

November, 2005

AMA #197 / IMAA#687

Glitch Busters

Delaware R/C Club, WWW.DelawareRC.org



Next Club Meeting: November 1, 2005

- Location: Wm Penn HS Cafeteria 2
- Raffle: TBA
- Program Topic: Election of officers.
- Next Club Event: Club Auction: November 5, 2005

Club Auction At Shue Middle School

It's Auction time again !

That's right, the annual club auction is Saturday November 5th. The doors open at 9 am. It will be held at Shue Middle school once again on Kirkwood highway. If you have questions or need directions call Stan Michalski at 302-463-1348. There will be Flea market Tables set up with lots of GOODIES for sale. The Auction starts at 11:00am please bring items to be auctioned and help benefit the club. Also there will be Warbirds and Helis over Delaware Tee shirts hats and calendars for sale. The Boy Scouts will be selling food so come hungry and help out a good cause. See ya there !! *Stan Michalski*

Election of Officers in November: Nominations Now

So far, we have nominees for President and Vice President. Elections will be held at this month's meeting. Those who are willing to serve as Secretary or Treasurer should contact Brian Pasternak or one of the executive board to make their intentions known. This year the Treasurer and Vice President will fill one-year terms, while the Secretary and President are elected for two years. This is to make it easier to find a slate of officers in subsequent years as well as ensuring continuity in the governing board.

Safety Corner

The **Futaba 9CA** is a popular radio for airplane and heli pilots. It has a lot of features but is not hugely expensive. I like mine, but one feature that I dislike is the ability to change your programmable mix settings with the trim levers while flying.

I did this inadvertently on a full-house glider and almost crashed it during landing as a result. Here's how it works: If a mix is on that involves any of the four main channels, like AIRBRAKE, moving the trim levers changes the OFFSET in the program. In my case I had AIRBRAKE enabled (the switch was thrown and the mix was on) but not yet deployed (which was done by moving the throttle stick). I tried to trim the elevator in flight, which did not respond. What I was really doing was changing the OFFSET in the AIRBRAKE mix. When I subsequently deployed the AIRBRAKE for landing the elevator OFFSET was way off, almost driving the plane into the ground.

The key thing to remember is to **make sure your mixes are turned off when you trim** your plane or heli.

Mike Evans
PS

I wrote to Futaba about this. They replied that this feature is "well known" even though they admitted that it is not mentioned in the manual and they didn't know of any information on the internet about it.

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Delaware RC Club Welcomes New Members:

Michael Fuller,
Andy Hastings

At the Meeting...

Delaware R/C Club – Minutes of the General Membership Meeting – October 4, 2005

Club President Brian Pasternak called the meeting to order at 7:30PM.

The Club welcomed guests Mike Fuller and Todd Fisher.I.

Show & Tell

- Paul Bryk displayed an Aerocraft “Snapper”
- Stan Michalski displayed an electric DC-3 from Polk's Hobbies. Stan also discussed the use of a Li-Po battery conditioner.

Safety Report

Be sure to fully charge your transmitter and receiver batteries before flying! Batteries should be tested on a regular basis.

Old Business.

Dues for 2006 are now due. Members who renew before the Jan 15, 2006 deadline will be included in a “Early Renewal” raffle. Starting with the 2006 dues renewal the Club will no longer acquire Park stickers for members. All members will be required to obtain Park stickers at the Park office.

Annual Club Picnic was held on Sunday, Sept 18th. CD: Dave Moyer gave a “wrap up”.

As stated at the October General Membership meeting the Board has decided to donate the money set aside for “Volunteer Appreciation Day”. The AMA has provided a name and address of a AMA member who lost everything due to hurricane Katrina. The donation letter was included in the October Newsletter. Thanks to VP Dave Moyer for following up with the AMA to make this donation possible.

Club Nominations of Officers was opened at the October General Membership meeting.

Elections will be held at the November General Membership meeting.

President and Secretary are for a 2-year term.

Vice-President and Treasurer are for a 1-year term

Dave Moyer was nominated for President.

Stan Michalski was nominated for Vice-President.

Additional nominations are needed! The slate will be closed at the November General Membership meeting and the elections will take place at that time

New Business

Annual Club Auction will be held on Saturday, November 5, 2005 at the Shue Middle School on Kirkwood Hwy in Newark, DE.

Volunteers are needed. CD: Stan Michalski

Anyone who had a table reservation last year will have that table held this year. If the table is not needed please contact Dick Stewart.

Volunteer is needed to organize the 2006 WRAM show on Saturday, February 25, 2006. Duties to include scheduling of bus service and collection reservations. www.wram.org

Treasurer's Report – Dick Stewart gave the report on the Club treasury.

This month's 50/50 was won by James Spangler.

Another Auction

Southeast Keystone Sale and Auction

The Second Annual Southeastern Keystone State R/C Sale and Auction,
Sponsored by Cloud Kings R/C Club, Oxford, Pennsylvania

Saturday, January 28th 2006
Kennett Area Senior Center
427 South Walnut Street
Kennett Square, PA 19348

Setup starts at 8 AM, doors open at 9 AM - Auction starts at 11 AM Tables + one admission \$10 each; admission \$5, under 12 free

Local Vendors, Raffles and Door Prizes, Food and Beverages Available Ample Parking Onsite Model Displays

For pre-registration and tables call Dick Plyler 610-268-2156, For Auction call Henry Bohe 610-857-5669

Visit the website for more information—www.cloudkingsrc.org

Electric Power Systems Setup

This month I would like to begin to talk about electric power system design for model aircraft. This discussion will include planes that are designed for electric as well as ones being converted to electric. It will not include any discussion about helicopter power system selection. Bear in mind that this is the method I use and that there are many other ways to achieve the same goal. A lot of people approach me and ask will this motor or that battery fly my plane. I can only tell them what I think might work if I have flown a similar size and weight plane. Some manufacturers are starting to recommend power systems when they sell you a model, but you should beware here because you cannot always be assured of getting a plane that flies the way you want it to. Before you spend your hard earned money on a power system you should either use, or consult a friend who has a program such as **Electricalc** to test your power system predictions for desired performance. Electricalc is a simulation model for designing power systems for a large range of models. To use this program you first enter the plane parameters such as weight, wing area, and coefficient of drag. Don't panic if you do not know the coefficient of drag for your airplane. There is an estimator built into the program to help you come up with a number for your plane. Also bear in mind that there is a database drop list of airplanes already loaded into Electricalc to choose from. If your plane is on this list don't reinvent the wheel select it from the database drop list. Once you have entered the airplane parameters you then select the motor and battery from database drop list built into Electricalc. If your battery or motor is not on the list just enter the battery number of cells, voltage per cell, and capacity in MAH. If the motor is not on the database enter the motor parameters from the information that comes from your motor. This will get you close enough. Next you enter the prop diameter, pitch and gear box ratio if one is used. You then hit the enter key and the program will spit out information that defines how your power system will perform. You will see the **current drawn a full throttle, flight duration in minutes, watts per pound, thrust in ounces, motor watts at full throttle, and top speed in MPH**. There are a lot of other numbers that come out too, but I find these the most useful for power system design. My rule of thumb is centered around the **Watts per Pound parameter**. I find that it is the most useful indicator of how a particular power system will make an plane perform. Here's the rule. 60 to 80 watts per pound will fly OK for training. 90 to 100 watts per pound will do aerobatics, 100 watts per pound will fly with authority and do extreme aerobatics. 120+ watts per pound and you will go straight up to OZ and the Wizard will impound your plane. Sorry I get carried away !!!

Although the watts per pound parameter is my favorite it is not the only thing you need to consider. You also need to look at the full throttle current draw. The reason for this is two fold first you need to determine if the battery can handle being discharged at this rate, especially with lithium polymer type batteries ?? And second can the controller and motor handle this amount of current ?? If you have a 2100 MAHs battery this is equivalent to 2.1 amp hours. Most LIPOs can handle what we refer to as 10 C discharge rate so in the case of this example battery's maximum discharge current would be equal to 10C X 2.1 Amp hour = 21 amps. So as long as your full throttle current draw is at or below 21 amps you are OK. If it is more than 21 amps you need to change something. While you are experimenting with different combos it really helps to keep in sight what your goal is. Do you want the plane to just fly or do you want a rocket or something in between?? Look at the rule mentioned above for the appropriate watts per pound ?? You will at this point be playing a trade off game. You can first try changing the prop pitch and diameter. If you get the current below the batteries max discharge, and still get your desired watts per pound COOL. If not then you will have to consider a higher gear ratio and possibly a larger diameter prop or an increase in pitch. All the while you are changing things you should be watching your watts per pound to make sure that when you finally get your max current draw where your battery, motor and controller are happy, your watts per pound will still be in the performance range you planned for. That's all for this month. If you have Electricalc or Motocalc play around and see if you follow the method I have outlined so far. If not I will be bringing my laptop to the club meetings so I can show this to anyone who is interested. In next month's article I will continue the more of power system design. I know this seems very technical but it's really easy once you understand the method and all of the tradeoffs you are working with. It can also be fun and you can achieve some amazing results and have airplane that fly rings around the others. Till next month keep the smoke to a minimum !!

Stan Michalski

Electric Foamy Tips

From Terry Blanch

Use the lowest current draw motor possible for intended prop size

Low current batteries are lighter and most of the plane's weight will be in the battery

A lighter motor and a lighter battery flies better than a heavy motor and a heavy battery

Set control throws for less than 3-D for first flights or if it is your first foamy

It is easier to increase the throws than rebuild the plane.

Experiment with center of gravity to get best recovery from unusual attitudes

Pitch up and cut power, model should recover by centering the sticks

Get a feel for aerobatics before increasing throws

Have fun



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Set Your Course for Upcoming Club Events		Additional Waypoints of Interest	
Saturday, November 05, 2005	Club Auction	Saturday, January 28th 2006	Cloud Kings Auction
Sunday January 1, 2006	Freeze-Fly		

Dues may be paid for 2006 anytime before Jan 15th to get early renewal benefits

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