GTS GLOBAL TECHNOLOGY SYSTEMS

Do's and Don'ts Battery Table

Each battery has unique needs that must be met to obtain reliable service and long life. This table summarizes these needs and advises proper handling of each battery type.

	Nickel-cadmium (Ni/Cd)	**Nickel-metal-hydride** (Ni/MH)	**Lithium-ion** (Li-ion)	**Lead-acid** (Sealed or flooded)
Used in	Two-way radios, power tools, medical.	Similar application as Ni/Cd; higher density.	Cell phones, laptops, video cameras.	A motorcycle, cars, wheelchairs, UPS.
Charging	**Do not** leave battery in charger for more than 2 days **Avoid** getting battery too hot during charge. **Charge methods:** Constant current, followed by trickle charge when full. Fast-charge preferred over slow charge. Slow charge = 16h Rapid charge = 3h Fast charge = 1h+	**Do not** leave battery in charger for more than 2 days **Avoid** getting battery too hot during charge. **Charge methods:** Constant current, followed by trickle charge when full. Slow charge initial use recommended. Rapid charge = 3h Fast charge = 1h+	**Do not** use if pack gets hot during charge. Check charger. **Charge methods:** Constant voltage to 4.20V/cell (typical). No trickle-charge when full. Li-ion may remain in the charger (no memory). Battery must remain cool. No fast-charge. Rapid charge = 3h	**Do:** Charge battery after use. Lead-acid can be kept in full charge or under go float charge **Charge methods:** Constant voltage to 2.40/cell (typical), followed by float held at 2.25V/cell. Fast charge not possible. Lead-acid can remain on float charge. Slow charge = 14h Rapid charge = 10h
Discharging	Full cycle is preferred N/Cd is one of the most hardy and durable chemistries.	**Avoid** full cycle because of wear. Use 80% depth-of-discharge. Ni/MH has higher energy density than Ni/Cd at the expense of shorter cycle life.	**Avoid** full cycle because of wear. 80% DoD recommended. Re- charge more often. **Avoid** storing at a full discharge. Low voltage may cut off safety circuit	**Avoid** full cycle because of wear. Use 80% depth-of-discharge. Recharge more often or use larger battery. Low energy density limits Lead-acid applications.
Service needs	Recondition to 0.6V/ cell every 1 to 2 months to prevent memory. **Do** discharge before each charge.	Recondition to 0.6V/ cell every 3 months to prevent memory. **Do not** discharge before each charge.	No maintenance needed. Loses capacity due to aging whether used or not.	Apply topping charge every 6 months. Occasional discharge/ charge may improve performance.
Storage	Best to store at 100% charge in a cool place. 3 years storage possible. Prime battery if stored longer than 6 months.	Store at 100% charge in a cool place. Prime battery if stored longer than 6 months.	Store at 100% charge in a cool place. **Do not** store at warm temperatures because of accelerated aging.	Store always at a full state-of-charge. **Do not** store below 2.10V/cell; apply topping charge very 6 months.
Disposal	**Do not** dispose; contains toxic metals; must be recycled.	**Do not** dispose; contains heavy metals; should be recycled.	**Do not** dispose; contains heavy metals; should be recycled.	**Do not** dispose; must be recycled.

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