Ni-MH BATTERY CARE SHEET

Basic Ni-MH Battery Care

Ni-MH packs should be charged at a maximum rate of 4.5-5.0 amps until warm ***(not hot)***, and used as soon as they are done charging for optimum performance. If the pack sits for more than 10 minutes you will not get full performance. You can "re-peak" a pack that has sat longer than 10 minutes to improve performance *(re-peak only once)*.

Some may tell you that it is good to get the packs a little hotter for racing applications. This technique may offer slightly better initial performance, ***but the long term effects are detrimental to the cells and is not recommended***. Delta Peak chargers *(chargers that look for a voltage threshold to determine when the charge cycle is complete)* are **not** good for regular use with Ni-MH cells, as this method causes excessive battery heating and results in internal damage to the structure of the cell. Pulse chargers should never be used.

We recommend using the Novak Millennium Pro (#4490) or the Novak Ionic (#4475) chargers in the Novak Ni-MH2 charge mode.

New Ni-MH cells often false-peak the first couple of times they are charged. This is the nature of the Ni-MH cell. If the battery pack is not warm to the touch, a false-peak has occurred, and the charge cycle should be re-started.

Batteries Used Weekly

Batteries that are used every week should be fairly easy to maintain. You can either run the batteries down until the vehicle runs slowly, or discharge the pack to 0.9 volts per cell *(for a 6 cell pack that would be 5.4 volts)* using a quality discharger that has a cut-off voltage setting like the Novak Smart Tray (#4500--*available 3/2004*). The Smart Tray is a digital microprocessor-controlled equalizing discharger that discharges each individual cell of the battery pack with no risk of damaging the batteries, as each cell's discharge is shut off after reaching the preset cut-off voltage.

When the battery pack has cooled back down to room temperature, it can safely be charged again for reuse. ***For the best performance, we recommend no more than two (2) cycles per day.***

Batteries Stored More Than 2 Weeks

If you do not use your batteries weekly, you will get better performance if some care is taken before storing your packs. After using the packs for the final time, put about 2-5 minutes of charge back into the batteries and then store them. When you use the packs again, discharge them to 0.9 volts per cell and let them cool completely before charging. The discharge before charging will give the best performance and should help prevent false-peaking.

Using Battery Equalizing Trays Before Charging

There are a numerous battery "equalizing" trays available from manufacturers who all have different views on the usage & maintenance of Ni-MH batteries. Through extensive testing, we have found that **Ni-MH batteries should not be discharged below 0.9 volts per cell**, and that battery trays can be very helpful in maintaining pack performance and consistency.

We highly recommend using an equalizing discharge tray that has a user-selectable cut-off voltage like the Novak Smart Tray (#4500). The Smart Tray also features individual status LEDs to let you know when each cell has completely discharged. Using the Novak Smart Tray before each charge will give you the best possible performance from your batteries.

Packs That Continue To False-Peak

Some customers may experience false-peaks with sport packs, receiver packs, or packs that have been previously abused or are very old. This can be due to lower quality cells or the construction of the packs. The Ni-MH cells in these packs are often never discharged properly so the cells can be very problematic.

The first thing that should be done for these packs is to discharge them and let them cool completely. Next, charge them at a lower amp rate than normal. When a false-peak occurs, try restarting the charger. If it the pack continues to false-peak you may need to set the charger up differently.

The Ni-Cd Linear charge mode found in the Novak Millennium Pro and the Novak Ionic chargers uses voltage threshold to determine the battery's peak. For a problematic Ni-MH pack, this may be the only way to get it to take a full charge. Set the charger at your desired current with the voltage threshold set to 4 mV/cell. If false-peaking continues, increase the voltage threshold by 2 mV/cell. Do not exceed 10 mV/cell. If you reach this setting and repeated false-peaking continues, you can activate the Trickle charge in the Millennium Pro by turning this feature on in the Edit Charge mode. If a false-peak occurs now, the trickle mode will continue to charge the pack at a very slow rate. Let the trickle charge continue for about 10 minutes, then restart the normal charge cycle. When the pack finishes the normal charge, the trickle will start again, so make sure that you remove the battery from the charger at the end of the main charge cycle (after it peaks) if it has successfully charged and did not false-peak. *Remember to turn off the trickle charge function for future use.*

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