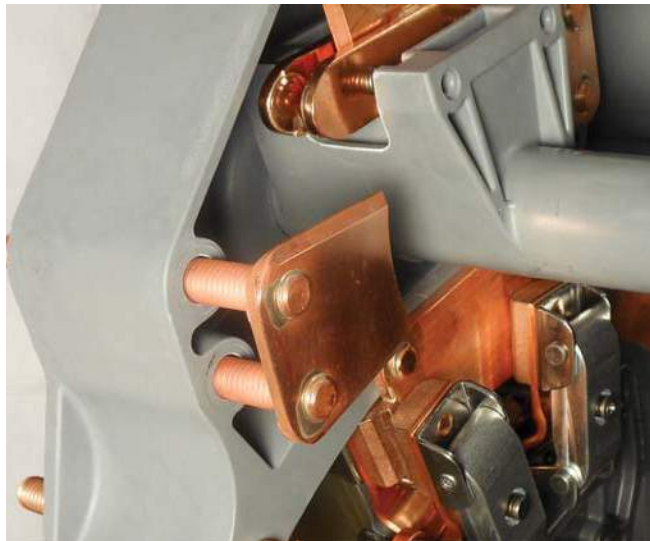
5. Use a 3/4" socket and ratchet to loosen and remove the nuts and flat washers from each of the contact studs to be removed. See Figure 5.





**Figure 5. VR and VL reversing switch stationary identification and hardware**

6. Remove the VR and/or VL reversing switch stationary contact from the contact assembly panel. See Figure 6.



**Figure 6. VL reversing switch stationary contact removal**

7. Install the new VR and/or VL reversing switch stationary contact into the mounting holes in the contact assembly board. The VR and VL contacts are identical and interchangeable.
8. Place a new Belleville washer and nut on each stud. The cupped side of the Belleville washer must face in toward the contact board. Use a 3/4" socket and ratchet to tighten the nuts on each contact stud. Using a torque wrench tighten the nuts to a torque of 180–192 in-lbs (20.3–21.7 Nm). See Figure 7.

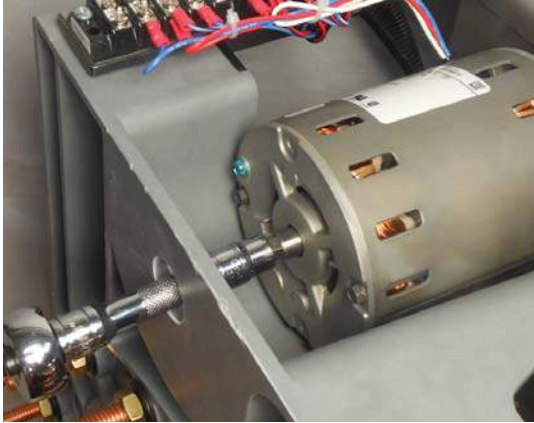


**Figure 7. VL reversing stationary hardware**

9. Reinstall the copper bars and leads to the positions noted in step 2 on page 2 and secure with the hardware removed earlier. Tighten the nuts to a torque of 180–192 in-lbs (20.3–21.7 Nm).
10. Once the work has been completed, place the tap-changer in the neutral position.

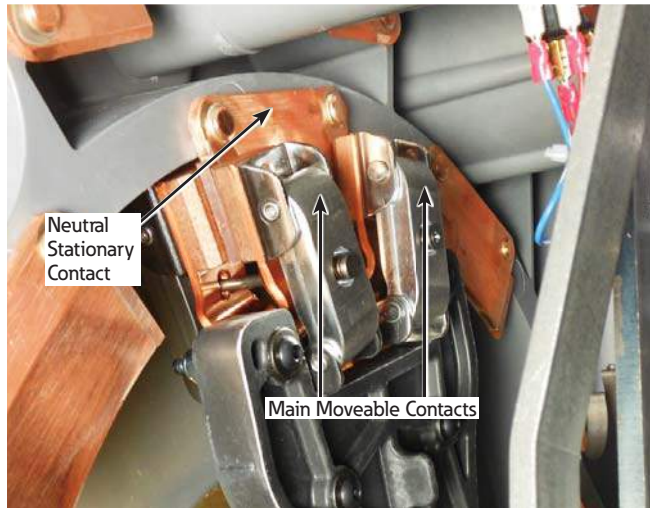
## Placing tap-changer into neutral

1. Place a 3/8" socket with extension and ratchet on the output shaft of the motor; rotate the motor until the contacts and other components are aligned in the neutral position. See Figure 8.



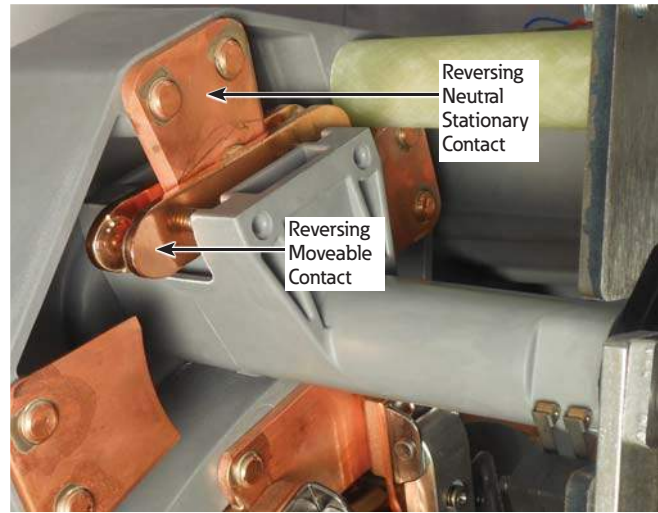
**Figure 8. Rotating the motor shaft**

2. Confirm that the regulator is in the neutral position:
  - A. Main movable contacts are located on the neutral stationary contact, which is located at the 11 o'clock position. See Figure 9.



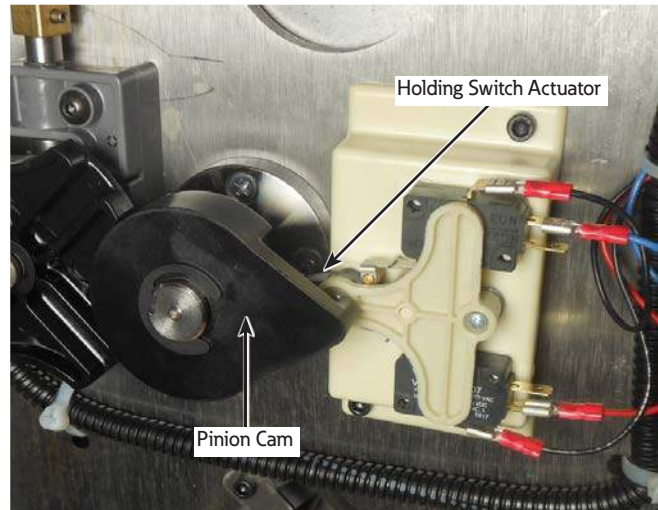
**Figure 9. Neutral stationary contact position for main movable contacts**

- B. The reversing movable contact is located on the reversing neutral stationary contact. See Figure 10.



**Figure 10. Neutral position for reversing movable**

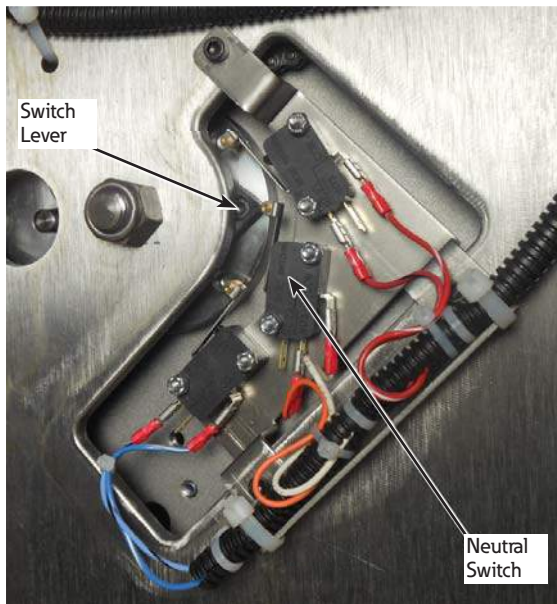
- C. The pinion cam is pointing to the right over the holding switch actuator. See Figure 11.



**Figure 11. Neutral position for position indicator pinion cam and holding switch**



D. The neutral switch will be depressed with the switch lever. See Figure 12.



**Figure 12. Neutral switch is depressed**



**Eaton**  
1000 Eaton Boulevard  
Cleveland, OH 44122  
United States  
Eaton.com

**Eaton's Power Systems Division**  
2300 Badger Drive  
Waukesha, WI 53188  
United States  
Eaton.com/cooperpowerseries

**EAT•N**  
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