



Operator's Manual

12/24V 10A AUTO HF CHARGER / HOUSEHOLD CHARGER

For use with machines having Code Numbers:
11866



Model K3234-1
10/6/2A 12V, 6/2A 24V High Frequency Charger

Save for future reference

Date Purchased

Code: (ex: 10859)



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Congratulations on the purchase of your new battery charger. We wish to acknowledge Underwriters Laboratories (U/L) for contributing the following important safety precautions. Please read and retain these instructions for the continued safe use of your new charger.

This manual contains important safety information. **DO NOT OPERATE** this equipment UNTIL YOU HAVE READ this safety summary!

IMPORTANT SAFETY INSTRUCTIONS. SAVE THESE INSTRUCTIONS

SAFETY INFORMATION

The following safety information is provided as guidelines to help you operate your new battery charger under the safest possible conditions. Any equipment that uses electrical power can be potentially dangerous to use when safety or safe handling instructions are not known or not followed. The following safety information is provided to give the user the information necessary for safe use and operation.

A procedure step preceded by **WARNING** is an indication that the next step contains a procedure that might be injurious to a person if proper safety precautions are not heeded.

A procedure preceded by a **CAUTION** is an indication that the next step contains a procedure that might damage the equipment being used.

A **NOTE** may be used before or after a procedure step to highlight or explain something in that step.



SHOCK HAZARDS

1. This battery charger is intended for indoor use only. Do not expose the charger to rain or snow.
2. NEVER attempt to charge a marine (boat) battery while the boat is on or near the water. A boat must be on a trailer and located indoors before attempting to charge its battery(s). The boat manufacturer's battery charging instructions must be followed exactly.
3. NEVER set the charger, output cable or clamps, or ac power cord plug in water or on wet surfaces.
4. NEVER use this charger on a pier or dock. Charger could fall in water, creating an electric shock hazard.
5. NEVER attempt to plug in or operate the battery charger with defective or damaged wires, power cord, or power cord plug. Have any of these parts that are defective or damaged replaced by qualified personnel IMMEDIATELY.
6. NEVER attempt to plug in the charger or operate its controls with wet hands or while standing in water.
7. NEVER alter the ac power cord or power cord plug provided with the battery charger.
8. NEVER use an attachment not recommended or sold by the battery charger manufacturer for use with this specific model battery charger.

9. NEVER operate this battery charger if it has received a sharp blow, been dropped, or similarly damaged, until after being inspected and/or repaired by qualified service personnel.
10. NEVER disassemble this battery charger. Take the battery charger to qualified service personnel when service or repair is needed.
11. ALWAYS plug in and unplug the ac power cord by grasping the power cord plug, NOT THE POWER CORD, to reduce risk of damaging power cord.
12. ALWAYS remove personal metal items such as rings, bracelets, 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 any jewelry to metal causing a severe burn.
13. ALWAYS unplug the battery charger from the ac outlet before attempting any cleaning or maintenance. Turning the charger's control(s) OFF, alone, will not remove all electricity from the charger.
14. An extension cord should not be used unless absolutely necessary. Use of an improper extension cord could result in a fire or electric shock. If an extension cord must be used, make sure that:
 - a. the pins on the plug of the extension cord are the same number, size, and shape as those of the plug on the charger,
 - b. the extension cord is properly wired and in good electrical condition, and
 - c. the wire size is large enough for the length of cord as specified in the following chart:

Length in feet:	25	50	100	150
cord AWG size:	18	18	16	14



EXPLOSIVE GAS HAZARDS

1. Working in the vicinity of a lead-acid battery is dangerous. Batteries generate explosive gasses during normal operations and, at an even higher level, during charging. If anything is allowed to ignite these gasses, the battery may explode, sending pieces of the battery and extremely caustic battery acid out in all directions and with extreme force. Since just the slightest spark is sufficient to ignite these gasses, it is of **UTMOST IMPORTANCE** that you read this manual and follow the instructions exactly, before using your battery charger each time.
2. NEVER operate this battery charger near any fuel tanks or gas cylinders. This charger can produce sparks that could ignite gasses and cause an explosion.
3. NEVER attempt to permanently mount this battery charger on a marine or recreational vehicle.
4. NEVER attempt to connect this charger's output cables directly to the battery(s) in the bilge or engine compartment of a boat. Follow the boat manufacturer's battery charging instructions exactly



BATTERY EXPLOSION HAZARDS

1. To reduce the risk of battery explosion, read, understand, and follow these instructions, those published by the battery manufacturer, and those of the manufacturer of any equipment you intend to use near the battery. Review cautionary markings on these products and on the engine. If unable to determine the battery manufacturer's requirements for charging, always charge the battery with the cell caps in place. In addition, make certain that anyone else that uses this equipment, or is a bystander in the vicinity of a charging battery, understands and follows these safety instructions as well.
2. NEVER smoke or allow a spark or flame in the vicinity of the battery or engine.
3. NEVER operate the battery charger in a closed-in area or restrict ventilation in any way.
4. NEVER charge a frozen battery as battery explosion can result.
5. NEVER connect BOTH battery charger clamps DIRECTLY to the two posts of the same battery. See OPERATION INSTRUCTIONS for connection procedures.
6. NEVER charge batteries other than a LEAD-ACID type. Especially, DO NOT use for charging dry-cell batteries that are commonly used with toys and home appliances. These batteries may burst and cause injury to persons or damage property.
7. NEVER allow the dc output clamps to touch each other.
8. ALWAYS be extra cautious to reduce the risk of dropping a metal object, such as a tool, onto or near the battery. Doing so could produce a spark or short circuit the battery or other electrical part that could cause an explosion.
9. ALWAYS make sure the area around a battery is well ventilated while it is being charged. Gas can be forcefully blown away by using a piece of cardboard or other non-metallic material as a fan.
10. ALWAYS make sure that the ac power cord is unplugged from the ac outlet or extension cord BEFORE connecting or disconnecting the battery charger clamps, to prevent arcing or burning.
11. ALWAYS locate the battery charger as far away from the battery as the dc output cables will permit.
12. ALWAYS twist or rock charger clamps back and forth several times on the battery post and the other point of connection at the time of initial connection. This helps keep the clamps from slipping off their points of connection which helps reduce the risk of sparking. DO NOT rock the clamp connected to the battery post AFTER the second connection (at a point away from the battery) is made or sparking may occur at the battery post.
13. ALWAYS check the cable and wire connections at the battery(s) for tightness - BEFORE STARTING TO CHARGE. A loose connection can cause sparks or excessive heating which could cause a battery explosion.

14. ALWAYS make sure the battery compartment is open and well ventilated before charging.



FIRE HAZARDS

1. NEVER use an attachment not recommended or sold by the battery charger manufacturer for use with your specific model charger.
2. NEVER disassemble the battery charger; take it to qualified service personnel when service or repair is needed.
3. ALWAYS make sure that the ac power cord is unplugged from the ac outlet or extension cord, BEFORE connecting or disconnecting the battery charger clamps, to prevent arcing or burning.



BATTERY ACID HAZARDS

1. ALWAYS have someone within range of your voice and close enough to quickly come to your aid when working near a lead-acid battery.
2. ALWAYS have plenty of fresh water and soap nearby in case battery acid contacts eyes, skin, or clothing.
3. ALWAYS wear complete eye and clothing protection and avoid touching eyes while working with a battery.
4. ALWAYS act QUICKLY if contact with battery acid is made. If acid contacts skin or clothing, wash IMMEDIATELY with soap and water. If acid enters the eye, IMMEDIATELY flood the eye with running cold water for at least 10 minutes. Get medical attention IMMEDIATELY.



MOVING PARTS HAZARDS

1. NEVER connect the battery charger clamps to a vehicle when the engine is running.
2. ALWAYS stay clear of fan blades, fan belts, pulleys and other moving engine parts when working near an engine. Moving engine parts can cause severe personal injury including dismemberment.
3. ALWAYS make sure that the battery charger cables and clamps are positioned so they will not come in contact with any moving engine parts.



BURN HAZARDS

1. NEVER lean on or rest against the engine or cooling system parts when the vehicle is running.
2. ALWAYS stay clear of the cooling system, engine, and engine manifold. These engine components get very hot and retain heat for a long time. Touching any of these components can cause severe burns.

HOW BATTERIES CHARGE

A charger DOES NOT FORCE current into a battery - it makes a limited amount of current available and the battery draws as much of it as it needs, up to or slightly greater than the rated output current capability of the charger.

The closer a battery is to zero charge (dead battery), the more charging current it will want to draw. When charging begins, on a dead battery, the charger's ammeter will register toward the high end of the ammeter scale and move toward zero as the battery becomes more fully charged. KEEP IN MIND, the ammeter registers the amount of amperage being drawn from the charger by the battery, not what the charger is capable of delivering.

NOTE: A slow bubbling sound may be heard coming from the battery during the charging process. This is a normal condition and just another indicator the battery is being charged.

To reduce the risk of battery overcharging, it is important to thoroughly read this instruction manual.

SPARK PREVENTION

MAKE SURE no sparks or flames occur near the battery, especially during charging. It takes very little to ignite the explosive gasses produced by a lead-acid battery. Read, understand, and follow the safety information provided in the SAFETY SUMMARY section of this manual before attempting to work with or near a lead-acid battery.

For more information about batteries and battery charging, contact Battery Council International at (312) 644-6610, and request their BATTERY SERVICE MANUAL, which is available for a nominal charge.

DEEPLY-DISCHARGED LEAD-CALCIUM BATTERIES

Some modern batteries can cause charging problems if they have been deeply discharged. The plates in these batteries began sulfating quickly, forming a barrier to accepting a charge. This condition will be indicated by an extremely low (or zero) ammeter reading. A deeply discharged battery such as this may take as long as 4 to 8 hours before it will accept a charge.

CHARGER PREPARATION

CHARGER PLACEMENT

Place the charger in a clean, dry, stable, well-ventilated spot as far away from the battery as the dc output cables permit.

NEVER place the charger directly above the battery being charged; gasses from the battery will corrode and damage the charger.

NEVER allow battery acid to drip on the charger when reading specific gravity or filling the battery.

NEVER set a battery on top of the charger.

NEVER attempt to permanently mount this battery charger on a marine or recreational vehicle.

ALWAYS position the charger on the outside of a boat or recreational vehicle.

PROVIDE REQUIRED POWER

This battery charger requires a nominal 120 volt, 60 Hertz, 15 amp ac power source.

DO NOT PLUG THE CHARGER INTO THE AC POWER SOURCE UNTIL TOLD TO DO SO IN THE OPERATING INSTRUCTIONS.

WARNING



ELECTRIC SHOCK CAN KILL!

To reduce risk of electric shock, never alter ac power cord or power cord plug provided on the charger. If it will not fit the outlet, have a proper outlet installed by a qualified electrician. Never use an adapter.

The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances.

EXTENSION CORDS

An extension cord should not be used unless absolutely necessary. If necessary, care must be taken to select an extension cord suitable for use with your specific battery charger (see SHOCK HAZARDS in SAFETY SUMMARY).

WARNING



FIRE CAN KILL, INJURE, AND CAUSE PROPERTY DAMAGE!

To reduce risk of electric shock and fire, never alter the ac power cord or power cord plug provided on the charger. Never alter extension cords or extension cord plugs. Make sure the extension cord is properly wired and in good electrical condition. Make sure the wire size (American Wire Gauge or AWG) of the extension cord is large enough to handle your specific charger's amperage requirements.

BATTERY PREPARATION

WARNING



BATTERY EXPLOSION CAN INJURE, AND CAUSE PROPERTY DAMAGE! NEVER SMOKE OR ALLOW A SPARK OR FLAME IN THE VICINITY OF THE BATTERY OR ENGINE.

If it is necessary to remove the battery from the vehicle to charge it, make sure all accessories in the vehicle are off and ALWAYS remove the grounded cable from the battery FIRST.

If needed, add distilled water to each cell of the battery until battery acid reaches the manufacturer's specified level. DO NOT OVERFILL. This helps remove excessive explosive gasses from the battery. For maintenance free batteries without caps, carefully follow the battery manufacturer's recharging instructions.

WARNING



BATTERY ACID CAN CAUSE SERIOUS INJURY AND PROPERTY DAMAGE!

Always wear complete eye and clothing protection and avoid touching eyes while working near battery.

Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.

Study all of the battery manufacturer's precautions, such as whether cell caps should be left in place or removed during charging, and the recommended rates of charge for the specific battery. If you are unable to determine the battery manufacturer's requirements for charging, always charge the battery with the cell caps in place.

If the battery voltage cannot be determined from the information on the battery itself, refer to the owner's manual for the product in which the battery was installed.

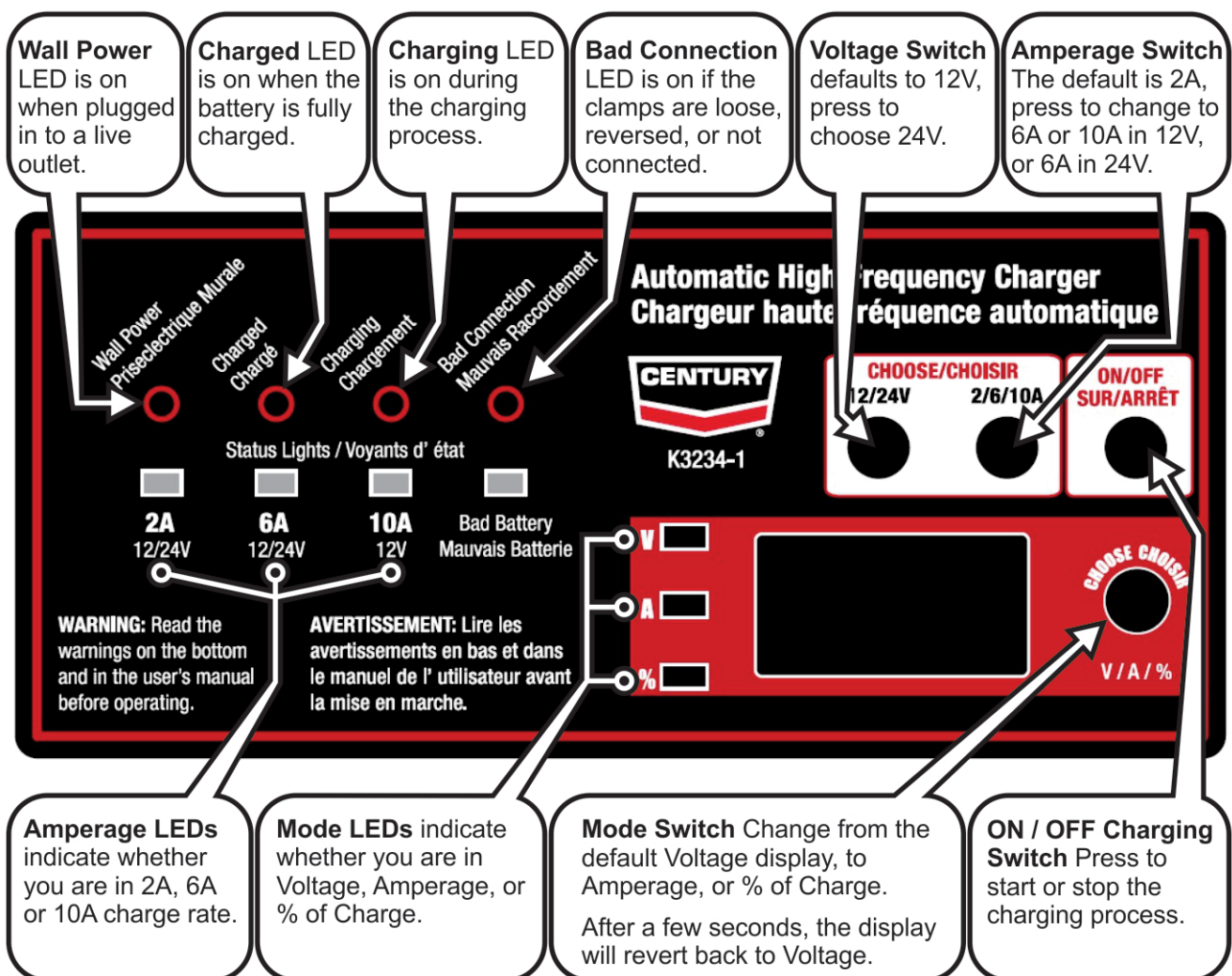
DESCRIPTION

This battery charger is designed to handle the majority of your charging needs.

- HIGH AND LOW CHARGE RATES for most battery sizes.
- LED DISPLAY shows volts, amps or % of charge.
- Status LEDs for bad or reverse connection, charging, charged, wall power, bad battery, 2A, 6A and 10A settings.
- CHARGES ALL 12 and 24 volt maintenance free, conventional wet, gel, deep cycle and AGM batteries used in cars, trucks, farm equipment, RVs and commercial vehicles.

- STORAGE COMPARTMENT for the power cord and DC leads.
- HIGH FREQUENCY circuit for faster charging.
- DE-SULFATES batteries.
- EFFICIENT CHARGING CIRCUIT extends battery life.
- ON-DEMAND FAN extends charger life.

CONTROLS AND INDICATORS



CONTROL SETTING INSTRUCTIONS

CHARGE VOLTAGE AND RATE SELECTION

Choose the voltage and amperage that is appropriate for the size and type of battery being charged. Use the battery manufacturer's specific instructions or see the guidelines below. If the battery voltage is not clearly marked on the battery, refer to the operator's manual for the vehicle / equipment where the battery is used / intended to be used. Do not begin charging if the battery voltage cannot be determined.

• Small Motorcycle type	3 Amps or less
• Lawn mower/Tractor	6 Amps or less
• Deep cycle	25 Amps or less
• Maintenance free Auto or Marine Cranking	45 Amps or less
• Heavy duty Commercial	60 Amps or less

Unless the information is supplied for the particular battery, always charge small 12 volt batteries at no more than 2 amps.

Rate and Voltage Selection

2A, 12V for motorcycle, snowmobile, lawn & garden or other small batteries.

10A, 12V for automobile, truck, farm equipment and other medium to large batteries.

2A, 24V for slow charging 24V systems.

6A, 24V for charging 24V systems at a medium rate.

OPERATING INSTRUCTIONS

⚠ WARNING

DO NOT ATTEMPT TO OPERATE THIS BATTERY CHARGER until you have read and understood the entire SAFETY SUMMARY provided in this manual.

CONNECTING TO BATTERIES INSTALLED IN VEHICLES

⚠ WARNING

Do not plug the charger power cord into the ac power source or set any of the charger's controls until told to do so in the following instructions.

1. Make sure that the ac power cord is unplugged from the ac outlet and make sure the vehicle's engine is turned off.
2. Position the ac power cord and dc output cables in such a manner that they cannot be damaged by moving engine parts or the vehicle's hood or doors.
3. Check the polarity of the battery terminals. The POSITIVE terminal should be marked: POSITIVE, POS, + or P. The NEGATIVE terminal should be marked: NEGATIVE, NEG, - or N.
4. Determine whether the vehicle has a positive or negative grounded battery (positive or negative cable is connected to the vehicle's chassis).

⚠ WARNING



MOVING ENGINE PARTS CAN CAUSE SERIOUS INJURY!

Stay clear of fan blades, belts, pulleys and other moving engine parts to reduce risk of serious personal injury.

- a. **Negative ground vehicles** (The most common type, see Figure B.3).

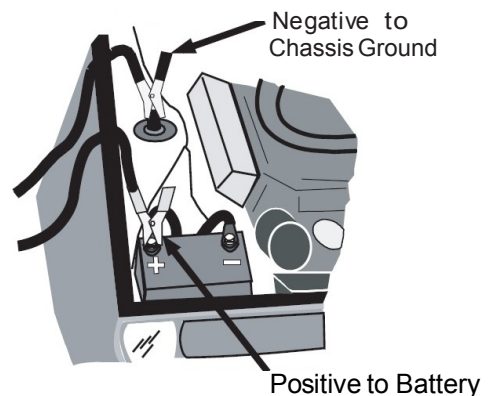


Figure B.3. Negative Ground

1. Connect the POSITIVE (red) clamp from the battery charger to the POSITIVE, ungrounded terminal of the battery.
2. Connect the NEGATIVE (black) clamp from the battery charger to a heavy gauge metal part of the vehicle chassis or engine block away from the battery. DO NOT connect the NEGATIVE (N) (black) charger clamp to the NEGATIVE battery terminal, carburetor, fuel lines, or sheet metal body parts.

b. Positive ground vehicles (see Figure B.4)

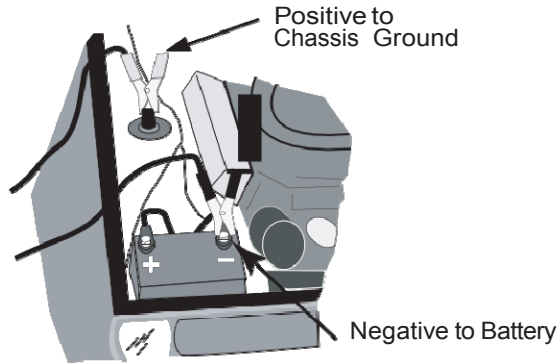


Figure B.4. Positive Ground

1. Connect the NEGATIVE (black) charger clamp to the NEGATIVE, ungrounded terminal of the battery.
2. Connect the POSITIVE (red) charger clamp to a heavy gauge metal part of the vehicle chassis or engine block away from the battery. DO NOT connect the POSITIVE (red) charger clamp to the POSITIVE battery terminal, carburetor, fuel lines, or sheet metal body parts.

CONNECTING TO BATTERIES OUTSIDE A VEHICLE

1. Make sure that the ac power cord is unplugged from the ac power source.
2. Check the polarity of the battery terminals (see Figure B.5). The POSITIVE terminal should be marked: POSITIVE, POS, +, or P. The NEGATIVE terminal should be marked: NEGATIVE, NEG, -, or N.
3. Attach a battery or booster cable, AT LEAST 24 inches long that is the same (or larger) wire gauge as the charger cable, to the NEGATIVE terminal of the battery.

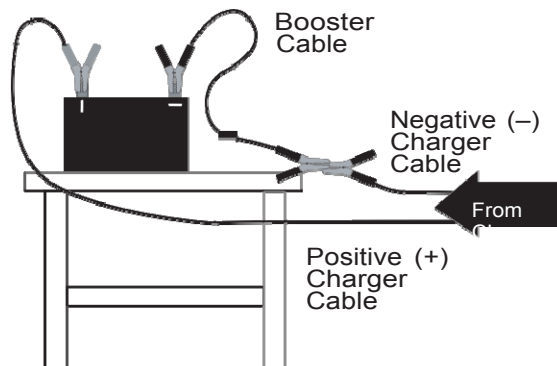


Figure B.5. Connecting Outside The Vehicle

⚠ WARNING



BATTERY EXPLOSION CAN INJURE, AND CAUSE PROPERTY DAMAGE!

To reduce the risk of battery explosion, NEVER CONNECT BOTH BATTERY CHARGER CLAMPS DIRECTLY TO THE TWO POSTS OF A BATTERY.

4. Connect the POSITIVE (red) charger clamp to the POSITIVE battery terminal.
5. Position yourself and the free end of the cable (attached to the NEGATIVE battery terminal) as far away from the battery as the cable will allow. Then, WHILE FACING AWAY FROM THE BATTERY, connect the NEGATIVE charger clamp to the free end of the cable.

CHARGING INSTRUCTIONS

1. Plug the power cord into an appropriate ac outlet, the Wall Power light should come on.
2. For 12V batteries, choose the desired amperage, then press the ON/OFF button to begin charging.
3. For 24V batteries, choose the voltage, then the desired amperage, then press the ON/OFF button to begin charging.
4. After charging begins, the voltage is displayed. If you want to see the amperage being drawn, press the V/A/% button once, or twice for % of charge. After 5 seconds, the display will change back to volts.

⚠ WARNING



BATTERY EXPLOSION CAN INJURE, AND CAUSE PROPERTY DAMAGE!

5. To reduce risk of battery explosion, do not over-charge a lead-acid battery. Follow disconnection procedure EXACTLY.
6. When charging is complete, unplug the charger's ac power cord from the ac power source.
7. Disconnect the charger clamp NOT attached directly to the battery first and DO NOT allow the clamp to touch anything. Then, disconnect the charger clamp attached to the battery terminal.

READING AN AMMETER

The ammeter indicates the charging current being drawn from the charger by the battery. As the battery becomes more fully charged, the charge rate lessens.

At full charge, the ammeter will still register some current draw (approximately 20-50% of the charger's output rating).

Several battery conditions can also cause the ammeter to appear to indicate a battery near full charge, when in fact, charging has only begun.

- Cold Battery
- Sulfated Battery
- Deeply-Discharged, Lead-Calcium Battery (many newer automotive batteries)

WARNING



BATTERY EXPLOSION CAN INJURE, AND CAUSE PROPERTY DAMAGE!

To reduce risk of battery explosion, check to make sure a cold battery is not frozen. Battery explosion can result from attempting to charge a frozen battery.

- **COLD BATTERIES** (temperatures lower than 32° F or 0° C) will begin charging at a low rate of charge. But as the battery warms up through charging, the charge rate will increase. Then, as the battery charges up, the charge rate will decrease normally.
- **SULFATED or DEEPLY-DISCHARGED LEAD-CALCIUM BATTERIES** - Will begin charging at a very low rate. If the battery is salvageable, the amperage draw will increase as the plate desulfation occurs. If the process takes more than 24 hours, the charger will shut off.

- **SHORTED BATTERIES** - When the battery being charged has a short circuit, the ammeter will peg at the high-amp end of the scale. If after 5 to 10 minutes of charging, the needle has not started to move toward lower amperages, unplug the charger and discontinue charging.

WARNING

Batteries that have 25% charge or less can easily freeze and should be charged at once, but **DO NOT CHARGE A BATTERY THAT IS ALREADY FROZEN.**

CHARGER CARE

A minimum amount of care can keep your battery charger working and looking good for years.

1. Clean the clamps after each use. Wipe off any battery fluid that may have come in contact with the clamps to prevent corrosion. Battery fluid may be neutralized with a solution of water and baking soda .
2. Coil the input and output cables neatly after each use. This will help prevent damage to the cables and the charger.
3. If needed, the case may be wiped clean with a soft cloth.

Observe all Safety Guidelines detailed throughout this manual

Charger Logic

1. After the clamps are connected to the battery or battery system, the charger is plugged in to wall power, the default settings are 12V, 2A.
2. When the ON/OFF is pressed once, charging begins as long as the battery voltage is greater than 2V (or 4V for the 24V setting) and less than 14.8V (28.6 for the 24V setting). If the voltages are outside the norms, the bad battery (and buzzer for 5 seconds) or wrong connection light comes on.
3. If the voltage does not reach 11 volts (or 22 volts for the 24V setting) after 2 minutes of charging, the bad battery light comes on, and the buzzer sounds for 5 seconds.
4. When the voltage reaches 14.5V (28.8 in 24V setting), the charged light comes on.
5. Two minutes later, if the voltage drops below 12V (or 24V for the 24V setting), the bad battery light comes on, and the buzzer for 5 seconds.
6. If the battery has not reached charged status within 24 hours, the bad battery light comes on, and the buzzer sounds for 5 seconds.

Note that the unit's cooling fan comes on if the internal temperature reaches 100C, and reduces the output to 2A. When the temperature drops below 80C, the units returns to it's original amperage setting.

Observe all Safety Guidelines detailed throughout this manual

PROBLEMS (SYMPTOMS)	POSSIBLE CAUSE	RECOMMENDED COURSE OF ACTION
No Ammeter Reading (Battery does not accept charge).	<ol style="list-style-type: none"> 1. Make sure charger is plugged into live ac outlet and the wall power light is on. 2. After unplugging unit, check connection at battery. Make sure the clamps are making good contact with the battery terminal (or vehicle chassis). 3. Check to see that the battery is capable of being charged. It may be damaged or sulfated. 4. Make sure that you have selected the proper charge voltage for the battery being charged. 	<p>If all recommended Possible Cause have been checked and the problem persists. Call 1- 866-236-0044. WARRANTY For questions regarding warranty or use, call 1-866-236-0044. Bench Chargers are not serviced at service centers.</p>
Ammeter shows reading, but battery does not accept charge.	<ol style="list-style-type: none"> 1. Check to see that the battery is capable of being charged. It may be damaged or sulfated. 	
No output.	<ol style="list-style-type: none"> 1. The output clamps will have no output until at least 2Vdc is applied to the clamps. If a battery voltage is less than 2V, and there is no load on the battery, the battery is bad. 	

 **CAUTION**

If for any reason you do not understand the test procedures or are unable to perform the tests/repairs safely, Call 1- 866-236-0044 for technical troubleshooting assistance before you proceed.

CUSTOMER ASSISTANCE POLICY

The business of The Lincoln Electric Company is manufacturing and selling high quality Battery Charging equipment, consumables, and cutting equipment. Our challenge is to meet the needs of our customers and to exceed their expectations. On occasion, purchasers may ask Lincoln Electric for advice or information about their use of our products. We respond to our customers based on the best information in our possession at that time. Lincoln Electric is not in a position to warrant or guarantee such advice, and assumes no liability, with respect to such information or advice. We expressly disclaim any warranty of any kind, including any warranty of fitness for any customer's particular purpose, with respect to such information or advice. As a matter of practical consideration, we also cannot assume any responsibility for updating or correcting any such information or advice once it has been given, nor does the provision of information or advice create, expand or alter any warranty with respect to the sale of our products.

Lincoln Electric is a responsive manufacturer, but the selection and use of specific products sold by Lincoln Electric is solely within the control of, and remains the sole responsibility of the customer. Many variables beyond the control of Lincoln Electric affect the results obtained in applying these types of fabrication methods and service requirements.

Subject to Change – This information is accurate to the best of our knowledge at the time of printing. Please refer to www.lincolnelectric.com for any updated information.



CENTURY EQUIPMENT

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