# And How to Get the Maximum Life Span From Them

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**

- 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.
- 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 80° 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.

- 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 120°F.

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Form 031102

## Electric Bumper Boat Checklist Pre-Opening Inspection

Recorded Record for Week Ending								
	BOATS BOATS	::Sunday	- Monday	, Tuesday	Wednesday	Thursday	Friday	Saturday
1.	Check battery gauge to verify full charge.							
2.	Inspect connections to the electric motor.							
3.	Check condition of supply cords to motor.	CONTRACTOR STATE						
4.	Check battery compartment-condition of wires and connections:							
5.	Check for water in battery compartment, bilge pump working.							
6.	Check proper functioning of guard tabs over run switches.							
7.	Check starting switch functioning properly.							_
8.	If applicable, check pump switch for squirting system.							
9.	If applicable, check for water flow from squirting pump.	- marketan marketan						
# (ji), i	Verify complete propeller guard assembly is in place and secure.							
11.	Inspect fasteners and fittings and tighten properly if loose.				·			
12.	Inspect swiver bracket assembly to verify it is secure and lubricated.							
13.	Inspect fastening wing nuts that secure mounting bracket to the							
	floor of the boat. Make sure they are tight.							
	Inspect for proper assembly and integrify of all guards for safe operating conditions.							
15	spect batteries for proper water level and properly installed vent caps.							
16.1	Inspect and clean any corrosion at pattery or wiring connections.							
17.	Inspect tube condition for floatation. Observe for signs of leakage.							THE PERSON NAMED IN
18.	Clean motor shroud, boat and tube to assure a safe ride.							
19.	Start motor and test ride boat to verify proper operating conditions.							
	POOL AND SURROUNDINGS		1.0					
1.	Check water chemistry. Inspect for harmful water conditions.							
2.	Inspect the condition of rope ties for docking boats.							
3.	Verify the condition and stability of handrails.			Januaria (1852) (Julius			seestiidesseessel	
4.	Verify that "Rules of Safe Operation" are properly positioned and visible.							
5.	Check fire extinguishers and verify proper placements.							
6,	Check integrity of fences and gates for proper functioning.							
7.	If operating instructions and "Rules of Safe Operation" are delivered to customers via a recording, verify proper functioning		Í	!		į	}	
,	and clarity.	ļ	1	ļ			}	
8.	Remove all flammable materials from ride area.							
9.	Remove all electrical cords and any potential spark generating devices.	,					one in the second se	
Note: <b></b> ✓	Mese are basic concerns that should be addressed on a routing							

ese are basic concerns that should be addressed on a routine schedule. Each operation, depending on equirements should add to, but not eliminate from this checklist.

### Electric Bumper Boats

Rules for Safe Operation

- roughly read and understand complete operator manuals before operating Bumper Boats.
- Thoroughly read and understand instructions pertaining to proper and safe use of Battery Chargers.
- Always exercise concern while working around batteries. Wear safety goggles and face protection when inspecting or charging batteries.
- Take precautions against fire and sparks. Fire fighting equipment should be readily available and accessible at the bumper boat activity.
- Handle batteries with care. When replacing or removing batteries be <u>EXTREMELY CAREFUL</u> that loose or inappropriate wires do not come in contact with battery terminals, solenoid or other connections.
- Never charge batteries when people are in or around the boats.
- Routinely remove corrosion from terminals and connections. Periodically apply anti-corrosion protection to terminals and connections.
- Never recharge batteries in an enclosed or poorly ventilated area.
- When an electric motor starts operating intermittently it should be immediately taken out of service until the problem can be determined. There could be a chance of sparking from a short circuit.
- Always remove inline fuses and disconnect main power to the electric motor prior to doing any work on the motor or batteries.
- Never replace fuses with those of a greater value or type.
- Always make sure that any ELECTRICAL SERVICE or SUPPLY near the pool is protected by PROPER GROUND FAULT protection. Consult with local governing agencies.
- Make a routine check that all nuts, bolts, screws and fittings are tight.
- The complete operate the motor with any of the guards missing, broken or incomplete.
- Never allow observers, swimmers or by-standers to be in the water while bumper boats are operating or capable of operating.
- Never allow small riders to sit on an adult's lab or between their legs. All riders must sit on the seat with the back(s) against the back of the seat.
- Operators of bumper boats must be tall enough to sit completely back in the seat with their feet on the floor of the boat.
- When a rider's height is not at least 12" greater than the water's depth, a life preserver should be provided.
- Never allow "Standing" or "Kneeling" on the bumper boats.
- Unusual or excessive noise should be checked immediately. Turn off the electric motor and review all components.
- Maximum rider(s) weight capacity is 300 lbs.
- No food or drinks are allowed while in the bumper boats.
- No smoking is allowed while in or around the bumper boats.
- Signs must be posted stating that riders use the bumper boats at their own risk.
- Propeller guards must always be in place when using bumper boats. If the boats are in the general ride area, they must have complete sets of proper guards installed.
- Signs should be posted that caution person(s) who are pregnant or have experienced back or neck problems that they should not ride bumper boats. People with "heart conditions" should not ride bumper boats.
- When disconnecting main electrical plugs from the motor's receptacles, one plug should be removed at a time and the prongs
  on the plug covered before the second plug is disconnected at which time the prongs on the second plug must be covered.
- Always record and keep complete records and accident reports when they involve personal injury. No matter how slight the interest seems at the time, it could be crucial at a later date.