

TAILSPINNERS

Volume 53 Issue 2

December 2007

Editor: Anthony Puca



January MEETING

PLEASE NOTE!! The next meeting will be held at Ridge View Academy on January 8th, 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 December MILE HI RC CLUB MEETING

December 4th 2007

- Gary Brady - Investment Report - Balance \$x Down 1.8%
 - Converted \$x into 30-year treasury bonds (41.5% of total)
- Membership - 128 members (111 voting) 20 new members this year alone. 5 Since renewal (3 junior).
- Contests - Polar Fly flyer went out
 - Wings Over Rockies - sign up sheet going around, 15 signed up so far. Flyer is ready and being handed out. We still need an idea for a drawing.
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- CP Event (second weekend in Sept.) - Sandy wants to start a committee and John has volunteered. Volunteers welcome. Monthly meetings have been suggested. John Neumeier brought up the Dawn Patrol event and that we won't be holding that anymore (possibly replacing with a fun fly).
- Maintenance Report - Put the plow on the mower (Gary will fix flat tire). Battery may be dead and need replacement. Oil has been changed and it should be ready to go. Gary fixed the hood as well. Otherwise field is in good shape. We still need to figure out the container security issue. George mentioned that he knows someone (Jimmy?) that can fabricate a better bracket for the TriMax lock. The board has discussed paying for services rather than paying the \$\$ for new equipment. We also need to do a better job of documenting and marking our equipment (serial numbers, etc.).
- Safety Report (Marc Olson not present) - We need to put up a clear sign for emergency services.
- Next board meeting needs to be worked out since it's on the 2nd.
- Field Acquisition and Transition OPEN TO DISCUSSION - If club members don't hear it from John N. or George K., it's NOT VALID INFORMATION and should not be spread as rumor.
- Many pieces of land have been investigated, much work has been done, and no other suggestions have been brought to the board OR club meetings. Reminder that board meetings are open to all members if they have concerns that need to be brought to the club's attention.

- It would be foolish of the club to assume that we're going to find a piece of land and be there for any specific (especially long-term) period of time. The club ideally needs to own its own land, and we need to continue the search regardless of where the club may be moving to in the near future.
- The Superfund site is on the corner of Gun Club and Quincy. John called all phone numbers available for them. John called the EPA's national number as well to find land that has been cleaned up appropriately for potential club use. SuperFund is on the corner, then there's Dad's Landfill, as well as a gravel pit. They have land that has nothing to do with the SuperFund site that they're going to develop public use of. It is approx. 4 sq. miles. George sent them a formal proposal, and it's available for whomever may need it if they know of any leads on land. John received a msg. last week from the gentleman that is responsible for the determining committee on that 4 sq. mi. There have been NO commitments and they're still deciding what to do with that land. We are in the loop, at the very least. We need to continue searching for permanent sites and we do not want to put all of our eggs in one basket. John spoke with Melissa with the State land board several weeks ago about the land on Rd. 129 and Quincy where there is 160 acres of state land available. John submitted a proposal to lease some of that land over a year ago and there's no urgency with the State and we've heard nothing back. John is going to contact the gentleman in charge of leasing state land for profit.
- We need to find a farmer or land owner and get word out. Hopefully someone knows someone, and we need to get the word out to EVERYONE that we need a new field. In October John and George met with Arapahoe County and have a proposed lease. Lease is \$2,500 but has NOT been negotiated yet. We gave them the detailed site plan from what the board members met and agreed upon. The agreed upon site was too close for us because the land is commonly used and would need to be cleared out very frequently for events at the Fairgrounds. They want us out there very much and want to find a way to make it work. Last week John set up another meeting at the fairgrounds and met with Jim. At the fair they have a tractor pull track that runs east/west north of the carnival area where we had proposed earlier. We do not want to fly over the carnival area. Further north is a flat parking lot that we could have an east/west runway on. John and George will make SURE we don't have to fly over anything dangerous or hazardous. We all want to make this work and work RIGHT for the club. There is another area east and south of the fairgrounds that show some potential. That area will be "permanent" and we wouldn't have to shut down for Fairgrounds events. A surveyor will be out and will locate the boundaries of that land for us. Marvin was concerned over fly-over areas, and we'll make those determinations once the boundaries have been defined. Fairgrounds personnel want to move quickly.
- We're getting short on time and need to make a decision and get the ball rolling soon. Efforts need to be shifted somewhat from finding land to making things work with the offers we have. Again, the folks at Arapahoe County really want to make this work and with a sense of urgency. Bob Bergin mentioned that we need to explain to them that we want a permanent site and self-sufficient. George and John have always said that we want to be in as permanent of a location as possible. Arapahoe has said all along that they'll mow, grade, etc. to help us if we need to move at a later date or something doesn't work out with the initial location. We are planning on keeping everything as mobile as possible regardless.
- Security was brought up. We will have security issues just about anywhere we go if we don't have guarded land. This is obvious and inevitable. Arapahoe County land would be more secure, obviously, but it may not be the best place to fly from.
- We need to find the manufacturer for runway material (petro-mat?). If someone wants to volunteer some time to look into that, sooner would be better than later. Keep in mind also that we took a poll on how much money we could raise in a hurry "worst-case-scenario" and that number was pretty high.
- All structures, fences, etc. will be portable, mobile, and we've discussed many systems in great detail for safety fencing, shade, etc.
- Chuck mentioned that the State already has a remediation committee for our current site. We need to get specific numbers on what it takes to clear out our current land. This committee may be able to define requirements for what we need to do to return our land to the required state. We may need soil tests, re-seeding with native vegetation, etc. John reminded us that we have someone that will take the runway material for us since it's valuable as a recyclable material, so that will be taken care of at the very least. It was brought up that we need to hire a contractor to determine how to return the land to "state requirements". We can't currently define those requirements, but we may be able to find a contractor to

give us that information.

- The board will get together and try to determine all the details, costs, etc. as an action item. Since we're getting short on time, we need to work on this. The board will try to gather some specifics.
- It was brought up that the lease amount on the new land at the Fairgrounds may not be fair since we're staying mobile and the land may be used for other purposes. This gives us negotiating leeway. John also mentioned that we could potentially propose that they can provide vendors at our events. There are a few different areas of negotiating leeway that we have, and John/George will keep that in their hip pocket.
- It has been mentioned many times that we have given out contact information left and right, so if there are complainers, they have a way of voicing those concerns.
- Drawings:
 - Fuel: George Kerr
 - Scharnell: Jim Redmond
 - R/C Hobbies: Dan Reed
 - Colpar: Chuck Brant
 - Carmine's: Marvin Sanders
- 9:07 Meeting Adjourned

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

FLIGHT LOG FOR THE December MILE HI RC BOARD MEETING

January 8, 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)
- Need Historian
- Need to categorize video and pics on USB drives
- Need to find out status on port-o-potty
- Update club flyer with new officers
- Get more flyers to each RC store
- Talk to Gabe about contract
 - Want to sign
- Need list of CDs for submittal to AMA
- Wings over the Rockies is coming up
- Question about # of Guests at 1X
- Guys flying Helis in the Pits
- Talk to Bill Bailey at Colpar about filling out app for Mile Hi

=== END OF MINUTES FOR THE December 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 (minutes per amp hour) x 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.

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 winged figure, possibly representing an aircraft or a hobbyist.	<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 graphic of a car and a plane. Below the text is the website 'rmrchobbies.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 graphic of a pulse 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>