

CMC A-MATIC 100A
SOLID STATE "A" RELAY
INSTALLATION PROCEDURES

1. GENERAL

1.01 This Section describes the procedures required for the installation of the CMC A-MATIC 100A Solid State "A" Relay.

1.02 This Section is revised to present information on the identification kit and connecting wires now furnished with the Solid State "A" Relay. The major changes are indicated by vertical lines to the left of the change.

1.03 The **CMC SOLID-STATE "A" RELAY** is a replacement for the pulsing contacts on the "A" relay. It will replace "A" relays in either selectors or connectors, or the contacts of the line relay. In order to maintain good circuit balance, the relay coil is left in the circuit.

1.04 Once the SOLID-STATE "A" RELAY is installed, there are NEVER any adjustments required.

2. INSTALLATION PROCEDURES

2.01 In order to install the CMC 100A Solid-State "A" Relay, it is necessary to first remove the switch (selector/connector) from the shelf and place it in a switch stand (CMC 197 or equivalent — a practice covering the use of the CMC 197 Switch stand is available, no charge, by contacting the CMC Publication Department.)

CAUTION: Make certain that the 48V power is removed from the switch stand during installation of the Solid-State "A" Relay: Failure to observe this caution could result in damage to the Solid-State "A" Relay.

2.02 With the switch in the switch stand, proceed as follows:

- (1) Remove the back cover from the selector/connector (if equipped).
- (2) Unsolder the wires (three) from the "A" relay springs. *Do not remove the wires from the coil terminals.*

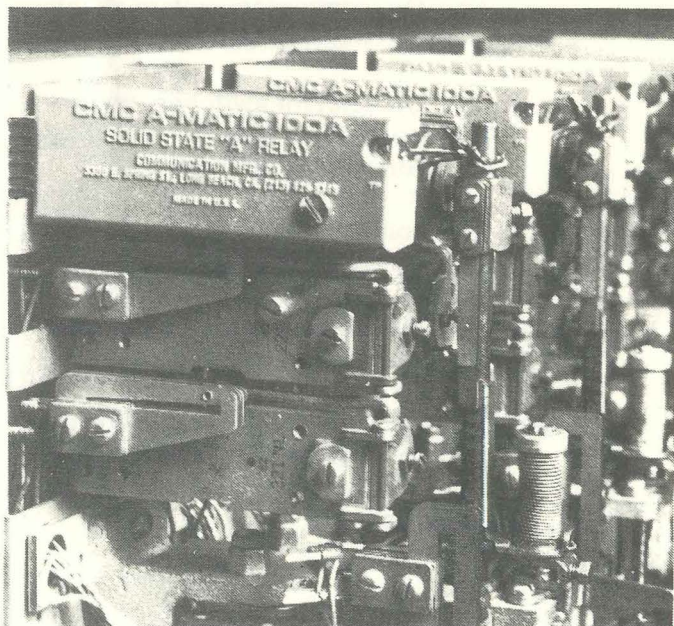
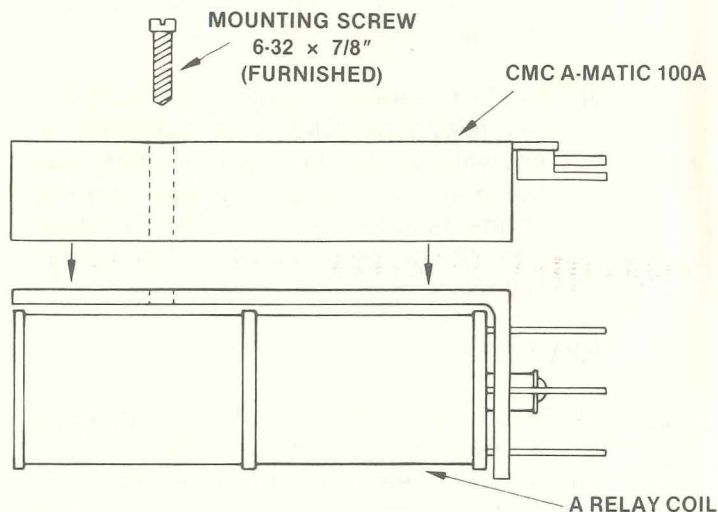


Figure 1 Mounting Solid-State "A" Relay on the "A" Relay Heel Piece.

NOTE: Identify the wires before removing (Figure 2). Use the identification kit included with the Solid-State "A" Relay for this purpose. These wires will be reused on the Solid-State "A" Relay or the wires furnished with the unit may be used.

- (3) Remove the relay armature and the spring pileup from the "A" relay and discard.
- (4) Install the CMC A-Matic 100A Solid-State "A" Relay as shown in Figure 1. Use the furnished 6-32 x 7/8" machine screw for mounting.
- (5) Wiring diagrams for some typical selector and connector circuit "A" Relay coils are shown in Figure 3. If the switch being worked on is not shown, the following procedure may be used to identify the "A" Relay coil terminals:
 - (a) Locate the battery wire (usually white). The coil terminal opposite to this terminal is the Ring terminal.
 - (b) Locate the ground wire.
 - (1) On connector switches, this is usually a red wire.
 - (2) On selector switches, trace or buzz this wire to the 11th rotary cam springs.

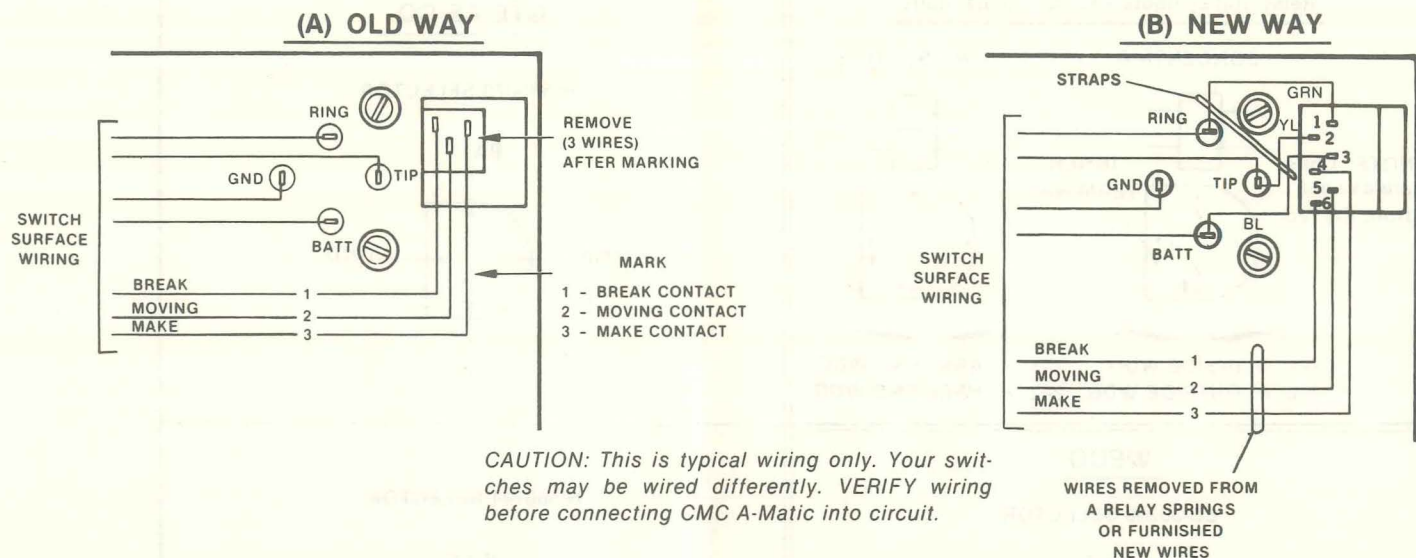
The coil terminal opposite to this terminal is the Tip terminal.

- (6) Connect the wires to the Solid-State "A" Relay as follows (see Figure 2):
 - (a) Connect the green strap wire (26 gauge) from the relay coil Ring terminal to the Solid-State "A" Relay Terminal 1.

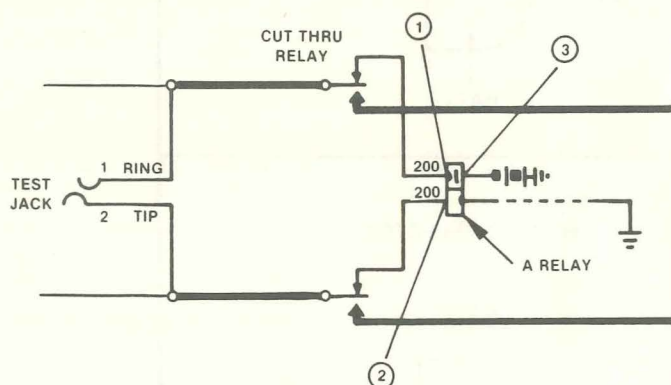
- (b) Connect the yellow strap wire (26 gauge) from the relay coil Tip terminal to the Solid-State "A" Relay Terminal 2.
- (c) Connect the blue strap wire (26 gauge) from the relay coil battery terminal to the Solid-State "A" Relay Terminal 3.
- (d) Connect the wire removed from relay spring 1 to the Solid-State "A" Relay Terminal 6 or trace the removed wire and run a new wire from the far end termination to the Solid-State "A" Relay Terminal 6.
- (e) Connect the wire removed from relay spring 2 to the Solid-State "A" Relay Terminal 5 or trace the removed wire and run a new wire from the far end termination to the Solid-State "A" Relay Terminal 5.
- (f) Connect the wire removed from relay spring 3 to the Solid-State "A" Relay Terminal 4 or trace the removed wire and run a new wire from the far end termination to the Solid-State "A" Relay Terminal 4.
- (7) Install the back cover on the selector/connector (if equipped) and replace the switch in its shelf location.
- (8) Verify the switch pulsing with a hand-test-telephone (CMC Trub-L-Shooter or equivalent). If the switch does not pulse, verify that the Ring strap (step 6a) connects to Terminal 1 and the Tip strap (step 6b) to Terminal 2 of the Solid-State Relay.

3. REPAIR

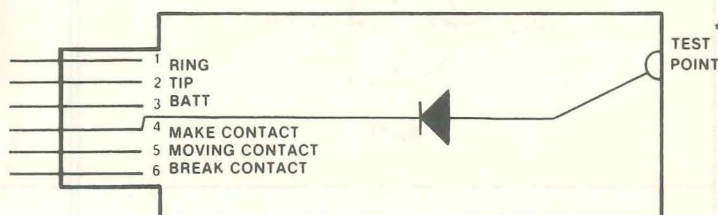
3.01 The CMC A-Matic 100A cannot be repaired due to the epoxy encapsulation of the circuitry. The unit has a 1 year warranty and should be returned to CMC for replacement in case of failure during this time.



SIMPLIFIED SCHEMATIC



CMC A-MATIC 100A



NOTES:

1. Typical two-section relay coil wiring shown. Coil wiring may vary (see Figure 3).
2. The numbers in circles ① indicate the CMC A-Matic 100A terminals.
3. Switches equipped with CMC A-Matic 100A units require only an "A" operate routine current flow test (F.S. 15.5 mA).

*The make contact is brought forward to the test point to provide easy access to the "B" relay coil for current flow testing.

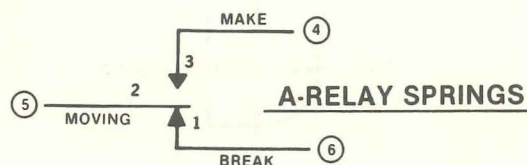


Figure 2 Connecting the CMC A-Matic 100A

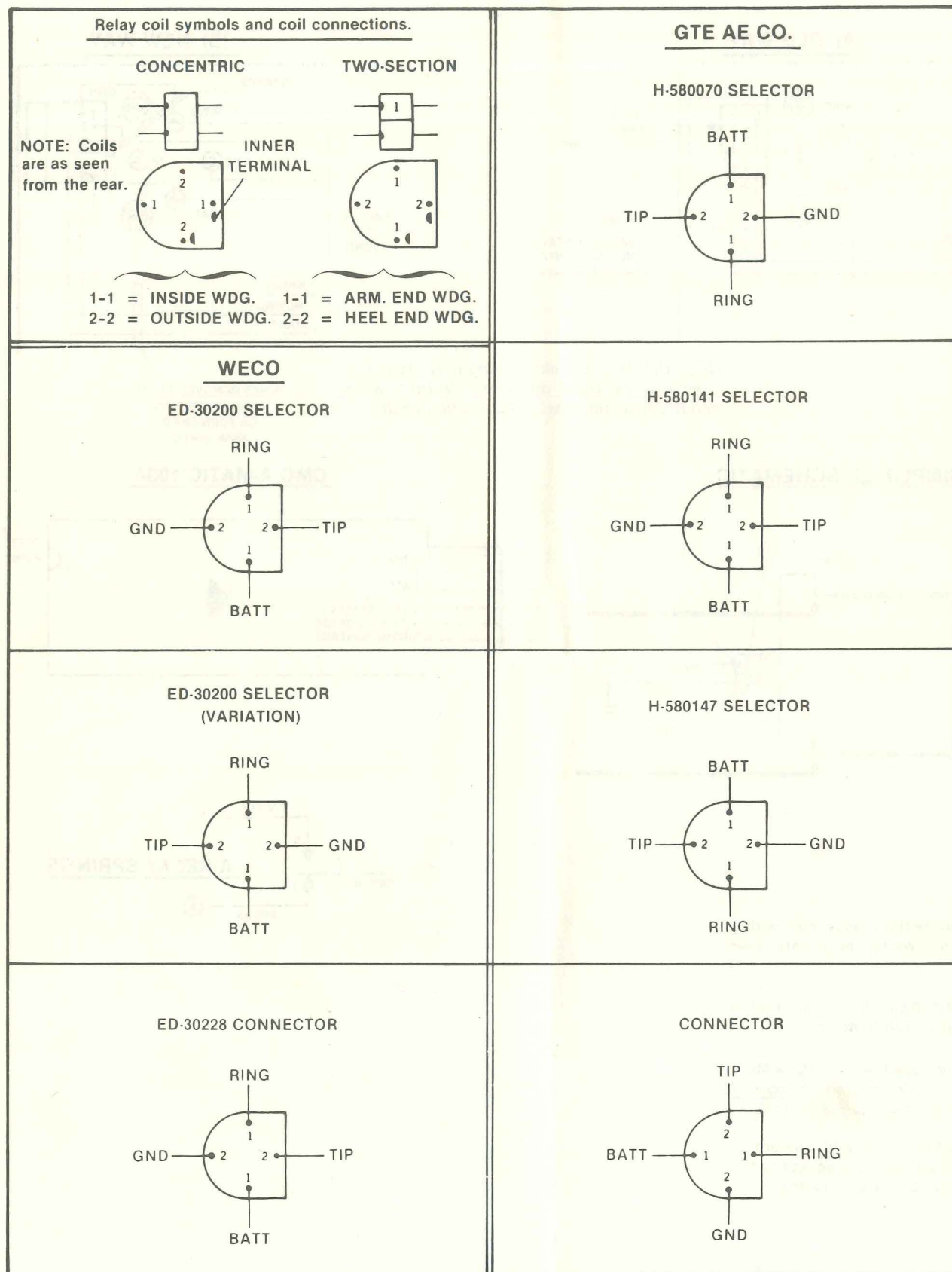


Figure 3 Typical Selector/Connector "A" Relay Wiring.

CMC A-MATIC 100AP
SOLID STATE "A" RELAY
INSTALLATION PROCEDURES

1. GENERAL

1.01 This Section describes the procedures required for the installation of the CMC A-MATIC 100AP Solid-State "A" Relay.

1.02 The **CMC A-MATIC 100AP SOLID-STATE "A" RELAY** is a replacement for the contacts on the "five spring" "A" relay. In order to maintain good circuit balance, the relay coil is left in the circuit.

1.03 Once the SOLID-STATE "A" RELAY is installed, there are NEVER any adjustments required.

2. INSTALLATION PROCEDURES

2.01 In order to install the CMC 100AP Solid-State "A" Relay, it is necessary to first remove the selector from the shelf and place it in a switch stand (CMC 197 or equivalent — a practice covering the use of the CMC 197 Switch stand is available, no charge, by contacting the CMC Publication Department.)

CAUTION: Be certain that the 48V power is removed from the switch stand during installation of the Solid-State "A" Relay.

2.02 With the selector in the switch stand, proceed as follows:

(1) Remove the back cover from the selector (if equipped).

(2) Unsolder the wires (five) from the "A" relay springs. *Do not remove the wires from the coil Terminals.*

NOTE: Identify (tag) the wires before removing (Figure 3). Use the tags included with the Solid-State "A" Relay for this purpose. These wires will be reused on the Solid-State "A" Relay.

(3) Remove the relay armature and the spring pileup from the "A" relay and discard.

(4) Install the CMC A-Matic 100AP Solid-State "A" Relay as shown in Figure 1. Use the furnished 6-32 x 7/8" machine screw for mounting.

(5) A wiring diagram for a typical selector circuit "A" Relay is shown in Figure 3. If the switch being worked on is not wired as shown, the following procedure may be used to identify the "A" Relay coil terminals:

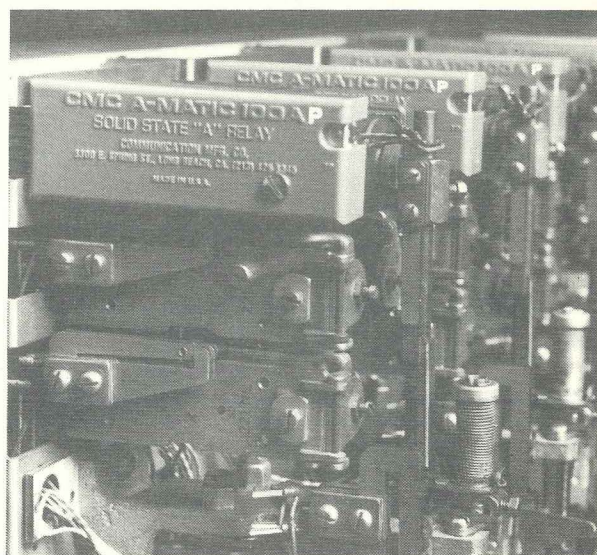
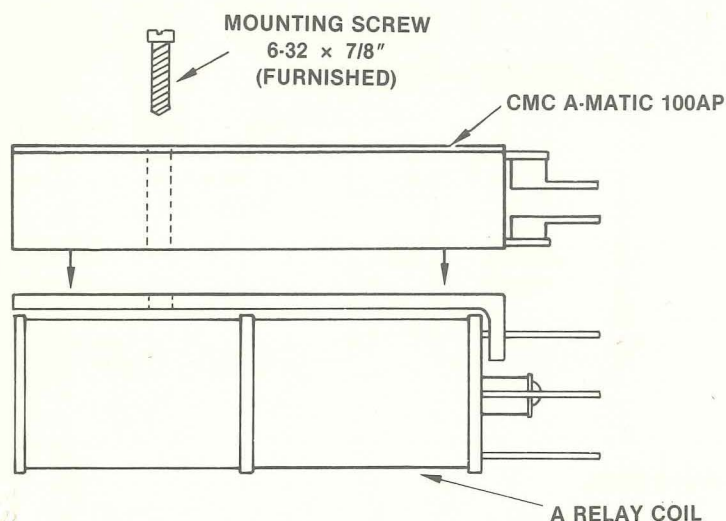


Figure 1 Mounting Solid-State "A" Relay on the "A" Relay Heel Piece.

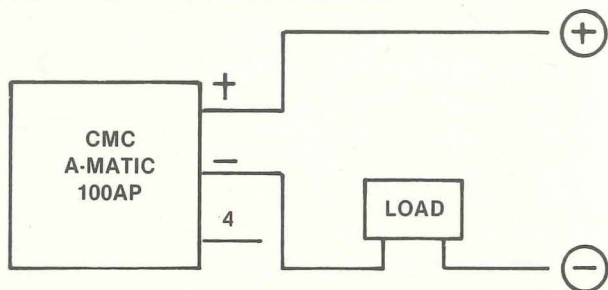
Section CMC A-Matic 100AP
Issue A

- (a) Locate the battery wire (usually white). The coil terminal opposite to this terminal is the Ring Terminal.
 - (b) Locate the ground wire by tracing or buzzing this wire to the 11th rotary step springs. The coil terminal opposite to this terminal is the Tip Terminal.
- (6) Connect the wires to the Solid-State "A" Relay as follows (see Figure 3):
- (a) Connect the green strap wire (26 gauge) from the relay coil Ring terminal to the Solid-State "A" Relay Terminal 1.
 - (b) Connect the yellow strap wire (26 gauge) from the relay coil Tip Terminal to the Solid-State "A" Relay Terminal 2.
 - (c) Connect the blue strap wire (26 gauge) from the relay coil battery terminal to the Solid-State "A" Relay Terminal 3.
 - (d) Connect the wire removed from relay spring 1 to the Solid-State "A" Relay Terminal 6.
 - (e) Connect the wire removed from relay spring 2 to the Solid-State "A" Relay Terminal 5.
 - (f) Connect the wire removed from relay spring 3 to the Solid-State "A" Relay Terminal 4.
 - (g) Connect the wire removed from relay spring 4 to the Solid-State "A" Relay Terminal +.
 - (h) Connect the wire removed from relay spring 5 to the Solid-State "A" Relay Terminal -.
 - (i) **CAUTION:** Circuit polarity must be observed when connecting the wires in Steps (f) and (g) (see Figure 2.)
- (7) Install the back cover on the selector (if equipped) and replace the switch in its shelf location.
- (8) Verify the switch pulsing with a hand-test-telephone (CMC Trub-L-Shooter or equivalent). If the switch does not pulse, verify that the Ring strap (step 6a) connects to Terminal 1 and the Tip strap (step 6b) to Terminal 2 of the Solid-State Relay.

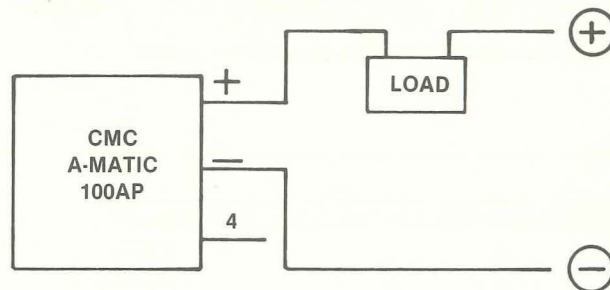
3. REPAIR

3.01 The CMC A-Matic 100AP cannot be repaired due to the epoxy encapsulation of the circuitry. The unit has a 1 year warranty and should be returned to CMC for replacement in case of failure during this time.

Ⓐ BATTERY CONNECTED LOAD



Ⓑ GROUND CONNECTED LOAD



LOAD = Lamp or Relay.

Figure 2 Connecting the CMC A-Matic 100AP +/- Terminals.