



***LaMARCHE***®

**A39**

**UNIVERSAL SCR CHARGER**

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

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INSTRUCTION DRAWING NUMBER:  
P25-**LA39-1**

## IMPORTANT SAFETY INSTRUCTIONS

1. **SAVE THESE INSTRUCTIONS.** This manual contains important safety and operating instructions. Before using this equipment, read all instructions and cautionary markings on (1) unit, (2) battery, and (3) product using the battery.
2. **CAUTION:** To reduce risk of injury and/or damage to the batteries, use only the type of batteries specified on the charger nameplate.
3. Do not expose equipment to rain or snow.
4. 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.
5. 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.
6. To reduce risk of electric shock, disconnect this unit from the AC supply, batteries and loads before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.
7. **WARNING – RISK OF EXPLOSIVE GASES**
  - a. 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
  - b. 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.
8. **PERSONAL PRECAUTIONS:**
  - a. Someone should be within range of your voice or close enough to come to your aid when you work near a battery.
  - b. Have plenty of fresh water and soap nearby in case the battery electrolyte contacts skin, clothing, or eyes.
  - c. Wear complete eye protection and clothing protection. Avoid touching eyes while working near a battery.
  - d. 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.
  - e. Never smoke or allow a spark or flame in vicinity of a battery.
  - f. Be extra cautious, DO NOT drop metal onto a battery. It might spark or short-circuit the battery or cause an explosion.
  - g. 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.
  - h. NEVER charge a frozen battery.
  - i. Do not use battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to person or damage to property.
9. **PREPARING TO CHARGE**
  - a. If it is necessary to remove the battery connections, always remove grounded terminal from the battery first. Make sure all loads are disconnected and unit is off, so as not to cause an arc.
  - b. Be sure the area around the battery is well ventilated while the battery is being charged.
  - c. When cleaning battery terminals, be careful to keep corrosion from coming in contact with eyes.
  - d. 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.
  - e. Follow the battery manufacturer's recharging instructions.
10. **UNIT LOCATION**
  - a. 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.
  - b. Never allow the battery electrolyte to drip on this unit when reading the specific gravity or filling the battery.
  - c. Do not operate this unit in a closed-in area or restrict ventilation in any way.
  - d. Do not set any battery on top of this unit.

### 11. 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. Do not pull on output cables when disconnecting charger from battery.

### 12. 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.

## 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.

## MODEL A39 "UNIVERSAL CHARGER"

The La Marche Model A39 "Universal Charger" is a microprocessor controlled SCR charger which has adjustable output voltage, adjustable output current limit, and an adjustable charge timer.

The output voltage, output current, time left to charge, and error codes are displayed on a 1/2" high red LED digital display.

The voltage range adjusts from 10% to 100% of the rated value, the current limit range from 5% to 100% of rated output current, and the charge timer range adjusts between 30 minutes to 99 hours in 30 minute increments.

The A39 may be used as a constant current charger where the open circuit voltage can be adjusted, or as a constant voltage charger with a current limit mode. The voltage characteristics in the constant voltage mode are programmable by "dip" switches for a "flat" 1% regulation curve or a tapered charge curve.

A "select" push-button changes the display function from amps, to volts, or to time. These are displays of actual unit conditions.

The "set" mode is actuated by depressing the "select" push-button and holding it in. The toggle switch then allows adjustment of voltage current limit, or timer hours up or down from the initial setting.

The initial voltage setting is derived from the actual battery voltage when the battery is connected. The current limit automatically defaults to 20% of the rated output and the charge timer defaults to 8 hours on start up.

The Model A39 will "Auto" start upon connection to a battery and "Auto" stop when the charge cycle is terminated by disconnection or a normal charge complete.

### STANDARD FEATURES

- \* Microprocessor Control
- \* Digital Display 1/2" Red LED (Amps, volts, amp hours, elapsed time, error codes, voltage setting, current setting, timer setting)
- \* LED Lights for "ON" charge, Charge complete, Unit failure, Current limit
- \* Digitally adjustable current limit, output voltage, and charge time
- \* Constant current mode
- \* "Flat" 1% Regulation mode
- \* Tapered charge curve mode
- \* Wide Current, voltage, & timer ranges
- \* Auto Start/Stop Circuitry
- \* AC Breaker
- \* Automatic Surge Protection
- \* Output cables with lugs
- \* Single & Three Phase inputs
- \* Fault mode diagnostics
- \* DC fuse (Standard)
- \* DC Breaker (Optional)
- \* Reverse Polarity Protection

## THEORY OF OPERATION AND INDICATORS

### OPERATION AND ADJUSTMENTS

1. Permanently connect the battery to the charger before turning on the AC breaker. (*Observe battery for proper polarity*) *Battery clips are not recommended.*
2. Turn on the AC breaker and then the on/off switch on the digital display. The unit will go through a lamp test, flashing all LED's and displaying "8888". Then the AC contactor will pull in and digital display will show battery voltage. The unit will default to the voltage of the battery drawing only a small amount of current (20% maximum, the default current limit setting). The "ON" light should now be lit indicating that the charger is now running.
3. SETTING THE VOLTAGE: While in the "volts" mode, hold in the push to select switch and use the adjust up/down switch until the desired voltage setting is reached. (To prevent overheating and excessive gassing, set the voltage to 2.4Vpc on a fully discharged battery.)
4. SETTING THE CURRENT LIMIT: Push the select button to the "Amps" mode, hold in the push to select switch and use the adjust up/down switch until the desired current limit setting is reached.
5. SETTING THE CHARGE TIME: Push the select button to the "Elapsed" "Time" mode, hold in on the push to select switch and use the adjust up/down switch until the desired charge time is reached.
6. The A39 will stay in current limit until the set voltage is reached. Once the set voltage is reached the current will start to taper. The A39 will run for the specified amount of time and then go to a "Complete" mode, which is indicated by the complete light. You can toggle through the different modes, indicating battery voltage, amp-hours returned, and elapsed time once the A39 has turned off. NOTE: If a fully charged battery is connected to the A39, the set voltage will be reached rapidly and the DC current will taper, possibly turning the A39 off on Code 3 (low DC current).
7. Before disconnecting the battery turn the AC breaker "OFF".

### LAMPS & SWITCHES

1. "ON" Charge Lamp - indicates the charger is operating.
2. Complete (solid) - indicates the charger has turned off.
3. Current Limit (adjustable 10-100%) - indicates the unit is in current limit.
4. Failure - indicates the unit turned off because of low or high AC voltage or low current or high DC output (voltage, current).

CODE 0001 Low AC input voltage  
 CODE 0002 High AC input voltage  
 CODE 0003 Low DC current  
 CODE 0005 High DC voltage and current

NOTE: Switch 7 on SW-1 will activate the low current shutoff when in the "ON" position. Switch 8 on SW-1 will activate the timer when in the "ON" position. All other switches are factory set.

## TROUBLESHOOTING

- UNITS AC BREAKER TRIPS:**
- A) Check AC input voltage.
  - B) Check transformer tap setting.

- DIGITAL DISPLAY FLASHING "0000"  
WITH THE VOLTS LIGHT FLASHING AT A  
ONE (1) SECOND INTERNAL:**
- A) The A39 not sensing battery
  - B) Blown DC fuse

- BLOWN DC FUSE:**
- A) Check the batteries for proper hook up.
  - B) Reverse cells in the battery.

- UNIT OUT OF PHASE:**
- A) Check AC input voltage and fuses.
  - B) Check SCR/Diode modules. (SEE BELOW)
  - C) Check S2A-123 printed circuit board.
  - D) Check S2A-122 printed circuit board.

- TO TROUBLESHOOT MODULES:**
- A) Disconnect power transformer secondary wire from top connection of module.
  - B) Disconnect positive wire from buss bar.
  - C) Disconnect negative wire from buss bar.
  - D) Disconnect 6 pin connector from terminal J3 on S2A-122 assembly.
  - E) Measure resistance from top terminal of module to center buss bar - must read high resistance. Reverse leads must read high resistance.
  - F) Measure resistance from top terminal of module to bottom buss bar - must read high resistance one way; low resistance when you reverse leads.

CALL THE LA MARCHE SERVICE DEPARTMENT FOR ASSISTANCE IN TROUBLESHOOTING (847) 299-1188

## 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 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, and 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.