



Bergen County Silent Flyers

<http://www.geocities.com/silentflyers/>
Spring 2002

Edited by Mark Casey and Dan Roman

Thursday Flying

We are back to our regular Thursday evening schedule at the field since the time change. Turnout has already proven to be quite good. You will usually find us there from 5 PM until dark.

Future Newsletters

This will be the last paper newsletter mailed out to the membership. In fact, most of you are getting this in electronic form via the email address you provided on your application. If you want to continue to receive the newsletter, please provide your email address to Ben or Dan at n2mfc@arrl.net. The newsletter (and back issues) will always be available up on the club's web site as well and we'll have a few paper copies at the field. It is costly and a lot of work to do a mailing. Making sure we have your current email address will get you future newsletters which will be published as often as we have enough articles to fill one up and as required for announcements.

Have a plane, piece of gear, or gadget you think is great? How about doing a review of it for our newsletter? Have something to post on our web site? Send submissions to n2mfc@arrl.net.

Wiring Tip

My plane uses two servos for the ailerons to support flaperons and spoilerons. It has always been a nuisance dealing with the servo wires when putting the wing on and making certain the proper servo is

wired to the correct receiver connection. While I was doing some Ethernet wiring in my house, I thought about using 8-position RJ connectors for the servo lines. This is an 8-wire version of the type of connector you have on all your phones at home.

The RJ connectors are light, easy to work with (if you have the \$10 crimping tool), they have gold contacts, 8 lines (other varieties are available), and they have a locking mechanism that is easy to disengage with one hand. Both the plugs and sockets are available at electronic stores like Radio Shack and others and are most commonly sold and used for Ethernet connections. The contacts can handle over 2 amps, more than enough for servos and receiver battery connections. I simply crimped on an 8-position plug using the existing servo wires after cutting off the connectors. I then mounted an easy crimp (no tools needed) jack inside the fuselage near the receiver.

I took the easy way out and simply connected all six wires up. This method only allows two servos to be used but you could easily use the same connector as a simple way of swapping out other devices such as receivers, co-pilots, etc. by making the power and ground connections common.

I've found these connectors to be reliable, easy to find, and easy to use. No more messing with Futaba J connectors!

NiMH Batteries

Here is some information about NiMH batteries and their characteristics from the Panasonic battery website.

"CmA" is a value that indicates rapid charge current and is expressed as a multiple of nominal capacity. Substitute C with the battery's nominal capacity when calculating. For example, to charge a 1500 mAh battery at 1CmA, you would perform the following calculation: $1\text{CmA} \times 1500\text{mAh} = 1500\text{mA}$. You would need to charge the battery for at least 1 hour and not more than 90 mins. in order for it to be fully charged. The recommended rapid charging current is between 0.5 CmA and 1 CmA. To prolong battery life, the temperature should not be allowed to exceed 60°C (140°F) during rapid charge. Exceeding 1 CmA may cause overheating causing the safety vent to open and electrolyte leakage. Rapid charge at up to 1.6v/cell (maximum).

Trickle current is from 0.033CmA to 0.05CmA. It is also not recommended to trickle charge the battery for more than 20 hours.

Recommended discharge rate is no more than 2CmA. For batteries that are excessively discharged or deep discharged, it is recommended to first allow a trickle charge until the battery voltage has risen to 0.8v/cell before commencing a rapid charge. If they are excessively discharged, then they can be restored by cycling them and discharging them to no lower than 1.0v/cell.

How far should a pack be discharged? For a battery pack of up to six cells, discharge using this formula: $(\# \text{ of batteries}) \times 1.0\text{v}$. For battery packs that consist of 7 to 12 cells, discharge them using this formula: $(\# \text{ of batteries} - 1) \times 1.2\text{v}$. For example, discharge eight cells no lower than $(8 - 1) \times 1.2\text{v} = 8.4\text{v}$.

NiMH batteries have twice the energy density of NiCDs. They can be charged and discharged for about 500 cycles. If treated properly, they can provide many hours of useful life.