
INSTALLATION INSTRUCTIONS

Circuit Board Kit 292481 (12 Volt) and 292482 (24 Volt)

(for Float/Equalize Battery Chargers 292862, 292863, 292864 and 292865)

The circuit board kits are replacement main circuit boards for Float/Equalize Battery Chargers. If the charger main circuit board fails and a new circuit board is installed, the new circuit board must be calibrated according to the following procedure. Observe the following safety precautions during circuit board installation and calibration.

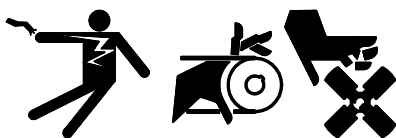
**WARNING**

Sulfuric acid in batteries.
Can cause severe injury or death.

Use protective goggles and clothes. Can cause permanent damage to eyes, burn skin, and eat holes in clothing.



Sulfuric acid in batteries can cause severe injury or death. Sulfuric acid in battery can cause permanent damage to eyes, burn skin, and eat holes in clothing. Always wear splash-proof safety goggles when working around the battery. If battery electrolyte is splashed in the eyes or on skin, immediately flush the affected area for 15 minutes with large quantities of clean water. In the case of eye contact, seek immediate medical aid. Never add acid to a battery once the battery has been placed in service. Doing so may result in hazardous spattering of electrolyte.

**WARNING**

Accidental starting.
Can cause severe injury or death.

Disconnect battery cables before working on generator set (negative lead first and reconnect it last).

**WARNING**

Hazardous voltage can cause severe injury or death. Improper reconnection may damage charger and battery(ies), and create an electrical shock hazard. Installation must be done by a qualified electrician.

**CAUTION**

Short circuits can cause bodily injury and/or equipment damage. Do not contact electrical connections with tools or jewelry while adjustments are made. Remove wristwatch, rings, and jewelry that can cause short circuits.

Installation

1. Move generator controller master switch to OFF.
2. Turn off battery charger AC voltage supply.
3. Remove charger leads from battery (negative lead first).
4. Remove screw securing battery charger cover assembly. Carefully open charger door.
5. Disconnect wiring harness from charger main circuit board. Remove hardware securing circuit board to charger housing.

6. Install new main circuit board and secure with original hardware.
7. Connect wiring harness plug to circuit board.
8. Connect red charger output lead to battery positive (+) terminal and black battery charger output lead to battery negative (–) terminal.

NOTE

Voltmeter will read zero and charger will not turn on if leads are reversed.

9. Turn on battery charger AC voltage supply. Charger “Power On” lamp will light and ammeter and voltmeter will show charging current and battery voltage.

CALIBRATION PROCEDURE

NOTE

Before beginning adjustment procedure, wrap entire blade of insulated screwdriver with electrical tape. Use taped screwdriver to turn circuit board adjustment potentiometers. Be sure to use a quality multimeter accurate to within 1% when performing adjustment procedure.

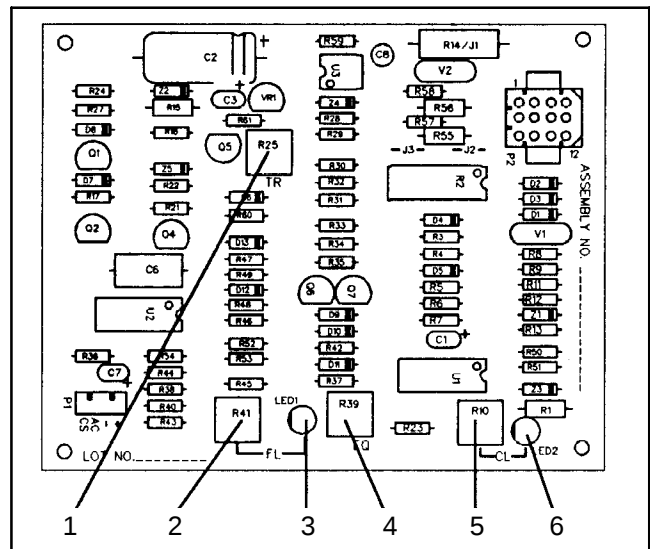
CURRENT-LIMITING ADJUSTMENT

The charger is protected from overload by current-limiting circuitry that continuously monitors the charger output current and is set to limit the current to 10 amps from full load to short circuit. Adjust current-limiting circuitry as follows:

1. With charger properly connected to battery, turn on AC voltage supply and check battery charger ammeter reading. (The charger will be in the current-limit mode.) Amperage should be between 10 and 10.5 amps and LED 2 (on circuit board) should be lit. If DC amperage is not within this range and battery reading is less than 13 volts, adjust circuit board R10 potentiometer clockwise (increase) or counterclockwise (decrease) until DC amperage is within the 10- to 10.5-amp range. If battery voltage is greater than 13 volts, “load” battery (by installing variable resistor in parallel with

battery) to allow current greater than 10 amps to flow. Perform adjustment procedure as specified above. Circuit board adjustment potentiometers are identified in Figure 1. Disconnect load from battery at variable resistor to prevent sparks at battery.

2. The charger will switch to the float mode (LED 1 on) when charger amperage drops to 4.5–5.5 amps (Equalize time period is dependent upon battery condition.) If the charger does not switch to the float mode as specified, perform steps 2.a. through 2.c., below.



1. R25 Potentiometer
2. R41 Potentiometer
3. LED 1
4. R39 Potentiometer
5. R10 Potentiometer
6. LED 2

Figure 1. Main Circuit Board Adjustment Pots

- 2.a. Rotate R25 pot. fully clockwise.
- 2.b. Load battery to 6 amps from charger (by installing variable resistor in parallel with battery). See Figure 2 for proper installation of variable resistor in battery/charger circuit.
- 2.c. With the charger in “float” mode (LED 1 on), rotate R25 potentiometer counterclockwise until LED 1 turns off. Remove variable resistor upon completion of this step.

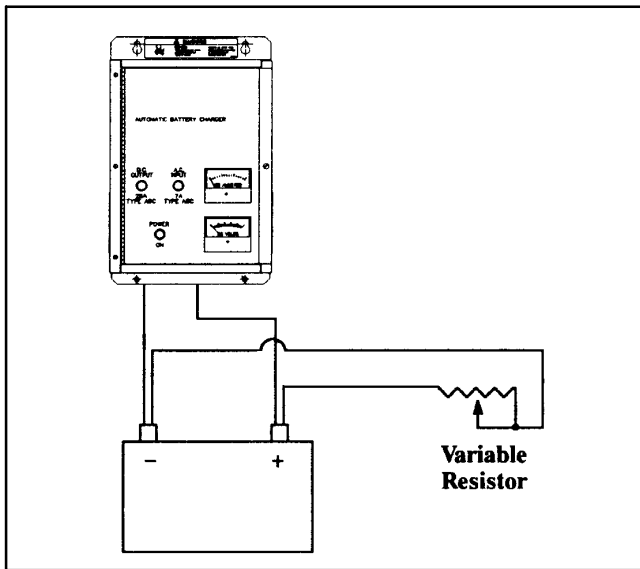


Figure 2. Load Applied to Battery

CHARGER VOLTAGE ADJUSTMENT

Before adjusting charger voltage, the charger should be allowed to complete one charging cycle. Upon completion of the charging cycle, the charger will be in the float mode and circuit board LED 1 should be on.

Due to the length of time required for the battery to respond to changes in voltage settings, the adjustments should be made in small increments. Select the correct adjustment procedure based upon the battery type and cell number.

CHARGERS CONNECTED TO 6/12-CELL LEAD-ACID AND 9/18-CELL NICKEL-CADMIUM BATTERIES

NOTE

Do not allow charger output current to exceed 5 amps during this adjustment or the charger will switch to the equalize mode.

1. Adjust the charger float voltage by turning the R41 potentiometer clockwise to increase and counterclockwise to decrease. When the charger ammeter reads less than 2 amps at the desired voltage, the float voltage is set. Recommended float voltage for 12-volt chargers connected to 6-cell lead-acid and 9-cell nickel-cadmium batteries is 13 volts. Recommended float voltage for 24-volt chargers connected to 12-cell lead-acid and 18-volt nickel-cadmium batteries is 26 volts.
2. To switch the battery charger into the equalize mode for adjustment, remove AC power from the charger for one minute, then restore it. The charger is now in the constant-current mode (LED 2 is on). When both LED 1 and LED 2 are off, the charger is in the equalize mode. Rotate the R39 potentiometer clockwise to increase the equalize voltage and counterclockwise to decrease the equalize voltage. Recommended equalize voltage is 14 volts for 12-volt chargers (connected to 6-cell lead-acid and 9-cell nickel-cadmium batteries) and 28 volts for 24-volt chargers (connected to 12-cell lead-acid and 18-cell nickel-cadmium batteries).
3. Recheck voltages by allowing charger to cycle through the voltage modes; readjust if necessary. When adjustments have been completed, close battery charger cover door and tighten screw.

NOTES