

TAILSPINNERS

Volume 51 Issue 12

September 2006

Editor: Anthony Puca



June MEETING

PLEASE NOTE!! The August meeting will be held at Ridge View Academy on October 3, 2006 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 September 25th MILE HI RC BOARD MEETING

Present: John N, Roman, Anthony, Larry, Chuck, Rocco, George, John B.

- 1) Approve Minutes - August 28th, 2006 Board Meeting
- 2) Treasurers Report - John Ballman, Treasurer
 - A) Got lost again!
 - B) Kept rambling about a Nema3R mailbox
 - C) John went through the fiscal budget for 2005-2006 & 2006-2007
 - D) Heavy Duty Tents
 - E) Quickbooks
- 3) Investment Report - Jerry Warrington, Investment Officer - Not Present
- 4) Membership Report - Chuck Brant, Vice President - resigned
 - A) DB talk - changes needed
 - B) Look into hosting - contact Erik Porter
 - C) To waive repaying field improvement fee
 - D) Board placing order for 100 club patches
 - E) Board ordering 10 hats
- 5) Contest/Events Committee Report
 - A) Larry Ellis - Event Coordinator for Polar Fly
 - B) Warbirds over the Rockies - possible host in June 2007
 - i. Costs - what is the budget?
 - ii. Calendar - where would it fit?
 - C) CP of Colorado summary by Rocco
 - i. \$x cash donations
- 6) Field Maintenance Issues
 - A) Gary Brady has taken over
 - B) Not repairing wind damage to grill area
 - C) No call from state (Mellissa)
 - D) Container - 1 may go if Arapahoe says no to taking containers

- E) Putting heater in budget for container
- 7) **Safety Report** - Chuck Brant, Vice President & Safety Officer
 - A) Mid field take off's
 - B) Communicate intentions between pilots
- 8) **Field Acquisition Report** - George Kerr, Chairman of the Board
- 9) **Unfinished Business**
 - A) *Audit of Club Books*
 - B) *Email Problems*
 - C) *Renewals - stickers*
 - D) *Aeroworks CP Event*
- 10) **New Business**
 - A) *Grant Application 2007*
 - B) *Preliminary Budget 2007*
 - C) *Field Lease*
 - D) *Intro. New Officers*
 - E) *George talked to CAP at Air Park*
 - F) *George was given a bunch of planes as a donation to the club*
- 11) **Announcements**
 - A) *Next Club Meeting - October 3, 2006,*
 - B) *Next Board Meeting - October 30th, ?*
 - C) *Need drawing certificates and fuel for meeting.*
 - D) *Chuck Brant resigned from VP role - Will transition membership responsibilities to Mark Johnston.*
- 12) **October Program** - Adam Bryant *"Safety during building"*
- 13) **Meeting Adjournment**

=== END OF MINUTES FOR THE September 25th MILE HI RC BOARD MEETING ===

=== MINUTES FOR THE September 5th MILE HI RC CLUB MEETING ===

- 1) Meeting Call to Order
- 2) Welcome
 - A) Introduction New Members and Guests
- 3) Quorum (Must have 14-15 members present, which represents 10% of voting members).
- 4) **Read & Approve Previous Meetings Minutes** - *Anthony Puca, Secretary*
 - Read minutes from last month's meeting
- 5) **Treasurers Report** - John Ballman, Treasurer
 - \$x.x in account
 - \$x biggest expenditure for Arapahoe County Fair flyers
 - Paid for club trainer
 - Paid AeroWorks for drawing aircraft
- 6) **Investment Report** - Jerry Warrington, Investment Officer - NP
- 7) **Membership Report** - Chuck Brant, Vice President
 - 162 members, of which 140 are voting
 - Renewals are current going
 - Dues are staying the same
 - Members will be responsible to keep their own data up to date

8) Contest/Events Committee Report

A) Year End Banquet, September 23rd - John Neumeier

- Steak, shrimp, desert, etc...
- \$20, club pays for 50% of the member
- Guest is full price
- Must RSVP by 9/13/06

B) CP of Colorado, September 9th - Rocco and Sandy Mariani

- Food donated by RidgeView
- Lots of kids and adults signed up for buddy box system
- VOLUNTEERS NEEDED!!!
- SAMs club will be there

9) Field Maintenance Report - John Neumeier

- Grass is mowed, weeds sprayed
- Port-O-Let has been \$60 per month and is a weekly service fee, the Port-O-Let has been emptied as an "As Needed" level. Alternative vendors are being looked at.
- Parking - 3-4 people will be required
- AeroWorks will be donating \$500 plane
- All Mile Hi RC proceeds go to CP of CO
- Club guarantees a match of AeroWorks donation
- Gary Brady taking over Field Maintenance from Denny. Denny setup a great system where he managed field maintenance for 2 years.

10) Safety Report - Chuck Brant, Vice President & Safety Officer

- Frequency Checker will be left at field in box at radio impound
- Channel 27 has been consistently showing hits on frequency scanner
- First Aid Kit has to be replaced due to accident last weekend where it was used, extensively
- Do not call 911 for cuts/minor injuries; take individual to ER asap
- Club will post simple map to nearest ER, Paramedic station and phone numbers

11) New Flying Field Update - George Kerr/John Neumeier

- Little Activity since Fair
- Dates being exchange to go over plans for field
- We have current field until next October
- Dates to come out of Arapahoe County Fairgrounds will be given to Transition Committee

12) Unfinished Business

- a. Questions about 503c status application; we are awaiting review from IRS
- b. Elections for 2007 officers
 - i. Officers stay the same
 - ii. 3 Open Board positions:
 1. Rocco Mariani
 2. Larry Ellis
 3. Roman Fyler

13) New Business

A) 2007 Club Budget

- Submitted to cub next month for review and approval

B) 2007 Club and AMA Renewals

- Gate code changing 11/1/2006
- AMA Memberships should be getting turned in for renewal

C) Swap Meets - Will discuss options oat next board meeting

D) Email - Comcast issue affecting email going out to members

E) Polar Fly - Need organizer

F) Roy and Dave volunteered to audit books in October

G) Dave Tisch volunteered for Denver Aero Modelers Council

14) Announcements

- A) Board Meeting - Monday, September 25th, John Neumeier's home
- B) Next Club meeting on October 3rd, at Ridge View Academy
- C) Adam Bryant and Randy Ecker will not be returning next year as board members

15) Drawings (Gift Certificates/Fuel)

- A) Air Scharnell - Dave Karnell
- B) Colpar - Bill Robinson
- D) Rocky Mountain - Ralph
- E) Fuel Drawing - Denny

16) Program - Pluckrose Video, Robert Dyess

1) 17) Meeting Adjournment

=== END OF MINUTES FOR THE September 5th MILE HI RC CLUB 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.

 The logo for Air Scharnell features the name "Air Scharnell" 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, with a small graphic of a propeller and a wing. Below the text is the website "mrchobbies.com".	<p><i>Rocky Mountain R/C Hobbies</i> 5435 Boatworks Drive Littleton, CO 80123 (303) 804-0470</p>