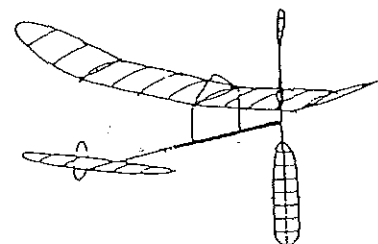


ISSUE # 133  
WINTER  
2012

# INDOOR

## NEWS and VIEWS



### FROM THE EDITOR'S DESK

Here we go with another Indoor News And Views # 133 to be exact and we have a few favors to ask our subscribers. To have an interesting newsletter we need new and recent information, upcoming events, plans, photos and results of contest, even down to club level. People want to know what's going on and what are people doing new. I cannot make it up. It comes from our subscribers. For this issue, I have had to dip into some old Newsletters, one is a Limited Pennyplane by Warren Williams. It has lots of good building instructions, accurate dimensions for wood and rubber motor sizes to boot. The model has done over 16 minutes in 1996 in a Cat I site. I see no reason that in the right hands with good rubber the model could do 20 minutes. The model is ideal for beginners and with minimum supervision they can build a decent flying model.

To assist the beginner and his mentor, we have an excellent booklet with drawings and text by John Barker, That Englishmen from Atlanta, GA and the Thermal Thumbers. We will present in this newsletter only one page and that's on making and using a jig for wings and stabs. This jig can be made in any size from Ministick to F1D. You can talk all day, but show the fledging model builder this drawing and he can and will increase his/her enthusiasm two fold and you will not have to talk all day. Try it you will like it.

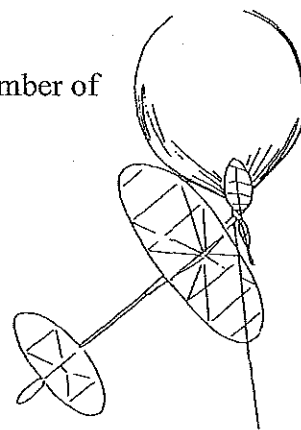
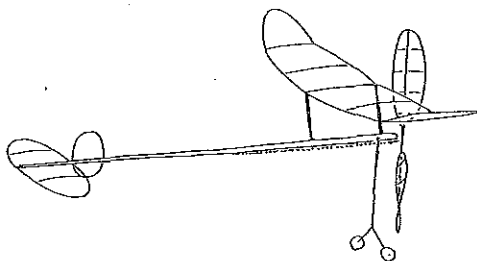
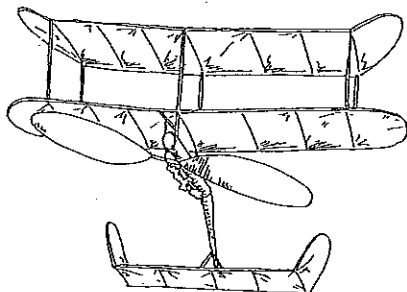
Also in this issue we have subscriber, Jake Plumber selling prop blocks carved out of balsa in various pitches, For twenty bucks, part of the money will be donated back to help the JR. teams. Now there is a deal that will be hard to beat.

Now we have a bit of good news for you folks that plan to attend the Indoor Nationals in Johnson City. The school has been required to put up 10 large banners each one representing a school in ETSUs Conference. Well the school contacted the outfit that put it up and they said they would take it down for the five days of our contest and then put it back up for \$1,300. This would also include the wire that holds the banners up. To add frosting to the cake, the AMA will pay this \$1,300 for this year. It will fall on NFFS next year. Now you know why we have this join NFFS flyer in this issue. NFFS does a lot for us that you do not even know about. We need new members to keep this great hobby of ours going. Yes I am a member.

You may notice a lot of red Xs on this issue of the Newsletters and your expiration date on the address labels. We have had a good wave of subscribers renewing, this helps me in knowing that you do want to receive the newsletter. I also want you to have a part in publishing it by sending me plans news and stuff. Also feel free to contact me if you feel my expiration dates are wrong or I haven't put your check in the bank yet. With a staff of one things slip. We are improving, I hate to say I all the time. I do have modeling friends that help me with the mailing.

Our last bit of the newsletter is pictures from the Tustin extravaganza over Thanksgiving and Christmas New Years holidays. Please notice how the U Control and indoor RC guys joined in on the festivities. Imagine electric U Control, not much noise and no greasy kid stuff We want to thank Ralph Ray, Norm Furutani and Pete R. for these pictures. I'm sure others were involved but I do not know who.

Australian subscriber Jack Metcalf reports that Tim Haywood-Brown is now a member of the Australian F1 D team. Congrats to Tim, he is also a subscriber. Thanks Jack.



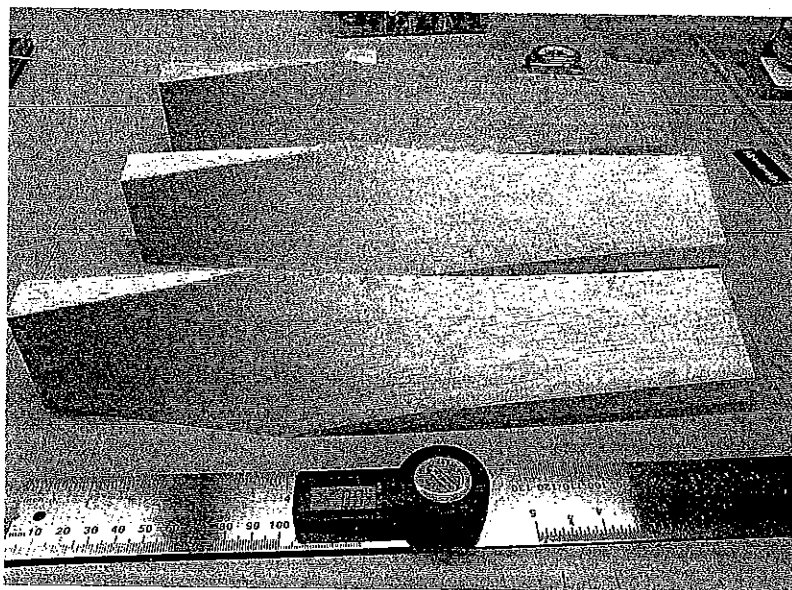
FOR SALE PROP BLOCKS AND PART OF THE MONEY GOES TO THE JR FF TEAM.

Precision cut helical prop blocks are now for sale. I'm offering pitches from 15" to 36" in 1" increments. The usable block width varies from 2" to 2.75" along the 10" length. The blocks are sold as cut and will require light sanding (the block in the front of the picture was sanded with 320 grit, the other 2 are unsanded). Price is \$20 which includes shipping in the US. Contact me for international shipping. \$5 from each block sold will be donated to the junior fund.

I'm accepting payment through PayPal at questions.

. Feel free to email me if you have any

Jake [82.jake@gmail.com]



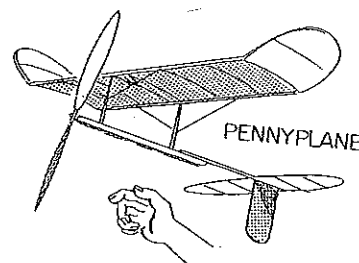
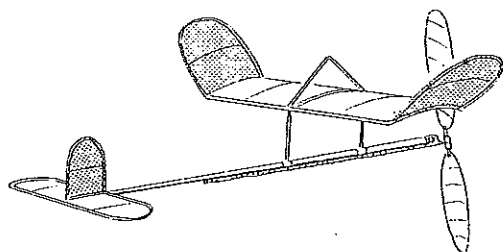
E-MAIL FROM ART HOLTZMAN ON HIS GREAT WINDER, PLEASE READ IF YOU DO NOT HAVE EVEN HAVE ONE OF HIS WINDERS YOU WILL LEARN SOMETHING

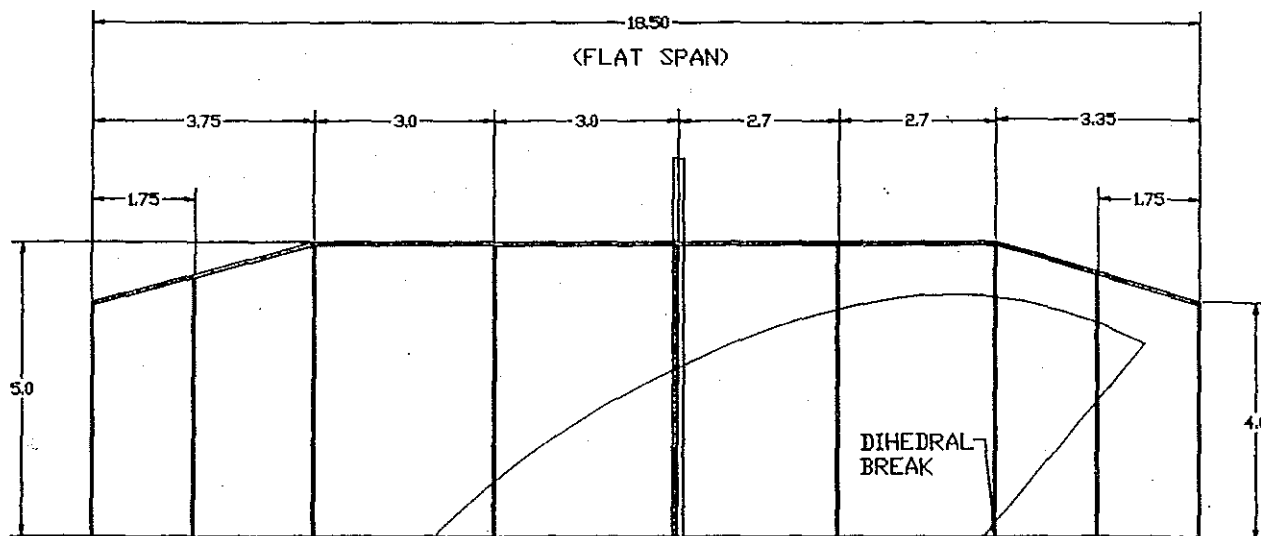
Gentlemen...

It's just come to my attention that Lexan, which is what most of the winders are made of, is incompatible with Acetone, which many of us carry in our field boxes. In a confrontation, Acetone always wins. If you carry acetone, or an acetone containing compound (like lacquer thinner) to the site with you, keep it separated from your winder. Thanks,

Art.=

Art Holtzman [upwind120@gmail.com]



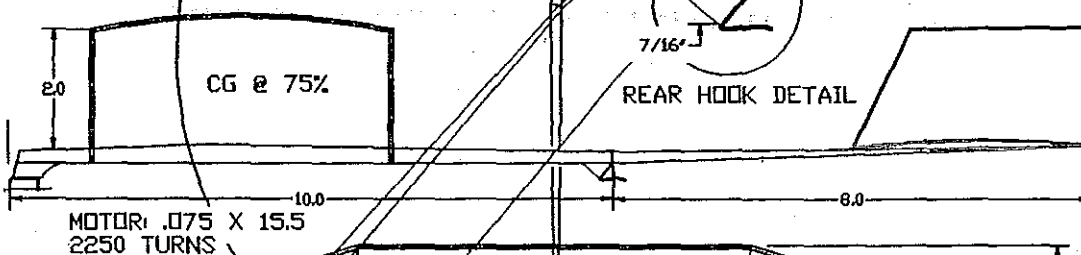
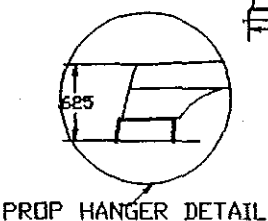


WING= 1/16" X 1/16" TAPER TIPS  
TO 1/32" 8# A STOCK  
RIBS= 1/32" 6# C STOCK  
WING POSTS .060 ROUND 8# STOCK

MOTOR STICK= 3/16" X 5/16" X 10" 8# A STOCK

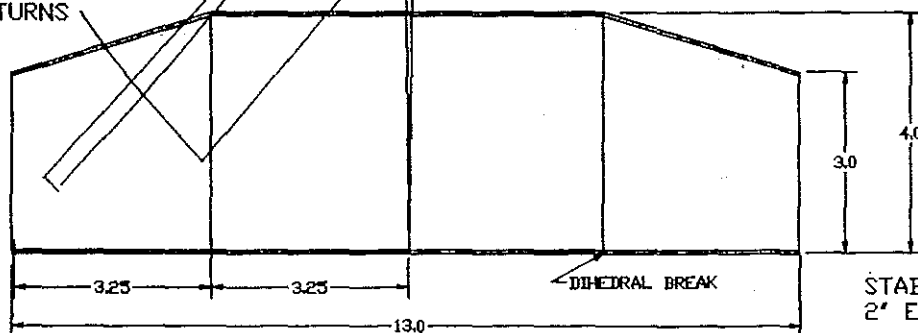
COVER WITH ULTIMATE PLASTIC FILM  
AND 3M77 SPRAY ADHESIVE

2 DEGREE DOWN  
2 DEGREE LEFT



REAR HOOK DETAIL

STAB= 1/16" X 1/16" TAPER  
TIPS TO 1/32" 6# A STOCK  
RIBS= 1/32" 6# C STOCK



WEIGHTS:  
WING .028  
PROP .030  
REST .052  
TOTAL .110

PROP BLADES= .028" 6# C STOCK  
HUB= 3/32" X 3/32" X 7" 8# A STOCK  
TAPER TO 1/32" ROUND  
HOOK= .020" WIRE

PROP BLADES ARE FORMED WET ON  
A 5" DIA VENT PIPE AT A 17 DEGREE ANGLE

OPEN LIMITED PENNYPLANE  
"SKIPPER"  
CAT.1 RECORD 16:14  
JUNE 17th 1996  
by WARREN WILLIAMS

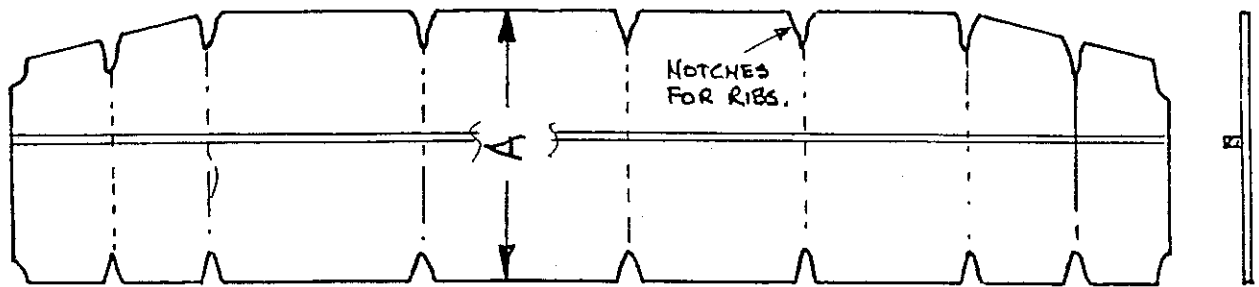
DRAWN BY STEVE GARDNER

This article is intended for those who have never built a duration type indoor plane, are convinced that they can't, but don't realize that, with a little help, they CAN.

Where to start? My preference is the Limited Pennyplane (Most of my friends still call it a Novice Pennyplane, and so do I). get a plan of a successful plane e.g. Banks Pennyplane or copy a model of a club member. If you don't have a building board try a piece of plain ceiling tile. Buy sharp dressmaker pins. You need some good quality cardboard for templates; I bought a sheet of picture matt material from Michaels, a local general handicraft store that also frames pictures. Any light color is O.K.

### The Wing.

Draw and cut out the wing outline template. It will look something like this:

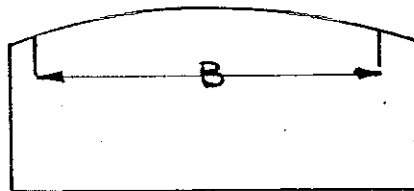


Dimension A is important. The completed wing must not exceed 5.0 inch chord. Lets assume that the L.E. and T.E. are 1/16 sq. (medium). Lightly sanded assume .06 in.

Make Dimension A =  $5.00 - .06 - .06 - .04 = 4.84$  in.

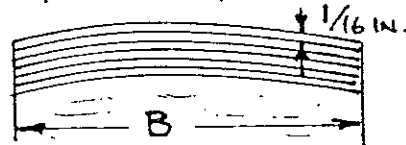
The .04 is insurance against exceeding 5.00 in. finished chord. The spar is to stop the d--- ribs falling over and to stiffen the template.

Draw and cut out the wing rib template. Mine look like this:



The two marks are the ends of the completed rib. Make dimension B a hair more than dimension A.

Ribs. Get your rib material, probably 1/32 medium light sheet, and cut a piece length B (a hair more than A) off the end of the sheet. Both ends of this cut must be clean cuts. Use the template and a sharp razor blade (not a balsa knife) to slice off ribs that look like this:

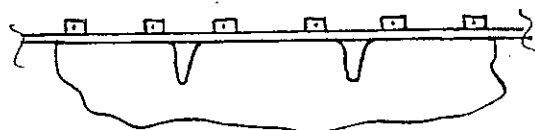


Eye ball the 1/16 in.

Some ribs may be deeper than others. Save these for the dihedral joint and center ribs.

### Assembling the wing.

Put the usual wax paper etc. on the board and pin the wing template securely down on top of it. Make sure that the board is flat. find some old medium soft 1/8 x 1/16 strip. cut off a zillion little blocks about 3/16 in. long. Use these with pins to fasten the L.E. and T.E. against the template like this;



Do NOT push the pins thru the structure OR against one side of it.



A2Z Corp  
Sting Aero, IMS, Peck Polymers divisions  
1530 W Tufts Ave Unit B  
Englewood CO 80110  
720 833-9300

**1,000+ Free Flight products  
300+ Free Flight Kits**

**Peck-Polymers**

**Timers & Fuse**



**Peck Contest Balsa**

**Free Flight Basics**

**Discus Launch Gliders**

**Catapult Launch Gliders**

**Hand Launch Gliders**

**Glider Parts & Timers**

**DPP Carbon Pultrusion**

**Peck Silver Propellers**



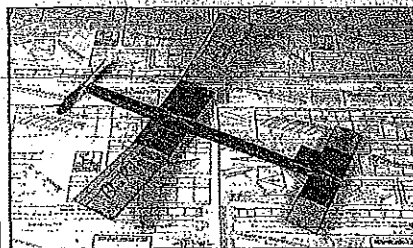
**A2Z Corp Supports the NFFS**

**ORDER ONLINE FOR FASTEST SERVICE**

**[www.A2ZCorp.us/store](http://www.A2ZCorp.us/store)**

Download our new catalog & pricelist  
from our store website

**IT'S BACK!!!**  
(And just in time for Christmas)



Remember when you were a kid and couldn't wait to get up Christmas morning to find a model airplane kit under the tree...Well, thanks to Bob Lang and Dave Acton of PAL Model Products, one of the greatest P-30's of all time...the **Blue Ridge Square Eagle** is back and better than ever.

That's right, guys, the **Square Eagle** is back with laser cut fuselage sides and machine cut ribs. Be one of the first ones to grab this part of history and be that kid again. The **Square Eagle** has won more contests than any other P-30. The price is right...only \$36.50 + shipping.

Now that's a bargain.

All PAL model products available from  
**Shorty's Basement**

Check our selection of  
**Balsa Strippers and Balsa Planes**

Send \$4.00 for Catalog

**Shorty's Basement**

1036 Bexley Ave., Marion, OH 43302

(740) 225-8671

**[www.shortysbasement.com](http://www.shortysbasement.com)**

## RAY HARLANS INDOOR SUPPLIES

### Indoor Model Specialties

[www.indoorspecialties.com](http://www.indoorspecialties.com)

*Special tools:*

*Superstrip rubber strippers*

*Micrometer balsa strippers*

*Digital thickness gages*

*Spring and beam scales*

15 Happy Hollow Road  
Wayland, MA 01778  
508.358.4013

*and much more*

Online, use credit cards or PayPal

*Special supplies:*

*Pigtail thrust bearings*

*Ultrafilm Mylar coverings*

*Boron fibers*

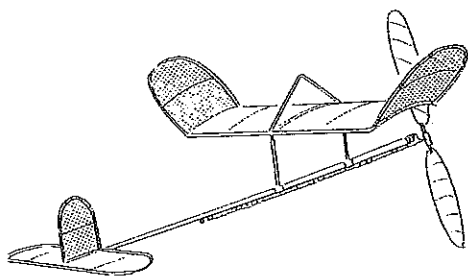
*Tungsten bracing wire*

"Send me some more of the world's  
best thrust bearings"

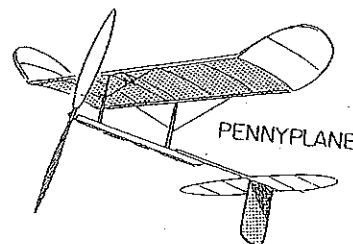
LOOK ME UP

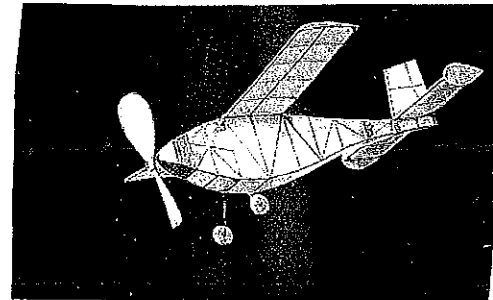
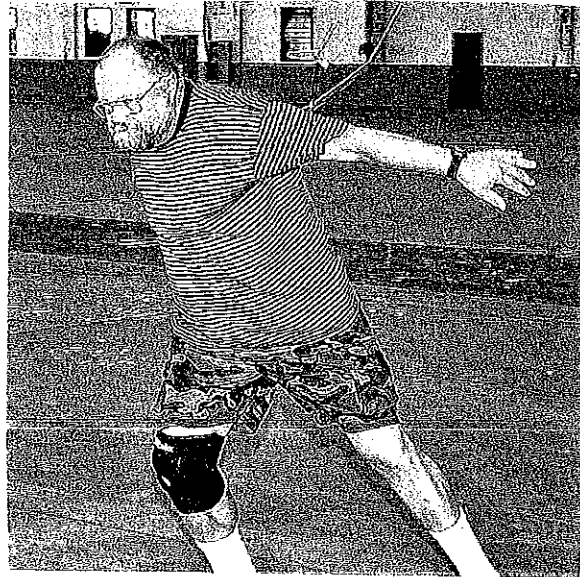
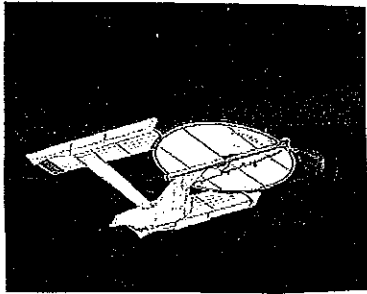
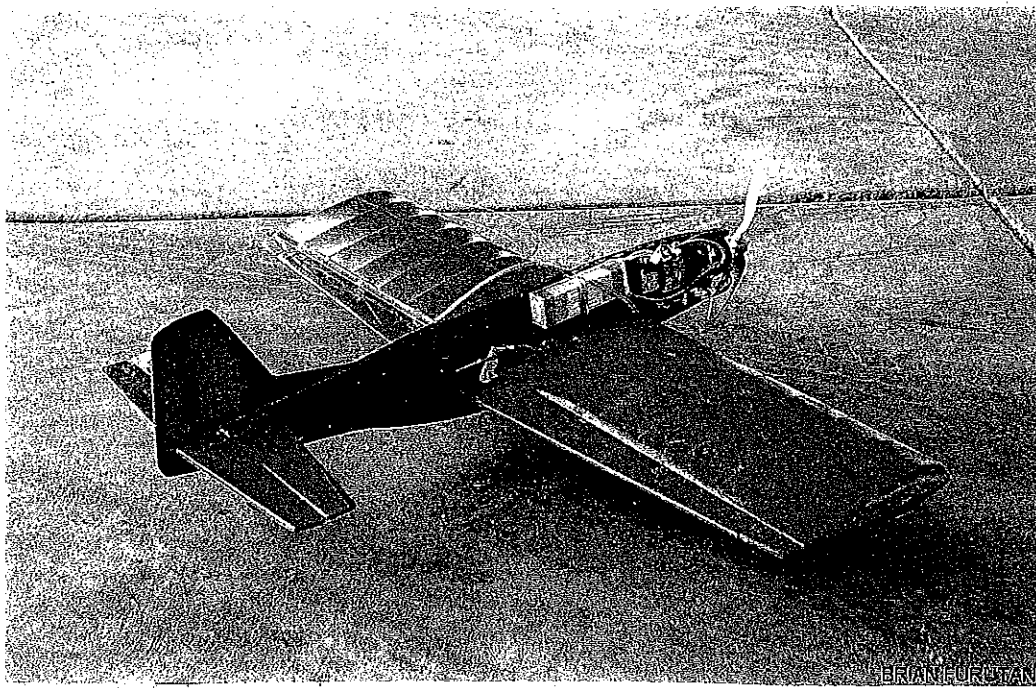
# The National Free Flight Society Needs Your Support

We are asking our subscribers to join and support the NFFS. The NFFS is instrumental in obtaining the Johnson City site for the Indoor National Championships. The NFFS also supports indoor free flight with coverage in their magazine. In recent months the NFFS has had increasing costs which need to be covered so that they can continue to champion our cause. If your are not a subscriber to the NFFS magazine, we encourage you to subscribe. If your are already a subscriber, consider making a donation to help this worthwhile organization. Clubs can get involved and really make a difference.



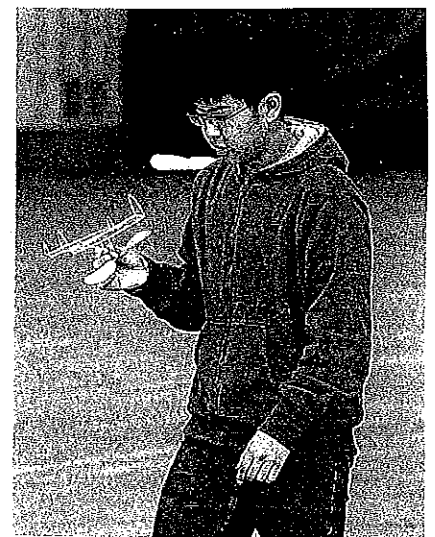
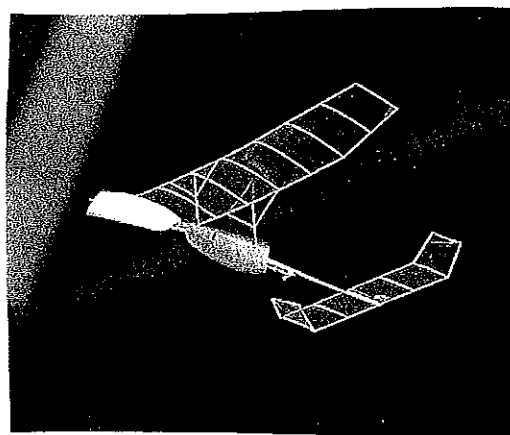
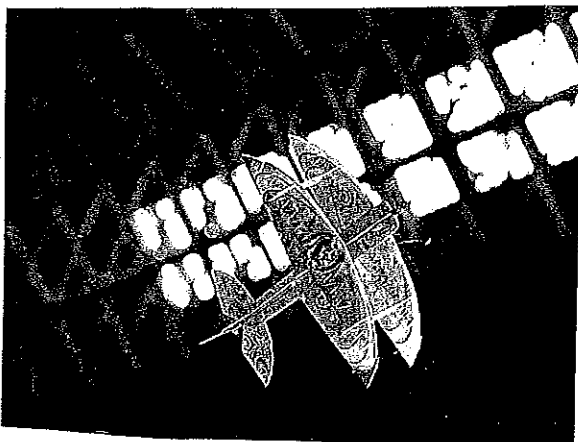
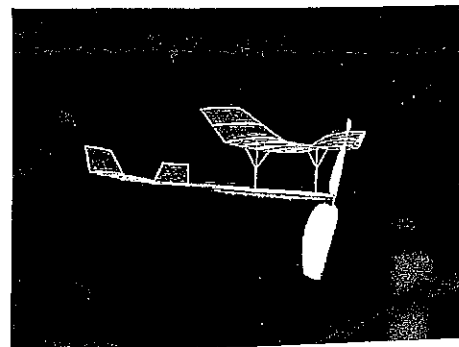
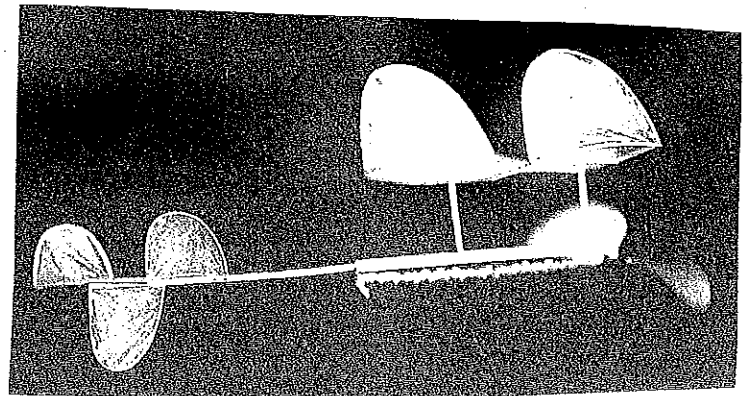
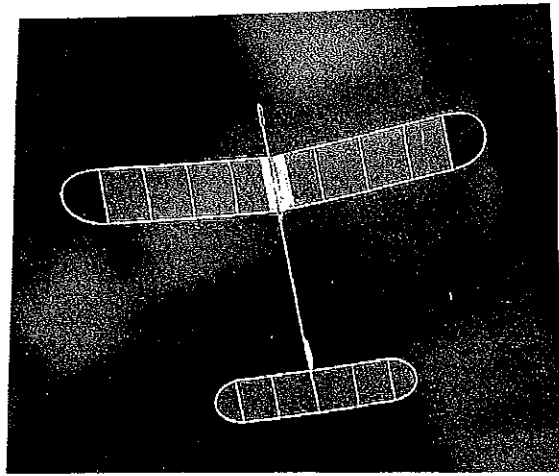
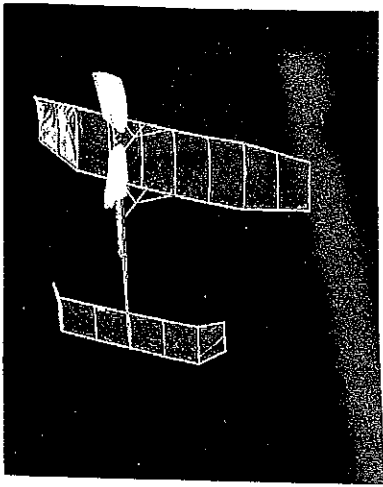
NFFS MEMBERSHIP & RENEWAL APPLICATION	
Mail to: NFFS Membership Office 118 Gentry Circle Lafayette, LA 70508-6326 USA	Make checks payable in U.S. dollars to: National Free Flight Society
Dues include a mandatory \$.50 per year for NFFS membership.	
US Residents (Age 19 & over)	<input type="checkbox"/> 2 years \$58.00 <input type="checkbox"/> 1 year \$30.00
Youth Membership (U.S. only) Age 18 & under as of July 1 of the current year Copy of birth certificate required for new memberships.	<input type="checkbox"/> 2 years \$18.00 <input type="checkbox"/> 1 year \$10.00
All Non-U.S. Residents	<input type="checkbox"/> 2 years \$75.00 <input type="checkbox"/> 1 year \$40.00
Life Membership	US Residents <input type="checkbox"/> \$500.00 Non-US Residents <input type="checkbox"/> \$550.00
First Time or Lapsed (more than 1 year) Members	
<input type="checkbox"/> 2 years for \$29 <input type="checkbox"/> 2 years Youth for \$9 <input type="checkbox"/> International \$37.50 Offer expires Jan. 1, 2013	
★ NFFS Foundation Donation ★	
<input type="checkbox"/> Silver - \$75 <input type="checkbox"/> Gold - \$125 <input type="checkbox"/> Platinum - \$250 or more \$_____	
To help reduce expenses maintaining NFFS records, <b>PLEASE renew for at least 2 years. Thank you!</b>	
Check boxes to what applies:	
New Member <input type="checkbox"/> Renewal <input type="checkbox"/> Address change <input type="checkbox"/> Donation <input type="checkbox"/>	
Amount: \$ _____	Current expiration date: Mo. - Yr. _____
PLEASE PRINT	Date of Birth
Name: _____	M / D / Y
Address: _____ AMA #: _____	
City, State: _____ Zip: _____	
Telephone: _____	
(IMPORTANT - PLEASE PRINT VERY CLEARLY)	
e-mail address _____	
Send <i>all</i> renewals, address changes, applications, and membership questions to the Membership Office. e-mail: carl.bakay@yahoo.com	
Please go to <a href="http://www.freeflight.org">www.freeflight.org</a> for credit card renewals	





BRIAN FURUTANI

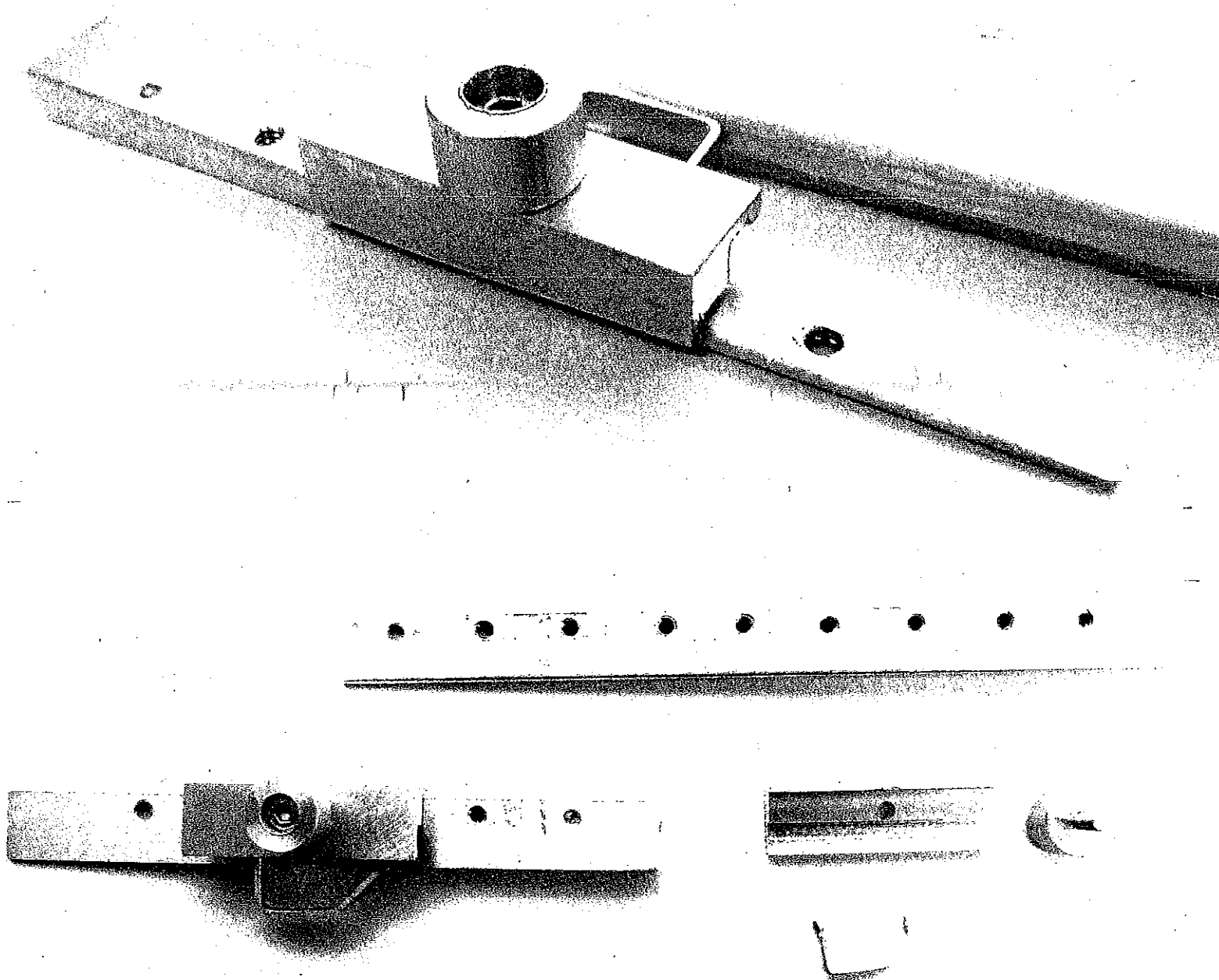






After seeing a jig for mounting a nose bearing in an F1M construction article by Derek Richards, I decided to make a couple, to cover all the types of models that my partner and I make. The one in the article was made of balsa but I decided to have ago at making them of aluminium alloy. Due to my less than proficient skills with a milling machine these two came out at 2.6 and 2.8 degrees, I was aiming for 2.5 and 3.0. My previous method of mounting nose bearings were less accurate I am sure.

Rodney O'Neill

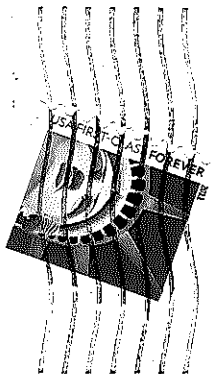


# INDOOR

NEWS and VIEWS

ABRAM VAN DOVER, EDITOR  
112 TILLERSON DR  
NEWPORT NEWS, VA  
23602-4011

ISSUE # 133  
WINTER  
2012



FIRST CLASS

## INAV

Indoor News and Views

Yes!

Sign me up for \_\_\_ 1 year @ \$15.00 U.S., \$19.00 Canada

\_\_\_ 2 years @ \$30.00 U.S., \$38.00 Canada

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Send a Sample Copy to a Friend???

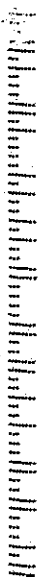
Friend's Name \_\_\_\_\_

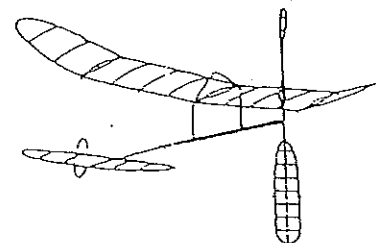
Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Send all dues to: Abram Van Dover  
112 Tillerson Dr  
Newport News, VA  
23602

37922831347R039





## FROM THE EDITOR'S DESK

We have one more issue of the Indoor News And Views for you with a spiffy Ministick model by Jack Metcalf from the land down under, Australia if you may have forgotten. The model has dihedral in the stab plus a large ventral fin to help control the high torque on these monsters. I would like to build one, but I just finished two of my own design. If you out there build one let me know if it does control the torque, or at least help.

Let's move on to what else we have for three big contests, indoor of course. One in Pontiac, Michigan, the 6<sup>th</sup> of May. Another in Atlanta, Georgia, the 21<sup>st</sup> of April. Lastly we have a big one up in the Kibbie Dome in Moscow, Idaho. This is a five day affair July 6-10. If your fairly close, get to these one or the five day affair. We kind of left out the AMA/NFFS Indoor Nationals, but hope the NFFS Digest and Model Aviation have a big spread for you to gaze upon.

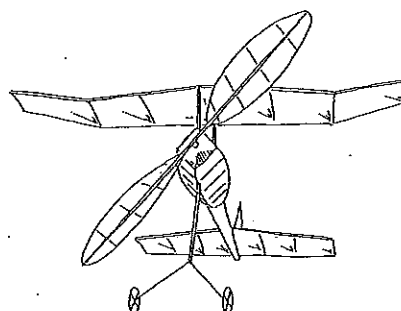
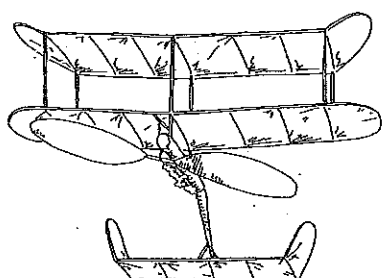
While writing about other publications, they have people that handle different departments and all I got is me and you and sometimes you don't send me anything for INAV. I know you guys are building things, having club Contest, inventing gadgets to help us build things and wind motors, picking out rubber lube and such stuff. Let me know about it and We'll make you reporters for INAV. Don't forget about taking pictures and sending them in. WOW !!

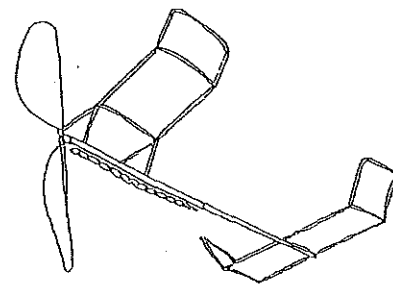
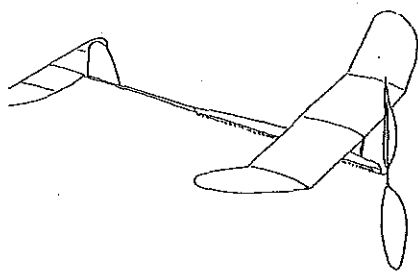
Now let's talk about those nasty Red Xs. If you have a red X on your newsletter if you do not send me renewal check, money order, or cash by when the April/May issue goes, I'll be forced to drop you. Money is tight, gas is high, the Post Office is going to raise the price of stamps again. We are holding our own right now and can still afford to keep putting out the INAV. Since we're on the INAV let's talk about the editor. He's getting older and older. I'm at the 80 year mark and not in the best of shape, I would like to pass this on to a new editor, fairly young person, retired would help, up on computers so you could get INAV on line. The last thing I would want to happen, is for me to croak and INAV lays dead in the water and nobody knows how to pick up the pieces. Think about it folks it's life and this stuff happens.

Last issue I said the pictures were by Norm Furutani, in fact they were by his son Brian Furutani, sorry for the mix up guys as the pictures were first class. For INAV to do color it's expensive, out of our league. INAV also wants to thank Ralph Ray for his work in getting the Tustin site. I hope we can see him again at Johnson City.

One more item, We will run John Barker's articles on Limited Pennyplane until all available for your collection. I will try to run them in sequence, however they are sometimes hard to follow, but it does not affect the text. It's good believe me. Do not get a big head, John.

Please think about some of the stuff I've written above, this is a one man operation except when the INAV needs folding, taping, labeling and stamping, then my club members from the Brainbusters help. Contact me at [vandover@cox.net](mailto:vandover@cox.net). We have the INAV down to 10 pages and a bi-monthly schedule.





## **2012 KIBBIE DOME ANNUAL**

University of Idaho, Moscow, Idaho

July 6-10, 2012

All official AMA Indoor Events can be flown all 5 days

Additionally: Wally Miller ½ A

No R. C. Electric Powered models allowed

Electric Free Flight limited to 30 grams max weight

Entry Fees: Senior & Open contestants: \$200.00

Junior contestants: \$100.00

Table & 2 chairs included in entry fee

\$40 late fee after May 25, 2012

July 5, 2012, early arrivals can set up tables and

Chairs and prepare for next day's events

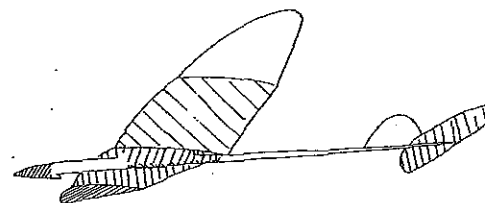
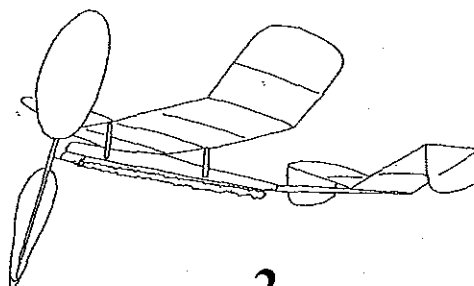
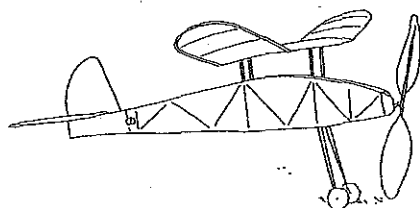
No flying allowed July 5, 2012

Send entry fee and AMA number to:

Emil Schutzel

17 Compton Court

Prairie Village KS 66208



## PEACH STATE INDOOR CHAMPS

"America's Flyingest Indoor Contest"

April 21, 2012

Great Hall, St. Lukes Presbyterian Church  
Dunwoody, GA

The Thermal Thumbers of Metro Atlanta are hosting our twenty-first annual state indoor free flight championship. We invite all AMA members, family, and friends to come and join the fun. The public is invited, but only AMA members can fly, so bring your AMA card. However, kids with indoor free flight models who attend can fly; we'll provide a complimentary AMA membership.

The contest is sanctioned by the AMA and all events, except as noted, will be flown per the AMA rule book as Class A and Category I. Registration and official flying begins at 9:00 am. The building must be clean and clear at 9:00 pm. Lightweights will be segregated from the heavyweights per the flight schedule. Mass launch events will be flown sudden death with no kanones. (F1D event serves as regional qualifier.)

### AMA: Easy B

Ltd. Pennyplane (J, SO)  
Mini Stick  
IHLG (J,SO)  
Standard Catapult Glider  
Unlimited Catapult Glider  
Bostonian (J,SO)  
F1L  
F1D—regional qualifier  
35 cm  
Helicopter  
A-6

### TTOMA: Chattahoochee Challenge

Hangar Rat  
Sudden Death Mass Launches  
Hangar Rat  
WW I  
WW II  
Racer  
Civilian  
Phantom Flash

### FAC: Dime Scale

Peanut Scale  
Rubber Scale  
No-Cal  
Embryo  
Phantom Flash

Contest Director: David Mills, 404-509-4209, davidmillsatl@gmail.com

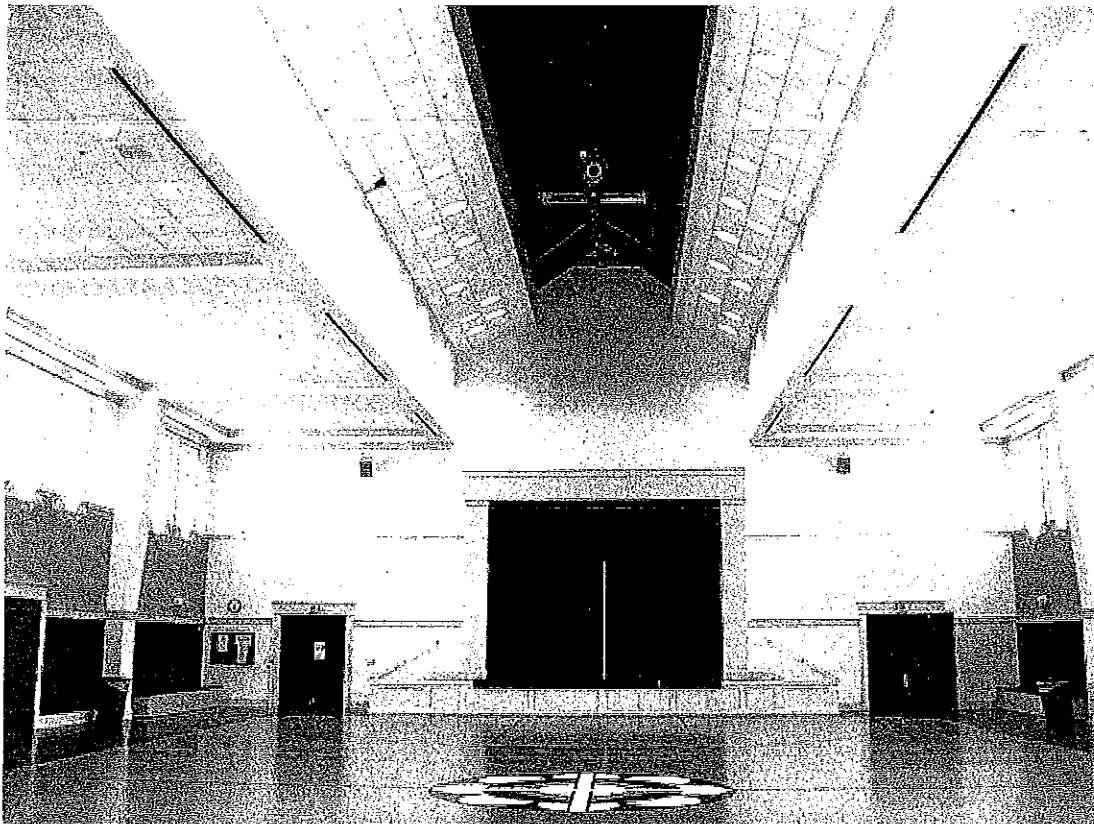
Fees: The adult (open) fee will be \$10.00 for unlimited events. The youth (senior and junior) fee will be \$1.00 for unlimited events. Test and fun fliers will be charged \$10.00. Adult fliers are required to bring a kit or equivalent as an additional entry fee, to be distributed as prizes.

Directions: The flying site can be accessed from either the Hwy. 400/Abernathy Rd. exit or I-285/Ashford Dunwoody Rd. exit. The church is on Mt. Vernon Hwy. about one mile east of Ashford Dunwoody Rd. The Great Hall is at the extreme opposite (NE) corner of the property. A map is available at <thermalthumbers.com>

## FLYING SCHEDULE

9:00 am registration  
9:00-10:30 am lightweights  
10:30-noon heavyweights  
10:30 am Hangar Rat mass launch  
11:00 am WW I mass launch  
high noon WW II mass launch  
12:00-1:00 pm anything goes  
1:00-2:00 pm heavyweights  
2:00 pm Racer mass launch  
2:00-3:00 pm lightweights  
3:00 pm Civilian mass launch  
3:00-4:00 anything goes  
4:00 pm Phantom Flash mass launch  
4:00-6:00 lightweights  
6:00-9:00 anything goes, defer to lightweights  
9: pm building clean and cleared

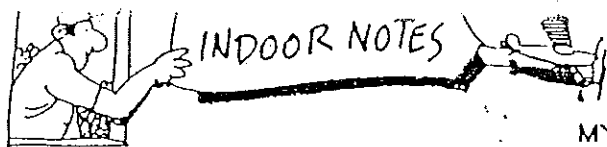
Flying heavyweight models (No-Cal or heavier) in lightweight periods always requires CD's permission prior to winding and/or launch. Flying lightweight models during heavyweight time periods is at flier's risk. Sometimes special consideration given, but CD's word is final.



Great Hall at St Lukes Presbyterian Church, Dunwoody, GA





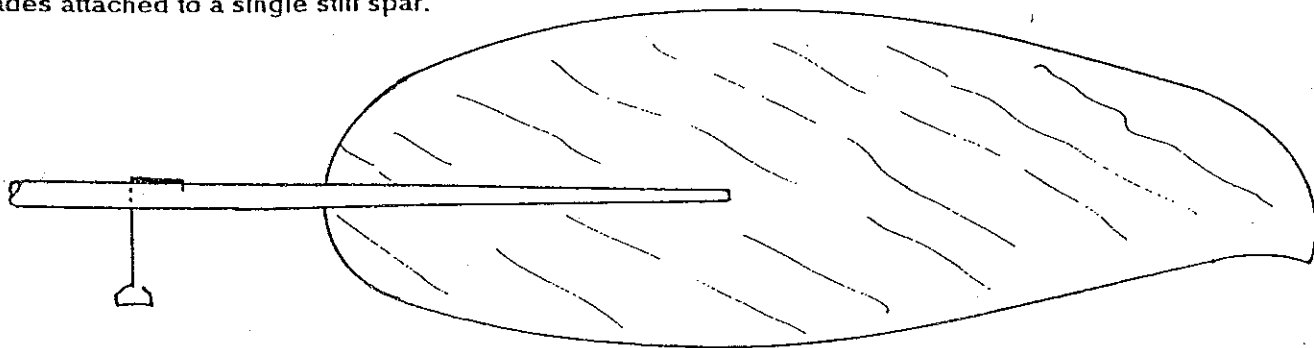


## INTRODUCTION

If you read Parts 1 thru 3, you may already have built and covered the airframe and perhaps had some fun with test glides of a Limited (Novice) Pennyplane. However to get that model to the roof of the local school gym, or tangle with the roof at E.T.S.U. in Johnson City, you need a propeller and rubber band motor. For the novice to indoor free flight these easily can be the most neglected items. Volumes could be written about them, but we only have enough space to touch on some of the basic principals to get started. If you get hooked on indoor duration flying, the rubber motor can get quite expensive because you will need a rubber stripper, a winder with counter, and one or two torque meters. However lets start with the propeller.

## PROPELLER BASICS

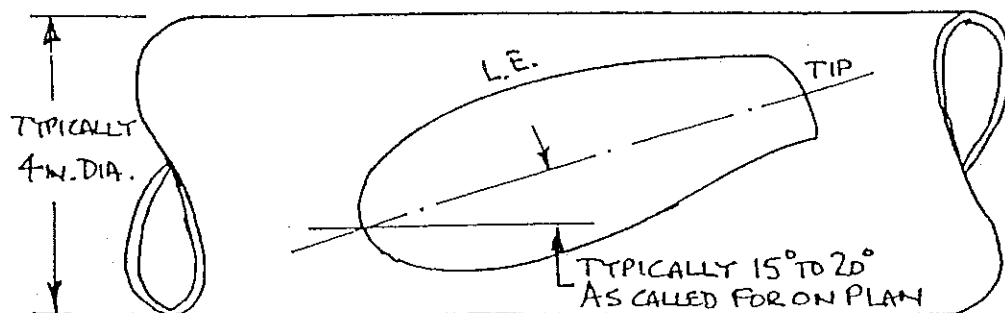
Your plan will give you a good idea of the propeller construction. It will have thin molded light sheet blades attached to a single stiff spar.



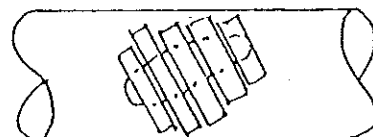
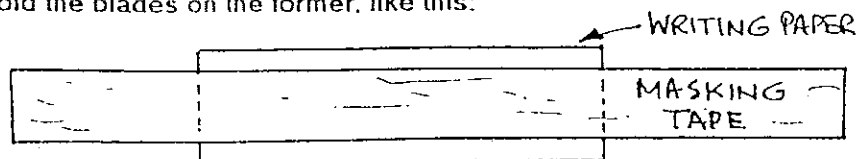
**The Bare Blade.** This will usually be made from 5 to 6 lb. C grain balsa. The grain may be shown straight or on the diagonal. The blades must be cut from the sheet so as to give a good stiffness match.

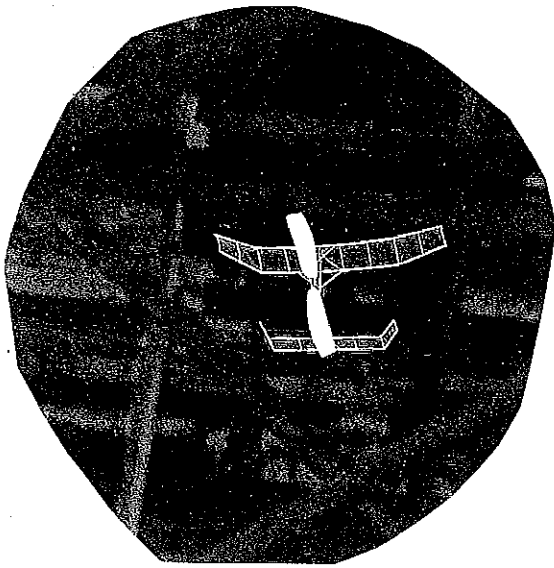
Blades are usually sanded to taper in thickness, typically from about  $1/32$  in. at the root to perhaps half that at the tip. For sanding this thin, you must set the blade on a very flat surface (I use a 12 in. square tile) and the sandpaper must be glued to a very flat block such as a piece of  $1/2$  in. sheet balsa. It is important to match the blades for thickness and weight. The spring scale and a micrometer will help.

**Molding The Blade Twist.** Theoretically the optimum blade twist is for helical pitch which requires a carved

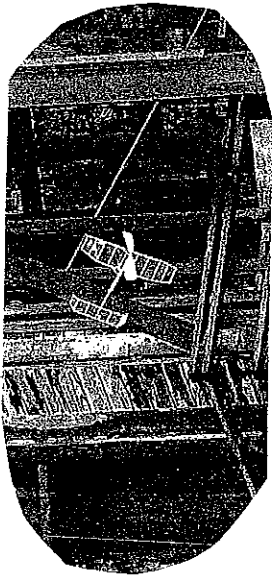
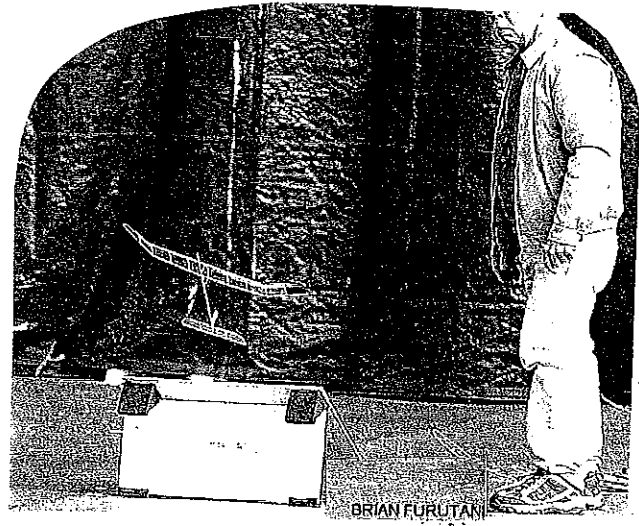


block former, but we will use a simpler and quite good method which involves setting the blade at an angle on a cylindrical surface. This method also induces an airfoil section to the blade. You need a smooth can, bottle or pipe of 4 in. dia. or as indicated on your plan. If the item you find is not quite the right diameter then the angle must be changed. The bigger the diameter the steeper the angle. Mark this angle on the former, twice, 180 deg. apart, together with blade outlines. Mark the spar lines on the blades, tip to tip. Prepare about 12 strips to hold the blades on the former, like this:

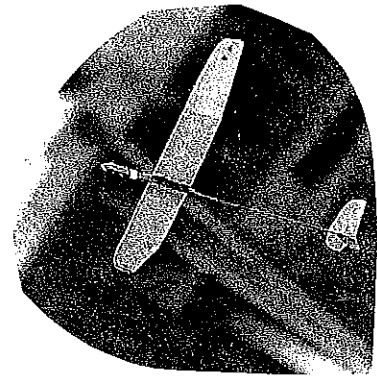




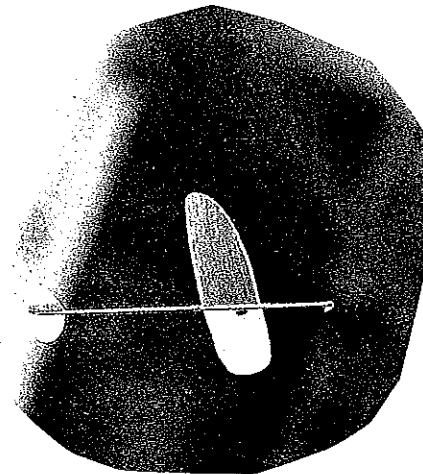
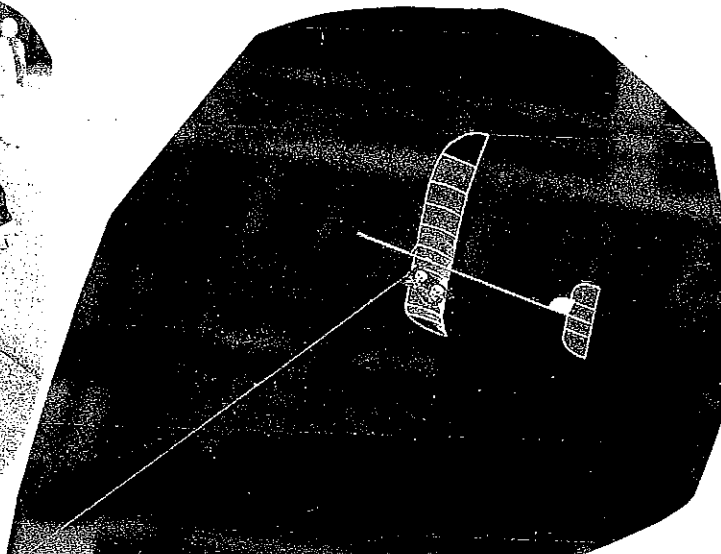
MORE TUSTIN  
PICS 2011

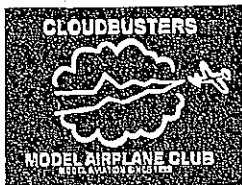
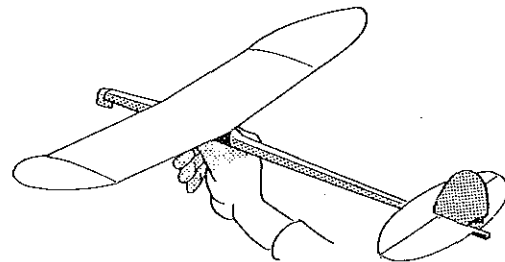
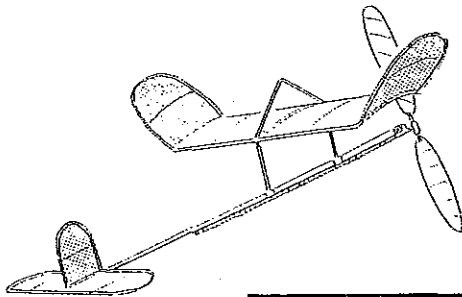


UNKOWN STAN RALPH RAY  
BUDDENBOHM

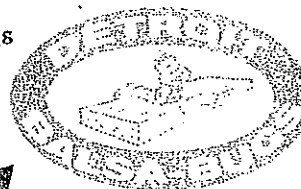


BRIAN FURUTANI





The Cloudbusters & The Balsa-Bugs  
In conjunction with  
The Michigan Indoor Aircraft Association  
Present  
The 2012



# Indoor Fling

Michigan Indoor Aircraft Association  
A.M.A. Charter Club 5084

An AMA Sanctioned Class AAA Contest  
AMA Category III Ceiling

Sunday, May 6, 2012  
Ultimate Soccer Arena

867 South Blvd E, (20 Mile Rd) Pontiac MI

## Entry Fees:

\$30.<sup>00</sup> post marked by April 20

\$35.<sup>00</sup> at door

Special Entry Fee { Junior Entrants  
Science Olympiad  
Phantom Flash for Beginners

Spectators - FREE!

Send Check or Money order to  
Dan Olah

25436 Wareham Drive  
Huntington Woods MI 48070

Flying

9:00AM- 5:00PM\*

Flying Floor split in half.

South End for FAC - North End for AMA\*

Contest Director  
Dan Olah 248-542-8144  
danielolah@wowway.com

Event Managers  
FAC- Mike Welshans 248-545-7601  
Mbwelshans@aol.com

AMA - Paul Crowley 586-294-1236  
usa2298@comcast.net

## AMA EVENTS

Standard Cat Glider*	218
Unlimited Cat Glider*	219
Hand Launched Glider*	212
Manhattan Cabin	205
Limited Penny Plane	208
Penny Plane	207
Bostonian	215
F1L Easy B	217
Mini Stick + MS ML	220
Inter Stick	202
F1D (no rounds)	203

\* Glider flown only 9:00 AM - 10:30 AM  
at the same end as scale

## PHANTOM FLASH FOR BEGINNERS

Phantom Flash kits Available at

Prop Shop Hobbies, Inc. - "Your Complete Model Shop"  
23326 Van Dyke Ave. Warren, MI 48089  
586-757-7160 propshophobbies.com

Carlton Hobbies - "We make hobbies affordable."  
3194 Conley Lake Road  
White Lake, MI 48386  
248-360-1910 carltonhobbies.com

Flight Line Hobbies  
11925 Lapeer Rd, Lake Orion, MI 48360  
248-814-8359 www.flightlinehobbies.com

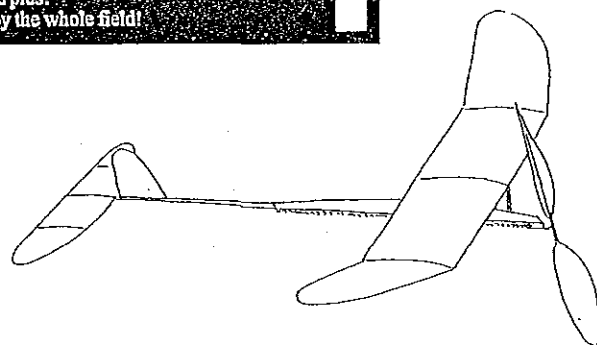
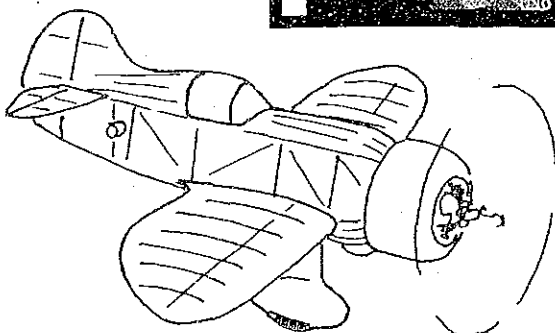
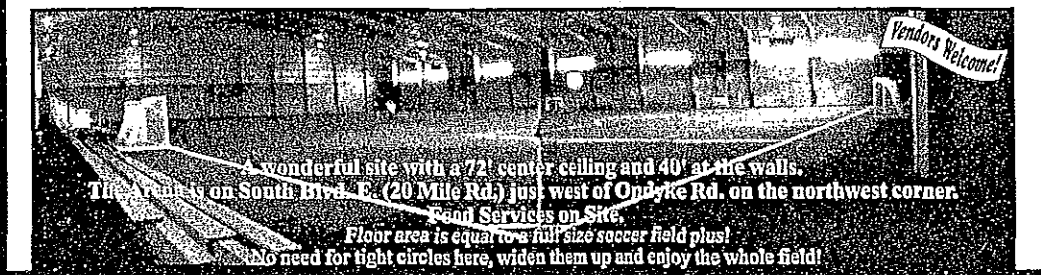
or direct from the manufacturer  
Retro RC - Vintage & Retro Model Aeroplane Kits  
PO Box 193 Keweenaw Harbor, MI 48330  
248-212-9666 - retrorc.us.com

## FAC EVENTS

- 1 FAC Peanut Scale
- 2 FAC Scale
- 7 FAC Golden Age
- 16 FAC Dime Scale
- 17 FAC No Cal
- 18 FAC Phantom Flash
- 19 FAC Embryo
- 20 FAC Jet Cat Glider
- 25 FAC WW-I ML
- 26 FAC WW-II ML
- 29 FAC 1/2 Size Wakefield

All FAC Events flown to 2012 FAC Rules

See Registration Form for map to site and details of events.







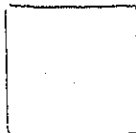
NEWS and VIEWS

ABRAM VAN DOVER, EDITOR  
112 TILLERSON DR  
NEWPORT NEWS, VA  
23602-4011

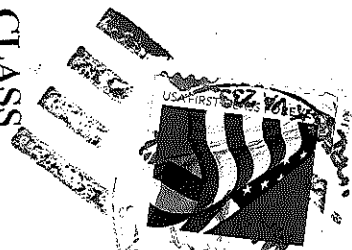
ISSUE # 134

LATE WINTER

2012



FIRST CLASS



**INAV**

Indoor News and Views

Yes!

Sign me up for \_\_\_ 1 year @ \$15.00 U.S., \$19.00 Canada

\_\_\_ 2 years @ \$30.00 U.S., \$38.00 Canada

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Send a Sample Copy to a Friend???

Friend's Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

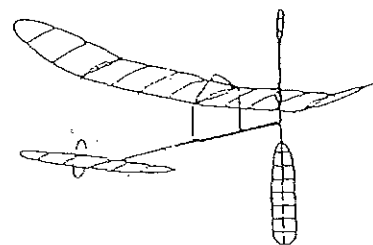
Send all dues to: Abram Van Dover  
112 Tillerson Dr  
Newport News, VA  
23602

**Make all checks to  
Abram Van Dover**

ISSUE #135  
EARLY SUMMER  
2012

# INDOOR

NEWS and VIEWS



## FROM THE EDITOR'S DESK

The 2012 AMA National Indoor Contest has come and gone. Inclosed are scores and pictures from this once a year event. Many things spring off from this event some good and some bad. One of these things is the identification of the World's most extreme Snowbird. One Rolf Svenson by name, he spends winters in Florida and Summers in SWEDEN !! There was one indoor record set, it was by Bill Gowen in A-6. Good show Bill. We also had Donations from all the entries to off set the cost of taking down and reinstalling those pesky banners. the total money count was over \$1,500 . I personally want to thank all the contributors for their generosity as it shows they do want to continue flying at ETSU as long as possible. We do need to get a bigger turn out of contestants in 2013. We also need a new event director and some dedicated helpers to effectly run this event. When you have model flying from 730 AM to 1030 PM. It makes for some long days, this goes on for four days . Sunday ends at 3 PM so we can clean up and get out by 6 PM. Again this year we had help from John and Shaye Diebolt, Walt Collins, Dave Thomson, Fred Rash and Phil Sullivan. If I forgot anybody, it was bad memory, not deliberate. One more thought for the new Event Director. Do NOT assume the responsibility of selling tables and chairs the same for Dorm rooms at the school. Get with the AMA and put that on the registration forms and make the contestants pay in advance with their model registration. You do not need this headache. You should not have to pay your hard earned money for some who forgot to pay their bill or take their key/ card home with them. This was a first time for this, I think.

Here is some good news, since we were a month late with the National Indoor Contest Issue we will put out an issue in July with any scores or pictures left over from this issue which is minute. This will get us back on track of the bi monthly schedule. On about the same venue we will be losing about one hundred subscribers. Since I adjusted subscribers expiration dates, the bulk of our subscribers all have about the same expiration date and they choose to let it expire. We have not received any real negative comments but have receive many positive ones. These people did vote with their feet for what ever reason and we must respect them for that. Again on the Newsletter note I am still looking for a new editor. The one person that did seem interested already was doing another newsletter and I felt two would be too much. We do want to thank him for applying. Again I will have my telephone # and E-mail address at the end of this blurb.

Speaking of needing things, we need more response from you subscribers on model plans and related stuff. Since FAC is now a big part of our indoors, we could use some scale stuff, Bostonians and No-Cal models. These can be flown in most gyms and make some interesting flights. Think about it. We will have a scale plan in the July issue, a simple one.

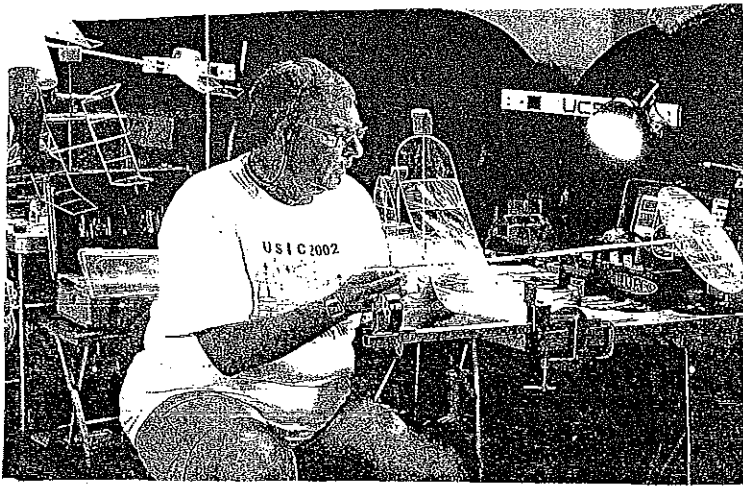
Please do not let my ramblings scare you away from the E.D. Job or editorship. It's just the way I feel at this time and you should know both good and bad

1-757-877-2830  
vandover@cox.net.

Abram

Unl. Speed

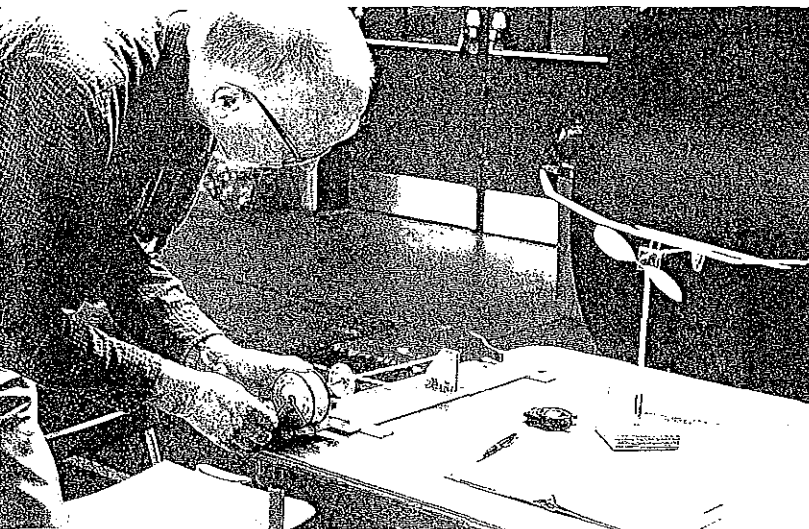
Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Flight 6	Flight 7	Flight 8	Flight 9	Best	Place
Walt Collins	0	7.3	7.3	7.4	7.3	7.5	7.0				7.0	1
Wyle Blevins	0	7.5	99.0	99.0	7.2	99.0					7.2	2
John Diebolt	0										DNF	



LARRY LOUCKA READIES HIS  
HAND LAUNCH STICK



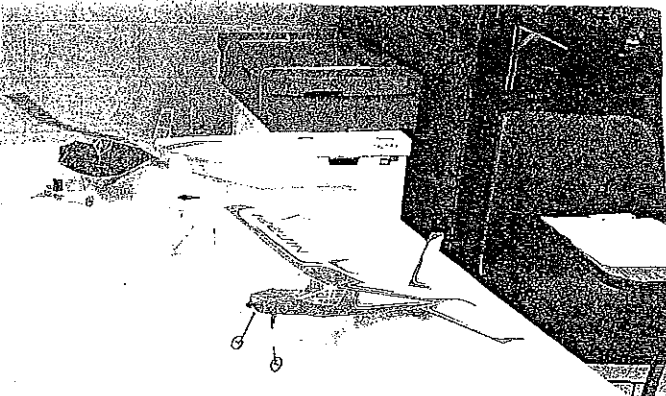
JIM MILLER WORKS ON A CUB



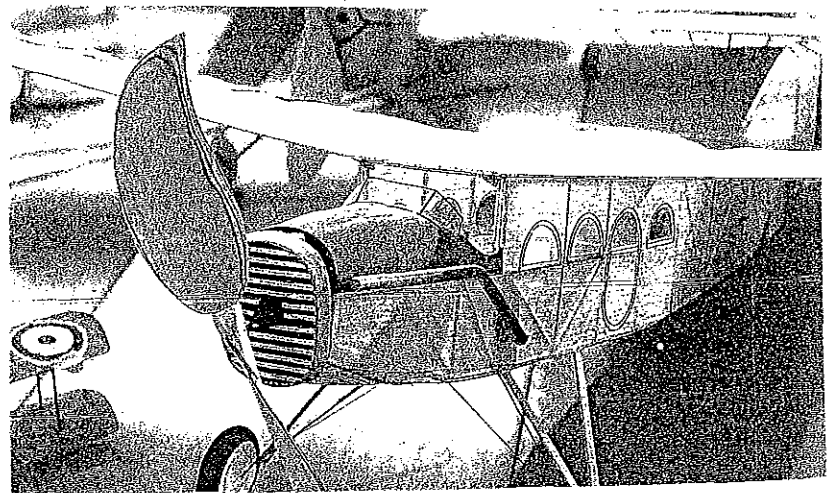
TEM JOHNSON WINDS RUBBER FOR  
AN A-6



L TO R, PHIL SULLIVAN, JP KISH  
AND FRED RASH, OBSERVE.



TWO BOSTONIANS ON PARADE  
LARRY COSLICKS ON RIGHT.



TIM LAVENDER'S FORD/STOUT ?

Electric Duration

Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Best	2nd	Total	Place
Ray Harlan	0	17:21	23:41				23:41	17:21	41:02	1
Fred Rash	0	7:28	10:20	12:05	1:57		12:05	10:20	22:25	2

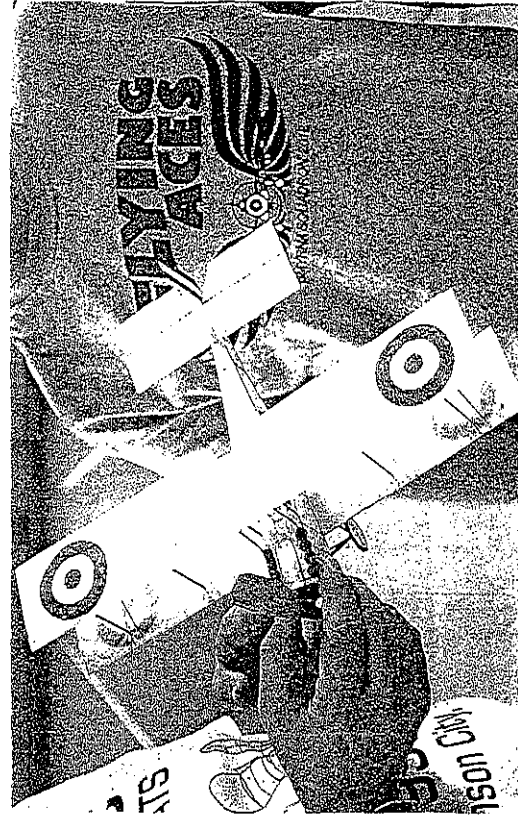




Y.T. LEE WINDS FOR AN EZ-B  
FLIGHT



MORE OF TIM'S YOUTH GROUPS  
MODELS.



LARRY LOUCKA'S WINNING WW1  
MASS LAUNCH ENTRY.

## Bostonian

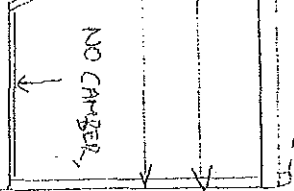
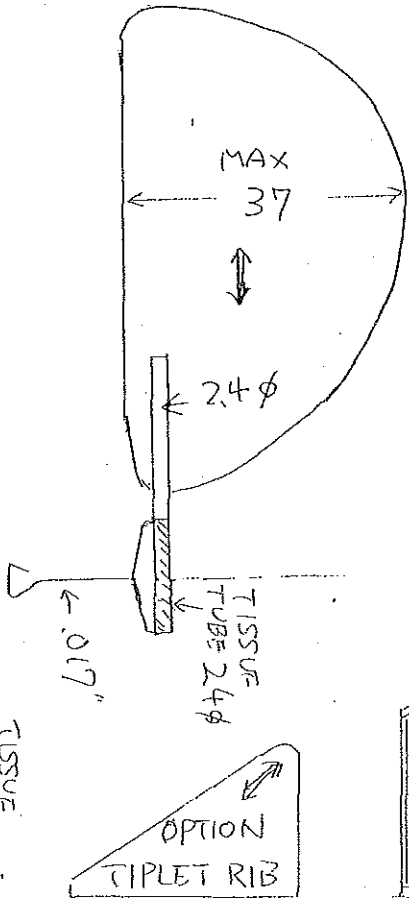
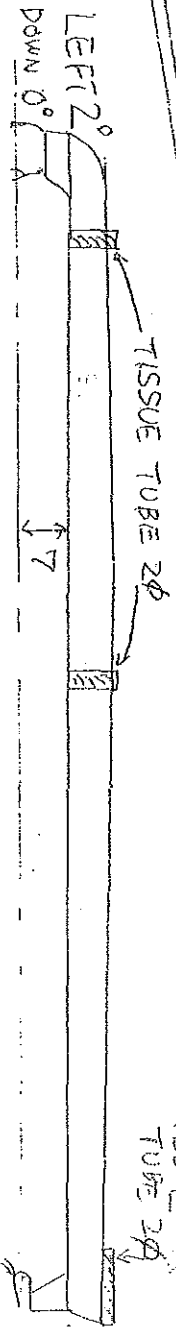
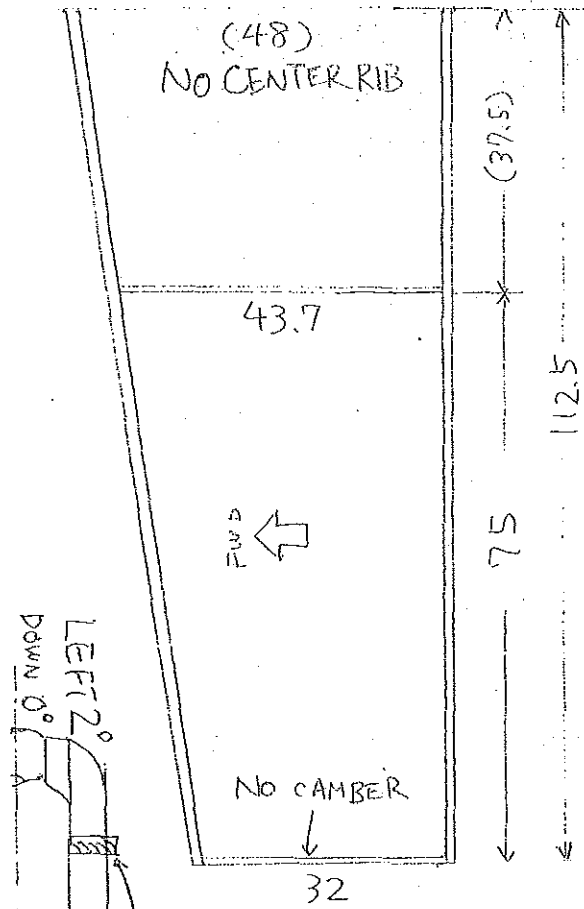
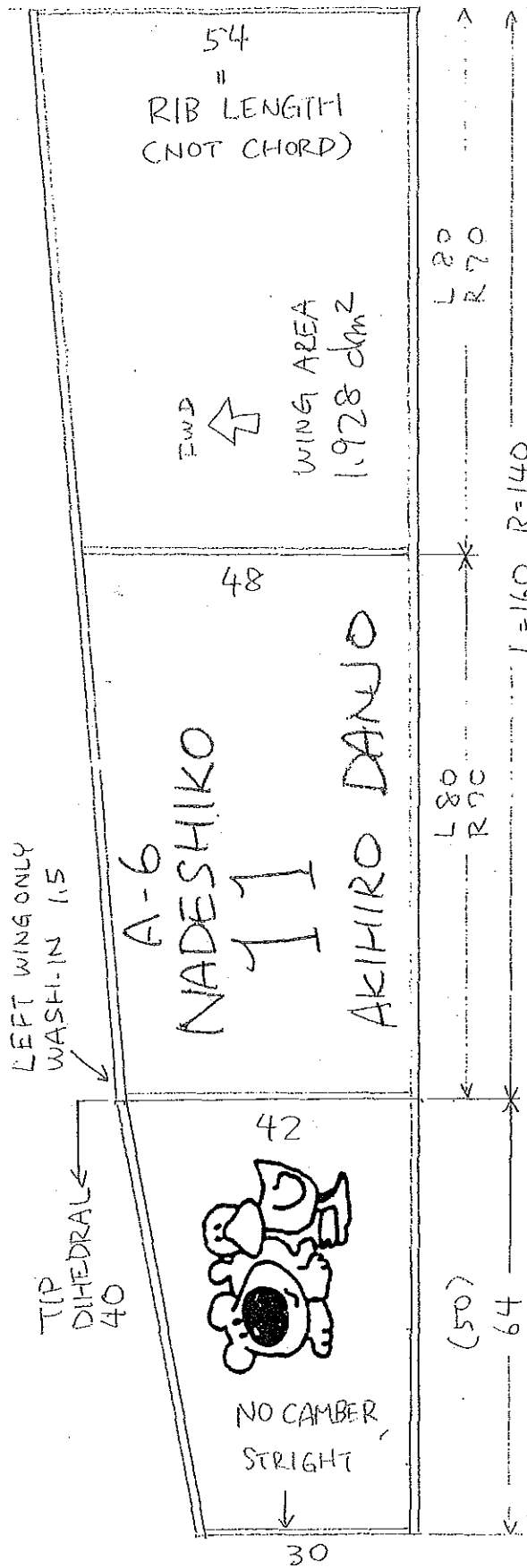
Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Best	2nd Best	Flt Total	Charisma	Total	Place
Larry Coslick	0	4:31	5:04	1:15			5:04	4:31	9:35	1.20	11:30	1
Fred Rash	0	3:49	3:33	3:49			3:49	3:49	7:38	1.10	8:24	2
Paul Grabski	0	3:21	1:02	3:00	3:25	3:17	3:25	3:21	6:46	1.16	7:51	3
David Erbach	0	1:25	1:29	2:04	1:10		2:04	1:29	3:33	1.16	4:07	4
John Diebolt	0	0:52					0:52		0:52	1.14	0:59	5
Bob Warmann	0										DNF	

## Hell

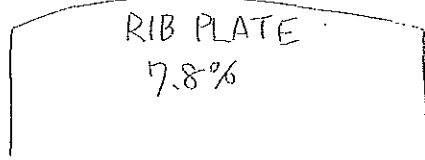
Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Best	Place
Joshua Finn	0	6:36	6:42	7:02	7:55		7:55	1
Larry Loucka	0	0:34	6:49	7:07	7:26		7:26	2
Ben Saks	0	4:56	6:02	6:31	1:42		6:31	3
John Diebolt	0	6:17	2:32				6:17	4
Walt Collins	0	4:57	5:23	5:08			5:23	5
Paul Grabski	0	1:54	2:14				2:14	6
Jim Richmond	0						DNF	
Tom Batte	0						DNF	

## P-24 Mass Launch

Name	AMA #	Time	Place
Ray Harlan	0	0:01	1
John Diebolt	0		
Brett Sanborn	0		
John Kagan	0		
Doyle Blevins	0		
Fred Rash	0		



248  
258  
T.B. OFFSET UP 4 LEFT 4



## Ministick

Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Best	Place
Tom Sova	0	10:27	11:53	8:48	11:51	12:25	12:25	1
Larry Loucka	0	12:00	10:55	11:41	9:54		12:00	2
Walt VanGorder	0	0:00	9:59	9:10	11:29	10:15	11:29	3
Fred Rash	0	6:46	11:09	9:44	1:42		11:09	4
Joshua Merseal	0	10:18	10:29	10:50	10:53	10:29	10:53	5
Walt Collins	0	6:56	8:55	8:32	9:48		9:48	6
Jeff Annis	0	5:31	0:00	7:07	2:36		7:07	7
Rolf Svensson	0	5:28	5:15	5:08	5:57	6:55	6:55	8
Len Singer	0	3:43	5:14				5:14	9
John O'Dell	0	2:54	4:39	2:08			4:39	10
William O'Dell	0	2:36	3:57	4:28			4:28	11
Leo Pilachowski	0	3:08					3:08	12
J.P. Kish	0						DNF	
David Erbach	0						DNF	
Dann Campbell	0						DNF	
Jim Richmond	0						DNF	
Nick Ray	0						DNF	
Anthony Davel	0						DNF	
Bob Warmann	0						DNF	
Tony Pavel	0						DNF	

## LPP

Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Best	Place
WM. Gowen	0	15:16	14:15	15:22			15:22	1
Brett Sanborn	0	13:56	14:27	15:09	14:32	13:51	15:09	2
John Kagan	0	5:41	12:18	13:37	14:43	5:16	14:43	3
Tom Sova	0	13:46	10:03	14:20	13:00	12:56	14:20	4
Larry Cailliau	0	14:14	7:49				14:14	5
Leo Pilachowski	0	11:39	12:08	14:01	14:12		14:12	6
Walt VanGorder	0	13:44	12:59				13:44	7
Steve Fujikwa	0	13:12	13:42	13:32			13:42	8
Yuan Kang Lee	0	13:09	12:24	12:53	12:41		13:09	9
Paul Grabski	0	12:38					12:38	10
Walt Collins	0	12:06	11:47	3:24	10:59		12:06	11
Chuck Markos	0	4:49	8:25	11:50			11:50	12
Dennis Tyson	0	11:13	4:36	11:27	11:27	11:35	11:35	13
John Diebolt	0	7:43	8:27	8:47			8:47	14
Tom Batte	0	8:12					8:12	15
David Erbach	0	6:56	7:50				7:50	16
John O'Dell	0	5:47	6:35				6:35	17
William O'Dell	0						DNF	

## EZB

Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Best	Place
Yuan Kang Lee	0	29:00	28:56	29:24			29:24	1
Larry Coslick	0	29:08					29:08	2
Ray Harlan	0	25:18	28:08				28:08	3
Walt Collins	0	0:00	18:23	18:47	22:54		22:54	4
Steve Fujikwa	0	21:53	22:30	17:54			22:30	5
Jeff Annis	0	15:43	18:07				18:07	6
David Erbach	0	10:16	11:19	3:15			11:19	7
William O'Dell	0						DNF	
Rolf Svensson	0						DNF	
Joshua Merseal	0						DNF	
Jim Richmond	0						DNF	

A-6

# NADESHIKO 11

BY AKIHIRO DANJO

WING SPAR  $\frac{1}{16}'' \times \frac{1}{16}''$  #3.8  
 STAB RIB  $\frac{1}{32}'' \times \frac{1}{16}''$  #4.1

WING POST #7.5  $\frac{1}{16}'' \times \frac{1}{16}''$   
 F.39. R.37

MOTOR STICK #4.2  $2.5 \times 4.7 \sim 3.0 \times 5.8 \sim 2.2 \times 4.8$

STICK WOOD ONLY, 150g

TAIL BOOM #4.6  $2\phi \sim 2.1 \times 3.2 \sim 1.6 \times 2.0$   
 (OFFSET UP 4 LEFT 4) BOOM WOOD ONLY, 1080g

BEARING. HARLAN, SHORTENED NOSE SECTION

PROP SPAR #6.0  $2.4\phi$

SHAFT .017"

REAR HOOK .014"

BLADE #4.1

OPTION ~ WING TIPLET  $\frac{1}{32}''$  #4.1

THIS IS JUST A FASHION  
 ITEM. NO NEED TO USE IT,  
 IF YOUR MODEL IS NOT LIGHT.

WING .303

STAB .134

TB +  
 VER STAB .105

M.S. .210

PROP .383

1.135

TIPLET .054

1.189

+ CEILING BUMPER

OR BALLAST

= 1.2g OVER

NO NEED TO USE STIFF WOOD FOR  
 WING & STAB SPARS & RIBS.

JUST ONLY NEED LIGHT! BECAUSE  
 THEY ARE THICK ENOUGH.

USE GOOD WOOD FOR M.S. AND T.B.

AT SHELLCOM SENDAI, CAT 4

ON 06, MAY '12

BEST TIME 11 MINS 08 SEC

RUBBER  $0.94 \text{ g/m} \times 470 \text{ mm LOOP} = 0.88 \text{ g}$

3900 WOUND - 5 BACKED OFF = 3895

## F1L

Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Flight 6	Best	2nd Best	Total	Place
Brett Sanborn	0	19:29	18:59	21:05	21:41			21:41	21:05	42:46	1
Bill Gowen	0	19:29	13:05	20:12	9:40	21:30		21:30	20:12	41:42	2
John Kagan	0	19:02	20:36	19:43	19:26	20:30		20:36	20:30	41:06	3
Larry Cailliau	0	19:36	19:39	19:29	19:58			19:58	19:39	39:37	4
Steve Fujikwa	0	17:09	13:39	17:54				17:54	17:09	35:03	5
Chuck Markos	0	17:09	5:38	17:11	17:38			17:38	17:11	34:49	6
Joshua Merseal	0	15:15	16:39	16:56				16:56	16:39	33:35	7
Dennis Tyson	0	14:28	14:57	12:57	14:29	14:47	15:48	15:48	14:57	30:45	8
Ben Saks	0	14:36	15:16	13:27				15:16	14:36	29:52	9
Billie Landrum	0	13:54	13:08					13:54	13:08	27:02	10
Tom Batte	0	12:23	13:20					13:20	12:23	25:43	11
Walt Collins	0	9:18	16:07					16:07	9:18	25:25	12
John Diebolt	0	12:18	12:35	3:37				12:35	12:18	24:53	13
Jeff Annis	0	10:59	3:55	9:36	12:12	12:20		12:20	12:12	24:32	14
Len Singer	0	6:58	10:09	9:23	14:00			14:00	10:09	24:09	15
David Erbach	0	9:56	8:34	10:26				10:26	9:56	20:22	16
Leo Pilachowski	0	18:06						18:06		18:06	17
Yuan Kang Lee	0	6:23						6:23		6:23	18
Larry Loucka	0									DNF	
Tony Pavel	0									DNF	
Jim Richmond	0									DNF	
Paul Grabski	0									DNF	
Bob Warmann	0									DNF	
WM. Gowen	0									DNF	
Rolf Svensson	0									DNF	
Anthony Davel	0									DNF	
J.P. Kish	0									DNF	
Tom Sova	0									DNF	

## Int Stick

Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Best	Place
Tom Sova	0	30:35	34:25				34:25	1
Larry Coslick	0	31:30	28:17	31:16			31:30	2
Larry Loucka	0	27:24					27:24	3
Yuan Kang Lee	0	26:56	7:57	26:04			26:56	4
Joshua Merseal	0	18:21	19:36				19:36	5
Ray Harlan	0	18:36					18:36	6
Jeff Annis	0	12:55	9:55	10:04	12:20		12:55	7
John Kagan	0						DNF	
Joshua Finn	0						DNF	

## Dime Scale

Name	AMA #	Aircraft	Bonus	1st Flight	2nd Flight	3rd Flight	Score	Place
Ray Harlan	0		183	120	120	120	909	1
John Diebolt	0		173	120	120	120	879	2
William O'Dell	0			44	44	43	131	3
Paul Grabski	0			41			41	4
Jim Miller	0							
Bob Warmann	0							
Chuck Markos	0							
Steve Fujikwa	0							

## A-ROG

Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Best	Place
Ray Harlan	0	0:00	15:58	18:04	18:50		18:50	1
Larry Loucka	0	0:00	0:00	18:21	17:36		18:21	2
Larry Coslick	0	15:30	16:41	17:51	15:04	18:04	18:04	3
John Diebolt	0	7:50	9:47				9:47	4

## WWI ML

Name	AMA #	Aircraft	Down	Place
Joshua Finn	0			
Larry Loucka	0			1
Tim Lavender	0			

## HLS

Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Best	Place
Ray Harlan	0	32:44	32:02				32:44	1
Larry Loucka	0	26:11	29:32	23:18			29:32	2
Yuan Kang Lee	0	26:51	26:38	25:46	29:05		29:05	3
Tom Sova	0	25:38	28:22				28:22	4
Jeff Annis	0	21:40	26:40	26:46			26:46	5
Larry Coslick	0						DNF	
Ben Saks	0						DNF	
Joshua Merseal	0						DNF	

## Pennyplane

Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Best	Place
John Kagan	0	15:57	17:13				17:13	1
Ray Harlan	0	15:29	16:55				16:55	2
Tom Sova	0	15:32	16:05	14:05			16:05	3
Leo Pilachowski	0	3:44	13:51	5:09	11:14		13:51	4
Yuan Kang Lee	0	12:38	11:37	12:42	12:12		12:42	5
Tom Batte	0	11:37	8:18				11:37	6
Tony Pavel	0	6:29	6:57				6:57	7
Bob Warmann	0						DNF	
Larry Loucka	0						DNF	
Jim Richmond	0						DNF	
Billie Landrum	0						DNF	

## Modern Civil Production

Name	AMA #	Aircraft	1st	2nd	3rd	Score	Place
Robert Stevens	0		101	114	109	324	1
William O'Dell	0		24	29	32	85	3
Jim Miller	0		120	59	73	252	2
Richard Davidson	0		39	42		81	4

## RTP

Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Best	Place
John Diebolt	0	4.20					4.20	1
Walt Collins	0	6.17	8.67	4.90	5.09		4.90	2
Joshua Finn	0						DNF	
Ray Harlan	0						DNF	

## Coconut

Name	AMA #	Aircraft	Flight 1	Flight 2	Flight 3	Best	Place
Robert Stevens	0		1:18			1:18	1
Joshua Finn	0					DNF	
Tim Lavender	0					DNF	

## LPP Pro/Am

Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Best	Place
Vic Welland	0	12:09					12:09	1
Seth Nagy	0	3:07	10:21	9:06	9:01	5:50	10:21	2
Brett Sanborn	0						DNF	

## Science Olympiad

Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Best	Place
David Erbach	0	1:00	2:00	2:00			2:00	1

## Ornithopter

Name	AMA #	Flight 1	Flight 2	Flight 3	Flight 4	Flight 5	Best	Place
Ray Harlan	0	11:32	14:29				14:29	1
John Diebolt	0	6:28	6:58				6:58	2

## WWII ML

Name	AMA #	Aircraft	Down	Place
Joshua Finn	0		3	1
Robert Stevens	0		2.0	2
Chuck Markos	0		1.0	3

## F1M

[illegible]

## FAC Peanut

[illegible][illegible]

## FAC Scale

[illegible]

RTR

[illegible]



# INDOOR

NEWS and VIEWS

ABRAM VAN DOVER, EDITOR  
112 TILLERSON DR  
NEWPORT NEWS, VA  
23602-4011

ISSUE # 135

EARLY SUMMER

2012



Justice  
FOREVER



FIRST CLASS

## INAV

Indoor News and Views

Yes!

Sign me up for \_\_\_ 1 year @ \$15.00 U.S., \$19.00 Canada

\_\_\_ 2 years @ \$30.00 U.S., \$38.00 Canada

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Send a Sample Copy to a Friend???

Friend's Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

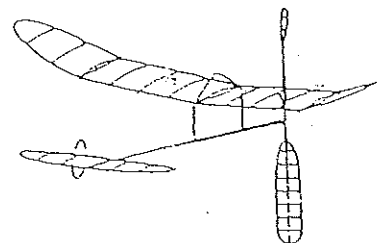
Send all dues to: Abram Van Dover  
112 Tillerson Dr  
Newport News, VA  
23602

**Make all checks to  
Abram Van Dover**

ISSUE # 136  
MID SUMMER  
2012

# INDOOR

## NEWS and VIEWS



### FROM THE EDITOR'S DESK

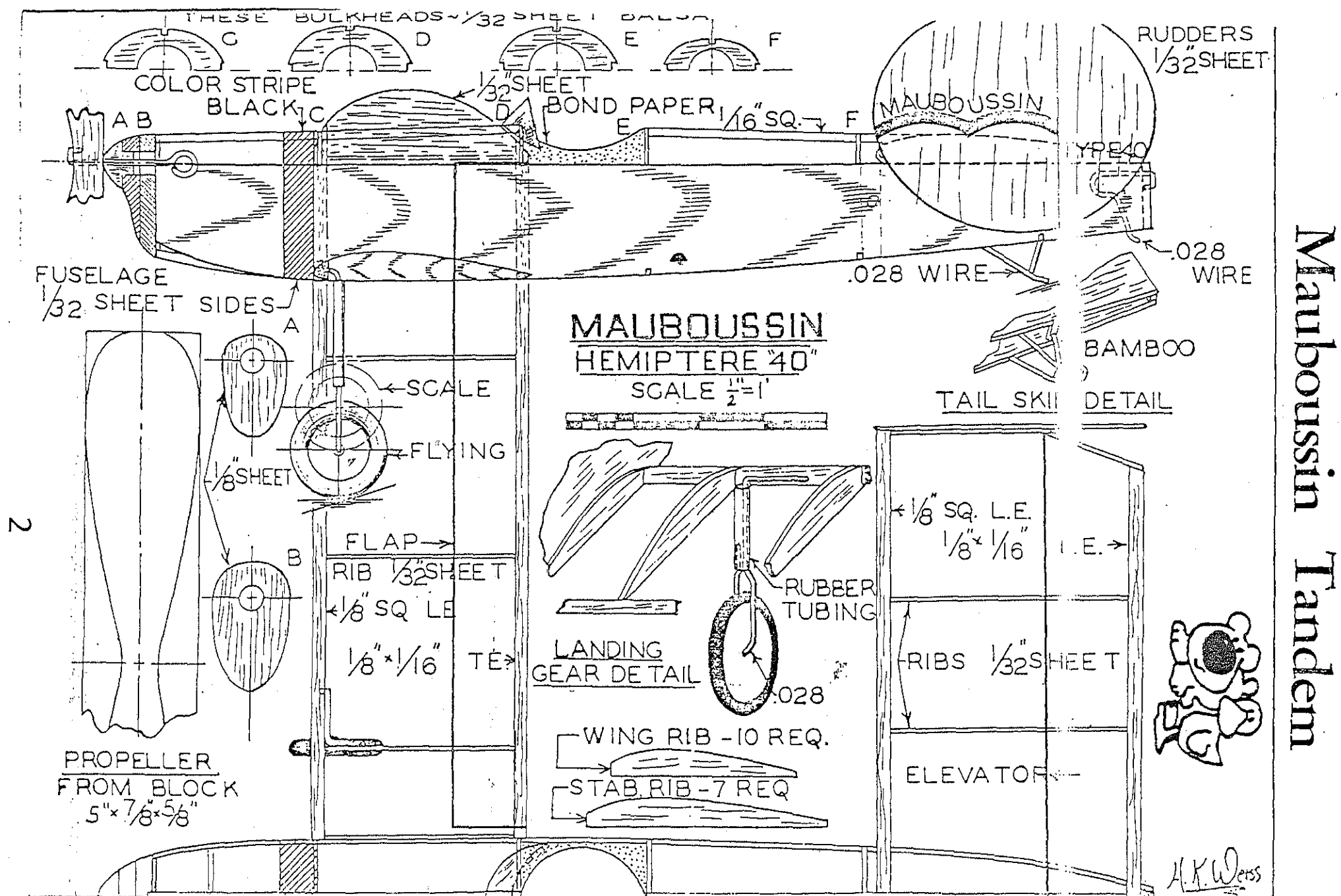
This issue we really have a bunch of things to discuss and hash over, some of it good, some of it not so good. First of all, I want to thank John Kagan and Al Mkitarian for getting us the results and comments from the Kibbie Dome contest. We also have some plans and gadgets you can make to assist you in quest for better times in flying your indoor models. We also have a Peanut scale model that is unique and kind of weird looking, but will start you down the path of building scale models. This might cause a lot of controversy from you scale guys. Not everyone wants to start with a Piper Cub or the likes. In keeping with my idea of putting a page from John Barker's pamphlet on building a Pennyplane, you may use the principle to building other types of indoor models. This was not in John's article, I added it for the Brainbusters use. It is an excellent tool and need not be an expensive and elaborate piece of equipment. Oh yes it is a pitch gauge. The next item by Larry Coslick is for the hard core indoor flyer. This item is a torque meter, where the torque is measured on the model and taken from propeller. Larry used it on EZ-B models, but I'm sure you can set it up for other types of indoor models, your choice. One piece of good news is that Shorty's Basement is back in business. Check with the ad elsewhere in this issue of INAV. There is also in this issue a good picture of Akihiro Danjo's A-6 model and a blurb about the models Center of Gravity. Now for all you F1D flyers we have one by Tim Hayward-Brown. Now hear this! You will not see this in the picture of Tim's V/P prop as I have it in Black and White. So what? It appears to me that Tim and others are now putting blue dye in the glue so they can see where the glue is going and it is obvious that Tim used the blue glue to bond the boron on the fuselage/motor stick. It shows up as black in picture we have. Blue Glue, you have started a fad Tim.

Now we come to the BAD NEWS. With the August/September issue I will end Indoor News and Views. With the Internet and other electronic devices our news is two months old by the time you get it. We have lost half our Subscribers and more than half of our overseas subscribers. Now, we have money in the bank. Anyone that wants any money left on his subscription contact me at the address on the newsletter or at my E-mail address and we will fulfill your wishes. If you do not contact me by the 15<sup>th</sup> of October, I will donate the money to the National Free Flight Society with the stipulation that it be used on Indoor Free Flight projects. In the last issue of INAV I will publish how much money will go to NFFS. I do want to thank all the past Editors for all their hard work. Believe me it was a hard decision, but the time has come. Please feel free to send comments to me at my addresses in this newsletter.

Back to some more good news. To you modelers that want to build the Mauboussin Tandem, by all means check the notes at the bottom of the page. Make these changes, some or all, none if you feel that way. I have seen the model fly with almost no changes. For the more experience models go for all of them and even add your own changes. This is what modeling is all about. I plan to put some 1/64<sup>th</sup> plywood on the rear of the leading edge to beef up that area by the landing gear. Remember what Tim Hayward-Brown says "Glue, or too much of it is our biggest enemy". Thanks Tim, that fit in well.

Remember August/ September will be your last issue. Send me your comments, good or bad

Keep the faith, Abram



Another goodie from TONY PETER's larder. This one could be a good flier. Obviously, it has to be lightened...especially the tail. Fins should be outline, not sheet; body and wing-tips should be built up, not sheet. Who needs 1/8 square leading edges?...or 1/8 x 1/16 trailing edges?

Move the rear hook forward...use a peg. I think it pragmatic to widen the wing chord a bit add 1/4" to the rear. Be sure to make entire nose block removable...not just the bearing button. Wing should be one-piece through fuselage; not panels butted to body. Beef up LG joint.

## Re: Kibbie Dome

Fri Jul 13, 2012 8:42 am (PDT) . Posted by:

"Yuan Kang Lee" yklee@x

A few results deserve extra mention. Moscow, Idaho is situated at an altitude of 2600 ft. The altitude results in serious performance loss compared to sea level. As an example, my EZB flies with an average RPM of 64 at Johnson City but turns a fast 69 RPM at the Kibbie.

John Sayre's HLG 2 flight total of 180s (90,90). I believe these are site records. I saw a couple of John's practice flights, and his launches were very high, about 120 ft. In 2008, the big guns of HLG were at the Kibbie for the "Battle Near Seattle", and the winning time was 158 by Stan Buddenbohm.

Emil Schutzel's 13:11 Ministick flight.

Royce Chung, who is a junior flier, winning Limited Pennyplane with a time of 13:42.

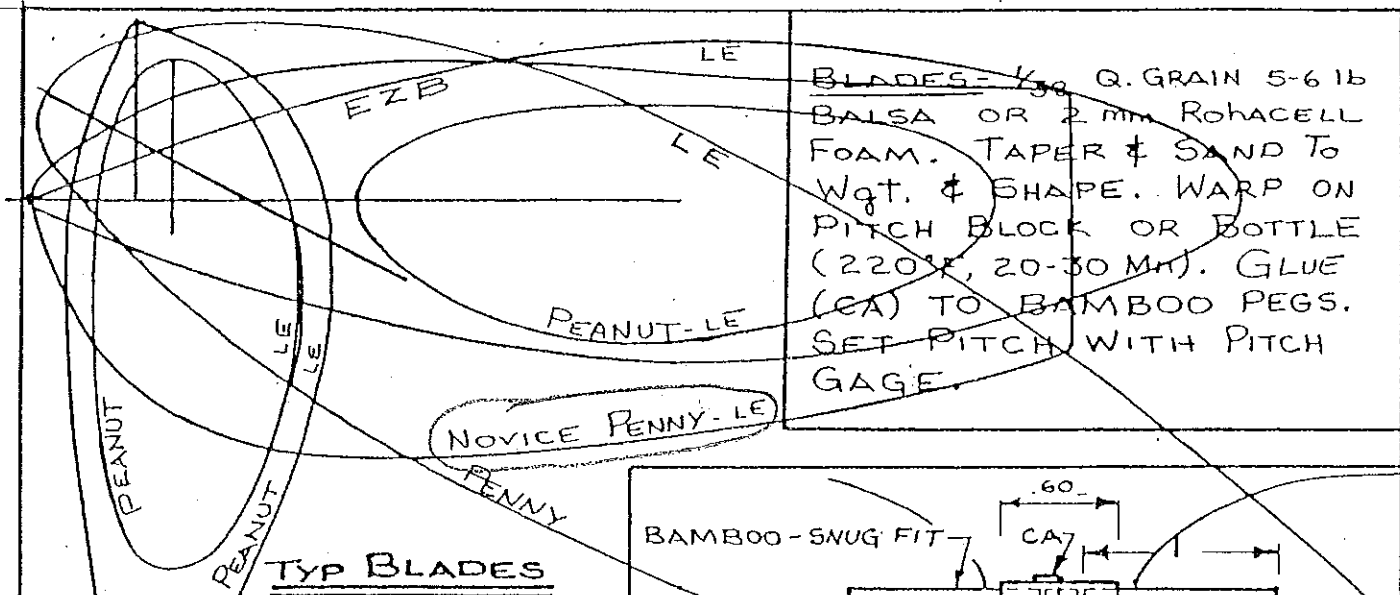
Larry Coslick's 29:12 EZB flight. There has only been a handful of 29+ minute flights at the Kibbie.

Jake Palmer's 1/2 A winning time 12:37. This is a site record.

Tim Chang's 35:02 in Intermediate Stick. Tim is an incredibly good flier. I believe he holds the Kibbie site record in F1D. Look out for him in the F1D Team Selection contest in 2013.

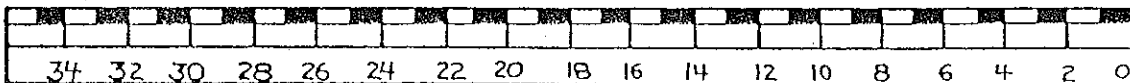
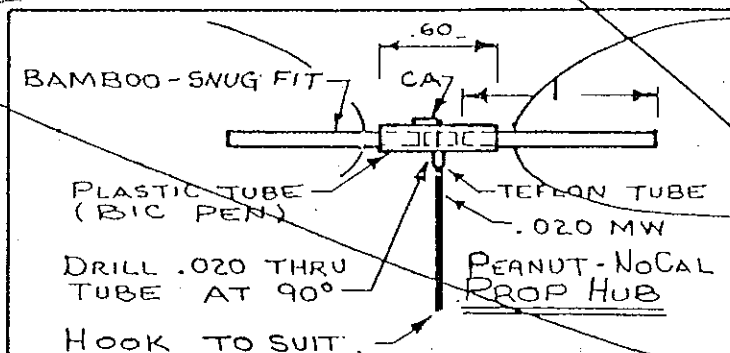
Larry Coslick's 34:55 in Intermediate Stick.

- HLG:	- Intermediate Stick	- EZB
John Sayre 180 (90,90)	Tim Chang 35:02	Larry Coslick 29:12
Ed Berray 111	Larry Coslick 34:55	Yuan Kang Lee 28:24
		Kurt Schuler 24:33
- Ministick:	- 35 cm	- F1D
Emil Schutzel 13:11	Larry Coslick	Jake Palmer 52:31
Royce Chung 11:22	Ed Berray	Leo P. 52:04
		Tim Chang
- Limited Pennyplane	- Pennyplane	- A6
Royce Chung 13:42	John Sayre	Emil Schutzel 9:02
Michael Altig	Michael Altig	Michael Altig 8:25
Ed Berray 13:26		Ed Berray 7:20
- F1L	- AROG	- 1/2A
Steve Brown 40:27	Larry Coslick 18:40	Jake Palmer 12:37
Leo Pilachowski 38:37	Ed Berray 17:24	Emil Schutzel 11:33
	Wally Miller 16:05	Wally Miller 10:58
- 0.6g Larry Coslick EZB		
Larry Coslick 24:11		
Wally Miller 23:00		
Jake Palmer 21:51		



BLADES -  $\frac{1}{32}$  Q. GRAIN 5-6 lb  
BALSA OR 2 MM ROHACELL  
FOAM. TAPER & SAND TO  
WGT. & SHAPE. WARP ON  
PITCH BLOCK OR BOTTLE  
(220°F, 20-30 MIN). GLUE  
(CA) TO BAMBOO PEGS.  
SET PITCH WITH PITCH  
GAGE.

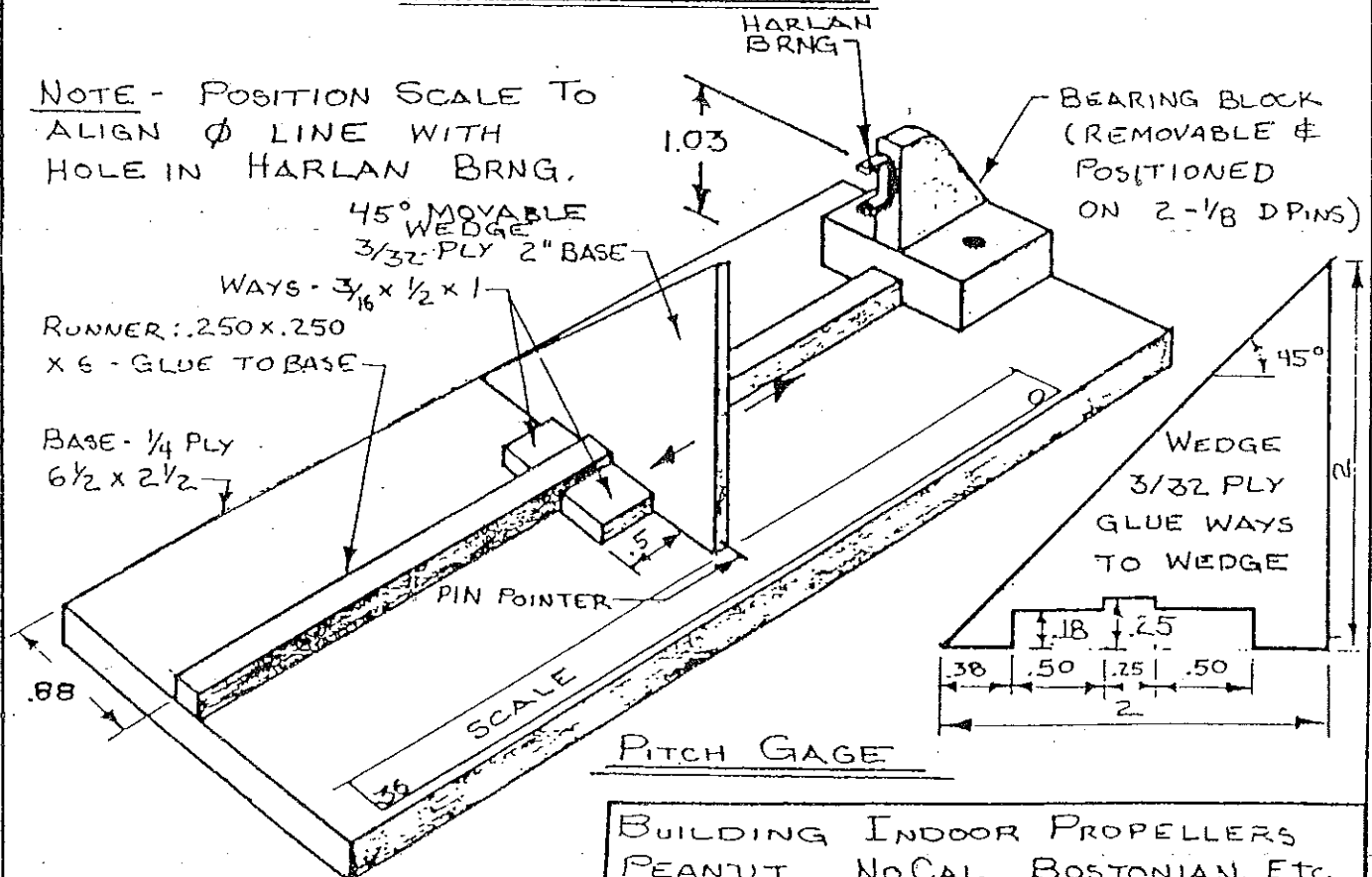
TYPE	Wgt (gm)	DIA.	PITCH
PEANUT	.4 - 1.0	6 - 7.5	10 - 15
N P	.65 - .85	12	20 - 28
P	.75 - .95	12 - 17.5	22 - 30
EZB	.14 - .22	12 - 16	22 - 32



SCALE (FULL SCALE)

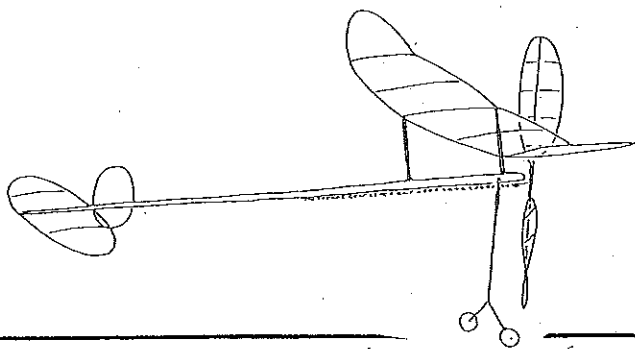
$$P = 2\pi r \tan \alpha$$

NOTE - POSITION SCALE TO  
ALIGN  $\phi$  LINE WITH  
HOLE IN HARLAN BRNG.



BUILDING INDOOR PROPELLERS  
PEANUT, NOCAL, BOSTONIAN, ETC.

LESTER W GARBER 2324 E 5TH ST.  
JAN 90 *LWG* DULUTH, MN 55812



**A2Z**  
**CORP**

**Peck-Polymers**  
Quality kits  
at savings to you

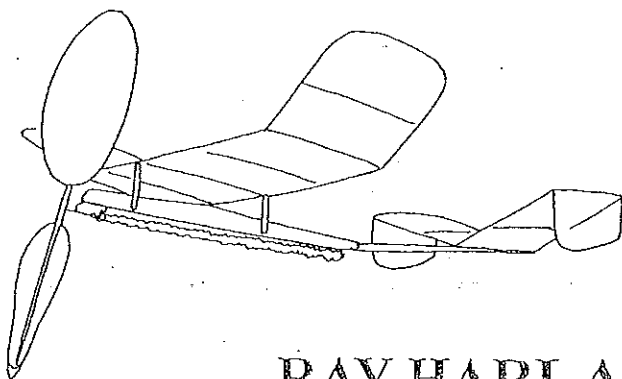
**TRU-WEIGHT**  
Indoor balsa

**sting**  
Micro plane kits

**INDOOR**  
Micro plane kits

300+ Kits - 1000+ Free Flight, Indoor,  
Micro Plane items available online.

**www.A2ZCorp.us/store**  
**720 833-9300**



*Under New Ownership*



**Shorty's  
Basement**

*"We go to great lengths to make sure you're happy"*

**SUMMER SALE**

Mention this ad and get...

**10% off orders over \$50**

**15% off orders over \$100**

**20% off orders over \$250**

Consolidated orders for  
clubs are welcome.

Sale ends August 31, 2012

**Shorty's Basement**

7686 B Drive S., Battle Creek, MI 49014

(269) 339-9795

**www.shortysbasement.com**

**RAY HARLANS INDOOR SUPPLIES**

## **Indoor Model Specialties**

[www.indoorspecialties.com](http://www.indoorspecialties.com)

### *Special tools:*

*Superstrip rubber strippers*

*Micrometer balsa strippers*

*Digital thickness gages*

*Spring and beam scales*

15 Happy Hollow Road  
Wayland, MA 01778  
508.358.4013

*and much more*

*Online, use credit cards or PayPal*

### *Special supplies:*

*Pigtail thrust bearings*

*Ultrafilm Mylar coverings*

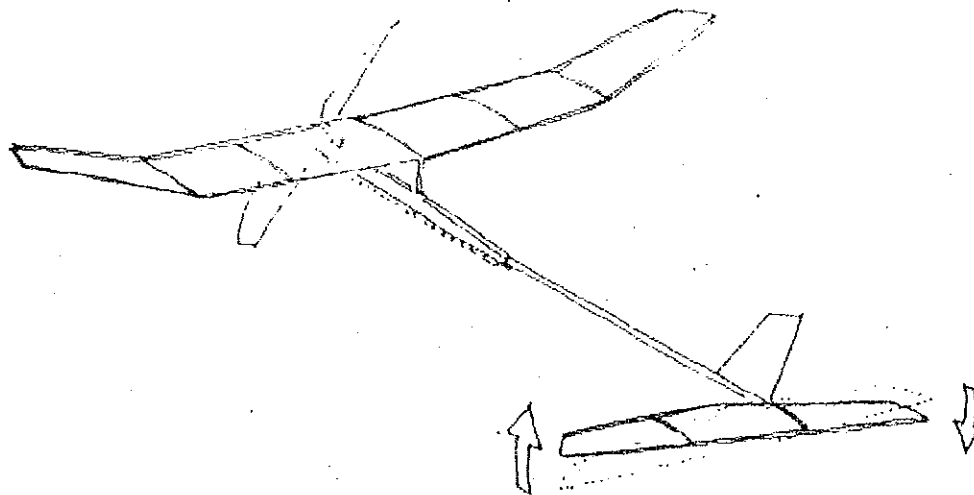
*Boron fibers*

*Tungsten bracing wire*

*"Send me some more of the world's  
best thrust bearings"*

**LOOK ME UP**

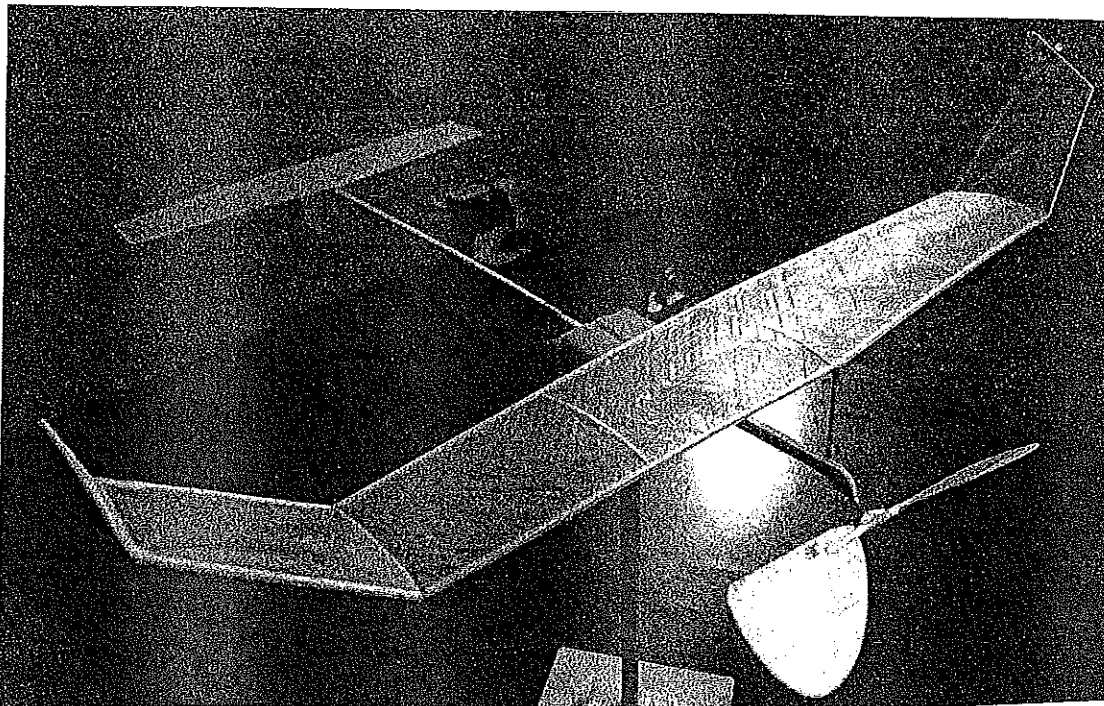
**Automatic stab tilt. If your model won't turn left under a full launch torque, try this**  
 Drawing by Steve Gardner



I stumbled on this automatic stab tilt phenomena by accident after completing a small 15 square inch model called 1/2A stick, designed by Wally Miller, the originator of the EZ-B. VP props are legal on this model. The model would fly fine on a fixed pitch prop, but it didn't like the high pitch of my 8" VP prop. I used a lot of off set in the wing along with wash in and it would start it's climb OK and then crab off to the right and stall. Nothing seemed to work to correct this problem, including lowering the pitch. I decided to off set the stab and did it in a big way. 70% of the stab on the inboard side. The offset stab looked weird and drooped enough to cause quite a bit of negative stab tilt at rest.

The model is small enough to fly in a large room and when I flew it with the same torque and high pitch that caused the stall in the first place, the model continued it's climb without any hint of a stall. The boom and stab twist under the flight load to give a left turn. I tried the stab offset one of my F1L's that didn't want to turn with a lunch torque over .2 in. oz. and it solved that problem. I didn't have to change the boom on either model and tweaking the boom can be used to change the circle.

L. Coslick 2010

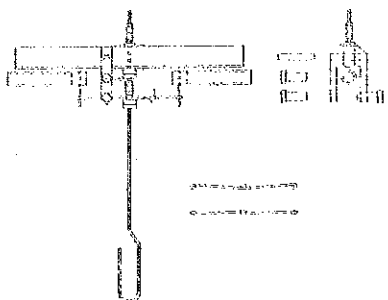


**NADESHIKO 11, A-6 BY AKIHIRO DANJO**

AKIHIRO SAYS, CENTER OF GRAVITY 23 MM AFT OF WING TRAILING EDGE.  
 C/G WILL MOVE FORWARD WITH RUBBER MOTOR INSTALLED.



The variable pitch prop hub is a combination of ideas from various builders. I couldn't get enough movement from the plastic/tissue hinge style set-up of the Banks/Brown designs - so I incorporated rolled tubes on a half-round hub, more like those I've seen from a few of the European flyers. The hinges are Kevlar thread. The adjuster brackets are made from basswood, pinned through the hub with a hard balsa dowel, and then wrapped a couple of times with single Kevlar filaments. I'm so sick of these breaking off just when I think I have it set up right!



VP Mechanism (32mm wide)

The motors used were about .058 width wound to around 0.6oz/in and then backed off to half that for launch. The test flight of 16:45 was made on Sep 2000 Tan II (thanks Peter Twiss!) and the 18:44 on Apr 2010 SuperSport. I used both later in the day but as conditions deteriorated the early times were hard to match.

#### Blue Streak Weight and Component Breakdown

##### Component Weights

VP Prop	0.280
Wing	0.351
Stick & Posts	0.356
Boom & Fin	0.168
Stab	0.110
TOTAL:	1.265

##### Fuselage

Stick:	.0125in (4.4#) on 1/4in form (4 borons)
Stick ext:	.010in (4.5#)
Boom:	.009in (4.5#) 1/4in > 1/8in diam

##### Wing

Spars:	.036 x .050 > .036 x .100 > .036 x .050 (5.5#)
Tips:	.027 x .050 > .027 x .030 > .027 x .050 (5#)

##### Stab

Outline:	.027 x .055 > .027 x .030 > .027 x .055 (5#)
Ribs	.024 x .030 > .024 x .045 > .024 x .030 (4#)

##### Prop

Outline:	.022 x .022 (5.5#)
Ribs:	.022 x .022 (4.5#)
Spar:	.075 x .080 > .025 x .025 (5#)

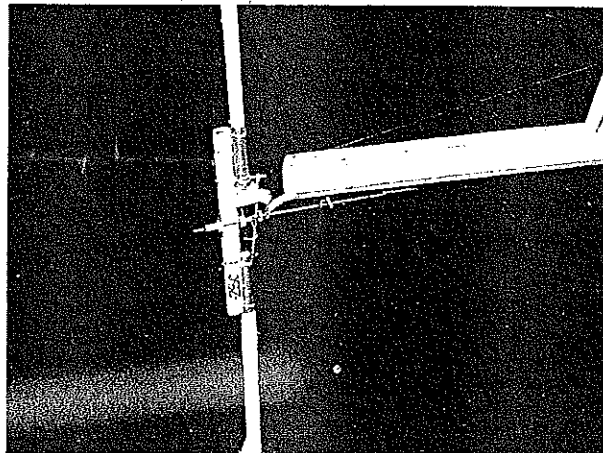


Jack Metcalf, Tim Hayward-Brown and Max Newcombe

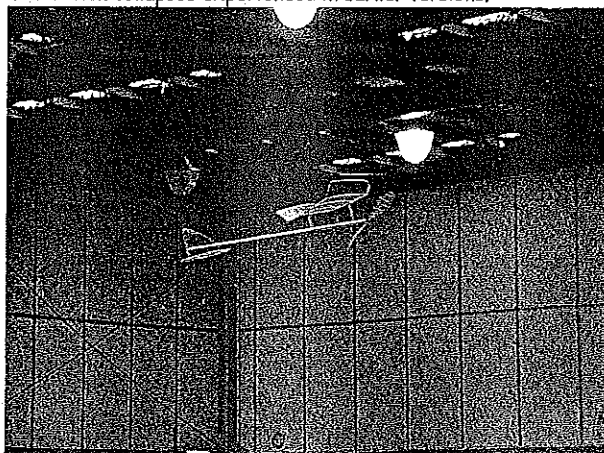
#### Blue Streak F1D - Tim Hayward-Brown

*Best time: 18:44 (Melbourne 18 Dec 2011)*

Glue is the enemy of indoor models - or too much of it anyway. After making a number of overweight motorsticks, one day I added some blue dye to the Ambroid and acetone to see how much was being used and exactly where it was going. The result on the sticks, especially after the four borons had been added, left long blue streaks along the sides. As it happens, my Dad worked on the rocket projects at Woomera back in the 60's. So the name 'Blue Streak' came to mind readily. Mine travel a bit slower it has to be said.

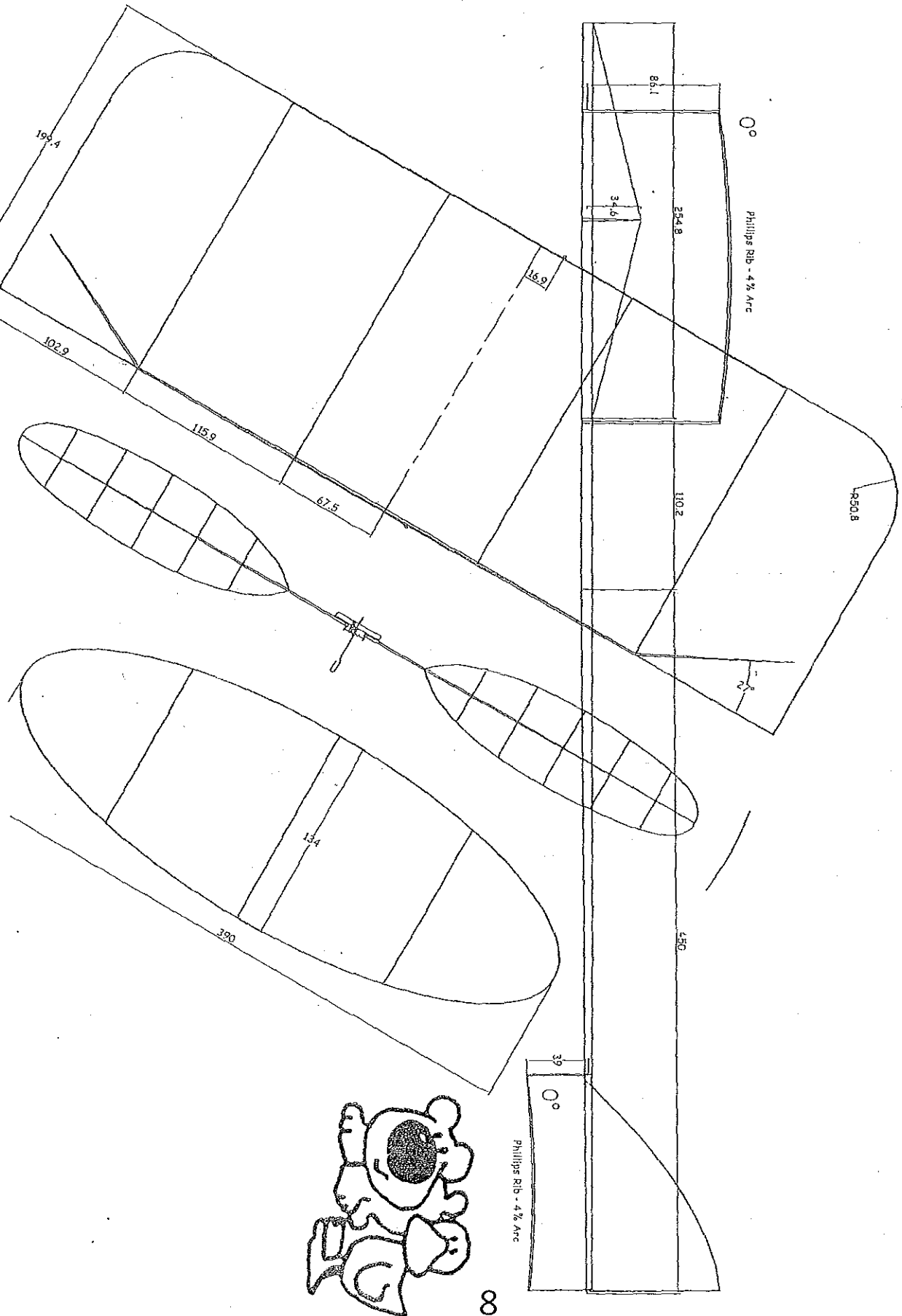


The three models I brought to Melbourne were all of similar design. The prop shape is borrowed from Ivan Treger and the stab shape from John Kagan. The wing is set a bit further back than most flyers. There is no boron on the wing or tail boom - but four around the motorstick. The webs at the prop bearing and rear hook extend well back. This has helped prevent the motorstick collapses experienced in earlier versions.



"Bluestreak" in Flight

# THE 'BLUE STREAK', F1D BY TIM HAYWARD-BROWN



**CALIBRATING METER**

5.67"                      5.67"

1/8" x 1/8" BALSA

WEIGHTS HERE IN ... GRAMS

INCH OZ.

50

.05

WEIGHT IN GRAMS	INCH OZ.
.25	.05
.4	.08
.5	.1
.6	.12
.7	.14
.8	.16
.9	.18
1.0	.2
1.25	.25
1.5	.3

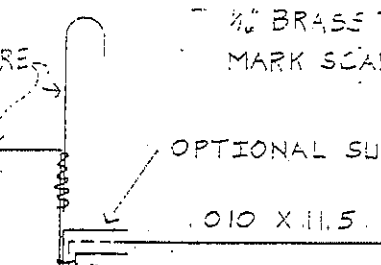
ROTATE IN VICE AS WEIGHT IS ADDED UNTIL CALABRATION STICK IS LEVEL

ALSO BALANCE STICK ON METER BEFORE ADDING WEIGHTS

WEIGHT IN GRAMS	INCH OZ.
.35	.07
.48	.08

6

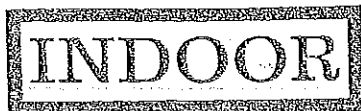
MINI-STICK  
DIAL 1.4'  
1/2" BRASS TUBE 11.5"  
MARK SCALE .01" TO .09" INCH OZ.



.010 WIRE  
OPTIONAL SUPPORT FOR .010 WIRE  
.010 X 11.5 WIRE  
NO. 24 HYPODERMIC NEEDLE .5"  
PLACE .5" HYPO NEEDLE ON .010 WIRE AND BEND 90°  
SCUFF WIRE PARTS WITH 220 SAND PAPER AND  
SOLDER WITH STAY-BRITE SOLDER

WEIGHT IN GRAMS	INCH OZ	WEIGHT IN GRAMS
.05	.01	.35
.1	.02	.4
.15	.03	.45
.2	.04	
.25	.05	
.3	.06	

INDIANA  
SAM CHAMPS, 10-14 SEPTEMBER. AMA FLYING SITE MUNCIE,  
AMA FLYING SITE, MUNCIE, INDIANA  
AMA/NFFS OUTDOOR FREE FLIGHT NATIONALS 6-10 AUGUST



NEWS and VIEWS

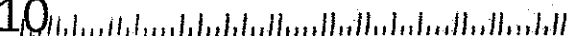
ABRAM VAN DOVER, EDITOR  
112 TILLERSON DR  
NEWPORT NEWS, VA  
23602-4011

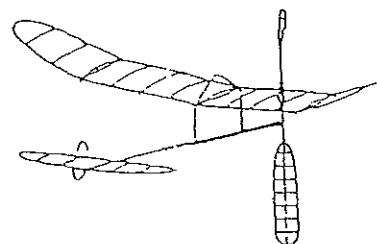
ISSUE # 136  
MID SUMMER  
2012

NORFOLK VA 235  
HAMPTON ROADS  
20 JUL 2012 PM 3 T



FIRST CLASS





## FROM THE EDITOR'S DESK

What do you write about when you end the life of a fairly old and well known newsletter, past editors?, past issues? This would be nice, but quite lengthy, so we will honor all past editors now. All volunteers, all burning with desire to get the word out to the indoor modeler. Enough about the editors, God bless them. Past issues? never get a winner. We love them all. So here's what I will write about. Two modelers that I think will have quite a bit of influence on our hobby for years to come. First, the young one, Brett Sanborn. Brett led our F1D team to a team First Place in the World Championships. Second, this July he set a new World Record for F1D of 42 minutes and 3 seconds. This is the Super Bowl and the World Series of Indoor Modeling. Brett did this the old fashion way, he earned it. Thanks to all that helped Brett on his journey. The next man is a bit older but no less relentless in his pursuit of getting the most out of an indoor model. Yuan Kang Lee is this man's name and his claim to fame? how about 38 minutes and 48 seconds with an EZ-B model. Kang is right there at the tippy top with Brett. I hope Kang gives F1D a try. Brett, Kang and John Kagan. nuf said. These guys need our support, show how you care with a check for the next go around.

What all we write about now? I plan to show you 8 pages of plans and talk a little bit about each one. These plans are not picked as world beaters but as help aids in getting others started or how about a change of pace. Even many times World Champ Jim Richmond likes to fly a helicopter now and then. Ever try to fly an Autogyro? The first one is sort of a world beater, it is an EZ-B by YK Lee. It no doubt an improvement of this model in the first plan. It gets you used to a smaller model with less parts. Check it out.

The second model is also an EZ-B, how Come? Maybe your not ready for YK's model. Try this more typical model, learn to trim, make props and how to get the most out of your rubber motor. This one is by Chuck Markos and is one good way to gain experience.

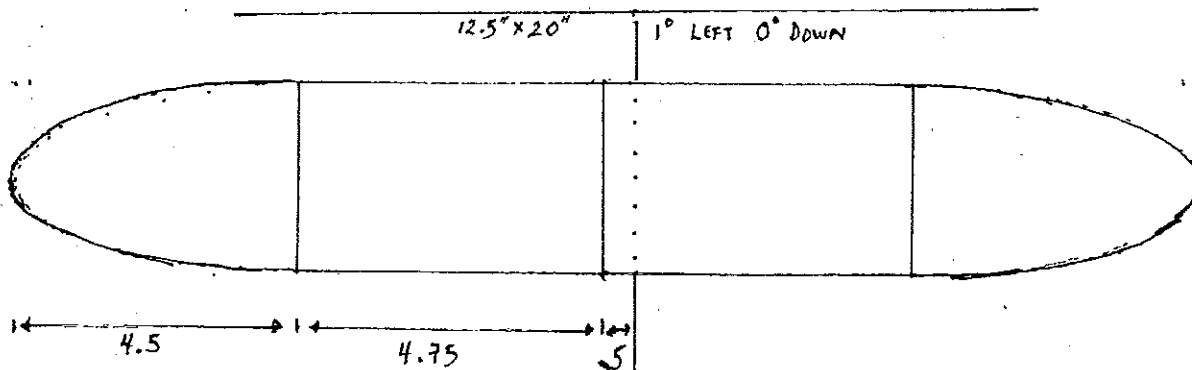
Third up, A Novice or as it is known now, Limited Penny Plane, (LPP). This model is your step up to a big model. It has to weigh a minimum of 3.1 grams. Beware! as weight adds up fast. A prop can add that weight to your first model. This model was drawn up by Cezar Banks. This is a proven model and a great addition to your model stable.

Next up is another LPP this one by a former club mate of ours and a guiding influence in the model field, Bob Champine, now deceased. If you will look at the front view you will notice that the wing has polyhedral. When I asked Bob about this, he said, "stability". Never question an Aero Engineer, Test Pilot or someone with 60 years model experience.

Now for a change of pace, a sort of scale fixed winged model. This is called a No Cal model. This model could lead you into scale stuff, watch out! Different building and flying techniques. It's called an education. Cover with tissue, more learning.

What the devil is this? It's an AUTOGYRO. Regular indoor building techniques, prop and all, add that rotor to the top and presto, an autogyro. Pay attention to detail.

Let's go back to normal indoor stuff, except you now have a weight requirement of 1.2 grams. once again you must pay attention to detail. check that stab, what's that stuff at the end of the wing? Tiplets? What's the size of the wood? Look at Chuck's model, it's a light F1L. Use that brain of yours. Last but not least, we have an A-6, this started out as a beginners model and has evolved to this. Read all the rules or get with your local expert. The model must weigh 1.2 grams and weight will dictate how yours will fly. It's a small model and will teach you many tricks, pay attention

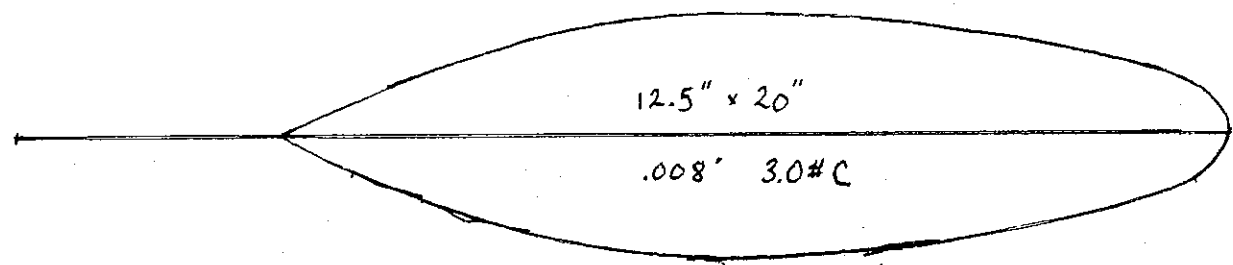
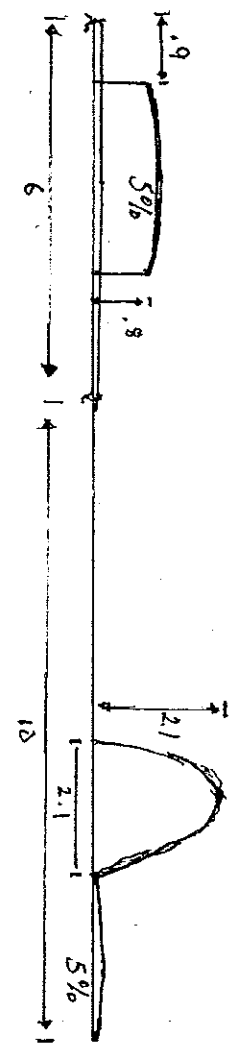
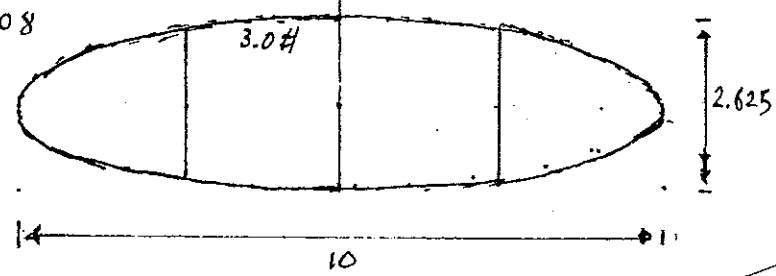


WING

SPAR	.024 x .070 (C)	5.4#
	.024 x .045 (DIH)	
TIPS	.015 x .039	5.7#
RIBS	.022 x .045	4.8#C
STAB		
SPAR	.015 x .030	3.7#
RIBS	.015 x .030	4.8#C
PROP		
SPAR	.060 x .045	5.1#
	.030 x .030	
BLADES	.008	

STICK

MOTOR STICK	.095 x .150 (F)	3.5#
	x .145 (C)	
	x .105 (E)	
POST	.050 DIAMETER	7.3#
BOOM	.040 x .070	6.0#
	.030 x .025	



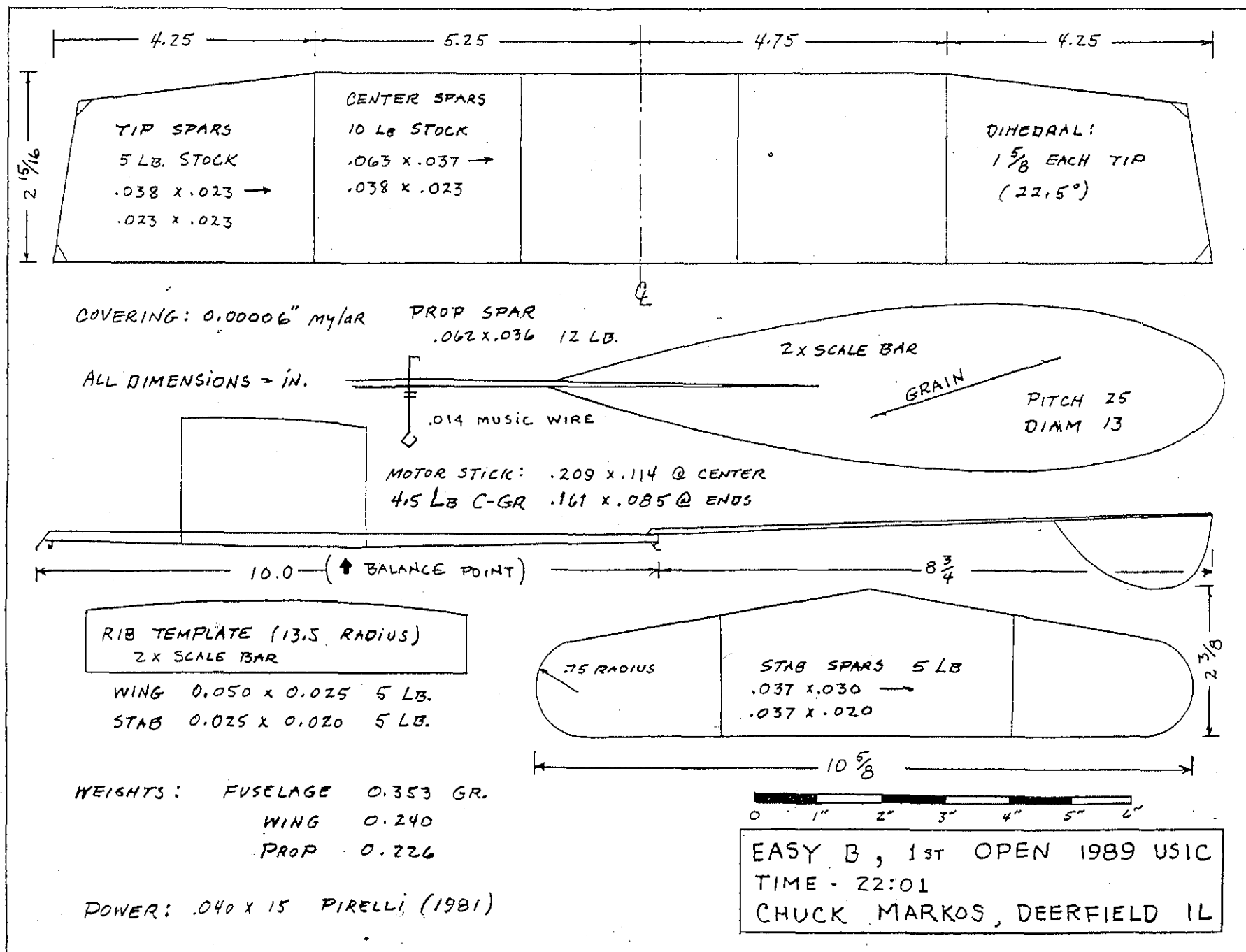
WING	.105
PROP	.102
FUSE ASSMBLY	.167
TOTAL	.374g

MINIB EZB BY YUAN KANG LEE

30:00 SEPT 19, 2010 LAKEHURST

.0169/IN (.024") x 12" x .38g

3/02 TAN II



# NOVICE PENNYPLANE

REV Jan '90

## WING:

LE 1/16 sq-round nose  
TE 1/16 sq  
TIPS 1/16 sq to .04  
RIBS 1/32 x 1/16  
with 12" arc  
POSTS 1/16 Round

## STAB:

LE .05 x .04 -round nose  
TE .05 x .04  
TIPS .05 x .04 taper to .03  
RIBS 1/32 x .05, 18" arc

## STICK:

3/16 x 1/4; taper both  
ends to 1/8 x 3/16

## BOOM:

3/16 x 1/8 taper to 1/16 sq

## PROP:

12" Dia, 22" Pitch,  
HUB: 4", 1/8 round, taper  
to 1/16  
BLADES: 1/32 sheet, thinned  
out at tips  
WIRE .020" or .025"

## COVER:

Microlite or any thin plastic  
film - thinned rubber cement

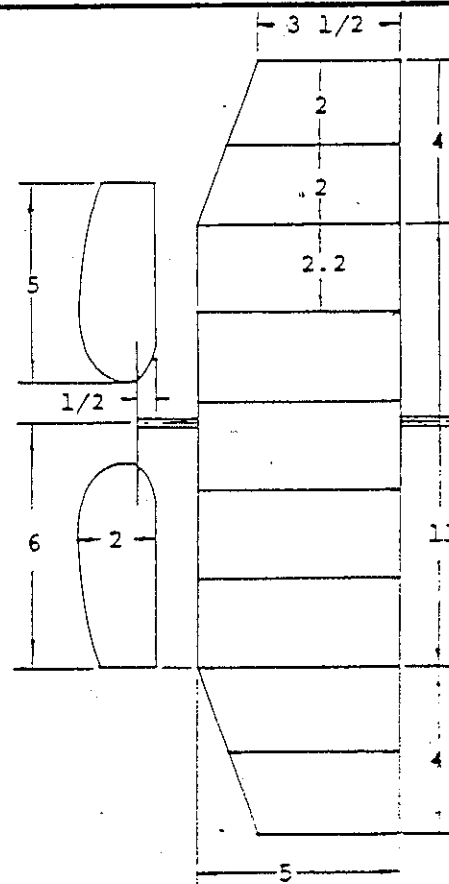
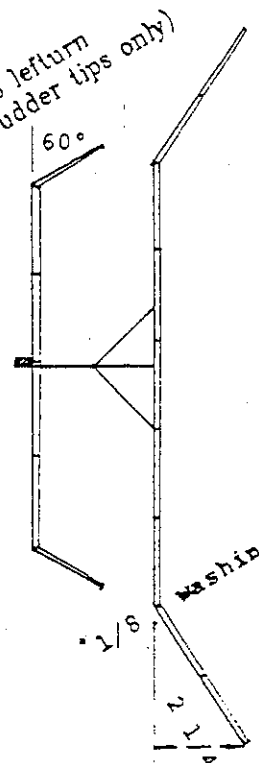
## WEIGHTS:

Wing .031  
Prop .023  
Rest .058  
Total .112 oz

RIBS & PROP BLADES ARE  
SOFT BALSA; ALL ELSE IS  
MEDIUM.

NOTE: soak/form/  
bake blades on one  
gallon glass jug  
at angle of 17°.  
Glue to hub so that  
at 3.5" radius, 45°  
angle is formed.

Drawn by Keith Varnau

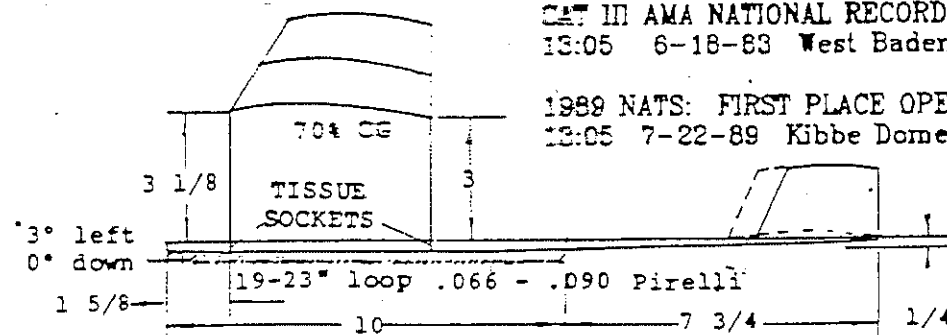


89 stab outline

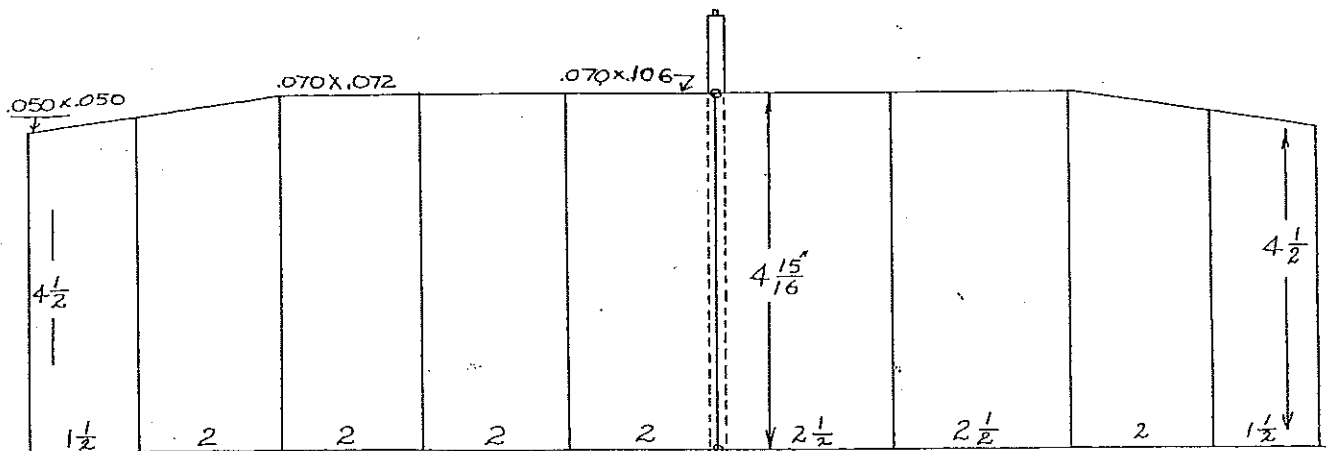
by CEZAR BANKS  
NOVICE PENNYPLANE

SET IN AMA NATIONAL RECORD:  
13:05 6-18-83 West Baden

1989 NATS: FIRST PLACE OPEN  
13:05 7-22-89 Kibbe Dome



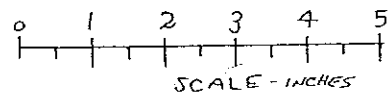
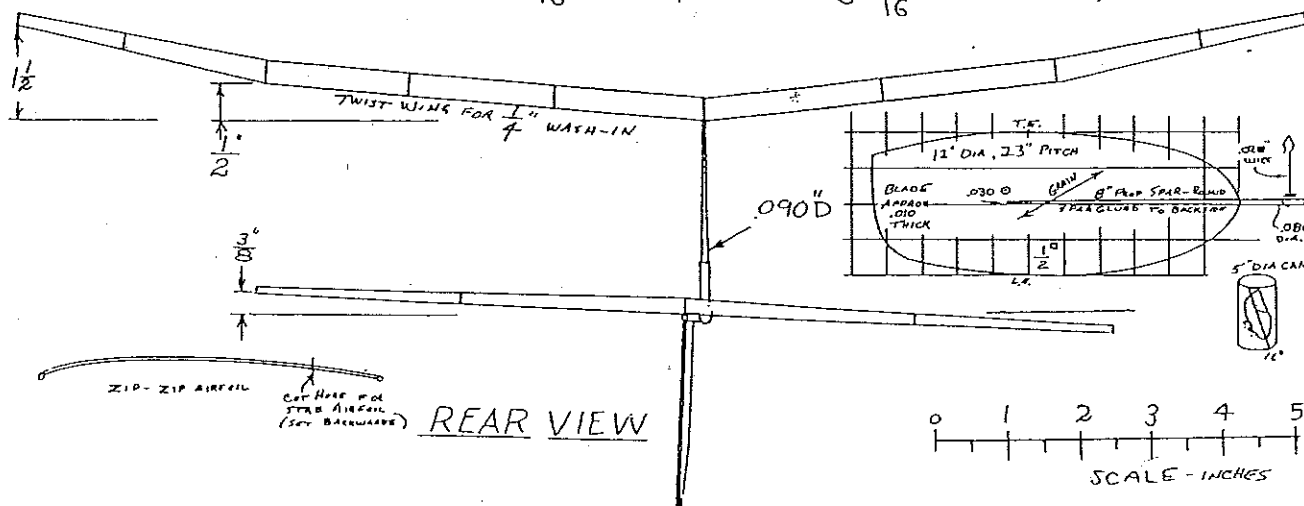
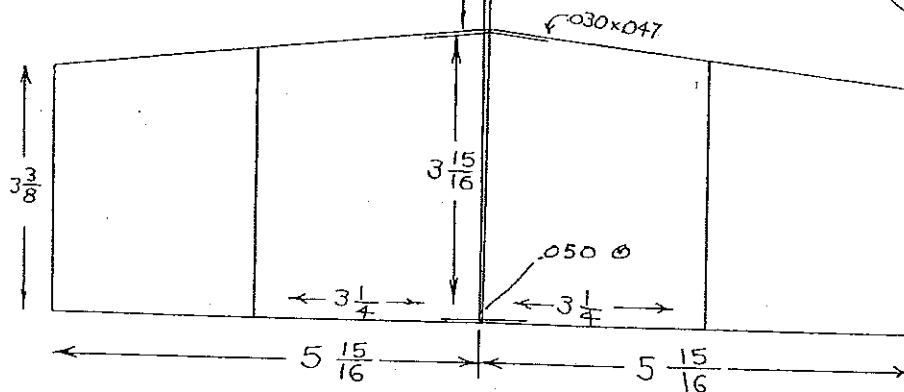
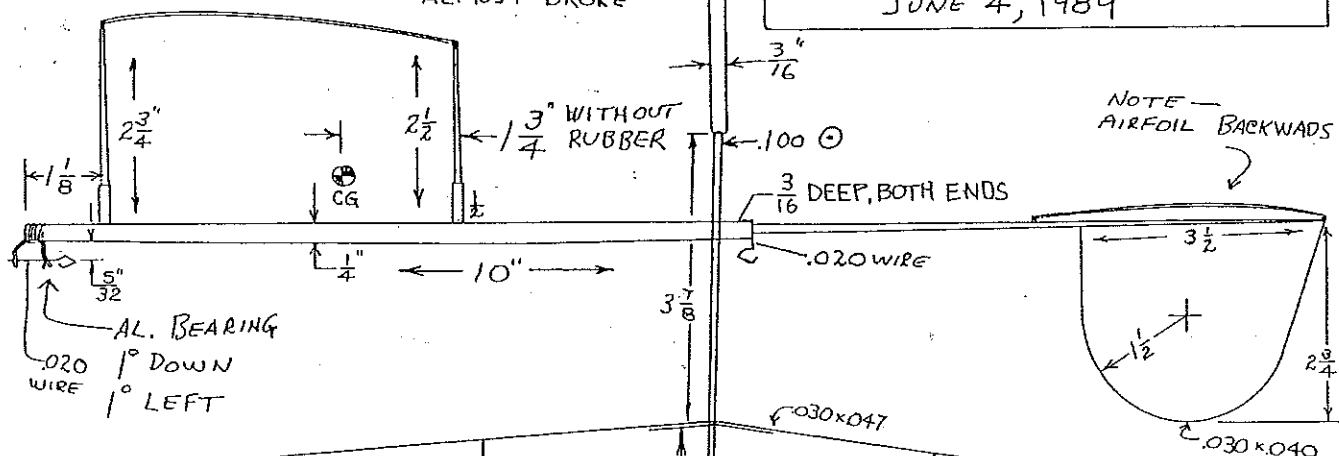




ULTRA FILM  
WT 3.11 GRAMS  
CIRCLE LEFT

USED "TAN" RUBBER  
.080-18" LOOP  
? TURNS  $T_{Q_{HAK}} \sim 1.3^{\circ}$   
"ALMOST BROKE"

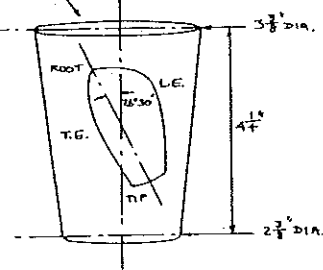
BOB CHAMPINE'S  
NOVICE PENNYPLANE 12 MIN 27 SEC  
1<sup>ST</sup> PLACE USIC JOHNSON CITY TN  
JUNE 4, 1989



PROP HUB  $\frac{1}{32}$ " I.D. PAPER LAUNCH LUG  
(FOR MODEL ROCKETS) 1" LONG.  
3X  $\frac{1}{8}$ " O.D. 8L.B. 'B' BALSA SPAR.  
CENTRE  $\frac{1}{2}$ " GLUED IN PLACE IN  
CENTRE OF PAPER TUBE TO  
REINFORCE TUBE FOR .015"  
MUSIC WIRE PROP SHAFT  
WHICH HAS DRIVER HOOK  
CYANODED IN PLACE. REMAINING  
SPARS HAVE THIN SAW CUT  $\frac{1}{2}$ " LONG  
FROM OUTER END BEFORE ADDING  
PAPER. PLASTIC BLADES CYANODED  
INTO SAW SLOT. CHOOSE PITCH  
ANGLE AND LOCK IN PLACE WITH  
BEND OF WHITE GLUE AROUND  
ENDS OF PAPER HUB.

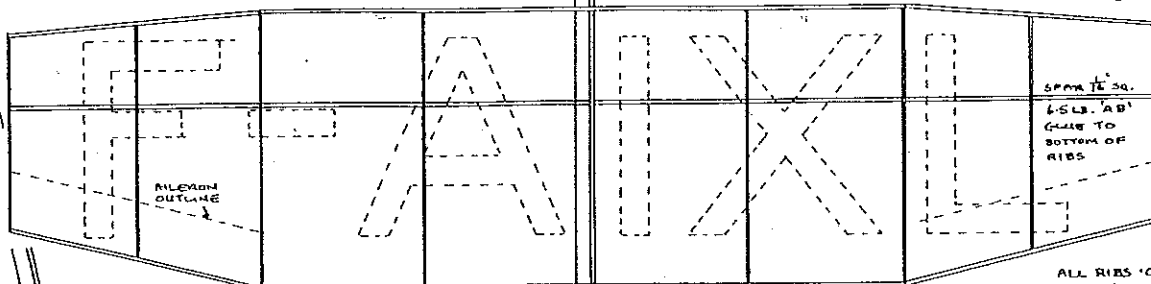
.015 M.W. WITH  
STANDARD  
'Z' HOOK MOUNTED  
IN 'HAYLAN'  
PENNY PLANE  
THRUST BEARING

FLAT SHAPE OF BLADE CUT FROM 16 OZ. PLASTIC  
BEER MUG WITH UNRAISED .012" THICK WALLS  
SEE DETAIL BELOW



L.E.  $\frac{1}{16}$ " SQ. 6.5 L.B. 'AB'

$\frac{1}{8}$ " DIMEDRAL UNDER  
EACH TIP



T.E.  $\frac{1}{16}$ " SQ. 6.5 L.B. 'AB'

ALL RIBS .032" X .062"  
5.5 L.B. 'BC' EXCEPT  
CENTRE RIB WHICH  
IS FULL DEPTH .062"  
5.5 L.B. 'BC'  
3% SIMPLY AIRFOIL

NOTE:  
DIMEDRAL  
NOT SHOWN  
TO SCALE

MOTOR STICK  
 $\frac{1}{8}$ " X  $\frac{1}{8}$ " 8 L.B. 'B'

U/C LEGS .015 M.W.  
WITH  $\frac{1}{8}$ " X  $\frac{1}{2}$ " FININGS.  
COLOR BLACK

WHEELS FROM 2 SHEETS  
 $\frac{1}{32}$ " LAMINATED CROSS-GRAIN  
PAPER TUBE HUBS.

$\frac{1}{8}$ " X  $\frac{1}{2}$ " FOR  
MOTOR  
CLEARANCE.  
.010 MUSIC  
WIRE 'Z' HOOK

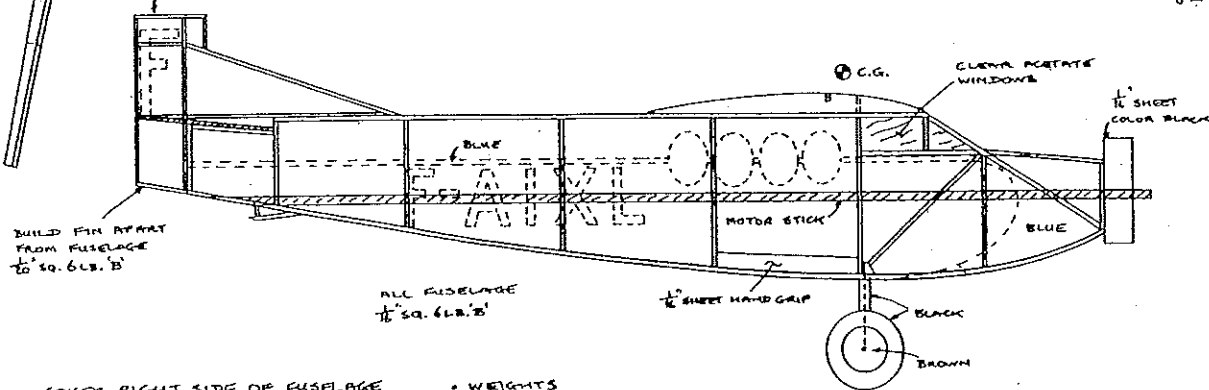
ALL STAB  $\frac{1}{16}$ " SQ. 6 L.B. 'B'

ELEVATOR  
OUTLINE



USE RUBBER TO  
ADJUST TURN

BUILD FIN AFT  
FROM FUSELAGE  
 $\frac{1}{16}$ " SQ. 6 L.B. 'B'



ALL FUSELAGE  
 $\frac{1}{16}$ " SQ. 6 L.B. 'B'

• COVER RIGHT SIDE OF FUSELAGE  
TOP OF WING & STAB WITH  
PRESHRUNK & PREDOPE WHITE  
JAP TISSUE

• COLORS - OVERALL WHITE  
BLUE TRIM  
BLACK REGISTRATION LETTERS  
BLACK PORTHOLES  
BLACK CONTROL SURFACE OUTLINES

• 7" DIA. ADJUSTABLE PITCH PROPELLER  
MODEL HAS BEEN FLYING WITH 10" PITCH

• WEIGHTS  
COVERED STRUCTURE 3.70 GRAMS  
PROP ASSEMBLY 1.58  
NOSEWEIGHT 5.45  
TOTAL 0.98  
6.40

• MOTOR  
27" OF 0.010 FIRELLI  
2640 - 30 TURNS  
• ORIGINAL MODEL FLYWRIGHT

DESIGNED BY: DAN DE LOACH, DALLAS, TEXAS  
DRAWN BY: W. HENDERSON

OPEN NO-CAL

FARMAN F190

3RD 1989 U.S.I.C. 3:40

W. HENDERSON - TORONTO, CANADA

# "Roulette" - INDOOR AUTOGYRO

BY FRED J. WEITZEL

AREAS: ROTOR 38" WT. .0365 oz.  
WING 37" POWER .060 PIR.  
TAIL 35.6"

PROP  
FULL SIZE

WING  
AND  
STAB  
SPARS  
.040x.030  
5.5" 8  
RIBS  
.030"

ROTOR IS BUILT "FLAT"  
- FLEXES TO BLADE PITCH  
AND DIHEDRAL.

ROTOR SPAR  
.062x.030 >.0500  
5.5" 8 STOCK  
REAR OUTLINE .030x.018  
RIBS FLAT .030x.018

NATURAL LEFT TURN  
USED - NO TURN ADJ.  
NEEDED.

ROTOR INC.

10" DIA. PROP  
MED. PITCH - 15-18  
NO THRUST OFF-SET

+4° WING INC.

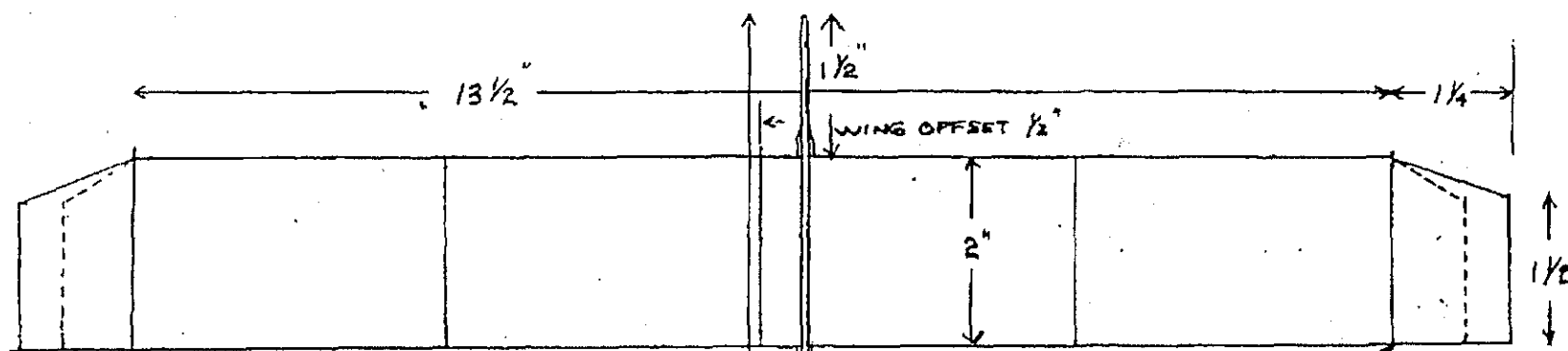
TAIL BOOM AND  
MAST  
.010  
4"  
MAST - 5 1/2" L.  
1/100" TAPERED TUBE

FRONT VIEW

TAIL INC - 5°  
RUDDER: 2 1/2" D.



6



MODEL WEIGHT 1.8 GRAMS  
RUBBER SIZE .033 X 12"

DIMEDRAL  
 $\frac{1}{4}"$  EACH PANEL

RAISE TIPS TO  
MAKE 15" SPAN  
COVER TIPS  
AFTER RAISING

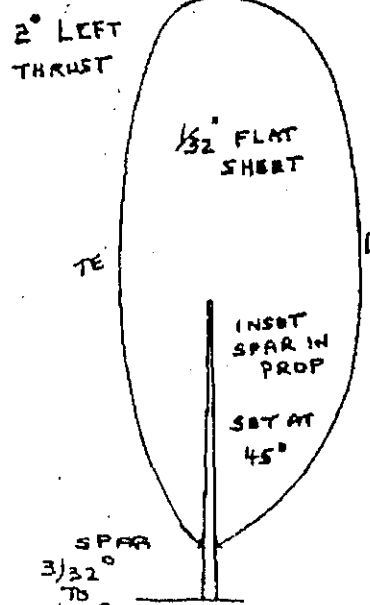
ALL STRIPS  $\frac{1}{16}"$  SQUARE

$\frac{1}{16}"$  SQUARE STRIPS - GLUE  
TO WING - HOLD WING  
WITH ORTHODONIC  
BANDS - ALA ARONSTEN

.015 WIRE PIGTAIL  
FUSELAGE  $3\frac{1}{32} \times \frac{1}{16}"$   
.012 WIRE

TAIL BOOM  $\frac{1}{8}"$  TAPER TO  $\frac{1}{16} \times \frac{1}{32}"$

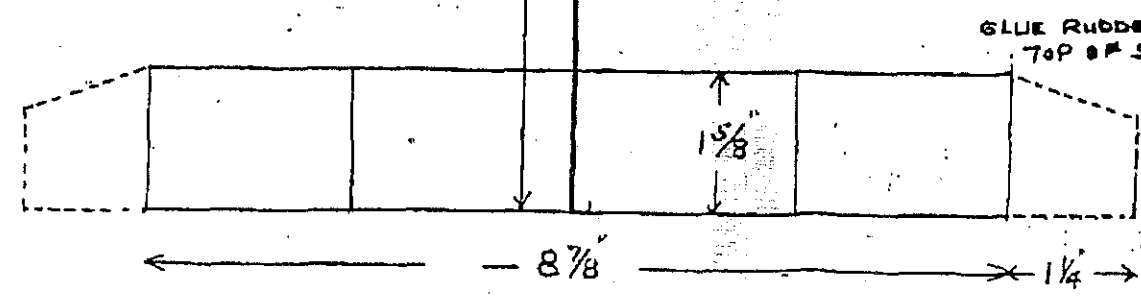
BOOM SHOULD HAVE  
2° NEGATIVE  
INCIDENCE



FULL SIZE RIBS -  $1/32"$  SHEET  
AND  
PROP

BOOM  $\frac{1}{16}"$  WIDE  
OFFSET  $\frac{1}{2}"$  FOR  
LEFT TURN.

INTERNATIONAL A-6  
JOHN LENDERMAN  
JANUARY 1998



GLUE RUDDERS TO  
TOP OF STAB

MODIFICATIONS TO #2:  
DECEL  
 $\frac{3}{4}"$  WING PEGS .045  
MOUNTED ON PAPER TUBES  
TAILBOOM TO  $7\frac{1}{2}"$   
STABILIZER - SHORTEN TO  
 $7\frac{1}{2}"$  WITH 5 RIBS  
.012 WIRE PIGTAIL

