



## Battery Chargers

### 6 Volt/12 Volt Models Only

# IMPORTANT SAFETY INSTRUCTIONS

## SAVE THESE INSTRUCTIONS

### THIS MANUAL CONTAINS IMPORTANT SAFETY AND

### OPERATING INSTRUCTIONS

1. **WARNING** – RISK OF EXPLOSIVE GASES.
  - a. Working in the vicinity of a lead-acid battery is dangerous. Batteries generate explosive gases during normal battery operation.
  - b. For this reason it is of the utmost important that each time before using your charger, you read and follow these instructions provided exactly;
2. To reduce risk of battery explosion, follow these instructions and those marked on the battery.
3. **NEVER** smoke or allow an open spark or flame in the vicinity of the battery or engine;
4. **CAUTION** – To reduce the risk of injury, use the charger for charging a lead-acid battery only. It is not intended to supply power to an extra low-voltage electrical system or to charge dry-cell batteries. Charging dry-cell batteries may cause them to burst and cause injury to persons and damage to property;
5. Do not expose charger to rain or snow
6. 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;
7. To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting the charger;
8. Make sure cord is located so that it cannot be stepped on, tripped over, or otherwise subjected to damage or stress

9. Study all the battery manufacturers' specific precautions such as removing or not removing cell caps while charging and recommended rates of charge;
10. Do not use the battery charger unless the battery voltage matches the output voltage rating of the charger.
11. Do not operate the charger in a closed-in area or restrict ventilation in any way;
12. 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:
  - a. That pins on the plug of extension cord are the same number, size, and shape as those of plug on charger;
  - b. That extension cord is properly wired and is in good electrical condition; and
  - c. That wire size is large enough for AC ampere rating of the charger as specified in Table 1, below:

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

Table 1

13. Do not operate the charger with damaged cord or plug-replace them immediately.
14. Do not operate the charger if it has received a sharp blow, been dropped, or otherwise damaged in any way. Take it to a qualified serviceman.
15. Do not disassemble the charger. Take it to a qualified serviceman when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
16. To reduce risk of electric shock, unplug the charger from an outlet before attempting any maintenance or cleaning.
- 17. PERSONAL PRECAUTION**
  - a. Someone should be within range of your voice or close enough to come to your aid when you work near a lead-acid battery.
  - b. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing or eyes.
  - c. Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.
  - d. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters an eye, immediately flood eye with running cold water for at least 10 minutes and get medical attention immediately.

- e. NEVER smoke or allow a spark or flame in vicinity of battery or engine.
- f. Be extra cautious to reduce risk of dropping a metal tool onto battery. It might spark or short-circuit battery or other electrical part that may cause an explosion.
- g. Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery. A lead-acid battery can produce a short-circuited current high enough to weld a ring or the like to metal, causing a severe burn.
- h. Use the charger for charging a lead-acid battery only. It is not intended to supply power to an extra low-voltage electrical system or to charge dry-cell batteries. Charging dry-cell batteries may cause them to burst and cause injury to persons and damage to property;
- i. NEVER charge a frozen battery.

**18. PREPARING TO CHARGE**

- a. If it is necessary to remove battery from vehicle to charge it, always remove grounded terminal from battery first. Make sure all accessories in the vehicle are off in order to prevent an arc;
- b. 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 nonmetallic material such as a fan.
- c. Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.
- d. 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 manufacturers' recharging instructions.
- e. Study all battery manufacturers' specific precautions such as removing or not removing cell caps while charging and recommended rates of charge.
- f. Determine voltage of battery by referring to car owner's manual and make sure it matches output rating of the battery charger.

**19. LOCATE CHARGER**

- a. Locate the charger as far away from battery as the DC cables permit.
- b. Never place the charger directly above or below the battery being charged. Gases or fluids from the battery will corrode and damage the charger.
- c. Never allow battery acid to drip on the charger when reading gravity or filling battery.
- d. Do not operate charger in a closed-in area or restrict ventilation in any way.

- e. Do not set a battery on top of charger.

**20. DC CONNECTION PRECAUTIONS**

- a. Connect and disconnect dc output clips only after setting any charger switches to the off position and removing ac cord from the electric outlet. Never allow clips to touch each other.
  - b. Attach clips to battery posts 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.
  - b. Attach clips to battery posts 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.
21. Follow these steps when battery is installed in a vehicle. A spark near battery may cause a battery explosion. To reduce risk of a spark near battery:
- a. Position AC and DC cords to reduce risk of damage by hood, door, or moving engine part;
  - b. Stay clear of fan blades, belts, pulleys, and other parts that can cause injury to persons;
  - c. Check polarity of battery posts. A POSITIVE (POS, P, +) battery post usually has a larger diameter than a NEGATIVE (NEG, N, -) post;
  - d. Determine which post of battery is grounded (connected) to the chassis. If negative post is grounded to the chassis (as in most vehicles), see item (e). If positive post is grounded to the chassis, see item (f);
  - e. For a negative-grounded vehicle, connect the POSITIVE (RED) clip from the battery charger to the POSITIVE (POS, P, +) ungrounded post of battery. Connect the NEGATIVE (BLACK) clip to the vehicle chassis or engine block away from battery. Do not connect the clip to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block;
  - f. For a positive-grounded vehicle, connect the NEGATIVE (BLACK) clip from battery charger to NEGATIVE (NEG, N, -) ungrounded post of battery. Connect the POSITIVE (RED) clip to the vehicle chassis or engine block away from battery. Do not connect to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy gauge metal part of the frame or engine block;
  - g. Connect charger ac supply cord to an electric outlet;

- h. When disconnecting the charger, turn switches to off, disconnect ac cord, remove clip from vehicle chassis, and then remove clip from battery terminal;
  - i. See operating instructions for length of charge information.
22. Follow these steps when battery is outside the vehicle, A spark near the battery may cause a battery explosion. To reduce risk of a spark near battery:
- a. Check polarity of battery posts. A POSITIVE (POS, P, +) battery post usually has a larger diameter than a NEGATIVE (NEG, N, -) post;
  - b. Attach at least a 24-inch long 6-gauge (AWG) insulated battery cable to a NEGATIVE (NEG, N, -) battery post;
  - c. Connect the POSITIVE (RED) charger clip to the POSITIVE (POS, P, +) post of battery;
  - d. Position yourself and the 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. Connect charger ac supply cord to electrical outlet;
  - g. When disconnecting the charger, always do so in reverse sequence of connecting procedure and break first connection while standing as far away from battery as practical;
  - h. A marine (boat) battery must be removed and charged on shore. To charge it on boat required equipment specifically designed for marine use.

## **OPERATION INSTRUCTION**

**AUTOMATIC MONITORING** – Your new battery charger is completely automatic and may be left on whenever input power is made available to the charger. The charger output depends on the condition of the battery it is charging. When the battery is fully charged, the indicating light will turn green and the charger will switch itself to a storage charge mode and will automatically monitor and maintain the battery at full charge.

**NOTE:** If the charger is left connected to a battery for long periods of time, check water levels every four weeks (sooner during hot weather) as directed by the battery manufacturer to ensure they remain at the proper level.

**STATUS INDICATING LIGHT** – This light will turn red, or green depending on the status of charge. **If the light is not lit then a battery is not properly connected and/or the charger is not plugged into AC power.** The following describes light operation:

- **RED** – When the light is glowing red the battery charger is in the process of fully charging the battery. In order to properly charge the battery, the charger may remain in this mode for several days on some batteries.
- **GREEN** – When the light is glowing green, the battery charger is in the storage mode of charge. In this mode the charger will maintain the battery at full charge. If the battery becomes partially discharged due to an external current draw or excessive internal battery losses, the charger will automatically switch itself back to the charge mode of operation.

## **TROUBLESHOOTING CHECK LIST –**

1. **CHARGER LIGHT DOES NOT TURN ON:**
  - a. Remove the charger from the AC outlet and recheck the battery charger clamps are connected to the correct terminals and are making a clean tight connection.
  - b. Check to make sure AC outlet is supplying power plugging in a lamp, an appliance or a voltage meter.
2. **CHARGER LIGHT IS ON BUT BATTERY DOES NOT CHARGE PROPERLY:**
  - a. The battery may be defective, take battery to the dealer to be tested.
3. **CHARGER IS CHARGING BUT LIGHT DOES NOT TURN GREEN:**
  - a. The battery may be defective, take battery to the dealer to be tested.
  - b. The battery has an excessive current draw, remove battery from equipment.

## **MAINTENANCE INSTRUCTION**

No serviceable parts inside do not attempt to repair.