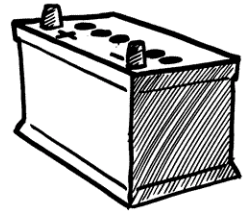


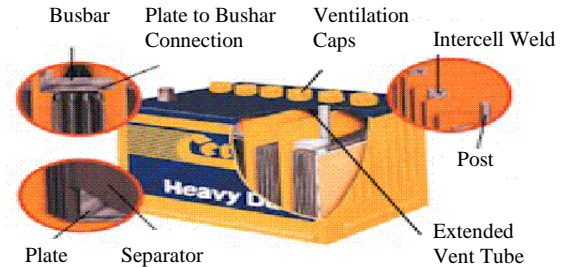
## Battery Maintenance Instructions for Hurricane and Sweeper Models



### Be Careful!



Batteries produce explosive gases. Keep Sparks, flames and cigarettes away from batteries at all times. Never lean over battery when jump starting or performing other maintenance.



**ALWAYS WEAR EYE PROTECTION AND GLOVES WHEN WORKING AROUND BATTERIES!**



### Inspection



#### **1. Examine the outside appearance of Battery:**

- Look for Cracks in the container.
- The top of the battery, posts, and connections should be clean, free of dirt, fluids and corrosion.

#### **2. Any fluids on or around the battery may be an indication that electrolyte is spilling or leaking out.**

#### **3. Check all battery cables and their connections:**

- Look closely for loose or damaged parts
- Battery cables should be intact; broken or frayed cables can be extremely hazardous.

#### **4. check fluid levels:**

- Verify levels are over top of plates.

### Maintenance



#### **1. Adding Fluid (Distilled Water Only):**

- If needed, fill each cell to approximately 1/8" below the bottom of the extended vent tube. Overfilling the cells when adding water results in loss of electrolyte.
- Never add acid to a battery.
- Charge battery then add water.

#### **2. Cleaning top of battery:**

- with vent caps firmly in place, clean battery tops, hold-down and terminal connections with a baking soda solution and brush. Flush top with clear water and dry off thoroughly.

#### **3. Wiring and cables:**

- Check terminals and tighten firmly. Apply a thin coating of petroleum jelly to retard corrosion.
- Check all wires and cables for exposed conductors, if so have trained technician replace them.

(Continued)

**DO NOT DISCHARGE BATTERY MORE THAN 80%**



# Battery Maintenance Instructions for Hurricane and Sweeper (cont.)

## Charging

1. Automatic charger need only to be plugged in and it will execute its diagnostic and then charge and shut off automatically when complete.
2. Do not go below the 20% residual charge to avoid battery damage (watch gauge on equipment).
3. Charging intervals according to usage time vs Manufacturer specified running time on a charge.
4. Always make sure vent caps are firmly in place to prevent electrolyte from spilling over on top of battery. A moist condition will result in electrical leakage across the battery between terminals and also causing corrosion on terminal connections.



Table A

Percentage of Charge	Specific Gravity 80°F.	Open Circuit Voltage	
		6 Volt	12 Volt
100	1.277	6.37	12.73
90	1.258	6.31	12.62
80	1.238	6.25	12.50
70	1.217	6.19	12.37
60	1.195	6.12	12.24
50	1.172	6.05	12.10
40	1.148	5.98	11.96
30	1.124	5.91	11.81
20	1.098	5.83	11.66
10	1.073	5.75	11.51

## Problems

### 1. Run time shortening:

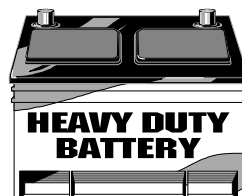
- Check all connections, if loose one is discovered, tighten and then charge
  - Faulty battery or batteries. Follow these testing procedures with a Hydrometer or DC Voltmeter.
1. Voltmeter:
    - Disconnect all loads from the batteries
    - Measure the voltage (see table A)
    - Charge the battery if it registers 0% to 70% charged. If battery still registers below the table A values, the following conditions may exist. The battery was left in a state of discharge too long or it has a bad cell.
  2. Hydrometer:
    - Fill and drain the hydrometer 2 to 4 times before pulling out a sample
    - You need to have enough electrolyte in the hydrometer to completely support the float.
    - The reading should be at or above the factory specification of 1.2777 +/- .007. If the gravity reading register lower than the specification, the following conditions may exist:
      - a) The battery is old and approaching the end of its life
      - b) The battery was left in a state of discharge too long.
      - c) Electrolyte was lost due to spillage or overflow.
      - d) A weak or bad cell is developing.
      - e) Battery was watered excessively previous to testing.
    - Continue checking other cells in the same manner.
    - When completed, replace vent caps firmly and wipe off any electrolyte that might have been spilled.



### 2. Charger not turning on:

- Check wall breaker
  - If batteries are completely discharged, the charger will not detect any voltage which it needs to turn on, recommend call a technician to activate.
- Note:** If problem with a battery is discovered, bring to specialist for further evaluation or retire from service.

Call us if you have any questions or problems regarding Batteries or Charging to avoid any possible decrease in run time.



### Warranty

All 1200 series batteries come with a 3 month free replacement warranty and with a twelve months pro-rated coverage from date of purchase. All 3600 series batteries come with a six months free replacement warranty and with a 36 months pro-rated coverage from date of purchase.

This warranty and adjustment policy does not cover un-serviceability due to abuse or neglect, fire, wreckage, collision, explosion, freezing. Addition of any chemical solution other than approved water or battery grade sulfuric acid of proper specific gravity. Use of a group size smaller than which was specified by the manufacturer, automatically will void the warranty.