



***LaMARCHE***®

**A48 /**  
**A48B (base plate)**

BATTERY

CHARGER

ECN/DATE

**CPN41054**

		<b>16816 – 6/05</b>	15349-07-07/02
		16041 – 6/03	14575-2/01

**106 BRADROCK DRIVE**  
**DES PLAINES, IL. 60018-1967**  
**(847) 299-1188**  
**FAX: (847)299-3061**

ISSUE DATE: 12315 - 8/98

INSTRUCTION DRAWING NUMBER:

P25-**LA48-1**

**IMPORTANT SAFETY INSTRUCTIONS**  
**FOR THE**  
**LA MARCHE POWER CONVERSION EQUIPMENT**  
**SAVE THESE INSTRUCTIONS**

This manual contains important safety and operating instructions for the La Marche Power Conversion Equipment.

Before using this equipment, read all instructions and cautionary markings on (1) unit, (2) battery, and (3) product using the battery.

**CAUTION: To reduce risk of injury and/or damage to the batteries, use only the type of batteries specified on the charger.**

**Do not** expose equipment to rain or snow.

**Do not** operate equipment if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified serviceman.

**Do not** disassemble this unit; take it to a qualified serviceman when service or repair is required. Incorrect re-assembly may result in a risk of electric shock or fire.

To reduce risk of electric shock, disconnect this unit from the AC supply, or batteries and loads before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.

WARNING – THERE IS A RISK OF EXPLOSIVE GASSES AND WORKING IN THE VICINITY OF A BATTERY IS DANGEROUS. SOME BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS OF UTMOST IMPORTANCE THAT EACH TIME BEFORE USING THIS UNIT, YOU READ THIS MANUAL AND FOLLOW THE INSTRUCTIONS EXACTLY.

To reduce risk of battery explosion, follow these instructions and those published by the battery manufacturer and manufacturer of any equipment you intend to use in the vicinity of the battery.

Review cautionary marking on all products .

**PERSONAL PRECAUTIONS:**

1. Someone should be within range of your voice or close enough to come to your aid when you work near a battery.
2. Have plenty of fresh water and soap nearby in case the battery electrolyte contacts skin, clothing, or eyes.
3. Wear complete eye protection and clothing protection. Avoid touching eyes while working near a battery.
4. If the battery electrolyte contacts skin or clothing, wash immediately with soap and water. If the electrolyte enters the eye, immediately flood the eye with running cold water for at least ten (10) minutes and get medical attention immediately.
5. Never smoke or allow a spark or flame in vicinity of a battery.
6. Be extra cautious, DO NOT drop metal onto a battery. It might spark or short-circuit the battery or cause an explosion.
7. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a battery. A battery can produce a short-circuit current high enough to weld these items causing severe burns.
8. NEVER charge a frozen battery.

### **PREPARING TO CHARGE**

1. If it is necessary to remove the battery connections, always remove grounded the terminal from the battery first. Make sure all loads are disconnected and unit is off, so as not to cause an arc.
2. Be sure the area around the battery is well ventilated while the battery is being charged.
3. When cleaning battery terminals, be careful to keep corrosion from coming in contact with eyes.
4. Study all the battery manufacturer's specific precautions such as removing or not removing cell caps while charging, recommended rates of charge, and maintenance procedures.

### **UNIT LOCATION**

- Never place this unit directly above the standard flooded battery. Gases from the battery will corrode and damage equipment. A sealed maintenance free or valve regulated lead acid (VRLA) may be placed below this equipment.
- Never allow the battery electrolyte to drip on this unit when reading the specific gravity or filling the battery.
- Do not operate this unit in a closed-in area or restrict ventilation in any way.
- Do not set any battery on top of this unit.

### **DC CONNECTION PRECAUTIONS**

Connect and disconnect DC output cables only after setting all of this unit's switches to off position and removing AC input supply.

### **GROUNDING INSTRUCTIONS**

This battery charger should be connected to a grounded, metal, permanent wiring system; or an equipment grounding conductor should be run with circuit conductors and connected to equipment-grounding terminal or lead on battery charger. Connections to battery should comply with all local codes and ordinances.

**CAUTION: DO NOT PULL ON OUTPUT CABLES WHEN DISCONNECTING CHARGER FROM BATTERY.**

## **RECEIVING INSTRUCTIONS AND GENERAL EQUIPMENT INFORMATION**

**CAUTION:** To ensure safe installation and operation, the information given in the instruction manual should be read and understood before installing or using the equipment.

### ***RECEIVING INSTRUCTIONS***

Unpacking and Inspection: Examine the shipping crate upon arrival. If there is obvious damage, describe on the receiving documents. Within a few days after delivery, the equipment should be uncrated and carefully inspected for hidden damages. When removing packaging material, be careful not to discard any equipment, parts, or manuals. If any damage is detected you should:

1. File a claim with the carrier within five (5) days.
2. Send a copy of the claim to La Marche Mfg. Co.
3. Call La Marche Mfg. For a RETURN MATERIAL AUTHORIZATION NUMBER.

***Failure to properly file a claim for shipping damages, or provide a copy of the claim to La Marche Mfg., may void warranty service for any physical damages reported for repair.***

### ***HANDLING***

***WARNING: Equipment can be very heavy, and top-heavy. Use adequate manpower or equipment for handling. Until the equipment is securely mounted, care must be used to prevent the equipment from being accidentally tipped over.***

### ***NOMENCLATURE PLATES***

Each piece of La Marche Mfg. Equipment shipped is identified by part number on the nomenclature plate.

### ***ADJUSTMENTS***

All equipment is shipped from the factory fully checked and adjusted. Do not make any adjustments unless the equipment has been powered-up and the settings have been determined to be incorrect.

### ***SPARE PARTS***

To minimize downtime during installation or normal service, it is advisable to purchase spare fuses, circuit boards and other recommended components. Please refer to the list of recommended spare parts and their La Marche Mfg. Part numbers included with the instruction manual. It is recommended that spare fuses be ordered for all systems.

To order spare parts, please contact La Marche Mfg. (847)-299-1188 during business hours and ask for the Parts Department.

# **INSTALLATION/OPERATING** **INSTRUCTIONS**

The Constavolt float rectifier is designed to operate on a specific number of battery cells. The nameplate indicates the type and the number of battery cells required. Once properly installed and adjusted, the rectifier will maintain the battery in a fully charged condition.

**CAUTION: THE A48/A48B IS NOT RECOMMENDED TO CHARGE SEALED/VALVE-REGULATED BATTERIES (VRLA)**

Install the A48 rectifier so that the flow of air through the ventilators is not obstructed. Binding posts with wire lug connectors are provided on a terminal board within the unit. When hooking up the DC cables to the battery, be certain the positive terminal of the charger is connected to the positive battery terminal and the negative terminal is connected to the negative of the battery. If the DC cables are not conduit connected, strain relief bushings, such as Heyco SR-7P-2, or the equivalent, must be used to clamp the DC cables. The AC input branch circuit to the unit must be fused or have a circuit breaker. A clamp is provided above the enclosure (on wall mounted units) for holding and routing the AC input wires to the charger input terminals. Wiring to the no current relay contacts shall be #16 AWG.

**NOTE: Base plate rectifier units (A48B) should be mounted in a vertical position.**

The charger is equipped with a charge divider circuit for isolating and charging two sets of batteries. *Note that the engine ground polarity is common for both batteries and the charger output is designed for either positive or negative ground (not both).* For example, a negative grounded engine must have a charger with two positive isolated terminals and one common negative terminal.

A voltage sensing relay is provided to automatically transfer the output to the high rate to bring the battery to full charge within a 24 hour period. When the battery is fully charged, the relay will transfer the charge rate to float. Upon power failure or engine cranking, the charger will automatically transfer to the high rate to quickly replenish the charge and return to the float charge rate.

In normal operation, the Model A48 float charger will maintain the battery at a constant battery voltage from no load up to its load capacity as indicated by the nameplate. If the load exceeds the charger capacity, the charger will current limit and the battery will supply the additional current. Upon removal of the load or excess load, the charger will automatically switch to the high rate to quickly replenish the discharged current. When the battery is fully charged, the rate will automatically switch to the float rate.

A no current alarm relay is provided to monitor the output current to each battery. Should the charger fail to deliver current to either battery, contacts transfer for remote alarm indication.

## **ADJUSTMENTS – CHARGER OUTPUT:**

The float and high rate settings are factory adjusted. Should field adjustment become necessary, proceed as follows:

- Disconnect the wire to terminal #3 of the control relay. This allows the unit to operate in the high rate position only.
- Adjust the high rate slider (green) and adjust so that the charger trickle charges at 2.37 – 2.38 volts per cell.
- Reconnect terminal #3 and jumper terminals 3 and 4. This will position the charger in the float rate.
- Adjust the (red) slider so that the charger trickle charges at 2.17 to 2.2 volts per cell.

## **ADJUSTMENTS – ELECTRONIC VOLTAGE CONTROL RELAY:**

The float transfer relay has two adjustment potentiometers. To adjust this relay, proceed as follows:

1. Turn both pots in the clockwise direction (there are no limit stops).
2. Disconnect the wire to terminal #3. This will allow the charger to operate in the equalize mode.
3. Turn pot "set V" counterclockwise until relay pulls in.
4. Reconnect wire to #3 to transfer unit reference to "float".
5. Adjust pot "set D" counterclockwise until relay drops out.
6. Unit will automatically transfer to high when relay drops out. Readjust pot "set V" so that the relay pulls in at 2.33 volts per cell. It may be necessary to crank the engine to discharge the battery to accomplish this setting.
7. The unit should be oscillating from "float" to "high" (at 2.33 volts per cell). If the unit does not transfer back to "high" rate, adjust the "set D" pot counterclockwise until it transfers.
8. Slowly turn the "set D" pot counterclockwise so that the unit stops oscillating and stays in "float" rate. The relay drop out point should be slightly below the float rate of the charger.
9. Crank the engine or discharge the battery. The relay should drop out at approximately 2.15 volts per cell and transfer to the "high" rate. When the battery comes up to full charge again, the relay will pull in at 2.33 volts per cell and transfer the unit reference to "float". The relay will not drop out because the unit reference will hold the "float" voltage of 2.17 – 2.2 volts per cell, which is above the relay drop out point of 2.15 volts per cell. Should the engine be cranked again, the relay will drop out and the cycle will repeat.



***La MARCHÉ***®

## **General Maintenance Procedure**

### **Yearly**

1. Blow out rectifier/inverter with a low-pressure air hose.
2. Make sure all connections are tight.
3. Perform a visual check on all internal components.
4. Check front panel meters and alarms for accuracy.

### **4th Year**

**REPEAT** ABOVE WITH THE ADDITION OF:

1. Check relay contacts for pitting or corrosion.
2. Check capacitors for leakage.

### **7th Year**

**REPEAT** ALL, WITH THE ADDITION OF:

1. Filter, resonating capacitors and control relays should be replaced.

### **10th Year**

**REPEAT** ALL WITH THE ADDITION OF: (except replacing capacitors and control relays, they should be replaced every 7 years)

1. Check magnetics, components and wiring for signs of excessive heat.

## **MANUFACTURER'S WARRANTY**

All La Marche Manufacturing Co. equipment has been thoroughly tested and found to be in proper operating condition upon shipment from the factory and is warranted to be free from any defect in workmanship and material that may develop within one year from date of purchase. In addition to the standard one (1) year warranty, La Marche warrants its magnetics and power diodes on a parts replacement basis only for nine (9) more years under normal use.

Any part or parts of the equipment (except fuses, DC connectors and other wear-related items) that prove defective within a one (1) year period shall be replaced without charge providing such defect, in our opinion, is due to faulty material or workmanship and not caused by tampering, abuse, misapplication or improper installation. Magnetics and power diodes are warranted for ten (10) years after date of purchase. During the last nine (9) years of this ten (10) year warranty period, the warranty covers parts replacement only, no labor or other services are provided by La Marche, nor is La Marche obligated to reimburse the owner or any other person for work performed.

Should a piece of equipment require major component replacement or repair during the first year of the warranty period, these can be handled in one of two ways:

1. The equipment can be returned to the La Marche factory to have the inspections, parts replacements and testing performed by factory personnel. Should it be necessary to return a piece of equipment or parts to the factory, the customer or sales representative must obtain authorization from the factory. If upon inspection at the factory, the defect was due to faulty material or workmanship, all repairs will be made at no cost to the customer during the first year. Transportation charges or duties shall be borne by purchaser.
2. If the purchaser elects not to return the equipment to the factory and wishes a factory service representative to make adjustments and/or repairs at the equipment location, La Marche's field service labor rates will apply. A purchase order to cover the labor and transportation cost is required prior to the deployment of the service representative.

In accepting delivery of the equipment, the purchaser assumes full responsibility for proper installation, installation adjustments and service arrangements. Should minor adjustments be required, the local La Marche sales representative should be contacted to provide this service only.

All sales are final. Only standard LaMarche units will be considered for return. A 25% restocking fee is charged when return is factory authorized. Special units are not returnable.

In no event shall La Marche Manufacturing Co. have any liability for consequential damages, or loss, damage or expense directly or indirectly arising from the use of the products, or any inability to use them either separately or in combination with other equipment or materials, or from any other cause. In addition, any alterations of equipment made by anyone other than La Marche Manufacturing Co. renders this warranty null and void.

La Marche Manufacturing Co. reserves the right to make revisions in current production of equipment, and assumes no obligation to incorporate these revisions in earlier models.

The failure of La Marche Manufacturing Co. to object to provisions contained in customers' purchase orders or other communications shall not be deemed a waiver of the terms or conditions hereof, nor acceptance of such provisions.

The above warranty is exclusive, supersedes and is in lieu of all other warranties, expressed or implied, including any implied warranty of merchantability or fitness. No person, agent or dealer is authorized to give any warranties on behalf of the Manufacturer, nor to assume for the Manufacturer any other liability in connection with any of its products unless made in writing and signed by an official of the manufacturer.