

Voltage Regulators

Service Information

S225-50-28

Relay Retrofit Kit Instructions

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GENERAL

The purpose of the relay retrofit kit is to prevent the neutral light on a CL6A control panel from staying on continuously when the CL6A control is installed on a McGraw/Cooper voltage regulator built from 1988 and earlier.

Note: Two things are required for the retrofit to prevent the CL6A neutral light from being on when not in the neutral position. This application improvement needs the relay to be install on the back panel of the control cabinet and wired correctly to the TB1 and TB2 terminal boards. TB1 is the top terminal board and TB2 in the bottom terminal board located on the back panel. The second requirement is that the Firmware on the CL6A control panel must be at least a version 1.04. To check the version Firmware installed, check function code 89. If the Firmware version is 1.03 or earlier go to the www.cooperpowercentral.com/software/voltageregulator/ and download the Firmware and Instructions, or call your Cooper Power Systems Representative.

TABLE 1
Parts supplied

Item	Part Number	Description	Qty
1	0800071080	AC 120 V Relay CRA/Neutral LT	1
2	0800071081	AC 120 V Relay Socket CRA/NL LT	1
3	TAA114723005	Pre-Insulated 22-16 #6 Stud Terminal	4
4	102AA046AKAK200	Lead Assy. - Red/Black 20 GA	1
5	102AA016AKAK200	Lead Assy. - White/Red 20 GA	1
6	102AA005AKAK200	Lead Assy. - Orange 20 GA	1
7	102AA008AKAK200	Lead Assy. - White 20 GA	1
8	TAA136263001	Tie Raps	8
9	0800043087	Screw Mach 6-32x1 SL RD HD x MS-ZP	1

Tools Required

- Screw Driver: Standard
- Screw Driver: Phillips
- Diagonal Cutters
- Crimping Tool

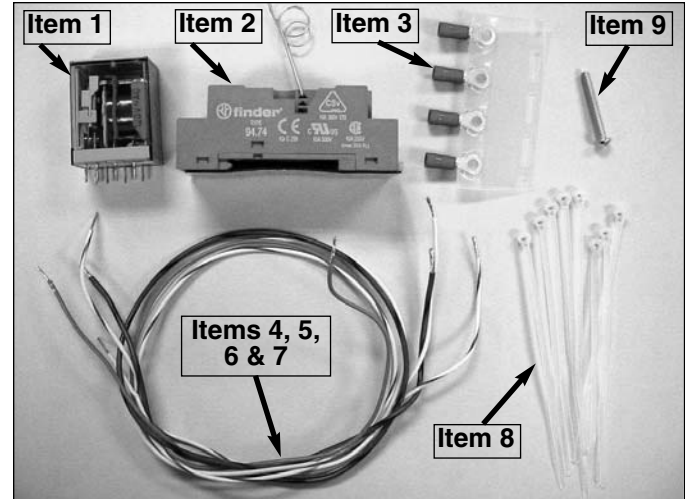


Figure 1.
Kit Parts

INSTRUCTIONS

Removal of Neutral Light Lead.

1. Locate the White/Red Neutral Light lead on TB1. TB1 is the terminal board located at the top of the back panel. See Figure 2.

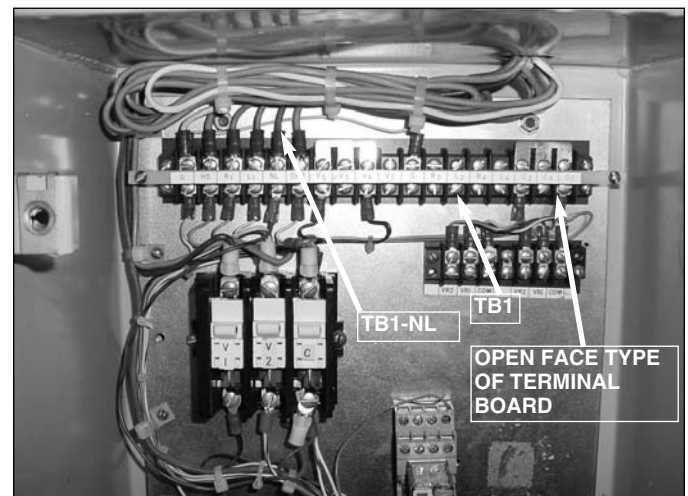


Figure 2.
TB1 Terminal Board.

2. Using a standard screwdriver remove the White/Red Neutral Light lead from TB1-NL (See Figure 3).

These instructions do not claim to cover all details or variations in the equipment, procedure, or process described, nor to provide directions for meeting every contingency during installation, operation, or maintenance. When additional information is desired to satisfy a problem not covered sufficiently for the user's purpose, please contact your Cooper Power Systems sales engineer.



SAFETY FOR LIFE



Cooper Power Systems products meet or exceed all applicable industry standards relating to product safety. 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 Cooper Power Systems 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 flash clothing, safety glasses, face shield, hard hat, rubber gloves, 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 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 equipment can result in death, severe personal injury, and equipment damage.

G122.2

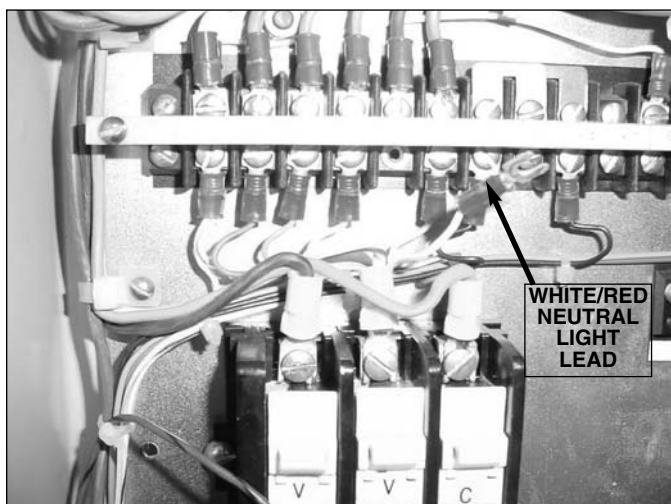


Figure 3.
Neutral Light Lead.

3. Using diagonal Cutters clip off the terminal on the White/Red lead.
4. Locate the White/Red Neutral Light lead on TB2. TB2 is the terminal board located at the bottom of the back panel (See Figure 4).

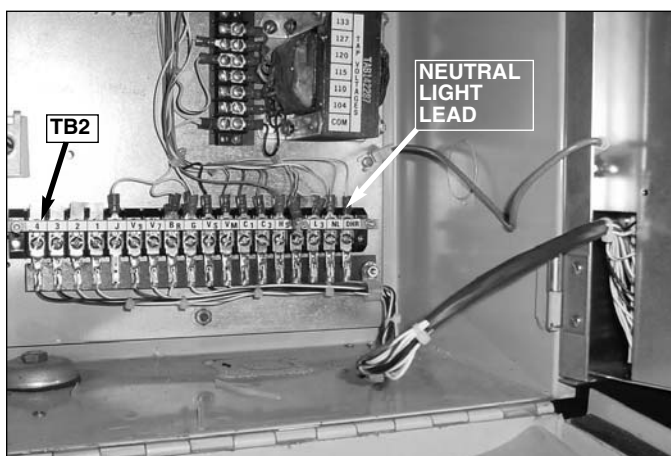


Figure 4.
TB2 Terminal Boards.

5. Using a standard screwdriver remove the White/Red Neutral Light lead from TB2-NL (See Figure 5).
6. Pull the White/Red neutral Light lead from the back panel wiring harness.

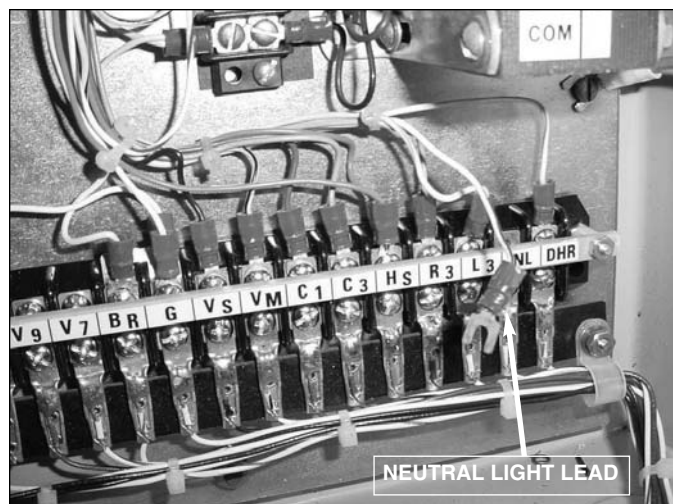


Figure 5.
TB2 – NL Lead.

Relay and Socket Installation Instruction.

7. Using a wire-crimping tool, crimp an Item 3, pre-insulated terminals to one end of each of the supplied lead assemblies items 4, 5, 6 & 7, if the terminal boards on the back panel is an open face screw type terminal boards (See Figure 2).
8. If the terminal boards on the back panel are not an open face screw terminal board, but are a dead front terminal connection, Item 3 pre-insulated terminals are not required (See Figure 6).

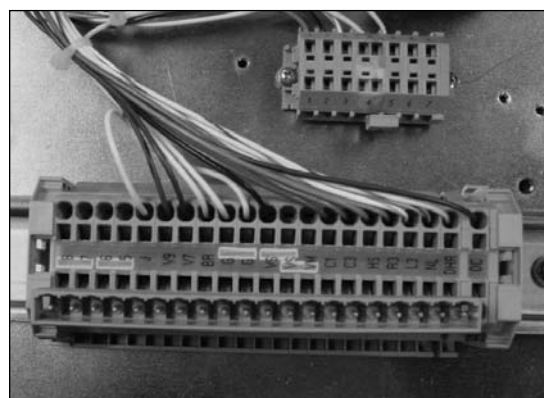


Figure 6.
Dead Front Terminal Boards.

9. Remove the relay from the relay socket if not already separate (See Figure 7).

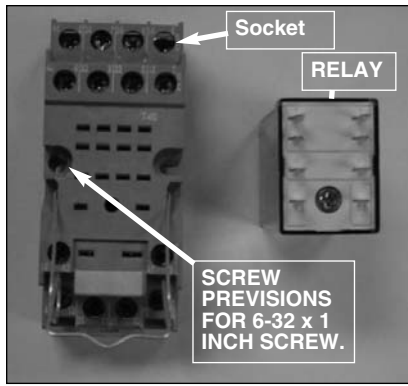


Figure 7.
Socket and Relay.

10. Connect the supplied color-coded wires to the relay socket per the following chart.

TABLE 2
Relay Socket Wiring Connections

Wire	Socket Post	
Red/Black	to #13 coil	socket post is marked A1 13
White	to #14 coil	socket post is marked 14 A2
Orange	to #5	socket post is marked 14 5 NO
White/Red	to #9	socket post is marked 11 9 COM

11. Locate the relay socket at a convenient location, preferably somewhere in the middle of the back panel. Ideally in a location where there is an open number 6 tap hole available to be able to use the 6-32 x 1 inch machine screw that is supplied for aid of fastening the socket to the back panel.
12. Peel off the protection covering from the adhesive on the back of the relay socket.
13. If the socket is being placed so that the 6-32 machine screw is being placed so that the 6-32 x 1 inch machine screw is being used, insert the item 9, 6-32 x 1 inch machine screw into the screw hole located in the center left of the socket (See Figure 7).
14. Place the socket on the back panel.
 - If using the screw, start the screw, press the socket on to the back panel until the adhesive tape is fastened to the back panel, and tighten the screw (See Figure 8).
 - **OR** if not using the screw, locate and press the socket to the back panel until the adhesive adheres to the back panel.

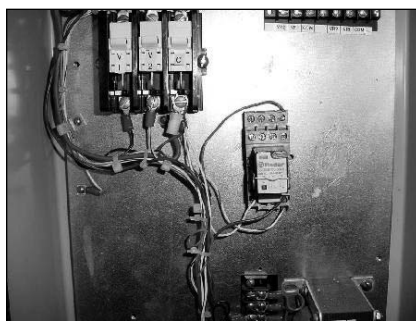


Figure 8.
Relay and socket mounted on back panel.

15. Connect the relay socket wires to TB1 and TB2 terminal boards as follows.

TABLE 3
Terminal Board and Connections

Wire	Terminal Board
Red/Black #13	TB1 – NL
White/Red #9	TB2 – NL
Orange #5	TB2 – HS
White #14	TB2 – G

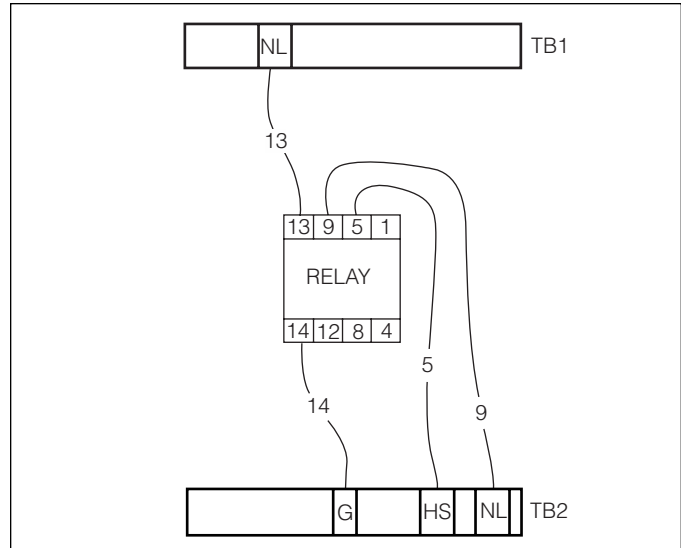


Figure 9.
Wiring Diagram

16. Plug the relay into the relay socket; making sure that the relay is matched up correctly.
17. Using Item 8, Tie Raps route and secure leads to the back panel wiring harness (See Figure 10).

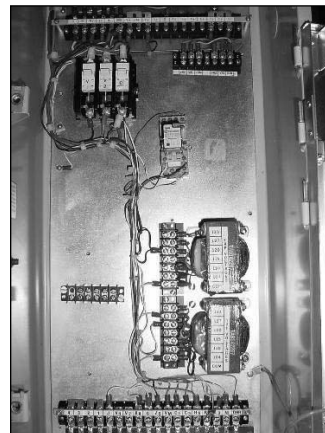


Figure 10
Back Panel Wiring Harness.

18. Manually tap the regulator off of neutral to a tap position assuring that the relay is working and the neutral light is off when on a tap position.
19. Return regulator to neutral. The neutral light should be on.