

Proper Care and Maintenance of Deep Cycle Batteries

- ❑ New batteries should be given a full charge before use.
- ❑ New batteries need to be cycled several times before reaching full capacity (20 - 50 cycles, depending on type). Usage should be limited during this period.
- ❑ Battery cables should be intact, and the connectors kept tight at all times. Systematic inspection is recommended.
- ❑ Vent caps should be kept in place and tight during vehicle operation and battery charging.
- ❑ Batteries should be kept clean, free of dirt and corrosion at all times.
- ❑ Batteries should be watered after charging unless plates are exposed before charging. If exposed, plates should be covered by approximately 1/8" of acid. Check acid level after charge. The acid level should be kept 1/4" below the bottom of the fill well in the cell cover.
- ❑ Water used to replenish batteries should be distilled or treated to not exceed 200 T.D.S. (total dissolved solids...parts per million). Particular care should be taken to avoid metallic solids (iron).
- ❑ For best battery life, batteries should not be discharged below 80% of their rated capacity. Proper battery sizing will help avoid excessive discharge.
- ❑ Battery chargers should be matched to fully charge batteries in an eight hour period. Defective chargers will damage batteries or severely reduce their performance.
- ❑ Avoid charging at temperatures above 120° F or ambient, whichever is higher.
- ❑ Deep cycle batteries need to be equalized periodically. Equalizing is an extended, low current charge performed after the normal charge cycle. It helps keep cells in balance. Actively used batteries should be equalized once per week. Manually timed chargers should have the charge time extended approximately 3 hours. Automatically controlled chargers should be unplugged and reconnected after completing a charge cycle.
- ❑ In situations where multiple batteries are connected in series, parallel or series/parallel, a replacement battery(s) should be of the same size, age and usage level as the companion batteries. Do not put a new battery in a pack which has 50 or more cycles. Either replace with all new or use a good used battery(s).
- ❑ Periodic battery testing is an important preventative maintenance procedure. Hydrometer readings of each cell (fully charged) gives an indication of balance and true charge level. Imbalance could mean the need for equalizing; is often a sign of improper charging or a bad cell. Voltage checks (open circuit, charged and discharged) can locate a bad battery or weak battery. Load testing will pick out a bad battery when other methods fail. A weak battery will cause premature failure of companion batteries.
- ❑ Always use a matched voltage charger and battery pack system. An undersized charger will never get the job done, no matter how long you let it run. An oversized charger will cause excess gassing and heat; this situation could cause explosions or other damage.
- ❑ As batteries age, Their maintenance requirements change. This means longer charging time and/or higher finish rate (higher amperage at the end of the charge). Usually older batteries need to be watered more often. And, their capacity decreases.
- ❑ Lead acid batteries should be brought up to full charge at the earliest opportunity. Avoid operating batteries in a partially charged condition. This will shorten their life and reduce their capacity.
- ❑ Extreme temperatures can substantially affect battery performance and charging. Cold reduces battery capacity and retards charging. Heat increases water usage and can result in overcharging. Very high temperature can cause "thermal run away" which may lead to an explosion or fire. If extreme temperature is an unavoidable part of an application, consult a battery/charger specialist about ways to deal with the problem.
- ❑ Inactivity can be extremely harmful to all lead acid batteries. If seasonal use is anticipated, we recommend the following:
 - a) Completely charge the battery before storing.
 - b) Store the battery in as cool a place as possible. However, do not store in a location which will consistently be below 32° F. Batteries will discharge when stored, the lower the temperature the lower the self discharge.
 - c) When not in use, boost every two months.

Deep Cycle Battery Applications

Golf Cars
Floor Sweepers
Floor Scrubbers
Aerial Lifts
R.V.'s
Electric Cars
UPS Systems

Personnel Carriers
Pallet Jacks
Towing Tractors
Electric Boats
Photovoltaic Systems
Yachts
Trolling Motors



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