

TAILSPINNERS

Volume 53 Issue 4

February 2008

Editor: Anthony Puca



March MEETING

PLEASE NOTE!! The next meeting will be held at Ridge View Academy on March 4th, 2008 at 7:00pm.

If the gate is closed, drive to the right of the small building and press the button on the speaker box and when prompted state your name and state that you are with Mile Hi RC and are coming in for the club meeting. When you get to the main building, you will have to sign in, turn in your car keys, and get a visitors badge. They will then direct you to the meeting room. Come a little early to get through the security routine.

RIDGE VIEW ACADEMY IS A NO SMOKING FACILITY. SMOKING IS NOT ALLOWED ANYWHERE ON THE PROPERTY.

FLIGHT LOG FOR THE February MILE HI RC CLUB MEETING 7:00pm, February 5th, 2008

- 1) Meeting Called to Order and Welcome and Introduction of Guests or new Members
- 2) Quorum - Must have 12 members present, which represents 10% of voting members
 - a) 11 members present
- 3) Approve Previous Meeting's Minutes - *Anthony Puca, Secretary*
 - a) *Approved as posted*
- 4) Approve Treasurer's Report - *John Ballman, Treasurer*
 - a) \$xxxx in checking
 - b) Treasurers' report approved
- 5) Approve Investment Report - *Gary Brady, Investment Officer*
 - a) Not present
- 6) Membership Report - *Mark Johnston, Vice President*
 - a) 129 members
 - b) Non-AMA list emailed to club
 - c) We need to update AMA monthly with club roster - we are not currently doing this.
- 7) Contest/Events Committee Report
 - a) *Wings Over the Rockies - Bob Bergin*
 - i) *Only 2 members have responded to Bob for Saturday*
 - ii) *Bob sent pictures into the Aurora Hub for the Denver Post*
 - iii) *Channel 9 is doing weather from museum on Friday*
 - iv) *Sat - coffee and tea will be served at the event*
 - v) *Mark's AT-6 Texan will be used for W&B contest*
- 8) Field Maintenance Report - *Gary Brady, Field Maintenance Officer*
 - a) Gary reported that field looks good

- b) Chuck noted cracks in runways
- c) Need emails from Gary when maintenance person shifts

9) Safety Report - Marc Olson, Safety Officer

- a) Deferred to new business

10) Field Acquisition Report - George Kerr / John Neumeier

- a) Nothing new
- b) Mellissa still not responding
- c) Dave suggested contacting company that is interested in building homes out where the field is to see if they would be interested in us leaving the runways.

11) Unfinished Business

- a) *CDs for events*
 - i) *Randy Hodges is going to be CD for Combat in May*
 - ii) *George is doing Pluckrose*
 - iii) *George, John and Larry are going to be on Committee for Aeroworks/CP*
 - b) *New Historian*
- i) *Need club historian*

12) New Business

- a) *Newsletter discussion about Tim Mihalski from Delaware club*
- i) *Editor, First State RC Club*
 - b) *Guest Policy*
- i) *Updates to the "Guest Policy":*
 - (1) *"Be evaluate for flying proficiency by a club instructor" was removed*
 - (2) *Host should vouch for Guest and is responsible for their conduct verbiage on #3*
 - (3) *Verbiage about the guest policy being exempt for "Mile Hi Sanctioned Events"*
 - (4) *The hosting member will:*
 - (a) *Be allowed 2 guests per visit*
 - (b) *Allow one guest in the air at a time so that he can moderate the guests flying*
 - (5) *More than 2 guests can be allowed per prior request to the board*
 - (6) *Create a Guest Form and post in impound for members to fill out*
- ii)
 - c) *New Embroidery Contact - Monograms to go*

13) Announcements

- a) *Next Board Meeting - Thursday, February 28th - ?? home*
- b) *Next Club Meeting - Tuesday, March 4th, Ridge View Academy Library*

14) Drawings

- a) *Hobby Store Gift Certificates & Fuel:*
 - i) *Fuel* *Bill Sorrells*
 - ii) *Shirt* *George Kerr*
 - iii) *Air Scharnell* *George Kerr*
 - iv) *Colpar* *Bob Bergin*
 - v) *Carmin Lonardo's Deli & Meat Shop* *Larry Ellis*
 - vi) *Remote Control Hobbies* *Dave Teisch*

=== END OF MINUTES FOR THE February CLUB MEETING ===

FLIGHT LOG FOR THE February MILE HI RC BOARD MEETING

7:00pm, February 28th, 2008

- 1) Meeting Called to Order and Welcome and Introduction of Guests or new Members
- 2) Quorum - Must have 5 members present at board meetings and 11 at club meetings, which represents 10% of voting members
- 3) Approve Previous Meeting's Minutes - Anthony Puca, Secretary

- 4) **Approve Treasurer's Report** - *John Ballman, Treasurer*
- 5) **Approve Investment Report** - *Gary Brady, Investment Officer*
 - a) Hand out copy at meeting
- 6) **Membership Report** - *Mark Johnston, Vice President*
- 7) **Contest/Events Committee Report**
 - a) *Mile Hi Madness Combat, May 3*
 - (i) *Randy Hodges*
 - b) *RidgeView Day?*
 - c) *Pluckrose?*
 - d) *Bob Bergin - Wings over the Rockies*
- 8) **Field Maintenance Report** - *Gary Brady, Field Maintenance Officer*
 - a) *Work Day - Schedule for May*
 - (i) *N/S Runway and Pit needs TLC*
- 9) **Safety Report** - *Marc Olson, Safety Officer*
- 10) **Field Acquisition Report** - *George Kerr / John Neumeier*
- 11) **Unfinished Business**
 - a) *Wings Over the Rockies report*
 - b) *CDs for events, New Historian*
 - c) *503c (George Kerr)*
 - d) *IRS Form*
 - e) *Omeara*
- 12) **New Business**
 - a) *Port a Potty - Ballman*
 - b) *Marc Olson - Superbowl*
 - c) *Raffle license - Anthony to send data to Mark Johnston*
- 13) **Announcements**
 - a) *Next Board Meeting - Thursday, March 27th - ?? home*
 - b) *Next Club Meeting - Tuesday, April 5th, Ridge View Academy Library*
- 14) **Drawings**
 - a) *Hobby Store Gift Certificates & Fuel: Air Scharnell, Colpar, Carmine Lonardo's Deli & Meat Shop, Remote Control Hobbies*
- 15) **Program**
 - a) *Possible 2.4Ghz spread spectrum*
 - b) *Demo of simulation software*
- 16) **Meeting Adjournment**

=== END OF MINUTES FOR THE February MILE HI RC BOARD MEETING ===

Basics of Electric Flight – Notes from the August Program - Roman Fyler and Electrics Basics...

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: rpm x pitch (in inches)/1056 = mph.

Let's say that you are turning a 7-6 propeller at 14,000 rpm. $14,000 \times 6 = 84,000 / 1056 = 79.55$ 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 $60 \text{ (minutes per amp hour)} \times 0.1 = 6 \text{ minutes}$. 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.

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.

CLASSIFIED

Mile Hi R/C Official Wear - Winter Jackets

MONOGRAMS TO GO, Inc.
Ms. Sherry Brantley Stef
Custom Embroidery
364 S. Chambers Road
Aurora, CO. 80017
303-750-6112
Fax 303-750-6113
NE corner of Chambers Road & Alameda Avenue.

Hats: Summer Edition (Mesh on top for venting) Blue, Club Logo up front \$12.00 Winter Edition (full twill) Blue with Club Logo up front \$12.00
3" Patches \$5.00
All Items sold at Club Meeting!!

Editor's note

My email address for any submissions is Anthony.Puca@emc.com. If you have a new plane picture, a building tip, an item to sell, or anything else that might be of interest to your fellow club members, please let me know! Also, if you have sold any of the items or want to update any of the items currently shown in the classifieds, please let me know so I can make the appropriate changes.

These local businesses support our club through donations and discounts on material for the club. Please show your appreciation of by giving them your business.

 The logo for Air Scharnell features the name in a stylized, blue, cursive font. To the left of the text is a graphic of a propeller and a wing, suggesting aviation.	<p><i>Air Scharnell</i> 6276 East Pine Lane Parker, CO 80134 (303) 617-9777</p>
 The logo for Colpar Hobbies shows a black silhouette of a model airplane in flight, positioned in front of a stylized mountain range.	<p><i>Colpar Hobbies</i> 804 S. Havana Aurora, CO 80012 (303) 341-0414</p>
 The logo for Rocky Mountain R/C Hobbies has a blue background. It includes the text 'Rocky Mountain R/C HOBBIES' and the website 'rmrchobbies.com'. There are also small icons of a car and a plane.	<p><i>Rocky Mountain R/C Hobbies</i> 700 South Buckley Rd. Aurora, CO 80017 (303) 671-5300</p>
 The logo for Metrolink Realty features the name in a white, serif font on a dark blue background. Below the name is a small graphic of a heartbeat line and the website '.com'. The phone number '303-699-8577' is printed in white below the logo.	<p><i>Metrolink Realty</i> (303) 699-8577</p>