Omnibook 600 Battery Dissection

I have a spare OB NiMh pack that's pretty well shot, so thought I'd look into the possibility of rebuilding it with new cells. It's the HPF1058A, rated 9.6 v and 1.7AH. All information presented here is for education only. **I don't recommend anyone tampering with their battery packs, and take no responsibility whatsoever for any consequences of use of this information.** Feel free to copy, share, or disseminate this info as desired, as long as this disclaimer is included.

Some of the details here are similar to those that can be found in the article on rebuilding the OB300-530 battery pack on Chris Erickson's site. (or Alternative link) Although I haven't gotten to the point of actually replacing the cells, it appears that their size and shape is such that they could be replaced by the same cells mentioned in that article: Part # P016T-ND from www.digikey.com. Currently they are $4.93 each for the "T" part, with the metal tab attached.

Note that this page deals with the NiMH battery version, NOT the newer LiIon as supplied with the OB800. The LiIon cells are not, to my knowledge, available as rebuild parts…and are, I believe, more dangerous to deal with in terms of possible explosion if not handled correctly.

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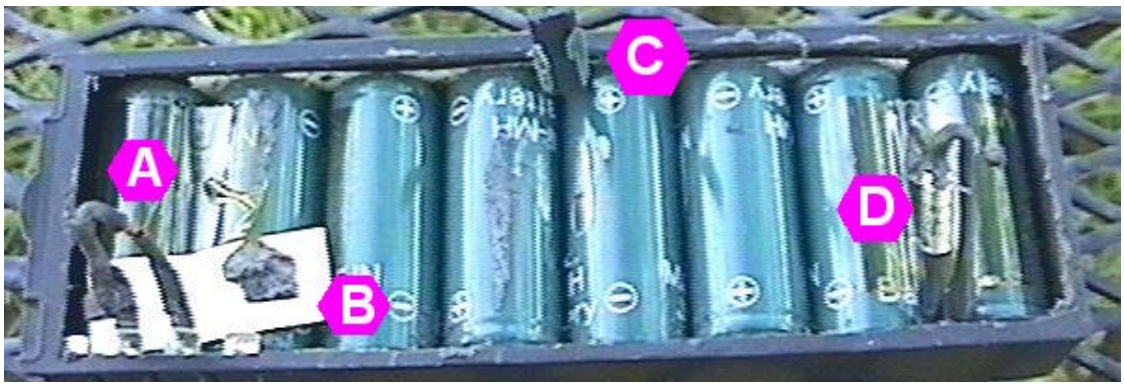
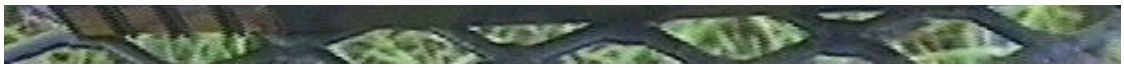
The first step was cutting the pack open. I used a diamond wheel on a flexible shaft, but a hot knife would probably work as well. I cut around the back surface, which faces out when the pack is in the computer. I felt this would interfere least with fitting back into the computer, and seemed to have the most open space underneath, as felt by squeezing on the sides before cutting. The OB300 article mentioned above described separating the plastic weld seam instead of cutting. I believe the seam here is stronger and more resistant than the OB300 pack (which I also have one of). However, after getting the thing open, it does appear that a determined and meticulous (and patient) person might be able to separate the seam. I didn't have that much patience.

The top plastic was glued to protective foam which was also glued at some points to the battery pack. This was easily cut with a razor blade. Inside was a set of 8 NiMh cells, and a few components, labeled A, B, C, and D in the picture below.



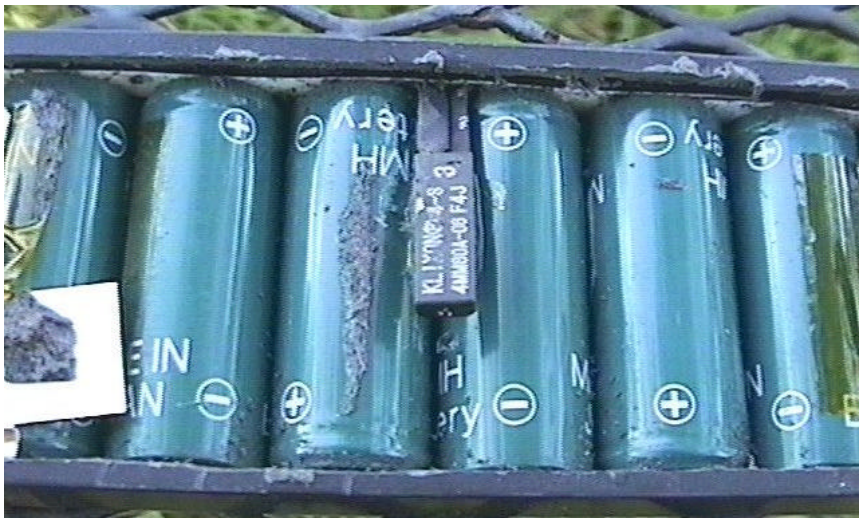


Lifting out the pack shows the metal strip connection from one end to the other. This is the side away from the four outside pack terminals. It's a very tight fit.

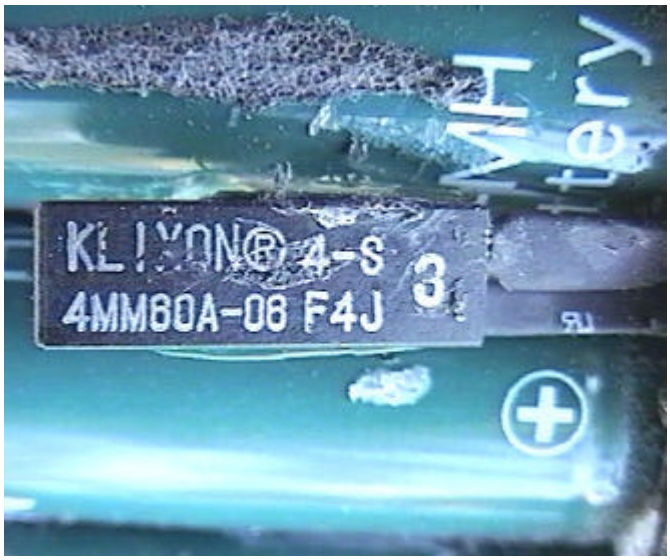
Cutting the band and removing the insulation piece reveals the connections on this side. There's a black component labeled "Klixon" that had been folded over between two cells. There's also a flat white component seen at the left. These components are C and B in the labeled picture, respectively.

Here is how the Klixon component, C, was laying originally. (The flat white component was hidden down against the

inner wall of the housing)

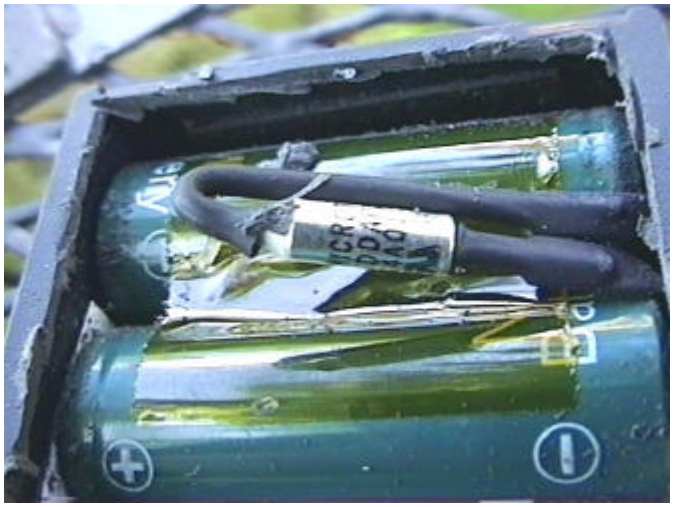


This is a closeup of the Klixon component.



Here is the flat white component, B, which is hidden when the batteries are lying in the case.

There is a silver cylinder component, D, at the far end of the pack from the external terminals, which also was laying flat between two cells.



The external terminals are connected to the pack as shown here. The middle two terminals are not connected to the pack, but to a small glass component, A, that looks like a diode, and also lays flat between two cells. My guess as to the purposes of the components follows below.

The components are similar to those discussed in the OB300 pack article--which helped me formulate these guesses:

A. Probably a temperature sensor, since it's not connected to the cells at all. It probably helps the Omnibook regulate the charging rate, to avoid overheating.
B. The flat white component. The OB300 article identifies this as a current limiting resistor. Seems good to me. Maybe also functions as a last-resort fuse against shorting the terminals, if other protection fails?
C. The Klixon--I'd guess it's a bimetallic temporary (resetting) thermal cutout. Klixon just sounds like that kind of thing. The OB300 article has a similar item called a "low-temp resetting thermal cutout."
D. The silver cylinder says "Microprotek KDDAPE G4A01 tf" on it. The OB300 article has a similar item identified as a "high-temp thermal fuse." Sounds right.

It should be easy enough to put new cells in, retaining the components. (The OB300 article scraps component B). Cells with pre-attached metal flanges would be preferable to avoid overheating when soldering. The next question is, is it worth the effort? I believe new packs are available on Ebay for $50 to $60. If 8 cells cost about $40 bucks at DigiKey, that's a slim margin for the effort. I believe the rationale for the OB300 packs is that they are either unavailable, or more expensive (perhaps as rebuilt units) than the OB600 packs.

Here's a link to my rather random and rarely updated home page