

1 AMP BATTERY CHARGER

• INTRODUCTION

Your new Battery Charger has been designed and manufactured to provide years of reliable service. 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.

Your new Battery Charger is ideal for recharging batteries in garden tractors, snowmobiles, motorcycles, and ATV's.

• IMPORTANT SAFETY INSTRUCTIONS - SAVE THESE INSTRUCTIONS

This manual contains important safety and operating instructions. Do not expose charger to rain or snow. 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. To reduce the risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger. 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 extension cord must be used, make sure:

- that pins on plug of extension cord are the same number, size, and shape as those of plug on charger;
- that extension cord is properly wired and in good electrical condition; and
- that wire size is large enough for ac ampere rated charger as specified in the following table.

RECOMMENDED MINIMUM AWG SIZE FOR EXTENSION CORDS FOR BATTERY CHARGERS

Length of Cord, Feet	AWG Size of Cord
25	18
50	18
100	16
150	14

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. **Turning off controls will not reduce this risk.**

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 supply cord is disconnected or arcing or burning may result.

CAUTION - Do not expose to rain; replace defective cords or wires immediately.

• PERSONAL PRECAUTIONS

- Someone should be within range of your voice, or close enough 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 skin, clothing, or eyes.
- Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.
- 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.
- NEVER smoke or allow a spark or flame in vicinity of battery or engine.
- 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.

- 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.
- Use 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.
- NEVER charge a frozen battery.

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.

• PREPARING TO CHARGE

- Be sure area around battery is well ventilated while battery is being charged. Gas can be forcefully blown away by using a piece of cardboard or other non-metallic material, such as a fan.
- 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.
- Study all battery manufacturer's specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.
- Determine the battery voltage by referring to vehicle owner's manual and make sure that the output voltage selector switch is set at the correct voltage.

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.

• CHARGER LOCATION

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

• DC CONNECTION PRECAUTIONS

- Connect and disconnect dc output clamps only after removing ac cord from electric outlet. Never allow clamps to touch each other.
- Attach clamps to battery posts and twist or rock back and forth several times to make a good connection. This tends to keep clamps from slipping off terminals and helps to reduce risk of sparking.

• OPERATING INSTRUCTIONS - CHARGING BATTERIES

FOLLOW THESE STEPS WHEN BATTERY IS INSTALLED IN VEHICLE. **WARNING - A SPARK NEAR BATTERY MAY CAUSE BATTERY EXPLOSION.**

To reduce risk of a spark near battery:

- Position ac and dc cords to reduce risk of damage by hood, door, or moving engine part.
- Stay clear of fan blades, belts, pulleys, and other parts that can cause injury to persons.
- Check polarity of battery posts. Positive (POS, P, +) battery post usually has larger diameter than Negative (NEG, N, -) post.
- Determine which post of battery is grounded (connected) to the chassis. If Negative post is grounded to chassis (as in most vehicles), see item e. If Positive post is grounded to the chassis, see step f.
- For negative-grounded vehicle, connect Positive (RED) clip from 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.
- For positive-grounded vehicle, connect Negative (BLACK) clip from 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.

- g) When disconnecting charger, disconnect ac cord, remove clip from vehicle chassis, then remove clip from battery terminal.
- h) See following instructions for length of charge information.

FOLLOW THESE STEPS WHEN BATTERY IS OUTSIDE VEHICLE.

WARNING - A SPARK NEAR THE BATTERY MAY CAUSE BATTERY EXPLOSION.

To reduce risk of a spark near battery:

- a) Check polarity of battery posts. Positive (POS, P, +) battery post usually has a larger diameter than Negative (NEG, N,-) post.
- b) Attach at least a 24-inch long, 18 gauge (AWG) or heavier, insulated jumper cable or wire to Negative (NEG, N,-) battery post.
- c) Connect Positive (RED) charger clip to Positive (POS, P,+) post of battery.
- d) 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.
- e) Do not face battery when making final connection.
- f) When disconnecting charger, always do so in reverse sequence of connecting procedure and break first connection while as far away from battery as practical.
- g) A marine (boat) battery must be removed and charged on shore. To charge it on board requires equipment specially designed for marine use.
- h) Do not operate charger with damaged cord or plug - replace them immediately.

• **CHARGING TIME INSTRUCTIONS**

Determine battery percent of charge (or specific gravity) by using hydrometer or battery percent of charge tester. The table below will help you convert hydrometer readings to percent of charge values.

SPECIFIC GRAVITY	PERCENT OF CHARGE	PERCENT OF CHARGE NEEDED
1.265	100%	0%
1.225	75%	25%
1.190	50%	50%
1.155	25%	75%
1.120	0%	100%

Read down from the battery percent of charge needed on chart below

CHARGING TIME CHART (Time in Hours)

NOTE: Times given are for an average sized motorcycle (15 Amp hour) battery.

Plug charger supply cord into 120 V., 60 Hz. outlet. Charge for time indicated on chart. The times indicated on the chart are average times for batteries. Adjust time for smaller and larger sized batteries. Use the formula below to determine exact charging times.

Time to charge in hours=Amp hour rating X % of charge needed X 1.25

NOTE: Batteries that are 25% charged or lower may easily freeze and should be charged at once.

Battery % of Charge	75%	50%	25%	0%
Approx. hours to charge a 15 amp hour battery at a 1 amp rate	4.5	9.25	14	18.7

If the battery being charged is rated in Reserve Capacity rather than Amp Hours, use the formula below to determine the appropriate Amp Hour rating for your battery.

Amp Hour Rating = (Reserve Capacity/2) + 15.5

• **CHARGER MAINTENANCE AND CARE**

A minimum 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. Coil the input and output cords neatly when storing the charger. This will prevent accidental damage to the cords and charger.

• **CHARGER CONTROLS**

The switch on the front of your charger allows you to select the charge voltage desired. By sliding the switch to the left, 6 volt charging is selected; by sliding the switch to the right, 12 volt charging is selected. Always make sure that the selection you make matches the voltage of the battery being charged.

• **LIMITED WARRANTY**

Manufacturer warrants that for 2 years 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 2 YEARS 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 two years 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

Owner pays transportation charges to and return from the address listed below.

Battery Charger Service

9231 Penn Ave. So.
 Minneapolis, MN 55431
 (800) 328-2921 Toll Free
 (612) 884-3211