

OWNER'S MANUAL

MODEL 9500A

Fully Automatic 6 & 12 volt

2 amp / 15 amp / 40 amp

Battery Charger with

125 amp / 250 amp Engine Start

Read Rules for
Safe Operations
and Instruction
Carefully

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 EACH TIME BEFORE USING YOUR CHARGER, YOU READ THIS MANUAL AND FOLLOW THE INSTRUCTIONS EXACTLY.

A

GENERAL BATTERY SAFETY

- Before you use your battery charger, be sure to read all instructions and cautions printed on:
 - Battery Charger
 - Battery
 - Vehicle or unit using battery
 - Use battery charger on LEAD ACID type rechargeable batteries only, such as used in trucks, autos, tractors, airplanes, trolling motors, vans, RV's, etc. Charger is not intended to supply power to a low-voltage electrical system other than in an automotive application.

WARNING: 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.
 - Use only attachments recommended or sold by manufacturer. Use of non-recommended attachments may result in fire, electric shock, or injury.
 - When disconnecting the battery charger, pull by the plug not by the cord. Pulling on the cord may cause damage to cord or plug.
 - Locate battery power cord so it cannot be stepped on, tripped over, or subjected to damage or stress.
 - Do not operate charger with damaged cord or plug. Have cord replaced 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 professional for inspection and repair.
 - Do not disassemble charger. Take it to a qualified professional when service or repair is required. Incorrect reassembly may result in electric shock or fire.
 - To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning.
 - Do not use an extension cord unless absolutely necessary. Use of an improper extension cord could result in fire or electric shock. If an extension cord must be used, make sure that:
 - Pins on plug of extension cord are the same number, size, and shape as those of the plug on the charger.
 - Extension cord is properly wired and in good electrical condition.
 - Wire size is large enough for AC ampere rating of charger, as specified below:
- | | | | | |
|--------------------------------------|-----------|-----------|------------|------------|
| Length of cord (feet): | 25 | 50 | 100 | 150 |
| AWG size of cord: | 16 | 12 | 10 | 8 |
| <small>(American Wire Gauge)</small> | | | | |
- Always charge battery in a well ventilated area. **NEVER** operate in a closed-in or restricted area without adequate ventilation because of risk of explosive gases.
 - Locate charger as far away from battery as DC charger cables permit.
 - Do not expose charger to rain or snow.
 - NEVER** charge a frozen battery. If battery fluid (electrolyte) is frozen, bring into a warm area to thaw before charging.
 - NEVER** allow battery acid to drip on charger when reading specific gravity or filling battery.
 - NEVER** set a battery on top of charger.
 - NEVER** place charger directly above battery being charged. Gases from battery will corrode and damage charger.
 - NEVER** touch the battery clips together when the charger is energized.

• IMPORTANT SAFETY INSTRUCTIONS •

• SAVE THESE INSTRUCTIONS •



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B. PERSONAL PRECAUTIONS AND SAFETY

1. **WARNING:** Wear complete eye protection and clothing protection, when working with lead-acid batteries.
2. Make sure someone is within range of your voice or close enough to come to your aid when you work with or near a lead-acid battery.
3. Have plenty of fresh water and soap nearby for use if battery acid contacts skin, clothing, or eyes. If battery acid contacts skin or clothing, wash immediately with soap and water.
4. Avoid touching your eyes while working with a battery. Acid particles (corrosion) may get into your eyes! If acid enters your eye, immediately flood eye with running cold water for at least 10 minutes. Get medical attention immediately.
5. Remove all 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.
6. Take care not to drop a metal tool or other metal onto the battery. Metal may cause sparking or short circuit the battery or another electrical device. Sparking may cause an explosion.
7. Always operate battery charger in an open well ventilated area.
8. **NEVER** smoke or allow a spark or flame in the vicinity of the battery or engine. Batteries generate explosive gases!

C. GROUND AND AC POWER CORD CONNECTIONS

Charger should be grounded to reduce the 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. This battery charger is designed for use on a nominal 120 volt circuit and has a grounded plug that looks like the plug illustrated in FIGURE 1 (A). This plug should be used in a grounded outlet. The plug pins must fit the receptacle (outlet).

ADAPTER: A temporary adapter, as shown in FIGURE 1 (B) and (C), may be used to connect the charger plug to a two pole receptacle (outlet), as shown in FIGURE 1 (B).

NOTE: The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician.

DANGER: Never alter the AC cord or plug provided. If it will not fit outlet, have a proper outlet installed by a qualified electrician. Improper connection can result in a risk of an electrical shock. **DANGER:** Before using an adapter, as illustrated, be certain that the center screw of the outlet plate is grounded. The green-colored rigid ear or lug extending from the 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.

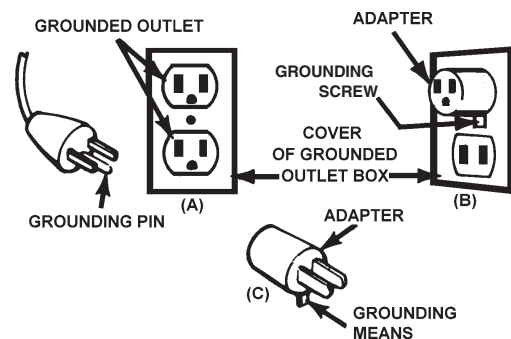


FIGURE 1 GROUNDING METHODS

D. PREPARING TO CHARGE

1. Make sure you have a 12 volt or a 6 volt lead-acid battery, and select battery charger switch accordingly.
2. Clean battery terminals. Take care to keep corrosion from coming in contact with your eyes.
3. If required, add distilled water in each cell until battery acid reaches levels specified by battery manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps, carefully follow manufacturer's re-charging instructions.
4. Study all battery manufacturer's specific precautions, such as removing or not removing cell caps while charging, and recommended rates of charge.
5. 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 as a fan.
6. 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.
7. A marine (boat) battery must be removed and charged on shore. To charge it on board requires equipment specially designed for marine use.

E. CHARGER LOCATION PRECAUTIONS

Never place charger directly above the battery being charged, gases from battery could damage the charger.

Never allow battery acid to drip on the charger when reading specific gravity of filling battery.

Never operate charger in a closed in area, or restrict ventilation in any way.

Do not set battery on top of the charger.

F. OPERATING INSTRUCTIONS: CHARGING BATTERY IN VEHICLE

When charging battery in the vehicle, take care to determine the battery type and which post is grounded. To reduce risk of a spark near battery, follow these steps when battery is installed in vehicle. **WARNING: A spark near battery may cause battery explosion.**

1. Position AC power cord and DC charging cords to reduce risk of damage by hood, door, or moving engine parts.
2. Stay clear of fan blades, belts, pulleys, and other parts that can cause injury.
3. Check polarity of battery posts. Battery case will be marked by each post: **POSITIVE (POS, P, +) and NEGATIVE (NEG, N, -)**. **NOTE:** The positive battery post usually has a larger diameter than the negative post.
4. Determine which post of battery is ground (connected) to chassis.
NOTE: The negative post is normally grounded.

NEGATIVE GROUNDED POST

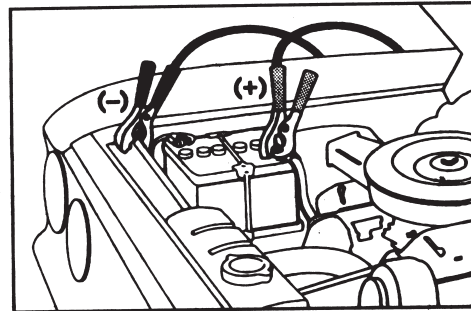
5A. For negative-grounded vehicle, connect POSITIVE (RED) clip from battery charger to POSITIVE (POS, P, +) ungrounded post of battery. Connect NEGATIVE (BLACK) clip to vehicle chassis or engine block away from battery. Connect to a heavy gauge metal part of the frame or engine block.

POSITIVE GROUNDED POST

5B. 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. Connect to a heavy gauge unpainted metal part of the frame or engine block.

WARNING: Do not connect clip to carburetor, fuel lines, or sheet-metal body parts. **NOTE:** Attach clips to battery post and twist or rock back and forth several times to make a good connection. This tends to keep clips from slipping off terminals and helps to reduce risk of sparking.

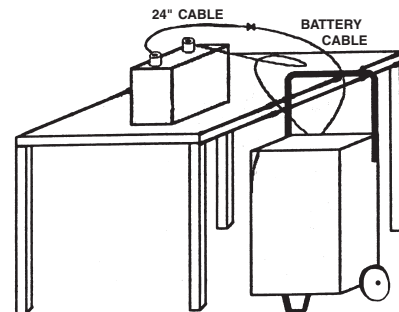
6. Connect the AC power cord and then make the desired charger settings, (See Battery Charging-section H).
7. Observe the meter for proper response, if something does not look right, refer to the trouble shooting section of this manual.
8. When the battery is fully charged, unplug the charger from the AC outlet.
9. When the battery is charged and the charger is unplugged:
 - (1) Remove clip from the vehicle chassis, then
 - (2) Remove clip from the battery post, in that order.



G. OPERATING INSTRUCTIONS: CHARGING BATTERY OUT OF VEHICLE

When charging battery out of vehicle, take care to determine the battery type. To reduce risk of a spark near battery, follow these steps when battery is outside vehicle. **WARNING:** A spark near the battery may cause battery explosion. **WARNING:** When removing battery from vehicle or boat, disconnect grounded pole first. When disconnecting, make sure all accessories are off, so as not to cause an arc. (**NOTE:** A marine (boat) battery must be removed and charged on shore. (To charge on board requires special equipment designed for marine use.) **WARNING:** When reinstalling battery, attach the ground post first.

1. Check polarity of battery posts. Battery case will be marked by each post: POSITIVE (POS, P, +) and NEGATIVE (NEG, N, -). **NOTE:** The positive battery post usually has a larger diameter than the negative post.
2. Attach a 24-inch long (or longer) 6-gauge (AWG) insulated battery cable to NEGATIVE (NEG, N, -) battery post. (The 24" lead is not supplied. You may purchase at most automotive stores.)
3. Connect POSITIVE (RED) charger clip to POSITIVE (POS, P, +) post battery. Rock clip back and forth to make good connection.
4. Position yourself and free end of 24 inch cable as far away from battery as possible. Then connect NEGATIVE (BLACK) charger clip to free end of cable.
WARNING: Do not face battery when making final connection. Rock clip back and forth to make a good connection.
5. Connect the AC power cord and then make the desired charger settings. (See Battery Charging-section H).
6. Observe the meter for proper response, if something does not look right, refer to the troubleshooting section of this manual.



7. When battery is fully charged, unplug charger from AC outlet.
8. When battery is fully charged and the charger is unplugged:
 - (1) Remove clip from end of the Negative end of cable, then
 - (2) Remove clip from Positive battery post, in that order.
9. Clean and store battery charger.

WARNING: Be sure area around the 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 as a fan.

CHARGER CONTROLS

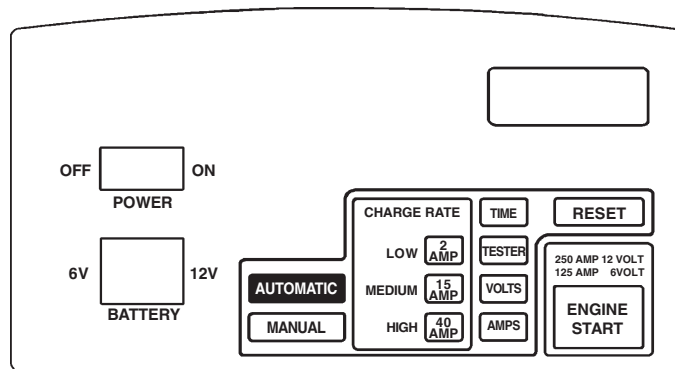
Power ON/OFF Switch

Use this switch to apply AC line volts to the charger.

Always connect and disconnect leads with this switch in the OFF position.

Battery Voltage Select 6V / 12V

The 6 volt position should be used for charging 6 volt batteries. The 12 volt position should be used for charging 12 volt batteries.



TOUCH PAD SELECTIONS

AUTO (Automatic): After turning on the charger, by switching the **Power** switch to the ON setting, press **AUTO**, then the desired **CHARGE RATE**. You do not have to select **TIME**, as the charger will do this itself in the **AUTO** mode.

MANUAL: The charger defaults to **MANUAL** when first turned on without the need to press the **MANUAL** button. If you have started charging in the automatic mode and wish to change to **MANUAL**, set the **CHARGE RATE** to the desired rate, 2, 15, or 40 amps and then set the **TIME** to the time you wish to charge the battery.

CHARGE RATE SELECTIONS

Three charge rates are provided for your selection. **2 amp**, **15 amp** and **40 amp**. See the recommended uses in the battery charging chart, (Section H). Press the desired **CHARGE RATE** after selecting **MANUAL** or **AUTO** (Automatic) charge.

TIME (timer) The timer has 3 clocks. You may set the time up to the maximum hours allowed.

RATE	2 AMPS	15 AMPS	40 AMPS
Maximum Time	18 Hours	14 Hours	5 Hours
Increment Settings	1 Hour	1 Hour	1/2 Hour

You must press and repress the **TIME** button to advance the time.

Once you have begun charging, the time remaining may be displayed by simply pressing the **TIME** button.

RESET: Use **RESET** to stop charging and to change to an alternate charge method. Press **RESET**, then select the new charge method, set the new **CHARGE RATE**, and set charge **TIME** if you have changed from **AUTO** (Automatic) to **Manual**. If you do not set the time, the charger will default to the maximum time allowed for the **CHARGE RATE** selected.

VOLT/AMP: The charger meter will display the voltage when initially turned on. If you wish to display the amps, press the **VOLT/AMP** button. Press the **VOLT/AMP** button again to restore the voltage reading.

TESTER: The SE-9500A charger may be used as a tester to: 1) test voltage of the battery, 2) test the vehicle's charging system which includes the alternator. Note: If the charging voltage measures greater than 16 volts, check both the alternator and voltage regulator. (Consult your vehicle's owner's manual before testing the regulator.)

To operate tester, press **RESET**, then press **TESTER**. The meter will display the voltage of the battery. If the engine is running, the charger will display the voltage of the alternator.

START: (Engine Start) **DO NOT try to crank a vehicle without a battery in it, you may damage the vehicle electrical system.**

The **START** button, when pressed, selects **125 amps** cranking assist for a 6 volt battery or **250 amps** cranking assist for a 12 volt battery. (See section I for more detailed instructions)

METER: The meter is a digital display type. The following displays will be displayed on the meter:

- ___ A — Charge Rate in amps
- ___ V — Voltage reading of battery or charge
- RDY** — Charger is ready for cranking
- WAIT** — Wait until the charger is ready to crank again
- FULL** — Battery is charged.
- MAN** — Charger is in the MANUAL mode
- AUTO** — Charger is in the AUTOMATIC mode
- Chk Bat** — indicates a problem with battery or connections
- OFF** — Set time has expired (**MANUAL MODE**)

Charge rate chart

Charge Rate	Charge Time: Hours	Recommended Uses
2 AMPS	3-6 HOURS	Small batteries, such as those used on motorcycles, jet skis lawn tractors, and snowmobiles.
15 AMPS	2 - 6 HOURS	Cars, trucks, RV's, vans, trolling motors, and marine batteries.
40 AMPS	1 - 3 HOURS	Large lead acid batteries Cars, trucks, RV's, vans construction equipment.
ENGINE START	Duty cycle 3 seconds ON 300 seconds OFF	Cranking assist helps turn engines when battery power is low.

H. BATTERY CHARGING

1. First connect the charger to the battery following instructions in section F and G.
2. Plug the charger power cord into AC outlet.
3. Set battery voltage switch to match the battery voltage, then switch the power switch to ON.
4. Select mode of operation, either MANUAL or AUTO (Automatic).

The charger begins in the MANUAL mode when first started, by default. If you wish to charge in the MANUAL mode, set the CHARGE RATE and then the desired TIME of charge. If you select AUTO (Automatic), select your desired CHARGE RATE, 2, 15, OR 40 amps. (See charge rate chart). The TIME does not have to be set in the AUTO (Automatic) mode.

5. Charging will now begin. By default, the meter will display the battery voltage. If you want amps displayed, simply press the VOLT/AMP button.
6. If you selected MANUAL, you have the option of setting the time the battery will charge. If you do not set a time the maximum time allowed for the charge rate selected will be automatically chosen by default. (See explanation of timer).

The TIMER has three clocks, one for each charge rate. For the 40 amp rate, the maximum time setting is 5 hours, set in increments of 1/2 hour. The 15 amp rate has a maximum time setting of 14 hours and the 2 amp setting has a maximum time setting of 18 hours. Both the 10 amp and the 2 amp are set with time increments of 1 hour. You must press and depress the TIME button to advance the TIME setting. Once you have begun charging, pressing the TIME button will tell you the remaining charge time.

If the battery is deeply discharged, below 1.5 volts, you must start the charging in the MANUAL mode and in the 2 amp setting. This will bring the battery voltage up high enough to allow you to use the other features of the charger. You may use your voltmeter to read the battery voltage.

I. ENGINE START

Engine Start:

ONLY ACTIVE IN THE *MANUAL* MODE. DO NOT CRANK ENGINE IN THE *AUTOMATIC* MODE.

1. Connect the charger to the battery following the instructions in sections F and G.
2. Plug the charger power cord into the 120 v 60 hz AC outlet.
3. Set the battery voltage selector switch to match the voltage of the battery, then switch the power switch to the ON position.
4. The charger will be in the MANUAL mode, indicated by MAN on the meter display.
5. Press START button and observe RDY on the display meter. The charger is now ready to have the engine cranked.
6. Crank the engine. Cranking is limited to 5 seconds, then automatically switches to the 15 amp charge rate for 5 minutes. The meter will display WAIT. After the five minutes have expired, the meter will again display RDY and you may crank the engine once more. Repeat until engine starts.

DO NOT try to crank a vehicle without a battery, as you may damage the vehicle's electrical system.

If the engine spins, but fails to start after several cranking attempts, there is a problem other than the starting system. Stop cranking the engine until the other problem is found and corrected.

CAUTION: Excessive continuous cranking can damage a starter motor.

J. CHARGING TIME REQUIRED

The **automatic charging circuit** will prevent overcharging a battery. **When full charge is reached, the charging to the battery will be turned off and the meter will display FULL.**

When charging in the **MANUAL** mode, you must monitor the charging of the battery. Select the AMP display on the meter. When the amp reading is about one half of the set charge rate, the battery is fully charged, stop the charging and disconnect from the battery. **Overcharging can occur when using the MANUAL mode.** Refer to the Charge Rate Chart on page 4 and charging time formula below.

Determine the charge level of your battery with a hydrometer or electronic percent of charge tester. Determine the ampere hour rating of your battery. It may be on the battery information label. If the battery is rated in Reserve Capacity, convert to ampere hour rating using the following formula:

$$\text{Ampere Hour rating} = \frac{\text{Reserve Capacity}}{(2)} + 16 \qquad \text{Example: AH rating} = \frac{(168 \text{ Reserve Capacity})}{(2)} + 16 \qquad \text{or AH} = 100$$

Use the following formula to determine the time of charge required: **(AH x % of charge needed) divided by amp setting of the charger, times 1.25 = hours of charge:**

Example: **State of charge of the battery is 50%**
Percent of charge needed is 100% - 50% = 50% (.50 decimal)
Ampere rating of the battery is 100AH
Charger setting is 10 amps

$$\frac{100 \times .50}{10} = \times 1.25 = 6.25 \text{ hours of charge needed} \\ \pm 1.00 \text{ hour more if charging a deep cycle battery} \\ 7.25 \text{ hours total for a deep cycle battery.}$$

K. INDICATIONS OF A FULLY CHARGED BATTERY

A hydrometer reading of the specific gravity of the electrolyte (fluid) of the battery in good condition should be between 1.25 and 1.28. When a battery reaches 80-85% of full charge, bubbles will appear on the surface of the fluid. As the battery nears full charge, bubbling will become more vigorous.

The digital display Meter will display FULL when the battery is completely charged.

L. ASSEMBLY INSTRUCTIONS

Wheel Charger assembly instructions:

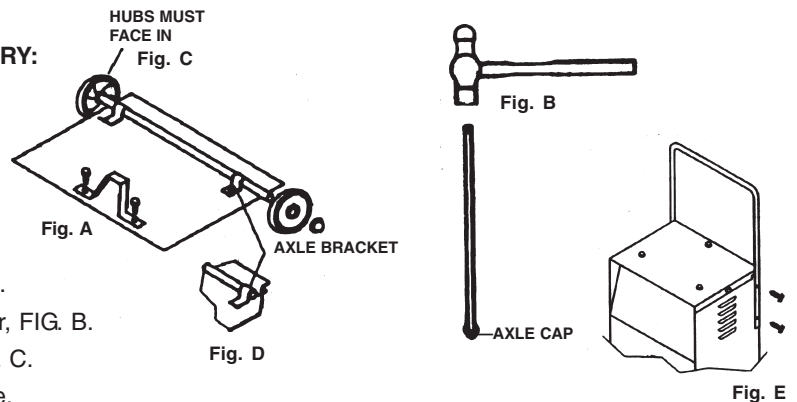
NOTE: Unit must be fully assembled before operating.

PARTS:

- 4 10-32 thread cutting screws
- 1 mounting foot
- 2 wheels
- 2 axle caps
- 2 axle brackets
- 1 handle

TOOLS NECESSARY:

- 5/16" wrench
- Hammer
- Screwdriver



First place the charger on its side.

Next mount the mounting foot FIG. A with (2) 10-32 screws.

Next pound the axle firmly into an axle cap using a hammer, FIG. B.

Next slide the wheels onto the axle, hubs must face in, FIG. C.

Next pound the other axle cap onto the other end of the axle.

Next place the axle assembly onto the bottom of the charger as shows in figure FIG. C. Mount the axle to the bottom of the charger using the two 10-32 thread cutting screws as shown in Fig. D (these screws require a 5/16" wrench.)

Next turn the battery charger right side up onto its foot and wheels.

Remove the two top screws from each side of the charger, line up the handle and reinstall the screws. FIG. E.

M. TROUBLESHOOTING

1. No meter reading

- A. Make sure that the charger is plugged into the AC outlet.
- B. Make sure that the AC outlet is "LIVE." Check by plugging in a lamp.

2. Meter displays CHK BAT

- A. Have a serviceman, at your neighborhood garage, check that the battery is capable of taking a charge, it may be damaged or sulfated.
- B. Make sure you have selected the proper charge voltage for the battery being charged.
- C. After unplugging charger, check the connections at the battery. Make sure the clips are making good contact.
- D. If the battery voltage is below 1.5 volts and you were charging in automatic, the display will read CHK BAT. Try to bring the battery voltage up above the needed 1.5 volts by selecting the MANUAL mode and the 2 amp setting. This should bring the battery voltage to the needed voltage in a few minutes.

3. Vehicle will not start in ENGINE START

- A. Unplug the charger and check the connections at the battery.
- B. You must wait until the meter read "RDY." The charger may still be in the "WAIT" mode.
- C. The thermal protector may have tripped and needs a little longer to close. Wait a little longer and retry.
- D. If the engine turns over, but doesn't start, the problem is with the vehicle, not the charger. Have the vehicle problem resolved before you try to crank the engine again.

N. WARRANTY

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Schumacher Electric Corporation warrants this battery charger for five years from date of purchase at retail against defective material or workmanship. If such should occur, the unit will be repaired or replaced at the option of the manufacturer. It is the obligation of the purchaser to forward the unit together with proof of purchase, transportation and/or mailing charges prepaid to the manufacturer or its authorized representative.

This limited warranty is void if the product is misuse, subjected to careless handling, or repaired by anyone other than the manufacturer or its authorized representative.

The manufacturer makes no warranty other than this limited warranty and expressly excludes any implied warranty including any warranty for consequential damages.

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—NOTES—

- **IMPORTANT SAFETY INSTRUCTIONS** •
- **SAVE THESE INSTRUCTIONS** •



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