# The Flightline

Volume 33,Issue 3 Newsletter of the Propstoppers RC Club AMA 1042 March 2003

### *Editorial: Club Happenings*

Being out of touch with the recent club activities I can't add much to the reported discussions from the February meeting minutes, however, it seems that the issue of Sleighton Field improvements is urgent. We must make our decisions by the next meeting if we are to accomplish them in time for the surface to fill-in and mature by flying time.

As I understand the debate, it is; should we just fix what we have and make it as good as we can with minimum expenditure or should we change the runway and shelter location and grade and seed a new surface.

Seems to me that if we make the change we are in for a good deal of work that must be started right now. Then we will still be subject to the grace of the Gods in terms of the weather to allow new seed to germinate and grow into a satisfactory surface.

On the other hand, it would seem that the current field is unpopular with the membership. Last year the turnout was very low. I believe that this factor is significant because the flying activity among the bulk of the club membership is what we are all about. It is the essential glue that binds the club into a viable entity. If I am right about this, then we should make every effort to fix the field right now.

In making these decisions we should consider that although we believe that Sleighton will be available to us for the current year our lease might continue into next year if the necessary permits for site development are delayed, as they frequently are. We should also consider the wholesale lack of support, Saint Chris Catania excepted, in working to acquire another field. Maybe we should squeeze the most out of this one.

The trip to the Central Penn Flea Market is one of our club's most popular events. I will assume that we will follow the same practice as in prior years where we assemble in the Granite Run parking lot adjacent to McDonald's then car pool. Meet at 7:00 sharp if you want to be included. A stop at a fine Pennsylvania Dutch diner for breakfast is on the schedule followed by hours of sifting through other people's junk! Well, to be fair, there are a number of commercial vendors selling all kinds of model supplies too.

***Dave Harding***

### *Agenda for March 4th Meeting at Marple Library 7:30 pm*

- Approval of February meeting minutes
- Finance report
- Membership report
- Field search report
- New business
- Field workday plans
- Central Penn Flea Market plans
- Club Picnic
- Electric Fun Fly

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## Calendar of Events

### Club Meetings

**Regular meeting 7:30 pm**
**Tuesday 4th March**
**At Marple Newtown Library**

### Flying Events

**Indoor flying at Tinicum School**
**7 till 9 pm**
**Friday March 7, 2003**

**Interboro Indoor Flight Demonstration**
**Re-schedule TBA. Will be announced on the Propstoppers List Serve.**

**Lebanon Flea Market, 8th March**

### Regular Club Flying

**At Moore and Sleighton Fields**

| | |
|---|---|
| **Daily** | **10 am til Dusk** |
| **Saturday** | **10 am til Dusk** |
| **Sunday** | **12 p.m. till Dusk** |


### Propstoppers RC Club of Delaware County, Pennsylvania. Club Officers

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**Propstopper's Web Site; www.propstoppers.org**
**Check the web site for back issues of the newsletter, pictures of club events and the calendar of future events.**
**Pictures courtesy of Bob Kuhn and Dave Harding**



## *The President's Message*

Dear fellow Propstoppers:

I would like to thank Al Tamburro and Mike Black for the running of the annual club auction. Great job guys. The auction is the first of many club activities this year.

I would like everyone to think about helping out with our future functions.

Field clean up days will be next on the list, followed by the club picnic (usually in June), the electric fun fly (usually in August). Please consider lending a helping hand with these functions.

Everyone has something to contribute. Our club depends on our members and it would help make things more interesting if people with fresh ideas organize our up coming events.

Please bring your calendar, so we can start setting dates and planning for the up coming flying season. Don't be shy, speak up and volunteer to help organize a club function!

***John Zebuski***

## *Minutes of the Propstoppers MAC. February 4th, 2003 at the Marple library*

The meeting was called to order at 7:30 p.m. by Vice-president Dick Seiwell, President John Zebuski presiding.

The roll call by Ray Wopatek showed 24 members present.

The treasurer's report was read by Al Gurewicz and accepted by the membership.

### Old Business

**Possible New Field;** The president stated that the possible field located in Gradyville is being pursued. He said though, that there's been difficulty contacting the owner.

**Sleighton Field**; Chris Catania explained the lock box system that will be used at the Sleighton field. The lock box is a system used by real estate people to provide access to a key via a code. The lock box will be accessible to all members of the Propstoppers club. It will contain the key that can be used to open the main gate.

Chris suggested that the gate be closed and locked after we enter. To get the code you must call one of the officers listed on the panel to the left of this page.

There was a discussion of whether or how to relocate the runway at Sleighton field. Several viewpoints were stated but no conclusion was reached.

### New Business

Central Penn Aeromodelers is holding their annual swap meet on March 8th at the Lebanon Fair grounds. This has been a popular event in the past for membership. Jess Davis noted that members usually meet for car-pooling to travel to the meet.

Adjournment of the business meeting took place at 7:30 p.m. this was followed by the annual club auction where Al Tamburro used his skills to sell several kits, ARFs, fully built models and supplies to the benefit of the club.

***Richard Bartkowski – Secretary***

## *Facts About Balsa*

Model airplanes are no different from any other type of flying machine, large or small. The lighter it is built, the better it will fly! With that in mind, it is easy to understand why balsa wood has been the standard material for model airplane construction since it first became readily available in the US in the late 1920s. Its outstanding strength-to-weight ratio enables hobbyists to construct durable models that fly in totally realistic manner. Balsa also absorbs shock and vibration well and can be easily cut, shaped, and glued with simple hand tools.

Where does balsa wood come from? Balsa trees grow naturally in the humid rain forests of Central and South America. Its natural range extends south from Guatemala, through Central America, to the north and west coast of South America as far as Bolivia, however, the small country of Ecuador on the western coast of South America is the primary source of model aircraft grade balsa in the world.

Balsa needs a warm climate with plenty of rainfall and good drainage. For that reason, the best stands of balsa usually appear on the high ground between tropical rivers. Ecuador has the ideal geography and climate for growing balsa trees. The scientific name for balsa wood is *ochroma lagopus*. The word balsa itself is Spanish meaning raft, in reference to its excellent flotation qualities. In Ecuador it is known as *Boya*, meaning buoy.

How does balsa wood grow? There is no such thing as entire forests of balsa trees. They grow singularly or in very small, widely scattered groups in the jungle. For hundreds of years, balsa was actually considered a weed tree. They reproduce by growing hundreds of long seedpods, which eventually open up and, with the help of the wind, scatter thousands of new seeds over a large area of the jungle. Each seed is airborne on its own small wisp of down, similar to the way dandelion seeds spread. The seeds eventually fall to the ground and are covered by the litter of the jungle. There they lay and accumulate until one day there is an opening in the jungle canopy large enough for the sun's rays to strike the jungle floor and start the seeds growing. Wherever there is an opening, made either by a farmer or by another tree dying, balsa will spring up as thick as grass. A farmer is often hard put to keep his food plot clear of balsa. As the new balsa trees grow, the strongest will dominate and the weaker trees will die. By the time they mature, there may be only one or two balsa trees to an acre of jungle.

How long does it take a balsa tree to grow? Balsa trees grow very rapidly (like all pesky trees). Six months after germination, the tree is about 1 1/2 inches in diameter and 10 to 12 feet tall! In 6 to 10 years, the tree is ready for cutting, having reached a height of 60 to 90 feet tall and a diameter of 12 to 45 inches. If left to continue growing, the new wood grown on the outside layers becomes very hard and the tree begins to rot in the center. Un-harvested, a balsa tree may grow to a diameter of six feet or more, but very little usable lumber can be obtained from a tree of this size. The balsa leaf is similar in shape to a grape leaf, only a lot bigger. When the tree is young, these leaves measure as much as four feet across. They become progressively smaller as the tree grows older, until they are about 8 to 10 inches across. Balsa is one of the few trees in the jungle that has a simple leaf shape. This fact alone makes the balsa tree stand out in the jungle.

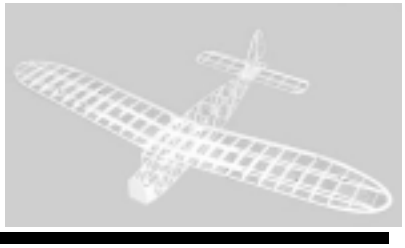
How are balsa trees harvested? While nature intended the balsa tree to be a short-lived nursemaid, humans eventually discovered that it was an extremely useful resource. The real start of the balsa business was during WW I, when the allies were in need of a plentiful substitute for cork. The only drawback to using balsa was, and still is, the backbreaking work that is necessary to get it out of the jungle. Because of the way the individual balsa trees are scattered throughout the jungles, it has never been possible to use mass production logging procedures and equipment. The best way to log balsa trees is to go back to the methods of Paul Bunyan—chop them down with an axe, haul them to the nearest river by ox team, tie them together into rafts, and then float the raft of balsa logs down the river to the saw mill. The logging team usually consists of two native Ecuadorians, each armed with a broad Spanish axe, a machete, and a long pole sharpened like a chisel on one end for removing the bark from the downed trees. Because of the hilly terrain, an ox team may only be able to drag two logs to the river per day. At the sawmill, the balsa is first rough cut into large boards, then carefully kiln dried, and finally packed into bales for shipment to the US via ocean freighter.

Why is balsa wood so light? The secret to balsa wood's lightness can only be seen with a microscope. The cells are big and very thinned walled, so that the ratio of solid matter to open space is as small as possible. Most woods have gobs of heavy, plastic-like cement, called lignin, holding the cells together. In balsa, lignin is at a minimum. Only about 40% of the volume of a piece of balsa is solid substance. To give a balsa tree the strength it needs to stand in the jungle, nature pumps each balsa cell full of water until they become rigid—like a car tire full of air. Green balsa wood typically contains five times as much water by weight as it has actual wood substance, compared to most hardwoods that contain very little water in relation to wood substance. Green balsa wood must therefore be carefully kiln dried to remove most of the water before it can be sold. Kiln drying is a tedious two-week process that carefully removes the excess water until the moisture content is only 6%.

How light is kiln-dried balsa wood? Finished balsa wood, often found in model airplane kits, varies widely in weight. Balsa is occasionally found weighing as little as four pounds per cubic foot. On the other hand, you can also find balsa that can weigh 24 pounds or more per cubic foot. However, the general run of commercial balsa for model airplanes will weigh between 6 to 18 pounds per cubic foot. 8- to 12-pound balsa is considered medium or average weight, and is the most plentiful. Six pounds or less is considered "contest grade," which is very rare and sometimes even impossible to obtain.

Is balsa the lightest wood in the world? No! Most people are surprised to hear that botanically, balsa wood is only about the third or fourth lightest wood in the world. However, all the woods that are lighter than balsa are terribly weak and unsuitable for any practical use. The very lightest varieties don't really resemble wood at all, as we commonly think of it, but are more like a tree-like vegetable that grows in rings, similar in texture to an onion. It is not until balsa that there is any sign of real strength combined with lightness. In fact, balsa wood is often considered the strongest wood for its weight in the world. Pound for pound it is stronger in some respects than pine, hickory, or even oak.

From; RC Propwash
Ocala Flying Model Club
Dick Smith, editor
Ocala FL



*Old Gold*

***By Al Tamburro***

# The Flying Aces "Moth"

***Articles of the past from Al's collection.***

Outdoor cabin ships seem possessed of a certain popularity that entices even the most indifferent model builder to at least try building one of its type. This month's presentation is by no means a "glamour girl" for looks, but we'll guarantee that if you'll build her, and she can be made in a jiffy, too, she'll turn in a flying performance that'll dispel such indifference once and for all.

The only way to become an outdoor flying model fan is to have a model that consistently turns in good flights and gives you an even chance of winning in any rubber flying model contest. The Flying Aces "Moth"' is such a ship *(Editor's Note: Thousands of model builders have built it, flown it, and won – they know!)*

## Fuselage Construction

The fuselage is constructed of $^1/_{16}$" sq, medium-hard balsa, excepting the longerons and such members as are marked otherwise on the plan. These are 3/32" sq. medium balsa. Make sure that the longerons all have the same degree of hardness or the body won't be straight. Build both sides and don't use too much glue - just enough to keep the members together. When the sides are made, glue in the top members. Be sure to get these straight. Cut formers 1-4 from $^1/_{16}$" sheet balsa and affix in their respective places. Cement the $^1/_{16}$" sq, stringers in place and put in the two windshield pieces. Next, take a block of $^1/_2$" by $1^1/_4$" by $1^1/_4$" balsa and cut it down to fit the nose. Run a piece of $^1/_{16}$" O.D. aluminum tubing through it and cement. The rear motor mount pieces of $^1/_{16}$" by $^3/_{16}$" are glued into place as in the plan. The cross piece of $^1/_{16}$" by $^1/_8$" is cut to fit in the notches between the mount pieces. The rear hook of .028 music wire is looped around the crosspiece and cemented into place between the mount pieces. Before attempting to cover the body, go over the entire fuselage frame and remove all the bumps and particles of dried-up cement.

## Tail and Landing Gear

Rudder parts are made of 1/16 sq. balsa. The stabilizer is built from the drawings. The rib shape is obtained by sanding the ribs down from the spar as shown. The landing gear is bent from .034 music wire, the front struts are $4^1/_2$" long. The axle is bent on the front struts. The latter are bound to the body at station 3 and cemented. The rear struts can now be formed. The angle the front struts should have can be obtained by checking with the plans. The rear struts can now be measured from station 4 to the axles then bound and glued in-place. Use a pair of $1^3/_8$" diameter wheels.

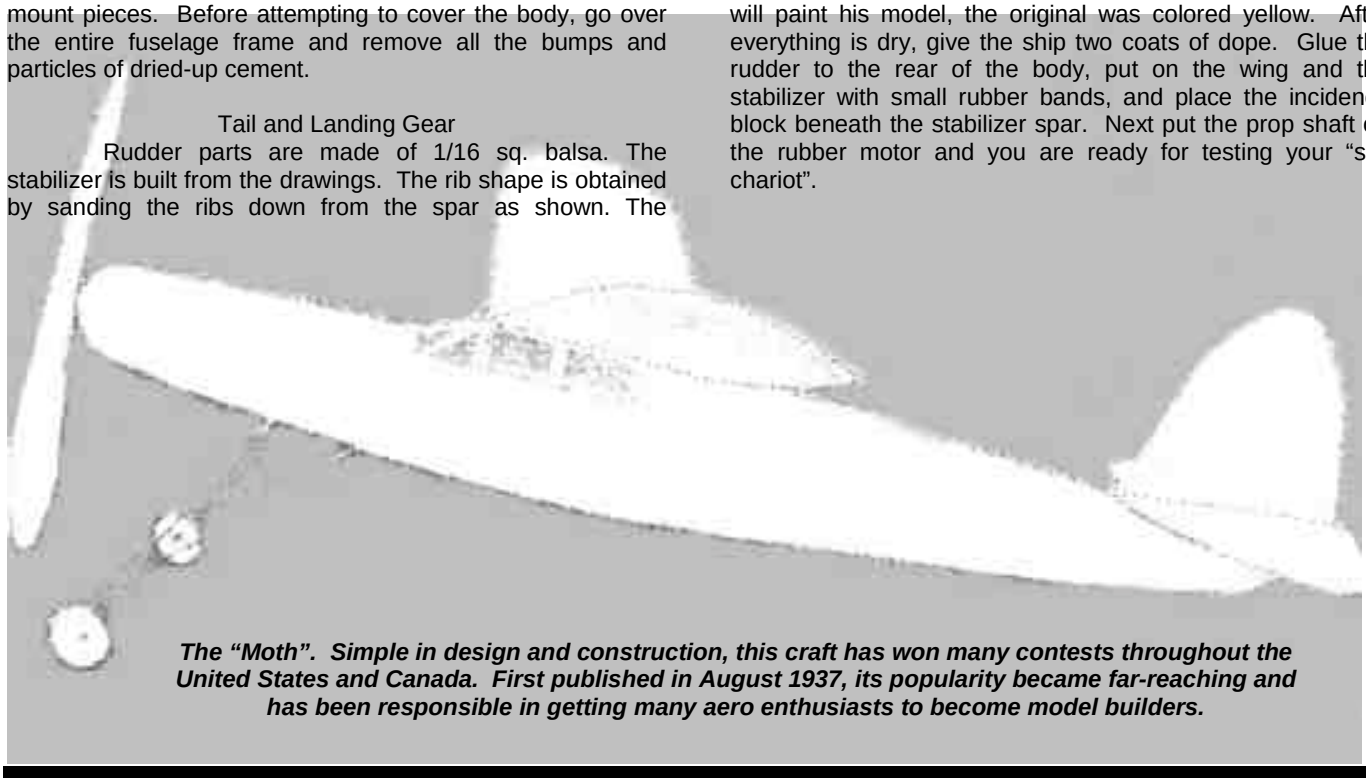
## Motor and Wings

Carve the prop from a block of balsa measuring ¾" by $1^1/_8$" by $8^1/_2$". Cut away the shaded portions on the plan and carve very carefully. Sandpaper the prop as smooth as possible. A free wheeling device should be used for maximum efficiency, the builder choosing one of his own likings. *(Now there is a lost skill [Ed.]).* The prop shaft is bent from .028 music wire and slipped through the nose block after several washers have been slipped on. For power use 4 – 6 strands of 1/8 flat rubber.

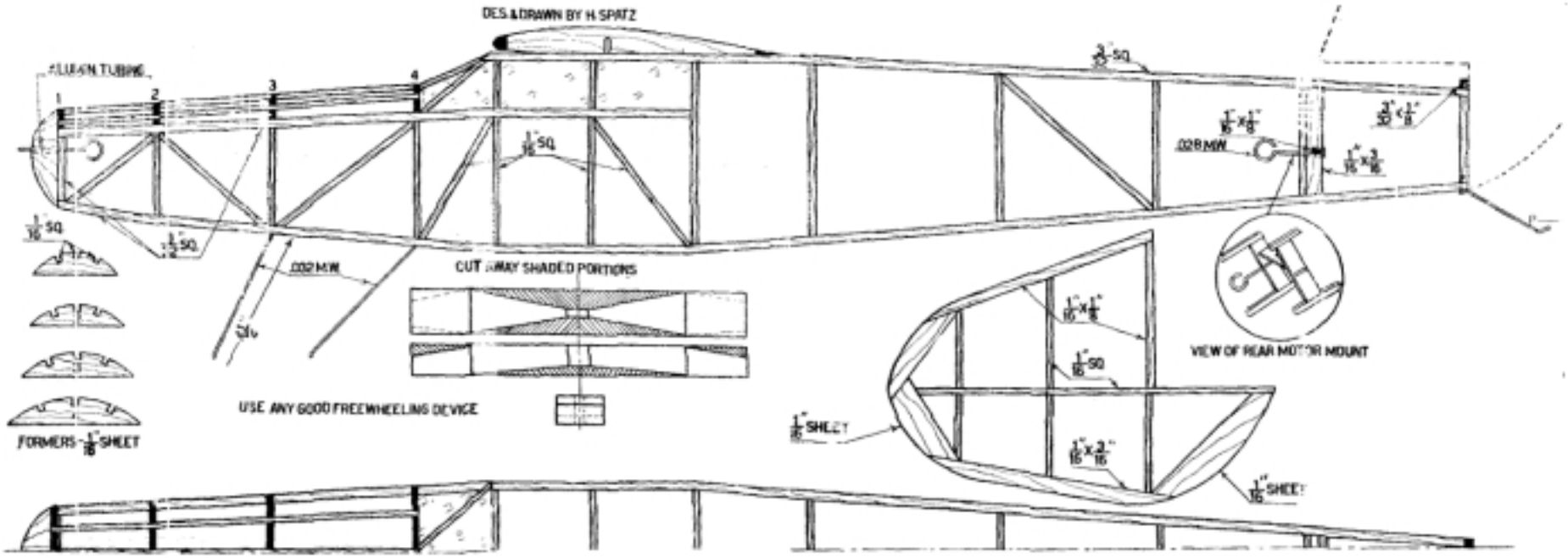
For the Wing, lay out the Leading and-trailing edges. Make 14 ribs of $^1/_{16}$" sheet balsa and put them in the proper places. Cut out the tips and put them in. The side of the wing shown is the right. Make a copy and invert to make the left wing. Before putting in the spar, crack the leading and trailing edges at the center section as shown. There should be $1^1/_2$" dihedral.

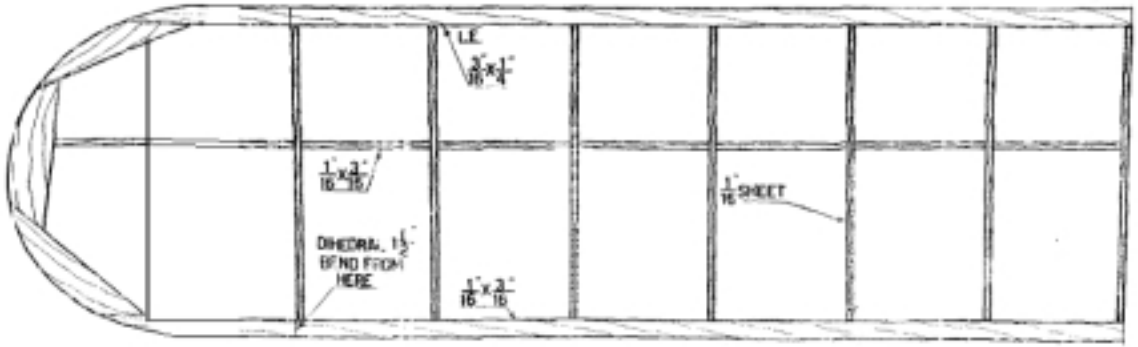
## Assembly and Flying

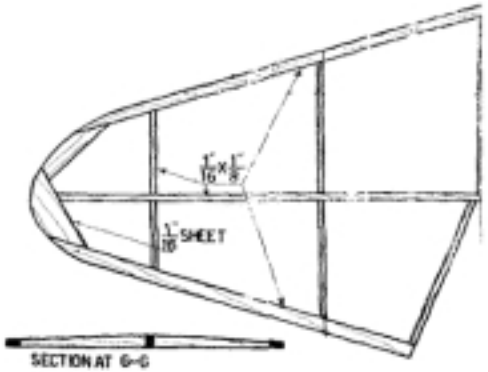
Wing and Body are covered in sections. The tail group may be covered in two pieces each. Use dope as the adhesive. Cover the cabin with cellophane. Pin the surfaces down and spray everything with water to shrink the paper. The builder may use his own discretion as to what color he will paint his model, the original was colored yellow. After everything is dry, give the ship two coats of dope. Glue the rudder to the rear of the body, put on the wing and the stabilizer with small rubber bands, and place the incidence block beneath the stabilizer spar. Next put the prop shaft on the rubber motor and you are ready for testing your "sky chariot".

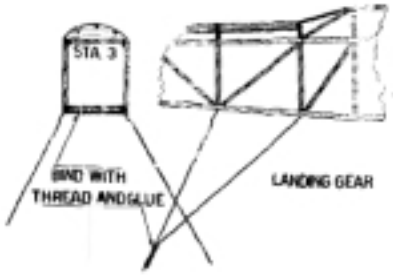


***The "Moth". Simple in design and construction, this craft has won many contests throughout the United States and Canada. First published in August 1937, its popularity became far-reaching and has been responsible in getting many aero enthusiasts to become model builders.***



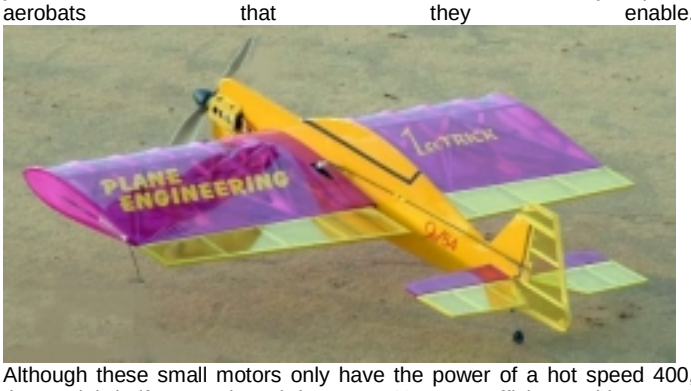




# The Flying Aces "Moth"
## 24 inch span rubber model

## *San Diego Mid Winter Electrics 2003*

I once again managed to attend the Silent Flyers of San Diego's annual event. This year the weather was excellent but followed a week of heavy rain that made the field soft and muddy and then went on to make 18 inches of snow in Pennsylvania!

Attending these kinds of events annually allows you to make comparisons and determine the trends in the hobby. This year was the year of the small brushless motor and the small incredibly capable aerobats that they enable.




Although these small motors only have the power of a hot speed 400, they weigh half as much and they are 50% more efficient. This means that when you combine them with the emerging Lithium poly batteries, you can make a very light and powerful model with significant endurance.


***Small 3D airplanes with small brushless motors and Li-poly batteries do it all***

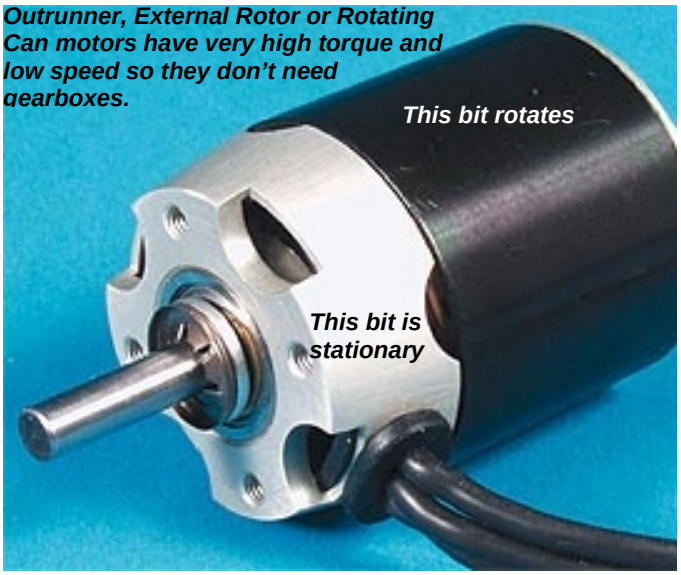
This is the Lectrick from Plane Engineering, a couple of guys who are kitting this model. It does everything its big brother's can on a small Hacker brushless with a 6:1 Maxon gearbox and a two-cell Li poly battery. Get that; knife-edge, hover and torque rolls in the delightful San Diego surroundings.

At the other end of the scale the big aerobats were seen in abundance including demonstrations from the professional Jason Schulman who flew the model he demonstrated at the Tournament of Champions in Las Vegas last fall. This model can be seen on the back cover. Here he coaches one of his buddies who is about to fly another model from the Hacker motor team.

***Jason Schulman with another member of the Hacker team ready for another 3D demo.***

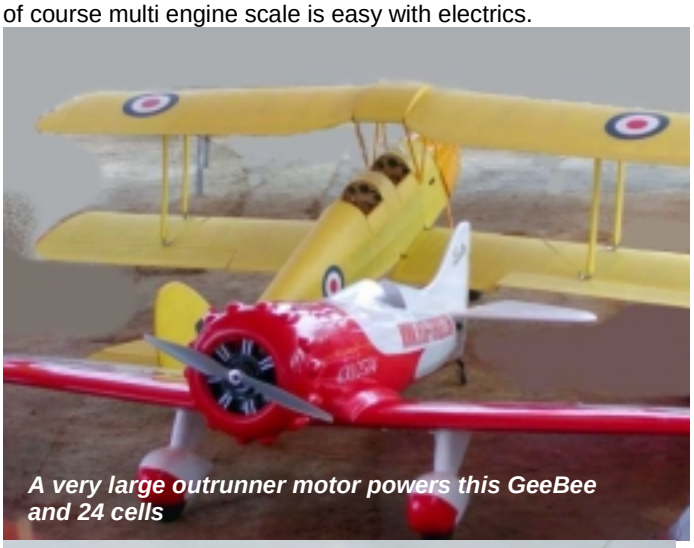
Another trend this year is the emergence of the "inside out" brushless motor. More conventionally called "Outrunners", "rotating can" or "external rotor" motors, these are different from the conventional arrangement because the rotor with its magnets rotates outside of the wound armature. It's an awkward arrangement because the external part of the motor rotates and it is necessary to grab the stationary part at the front or back and pay attention to keeping the wires away from the rotating part.

The advantage is that the diameter of the rotor can be several times that of an internal arrangement. This results in much higher torque and lower rpm for a given voltage. This in turn means that for many applications a gearbox is not required making for a simpler installation.




***Outrunner, External Rotor or Rotating Can motors have very high torque and low speed so they don't need gearboxes.***

Direct drive outrunners powered several very large models and of course multi engine scale is easy with electrics.



*A very large outrunner motor powers this GeeBee and 24 cells*

Electric powered helicopters were again impressive at the MWE meet. I am sure these have comparable performance to their gas powered cousins.


The HeliGuys had Logo 10, Logo 20 and a Joker on their stand. The Logos are driven by ten and twenty cells respectively with conventional brushless motors that included heat sinks and cooling fans.

***Joker helicopter with large outrunner motor on 32 2400 mah cells***

The Joker was powered by a large outrunner and 32 2400-mah nicads that allowed nine minutes of spirited 3D flying. In this application the outrunner does not seem to offer any advantage, as the helicopter drive system must include a significant reduction gear anyway. However, it certainly worked very well.

So, what did I do at the MWE? Well, I did fly my SAM models but at these big meets you spend hours waiting for a frequency slot so you spend a good deal of time grazing at the vendor booths. I was seduced by Castle Creations deal on a Razor Motors Speed 300 size brushless motor with the Castle Creations sensorless controller. Then there are the new Hecell 1000 mah Nimh battery packs, these are ideal for speed 400 applications where they give at least 50% more run time than the 600 mah Nicads at the same weight and space. Then there was ……. sssh, the wife reads this sometimes!

***Dave Harding***

# Propstoppers R.C. M.A.C

**Dave Harding – Editor**
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**Jason Schulman demonstrated his electric powered pattern ship in San Diego at the Mid Winter Electrics Meet.**
**This is the same model he demonstrated at the TOC.**

## *Propstoppers List Serve*

We want to remind you of the list-serve that we maintain for those of you with e-mail. The list serve is a service that allows us to efficiently communicate among the members by e-mail.

The way it works is first you have to "subscribe"; wait, wait, it's free!

You subscribe by sending an e-mail to;
propstoppers-subscribe@yahoogroups.com
It doesn't need a message but be sure to send this from the e-mail account you want the messages sent to.

Now, whenever any of us on the group want to "broadcast" a message we send it to;
propstoppers@yahoogroups.com
Simple, one message goes to everyone on the list. For example, when Interboro High School cancelled our indoor flying demonstration last week, one e-mail went to all on the list, so if you had subscribed, you would have known as soon as we did. Bob Kuhn advises all the group members when the newsletter is published each month, so you can read it in color before you receive it in the mail.

What if you don't like it after you have tried it for a while? Well you just unsubscribe by sending an e-mail to;
propstoppers-unsubscribe@yahoogroups.com
If you have recently added an e-mail service you might also advise us of the address so we can add it to our roster.

***More Indoor Flying To Go; Tinicum 7th March and the rescheduled Interboro High School Demo.***

***New two-motor Avro Manchester***

***Dave.***