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AMA Club Charter #2988  
<http://www.downeastsoaring.org>

### DownEast Soaring Club Upcoming Meeting

Event	Date	Time	Location
May DSC Business meeting	Saturday, 5/13/2006	9am coffee/pastry, 9:30 Business meeting, 10:30 Show & Tell (Slope afterwards?).	Bookland Coffee Shop, Cooks Corner, Brunswick See Note #1

### Meeting Minutes of March 11<sup>th</sup>, 2006 (As recorded by Jim Armstrong)

**MEETING ATTENDEES:** Jim Armstrong, Mike Farnsworth, Bob Berry, Glenn Collins, and Mark Higgins.

### SECRETARY'S REPORT:

1. Mike passed out AMA Club Officer patches.
2. NO Club Correspondence
3. Club trainer. Mike took one of the Club receivers and put it in the Club trainer and hasn't been able to get it to glitch. He used the receiver that was glitching in one of his planes and tried it out. No glitching experienced. He believes the crystal was loose when glitching experienced. More experimentation planned to ensure receiver is reliable.



**TREASURER'S REPORT:** Ken called in sick but said we had \$674.12 in the Club Treasury.

## OLD BUSINESS

**DSC VIDEO LIBRARY:** Background: Jim reported that he hadn't purchased the two Videos wanted by the Club yet. He said that when he went to order them he noticed that if you purchase more you get a good discount. He said that the Club had a couple of videos that hadn't been returned and are so good they should be replaced (example: Soar Utah). Club members approved the purchase of 5 videos.

Jim reported that the following videos had been received:

- > Soar Utah Adventure ,
- > Performance Tuning ,
- > Hand launch Building Clinic ,
- > Red Line Sky (full-scale) ,
- > Electric Revolution

Update: Glenn said he reviewed the HLG building video. It is a 2 CD set. It focused on building 2 HLGs and performance tuning. He picked up numerous great tips that can be used for any model. He highly recommended it.

Mark said video mentions buildup sensitivity to epoxy. We should always use gloves and make sure area is well ventilated. Bottom line is "You will develop an allergic reaction to it" eventually.

Editor's Note: Let me know if you're interested in purchasing a box of 100 disposable gloves for less than \$5.00. Maybe we can make a group purchase.

## **GLIDER NIGHT BUILDING AT KEN MAC DONALD'S:**

*Background: Ken updated the attendees on the goings on at the Wednesday night building get together. The nights have become quite popular. Upwards of seven people have been their at one time. Fan Fold building and the availability of templates for new fanfold planes has garnered much interest. Ken relayed the success of building with Fan Fold foam. The Frog (shown last month) and the Stagger Wing Bipe (presented this month) are both good flyers. Bob Berry relayed that one night they had 3 Frogs flying in front of Ken's house at one time. Paul Johnson kindly brought the templates for the Bipe to the meeting for members to borrow.*

*Update: Ken reported that the 16 page Microflight published by model airplane news was discontinued a while back. The Feb. edition of Model Aviation said that John worth was starting a monthly online magazine. Ken sent \$24 for subscription. It has lots of interesting information. Ken will show you any of the issues at his house during glider night. . Ken building is building an electric Telemaster. Bob is building a Micro Flight Bi-plane just like the one Jim Armstrong brought to the meeting. Jim has a Frog drawn out and will be cutting it out soon so he can use it as a trainer plane. He is studying Ken's Co-Pilot manual so that they can use it this summer on some of Ken's planes.*

- Ken reported that he purchased 10 sheets of C foam from Balsa products. He sold most of it to some of the guys that stopped by to build. Once everyone found out how nice it was everyone wanted some. We will be ordering more so let Ken know if you want a sheet or two. Cost is \$2.00 a sheet. C foam is much lighter than craft board (poster board) but a little heavier than Blu Core foam. C foam is great to use in combination with the other foams. In certain areas it would be nice to have a little more strength. The latest backyard flyer, May issue, showed a homebuilt high wing powered glider completely made out of C foam board from Balsa products. It has a 36 inch wing with flat section.

**Wednesday night building night at Kens has now changed to Glider/electric flying night at the BAM field. However, if it rains some Wednesday evening we are planning a trip to Frank Bennett's workshop for glider night.**

**Paul Johnson is building a Bi-plane out of the C foam we talked about. Take a look at how cool it is. The picture doesn't do the artwork justice. Rumor has it that John Emery has built one too.**



**CLUB FOAMY COMBAT:** Background: Glenn Collins asked if there was any interested in doing Foamy Combat. Members expressed a lot of interest. Glenn will come up with a design and present it to the Club. Potentially use a Johnson motor or go with a Cox plane that has a motor on it already for \$20. Cox would add consistently. Glenn reviewed the possibility of using the new Cox micro warbird series as the basis for a club pylon racing event. Moderate interest has been shown in this. One more email will be sent out to see if there are any other takers on a bulk purchase from Cox.

Update: 1. Glenn contacted Cox models about a Club purchase discount for micro-warbirds. Cox responded that they do not provide club discounts but only provide discounts to Hobby shops we need to find a Hobby Shop that might be interested in doing a group purchase for us. I assume that Cox will give the hobby shop a break on the price so that we can end up getting a discount. Club members are asked to contact Hobby Shops they deal with and see if they might be interested in helping us out. Ken Mac Donald said that he would contact one and report back to us.  
2. Club member Allen Wright already has a Cox warbird and it would be nice to hear from him before we make an order.

- Update: Jim talked with Allen Wright and Allen said he will probably be able to build his Cox in 2 months and report back to the Club. He has been working on a HLG design.
- Ken said he would be talking to Bud Greenleaf soon.
- **Tabled:**

## **DSC AMA RE-CHARTER FOR 2006:**

Background: Jim received the Charter **application** from AMA for 2006. Members agreed to sanction 2 sites.

- Update: Jim reported that he made out all the paperwork for the Club AMA Charter and sent it to AMA with a DSC Check. Jim gave praise to AMA for making the re-charter process easier. Now forms have current officers listed so you don't have to refill out the same information year after year unless the person changes. They also made it easier to provide AMA with members not listed against the DSC. Before you had to fill out a form. Now you can send an e-mail (which is easier) or fill out the form and send it in.

Update: Jim received DSC Charter and the Club's 2 flying field sanctions.

## **DSC WEB SITE:**

Update: Mike said he would be put the new VCR list in the DSC member only sections soon.

## **WEDNESDAY NIGHT GLIDER NIGHT (ELECTRICS ON A NOT TO INTERFERE BASIS):**

- Jim mentioned that he had purchased ribbons, with his own money, to use as prizes for theme nights.



- He asked if the Club would approve of giving some of the Club magazine as prizes to the winners of theme night events (example: Frog all up last down, HLG winner, 2 meter winner). Motion made accepted and approved by the Club.
- Update: Jim said to look for Frog night and Powered Cradle glider launch being the first Theme nights.
- Templates for Beech stagger wing returned by Glenn. Paul needs to pick them up.

# DSC DRAWING LIBRARY:

## BACKGROUND:

- At the last meeting, the Club approved taking the drawings out of the two Club magazines and make them available for member check out. Both Fly RC and Silent Flight International have some great drawings. Basically it would be a shame if the drawings were thrown away. Motion made, seconded, discussed and passed. Jim is making an index as he files them in a 3 ring binder. The index will be published in the member only section. It cost a lot to order drawings so this would be just another benefit of belonging to the DownEast Soaring Club
- At this meeting Jim showed the binder and several of the drawings that were in it housed in clear sleeves. He said he needed more sleeves to house all the drawing. Members approved purchase.



## UPDATE:

- Jim showed members some of the drawings that members can check out and the new sleeves they are in.

## DSC INCORPORATION:

Background: Jim brought up the subject of incorporating the Club because he received the following article from Dave Brown in the President to President AMA INSIDER.

### Benefits of Incorporation by Dave Brown, AMA President

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This would be a good time to consider the need to incorporate your club. Without incorporation, your club is typically a nonentity in terms of its legal status, and any legal problem the club encounters can result in the personal involvement of the officers and the individual members.

This varies from one state to another, but there is a lot of protection offered by going through the steps required to incorporate your club. Yes, it will require some annual paperwork and a few formalities such as having official minutes of meetings, but the protection of your individual assets is well worth the effort.

I can't give you the whole process for accomplishing incorporation, but there are a number of books available that will guide you through the process. Most clubs can qualify for one of the not-for-profit classes, but probably not the 501(c)3 status which would allow tax-deductible donations to the club. For most clubs, that isn't something which would have any practical effect.

This is one case where seeking the advice of a lawyer is effort well spent.

For many of us, our spouses think of the club we serve as "the other person" in our marriages, given the time we spend there. Why not make it legal by incorporating it?

#### The basics of non-profit incorporation:

1. acquire the proper paperwork
2. choose a name
3. file the paperwork and pay the filing fee
4. apply for tax exemptions
5. write bylaws
6. elect or appoint initial directors
7. hold a board of directors meeting
8. acquire all licenses and permits

\*This is a basic outline. Please see the regulations for your state for exact filing procedures.

source: [www.findlaw.com](http://www.findlaw.com)

There was much discussion about incorporating. Membership felt it would be a good idea. Charlie Kerr made the motion for DSC to become incorporated. It was seconded by Mike Farnsworth. Motion passed. Jim will seek guidance from DSC member Matt Dyer who is a lawyer.

Update: Jim made a motion for BAM to incorporate too. Bob Berry mentioned the BAM discussion of incorporating BAM. BAM president Paul Johnson and Jim have been working together to work through the process of incorporating. Jim has been receiving guidance from DSC

Member Matt Dyer. Special Thank You to Matt. Paul has talked to the state several times and Jim has downloaded several other AMA Club's by-laws to see what they had.

Mike Farnsworth incorporated a boating organization and said as long as you do what you said you would do in your bylaws you will be fine.

Tasks that need to be done will be listed in order that we need to do them. We need to make a list of what we have to meet so it can be discussed at an upcoming meeting.

Editor's Note: BRUNSWICK AREA MODELERS. MEETING NOTES FOR 4/4/06 said in part: Among the old business was a further discussion of the subject of incorporation. Paul had done additional exploration of the matter. The cost of incorporation is \$40 for the first year and \$35 per year thereafter. The logic of being incorporated is in the forming of a tax free organization that provides some legal protection for its members. Sandy raised a question about the possible need for a change to the clubs by-laws. The literature on incorporation mentions a board of directors as being the active agency in corporate matters. Any by-law change might provide the mechanism for electing or appointing such a body while retaining the present familiar form of organization. There will be further discussion on the incorporation subject at a later time as more information becomes available.

## NEW BUSINESS

### **DSC FREE MAGAZINE RAFFLE:**

- Several Club magazines were raffled off. Winners were Glenn Collins and Bob Berry.

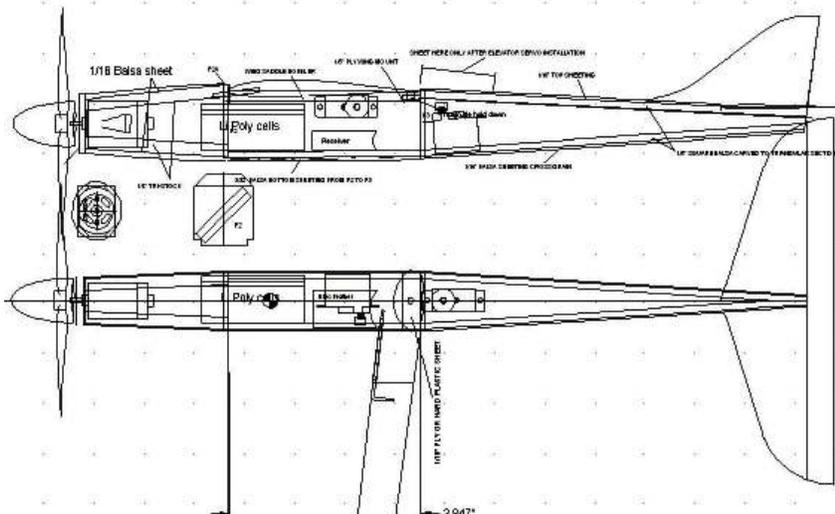


# SHOW AND OR JUST TELL

- Bob Berry told us about the 120 Volt AC to 12 Volt DC (8amp) power supplies that Paul Johnson is selling to raise money for BAM. They cost \$20 and are complete with connectors for 12 Volt output. Contact Paul Johnson if interested.



- Mark Higgins said the recent AMA magazine with the helicopter on the front has a great article on Thermal flying.
- Check out [lazerart.com](http://lazerart.com) for HLG site.
- Glenn passed out a drawing on Deceiver 250. It is a 3 channel 250 pylon racer. Might be good for Club project. He is putting one together and will let people know how it flies.



- Glenn Collins showed us some parts he cut with his homemade CNC machine. He showed us a video of it in operation on Mike Farnsworth's laptop. Real cool. His machine was changed to use timing belts rather than threaded rod because belts are faster. Easy button actually does something. It is an emergency stop button, which he got at the last DSC Christmas present exchange.



- Jim showed his "Spektrum DX6 transmitter and receiver. Comes with 4 servos. Great for park flyers as the receiver has two 4 inch receiver antennas for the 2 frequencies it uses. Transmitter is on 2.4 GHZ and because it is a spread spectrum outfit it doesn't require flyer to get a frequency pin prior to using it to fly. No chance of it shooting someone else down or being shot down.



## PRESIDENT'S CORNER (JIM ARMSTRONG):

***WEDNESDAY GLIDER/ELECTRIC FLYING NIGHT:*** Starting the first Wednesday after we turned the Clocks ahead (5 April 2006), we started flying at the Brunswick Area Modelers flying field. First Theme flying night will probably be the "Frog". Look for theme night announcements by e-mails.

Here are some picture from Wednesday night flying sessions:



Above: Fran's anti Crash plane, Dick's scratch build Stagger wing Bi-plane and Paul's Frog in the air, which is powered by a direct drive motor and it really moves.



Above: Paul's scratch built bi-plane from Model Aviation plans and Dick's Frog.



Above: Frank's Frog and Dick's EPP 3D Reflex.

### ***ELECTRIC POWER:***

Several people have asked me what is the basic power required to fly an electric model. Article at the end of this newsletter, which is worth repeating, was used by Frank Bennett and I to select a motor/gearbox for a plane he scratch built. We chose the best one from the bunch that he already had. It is a little underpowered but at least we know that from the outset. Maiden flight should be soon.

***50 INCH HLG LIMITED CLASS COMPETITION:*** Background: Talked to club member Allen Wright and he tells me that he is coming out with a new design to meet the 50 inch HLG Limited Class Competition that is gaining a lot of popularity. Sounds like a good item for Wednesday Theme night. Jim, Glenn and John have a gambler. Anyone else? In the past Allen has given Club members a little discount and no shipping cost if I pick them up for you when I'm in NH. This is an item everyone should have. Inexpensive and lots of fun. Check it out at: <http://www.wrightbrothersrc.com/>

### **Gambler-AG Announced**

We are currently working on producing our first batch of our latest refinement of our most popular kit - the Gambler DLG. The new Gambler-AG should be available for order some time in March and includes the following improvements:

- AG36 airfoils designed by Mark Drela
- Increased span to 50" to maximum allowed span for limited class competition
- Improved laser-cut wing hold down assembly
- Stiffer Avia boom
- Increased polyhedral for better turning response
- laser-cut trailing edges
- Improved rib design to allow flush D-tube and center section sheeting
- Modified rudder mounting position for straighter launches

We would like to thank Mark Drela, Oleg Golivodov, Phil Barnes and Northeast Aerodynamics for their help with most of these improvements. For those looking at a sneak peek at the Gambler-AG you may download the new instruction manual to see some of the changes. If you would like to be notified by e-mail when we are shipping the new kits you may e-mail us at [sales@wrightbrothersrc.com](mailto:sales@wrightbrothersrc.com) to be put on our waiting list.



Latest: Glenn Collins took up Allen Wright on his Club discount. He ordered a Gambler DLG at \$10 off. I will be picking up a Gambler AG for him so there will be no shipping charge. Anyone else?

**SLOPING AFTER THE 8 APRIL 2006 DSC MEETING:**



***LEFT: GLENN  
COLLINS***

***RIGHT: MIKE  
FARNSWORTH***



***LEFT: JIM'S  
PLANES***



***BOTTOM LEFT:  
GLENN'S WING AND  
MIKE'S P51.***

***BOTTOM RIGHT:  
MIKE FLYING OVER  
JIM'S HEAD.***

**Happy flying,  
Jim**



**AMA Insider March 2006: From the Albuquerque Radio Control Club, Albuquerque NM**  
**Basics of Electric Flight**  
**by Pat Tritle**

I really enjoy getting together with clubs and speaking to the group about the basics of electric power. However, because there is so much information that needs to be passed along, it would be difficult, if not impossible, for those attending to remember much of the pertinent information. For that reason, it's better to write up the basic guidelines so that those who are interested in getting into electrics would have the information available for reference at a later date.

Here goes. I'll keep the numbers as simple as possible to avoid unnecessary confusion.

OK, here's how it all shakes out. The basic power required to fly an electric model is as follows:

Direct Drive Systems	60 watts/pound
Gear Drive Systems	50 watts/pound
Mild aerobatic performance	70-80 watts/pound
For all-out aerobatics	100-110 watts/pound
3-D performance	150 watts/pound or more

The above numbers are based on models with wing loadings from 8-16 oz/square foot. As with gas models, higher wing loadings require more power since they must fly faster to support the added weight. By the same token, a lightly-loaded model with a wing loading in the 3-5 oz/square foot range will fly very well at 25 -30 watts/pound.

**What's a 'watt'; and where can I get some?**

Wattage is the term used in electric flight to relate the level of power that an electric drive system will produce. To relate it to terms we're familiar with, 746 watts = 1 horsepower. To calculate the wattage delivered by a given system looks like this: amps x volts = watts. So where do these numbers come from and how do I know how many volts and amps are needed to fly a given model?

Okay, let's say you want a mildly aerobatic sport model with a 14 oz/square foot wing loading that will weigh in at 2 pounds. We already know that the power requirement for a model like this is about 70 watts/pound, so we're going to need to generate about 140 watts. Let's assume that you are going to use an eight-cell Ni-Cd battery. At 1.2 volts per cell, eight cells will deliver 9.6 volts. To arrive at the necessary current draw to achieve 140 watts, simply divide 140 (watts) by 9.6 (volts) and you arrive at 14.58 amps.

Now, let's assume that you have a three-cell Li-Poly battery for the model, which is rated at 11.1 volts. The formula is the same; 140 (watts) divided by 11.1 (volts) = 12.6 amps. As you can see, as the available voltage increases, the lower the current draw needs to be to deliver the necessary wattage.

Now here's something to consider when selecting your system: the higher the current draw, the shorter the flight duration on any given battery. Therefore, the ideal setup would be to use a higher-voltage battery with lower current draw for maximum duration. On the downside, when using Ni-Cd and NiMH batteries, as the cell count goes up, the weight will increase significantly as well. It works that way with Lithium too, but Lithium batteries are dramatically lighter than the old "round" cells.

Okay, let's say we're going to use an 11.1 volt Li-Poly battery. All we need to do now is select a motor that will swing enough propeller at 12.6 amps to fly the model at a top speed of around 40-45 mph and we're in business. Now that you know the parameters, visit your local hobby shop and select a motor that fits that description.

**Gear Drive vs. Direct Drive: Why is one better than the other?**

Well, it all depends on the kind of performance you're looking for. If you're looking to go fast, go with direct drive. Going fast requires a high-pitch propeller turning high rpm. The formula to calculate propeller pitch speed is an easy one; it looks like this:

$$\text{rpm} \times \text{pitch (in inches)} / 1056 = \text{mph}$$

Let's say that you are turning a 7-6 propeller at 14,000 rpm.  $14,000 \times 6 = 84,000 / 1056 = 79.55 \text{ mph}$

Now, let's assume you are setting up a slow, relaxing park flyer with about a 5 oz/square foot wing loading. If we swing a 9-7 propeller at about 3,500 rpm, we'd be looking at a top speed of roughly 23 mph. To swing that much propeller with a small, light drive system, we would use a gear drive unit at a very low current draw and a small, light battery.

Again, to make a known comparison, we can relate all this to riding a 10-speed bicycle. A gear drive swinging a big propeller is like riding your bike in low gear. You pedal like mad with little effort, you don't go very fast, but you can climb steep hills with ease. The direct drive system could be compared to riding the bike in high gear. It'll really go fast, and even though you're pedaling slower, it requires considerably more effort.

What all this boils down to is "propeller disc loading." We all know what wing loading is: it's the amount of the model's weight that each square foot of wing must carry. Prop disc-loading works the same way. A large propeller will be more lightly loaded, thus delivering more torque than a smaller propeller turning high rpm. The tradeoff, of course, will be speed.

One more thing to cover and we'll give you a rest. Batteries are rated in "voltage" and "amperage." Voltage dictates the amount of power the battery will deliver. The amperage rating dictates for how long the battery will deliver that power. To relate that to glow fuel, consider the voltage as nitro content. High voltage (nitro) means more power. The amperage is related to the quantity of fuel, or simply the "size of the tank."

To figure the size of battery needed, let's go back to our 140-watt sport airplane. If we're pulling 14 amps from a 1400 mAh (1.4 amp hour) battery, we will have full power duration of five to six minutes. In the real world, with proper throttle management, you'll see flight times of approximately eight minutes. These are common flight times, even with liquid-fueled models.

To arrive at that number, divide the battery amp rating by the current draw:  $1.4 \text{ (amp hours)}/14 \text{ (amps)} = 0.1$ . Then take 60 (minutes per amp hour)  $\times 0.1 = 6$  minutes. Now, to double the duration, you must either cut the current draw in half (to 7 amps), or double the battery size (to 2800 mAh or 2.8 amp hours)—again we see tradeoffs. To reduce the current draw, we can use a larger, higher-pitch propeller turning slower with very little weight penalty. If we double the size of the battery capacity, the weight penalty is quite high unless we go over to the new Lithium batteries in which we will discover we have benefited from a tremendous weight reduction, but at a higher price than conventional batteries.

Okay, I promise I'll quit before we all end up in "system overload." Once again, there's a tremendous amount of information here for a newcomer to electrics to digest, so let's do this: if you have specific questions about setting up an electric model, please feel free to drop me a line and I'll do what I can to steer you in the right direction. For now, I'll offer up one last piece of advice. To get started, work with a known good design, and use the recommended equipment that has been proven to work. Talk to the people who are successful and copy what they're doing. The one thing I do know about modelers is that they are always willing to share their knowledge with those interested in what they are doing.

Contact Pat at [patscustommodels@aol.com](mailto:patscustommodels@aol.com)

#### DownEast Soaring Club Upcoming Events

Event	Date	Time	Location
DSC Club Business Meeting	Saturday, 6/10/2006	9am coffee/pastry, 9:30 Business meeting, 10:30 Show & Tell (Slope afterwards?).	Bookland Coffee Shop, Cooks Corner, Brunswick *See Note 1
DSC Club Business Meeting	Saturday, 7/8/2006	9am coffee/pastry, 9:30 Business meeting, 10:30 Show & Tell (Slope afterwards?).	Bookland Coffee Shop, Cooks Corner, Brunswick *See Note 1

1. Breakfast starts at 9:00 in the Bookland Conference Room. The business meeting will start at 9:30 am sharp. Show and Tell at 10:30. Members are encouraged to eat breakfast during the business portion of the meeting.