

1.5 AMP 12 VOLT AUTOMATIC ONBOARD BATTERY CHARGER

INTRODUCTION

Your new Household Battery Charger has been designed and manufactured to provide years of reliable service. This charger cannot be used on positive ground systems without conversion (see PREPARING TO CHARGE). Proper use and care can prolong the life of the charger. This instruction Manual contains information regarding safety, operation, maintenance, and storage of your new Battery Charger. Make sure that you, and anyone else, who will be using this charger, are familiar with this information.

IMPORTANT SAFETY INSTRUCTIONS SAVE THESE INSTRUCTIONS

This manual contains important safety and operating instructions.

- Use of an attachment not recommended or sold by the manufacturer may result in a risk of fire, electric shock, or injury to persons.
- To reduce the risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.
- 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:
 - a) that pins on plug of extension cord are the same number, size, and shape as those of plug on charger;
 - b) that extension cord is properly wired and in good electrical condition; and
 - c) that wire size is large enough for ac ampere rating of this charger as indicated in the following table.

RECOMMENDED MINIMUM AWG WIRE SIZE FOR EXTENSION CORDS FOR THIS BATTERY CHARGER

Length of Cord, Feet	25	50	100	150
AWG Size of Cord	18	18	18	16

- Do not operate charger with damaged cord or plug - replace them immediately.
- Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified service person.
- Do not disassemble charger; take it to a qualified service person when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
- To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning.

WARNING – RISK OF EXPLOSIVE GASES: 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 each time before using your charger, you read this manual and follow the instructions exactly.

To reduce the 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.

CAUTION – Connect or disconnect the battery clamps only when the line cord is disconnected or arcing or burning may result.

CAUTION – Intended for indoor use only. Do not expose to rain; replace defective cords or wires immediately.

PERSONAL PRECAUTIONS

- a) Someone should be within range of your voice, or close enough to come to your aid, when you work near a lead-acid battery.
- b) Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
- c) Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.
- d) If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood with running cold water for at least 10 minutes and get medical attention immediately.
- e) NEVER smoke or allow a spark or flame in vicinity of battery or engine.

842-257-000 Rev. D (English)

- f) 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 an explosion.
- g) Remove personal metal items such as rings, bracelets, necklaces, and watches when working near 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.
- h) Use this charger for charging LEAD-ACID batteries only. It is not intended to supply power to a low voltage electrical system other than in an automotive 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.
- i) NEVER charge a frozen battery.
- j) If it becomes necessary to remove the battery from the 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.
- k) Be sure area around battery is well ventilated while battery is being charged. Gases can be forcefully blown away, by using a piece of cardboard or other non-metallic material such as a fan.
- l) Add distilled water in each cell until battery acid reaches level specified by battery manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps, carefully follow manufacturer's recharging instructions.
- m) Study all battery manufacturer's specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.

PREPARING TO CHARGE

WARNING – Never alter ac line cord or plug provided. If it will not fit in the outlet, have the proper outlet installed by a qualified electrician. Improper connection can result in the risk of electric shock.

- a) Fasten the supplied mounting bracket to the charger with the two screws and two nuts as illustrated in Figure 1.
- b) Slide the bottom flange of the mounting bracket under the battery. The battery weight will hold the charger in place.

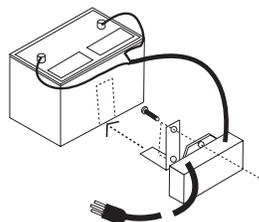


Figure 1. **Charger Mounting**

- c) Attach the red terminal to the positive battery post as illustrated in Figure 2.

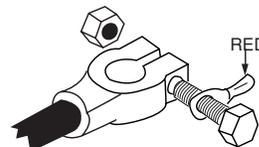


Figure 2. **Terminal Connections**

- d) Fasten the black terminal to the vehicle chassis or to the engine block (preferred location). If a suitable location on the chassis or engine block cannot be found, the connection may be made at the battery using the illustration in Figure 2.
- e) Connect the ac line cord to a 120 Vac outlet.

Note: The charger dc output leads are crimped ring terminal lugs that connect directly to the battery terminals. Some battery terminals are equipped with wing nuts that allow for easy connection of the lugs to the posts. Connect the POSITIVE (red lug) to the POSITIVE (POS., P, or +) battery terminal and the NEGATIVE (black lug) to the NEGATIVE (NEG., N, or -) battery terminal. If the battery terminal does not have a wing nut, remove the nut from the battery terminal bolt, insert the lug under the nut and retighten the nut.

- If you have a positive ground system in your vehicle, you must mark the two dc output cable conductors with the color currently on each lug and remove the attached battery lugs. Switch the lugs with new lugs of the same size but on opposite conductors. Put the new, larger lug on the conductor that is black (must remain identified as black or negative) and the new smaller lug on the conductor that is red (must remain identified as red or positive). The larger lug always connects to the battery and the smaller lug connects to the engine block or chassis, away from the battery.
- If problems arise while trying to connect the output leads, solicit the aid of your local auto supply store to find a suitable connection device for your application.

OPERATING INSTRUCTIONS

This charger uses a voltage regulating control circuit that continually monitors the battery voltage and automatically turns the output on and off, safeguarding against overcharge. This battery charger is designed to remain connected to the battery. However, if it becomes necessary to disconnect the charger, disconnect ac cord first, remove lug from vehicle chassis, and then remove the lug from battery terminal.

WARNING – A SPARK NEAR THE BATTERY MAY CAUSE THE BATTERY TO EXPLODE:

- To reduce risk of a spark near battery, position ac and dc cords to reduce the risk of damage by hood, door, or moving engine part.
- Stay clear of fan blades, belts, pulleys, and other parts that can cause personal injury.
 - a) Check polarity of battery posts. Positive (POS, P, +) battery post usually has larger diameter than Negative (NEG, N, –) post.
 - b) Determine which battery post is grounded (connected) to the chassis. If Negative post is grounded to chassis (as in most vehicles), see step e. If Positive post is grounded to the chassis, see step f.
 - c) For negative-grounded vehicle, connect Positive (RED) lug from charger to Positive (POS, P, +) ungrounded battery post. Connect Negative (BLACK) lug to vehicle chassis or engine block, away from battery. Do not connect lug to carburetor, fuel lines, or sheet metal body parts. Make the connection to a heavy gauge metal part of the frame or engine block.
 - d) For positive-grounded vehicle, connect Negative (BLACK) clip from charger to Negative (NEG, N, –) ungrounded post of battery (see PREPARING TO CHARGE). Connect Positive (RED) clip to vehicle chassis or engine block away from battery. Do not connect lug to carburetor, fuel lines, or sheet metal body parts. Make the connection to a heavy gauge metal part of the frame or engine block.
 - e) Connect the battery charger ac line cord (through a UL approved extension cord) to a 120 Volt ac power outlet. Make sure the extension cord is in good condition and the wire size is large enough for the ac ampere rating of the charger (see RECOMMENDED MINIMUM AWG WIRE SIZE FOR EXTENSION CORDS FOR THIS BATTERY CHARGER).
 - f) Once the battery charger has been properly connected to the battery and the ac outlet, the red LED will illuminate continuously indicating the battery is being charged. Depending on the state of charge at the time the charger is connected to the ac outlet, after a certain amount of time you will notice that the red LED is flashing on/off indicating that the output is being turned on and off to regulate the battery voltage. Turn off occurs at approximately 14.1 Vdc and turn on occurs at 13.1 Vdc. The amount of on time will decrease to a minimum as the battery charge is topped off.
 - g) The charger design incorporates reverse battery and short circuit protection by measuring a small battery voltage of the proper polarity before the charger turns the charge output on. For this reason, the battery voltage must measure at least 4.0 Vdc before the charger will charge the battery.

CHARGER MAINTENANCE AND CARE

A minimum amount of care can keep your battery charger working properly for years. Just as with any appliance or tool, keep your battery charger clean and dry. Occasionally cleaning the case and cables with a dry or slightly damp cloth will prolong the life of your charger.

LIMITED WARRANTY

Manufacturer warrants that for 1 year from the date of original retail purchase, it will repair at no charge for parts and labor, this product, proven defective in material or workmanship. If, after reasonable efforts by Manufacturer, the product is deemed not repairable, Manufacturer will, at its option, refund the original purchase price or supply a replacement unit.

THE TERMS OF THIS LIMITED WARRANTY CONSTITUTE THE BUYER'S SOLE AND EXCLUSIVE REMEDY. THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION TO THIS EXPRESS WARRANTY. AFTER 1 YEAR FROM DATE OF PURCHASE, ALL RISK OF LOSS FROM WHATEVER REASON SHALL BE PUT UPON THE PURCHASER.

MANUFACTURER SHALL NOT BE LIABLE FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES UNDER ANY CIRCUMSTANCES: MANUFACTURER'S LIABILITY, IF ANY, SHALL NEVER EXCEED THE PURCHASE PRICE OF THIS MACHINE, REGARDLESS OF WHETHER LIABILITY IS PREDICATED UPON BREACH OF WARRANTY (EXPRESS OR IMPLIED), NEGLIGENCE, STRICT TORT OR ANY OTHER THEORY.

This warranty extends to each person who acquires lawful ownership within one year of the original retail purchase, but is void if the product has been abused, altered, misused or improperly packaged and damaged when returned for repair. This warranty applies to the product only and does not apply to any accessory items included with the product which are subject to wear from usage; the replacement or repair of these items shall be at the expense of the owner.

Some states do not permit the limitation of warranties or limitation of consequential or incidental damages, so the above disclaimer and limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary, from state to state.

To obtain services under this warranty, call:

Battery Charger Service
(866) 236-0044 Toll Free