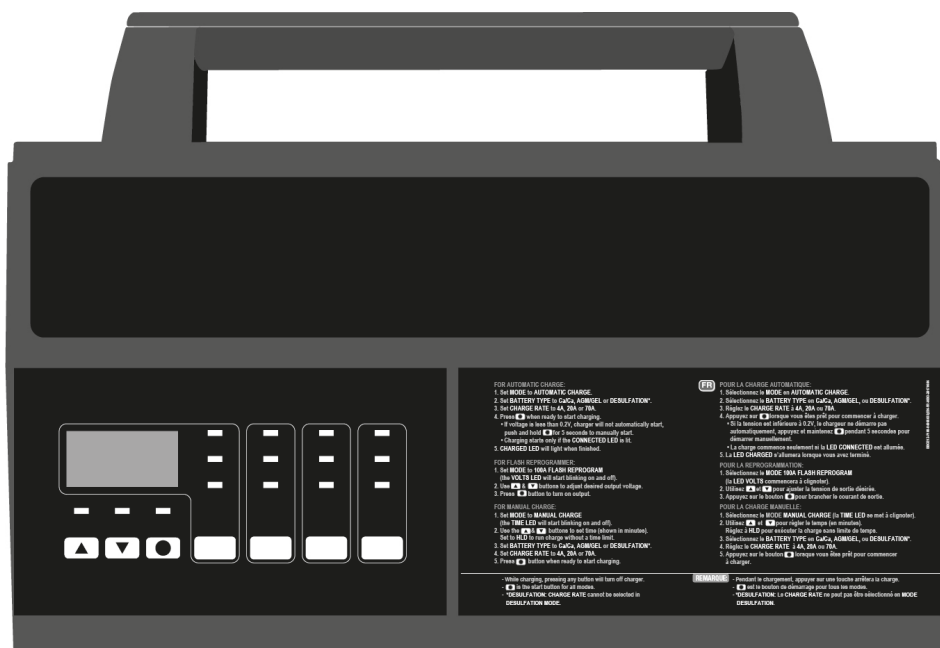







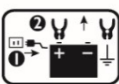




**Model : INC100**  
**Battery Charger/Power Supply**  
**OWNER'S MANUAL**



Model : INC100

**Battery Charger/Power Supply**  
**OWNER'S MANUAL**

|   |                                   |   |  |
|---|-----------------------------------|---|--|
|    | Read manual before using product. |    | Do not expose to rain or snow.   |
|    | Protect your eyes.                |    | Never smoke or allow flames and sparks.                                  |
|    | Wear protective clothing.         |    | Keep out of reach of children.   |
|  | Risk of explosive gases.          |  | Disconnect the main cable before connecting or disconnecting the clamps. |
|  | Risk of electric shock.           |  | Use in a well-ventilated area.   |

## 1. IMPORTANT SAFETY INSTRUCTIONS – SAVE THESE INSTRUCTIONS

This manual will show you how to use your charger safely and effectively. Please read, understand and follow these instructions and precautions carefully, as this manual contains important safety and operating instructions. The safety messages used throughout this manual contain a signal word, a message and an icon.

The signal word indicates the level of the hazard in a situation.

**/!\ DANGER**

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury to the operator or bystanders.

**/!\ WARNING**

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to the operator or bystanders.

**IMPORTANT**

Indicates a potentially hazardous situation which, if not avoided, could result in damage to the equipment, vehicle or property.

**/!\ WARNING**

1.1 To reduce the risk of damage to the electric plug or cord, pull by the plug rather

than the cord when disconnecting the charger.

**1.2** An extension cord should not be used unless absolutely necessary. Use of an improper extension cord could result in a risk of fire and electric shock. If an extension cord must be used, make sure:

- The pins on the plug of the extension cord are the same number, size and shape as those of the plug on the charger.
- The extension cord is properly wired and in good electrical condition.
- The wire size is large enough for the AC ampere rating of the charger, as specified in section 7.3.

**1.3** Do not operate the charger with a damaged cord or plug; have the cord or plug replaced immediately by a qualified service person.

**1.4** Do not operate the charger if it has received a sharp blow, been dropped or otherwise damaged in any way; take it to a qualified service person.

**1.5** Do not disassemble the charger; take it to a qualified service person when service or repair is required. Incorrect reassembly may result in a risk of fire or electric shock.

**/!\ WARNING** **RISK OF EXPLOSIVE GASES.**

**1.6** WORKING IN THE VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS OF UTMOST IMPORTANCE THAT YOU FOLLOW THE INSTRUCTIONS EACH TIME YOU USE THE CHARGER.

**1.7** To reduce the risk of a battery explosion, follow these instructions and those published by the battery manufacturer and the manufacturer of any equipment you intend to use in the vicinity of the battery. Review the cautionary markings on these products and on the engine.

## **2. PERSONAL PRECAUTIONS**

**/!\ WARNING** **RISK OF EXPLOSIVE GASES.**

**2.1** Remove personal metal items such as rings, bracelets, necklaces and watches when working with a lead-acid battery. A lead-acid battery can produce a short circuit current high enough to weld a ring or the like to metal, causing a severe burn.

**2.2** Be extra cautious, to reduce the risk of dropping a metal tool onto the battery. It might spark or short-circuit the battery or other electrical part that may cause an explosion.

**2.3** Use this charger for charging LEAD-ACID batteries only. It is not intended to supply power to a low voltage electrical system. Do not use this battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.

**2.4** NEVER charge a frozen battery.

**2.5** Consider having someone nearby to come to your aid when you work near a lead-acid battery. Have plenty of fresh water and soap nearby in case battery acid contacts your skin, clothing or eyes.

**2.6** If battery acid contacts your skin or clothing, immediately wash the area with soap and water. If acid enters your eye, immediately flood the eye with cold running water for at least 10 minutes and get medical attention right away. If battery acid is accidentally swallowed, drink milk, the whites of eggs or water. DO NOT induce vomiting. Seek medical attention immediately.

## **3. PREPARING TO CHARGE**

**/!\ WARNING** **RISK OF CONTACT WITH BATTERY ACID. BATTERY ACID IS A HIGHLY CORROSIVE SULFURIC ACID.**

**3.1** Remove all cord wraps and uncoil the cables prior to using the battery charger.

- 3.2** If it is necessary to remove the battery from the vehicle to charge it, always remove the grounded terminal first. Make sure all of the accessories in the vehicle are off, to prevent arcing.
- 3.3** Clean the battery terminals before charging the battery. During cleaning, keep airborne corrosion from coming into contact with your eyes, nose and mouth. Use baking soda and water to neutralize the battery acid and help eliminate airborne corrosion. Do not touch your eyes, nose or mouth.
- 3.4** Add distilled water to each cell until the battery acid reaches the level specified by the battery manufacturer. Do not overfill. For a battery without removable cell caps, such as valve regulated lead acid batteries (VRLA), carefully follow the manufacturer's recharging instructions.
- 3.5** Read, understand and follow all instructions for the charger, battery, vehicle and any equipment used near the battery and charger. Study all of the battery manufacturer's specific precautions while charging and recommended rates of charge.
- 3.6** Determine the voltage of the battery by referring to the vehicle owner's manual.
- 3.7** Make sure that the charger cable clips make tight connections.

#### **4. CHARGER LOCATION**

**/!\ WARNING** **RISK OF EXPLOSION AND CONTACT WITH BATTERY ACID.**

**NOTE:** This is a Class A product for industrial use only, for use with professional equipment with a total rated power greater than 1 kW. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

- 4.1** Locate the charger as far away from the battery as the DC cables permit.
- 4.2** Never place the charger directly above the battery being charged; gases from the battery will corrode and damage the charger.
- 4.3** Do not set the battery on top of the charger.
- 4.4** Never allow battery acid to drip onto the charger when reading the electrolyte specific gravity or filling the battery.

#### **5. FOLLOW THESE STEPS WHEN BATTERY IS INSTALLED IN VEHICLE**

**/!\ WARNING** **A SPARK NEAR THE BATTERY MAY CAUSE A BATTERY EXPLOSION.**  
**TO REDUCE THE RISK OF A SPARK NEAR THE BATTERY :**

- 5.1** Position the AC and DC cables to reduce the risk of damage by the hood, door and moving or hot engine parts. NOTE: If it is necessary to close the hood during the charging process, ensure that the hood does not touch the metal part of the battery clips or cut the insulation of the cables.
- 5.2** Stay clear of fan blades, belts, pulleys and other parts that can cause injury.
- 5.3** Check the polarity of the battery posts. The POSITIVE (POS, P, +) battery post usually has a larger diameter than the NEGATIVE (NEG, N, -) post.
- 5.4** Determine which post of the battery is grounded (connected) to the chassis.
- 5.5** For a negative-grounded vehicle, connect the POSITIVE (RED) clip from the battery charger to the POSITIVE (POS, P, +) ungrounded post of the battery. Connect the NEGATIVE (BLACK) clip to the vehicle chassis or engine block away from the battery. Do not connect the clip to the carburetor, fuel lines or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.
- 5.6** For a positive-grounded vehicle, connect the NEGATIVE (BLACK) clip from the battery charger to the NEGATIVE (NEG, N, -) ungrounded post of the battery. Connect the POSITIVE (RED) clip to the vehicle chassis or engine block away from the battery. Do not connect the clip to the carburetor, fuel lines or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.
- 5.7** Connect charger AC supply cord to electrical outlet and press to turn the output on.

**5.8** When disconnecting the charger, press to turn the output off, disconnect the AC cord, remove the clip from the vehicle chassis and then remove the clip from the battery terminal.

## 6. FOLLOW THESE STEPS WHEN BATTERY IS OUTSIDE VEHICLE

**/!\ WARNING** **A SPARK NEAR THE BATTERY MAY CAUSE A BATTERY EXPLOSION.**  
**TO REDUCE THE RISK OF A SPARK NEAR THE BATTERY :**

- 6.1** Check the polarity of the battery posts. The POSITIVE (POS, P, +) battery post usually has a larger diameter than the NEGATIVE (NEG, N, -) post.
- 6.2** Attach at least a 24-inch long 4 gauge (AWG) insulated battery cable to the NEGATIVE (NEG, N, -) battery post.
- 6.3** Connect the POSITIVE (RED) charger clip to the POSITIVE (POS, P, +) post of the battery.
- 6.4** Position yourself and the free end of the cable you previously attached to the NEGATIVE (NEG, N, -) battery post as far away from the battery as possible – then connect the NEGATIVE (BLACK) charger clip to the free end of the cable.
- 6.5** Do not face the battery when making the final connection.
- 6.6** Connect charger AC supply cord to electrical outlet and press to turn the output on.
- 6.7** When disconnecting the charger, press to turn the output off, disconnect the AC cord, remove the clip from the cable attached to the negative battery terminal and then remove the clip from the positive battery terminal.
- 6.8** A marine (boat) battery must be removed and charged on shore. To charge it onboard requires equipment specially designed for marine use.

## 7. GROUNDING AND AC POWER CORD CONNECTIONS

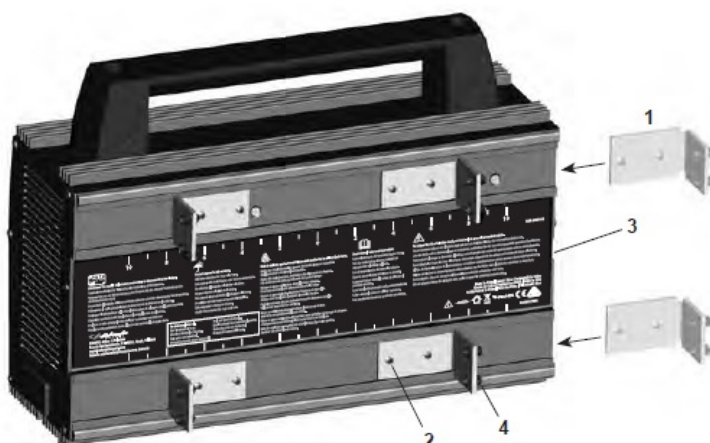
**/!\ WARNING** **RISK OF ELECTRIC SHOCK OR FIRE.**

**7.1** This battery charger is for use on a nominal 220-240V, 50/60Hz circuit. (See the warning label on the charger for the correct input voltage.) The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances. The plug pins must fit the receptacle (outlet). Do not use with an ungrounded system.

**/!\ DANGER** **7.2** Never alter the AC cord or plug provided – if it does not fit the outlet, have a proper grounded outlet installed by a qualified electrician. An improper connection can result in a risk of an electric shock or electrocution.

**7.3** Recommended minimum AWG size for extension cord: 100 feet (30.5 meters) long or less – use a 12 gauge (3.31 mm<sup>2</sup>) extension cord.  
Over 100 feet (30.5 meters) long – use an 8 gauge (8.36 mm<sup>2</sup>) extension cord.

## 8. MOUNTING INSTRUCTIONS



**NOTE:** The INC100 is non-portable equipment.

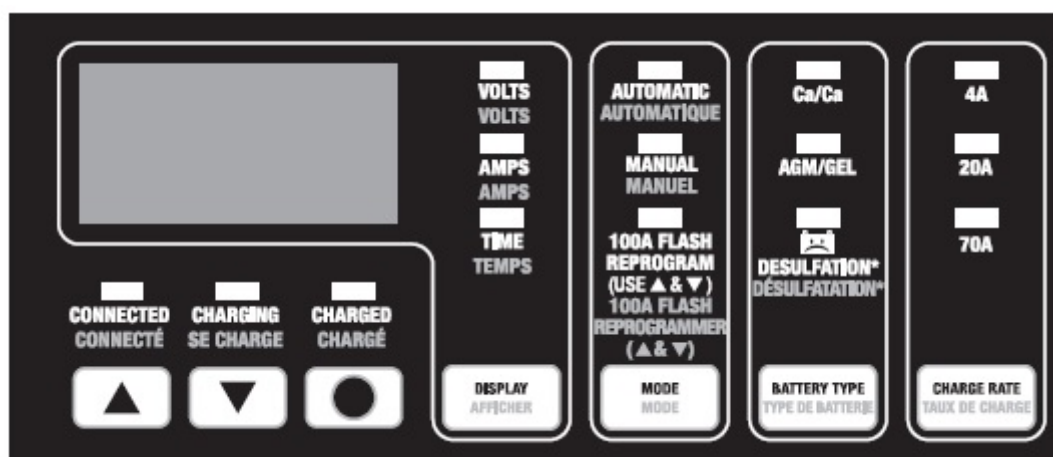
To permanently mount the charger, use the following instructions:

**8.1** Slide all 4 brackets (Item 1) into the track on the back, from the right side, as shown above. Make sure the set screws (Item 2) are unscrewed enough so they do not scratch the surface of the housing.

**8.2** Measure what you are mounting the charger to before deciding where to locate the brackets (add an additional ¼ to ½ inch). Use the ruler on the label (Item 3) to mount the brackets (Item 1) in the correct position (position each bracket an equal distance from the center of the charger). Note that the inches shown are for both bracket dimensions combined (meaning the dimensions are doubled), this is for easier reference. Make sure the ¼-28 set screws (Item 4) are unscrewed enough so the pointed end is almost flush with the bracket. Mount the brackets (Item 1) by tightening all 8 set screws (Item 2) to 14 in/lb (1.6 n/m) of torque.

**8.3** Lift the charger by its handle and set it against your mounting location, tighten the set screws (Item 4) to 66 in/lb (7.5 n/m) of torque to secure the brackets (Item 1), starting with the top two brackets first.

## 9. CONTROLE PANEL



**CONNECTED (yellow/orange) LED** The CONNECTED LED will light when the battery is properly connected.

**CHARGING (yellow/orange) LED** When charging begins, the CHARGING LED will light.

**CHARGED (green) LED** The CHARGED LED will light when the charger has gone into maintain mode.

**and (UP and DOWN) Buttons** Use these buttons to select the amount of time or voltage, depending on the display function selected.

**(Start/Stop) Button** This is the start and stop button for all modes.

**Digital Display** The Digital Display gives a digital indication of voltage, amperes or time, depending on the display function chosen.

**Display Button** Use this button to set the function of the digital display to one of the following:

**VOLTS (Voltmeter)** The voltmeter indicates the voltage at the battery terminals. If the reading is 12.8 volts or more, the battery is charged.

**AMPS (Ammeter)** The ammeter indicates the amount of current, measured in amps, that is being drawn by the battery ( $\pm 2$  amps).

**NOTE:** The 70 amp charge rate cycles between 20 amps and 70 amps during the charging process and the ammeter will show this. This is a normal condition.

**TIME (Timer – Range: 10 minutes to 120 minutes)** Used only in manual mode, the main function of the timer is to prevent overcharging while allowing a battery time to obtain a satisfactory charge. To properly set the timer, you must know the size of the battery in ampere hours or reserve capacity in minutes and the state of charge.

**Hold:** This position defeats the timer function, allowing for continuous operation. Use when you want to charge more than 2 hours. Be sure to monitor the charging procedure and stop when the battery is charged. Not doing so may cause damage to your battery or may cause other personal property damage or personal injury.

**Mode Button** Use this button to select between the AUTOMATIC CHARGE, MANUAL CHARGE and FLASH REPROGRAM function. See *Operating Instructions* for details of these functions.

**Battery Type/Desulfation Mode Button** Set the type of battery to be charged, or Desulfation Mode.

**Ca/Ca (Calcium)** – Calcium batteries are acid batteries impregnated with calcium.

**AGM/GEL (Absorbed Glass Mat/Gel Cell)** – AGM batteries have electrolyte absorbed in separators consisting of a sponge-like mass of matted glass fiber. Gel batteries contain gelled electrolytes. These batteries are sealed with valves and should not be opened.

**Desulfation Mode** – If the battery is left discharged for an extended period of time, it could become sulfated and not accept normal charge. If you select , the charger will switch to a special mode of operation designed for sulfated batteries.

**NOTE:** When charging a battery that is not marked, check the manual of the item which uses the battery for the correct battery type. Make sure the battery complies with the safety instructions in Section 2.3.

**Charge Rate Button** Use this button to set the maximum charge rate to one of the following:

**4A Charge Rate** – For charging small batteries, such as those commonly used in garden tractors, snowmobiles and motorcycles.

**20A and 70A Charge Rate** – For charging automotive and marine batteries.

**NOTE:** Charge rate cannot be selected while using Desulfation Mode.

## 10. OPERATING INSTRUCTIONS

### Battery Information

This charger can be used with 12V batteries with rated capacities of 12 Ah to 111 Ah.

### Charger Operation

NOTE: Once automatic charging or flash reprogramming has started, the buttons will not work until you turn off the output, with the exception of . (In MANUAL mode, and also still operate normally.) When the display shows “OFF”, no buttons will work for five seconds as the charger automatically goes back to the default settings.

### Automatic Charging

1. Connect the battery and AC power, following the precautions listed in sections 5, 6 and 7.
2. Set the BATTERY TYPE to Ca/Ca, AGM/GEL or Desulfation.
3. Set the MODE to AUTOMATIC CHARGE.
4. Set the CHARGE RATE to 4A, 20A or 70A. NOTE: Charge rate cannot be selected while using Desulfation Mode.
5. Press when you are ready to start charging.
6. The CHARGING (yellow/orange) LED will light.

**NOTE:** Automatic charging starts only if the CONNECTED LED is lit and the battery has at least a 1V charge. If the battery is less than 1V, press and hold for five seconds to start Automatic Charging, or charge it in Manual mode for five minutes then switch back to Automatic Charge.

7. The CHARGED (green) LED will light when charging is complete and the charger has gone into maintain mode.

### **Manual Charging**

1. Connect the battery and AC power following the precautions listed in sections 5, 6 and 7.
2. Set the BATTERY TYPE to Ca/Ca, AGM/GEL or Desulfation.
3. Set the MODE to MANUAL CHARGE. (The TIME LED will start blinking.)
4. Use and to set the time (shown in minutes) you want the charger to charge the battery. Set to “HLD” to run the charger without a time limit.
5. Set the CHARGE RATE to 4A, 20A or 70A. NOTE: Charge rate cannot be selected while using Desulfation Mode.
6. Press when you are ready to start charging.

**NOTE:** Be sure to monitor the charging procedure and stop when the battery is charged. Failure to do so may cause damage to your battery or may cause other personal property damage or personal injury.

### **Charging**

If the charger does not detect a properly connected battery, the CONNECTED (yellow/orange) LED will not light until such a battery is detected. Charging will not begin while the CONNECTED LED is not on. When charging begins, the CHARGING (yellow/orange) LED will light.

#### **Battery Percent and Charge Time**

This charger adjusts the charging time in order to charge the battery completely, efficiently and safely. The microprocessor automatically performs the necessary functions.

**Charge Rate** – The charge rate is measured in amps. This charger provides charge rates of 4A, 20A and 70A. The 4A rate is for charging smaller batteries, such as those used for motorcycles and garden tractors. Such batteries should not be charged using the 20A or 70A rate. The 20A and 70A rates are for charging larger batteries. In the 20A and 70A mode, the charger begins at a low-charge rate and increases the charge rate if it is determined that the battery can accept the higher rate. All charging modes will decrease the charge current as the battery approaches maximum charge.

**Automatic Charging Mode** When an automatic charge is performed, the charger switches to the maintain mode automatically after the battery is charged. For a battery with a starting voltage under 1 volt, press and hold for five seconds to start Automatic Charging, or use manual mode to pre-charge the battery for five minutes to get additional voltage into the battery for the charger to analyze.

**Aborted Charge** If charging cannot be completed normally, charging will abort. When charging aborts, the charger’s output is shut off, the CHARGING (yellow/orange) LED will go out and the digital display will show « Bad Bat ». The charger ignores all buttons except in that state. Press to reset after an aborted charge.

### **Desulfation Mode**

If the battery is left discharged for an extended period of time, it could become sulfated and not accept normal charge. If you select , the charger will switch to a special mode of operation designed for sulfated batteries. For the best performance, AUTOMATIC CHARGE Mode is recommended for Desulfation Mode. If successful, the charger will fully desulfate and charge the battery, and then the green LED will light. Desulfation could take up to 10 hours in AUTOMATIC CHARGE mode. If desulfation fails, charging will abort and the charger will go into Abort Mode. If MANUAL CHARGE mode is selected and the timer is set to between 10-120 minutes, desulfation will stop at the specified time. If the timer is set to HOLD, the maximum time for desulfation will be 10 hours.

**Completion of Charge** Charge completion is indicated by the CHARGED (green) LED. When lit, the charger has stopped charging and switched to the Maintain Mode of operation. If you are charging a deep cycle battery, the CHARGED LED comes on when the battery is charged enough for normal use.



**Maintain Mode** When the CHARGED (green) LED is lit, the charger has started Maintain Mode. In this mode, the charger keeps the battery fully charged by delivering a small current when necessary. The voltage is maintained at 13.2V.

### 100A Flash Reprogramming

**NOTE:** Do not attempt to Flash Reprogram a vehicle that has a discharged or defective battery. Make sure that the vehicle battery is in good condition and fully charged before proceeding. In Flash Reprogramming Mode, the charger is able to deliver 70A charging current continuously, and to deliver up to 100A for three minutes.

1. Set MODE to FLASH REPROGRAM. (The VOLTS LED will start blinking.)
2. Use and to adjust voltage to the voltage needed for the vehicle being programmed (refer to OEM specifications). Voltage selected is shown on the digital display. The unit has a voltage range of 13 to 14.8, with a default of 14.2.

**NOTE:** When the VOLTS LED stops blinking, the display shows the selected voltage.

3. Press to turn on the output.
4. When finished with Flash Reprogramming, press to exit this mode.

### Using the Battery Voltage Tester

**Overview** This battery charger has a built-in voltmeter to measure your battery's voltage. The charger does not have a built in load tester. As such, a recently charged battery could have a temporarily high voltage due to what is known as "surface charge". The voltage of such a battery will gradually drop during the period immediately after the charging system is disengaged. Consequently, the tester could display inconsistent values for such a battery. For a more accurate reading, the surface charge should be removed by temporarily creating a load on the battery, such as by turning on lights or other accessories for a couple of minutes before you read the display. Read it a couple of minutes after you have shut the headlights off.

**Testing Sequence:** There are seven basic steps required to test the battery state of charge:

**NOTE:** You cannot test the battery voltage while charging.

1. With the charger unplugged from the AC outlet, connect the charger to the battery following the instructions given in Sections 6 and 7.
2. Plug the charger AC power cord into the AC outlet.
3. The CONNECTED (yellow) LED will light if a properly connected battery is detected.
4. Confirm the CHARGING (yellow) LED is off.
5. Set the DISPLAY to VOLTS.
6. If the output is on, press . If the output is already off, do not press .
7. Read the voltage on the digital display.

### General Charging Notes

**Fans:** The charger is designed to control its cooling fans for efficient operation. Consequentially, it is normal for the fans to start and stop when maintaining a fully charged battery. Keep the area near the charger clear of obstructions to allow the fans to operate efficiently. NOTE: The charger has thermal protection, and it will shut down if it gets too hot.

**Voltage:** The voltage displayed during charging is the charging voltage and is usually higher than the battery's resting voltage.

## 11. CALCULATING CHARGE TIME

Use the following table to more accurately determine the time it will take to bring a battery to full charge. First, identify where your battery fits into the chart.

NR means that the charger setting is NOT RECOMMENDED.

Find your battery's rating on the following chart and note the charge time given for each charger setting. The times given are for batteries with a 50 percent charge prior to recharging. Add more time for severely discharged batteries.

| BATTERY SIZE/RATING |                                  |           | CHARGE RATE/CHARGING TIME |             |             |
|---------------------|----------------------------------|-----------|---------------------------|-------------|-------------|
|                     |                                  |           | 4 AMP                     | 20 AMP      | 70 AMP      |
| SMALL BATTERIES     | Motorcycle, garden tractor, etc. | 6-12 Ah   | 1-2 hrs                   | NR          | NR          |
|                     |                                  | 12-32 Ah  | 2-5 hrs                   | NR          | NR          |
| CARS/ TRUCKS        | 200-315 CCA                      | 40-60 RC  | 5 ¾-7 ¼ hrs               | 1 ¼-1 ½ hrs | 20-25 min   |
|                     | 315-550 CCA                      | 60-85 RC  | 7 ¼-9 ¼ hrs               | 1 ½-2 hrs   | 25-30 min   |
|                     | 550-1000 CCA                     | 85-190 RC | 9 ¼-17 ½ hrs              | 2-3 ½ hrs   | 30 min-1 hr |
| MARINE/DEEP-CYCLE   |                                  | 80 RC     | 8 ¾ hrs                   | 1 ¾ hrs     | 30 min      |
|                     |                                  | 140 RC    | 13 ½ hrs                  | 2 ¾ hrs     | 45 min      |
|                     |                                  | 160 RC    | 15 hrs                    | 3 hrs       | 1 hr        |
|                     |                                  | 180 RC    | 16 ½ hrs                  | 3 ½ hrs     | 1 ¼ hrs     |

## 12. MAINTENANCE INSTRUCTIONS

**12.1** Before performing maintenance, unplug and disconnect the battery charger (see sections 5.8 and 6.7).

**12.2** After use, unplug the charger and use a dry cloth to wipe all battery corrosion and other dirt or oil from the terminals, cords, and the charger case.

**12.3** After every 100 hours or whenever you see dust accumulating on the fan blades, you should clean both fans using compressed air (as shown). NOTE: Use the compressed air on the fan blades only. Do not blow dirt into the fan shaft or bearing. These fans push a lot of air and are precision balanced. Excessive dirt and grime buildup will cause the fan to be unbalanced and wear out quickly. If the fans fail, the charger may overheat and the thermal protection of the charger will shut it down.



**12.4** Ensure that all of the charger components are in place and in good working condition, including the plastic boots on the battery clips.

**12.5** Servicing does not require opening the unit, as there are no user-serviceable parts.

## 13. MOVING AND STORAGE INSTRUCTIONS

**13.1** If the charger is moved around the shop or transported to another location, take care to avoid/prevent damage to the cords, clips and charger. Failure to do so could result in personal injury or property damage. Do not store the clips on the handle, clipped together, on or around metal, or clipped to cables.

**13.2** Store the charger unplugged. The cord will still conduct electricity until it is unplugged from the outlet.

**13.3** Store inside, in a dry, cool place (unless you're using an on-board marine charger).

## 14. TROUBLESHOOTING

| PROBLEM                              | POSSIBLE CAUSE  | SOLUTION  |
|--------------------------------------|---|---|
| No display and the LEDs are not lit. | Charger is not plugged in.<br>No power at the receptacle. | Plug the charger into an AC outlet.<br>Check for open fuse or circuit |

|  |   |   |
|--|---|---|
|  |   | breaker supplying AC outlet.  |
| Display reads 0.0 volts.   | Clamps are not making a good connection to the battery.<br>Connections are reversed.<br><br>Battery is defective (will not accept a charge).                              | Check for poor connection to battery and frame. Make sure connection points are clean.<br><br>Rock clamps back and forth for a better connection.<br>Unplug the charger and reverse the clips.<br>Have battery checked.   |
| AMPS reading on display reads less than selected charge rate when charging a discharged battery. | Extension cord is too long or wire gauge is too small.<br>Weak cell or sulfated plate in battery.<br>The charger reached the maximum voltage and is reducing the current. | Use a shorter or heavier gauge extension cord.<br>A sulfated battery will eventually take a normal charge if left connected. If the battery will not take a charge, have it checked.<br>No problem; this is a normal condition. Continue to charge the battery and see <i>Battery Percent and Charge Time</i> section, <i>Charge Rate</i> subsection. |
| The battery is connected and the charger is on, but is not charging.                             | Battery is severely discharged (automatic mode only).   | If your battery does not have 1 volt, you must press and hold for five seconds.   |
| Charger has shut down or will not turn on when properly connected.                               | The charger has gotten too hot and it has shut down.  | The charger has thermal protection, and it will shut down if it gets too hot. Unplug the AC cord and let the charger cool down. Make sure there is nothing obstructing the air flow to the fans, clean them as shown in <i>Maintenance Instructions</i> .   |
| The cooling fan is making a rattling noise.  | The fan has a buildup of dirt and grime, causing it to be unbalanced.   | Blow the dirt and grime off the fan blades using compressed air as described in <i>Maintenance Instructions</i> .   |
| The voltmeter reading is less than 10.5 volts.   | The battery may be bad or the connection at the charger may be poor.  | Have the battery checked.   |
| The voltmeter reading is between 10.5 and 12.7V.   | The battery is low.   | Recharge the battery.   |

## 15. SPECIFICATIONS

Input.....220-240V~ 50/60Hz 10A  
Output:  
Charging mode .....12V 4A / 20A / 70A  
Desulfation mode.....15.8V max.

|                            |  |
|----------------------------|--|
| Reprogram mode.....        | 13-14.8V 0-70A, 100A for three minutes |
| Weight.....                | 4.75 kg                                |
| Operating temperature..... | -20 °C – +40 °C (-4 °F—+104 °F)        |
| Operating humidity.....    | 0 – 90% RH non-condensing              |
| Working life (MTBF) .....  | 85,000 hours                           |

## **16. LIMITED WARRANTY**

### **WARRANTY TERMS AND CONDITIONS**

Schumacher Electric Corporation (the “Manufacturer”) or the resellers authorized by the Manufacturer (the “Reseller”) warrant this Charger (the “Product”) for two (2) years, according to the following stipulations. Any and all warranties, other than the warranty included herein, are hereby expressly disclaimed and excluded to the fullest extent permissible under applicable law. Legislation may imply warranties or conditions or impose obligations on Manufacturer which cannot be excluded, restricted or modified in relation to consumer goods.

#### **Consumer End-User Warranty**

Any claims under this warranty must be communicated to Reseller within 2 months after discovery of the non-conformity.

#### **Resellers/Professional End-User Warranty**

The Manufacturer provides a limited warranty for hidden defects or non-conformities. This warranty is subject to the following conditions:

- a.** The Manufacturer only warrants hidden defects in material or workmanship present in their root cause at the moment of the first sale by the Manufacturer;
- b.** Manufacturer’s obligation under this warranty is limited to repairing or replacing the Product with a new or reconditioned unit at the sole option of the Manufacturer;
- c.** Manufacturer does not have any warranty obligations if the alleged defects were caused by abnormal usage, fair wear and tear, unauthorized use of the Product or use of the Product differing from the description in the applicable manual or other specifications given by the Manufacturer, insufficient care, repairs carried out by persons or entities or with parts not approved by Manufacturer, poor care, accidents, unauthorized changes or modifications, incorrect transport, storage or treatment of the Product;
- d.** In order to exercise this right, the Product must be returned complete and in its original state and packaging, with mail costs prepaid, along with proof of purchase to the Manufacturer or its authorized representatives in order for repair or replacement to occur.

#### **Common Warranty Provisions**

The warranty mentioned above only applies to the first professional or consumer user having legally acquired the Product from the Manufacturer or a Reseller. No warranty is extended towards clients, agents or representatives of those buyers.

The Product is sold under the specifications, for the use and purpose in accordance with the provisions of this manual, with express exclusion and disclaimer of warranty of any other specifications, uses and purposes.

Authorized Resellers are prohibited from making any statements or providing any warranty in excess of the above warranties. Non-authorized resellers may only sell the product under the condition that they assume all warranty obligations with the total exclusion of any warranty provided by the Manufacturer.

Manufacturer does not provide any warranty for any accessories used with the Product that are not manufactured by Schumacher Electric Corporation.

This warranty does not exclude or diminish any claims the Manufacturer may have against the distributors of The Product.

**THE MANUFACTURER NEITHER ASSUMES NOR AUTHORIZES ANYONE TO ASSUME OR MAKE ANY OTHER OBLIGATION TOWARDS THE PRODUCT OTHER THAN THIS WARRANTY.**

**Warranty, Repair Service and Distribution Centers:**

**For customers outside of the U.S.A., contact your local distributor.**

**North and South America: Hoopeston in U.S.A. 1-800-621-5485 [services@schumacherelectric.com](mailto:services@schumacherelectric.com)**

**Europe: Office in Belgium Rue de la Baronnerie 3, B-4920 Harzé-Belgium +32 4 388 20 17  
[info@ceteor.com](mailto:info@ceteor.com)**

**Australia/New Zealand:**

**Schumacher ASIA PACIFIC PTY LTD**

**53B – 28 BURNSIDE ROAD - Queensland**

**AU-4208 Ormeau**