

## Important Information to Use Batteries Safely

It is only natural that a person wants to get maximum value from their battery investment. Following the outlined inspection and maintenance procedures will help provide the biggest returns on your battery investment.

**CAUTION:** Always wear protective clothing, gloves and goggles when handling batteries and electrolyte.

### Routine Inspection

1. Examine the exterior appearance of the battery.
  - a. Be attentive in looking for cracks in the case.
  - b. Top of the battery, posts and connections should be free of dirt, fluids and corrosion.
2. Fluids on or around the battery may indicate that electrolyte is spilling, leaching or leaking out. Note: A battery that is showing signs of leaking electrolyte should be replaced immediately.
3. Routinely check all battery cables and connections.
  - a. Look closely for loose or damaged parts.
  - b. Replace any cables or wires that are cracked, broken or frayed.
4. In addition to keeping terminals clean it is important to keep proper torque on connecting fasteners so there is good contact with the terminals.

**WARNING:** Do not over-tighten terminals. Over tightening can result in post breakage, post meltdown or fire.

**NOTE:** Proper torque value for hardware is 65-75 in/lbs.

### ADDING/WATERING BATTERIES

Water should always be added after fully charging the battery. Prior to charging, there should be enough water to cover the plates. If the battery has been discharged whether fully or partially the water level should be above the plates.

### Important Things to Remember

- A. Do not let plates get exposed to the air.
- B. Do not fill the water all the way up to the cap.
- C. Do not use water with high mineral content.
- D. Use only distilled or deionized water.

**CAUTION:** The electrolyte is a solution of acid and water, so skin contact should be avoided

### Watering Procedure

1. Open the vent caps and check the electrolyte level; the minimum level is to the top of the plates.
2. Clean the battery top with a cloth or brush and a solution of baking soda and water.
3. Rinse with water and dry with a clean cloth.

4. Clean battery terminals and the cable connectors with a wire brush after disconnecting connectors.
5. Reconnect the clamps to the terminals and thinly coat them with a petroleum jelly.

#### CONCERNS WHEN STORING BATTERIES

1. Freezing: Avoid locations where freezing temperatures are expected. Keeping batteries at a high state of charge will prevent freezing.
2. Heat: Avoid direct exposure to heat sources such as radiators or space heaters. When stored in areas above 80o F the battery's self discharge will be accelerated.

#### STORING PROCEDURE

1. Batteries should be completely charged prior to putting them into storage.
2. Batteries should be stored in a cool, dry location, protected from the elements.
3. If batteries are in storage for extended periods of time it might be advisable to give them a boost charge if they show they have lost 30 percent or more of their capacity.
4. Completely charge the battery before re-activating.

#### PROPER BATTERY CHARGING

Correctly charging the batteries requires administering the right amount of current at the right voltage. Most charging equipment automatically regulates these values. For proper charging, refer to the instructions in the operator's manual that was provided with the charger.

#### Important Things to Remember when Charging Batteries.

1. Become familiar with and follow the instructions thoroughly from the charger manufacturer.
2. Batteries should be charged after each period of use.
3. Lead acid batteries do not develop a memory and need not be fully discharged before recharging.
4. Charge only in well-ventilated areas. Keep sparks or flames away from the charging battery.
5. Verify that the charger is properly set and functioning prior to leaving it unattended.
6. Always make proper connections to the charging receptacle before power is turned on to the charger.
7. Tighten all vent caps before starting the charging cycle.
8. Do not overcharge or under-charge the batteries.
9. Never charge a frozen battery.
10. Avoid charging a battery when temperature is above 120oF.

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