

TAILSPINNERS

Volume 53 Issue 3

January 2008

Editor: Anthony Puca



February MEETING

PLEASE NOTE!! The next meeting will be held at Ridge View Academy on February 5th, 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 January MILE HI RC CLUB MEETING

7:00pm, January 8th, 2008

Officers: Gary Brady (Field Maintenance), Mark Johnston (VP), Larry Ellis (P), Anthony Puca, Dan Reed (Board Member), Mark Olson (Safety Officer), Doug Kiel (Board Member)

- 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
- 3) Approve Previous Meeting's Minutes - *Anthony Puca, Secretary*
 - a) *Larry read last month's notes*
- 4) Approve Treasurer's Report - *John Ballman, Treasurer*
 - a) President added to Checking account
 - b) Not been able to give treasurer's report for 3 months
 - c) No report to approve
- 5) Approve Investment Report - *Gary Brady, Investment Officer*
 - a) December balance \$xK
 - b) Lost 1%
 - c) Money Market \$xK
 - d) Treasury Bonds: \$xK
- 6) Membership Report - *Mark Johnston, Vice President*
 - a) No changes since Dec
 - b) 128 members
 - c) 111 voting members
- 7) Contest/Events Committee Report
 - a) *Wings Over the Rockies - Bob Bergin*
 - b) *Mark Johnston volunteered to do the W&B plane raffle for museum membership*
- 8) Field Maintenance Report - *Gary Brady, Field Maintenance Officer*
 - a) Status quo
 - b) Talked about Snow fence on N side of pit

9) **Safety Report** - *Marc Olson, Safety Officer*

- a) Several guys flying helis together in the pits
- b) Need to put emergency instructions out at field in clear display

10) **Field Acquisition Report** - *George Kerr / John Neumeier*

- a) Get notes from John N.

11) **Unfinished Business**

- a) *Polar Fly wrapup*
 - (i) *Marvin won the cylinder lamp and says, "It was rigged!"*

12) **Announcements**

- a) *Next Board Meeting - Monday, January 28th - ?? home*
- b) *Next Club Meeting - Tuesday, February 5th, Ridge View Academy Library*

13) **Drawings**

- a) *Hobby Store Gift Certificates & Fuel: Air Scharnell, Colpar, Carmine Lonardo's Deli & Meat Shop, Remote Control Hobbies*
Fuel: Doug Keel
Scharnell: Ellis
RC Hobbies: Dan Reed
Colpar: Bergin
Carmines: Jerry

14) **Program**

- a) TBD

15) **Meeting Adjournment**

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

FLIGHT LOG FOR THE January MILE HI RC BOARD MEETING

Board meeting 1/31/2008

- Meeting Starts 6:22 p.m.
- 6 Board Members Present: Larry Ellis, Mark Johnston, Doug Kiel, Mark Olsen, Gary Brady, and Roman Fyler
- Safety Issue: Brought up by a few members. Several guests were present at the field. Asked about AMA and brought up the guest policy, but there wasn't much clarity.
- Mark Johnston saw guests flying on the near edge of the n/s runway while others are prepping to fly on the e/w runway. Business cards were in the Spectrum area in the impound instead of AMA cards. Mark approached him and asked if he was flying Spectrum and whether they were AMA. They gave excuses and said they were guests. An argument ensued and there was inappropriate language used in front of children at the field. Mark angrily told him to leave. Guests were with Robert Reagle. They left without further incident. Several board members were present and saw security incidents.
- Mark discussed the incident briefly with Robert about the guests not being AMA members.
- Proposed that Larry will make some changes to the By-Laws for clarification on the Guest Policy. We'll take a vote at the meeting and send out a mailer for a proposed By-Laws change. Larry will call Robert Reagle very tactfully and make sure our policies are very clear.
- Treasurer's Report: Ballman not at the meeting. Larry will talk to him about getting it to Larry before meetings he can't attend. We still need a status on Port-O-Potty service/replacement. It's still being serviced by the old company.

- Events: Need CD's. Larry will bring it up at the meeting. Mark recommended sending out an e-mail and Larry will follow-through with that.
- Mark will do "Guess the weight" @ the Wings Over the Rockies event.
- Snowblowing was \$367. We need to discuss that at the next meeting.
- Points system. People were discussing the changes to the points system, especially as it pertains to attending club meetings.
- Transition committee: Need to clarify and move forward and really set up a project plan with defined tasks with timelines defined. We need to discuss this further. Either we get a contract or we don't, but we need to get some progress made on this.
- Safety Kits: Mark says they are in the small container. Emergency instructions are typed up and GPS coordinates of the field are listed. Apparently there is a fire rescue district issue for our field, and there are many jurisdictions that have a strange schedule for response. We need to simply call 911 in any instance. The best way to tell them where we are is "the driveway Next to Ridgeview".
- Anthony needs to update the club flyer and we need to distribute it to hobby shops ASAP. (I'll do half!)
- 7:13 - Meeting Adjourned

=== END OF MINUTES FOR THE January 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 (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.

	<p> <i>Air Scharnell</i> 6276 East Pine Lane Parker, CO 80134 (303) 617-9777 </p>
	<p> <i>Colpar Hobbies</i> 804 S. Havana Aurora, CO 80012 (303) 341-0414 </p>
	<p> <i>Rocky Mountain R/C Hobbies</i> 700 South Buckley Rd. Aurora, CO 80017 (303) 671-5300 </p>
 <p> 303-699-8577 </p>	<p> <i>Metrolink Realty</i> (303) 699-8577 </p>