



**ASSOCIATED**

# MODEL 6078

## OPERATOR'S MANUAL

- Model 6078 Battery Charger is designed to charge one to ten 12 volt batteries in parallel. The multiple charge rates allow batteries to be slow charged or fast charged at a rate not to exceed 30 amps output of the charger. The voltmeter allows you to adjust the charge rate to compensate for battery type, see "TO CHARGE 12 VOLT BATTERIES."
- This unit is not intended for use as a car starting unit. The output leads are terminated in ring terminals designed to be permanently attached to a parallel charging rack.

### IMPORTANT SAFETY INSTRUCTIONS

1. **SAVE THESE INSTRUCTIONS.** This manual contains important safety and operating instructions for battery charger Model 6078. You may need to refer to these instructions at a later date.

**CAUTION.** To reduce risk of injury, charge only wet cell, lead-acid, automotive type rechargeable batteries. Other types of batteries may burst causing personal injury and property damage.

2. Do not expose the charger to rain or snow if specifically warned on the unit not to do so.
3. 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.
4. 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.
5. Do not disassemble the charger unless you are qualified to work on electrical products. If not, take it to a qualified service technician when service or repair is required. Incorrect reassembly may result in risk of electric shock or fire.
6. To reduce the risk of electric shock, disconnect power to the charger at the disconnect box (user supplied) or at fuse panel before attempting any maintenance or cleaning. Turning off the controls will not reduce this risk.

7. **WARNING - RISK OF EXPLOSIVE GASES**

- a. 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.
- b. To reduce the risk of battery explosion, follow these instructions and those published by the battery manufacturer and manufacturer of any equipment you intend to use in vicinity of the battery. Review cautionary markings on these products.

8. **PERSONAL PRECAUTIONS**

- 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 enter eyes, immediately flood eyes 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 the battery or engine.
- f. Be extra cautious to reduce risk of dropping a metal tool onto the battery. It might spark or short circuit the battery or other electrical parts 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 circuit current high enough to weld a ring or the like to metal, causing a severe burn.
- h. Use this charger for charging a LEAD-ACID battery only. It is not intended to supply power to a low-voltage electrical system other than in an automotive application. Do not use this 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.
- i. NEVER charge a frozen battery.

9. **PREPARING TO CHARGE**

- a. When removing the battery from the vehicle to charge, always remove the grounded terminal from the battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc.
- b. Be sure the area around the battery is well ventilated while the battery is being charged. Gas can be forcefully blown away by using a piece of cardboard or other non-metallic material as a fan.
- c. Clean the 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 the battery manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps, carefully follow the manufacturer's recharging instructions.
- e. Study all battery manufacturer's specific precautions such as removing or not removing the cell caps while charging and the recommended rates of charge.
- f. Determine voltage of battery by referring to car owner's manual and make sure that output voltage selector switch is set at correct voltage. If charger has adjustable charge rate, charge battery initially at lowest rate.

10. **CHARGER LOCATION**

- a. Place the charger as far away from the battery as the DC cables permit.
- b. Never place the charger directly above the battery being charged; gases from the battery will corrode and damage the charger.
- c. Never allow battery acid to drop on the charger when reading the specific gravity or filling the battery.
- d. Do not operate the charger in a closed-in area, or restrict ventilation in any way.
- e. Do not set a battery on top of the charger.

## 11. DC CONNECTION PRECAUTIONS

- Connect and disconnect the DC output clamps only after setting the charger switches to the OFF position from the electric outlet. Never allow the clamps to touch each other even with charger turned off.
- Attach the DC clamps to the battery post and twist or rock back and forth several times to make a good connection. This tends to keep the clamps from slipping off the terminals and helps to reduce the risk of sparking.
- NEVER touch the charger leads or rock the clamps when the charger is "ON". This can break the connection at the battery and cause an explosion.
- NEVER break "live" circuits at the battery terminals because it may spark. Always be sure the charger is "OFF" before removing the charger leads from the battery.

## 12. FOLLOW THESE STEPS WHEN THE BATTERY IS INSTALLED IN THE VEHICLE. A SPARK NEAR THE BATTERY MAY CAUSE BATTERY EXPLOSION. TO REDUCE THE RISK OF A SPARK NEAR THE BATTERY:

**NOTE:** This charger is designed to charge batteries. It is not intended for use as a car starting unit.

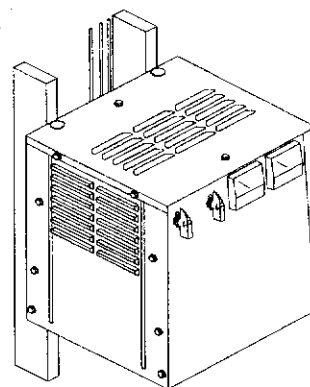
- Position AC and DC cords to reduce risk or damage by hood, door, or moving engine parts.
- Stay clear of fan blades, belts, pulleys, and other parts that can cause injury to persons.
- Check polarity of battery posts. The POSITIVE (POS, P, +) battery post usually has a larger diameter than NEGATIVE (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 item "f".
- For negative-grounded vehicle, connect POSITIVE (RED) battery post clamp from battery charger to POSITIVE (POS, P, +) ungrounded post of battery. Connect NEGATIVE (BLACK) clamp to vehicle chassis, heavy gauge metal part of frame, or engine block away from battery. Do not connect clamp to carburetor, fuel lines, or sheet metal part of the frame.
- For positive-grounded vehicle, connect NEGATIVE (BLACK) clamp from battery charger to NEGATIVE (NEG, N, -) ungrounded post of lines, battery. Connect POSITIVE (RED) clamp to vehicle chassis or engine block away from battery. Do not connect clamp to carburetor, fuel, or sheet metal body parts. Connect to a heavy gauge metal part of the frame or engine block.
- When disconnecting charger, turn switches to OFF, disconnect AC cord, remove clamp from vehicle chassis, and then remove clamp from battery terminal.
- See operating instructions for length of charge information.

## 13. FOLLOW THESE STEPS WHEN THE BATTERY IS OUTSIDE THE VEHICLE. A SPARK NEAR THE BATTERY MAY CAUSE BATTERY EXPLOSION. TO REDUCE THE RISK OF A SPARK NEAR THE BATTERY:

- Check the polarity of the battery post. The POSITIVE (POS, P, +) battery post usually has a larger diameter than the NEGATIVE (NEG, N, -) post.
- Attach at least a 24 inch long 6-gauge (AWG) insulated battery cable to the NEGATIVE (NEG, N, -) battery post.
- Connect the POSITIVE (RED) charger clamp to the POSITIVE (POS, P, +) post of the battery.
- Touch the contact button of the STOP/GO LITE to the free end of the battery cable. If the red light comes on, reverse the connections to the battery and retest. When the green light comes on, position yourself and the free end of the cable as far away from the battery as possible, then connect the NEGATIVE (BLACK) charger clamp to the free end of cable.
- Do not face the battery when making the final connection.
- When disconnecting the charger, always do so in reverse sequence of connecting procedure, and break the first connection while standing as far away from the battery as practical.
- A marine (boat) battery must be removed and charged on shore. To charge it on board requires equipment specially designed for marine use.

## 14. MOUNTING INSTRUCTIONS

The Battery Charger may be set on a table or a shelf. It may be mounted on a wall as illustrated. **DO NOT SET CHARGER ON FLOOR.** It should be mounted such that the air intake louvers are at least 18" from the floor. Regardless of how it is placed, the top and side louvers of unit must not be blocked. This is a convection cooled charger and blocking the louvers will damage the unit. When locating the unit, take into account the number of batteries to be charged and location of the recharging racks. Never place the charger such that battery acid or water may be spilled in the top of the unit. Never place the unit directly over the batteries to be charged. Fumes caused by gassing batteries will be drawn through the charger by convection and cause damage to the unit. When connecting the charger to a charging rack, always be sure the connections are made in the correct polarity. The positive lead on the charger is marked with a red band.



## 15. OPERATING INSTRUCTIONS

### CONTROLS:

- AMMETER** The ammeter shows the total amount of charge the batteries are receiving. The amount each battery receives depends on several factors (see Parallel Charging). The charger's full output is 30 amps and that amount should never be exceeded.
- VOLTMETER** The voltmeter shows the voltage at which the batteries are charging. The amount of voltage applied to a battery will determine the amount of current the battery will receive. See the section "TO CHARGE 12 VOLT BATTERIES" for a complete description of the voltmeter and its use.
- SWITCHES** The charger has two switches used to adjust the output voltage and current. Moving the "fine" switch from Lo to Hi does not increase the charging voltage as much as moving the "coarse" switch from a low position to a higher position. This design allows you to have 16 distinct charge rates.

**CAUTION:** This battery charger must be fully assembled before operating. Failure to do so may result in risk of injury.

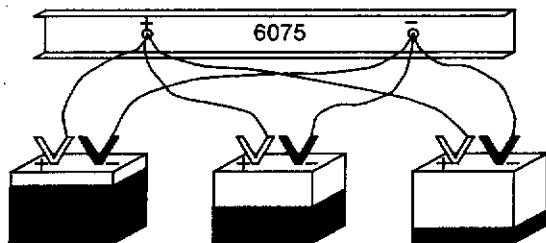
## TO CHARGE 12 VOLT BATTERIES:

- a. This charger is designed to charge all types of 12 volt automotive batteries. The voltmeter scale is color coded.
- b. There are four types of batteries; conventional, recombination, low maintenance, and maintenance free.
  1. "Conventional" batteries have both negative and positive plates of lead-antimony alloy.
  2. "Recombination" batteries are sealed and have no free electrolyte. The gases produced in charging are "recombined" and recycled to the plates and separators. If charged at voltages higher than recommended, the gases will not be able to recombine quickly enough to prevent permanent water loss from the battery.
  3. "Low maintenance" batteries have one plate made from lead-antimony and one made from a lead-calcium alloy. This reduces gassing and water loss.
  4. "Maintenance free" batteries have both plates made from lead-calcium alloy.
- c. The GREEN scale represents the proper voltages for CONVENTIONAL batteries.
- d. The BLUE scale represents the proper charging voltages for RECOMBINATION and LOW MAINTENANCE batteries.
- e. The YELLOW scale represents the proper charging voltages for MAINTENANCE FREE batteries.
- f. NO BATTERY SHOULD BE CHARGED IN THE RED ZONE.
- g. If more than one type of battery is charged at one time, use the lowest suggested settings.
- h. To fast charge one or two batteries at a time: Adjust charging voltage to upper part of appropriate color band. Do not exceed 30 amps charging current. Do not fast charge more than 4 hours per battery.
- i. To charge batteries overnight: Adjust charging voltage to  $\frac{1}{2}$ -1 volt less than recommended highest voltage. Do not exceed 30 amps. As the batteries charge, the charging current will decrease and the charging voltage increase. The "end of charge" voltage should not exceed the maximum suggested value.
- j. The charging voltage bands are intended to be guidelines to enable the operator to have a starting point to charge batteries. The age of the batteries, temperature, and type of batteries will affect the charging cycle. The best setting for your charging conditions will have to be determined by experience.
- k. Batteries may be left on the charging line indefinitely if the voltmeter is in the green zone.

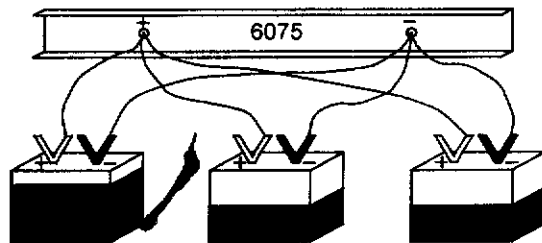
## PARALLEL CHARGING

- a. Connecting the batteries in parallel (see illustration) allows a person to charge a number of batteries at one time using only one 12 volt charger.
- b. The amount of charge being put into the batteries should not exceed the rating of the charger.
- c. The amount of charge that each battery receives will depend upon the state of charge, condition, and temperature of all the batteries being connected together and other factors.
- d. Connecting discharged batteries to a rack of fully charged batteries will not cause the charged batteries to become discharged.
- e. When a rack of batteries have various states of charge, the most discharged battery will receive the largest amount of charge first. Once it is charged up equal to another battery, then the two will charge together at an equal rate (see illustration).

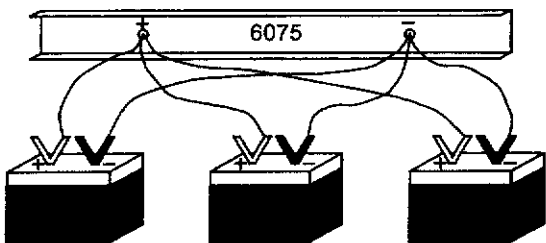
### DARK AREA REPRESENTS STATE OF CHARGE AT:



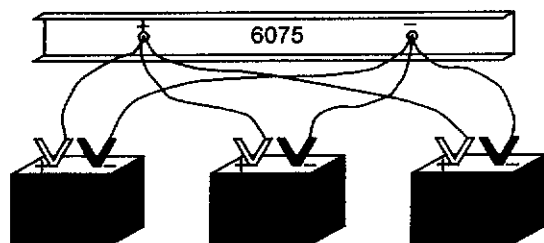
START OF CHARGE



DURING CHARGE



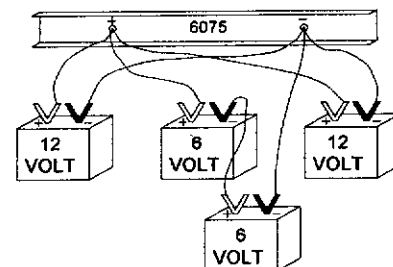
LATER DURING CHARGE



END OF CHARGE

## TO CHARGE 6 VOLT BATTERIES:

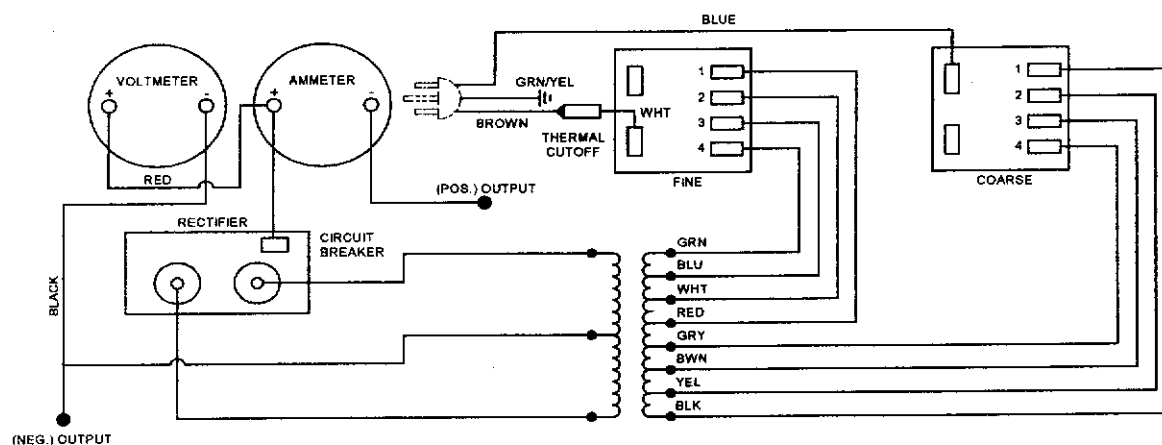
- Six volt batteries must be charged in pairs (2 at a time).
- The 6 volt batteries must be connected in series (positive post of one battery to the negative post of the other battery) and then connected in parallel with other batteries.
- Never connect one 6 volt battery to the charger.
- Only 12 volt and pairs of 6 volt batteries may be charged with this unit. No other voltage battery may be charged with this charger.



## END OF CHARGE

- Discontinue charging when the specific gravity reading does not change in 3 consecutive readings, battery is freely gassing or when the electrolyte reaches 120 degrees Fahrenheit. If your battery is sealed and these determinations cannot be made, see manufacturer's instructions for charging.

## WIRING DIAGRAM



## MODEL 6078 PARTS LIST

Switch w/knob (1) .....	605675	Rectifier Asm.....	610100	Base .....	611150
Ammeter .....	605632	Circuit Breaker .....	610069	Front Panel .....	611151
Voltmeter .....	610058	Handle (Optional Accessory).....	610057	Back Panel.....	611152
A.C. Cord .....	611149	Side Panels (1 Pr).....	610253	Transformer .....	610198
D.C. Cable .....	605628	Top Panel.....	610075		

Parts may be purchased from your local authorized service center listed in the Service Procedure manual supplied with your product. If you elect to order parts from the factory you may do so by mail or phone. Minimum order from the factory is \$25.00. Orders received that are under the minimum will not be processed. Taxes and freight are extra and are not considered to be part of the dollar value of the order. We do not have a C.O.D. policy. Cashier check, money order, MasterCard or VISA are acceptable. If you use a MasterCard or VISA send only the number and expiration. DO NOT SEND THE CARD.

## MAINTENANCE INSTRUCTIONS

Any Maintenance or repair of this unit that involves disassembly of the cabinet should be done only by a qualified service technician. Incorrect reassembly may result in a risk of electric shock when the unit is subsequently used.

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