

TAILSPINNERS

Volume 52 Issue 6

March 2007

Editor: Anthony Puca



November MEETING

PLEASE NOTE!! The April meeting will be held at Ridge View Academy on April 3rd, 2007 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 MARCH MILE HI RC CLUB MEETING

- 1) Meeting Called to Order
 - a) 14 members present
 - b) Minutes approved as posted on website
- 2) Welcome and introduction of Guests or new Members
- 3) Quorum (Must have 14-15 members present, which represents 10% of voting members). Quorum met
- 4) Read & Approve previous meetings minutes - *Anthony Puca, Secretary*
- 5) Treasurers Report - *John Ballman, Treasurer*
 - a) 48% gain over last 21 months
 - b) Lost 3K in last two Month
- 6) Investment Report - *Jerry Warrington, Investment Officer*
- 7) Membership Report - *Mark Johnston, Vice President*
- 8) Contest/Events Committee Report
 - a) *Mile Hi Madness - May 5th*
 - (i) *Randy Hodged CD*
 - b) *Ridge View Day at Mile Hi - May 19th*
- 9) Field Maintenance Report - *Gary Brady*
 - a) Port-O-Let not cleaned out on 3/6. Driver came out, got stuck and left.
- 10) Safety Report - *Chuck Brant, Safety Officer*
 - a) Members are developing habit of not using cages due to them being snowed in.
- 11) Field Acquisition Report - *George Kerr /John Neumeier*
 - a) Slow progress being made
 - b) Waiting on ACF field to dry to survey land and mark where runway/field would be
 - c) No lease as of yet

12) Unfinished Business

- a) Club Guest Policy - *Chuck Brant*
- b) Laminated sheet going to be put up. Member must sign in guest and takes responsibility for guest.
- c) Member must validate whether Guest is AMA current

13) New Business

- a) Raffle license - Being researched and given to Board for next board meeting.

14) Announcements

- a) Board Meeting - Monday, March 26th - John Ballman's home
- b) Next Club Meeting - April 3rd, Ridge View Library

15) Drawings (Hobby Store Gift Certificates & Fuel)

- a) Air Scharnell - Dave Teisch
- b) Colpar - Jerry Warrington
- c) Remote Control Hobbies - Puca

16) Program - "Wings over the Rockies Videos" - *Bob Bergin*

17) Meeting Adjournment

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

FLIGHT LOG FOR THE MARCH MILE HI RC BOARD MEETING

1. No minutes from last month to read.
2. Treasurer - have \$xxxx.xx (including \$500 rebate from Xerox for printer)
3. Investment - John will look at online statement.
4. Membership - 131, 1 new (mailed welcome letter, patch), all AMA registered - Good job Mark!
5. Contest/Events Committee - will probably convene a nominating committee for this year's elections
6. Field Maintenance - Work day was not considered necessary
7. Safety - Getting an area made on the board for spectrum radios to put their AMA cards
8. Field Acq - Lease being worked by John/George. Will still probably have to finance the runway.
9. Unfinished - bypassed
10. New business -
 - Volunteer point system bypassed
 - 501C - Marvin Sanders went over what he had filled in for the form. He went over questions he has on several items, particularly designation
 - of income vs. expense. Looks like to file will cost \$750 since we have at least \$10000 in income over each of last 4 years. John to have an
 - attorney look at the form and see what it would cost for him to file it. Marvin & John dug through records to find articles of incorporation,
 - incorporation date, and other relevant info needed for the 501 form. Marvin needs to put budget info into table and he is working to get it into
 - a format that is consistent with the 501 form.
 - Would like to have an attorney look at lease before filing. John to check into cost.
11. - Need to engrave our inventory with a number that can be tied to a list for the 501 form
 - Marvin went over proposed Bylaws "cleanup" of grammar and formatting...to make it clearer for the 501 form. Website shows edits.

- Will try to have the May meeting at the fairgrounds to show off where the field will be and the conference room we can rent.

12. NEED PROGRAM IDEAS!

=== END OF MINUTES FOR THE MARCH 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

Prices are as follows: S-XL \$60.00; 2XL \$61.50; 3XL \$63.00; 4X\$64.50; 5XL \$66.00 Prices do not include tax.

Winter jackets have your first name and AMA number on the front and the club logo on the back. The jackets appear to run on the small size so we recommend ordering one size larger than you normally wear.

Do you have other embroidery needs, Contact Phil, He can take care of all of your customized embroidery needs.

Contact Phillip Kenney
(303)369-7044
fargophil@comcast.net

Mile Hi R/C Official Wear

- ✚ 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 Puca_Anthony@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.	<p><i>Air Scharnell</i> 6276 East Pine Lane Parker, CO 80134 (303) 617-9777</p>
 The logo for Colpar Hobbies shows a black and white line drawing 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' in white and red, with a small red car icon. Below the text is the website 'mrchobbies.com'.	<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 white graphic of a pulse line and the website 'MetrolinkRealty.com'. The phone number '303-699-8577' is printed in white at the bottom.	<p><i>Metrolink Realty</i> (303) 699-8577</p>