

TAILSPINNERS

Volume 52 Issue 10

July 2007

Editor: Anthony Puca



July MEETING

PLEASE NOTE!! The July meeting will be held at Ridge View Academy on July 10th, 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 July MILE HI RC CLUB MEETING

**Ridge View Academy Library
7:00pm, July 10, 2007**

- 1) Meeting Called to Order
 - a) John, Roman, George, Mark, John, me, Larry
- 2) Welcome and introduction of Guests or new Members
- 3) Quorum (Must have 12 members present, which represents 10% of voting members). Quorum met
- 4) Read & Approve previous meetings minutes - *Anthony Puca, Secretary*
 - a) *Approved*
- 5) Treasurers Report - *John Ballman, Treasurer*
 - a) Membership is down 1K
 - b) Expenditures are down 1K
 - c) Club is ahead of budget
- 6) Investment Report - *Jerry Warrington, Investment Officer*
 - a) 18% gain
- 7) Membership Report - *Mark Johnston, Vice President*
 - a) 139 members
- 8) Contest/Events Committee Report
 - a) Dawn Patrol - July 14th, George Kerr
 - b) August 4th, Mayhem Over Mile Hi Combat Event - John Jaugilas
 - c) August 24th, Member Appreciation Day at Mile Hi - John Neumeier
 - d) CP Of Colorado - September 15 & 16th - George Kerr & Rocco and Sandy
 - e) September 22nd, year end club banquet - John Neumeier
 - (i) Location TBD

- 9) **Field Maintenance Report - Gary Brady**
 - a) Field looks great
 - b) Be careful of a prairie dog hole between pit and straight line to pilot stations of E/W runway
- 10) **Safety Report - Chuck Brant, Safety Officer**
 - a) New board going into effect on Oct. 1 will appoint this position to someone
- 11) **Field Acquisition Report - George Kerr / John Neumeier**
 - a) Site plan
- 12) **Unfinished Business**
 - a) Filing 501c,3 update - Marvin Sanders
 - b) Raffle License- John Neumeier
- 13) **New Business**
 - a) Quincy road is closed on the 15th
 - b) Board positions are open, elections at next month's meeting
 - c) Robert posted new newsletter and photos on bard under gazebo
- 14) **Announcements**
 - a) Next Board Meeting - Monday, July 30th - George Kerr's home
 - b) Next Club Meeting - August 8th, Ice Cream Social at Ridge View Academy
- 15) **Drawings (Hobby Store Gift Certificates & Fuel - Ralph Jones (New member))**
 - a) Air Scharnell - Johnston
 - b) Colpar - Dave Teisch
 - c) Carmine Lonardo's Deli - Scharnell
 - d) Remote Control Hobbies - Ralph Jones (New member)

16) Program - Ice Cream!!!!!!!!!!!!

Meeting Adjournment

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

FLIGHT LOG FOR THE August MILE HI RC BOARD MEETING

Board Meeting - Rocco Mariani's home

Agenda for August 27th, 2007

- 1) Approve Minutes - July, 2007 board meeting
- 2) Treasurers Report - John Ballman, Treasurer
- 3) Investment Report - Jerry Warrington, Investment Officer
- 4) Membership Report - Mark Johnston, Vice President
- 5) Contest/Events Committee Report
 - a) Reunion Demo and Display, September 8th - John Neumeier
 - b) CP of Colorado, September 15th - Rocco & Sandy Mariani, George Kerr
 - c) September 22nd, Club banquet
- 6) Field Maintenance Issues
 - a) September work day at the flying field to prepare for the CP even? Need to set date.
- 7) Safety Issues
- 8) Field Acquisition Report - George Kerr, Chairman of the Board
 - a) Site plan needs to be prepared

9) Unfinished Business

- a) Assemble board manual
- b) 501c, 3 designations
- c) Raffle license

10) New Business

- a) Board nominations & election

11) Announcements

- a) Next Club Meeting - September 4th, 2007 Ridge View Academy
- b) Next Board Meeting - September 24th, John Neumeier's home (both Boards)
- c) Need drawing certificates and fuel for meeting.

=== END OF MINUTES FOR THE August 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: $\text{rpm} \times \text{pitch (in inches)} / 1056 = \text{mph}$.

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 $60 \text{ (minutes per amp hour)} \times 0.1 = 6 \text{ minutes}$. 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.

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