the L.A.S.S. Edition

November 2008

Image courtesy of Jacci Howard Bear, Desktop Publishing at About, http://desktoppub.about.com].

Secretary's Minutes

by Wilson Hardy

The October 7, 2008 meeting of the Lincoln Area Soaring Society came to order at 7:37pm in the Willard Community Center. President Jim Baker called the meeting to order and started the meeting out by asking about the last minutes written. Allan Worrest brought up the fact that the last published minutes were from the August meeting. The minutes from that meeting were accepted as written in the newsletter.

Jack Barry gave a quick Treasurer's report and an update on the expenses from the Tom Neill Days in September. President Baker and Jack gave an audited account of the expenses for the Tom Neill Days and an account of receipts and refunds. Jim paid Kelly Neill back for her part in the event. Upon hearing the final balance in the account, it was decided that there is enough money to continue the Tom Neill Days party for another year.

ON TO OLD BUSINESS

The field signs are up at the Event Center and look very good. There is a possibility that one more sign needs to be purchased for the North entrance of the Event Center parking lot.

Loren Blinde gave a report on the Quiet Flight Event at the Lincoln Sky Knight's field. There were many pilots and a lot of flying even with the low cloud cover. "Can you still see it?" was heard more than once as a plane zoom launched into the soup. All in all the day was a success and everyone had a great time. Thank you to Tom Wild for the cooking and grilling.

NEW BUSINESS

New business started off with a motion to keep the dues the same for one more year. No discussion to the contrary and the dues stayed at $20 for a year. Continuing on with the normal October club business, nomination of club officers ensued. President Baker started off nominating

Minutes (Continued on page 2)

Election Time

At the November meeting, club officers for next year are elected. The following people have been nominated:

President - Tom Wild
Secretary - Wilson Hardy
Treasurer - Jack Barry

The newsletter editor and safety officer are appointed by the president. Should anyone desire one of these offices, contact the new president.

As a reminder, the ballot for the AMA Executive Vice President must be postmarked by November 14.

CLUB MEETING Tuesday
November 4, 2008
7:30 p.m.
Willard Community Center
Folsom & West B Street
Lincoln, NE

Minutes (Continued from page 1)

Wilson Hardy for Secretary. Jack Barry said he was done being Treasurer and that he had served his time. Upon closer inspection Jack relented and said he really had one more year that he could have the office and was promptly railroaded into the office. Tom Wild was nominated for club President by Loren Blinde. The end nominations were: Tom Wild for President, Jack Barry for Treasurer, Wilson Hardy for Secretary, and Allan Worrest for Safety Officer and Newsletter Editor. Dick Britton then made a motion to close the nominations and to accept the dues at $20 for the year. Both motions passed.

This month there were three asides that were worth mentioning. The first was a story relayed to us by President Baker as told in the last news letter about Thane going for a swim in the lake. The next was Loren Blinde's description of his time flying his Ka-6 on the top of the hill overlooking Wilson Lake. Loren painted a very pretty picture of a giant plane and a graceful flight. The last aside was from Allan and his recounting why his Spirit 100 didn't meet up to his expectations. At no flap deflection or at 90 degree flap deflection the flight characteristics were acceptable. Any other setting made the plane almost unflyable.

The meeting broke up around 8:20.

A123 Cells

by Carlos Reyes

Electric model airplanes have been around for roughly three decades. A huge problem in the early days was battery energy density. In other words, they simply weighed too much for the amount of juice you could get out of them. This situation has improved dramatically in recent years with the advent of Li-Poly cells, but a battery pack for a larger model can easily cost hundreds of dollars. The advent of electric cars, such as the Toyota Prius has spurred an enormous amount of research into new battery technologies. In this article, I will describe an alternative to Li-Poly batteries that offers intriguing possibilities.

A123 Systems (www.a123systems.com) produces Lithium-Ion Nanophosphate cells. These cells have a nominal voltage of 3.3 volts and can withstand continuous discharge rates of 30C. They can be safely discharged down to 2.0 volts. The voltage remains fairly constant through the discharge cycle, but they do have a sharp dropoff at the end. Expect 300 cycles before you notice any reduction in capacity while at 1,000 cycles you'll have 75% of the original capacity.

They are very safe. Overcharging or over discharging will not cause an explosion and will have little effect on the life of the battery. Balancing the cells when they are charged is still a good idea, but not absolutely required. They can be charged immediately after use in 15 minutes.

The cells are available in two sizes. The original M1 cell has a capacity of 2.3 Ah and weighs 70 grams (2.47 oz). A newer, smaller size can hold 1.1 Ah and weighs 40 grams (1.41 oz).

The primary source for A123 M1 cells has been DeWalt 36-volt portable power-tool battery packs. Each pack contains 10cells. I purchased two of these for $100 each through Ebay. The prices appear to have gone up recently to the $120-$130 range. Single cells can also be purchased online for $15 from a growing variety of vendors. You can find two of the smaller cells in a Black & Decker VPX battery pack which sells for about $15. The smaller cells can also be had for $12.50 each.

There are many Li-Poly chargers that support or can be modified to support the charging of these A123 cells. Because of the sharp voltage drop-off when discharged, you are probably better off using a timer when you fly. Otherwise you need your ESC to shut off the motor when 2.0 volts per cell is reached.

Bottom line? These cells give you 70% the energy density of Li- Polys for about 45% of the price. For many of us, that is a good tradeoff. They are extremely safe and can be charged in 15 minutes. If you end up buying half as many battery packs because of the shorter charge time, then they become a much better value.

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President:	Jim Baker	**Treasurer:**	Jack Barry
Secretary:	Wilson Hardy	**Editor:**	Allan Worrest

My Experience with A123 Cells

By Allan Worrest

I've used the M1 A123 cells for the past season as the flight/power pack for my Vanquish F3A electric plane. They have proven to be a good choice for that plane when it is flown for recreation. For all out competition there are drawbacks. The limited capacity of the cells compared to Li-Po's of the same weight may mean that the flight has to be terminated before the pattern sequence is completed.

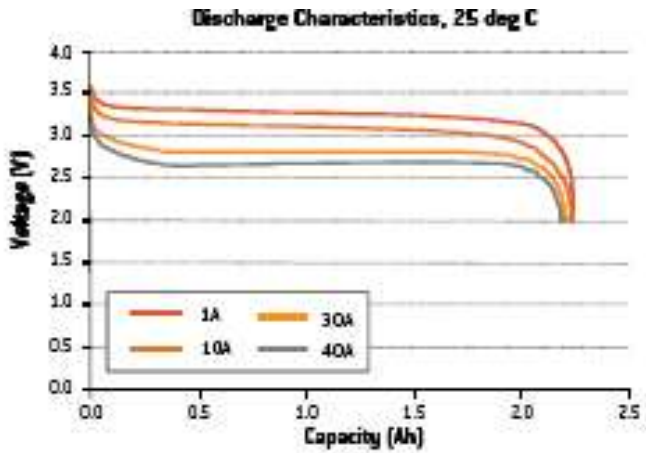
On the other hand, the A123 cells can be charged much more quickly. The recommended fast charge rate for the M1 size cells is 10A for 15 minutes. Many Li-Po batteries take an hour to charge. With two A123 packs I can have one fully recharged in the time it takes to discharge the other one in flight.

This same set of limitation and advantage also applies to using them as the power pack for an electric motor-sailplane. A battery composed of A123 cells will weigh more than a Li-Po battery of the same capacity. Compared to a Ni-MH pack the A123 pack is lighter. So if you are flying on a calm day, a Li-Po pack should give you better duration time. If it is windy and you need ballast, the A123 pack may have no disadvantage.

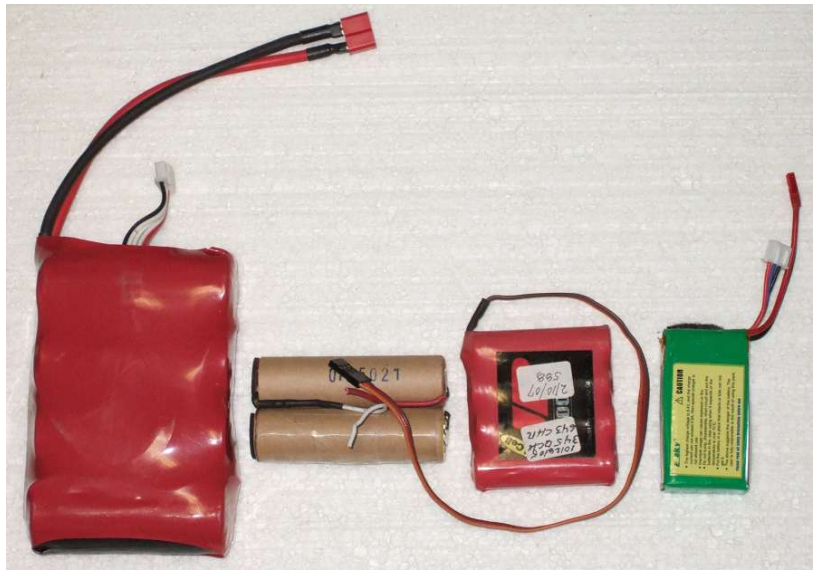
Recently a number of pattern and giant scale flyers have started to used A123 cells for their flight packs to supply power to the servos and receiver. Two of these cells have about the same voltage as a five-cell Ni-MH pack. If the receiver and servos can handle a six-volt pack (and some can't), the A123 cells have characteristics that make them better. Some Ni-MH cells have very high internal resistance. As the current draw increases, the Ni-MH battery output voltage will decrease. With high current digital servos, the voltage drop on Ni-MH cell can cause serious problems.

The A123 cells have very low internal resistance. The M1 cell is capable of supplying 70A continuously. It will burn up your wiring before shorting out. The discharge curve for these cells is flatter than any other cells I've used. The positive aspect is that voltage regulators that are commonly used with Li-Po batteries are unnecessary. The downside of the flat discharge curve is that I doubt an expanded scale voltmeter will be of any use in determining the charge state of the battery.

For the Vanquish pattern plane, I use timing. By experience I have determined how long my battery will last and set the timer on my transmitter to warn me when I'm approaching the battery cutoff point. That plane and my sport motor-glider use a BEC to power the receiver and servos. When the ESC in either plane cuts off the motor, there is still enough juice in the battery to supply the BEC for several minutes more. If you are using these cells either alone or with a BEC to power your receiver in a high performance sailplane that is far away, be very careful. These cells will run with no noticeable voltage drop-off and then quit very abruptly.



M1 Discharge Characteristics , from A123 Systems, http://a123systems.textdriven.com/product/pdf/1/ANR26650M1_Datasheet_AUGUST_2008.pdf



Comparative Battery Sizes, On the left is a four-cell, 13.2 volt, M1 pack used in the Vanquish. Its capacity is 2300 mAH. Second from the left are two cells from a VPX pack. The capacity of these cells are 1100 mAh. Two cells in series will provide 6.6 volts. The cells are as long as the M1 while the diameter is about 3/4 of the M1. Second from the right is a four-cell, 4.8 volt NiCad pack using 700 mAh AA cells. On the right is a two-cell, 7.4 volt, 800 mAh Li-Po pack.

LINCOLN SKY KNIGHTS

INDOOR FLYING

Calvert Recreation Center

4500 Stockwell Street

Lincoln Nebraska

Every other Sunday from 5:00 to 7:00 PM starting September 21

MUST HAVE CURRENT AMA CARD TO FLY

(AMA Open Membership or AMA Park Flyer Membership accepted)

$5.00 entry fee

Obey established flight lines

No 400 size helicopters or larger

16 oz weight limit on aircraft

Coordinator has the right to ground any aircraft deemed unsafe

DATES:

Sunday September 21st
Sunday October 5th & 19th
Sunday November 2nd, 16th & 30th
Sunday December 14th & 28th
Sunday January 11th & 25th

Sponsored by HobbyTown USA at Southpointe

www.lincolnskyknights.org

Aerotow, Des Moines IA November 7-9 2008

Aerotow / Soaring Fun Fly
Date: November 7-9, 2008
Location: Bill Chase's Field
3350 Ashworth Road
Waukee, IA 50263 - suburb of Des Moines, IA

What's to fly:

All 'silent flight' machines will be welcome.
We'll have towplanes capable of towing ALL size RC sailplanes.
Winches will be available for flying Scale or TD ships.
Electric sailplanes are also welcome.

When to fly:

Friday; first flight at 1000 on Friday November 7th til o'dark thirty.
Saturday; first flight at 0900 til you can't stop shivering
Sunday; first flight at 0900 til there's no one left
Entry Fee: $10 per day

$20 for all three days.

Meals: Lunch will be catered in on Friday and Saturday, a reasonable fee will be determined at the field for those interested.

Restrictions: The ONLY 'wet powered' aircraft flying will be the tow planes.
Radio requencies: Frequency control will be in effect all three days.
Tow plane frequencies are to be avoided by other pilots.
Lee Estingoy - 40
Jim Frickie - 60
Mike Fox - 47
Tim Gastinger - 30

Weather: The event date will be weather dependent so be sure to check your email for updates if the weather is questionable.

In addition to the maps attached I've included the following text directions to the field.

1. Near the end of your journey you should be on I80 just west of the I35/I80 junction.
2. Leave I80 at exit 121.
3. At the stoplight turn south on Jordan Creek Parkway and proceed south three blocks to Ashworth Road.
4. On the southwest corner of this intersection there is a single family residence, the first one you'll see on this street, and on the northwest corner is a bank. Turn right onto Ashworth Road and proceed about two miles.
5. Immediately on your right after passing over the interstate is the sod farm.
6. You can enter the sod farm on the west end through the parking area next to the small church.

There are a number of motels in the area but I hesitate to recommend any as the range of prices is quite large. Please contact me directly if you'd like some help with this.

If you need additional information please contact me via telephone or email as noted below.
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Des Moines Aerotow Maps

General Map

Detail Map