

# Automatic Battery Charger

## OWNERS MANUAL



### PLEASE SAVE THIS OWNERS MANUAL AND READ BEFORE EACH USE.

This manual will explain how to use the charger safely and effectively.

Please read and follow these instructions and precautions carefully.

## 1. IMPORTANT SAFETY INSTRUCTIONS – SAVE THESE INSTRUCTIONS

- 1.1 **SAVE THESE INSTRUCTIONS** – This manual contains important safety and operating instructions.
- 1.2 Keep out of reach of children.
- 1.3 Do not expose the charger to rain or snow.
- 1.4 Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock or injury to persons.
- 1.5 To reduce the risk of damage to electric plug and cord, pull by the plug rather than the cord when disconnecting charger.
- 1.6 An extension cord should not be used unless absolutely necessary. Use of 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 plug of extension cord are the same number, size and shape as those of plug on charger.
  - The extension cord is properly wired and in good electrical condition.
  - The wire size is large enough for AC ampere rating of charger as specified in section 8.
- 1.7 Do not operate charger with damaged cord or plug – replace the cord or plug immediately.
- 1.8 Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified serviceman.
- 1.9 Do not disassemble charger; take it to a qualified serviceman when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
- 1.10 To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.
- 1.11 **WARNING: RISK OF EXPLOSIVE GASES.**
  - a. WORKING IN 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.
  - b. To reduce risk of battery explosion, follow these instructions and those published by battery manufacturer and manufacturer of any equipment you intend to use in vicinity of battery. Review cautionary markings on these products and on engine.
- 1.12 **WARNING: EXTERNAL CONNECTIONS TO CHARGER SHALL COMPLY WITH THE UNITED STATES COAST GUARD ELECTRICAL REGULATIONS (33 CFR 183, SUB PART I).**

*For the manual with Spanish and French,  
visit [www.batterychargers.com](http://www.batterychargers.com) or call 1-800-621-5485.*

*Para obtener el manual en español y francés,  
visite [www.batterychargers.com](http://www.batterychargers.com) o llame al 1-800-621-5485.*

*Pour le manuel avec espagnol et français,  
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## **2. PERSONAL SAFETY PRECAUTIONS**

- 2.1 Consider having someone close enough by to come to your aid when you work near a lead-acid battery.
- 2.2 Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
- 2.3 Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.
- 2.4 If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with running cold water for at least 10 minutes and get medical attention immediately.
- 2.5 NEVER smoke or allow a spark or flame in vicinity of battery or engine.
- 2.6 Be extra cautious to reduce risk of dropping a metal tool onto battery. It might spark or short-circuit battery or other electrical part that may cause explosion.
- 2.7 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.
- 2.8 Use charger for charging 12V LEAD-ACID (STD or AGM) rechargeable batteries. It is not intended to supply power to a low voltage electrical system other than in a starter-motor application. 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 persons and damage to property.
- 2.9 NEVER charge a frozen battery.

## **3. PREPARING TO CHARGE**

- 3.1 If necessary to remove battery from vehicle to charge, always remove grounded terminal from battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc.
- 3.2 Be sure area around battery is well ventilated while battery is being charged.
- 3.3 Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.
- 3.4 Add distilled water in each cell until battery acid reaches level specified by battery manufacturer. Do not overfill. For a battery without removable cell caps, such as valve regulated lead acid batteries, carefully follow manufacturer's recharging instructions.
- 3.5 Study all battery manufacturer's specific precautions while charging and recommended rates of charge.
- 3.6 Determine voltage of battery by referring to car owner's manual and make sure that output voltage selector switch is set at correct voltage. If charger has adjustable charge rate, charge battery initially at lowest rate.

## **4. CHARGER LOCATION**

- 4.1 Locate charger as far away from battery as DC cables permit.
- 4.2 Never place charger directly above battery being charged; gases from battery will corrode and damage charger.
- 4.3 Never allow battery acid to drip on charger when reading electrolyte specific gravity or filling battery.
- 4.4 Do not operate charger in a closed-in area or restrict ventilation in any way.
- 4.5 Do not set a battery on top of charger.

## **5. DC CONNECTION PRECAUTIONS**

- 5.1 Connect and disconnect DC output clips only after setting any charger switches to "off" position and removing AC cord from electric outlet. Never allow clips to touch each other.
- 5.2 Attach clips to battery and chassis, as indicated in sections 6 and 7.

## 6. 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:**

- 6.1 Position AC and DC cords to reduce risk of damage by hood, door, or moving engine part.
- 6.2 Stay clear of fan blades, belts, pulleys, and other parts that can cause injury to persons.
- 6.3 Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has larger diameter than NEGATIVE (NEG, N, -) post.
- 6.4 Determine which post of battery is grounded (connected) to the chassis. If negative post is grounded to chassis (as in most vehicles), see (6.5). If positive post is grounded to the chassis, see (6.6).
- 6.5 For negative-grounded vehicle, connect POSITIVE (RED) clip from battery charger to POSITIVE (POS, P, +) ungrounded post of battery. Connect NEGATIVE (BLACK) clip to vehicle chassis or engine block away from battery. Do not connect clip to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.
- 6.6 For positive-grounded vehicle, connect NEGATIVE (BLACK) clip from battery charger to NEGATIVE (NEG, N, -) ungrounded post of battery. Connect POSITIVE (RED) clip to vehicle chassis or engine block away from battery. Do not connect clip to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block.
- 6.7 When disconnecting charger, turn switches to off, disconnect AC cord, remove clip from vehicle chassis, and then remove clip from battery terminal.
- 6.8 See *Operating Instructions* for length of charge information.

## 7. 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:**

- 7.1 Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has a larger diameter than NEGATIVE (NEG, N, -) post.
- 7.2 Attach at least a 24-inch-long 6-gauge (AWG) insulated battery cable to NEGATIVE (NEG, N, -) battery post.
- 7.3 Connect POSITIVE (RED) charger clip to POSITIVE (POS, P, +) post of battery.
- 7.4 Position yourself and free end of cable as far away from battery as possible – then connect NEGATIVE (BLACK) charger clip to free end of cable.
- 7.5 Do not face battery when making final connection.
- 7.6 When disconnecting charger, always do so in reverse sequence of connecting procedure and break first connection while as far away from battery as practical.
- 7.7 A marine (boat) battery must be removed and charged on shore. To charge it on board requires equipment specially designed for marine use.

## 8. GROUNDING AND AC POWER CORD CONNECTIONS

- 8.1 This battery charger is for use on a nominal 120 volt circuit and has a grounded plug. The charger must be grounded, to reduce the risk of electric shock. 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.
- 8.2 **DANGER:** 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.

**NOTE:** Pursuant to Canadian Regulations, use of an adapter plug is not allowed in Canada. Use of an adapter plug in the United States is not recommended and should not be used.

8.3 USING AN EXTENSION CORD

The use of an extension cord is not recommended. If you must use an extension cord, follow these guidelines:

- Pins on plug of extension cord must be the same number, size, and shape as those of plug on charger.
- Ensure that the extension cord is properly wired and in good electrical condition.
- Wire size must be large enough for the AC ampere rating of charger, as specified:

|                       |    |    |     |     |
|-----------------------|----|----|-----|-----|
| Length of cord (feet) | 25 | 50 | 100 | 150 |
| AWG* size of cord     | 18 | 16 | 16  | 14  |

\*AWG-American Wire Gauge

9. ASSEMBLY INSTRUCTIONS

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

10. CONTROL PANEL

START/STOP BUTTON

Press to immediately begin charging your properly connected battery. **If the button is not pressed, charging should begin in ten minutes.**

LED INDICATORS

**POWER (green) LED:** The charger is connected to an AC outlet.

**CHARGING (yellow/orange) LED lit:** The charger is charging the battery,

**CHARGED/MAINTAINING (green) LED lit:** The battery is fully charged and the charger is in maintain mode.

**CLAMPS REVERSED (red) LED flashing:** The connections are reversed.

**BAD BATTERY (red) LED lit:** The charger has detected a problem with the battery. See *Troubleshooting* for more information.

**NOTE:** See *Operating Instructions* for a complete description of the charger modes.

RATE SELECTION

The charge rate is measured in amps. The charger will automatically adjust the charging current, based on battery size, in order to charge the battery completely, efficiently and safely. **Do not use for industrial applications.**

11. OPERATING INSTRUCTIONS

**WARNING: A SPARK NEAR THE BATTERY MAY CAUSE AN EXPLOSION.**

**IMPORTANT:** Do not start the vehicle with the charger connected to the AC outlet, or it could result in damage to the charger.

**NOTE:** This charger is equipped with an auto-start feature. Current will not be supplied to the battery clamps until a battery is properly connected. The clamps will not spark if touched together.

CHARGING A BATTERY IN THE VEHICLE

1. Turn off all the vehicle's accessories.
2. Keep the hood open.
3. Clean the battery terminals.
4. Place the charger on a dry, non-flammable surface.
5. Lay the AC/DC cables away from any fan blades, belts, pulleys and other moving parts.
6. Connect the battery, following the precautions listed in sections 6 and 7.
7. Connect the charger to a live grounded 120V AC outlet.
8. Charging will begin within ten minutes and finish automatically. (Press the START/STOP button to begin charging immediately.)
9. When charging is complete, disconnect the charger from the AC power, remove the clamp from the vehicle's chassis, and then remove the clamp from the battery terminal.

## CHARGING A BATTERY OUTSIDE OF THE VEHICLE

1. Place battery in a well-ventilated area.
2. Clean the battery terminals.
3. Connect the battery, following the precautions listed in sections 6 and 7.
4. Connect the charger to a live grounded 120V AC outlet.
5. Charging will begin within ten minutes and finish automatically. (Press the START/STOP button to begin charging immediately.)
6. When charging is complete, disconnect the charger from the AC power, disconnect the negative clamp, and finally the positive clamp.
7. A marine (boat) battery must be removed and charged on shore.

## AUTOMATIC CHARGING

When an Automatic Charge is performed, the charger switches to the maintain mode automatically after the battery is charged.

## ABORTED CHARGE

If charging cannot be completed normally, charging will abort. When charging aborts, the charger's output is shut off and the Bad Battery (red) LED will light. Do not continue attempting to charge this battery. Have it checked or replaced.

## DESULFATION MODE

While desulfation is in progress, the Charging and Bad Battery LEDs will be lit. Desulfation could take 8 to 10 hours. If desulfation fails, charging will abort and the Bad Battery (red) LED will remain lit.

## COMPLETION OF CHARGE

Charge completion is indicated by the Charged/Maintaining (green) LED. When lit, the charger has switched to the maintain mode of operation.

## BATTERY CHARGING TIMES

| APPLICATION             | BATTERY SIZE  | CHARGING TIME (Hours) |         |          |        |
|-------------------------|---------------|-----------------------|---------|----------|--------|
|                         |               | 2A                    | 6A      | 8A       | 10A    |
| <b>POWERSPORTS</b><br>↓ | 6Ah<br>▲      | 6                     | 2       | 1.75     | 1.5    |
|                         | 32Ah<br>▲     | ↓<br>15               | ↓<br>5  | ↓<br>4.5 | ↓<br>4 |
| <b>AUTOMOTIVE</b><br>↓  | 300 CCA<br>▲  | 12                    | 4       | 3.5      | 3      |
|                         | 1000 CCA<br>▲ | ↓<br>30               | ↓<br>10 | ↓<br>8.5 | ↓<br>7 |
| <b>MARINE</b><br>↓      | 50Ah<br>▲     | 15                    | 5       | 4.25     | 3.5    |
|                         | 105Ah<br>▲    | ↓<br>33               | ↓<br>11 | ↓<br>9.5 | ↓<br>8 |

Times are based on a 50% discharged battery and may change, depending on age and condition of battery.

## MAINTAIN MODE (FLOAT MODE MONITORING)

When the Charged/Maintaining (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. If the charger has to provide its maximum maintain current for a continuous 12 hour period, it will go into abort mode (see *Aborted Charge* section). This is usually caused by a drain on the battery or the battery could be bad. Make sure there are no loads on the battery. If there are, remove them. If there are none, have the battery checked or replaced.

## MAINTAINING A BATTERY

This unit charges and maintains 12-volt batteries, keeping them at full charge.

**NOTE:** The maintain mode technology allows you to safely charge and maintain a healthy battery for extended periods of time. However, problems with the battery, electrical problems in the vehicle, improper connections or other unanticipated conditions could cause excessive current draws. As such, occasionally monitoring your battery and the charging process is required.

12. MAINTENANCE AND CARE

- A minimal amount of care can keep your battery charger working properly for years.
- Clean the clamps each time you are finished charging. Wipe off any battery fluid that may have come in contact with the clamps to prevent corrosion.
  - Occasionally cleaning the case of the charger with a soft cloth will keep the finish shiny and help prevent corrosion.
  - Coil the input and output cords neatly when storing the charger. This will help prevent accidental damage to the cords and charger.
  - Store the charger unplugged from the AC power outlet in an upright position.
  - Store inside, in a cool, dry place. Do not store the clamps clipped together, clipped to the handle, on or around metal, or clipped to the cables.

13. TROUBLESHOOTING

| PROBLEM                                                                             | POSSIBLE CAUSE                                                                                                                                                                             | SOLUTION                                                                                                              |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Battery clamps do not spark when touched together.                                  | The charger is equipped with an auto-start feature. It will not supply current to the battery clamps until a battery is properly connected. The clamps will not spark if touched together. | No problem; this is a normal condition.                                                                               |
| The Power LED does not light when charger is properly connected.                    | AC outlet is dead.                                                                                                                                                                         | Check for open fuse or circuit breaker supplying AC outlet.                                                           |
|                                                                                     | Poor electrical connection.                                                                                                                                                                | Check power cord and extension cord for loose fitting plug.                                                           |
|                                                                                     | Battery is defective.                                                                                                                                                                      | Have battery checked.                                                                                                 |
| The battery is correctly connected, but the Charging LED did not light immediately. | If the Start/Stop button is not pressed, charging should begin in ten minutes.                                                                                                             | No problem; this is normal.                                                                                           |
| The battery is properly connected, but the Charging LED never lit.                  | The battery voltage is low.                                                                                                                                                                | Press the Start/Stop button to start charging.                                                                        |
| The Bad Battery and Charging LEDs are lit.                                          | The battery is sulfated.                                                                                                                                                                   | The charger is in desulfation mode. Continue charging for several hours. If not successful, have the battery checked. |

| PROBLEM                     | POSSIBLE CAUSE                                                                        | SOLUTION                                                                                                                                                                                                                              |
|-----------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The Bad Battery LED is lit. | The battery voltage is still below 10V after 2 hours of charging.                     | The battery may be defective. Make sure there are no loads on the battery. If there are, remove them. If there are none, have the battery checked or replaced.                                                                        |
|                             | (or)<br>In maintain mode, the output current is more than 1.5A for 12 hours.          |                                                                                                                                                                                                                                       |
|                             | Desulfation was unsuccessful.                                                         | The battery may be defective. Have battery checked or replaced.                                                                                                                                                                       |
|                             | Lack of progress is detected and battery voltage is below 14.2V.                      | The battery may be overheated. If so, allow the battery to cool. The battery may be too large or have a short circuit. Have battery checked or replaced.                                                                              |
|                             | The battery's initial voltage is below 12.2V and the total input is less than 1.5 Ah. | The battery capacity is too low, or the battery is too old. Have it checked or replaced.                                                                                                                                              |
|                             | The battery voltage drops to below 12.2V in Maintain Mode.                            | The battery won't hold a charge. May be caused by a drain on the battery or the battery could be bad. Make sure there are no loads on the battery. If there are remove them. If there are none, have the battery checked or replaced. |

#### 14. FCC INFORMATION

**WARNING:** Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

#### 15. BEFORE RETURNING FOR REPAIRS

For REPAIRS OR RETURNS, visit [365rma.com](http://365rma.com)

Visit [batterychargers.com](http://batterychargers.com) for Replacement Parts.

#### 16. LIMITED WARRANTY

For information on our one year limited warranty, please visit [batterychargers.com](http://batterychargers.com) or call 1-800-621-5485 to request a copy.

Go to [batterychargers.com](http://batterychargers.com) to register your product online.

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