Japlar/Schauer®
4500 Alpine Avenue
Cincinnati, Ohio 45242

100 Year anniversary in 2007

800 899 VOLT
513 791 3030
Fax 513 791 7192
www.battery-chargers.com

Fully Automatic World-Wide Universal Input Electronic Charger

Intelligent chargers follow battery impedance to end of charge cycle for all battery types. Fully automatic.

Red LED indicates AC POWER ON, yellow LED indicates battery is charging, green LED indicates float mode.

Aluminum case.

World–Wide Universal AC Input 90 – 260 volts, 50/60Hz

- Charge control: modified constant current charge to a constant finishing voltage then to a float standby.
- Current Limiting.
- Fully automatic 3 stage charger can be left on the battery indefinitely.
- For any type lead acid battery, including conventional, maintenance free, deep cycle, gelled-type, valve regulated batteries.
- Finishing voltage: 2.28 volts per cell float; 2.4 volts per cell finishing. May be preset to customers specification for battery type.
- Not intended for use as a DC power supply.
- Full load at 2.1 volts per cell **continuous - 100% duty cycle**.
- Short circuit proof.
- Reverse polarity protection (except 2 amp model)

JAC0512[1]	**5 AMPS**	**12 VOLTS**	**6.5 x 3.5 x 1.8**	**1.8 lbs.**
JAC1212[2]	**12 AMPS**	**12 VOLTS**	**6.5 x 3.5 x 1.8**	**1.8 lbs.**
JAC0212[3]	**2 AMPS**	**12 VOLTS**	**4.6 x 2.3 x 1.4**	**1.2 lbs.**
JAC0224[3]	**2 AMPS**	**24 VOLTS**	**4.6 x 2.3 x 1.4**	**1.2 lbs.**
JAC0524[1]	**5 AMPS**	**24 VOLTS**	**6.5 x 3.5 x 1.8**	**1.8 lbs.**
JAC0724[1]	**7 AMPS**	**24 VOLTS**	**6.5 x 3.5 x 1.8**	**1.8 lbs.**

1. DC cordsets 3' long: with ring terminals or XLR connector. 2. with stripped leads 3. with battery clips

NOTE: Chargers available for other currents and voltages, contact factory.

Instructions for your Safety.

BATTERY WARNINGS

DANGER! RISK OF BATTERY EXPLOSION FROM HYDROGEN GAS. MAY RESULT IN BLINDNESS, SERIOUS INJURY, PERMANENT DISFIGUREMENT AND SCARRING.

Batteries generate explosive hydrogen gas, even during normal operation. People have been injured by battery parts flying in an explosion. They can explode under normal operating conditions, such as starting your car. They can explode under abnormal conditions, such as jump starting, or if short circuited by a tool. They can explode in a parked car or sitting on a table.

To help reduce the risk of these dangers and injury, it is of the utmost importance that each time before using your charger, you read and understand this manual, and any warnings and instructions by the battery manufacturer. Follow these instructions exactly.
TO HELP REDUCE THIS RISK:

1. **Wear Personal Protective Equipment**
    - **ALWAYS** wear complete eye protection (THAT PROTECTS EYES FROM ALL ANGLES).
2. **Avoid Flames and Sparks Near Battery and Fuel**
    - **ALWAYS** keep flames, matches, lighters, cigarettes or other ignition sources away from battery.
    - **DO NOT** put flammable material on or under charger. **DO NOT** use near gasoline vapors.
    - Make sure charger clips make good contact by twisting or rocking them back and forth several times. The second clip connection **MUST ALWAYS** be made away from the battery. **ALWAYS** plug charger into an electrical outlet **AFTER** all connections have been made. See OPERATING INSTRUCTIONS.
    - If necessary to remove battery from vehicle to charge, **ALWAYS** turn off all accessories in the vehicle. Then **ALWAYS** remove grounded terminal (connected to car frame) from battery first.
    - A tool touching both battery posts or battery post and car metal parts is a short circuit and will spark. When using metal tools on or near battery be extra cautious to reduce risk of short circuit, possibly causing a battery explosion. **DO NOT** drop a tool on battery.
3. **Reduce Explosive Gas (hydrogen)**

- Before connecting charger, **ALWAYS** add water to each cell until battery acid covers plates to help purge extra gas from cells. **DO NOT** overfill. Battery acid expands during charge. After charging fill to level specified by battery manufacturer. For a battery without removable caps (maintenance free battery), carefully follow manufacturer's instructions on charging.
- Some sealed maintenance free batteries have a battery condition indicator. A light or bright colored dot indicates low water. Such a battery needs to be replaced, not charged or jump started.
- Charge battery with caps in place. Most U.S. batteries are made with flame arresting caps. **DO NOT** pry caps off sealed batteries. Place wet cloth on batteries with non-flame arresting caps.
- Be sure area around battery is well ventilated before and during charging process. **NEVER** charge in a closed-in or restricted area.

4. **Stay Away From Battery When Possible**
   - **NEVER** put face near battery.
   - **ALWAYS** locate charger as far from battery as DC cables permit.
   - **ALWAYS** keep other people away from the battery. They are not wearing safety glasses like you are.
5. **Avoid Contact With Battery Acid**
   - Battery posts may have **acid corrosion**. **DO NOT** get corrosion in your eyes. Avoid touching eyes while working near battery.
   - **ALWAYS** use a battery carrier. Carrying a battery by hand may put pressure on its ends, causing acid to be forced out vent caps.
   - **ALWAYS** have plenty of fresh water and soap nearby in case battery acid contacts eyes, skin or clothing. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye with cold running water for at least fifteen (15) minutes and get medical help immediately.
   - In very cold weather a discharged battery may freeze. **NEVER** charge a frozen battery. Gases may form, cracking the case, and spray out battery acid.
6. **Avoid Overcharging Batteries**
   - The non-automatic (manual) battery charger models can overcharge a battery if left connected for an extended period of time, resulting in loss of water and creation of hydrogen gas.
7. **Follow Other Manufacturers' Recommendations**
   - Before using charger, read all instructions for, and caution markings on: (1) charger, (2) battery, and (3) related product using battery. Follow their recommended rate of charge.

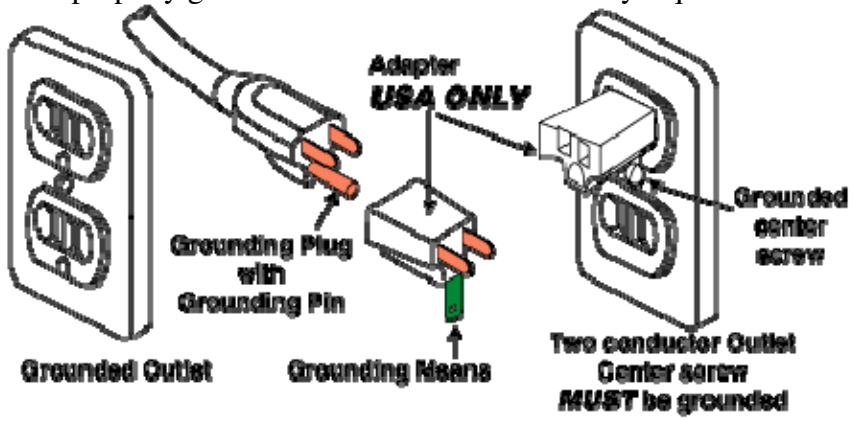
ELECTRICAL WARNINGS

DANGER! RISK OF ELECTRICAL AND FIRE HAZARD. MAY RESULT IN DEATH, SERIOUS INJURY, SHOCK OR BURNS.

TO HELP REDUCE THIS RISK:

This charger, like all electrical products, **MUST** be treated with respect. Follow these instructions to reduce electrical hazard risk.

1. **PROPER GROUNDING AND AC POWER CONNECTION**
    - Charger **MUST** be grounded to reduce risk of electric shock. Charger is equipped with an electric cord having an equipment grounding conductor and a grounding plug. **The plug MUST be plugged into an outlet that is properly installed and GROUNDED in accordance with all local codes and ordinances.** If you ever feel even a slight shock from this or any electrical appliance, stop, walk away. Turn off electricity to outlet, and have it inspected by an electrician. You may have a dangerous, improperly wired outlet.
    - **DANGER - NEVER** alter AC power cord or plug provided - if it will not fit outlet, have proper outlet installed by a qualified electrician or proceed as shown in the illustration below. Improper connection can result in a risk of an electric shock. This battery charger is for use on a nominal 120 volt circuit (common household current), and has a grounding plug as illustrated. A temporary adapter may be used, USA only, to connect this plug to a two-pole receptacle, as shown, if properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician.



Using an adapter is *forbidden* in Canada. If a grounded outlet is not available, have one installed by a qualified electrician before using this charger.

    - **DANGER** - Before using adapter as illustrated, be certain that center screw of outlet plate is grounded. The green colored rigid ear or lug extending from adapter **MUST** be connected to a properly grounded outlet - **make certain it is grounded**. If necessary, replace original outlet cover plate screw with a longer

screw that will secure adapter ear or lug to outlet cover plate and make ground connection to grounded outlet.

2. **Remove Jewelry**
   - **ALWAYS** remove personal metal items (such as rings, bracelets, necklaces and watches) when working with a battery. A short circuit through one of these items can melt it causing a severe burn.
3. **Avoid Charger Abuse**
   - To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.
   - **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.
   - **DO NOT** expose charger to rain, snow, water, gas, oil, etc.
   - **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** block air holes in top or bottom of charger. **DO NOT** put charger on vehicle seat. **DO NOT** set a battery on top of charger.
   - **DO NOT** operate charger with clips shorted together.
   - The polarity of the charger and the battery **MUST ALWAYS** match to avoid damage to battery and charger. The second clip connection **MUST ALWAYS** be made away from the battery. (See OPERATING INSTRUCTIONS below.)
4. **Proper Use of Charger and Wiring**
   - 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, use **ONLY** a grounded, 3-wire type cord. **NEVER** use a 2-wire cord and an adaptor! The cord **MUST** be plugged into a grounded outlet. Make sure it is properly wired, in good electrical condition, and wire size is large enough for AC ampere rating of charger as specified below. AWG = American Wire Gauge

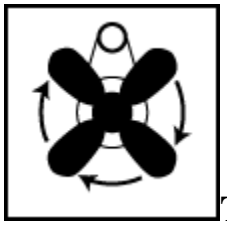
RECOMMENDED PROPER WIRE SIZE (AWG) IN EXTENSION CORDS FOR BATTERY CHARGERS					
Charger's AC Input Rating		Length of Cord (feet)			
equal to or greater than	but less than	25 ft	50 ft	100 ft	150 ft
AMPERES		Wire Size of Cord (AWG)			
0	2	18	18	18	16
2	3	18	18	16	14
3	4	18	18	16	14
4	5	18	16	14	12
You may use heavier size wire - **NEVER** lighter.					

5.

- **DO NOT** modify charger circuitry.
- To reduce risk of damage to plug and cord when disconnecting charger, **ALWAYS** pull on plug - **NEVER** on cord.
- Locate cord so that it will not be stepped on, tripped over, or otherwise subject to damage or stress. **DO NOT** lay extension cord on battery or charger. **DO NOT** operate charger with damaged cord or plug - replace them immediately.
- Determine battery voltage by referring to vehicle or equipment owner's manual and make sure it matches DC output voltage shown on charger nameplate.
- This battery charger is designed specifically for charging automotive lead-acid batteries. **DO NOT** use with dry-cells that are commonly used with home appliances, flashlights, etc. These batteries may burst and cause injury to persons and damage to property.
- This charger is not intended to supply low-voltage power for applications other than battery charging.
- Charging a battery on board a boat floating in water requires a battery charger specially designed to marine charging standards. Move the battery to dry land for charging with this charger.

AUTOMOTIVE WARNINGS

DANGER! RISK OF FLYING PARTS IF USED NEAR MOVING ENGINE PARTS. MAY RESULT IN DEATH, BLINDNESS, SERIOUS INJURY, PERMANENT DISFIGUREMENT AND SCARRING.



TO HELP REDUCE THIS RISK:

- **ALWAYS** keep charger, DC clips and wires, and AC power cord and plug away from any movable parts of the vehicle including fan belts, fan blade, alternator or generator, etc.
- **ALWAYS** avoid the radiator cooling fan. On some cars it may start up without the engine running, when you least expect it.
- If your charger does not have an engine starting feature, **ALWAYS** disconnect the charger before starting the engine . If your charger has engine starting feature, **AVOID MOVING ENGINE PARTS** when starting engine.

GENERAL INFORMATION

The warnings are important. Remember, our address is on the charger, if you should lose these Safety Instructions send a stamped, self addressed envelope for a new set.

The following models are covered by these instructions. The safety and connection part of these instructions apply in general to all battery chargers.

Manual Chargers: (You must unplug them when battery is charged.)
Includes all our models that begin with a single letter: A, B, C, F.

Manual Chargers with Engine Starting Feature:
Includes all our models that begin with the letters: J, L, FC.

Automatic Chargers:
Models with initial letters CR, BR, ER, R or end with the letter A.

- These chargers are suitable for use on conventional, maintenance free, deep-cycle, and gel type lead-acid batteries. Use a charger with a one or two ampere rating for motorcycle batteries.
- Some models are marked as dual rate chargers on their front panels, with 2 Amp low, 6 to 60 Amp high. Use the **high** rate setting for normal charging, and **low** for slow or overnight charging of automobile batteries. The **low** rate setting is suitable for normal charging of most small capacity motorcycle and garden tractor type batteries.
- The battery will not discharge back through the charger if the AC power is turned off.
- DRY CHARGED BATTERIES require a conditioning charge after being filled with electrolyte. Follow the battery manufacturer's charging instructions.

Operating Instructions

A spark near the battery may cause a battery explosion. To reduce risk of a spark near the battery when you connect the charger clips, **ONLY** connect one clip to the battery. Then, take the second clip and connect it to the car frame or engine block. If a spark should occur then, it will be far away from the battery. This type of connection works because every car battery has one cable which is connected to the body or car frame. This is called the ground cable. On most cars this cable is connected to the NEGATIVE terminal of the battery. This is called a NEGATIVE GROUND. Most cars made in the U.S.A., Europe, and Asia in the last twenty years have negative grounds.

Battery Polarity: A battery has two poles or posts. The positive battery post is usually marked POS, P, or + and is larger than the negative post which is usually marked NEG, N, or -.

The polarity of the charger and the battery **MUST ALWAYS** match to avoid damage to battery and charger. On a negative ground car: connect the positive (red) charger clip to the positive battery post first; then connect the negative (black) clip to negative ground (car frame or engine

block). If you are not sure what type of ground your car has, have it checked before using charger.

Honestly now, did you review the safety instructions before connecting your charger? Follow these three steps in order. Go to STEP 1.

STEP 1. CONNECTING THE CHARGER TO BATTERY

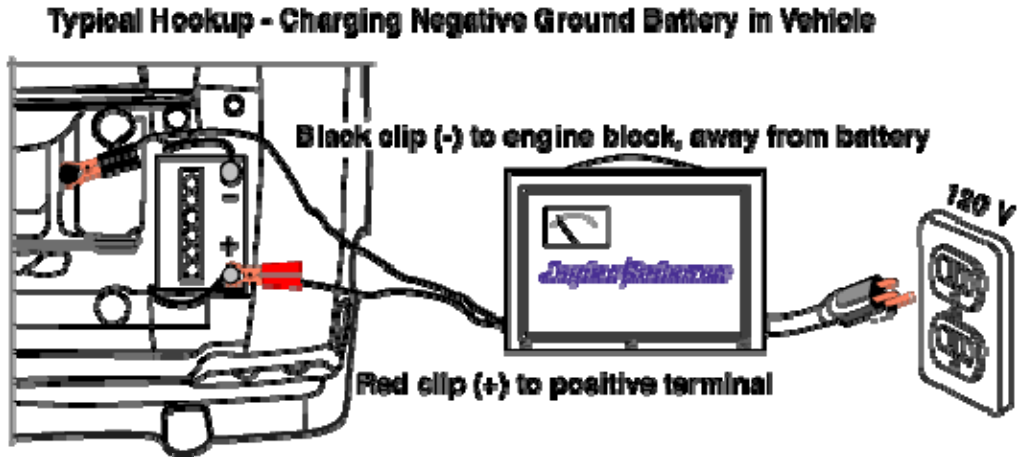
- If charger has switch with OFF position, it MUST be set to OFF.
- AC power cord MUST be unplugged.

A. CHARGING BATTERY IN VEHICLE

If car has negative ground: (Most cars do, but if you are not sure have it checked.)

1. Connect POSITIVE (RED) charger clip to POSITIVE post of battery. Some newer cars have a remote positive terminal located away from the battery. Use this remote terminal for charging connections. See your car's owners manual.
2. Next connect NEGATIVE (BLACK) charger clip to car frame or engine block away from battery.

CAUTION: 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. DO NOT face battery when making final connection. Go to STEP 2.



If car has positive ground: (Most cars **DO NOT**, be sure to check.)

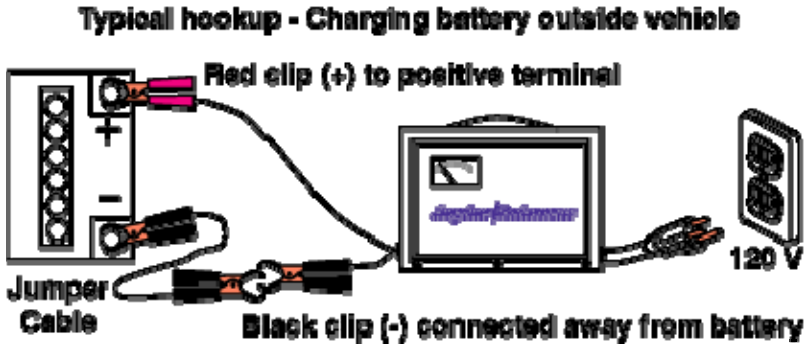
1. Connect NEGATIVE (BLACK) charger clip to NEGATIVE ungrounded post of battery.
2. Next connect POSITIVE (RED) charger clip to car frame or engine block away from battery.

CAUTION: 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. DO NOT face battery when making final connection. Go to STEP 2.

B. CHARGING BATTERY OUTSIDE VEHICLE

- Check polarity of battery posts. See above.
- Attach a jumper cable or a 6 gauge (AWG) insulated battery cable at least 24 inches long, to NEGATIVE battery post.

1. Connect POSITIVE (RED) charger clip to POSITIVE post of battery.
2. 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. DO NOT face battery when making final connection. Go to STEP 2.



STEP 2. TURNING THE CHARGER ON

- If equipped with voltage switch, set switch to voltage of battery: 6, 12 volts.
- If equipped with rate switch, set switch for charge rate desired: 2, 6, 12, 30 Amps.
- If equipped with automatic/manual charge mode switch, set switch to battery type for automatic charging of conventional batteries, maintenance free batteries, or manual for non-automatic charging of all battery types.
- If equipped with timer, set to charge time desired.
- Plug the AC cord in a **grounded** outlet. Stand away from battery.
- **DO NOT** touch charger clips when the charger is on.
- The charger should now be on and the ammeter showing the rate at which the battery is charging. The initial rate may be somewhat higher or lower than the charger's nameplate rating depending on battery condition and AC voltage at the outlet.
- See CHARGING TIME table for length of charge.

STEP 3. TURNING THE CHARGER OFF

- Unplug the AC power cord from the outlet.
- Set the selector switch to OFF.
- Remove charger clip connected to car frame: If charging battery outside a vehicle, remove clip connected away from battery.

- Remove clip connected to battery post.

ENGINE STARTING

- For models with Engine Starting Feature.
- Connect in the same manner as for battery charging, following STEP 1. Make sure cords are away from moving engine parts.
- Charge the battery, following STEP 2, for at least 3 minutes before trying to start the engine.
- Set the selector switch to the proper start position and crank the engine in the normal manner. **DO NOT** CRANK FOR MORE THAN 15 SECONDS. Check car's owners manual for recommended cranking time limit. If car does not start or the charger's overload circuit breaker trips, allow the charger to cool for at least 3 minutes before trying again.
- When the engine has started, turn off charger following STEP 3. **USE CARE TO AVOID MOVING ENGINE PARTS.**

C H A R G I N G T I M E Time To Charge Fully Discharged Battery						
Battery Type	Battery Rating	Charger Output Rating (Amps)				
		2	6	10	12	30
Cars/Trucks etc.	**RC**	Time to charge your battery (hours)				
315 CCA	60	20	7	4	3	1
450 CCA	70	23	8	5	4	2
550 CCA	85	NR	9	6	5	2
850 CCA	140	NR	16	9	8	3
1050 CCA	165	NR	18	11	9	4
Note change in ratings below to AH	**AH**	Time to charger your battery (hours)				
small Motorcycle Garden Tractor	12	7	NR	NR	NR	NR
large Motorcycle Garden Tractor	32	18	6	4	3	NR
Deep Cycle	55	NR	10	6	5	NR
Deep Cycle	80	NR	15	9	7	3
Deep Cycle	105	NR	20	12	10	4
		NR = Not Recommended for this size battery.				

Charging times for your battery may be different from these. If your battery is only half discharged you will need only half the time to charge.

Some old batteries may not accept a charge and will heat up on charging. **CAUTION**: If at any time the battery gets hot (above 125 degrees F) or acid comes out of vent caps, STOP charging. Have your battery checked. Charging may not be possible. It may have to be replaced.

CAUTION: Manual Chargers - If you feel your battery is not charged after these times, have it checked. Charging for longer times may damage battery. **Automatic Chargers** - After these times, or slightly longer, if automatic chargers are still charging at a low rate near 2 to 3 amperes suspect the following two battery problems. 1) Sulfated battery (worn out), 2) shorted cell in battery. Stop charging and have battery checked.

Charging times for the car batteries are based on their **Reserve Capacity** ratings [**RC**]. We assumed the batteries were fully discharged.

Charging times for the motorcycle and deep cycle batteries are based on their **Ampere Hour** ratings [**AH**]. The motorcycle/garden tractor batteries and deep cycle batteries were assumed to be 70 per cent discharged.

There is no relationship between **Cold Cranking** rating [**CCA**] and charge time. Two batteries may have the same **CCA** rating, but very different RC ratings. **ALWAYS** use **RC** or **AH** ratings to determine charge time. If you do not know the rating for your battery, ask your battery dealer.

TROUBLE SHOOTING

1. **No DC Output On Ammeter When Charger Is On.**
   a) Unplug the charger and make sure connections are secure.
   b) Check for wall outlet for power.
   c) DC circuit breaker is tripped. See "Charger Overload" below.
   d) A dead battery (Specific Gravity near 1.000) shows very low output on ammeter. After 15 to 20 minutes the indicated current rises and normal charging occurs.
2. **Charger Overload.**
   - The charger is protected against overloads by a self-resetting DC circuit breaker. An overload is indicated when a full scale ammeter reading abruptly falls to zero accompanied by a distinct "click" of the DC circuit breaker as it trips. A 3 to 5 minute cooling off period is required before the breaker will reset itself. If the overload condition still exists, the cycle will repeat.

   Listed below are the conditions that can cause the circuit breaker to trip:

   - A deeply discharged battery (Specific Gravity near 1.120). If the battery is in otherwise good condition, the circuit breaker may trip on and off several times

until the battery recovers enough to allow a normal charge rate. If the tripping continues after 30 minutes, a larger charger should be used.
    - A battery with a shorted cell. A battery in this condition may cause the breaker to trip continuously. It will not accept a charge and should be replaced.
    - Charger leads are connected in reverse causing the breaker to trip continuously. May damage battery and charger.
    - Touching the charger leads together with the charger turned on. This causes a spark which is dangerous if near a battery and could severely damage the charger.
    - If proper hookup is observed and sparking does occur between charger clips and frame connection, **DO NOT** use the charger. Have it checked by a qualified service person.
    - **CAUTION:** Regardless of what is causing the overload, unattended or routine operation in this manner could result in serious damage to the charger and the battery.
3. **Charge Rate Does Not Go To Full Amp Rating Of Charger And/Or Falls Quickly When Charger Is Turned On.**
    - Battery is partially charged.
    - Battery is cold.
    - The AC outlet voltage is less than 120 volts.
    - Corroded clips and/or battery posts.
4. **Current Indicated On Ammeter Falls Slightly Showing No Further Change.**
    - Worn out battery with sulfated plates, replace battery.

STORAGE

- Clean clips. Repack charger and instruction manual. Store in a dry place not subject to sub-zero temperatures which could cause the cord insulation to become stiff and possibly crack when uncoiled.

For a printed copy via smail mail, send a stamped, self addressed envelope requesting General Charger Instructions.

Your comments and suggestions are welcome. instruction-writers@battery-chargers.com

For further information about: our catalog products, a special application you may have, or to order, contact:
Jonathan Chaiken (extension 146) jchaiken@battery-chargers.com

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November 11, 2007