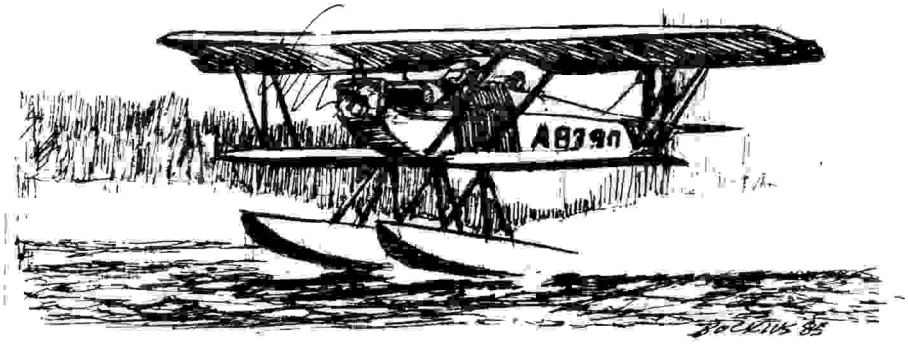
THE HANGAR PILOT

REFRESHING

13TH YEAR OF PUBLICATION

MIAMI INDOOR AIRCRAFT MODEL ASSOC. MIAMA

ISSUE 101
APRIL 1985
M.I.A.M.A.
A.M.A. CLUB 986



HUFF-DALAND HN-1 180 HISSO
by Jerry Bockius '85

TWO DAYS - APRIL 13 & 14 MIAMI DADE SOUTH COLLEGE - 9 TO 5 COME ON OUT TO FLY ANY OF YOUR OWN INDOOR MODELS OR TO HELP PROXY FLY OUR OUT OF TOWN ENTRIES. A FUN FLY.

LAST MEET - MOTHER'S DAY MAY 12 9 TO 5 - CONFIRM - CALL 858-6363 (305)
OLD GOODYEAR BLIMP HANGAR - OPA LOCKA AIRPORT
69 FEET BRING MOM.

WELCOME TO "THE OKIE FREE FLIGHT FLYER" AND SCOTT SMITH'S "WINGTIPS" "LIKE A LETTER FROM HOME" - WHELAN



THE HANGAR PILOT

Is published 8 (or 9) times a season for a bunch of middle aged guys who refuse to grow up. MIAMA (Miami Indoor Aircraft Model Association,) AMA Club 986, is the only active all indoor free flight club in AMA. Our Mottos: "It must be fun.", and "Indoor isn't for everyone." For $10.00 a year you will receive all copies. We solicit your contributions since we are always running out of material. Letters, plans, 3-views, articles, gripes, and Money to: Dr. John Martin Pres./Editor. 2180 Tigertail Ave. Miami, Fla. 33133 USA Phone: 305-858-6363 We want to hear from you!!! Send material!!!



WINGTIPS
% SCOTT SMITH
R.D. # 1 BOX 290
ATHENS, N.Y. 12015

Editor, and everything else:
Bill Baker
1902 Peter Pan St
Norman, Okla 73069
(405) 329-1018



OKIE FREE FLIGHT FLYER

ORNITHOPTER NEWS FROM ROY WHITE:

Rt. 1 Box 241
Catawissa, MO 63015

If you're looking for information for your newsletter how about giving us a plug. We've formed the Ornithopter Modelers Society and looking for members. Dues are $7.00 a year which includes four or more issues of Flapper Facts and a postal contest to be held this year. Have them contact us at the address above and will send an application. We are a small but growing group.

MACMILL MEET -#6

Once again the MacMill Meet was great. Several State records were set and others set a lot of "personal best" performances. More new names and new faces...mostly old timers returning to the fun. How about seeing Tony Becker who taught indoor to James Ivan who taught indoor to Ray Harland ...going back to the Broad Street Armory in Philly. Don Garofalow from New Jersey, and author/olympic track coach Dick Ganslen from Texas. Out of town entries Walt VanGorder, Jim Miller, and Gordy

CONT. ON PAGE 13

M.I.A.M.A. RESULTS, MACDILL AFB (2)

MEET # 6 CD DICK OBARSKI - MARCH 9+10 1985:

PEANUT SCALE EVENT:

	Static		
1. Jim Miller Bleriot VII	88.4	88.4 (Av. of 2 best fly)	176.8
2. Rich MacEntee Lacey M-10	87.3	78.5	165.8
3. Mike A rak	85.8	62.3	148.1
4. John Martin Ansaldo SVA-3	90.4	53.0	146.4
5. Millard Wells 2 seat Wee Bee	73.0	73.0 (max)	146.0
6. Dave Linstrum FIKE	72.0	58.0	130.0
7. Roger Laudati Davis DA2A	74.0	26.0	100.0
8. Edward Berton	81.5	- -	81.5
X M. Wells Huntington H-12 Pistach.	71.8	65.6	137.4
X J.Martin Blerhot XI	79.8	53.0	132.8
Did Not Finish: Linstrum Tailwind	77.8	39.0	116.8

Linstrum Wittman "V" 72.5, waterman Racer 88.2 No flights

KIT/PLAN SCALE EVENT: STATIC: TWO BEST FLIGHTS

1.Mike Arak Gough Wee Bee	90.0	90.0 (max)	90.0 (max)	270.0
2.Rich MacEntee William's Lacey M-10	91.0	87.0	83.0	261.0
3.Dave LINSTRUM Micro X Porter	87.5	72.0	80.0	239.5
4.John Tudor Comet Curtiss Robin	88.5	65.0	68.0	221.5
5.Bill Criss Micro X Voyager	86.0	42.0	None	128.0
5.John Martin Bleriot XI - Fuller	86.2	55.0	53.0	194.2
7.Roger Laudati Struck Cessna 1911	85.0	31.0	None	116.0
8.Don Brimmer Lemberger, Mooney	81.5	28.0	None	109.5
Did Not Finish: John Tudor DGA-9	88.5	46.0	59.0	195.0

AlsoEd Berton Lacey M-10 90.0, and Cougar 88.5. Bill Criss Porter 83.5

Bostonian Event

	Charisma:	Total	
1.John Martin	1.8	227.7	Boston Bis
2.Rich MacEntee	1.6	222.2	
3.Millard Wells	1.6	149.9	Vagabond
4.Dave Linstrum	1.7	Observer	119.1

MANHATTAN:

1.Walt VanGorder	8:13.3 ★
2.Millard Wells	6:13
3.Don Garofalow	5:30
4.Ron Sharpton	4:51

★: NEW STATE RECORDS - ALSO JUNIOR GLIDER

Easy B Event:

1.Walt VanGorder	14:00.5
2.Gordon Wisniewski	12:19
3.Dick Obarski	11:02.7
4.Jim Miller	11:00
5.Mike Arak	10:41
6.Mick Ganslen	9:12
7.Millard Wells	9:06
8.Ron Sharpton	7:31
9.Jim Stewart	5:09
10.Rick MacEntee	4:45
11.Don Brimmer	3:39

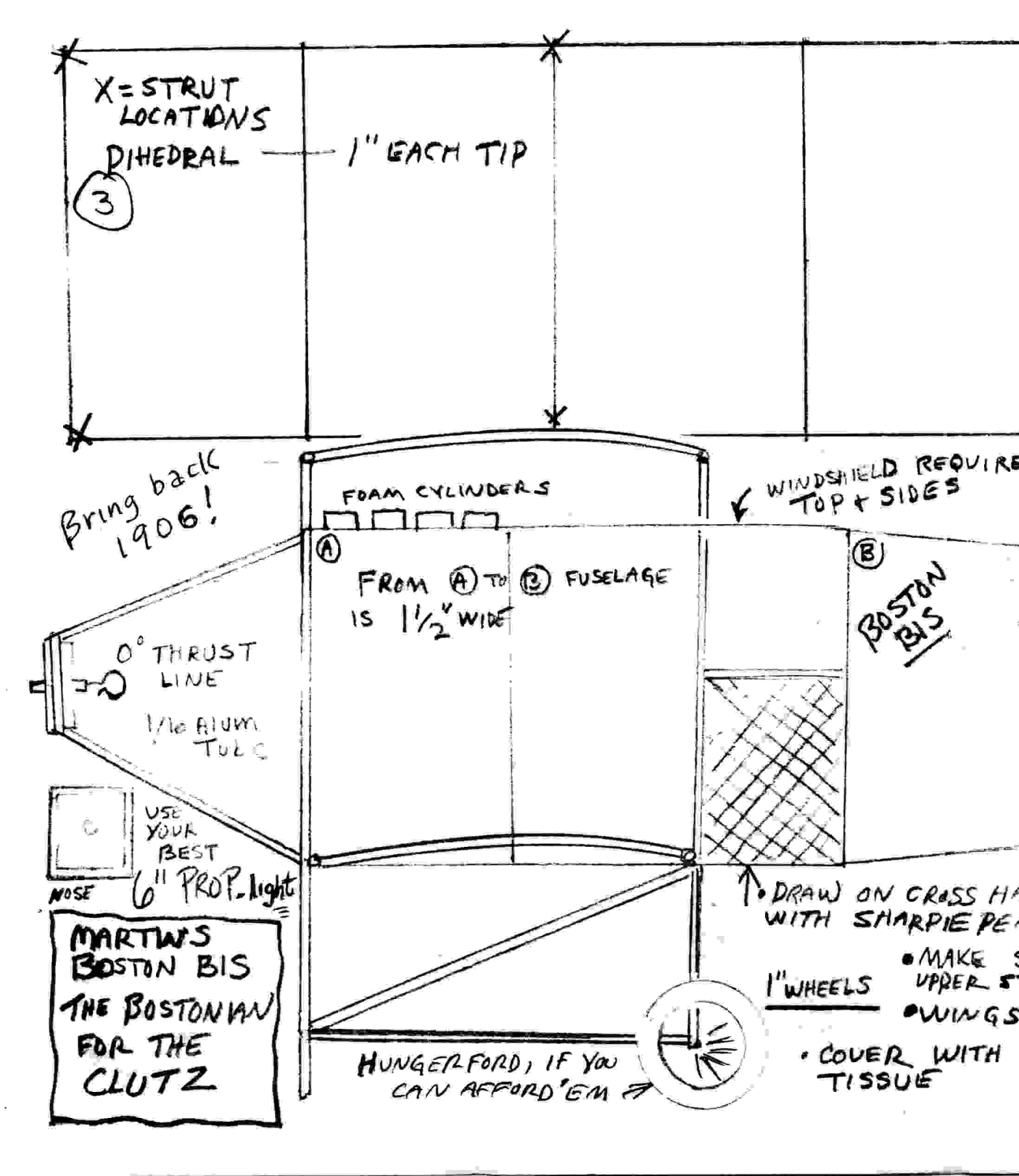
PENNY PLANE EVENT:

1.Gordon Wisniewski	10:37
2.Mike Arak	8:07.7
3.Ron Sharpton	7:43
4.Edward Berton	7:11
5.Tony Becker	6:34
6.Rich MacEntee	5:44
7.Terry Rimert	5:01

NOVICE PENNY PLANE EVENT:

1.Gordon Wisniewski ★	8:43.3
2.Mike Arak	7:55.5
3.Tony Becker	7:18
4.Ron Sharpton	6:52
5.Terry Rimert	4:27
6.Don Brimmer	3:47
7.Dave Linstrum	3:33

MORE RESULTS ON PAGE 4


X = STRUT LOCATIONS
DIHEDRAL — 1" EACH TIP
3
Bring back 1906!
FOAM CYLINDERS
WINDSHIELD REQUIRE
TOP + SIDES
A
FROM A TO B FUSELAGE IS 1 1/2" WIDE
B
BOSTON BIS
0° THRUST LINE
1/16 ALUM TUBE
USE YOUR BEST 6" PROP. light
NOSE
DRAW ON CROSS HA
WITH SHARPIE PE
MAKE
UPPER
1" WHEELS
WINGS
COVER WITH TISSUE
HUNGERFORD, IF YOU CAN AFFORD 'EM
MARTIN'S BOSTON BIS
THE BOSTONIAN FOR THE CLUTZ

RESULTS – MACDILL AFB – CONTINUED — (4)

HAND LAUNCHED GLIDER:

1. Don Bal (52.2)(47.2)
2. Ron Sharpton (24.2)(43.2)
3. Jim Bayly (32.7)(32.7)
4. Phil Bayly (29.2)(29.1)

JUNIOR GLIDER:

1. David Bal (29.0)(34.0)
2. Steven Bal (28.2)(29.4)

CLASS A R.O.G:

1. MIKE ATLAK 4:26
2. JOHN MARTIN 1:38

FID REGIONAL RESULTS:

1. Mick Obarski 39:21 100 Points
2. Walt VanGorder 37:00 94 Points
3. Mick Ganslen 28:05 71.3 Points

FLYING ACES WW I EVENT
1. DOC MARTIN
3. GEO. LEFFLER
2. JOHN TUDOR

EFF-AMAY-CEEE!

COMPLETION OF LIST OF NEWSLETTERS BEGUN IN LAST ISSUE... ALL FREE FLIGHT WITH INDOOR FEATURES.
SEE INSIDE COVER FOR 2 NEW ONES

MAX FAX – 6 issues $10.00 Dr Allen Schample 20008 Spur Hill Dr. Gaithersburg MD.
NO EXCHANGES WITH OTHER NEWSLETTERS

FLIGHTMASTERS SCALE NEWS & VIEWS: BILL WARNER 423-C San Vicente Bl. Santa Monica, CA 90402 6 ISSUES $12.00

FLYING ACES GHQ. LIN REICHEL 3301 CINDY LANE ERIE PA. 16506

CROSSWINDS Cleveland FFS MICHAEL ZAND 7055 Seven Hills Blvd. SEVEN HILLS OHIO 44131 10$

Bugs Buggy Thunderbugs FF Club: ED LIDGARD 24722 Marbella Caron Ca. 90745 $3.50 YR.

OFF THE CUFF Nottingham M.A.C. PAUL BRIGGS 3 Clinton Ct. Sherwood St NOTTINGHAM ENGLAND

SCALE FLIGHT ALAN CARR 56 Carlton Rd. Eden Park Romford England RM2 5AP

AMA NATIONAL NEWSLETTER
Jim McNeill, AMA Exec. V.P. puts together a sampling of all AMA Club newsletters (& including ours) 617 S 20 Ave Birmingham Ala. 35205

think, the
od mono-
tle peanut
re-formed
eet. It's in
ctly. They
construc-
way as the
ree plans
carefully
excellent
ding and
sells for
y not do
ucks you
es and all!
's the lat-
vrite this,
should be
the 1908
version)
the usual
th weight
fitted. It
(his own
od of con-
the CG.
calls for a
included:
bass, and
ap tissue.

(5) THE EXCELLENT ARTICLE BELOW WAS LIFTED FROM "CROSSWINDS" A QUARTERLY OF THE CLEVELAND F.F. SOC. - A FINE NEWS LETTER. AUTHOR LARRY LOUCKA HAS A LONG LIST OF INDOOR CREDENTIALS INCLUDING BEING THE ONLY OPEN CLASS FLYER EVER TO WIN THE FAMOUS AIMAS "NART" TRIALS AT WEST BADEN. HE IS ALSO STILL WAITING FOR HIS TROPHY

SOUPING UP YOUR EASY B

INDOOR STUFF PART 3. BY LARRY LOUCKA

Most people probably build a Micro-X or IMS kit Easy B as their introduction to Indoor Duration flying. All goes well untill the first contest is entered and the times done by the old hands comes as quite a shock. While both the beginner's and experienced builders' models may both meet the rules, there some basic differences that account for the disparity of the times that they are capable. During the course of this article, I will attempt to "close the gap" by listing various improvements to the basic kit models.

Let's start at the front with the prop. As has been said many times before,"The prop is the heart of an Indoor Rubber Model". In my opinion, truer words were never spoken. When cutting out the blades it is best to put the tips towards each other on the sheet of wood to minimise the differences in grain and strength thru the length of the sheet. Both leading edges should be toward one edge of the sheet too. A full "C" grain sheet in the 4-5 lb. range with a grain running straight down the sheet and no hard spots or holes is recommended. Thickness can range from .010 to .015". In my experience, only a "C" cut blade will retain its twist. The Kit type props have constant pitch, having no twist in the blades from root to tip. A large improvement can be made by making a prop with pitch twist using a bottle or can to form the blades. minimum diameter should be 12". To a point, the larger the prop diameter the lower the RPM, thus increasing the duration. I form the blades by first soaking them in hot water for 10-15 min., putting one down on the form, then covering it with a piece of Jap tissue and finally posititioning the second blade over the first. Last step is to wrap the whole thing with 1/4" rubber or gause. Be sure not to pull too tight or it will crush the soggy blades. Bake in an oven for 10-15 min. at 250 degrees. I usually turn the oven off after the 10-15 min. and leave everything in overnight. The blades should be room temperature before unwrapping. The Jap tissue helps to separate the blades when removing them from the form. Baking locks in the twist.

The prop spar should be made from stringy "B" grain wood in the 6-7 lb. range. Diameter should be .062" tapering down to .032" round at the end. I prefer to round the prop spar to give more gluing area for the blade. Props with very light blades can benefit by using a full length spar. It seems to be preferable to glue the spar to the underside of the blades, as any distortion will pull a little more curve into the blade.

Most of my props are formed on carved balsa pitch blocks. An airfoiled spacer, the same size of the blades is soaked and installed on the form. Best way is to bake the spacer dry, unwrap and then put the wet blades over. If the spacer is not glued to the form, a different spacer can be made up and used on the same form if you deceide to try a different blade shape or diameter. Make the spacer out of 1/32" balsa and sand in about 1/16" camber into it. The curve could be sanded into the form block but doing the spacer is a lot less work.

For best results, a double thrust bearing should be used. Attach it to the motor stick with about 2 degrees left thrust and no down. This will allow a more rearward c.g. position and give a left turning force when the plane is climbing at a high angle of attack.

CONTINUED ON PAGE 10

NEW KIT REVIEW - HADLAND'S FIKE

(6)

By Larry Kruse

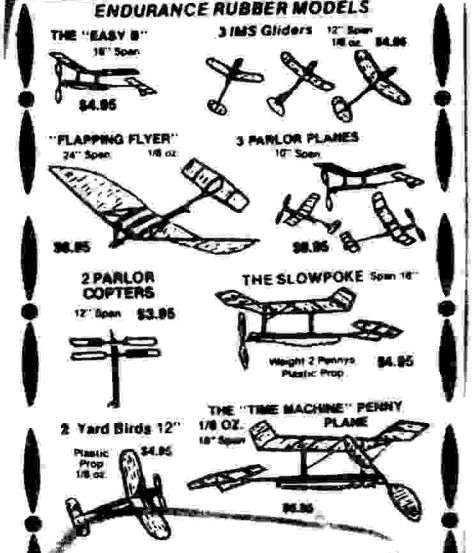
There's a certain amount of poetic justice evident in this first announcement. Those who have been plagued by the domination of the ubiquitous Lacey *M-10* in Peanut Scale contests, particularly since the introduction of the Peck-Polymer kit, may now get their revenge. They can now build their own equally ubiquitous *Fike E* — from a kit.

Jerry Skjranc at Micro-X has done the dastardly deed — and done it well. If you're not familiar with Micro-X's product line, you should be. They are absolutely top of the line and offered at a reasonable price. The *Fike* kit does not depart from Micro-X's tradition of excellence. Kit plans were done by England's Butch Hadland from material gathered by Laurie Barr, who in turn obtained his drawings and info from Mr. Fike, himself. Not only does the kit have a good 3-view of the plane, but it's done on a separate 8½ × 11 inch sheet already pre-punched for a 3-ring binder! Don Lindley supplied several documentation photos suitable for proof of scale from the *Fike* he photographed at Oshkosh. Every scale kit ought to have the same kind of documentation provided. Micro-X has set a new standard of expectation in a very important area for the serious scale builder.

As to the kit itself, the 1/20 inch sheet printwood is of exceptional quality as is the 1/20 inch square stripwood provided. The construction plan is well-done and clear, but does lack a front view which would help with detailing the nose and cowl area. Yellow and black tissue, rubber strip, wire stock for the landing gear, and light celluloid for the windshield and window areas complete the kit. The announced price of $6.95 makes it a very good value from Micro-X, Box 1063, Lorain, OH 44055.

INDOOR MODEL SUPPLY

ENDURANCE RUBBER MODELS



RON WILLIAMS BOOK ON INDOOR MODEL AIRPLANES $14.95
272 pgs.—over 300 illustrations
we ship next day postage paid with free plan

13" MINIATURE SCALE AIRCRAFT KITS ea $6.95
OUTSTANDING DETAILS, 3-VIEWS & HISTORY
.045" Strip Wood, Light Sheet, Hardware & Prop, Heat Transfers, Japanese Tissue
PLASTIC CYLINDERS in ALCO and HEATH
ALCO SPORT 1929 ZIPPY SPORT A.R.V.
WATERMAN RACER 1921 HEATH PARASOL 1928
AERONCA K 1937 Span 16" Length 9"

INDOOR MODEL AIRPLANES by Lew Gitlow
48 pgs, 100 illust. (reprint) + FREE PLAN... $3.95
PEANUT POWER by Hannan, 80 pgs $8.95
INDOOR BALSA PACK $6.95 P-NUT PACK $6.95
JAPANESE TISSUE 10 lgs 5 col. roll $5.95
CONDENSER PAPER 2/$2.50 MICROLITE $3.25
RUBBER LUBE $1.50 BALSA CEMENT $1.50
THRUST BEARINGS, Mini Dual or Dual $1.00
PIRELLI RUBBER .020 to .090" $2.35
6:1 WINDER $3.95 16:1 MARK 1 $11.95
P-NUT CO-2 ENGINE $34.95 CHARGER 11.95
P-NUT PROP PACK 4 props, shafts, w.&p... $2.95
SCALE CYLINDERS 5 pack, 3/8 & 1/2" $1.00
I.M.S. P-NUT PLANS ALL 5, 10 sheets $8.95

ADD 10% POSTAGE—MINIMUM POSTAGE $1.50
1983-4 CATALOG 16 ILLUST. PGS. $1.50

BOX 39, GARBERVILLE, CA 95440

FUN FLY & WORLD PISTACHIO INTER-GNATS
9-5 MIAMI DADE SOUTH COLLEGE SAT. & SUN. APR. 13/14

LEW GITLOW - I.M.S. HAS AN OUTSTANDING COLLECTION OF INDOOR & PEANUT AIRCRAFT. HINSTRUM JUST FINISHED HIS WATERMAN RACER - VERY FINE.

THIS HERESY FROM BUG'S BUZZ, ED LIDGARD

Horse Sense as Applied to Airfoils for Model Aircraft

by Carl R. Cogar

Many years ago, prior to my going into service in World War II, I was at Langley Field, Virginia with the NACA, now known as NASA. I started as a wind tunnel model maker but after a while, I was taken out of the model shop and assigned to wind tunnel testing. For a couple of years I worked with a fine engineer, Charles Shufflebarger, whom we affectionately referred to as "Shuff." I used to get into discussions with Shuff over my modeling experiments particularly those relating to airfoils. In those days I was extremely careful and spent hours plotting coordinates, etc. and Shuff laughed at my efforts. He said a flat plate will do just as well. Of course I found this hard to accept having been brain washed by all the articles on airfoil theory mainly from model magazines.* Anyway, I had the use of tunnels on off duty time though not on a regular basis, but only when the program permitted. So, I spent about six to eight months testing all sorts of sections at all speeds and all angles of attack. What do you know? Shufflebarger was 100% correct, and all because of the little rascal we refer to as Reynolds number. Since then I have never bothered plotting coordinates for any airfoil.

I am going to keep this in the plainest possible language: No physics and no math but just horse sense in plain words.

First, what do we want? Of course we want a fast climb but a slow glide combined with good penetration and thermaling characteristics. For the sake of illustration, let us simply say that if the atmosphere were of the consistency of molasses or even of water, then the airfoil characteristics would be far more critical but since this isn't the case, I found that on a chord of less that five to six inches and at speeds under 45 mph, they are not at all critical. The flat section is almost as good as any except from the point of view of adequate structural strength. How many models do you know that exceed 45mph? Almost none I warrant. What seems fast in the average free flight model is rarely in excess of 20 to 25 mph.

Fig 1



Figure 1 is a flat section with no curves whatsoever which I call the S 1 (S for slab). It basically is a flat section but with turbulated top surface and enough thickness to assure sufficient strength. I have used this for many years on Vulvihils, Wakefields, Coupes, P 30s and 1/2 A gas. It is a good section but does provide a slightly fast glide. I used the S 1 on the coupe with which I took second at Taft in 1978.

For practical purposes, only two things really matter provided the section does have enough thickness to be structurally sound. Those two things are lift and drag. A low drag section climbs fast but glides fast whereas

* CHARLES H. GRANT SCARED ME.

DARNED GOOD AIRFOIL - MARTIN M-1

FOR USE ON BOSTON BIS

STATION	0	2.5	5	10	20	30	40	50	60	70	80	90	100
UPPER	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
LOWER	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0



Of course we want a fast climb
good penetration and thermaling
of illustration, let us
here were of the consistency
then the airfoil characteristics
since this isn't the case, I
that five to six inches
ey are not at all critical.
good as any except from the
uctural strength. How many
45mph? Almost none I warrant.
free flight model is rarely



n with no curves whatsoever
ab). It basically is a flat
p surface and enough thickness
I have used this for many
, Coupes, P 30s and 1/2 A gas.
provide a slightly fast glide.
th which I took second at Taft

nly two things really matter
enough thickness to be
things are lift and drag.
but glides fast whereas



a high drag section climbs more slowly but produces a nice slow glide. I think you will agree that in modeling as in most things, we have to compromise. Therefore on most of my models, I opt for what I call a compromise airfoil.



Figure 2 indicates a thick section common on pre-war models. Figure 3 indicates a thinner section but almost too thin to withstand much stress. Figure 4 is one of many possible examples of a compromise airfoil being neither too high or too low in drag, but with enough thickness to be safe. It is not so thick as to produce too much drag, nor too deeply undercambered for the same reason.

One thing that does seem to matter on model airfoils is that the leading edge not be sharp but should be circular. That is, it should be a segment of a circle no matter how small. A little tip you may or may not know about is a greater radius at the tip produces much the same result as wash out. That is to say it will stall more slowly. This is commonly used on high performance sail planes for the same purpose. I can clearly remember hearing people laugh at what they called French curve airfoils. I never say a word and I don't like to argue, but that is the only kind I've used for over 40 years.

Many times we are inclined to either credit or discredit an airfoil due to either good or poor performance on a particular model. In most cases, the airfoil deserves neither blame nor credit. There are too many other variables which enter the picture which are far more effective than the airfoil

CONCLUDED ON NEXT PAGE.



MICROX Box 1063B Lorain, Ohio 44055
Phone (216) 282-8354
Puts Excellence in Your Modeling!

9

Peanut Scale Models



Piper Cub
Piper Vagabond
Piper Cub
Stinson 125
Outdoor kits ea. . . $6.50
Light Indoor kits ea . . $6.95

Sport Scale Models 22" Span



PC-6 Porter

PC-6 Porter
Taylor Craft
Stinson Voyager
Rubber or CO^2 Power
Kits each . . . $7.50

(KIT/PLAN)

Sport Models



Hornet Embryo

An Embryo Model with 18" span designed to wind for beginners and Experts . . . $7.50

HARD-TO-FIND ITEMS FOR YOUR BUILDING NEEDS

Early Bird Tissue for Antique Aircraft $5.95
True Olde Japanese Tissue, 10 in 3 colors ... $6.95
Japanese Tissue, 12 in 6 colors $3.95
Microlite Plain ..... $3.25 Silver $3.95
Microfilm — $3.75 Glue — $1.60 Solvent — $1.25
Condenser Paper, 3 sheets $3.75
Plan Service over 17 Scale, Sport Scale & Peanut Scale
Rubber Strip .020 thru .085 ..... each $1.75
3/32 thru 5/32 ..... each $1.95
Winder 6:1 ..... $3.95 Mark I 16:1 ... $11.95
Complete Line of Brown CO^2 Motors
Balsa Wood Outdoor & Indoor Sheets & Strips
Add 10% Postage — Minimum Postage $1.50
COMPLETE CATALOG $1.50

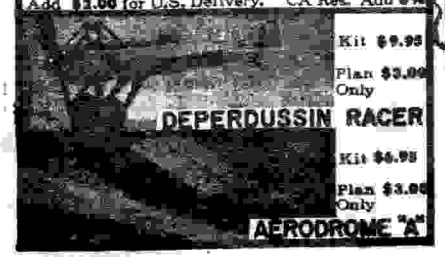


WRIGHT FLYER Kit $5.95 Plan $2.00
NIEUPORT II Kit $6.95 Plan Only $2.50

RUBBER POWER
PEANUT SCALE
FLYING MODELS

NOWLEN ASSO
189 BOARDWALK A
GREENBRAE
CA 94904

Add $2.00 for U.S. Delivery. CA Res. Add 6%



Kit $9.95
Plan $3.00 Only
DEPERDUSSIN RACER
Kit $6.95
Plan $3.00 Only
AERODROME "A"

itself such as basic model design characteristics, trim and of course those old devils, invisible warps. Also we should realize that a fast climbing model doesn't really fly with true airplane characteristics until it is crusing or gliding. In the climb, it is actually performing more like a helicopter and the wing serves not only to provide lift but also as an antitorque stabilizing surface. A circling model always has a right and a left wing functioning differently. In a right turn the left wing is Flying at a higher speed than the right wing. On one Mulvihil, all other things being equal, I built six wings all identical except for airfoil. The model flew exactly the same so far as I could tell no matter which wing I strapped on it. Then I got a bright idea. Instead of washing in the right main panel, I used a ~~higher~~ LOWER drag section on that half of the wing than the other half. Then I built one exactly the opposite just to see what would happen. It is possible to do this instead of washing panels in or out. The panel with the ~~higher~~ LOWER drag section performs almost exactly as a wing with a washed in panel.

I hope that this "horse sense" of mine is palatable to other horse. If not why don't you join about 100 others and write a refusal but be sure to use lots of physics and math so that the kid next door won't know what the hell you're talking about.

Anyway, as I said, everything is compromise and what works for one may not for another. So whatever you feed your horse, I hope he wins the race for you.

My very best and thermals to you all,

Carl Cogar

MIAMA HAS BEEN RUNNING ADS OF THE INDOOR SUPPLIERS SINCE WE HAVE A LOT OF NEW SUBSCRIBERS WHO ARE GETTING BACK INTO THE HOBBY AFTER MANY YEARS OF INACTIVITY. WELCOME BACK, PILOTS!

I have never had much luck with the rear "keyhole" type bearing as sold by Micro-X or IMS. To install the prop shaft, the rear hole must be a "slick fit" on the shaft, which is difficult to maintain as the hole wears. If the shaft comes out during a flight, interesting things usually happen as the thrust line has been changed radically. I use and recommend a Harlan bearing. This is a "pigtail" type that supports the prop shaft 360 degrees around at the rear. They cost $1.00 each and are available in three different sizes for EZB, Pennyplane and, FAI Microfilm. Some people bend thrust bearings from music wire. These are strong and very long lasting. However, I have never been much of a wire bender and, so I use the Harlan.

After building just about every type of wing dihedral layout there is, I have settled on the Polyhedral type. There seems to be a better resolution of forces and flight loads on this type as opposed to Vee or the Tip dihedral type. Stability and recovery are enhanced also. The stability improvement can allow a large reduction in post height, which in turn reduces the twisting effect transferred to the wing via the posts from the motor stick when the rubber is fully wound and, saves a little weight too.

A useful increase in stability can come by lengthening the tail. I have sucessfully used booms in the range of 8-12". Both Micro-X and IMS sell tapered stock that is excellent for making tail booms. A perfectly tapered boom can be made with one cut.

Stabilizer area should be 40-50%, the upper limit of which is the max allowed by the AMA rules. Incidentally, the Two EZB designs featured in the English Magazine, Aeromodeler, over the past year have stabs in excess of 50%, so beware!

Generally, the longer the boom and the larger the stab, the further back the balance point can be placed. Its not a bad idea to have three or four sets of wing post sockets on the motor stick to allow experimental shifts in balance. In some ways Indoor is like Outdoor F.F. in the sense that model trim and power must be optimized for the site conditions on the day that the model is being flown. If the air is turbulent or cold or both, a more forward C.G. and more wing incidence must be used than if the air is calm.

The best way to build an EZB wing, I have found, is on a dihedral jig. I believe these were first developed by Stan Chilton. It should be made of 3/16-1/4" soft balsa or paper covered foam core board. The width should be 4". Each panel should be exactly as long as its corresponding wing panel. The dihedral joints should be beveled like a HLG wing. The sections are glued to a heavy wood or flakeboard base using riser blocks under each dihedral break. Mine has the left wing panels flat with no wash. The right side has 1/8" washin built in at the dihedral break. This is set up to put a twist in the whole right wing panel. The extreme tip is blocked to retain the resulting angle. The reason for this set-up which is the exact opposite of conventional Indoor practice is to allow for the twisting forces that a fully wound motor transfer from the body to the wing thru the wing posts. The aim is to have the right hand wing panel at a zero angle and some washin in the left when the plane is fully wound and launched. This will minimise the tendency that many models have to snap roll into the floor to the right when fully wound. When building a wing on a jig of this type, the cardboard template should be somewhat thinner than the wing spars height as this type of jig allows the wing to be covered while still on the jig.

CONCLUDED NEXT PAGE.

NEW WORDS: LET'S FINALIZE THIS PROJECT.
CHARLIE HOSTED THE PARTY.

(11)

ANOTHER KIT REVIEW FROM "FLYING MODELS"

By Earl Van Gorder

LOUCKA :

Due to the fact that the dihedral is being built in as the wing is framed up on the jig, it's not practical to use weights to hold down the spars. I use 1-11/2" lengths of soft 1/16x 1/8" balsa. The strips are pinned down to the jig outside of the spars, pushing them against the cardboard template.

Quite a bit of weight can be saved by the choice of adhesives used to attach the paper. Jim Richmond pioneered the use of saliva, as used in attaching Microfilm. For the typical "bang them off the girders" low ceiling flying, a mixture of a thimblefull of saliva and 6-10 drops of Pica white glue holds the paper on a lot better with virtually no weight penalty.

Probably the best way to reduce the weight of a given model is to make minor reductions in the wood sizes and improvements in wood selection. To make intelligent assesments as to where weight problems lie, a weighing scale is necessary. These can range from a simple spring scale to p precision beam type as sold by Ray Harlan. The spring scale is a good place to start as it is also useful for weighing rubber motors. There is a good one detailed in the Williams book, Building & Flying Indoor Model Airplanes. A good set of weights for calibrating can be obtained from Micro-X.

Most experianced builders, including myself, have, at one time or another, fallen into the trap of using "punky" wood for wing spars. Use "A" or "B" grain wood in the 51/2-61/2 lb. range. Most 4-5 lb. wood will not tolerate much bending before it goes "clink". A wing built from this sort of wood will fold just about every time the model touches something and, in short order will weigh more than one made from stringier wood from the resultant patching.

If you're ordering wood by mail, tell the supplier what it's going to be used for. It will minimize the chances of getting unsuitable stock for the intended purpose.

Well, gang, here we go again into another new year . . . at least, that's what the cover of this issue says, January, 1985.

I just can't tell you how much I've enjoyed these monthly get-togethers over the years. It's really great spreading the word of what the rest of the gang is doing and trying to fill you all in on what's new in our favorite hobby/sport.

Speaking of what's new reminds me that I want to tell you about what I think might be one of the finest lines of kits ever developed. Now, these kits aren't exactly *new*, cause they've been on the market for a while. I've recently got a couple of them for myself and, believe me, gang, I'm overwhelmed!

What am I talking about? The kits from Nowlen Aero that you may have seen advertised, or in Flying Report. I purchased the *Nieuport 11* and the *Deperdussin* and I can't say enough good about them. These are the most complete peanut kits I've ever seen and I, honestly, don't know how Dennis Nowlen does it for the prices he's asking.

First, let's talk about the *Nieuport 11*. I'll start with the nose which consists of an *aluminum* cowl-that's right, very thin and lightweight but hard aluminum, perfectly shaped. Then there's a pre-built crankcase which allows you to get all nine cylinders in the proper position and angle. Oh yes, Williams Brothers cylinders are furnished . . . And, while we're still talking about the nose, there's a pre-formed aluminum crankcase cover with the prop bearing already installed. Are you impressed? I was. But, there's more. A plastic prop, by Williams Brothers, is included as is the rubber motor which is prepacked in its own pliofilm envelope. Wheels are made from pre-shaped balsa tires (packed so they won't break) plus balsa discs for the inside and pre-colored stiff paper cones for the outside. The forward top decking is also done with pre-colored stiff paper all marked to size.

Printwood is of excellent quality with clear, sharp printing and, are you ready for this?, pre-shaped leading and trailing edges as well as streamlined balsa stock for cabane and landing gear struts. There are two sheets of plans which are very clear and include plenty of instruction tips. Tissue is furnished and, while there are no decals, colored tissue is furnished to make the French cockades. The *Nieuport 11* sells complete for $7.95. Postage and packing charges are $2.00, and that's for one, *or more*, kits . . . *not* $2.00 *each*. The *Deperdussin* is also a gem. Here, you get a formed aluminum spinner with bearing installed and pre-slotted for the prop blades which are made from balsa sheet, on this one.

Now, the real *Deperdussin* was, I think, the first aircraft to use a formed wood monocoque fuselage design. Well, this little peanut has the same. That's right! a pre-formed sheet balsa fuselage of 1/32 inch sheet. It's in two halves and they mate perfectly. They come taped together and ready for construction. Wheels are made in the same way as the *Nieuport*. In this one, you get three plans sheets with all construction details carefully spelled out. Again, the kit includes excellent printwood and the pre-shaped leading and trailing edges, the *Deperdussin* sells for $9.95 and is an excellent buy. Why not do what I did, gang; for under twenty bucks you can get one of each—postage charges and all!

But wait, I'm not finished. Here's the latest news from Nowlen Aero: As I write this, a new kit is in preparation and should be ready by the time you read it. It's the 1908 *Wright Flyer* (not the Kitty Hawk version) and will sell for only $5.95 (plus the usual postage charge). The model is of lightweight construction and not for the ham-fisted. It features an unusual "roller reefing" (his own design—can't wait to see this) method of controling slack rubber and preserving the CG. Plans consist of two sheets with details for a winding stooge. All materials are included: printwood, cardstock formers, balsa, bass, and hinoki stripwood and lightweight Jap tissue.

X = STRUT LOCATIONS

DIHEDRAL — 1" EACH TIP

(3)

CENTER SECTION

Flys right, Flys great, Try one! Won't stall.

(12)

MORE WING + PLAN ON PAGE 14

Bring back 1906!

FOAM CYLINDERS

WINDSHIELD REQUIREMENT- TOP + SIDES

1/16 Sq. ALL OVER

NEEDS LOTS OF INCIDENCE

(A) FROM (A) TO (B) FUSELAGE IS 1½" WIDE

(B) BOSTON BIS

14 BIS

May need to tack-cement a shim here to hold trim

LEAVE OPEN

Clip

0° THRUST LINE

1/16 ALUM TUBE

USE YOUR BEST 6" PROP. light

NOSE

• WIRE NOSE HOOK

1/16 DOWEL

• DRAW ON CROSS HATCH + LETTERING WITH SHARPIE PEN

• WIRE CLIPS ON DOWEL // FOR "KNOCK OFF" EFFECT

• MAKE SIDE OF FUSELAGE TO INCLUDE UPPER STRUTS + LANDING GEAR - ALL ONE PIECE.

1" WHEELS

• WINGS CAN BE MADE WITH OR WITHOUT AIRFOIL RIBS.

• COVER WITH MICRO X EARLY BIRD TISSUE

• NOSE SKID

HUNGERFORD, IF YOU CAN AFFORD 'EM

MARTIN'S BOSTON BIS

THE BOSTONIAN FOR THE CLUTZ

MEET #6 CONT. (13)

Wisniewski. we sure had a lot of folks who have not previously had their name in the Hangar Pilot. Here are some people that were at Meet Number Six that we hope will keep in touch and come back again to future meets. ROGER LAUDATI, Edward Bertoni, Don Bremmer, and all the others who are getting back to their hobby. The two day meet concept is really catching on with the added attraction of the Saturday night social sessions at dinner and the swap session.

We hope to start a whole new season in September (a month earlier than usual) back at MacDill. See back cover for dates. we also plan a CAT I record trial that may be the new MART. However, believe it or not, there is still a possibility of a return to west Baden.

There are new Free Flight clubs forming in Florida, and an amazing bunch of new newsletters in the mail. Good work, guys! Maybe we are NOT dying out after all. Lets keep indoor in the free flight.. NOT for everyone.

And how about going back to Opa Locka blimp hangar one more time? It is available once more, with reservations. The spray paint company that was using the hangar pulled out leaving one half of the floor area covered with Eagle Army & Navy display cases to a depth of 10 feet. we have the rest of the floor area, and all the way to the roof. Don't forget to check at 305-858- 6363 for final confirmation

---

HERE IS SOME INFO ON A POPULAR ENGLISH EVENT- PEANUT DURATION. THIS INFO IS ALSO HELPFUL IN YOUR PEANUT SCALE DESIGNS

Rubber

For contests flown under a 25 feet ceiling I have used 19in. or longer loops of orange *Pirelli*. The strip width was a nominal 0.075in. and it checked out at 1.78gm/metre. Best score so far is 2:54 r.o.g., using 2100 less 200 turns on a 24in. motor and with a 12in. pitch propeller. It wasn't quite helical but I doubt if the difference was significant.

For Cardington I would drop the rubber size to 0.055in to 0.060in (say about 1.4gm/m) of more normal *Pirelli*, use about 10in. prop pitch and trim to use the power burst to gain all the height possible.

Trimming

This design is flown in right hand circles like an outdoor model! First check that the incidences are correct and that the top fin is offset about ⅛in to the right. Flying surfaces should be un-warped except for very slight wash-in (more incidence) on both wing tips. This discourages the wings from washing-out and fluttering.

Start with about 1/32in. down and side thrust, either by chamfering the fuselage nose or the more normal use of packing to offset the noseblock. Mark the noseblock to ensure it is always fitted the same way round!

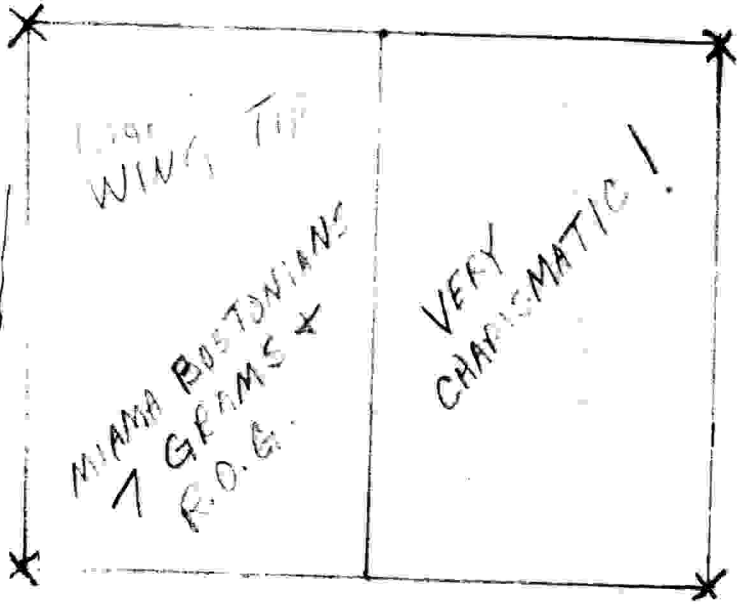
My model has the CG (balance point) at 55% (i.e. 1⅜in. aft of the wing LE) when using a 19in. long motor.

For first flights, use low turns with some back-off to eliminate the powerburst, hand launch and *observe* what happens. Aim for a tight circle (say 20 feet diameter) in small halls. If all is well, increase turns and repeat. Adjust as appropriate using all the normal methods!

The motor size (cross section and length) and type of rubber are other variables and will need tailoring to suit model, prop and flying site. The general aim is to have the model land with only a few turns left on the motor. What else is there to say? Keep notes as to what you do — if only to ensure you know which motors you have used — and *always* use a winding tube! Best of luck!

Peanut Duration Rules

1) a) Rubber powered monoplanes only.
b) Wing span 13in. maximum projected. Wing chord 2½in. maximum.
c) Tail span 7in. maximum. Tail area 14 square inches maximum.
d) Overall length, including propeller 13in. maximum.
e) Propeller 6in diameter maximum.
f) Cross-section of fuselage 2 square inches minimum.
g) Airframe weight (without rubber) 4gm. minimum.
h) Two wheel undercarriage required. Flights must r.o.g.
2) Best single flight from six attempts.

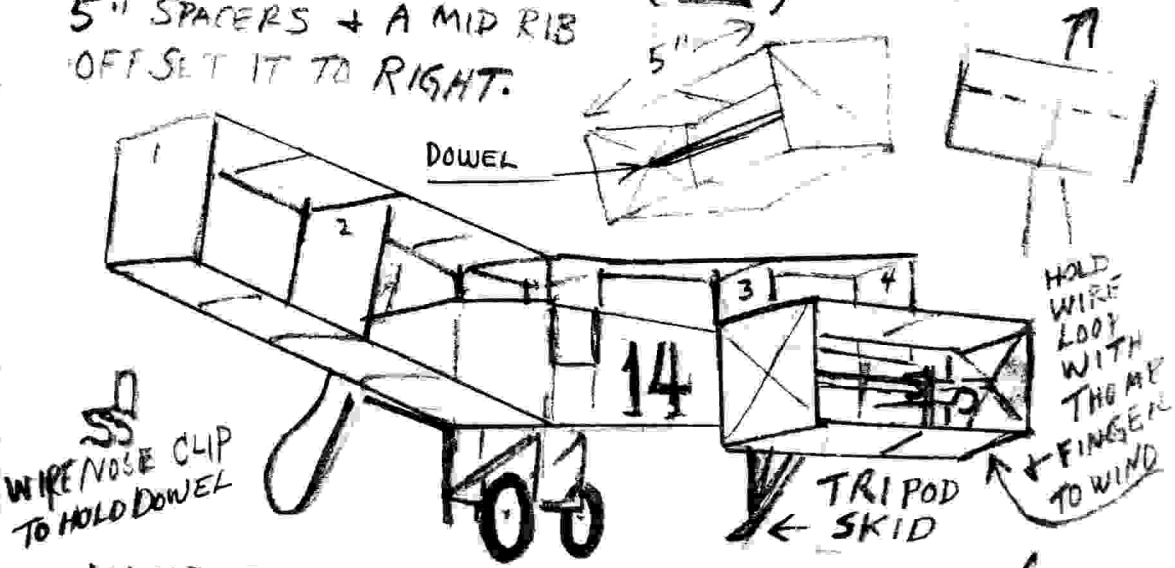


ADD TO PAGE 12

POWER
28" LOOP
OF 3/32 FAI
BEST YET:
1:41 ON
2150 TURNS

NO NEED TO
BUILD TOO LIGHT
I USED 7 1/2 LB
WOOD AND IT
CAME OUT 8 GMS.
NEEDED BALLAST

STAB – TAKES A BEATING, DON'T BUILD IT TOO LIGHT.
CONNECT THE 2 SIDE PANELS (☒) ON PAGE 12 WITH
5" SPACERS + A MID RIB
OFFSET IT TO RIGHT.



WIND BACKWARDS FOR CANARDS!
MAY NEED SOME NOSE WEIGHT ON SKID
COVER 4 WING PANELS WITH TISSUE.

WHAT'S ON:

APRIL 13+14 - WORLD PISTACHIO INTER GNATS M/D SOUTH COLLEGE
MAY 12 - OPA LOCKA BLIMP HANGAR 9-5 LAST MEET (PS8-6363)
JUNE 16 - FATHER'S DAY ANNUAL AWARDS DINNER
JUNE 18, 19, 20 - NFFS VS INDOOR CHAMPS - NIAGARA FALLS
JULY 27 - AUG 4 AMA NATS
AUG 18 (TENTATIVE) MIKE ARAK'S UMTEENTH OUTDOOR MEET
SEPT 14, 15 (" ") START NEW INDOOR SEASON MACDILL AFB.
DEC. 7+8 - CAT I RECORD TRIALS (TENTATIVE)

THE HANGAR PILOT

EDITOR: DR JOHN MARTIN, JR
2180 TIGERTAIL AVE MIAMI FLA. 33133





Walt Erbach
2979 Dudley St
Lincoln, Neb
68503