

NEWS and VIEWS

Indoor News And Views
1025 Cedar Street
Catawissa MO 63015



Indoor Flying Models is approximately 160 pages, 8.5" x 11", with loads of plans. Many of the plans are full size and include I.M.S. Kits in addition to the original designs of famous contest winners like Banks, Coslick, Brown, Hunt, and dozens of others. The scope covers gliders to the F.1.D. international microfilm class models. With all the illustrations, technical data, building and experimenting with his own models, it comprises years of work.

You will find a development that starts with a theme of man's first dream of flying and how with imagination and the use of experimental models he actualized this dream. Then with a strong message for instructors he presents material that can be used to stimulate interest before the instructor adds his own experience. The basics of tools, materials, and "the right moves" lead you from the most simple to the most complex models and techniques, including "How to brew your own microfilm solution" and the secrets of the experts are revealed including "What your best flying buddy won't tell you."

By Lew Gitlow

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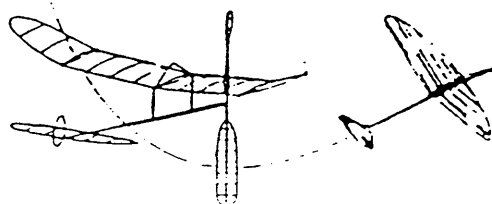
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INDOOR

NEWS and VIEWS



EDITOR: Larry Coslick
4202 Valley Crest Hill Drive,
St. Louis, Mo. 63128

EDITOR'S CORNER

As we begin our first issue of the newsletter, we would like to introduce the editorial committee.

L. COSLICK - EDITOR
R. WHITE - PUBLISHING MGR
H. HENDERSON - TREASURER
M. J. REILLY - MANAGING EDITOR
BILL MARTIN - SCALE EDITOR

Many of you wrote us that you sent in money over a year ago and received nothing. We apologize and promise to correct the situation. Also, we are truly grateful for the many notes of encouragement.

Our intent is to make the newsletter as informative as possible, with a strong emphasis on building techniques from modelers around the world. For the newer indoor modeler, we will republish articles from past issues. We want to hear from you regarding which information you would like to see published. We plan to cover all aspects of indoor flying. We welcome any stories and/or prints that any of you wish to contribute. All mail should be sent to:

ROY WHITE
1025 CEDAR STREET
CATAWISSA, MO 63015

We wish to thank Plenny Bates for his assistance in getting us started. With the committee approach, we hope to publish the newsletter in a timely fashion.

We are all enthusiastic about taking command of the newsletter and anxious to get our first issue in your hands as soon as possible.

LETTERS TO THE EDITOR

Dear Gas House Gang,

All five of you have made me happy by BEING. Why: Collectively causing INAV to exist and function. I'm an ancient indoor modeller who hasn't flown a microfilm model since 1938. Undirregardless, my interest hasn't waned.

My esteemed friend Bob Gibbs has stayed in touch since being a student in my model class in St. Louis (S B F Model Club) when he was 9 yrs old! Twice we've been to the Mira Loan Gym where I met Bob Randolph and Tom Vallee.

I've a logjam of things to say later about this wonderful free-flight fraternity where the dye in the wool is indelible.

Back to the most delightful letter received in many moons: Assuming Roy White wrote * this mix of warmth, worthiness, and humor. Hats off to him. It's enough to make a guy try to become famous by sending something to be famous for sending.

I'm a retired mech engr. with a strong urge to fly indoor

stuff again. I do, but it's more of a comedy act, like the "Twirltail Trimotor" & "Frag-modiliac". The trouble is I'm too deep into other things, like flying an Aeronca Champ all over creation and into copper mines, and finishing building a building to build the airplane I'm building in. (Syntax suffers when I write) I do write a column for a Palm Springs paper, Sandy Ago and other stuff. Enough! Please fill in the blanks in the blankety-blank check enclosed to renew my subscription. I trust people who consider that I may be locked up.

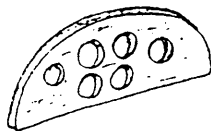
Somehow or 'nother, Catawissa tickles my funnybone to the bone. Wish it was MY address.

Sincerely, Ed Lockhart

* written by Plenny Bates

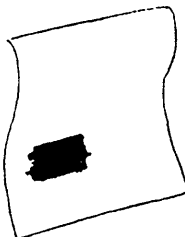
BIC DISPOSABLE SHAVER

Super sharp .004 blade that is easily removed by inserting a jeweler's screw driver between the handle section and the front face plate. Use a prying motion to remove the plate, and CA a 1/32 square balsa strip to the top edge of the blade for easy pick up.

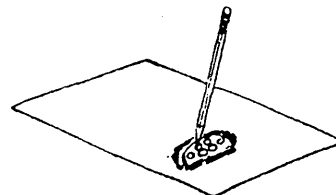


① CUT INSTRUMENT PANEL FROM 1/32" Balsa CUT HOLES W/ SHARPENED TUBING

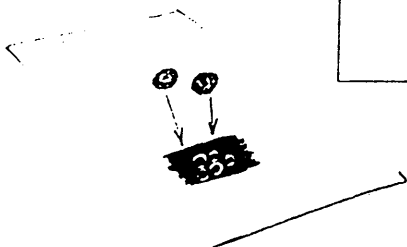
BOB ISAACKS
PILOTS LOCOS - 93



② AIRBRUSH BOND PAPER W/ FLAT BLACK PAINT LARGER THAN INSTRUMENT PANEL

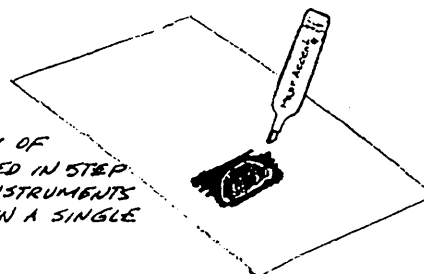


③ MARK EXACT LOCATION OF INSTRUMENTS ON PAINTED AREA W/ PENCIL

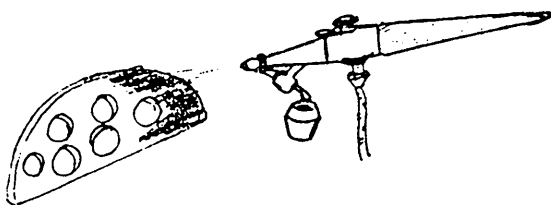


④ USING COMMERCIAL INSTRUMENTS OR ONES CUT FROM MAGAZINES; GLUE INSTRUMENT FACES ON MARKED LOCATIONS USING RC-56

⑤A MAKE COPY OF SHEET PRODUCED IN STEP 4, THIS PUTS INSTRUMENTS & BACKGROUND IN A SINGLE PLANE



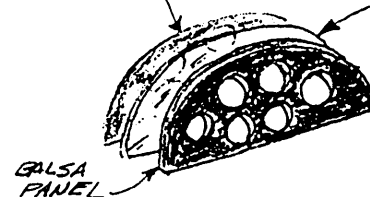
⑤B USE YELLOW HIGH LIGHTER TO COLOR INSTRUMENT HANDS & BEZEL



⑥ AIRBRUSH Balsa PANEL W/ APPROPRIATE COLOR: USUALLY FLAT BLACK OR DARK GRAY.

BOND PAPER COPY

THIN CLEAR PLASTIC



⑦ MAKE A SANDWICH UTILIZING THE Balsa PANEL, CLEAR PLASTIC AND THE BOND PAPER BACKGROUND W/ FACES. USE RC-56

HERE'S A WAY TO MAKE REALISTIC LOOKING INSTRUMENT PANELS WHICH IS A BIG IMPROVEMENT OVER PLAIN PAPER ONES, TRY IT!

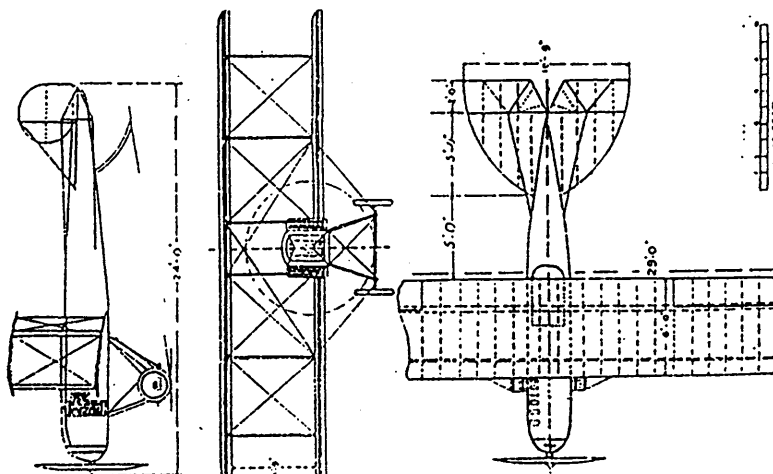
SCALE NEWS & VIEWS

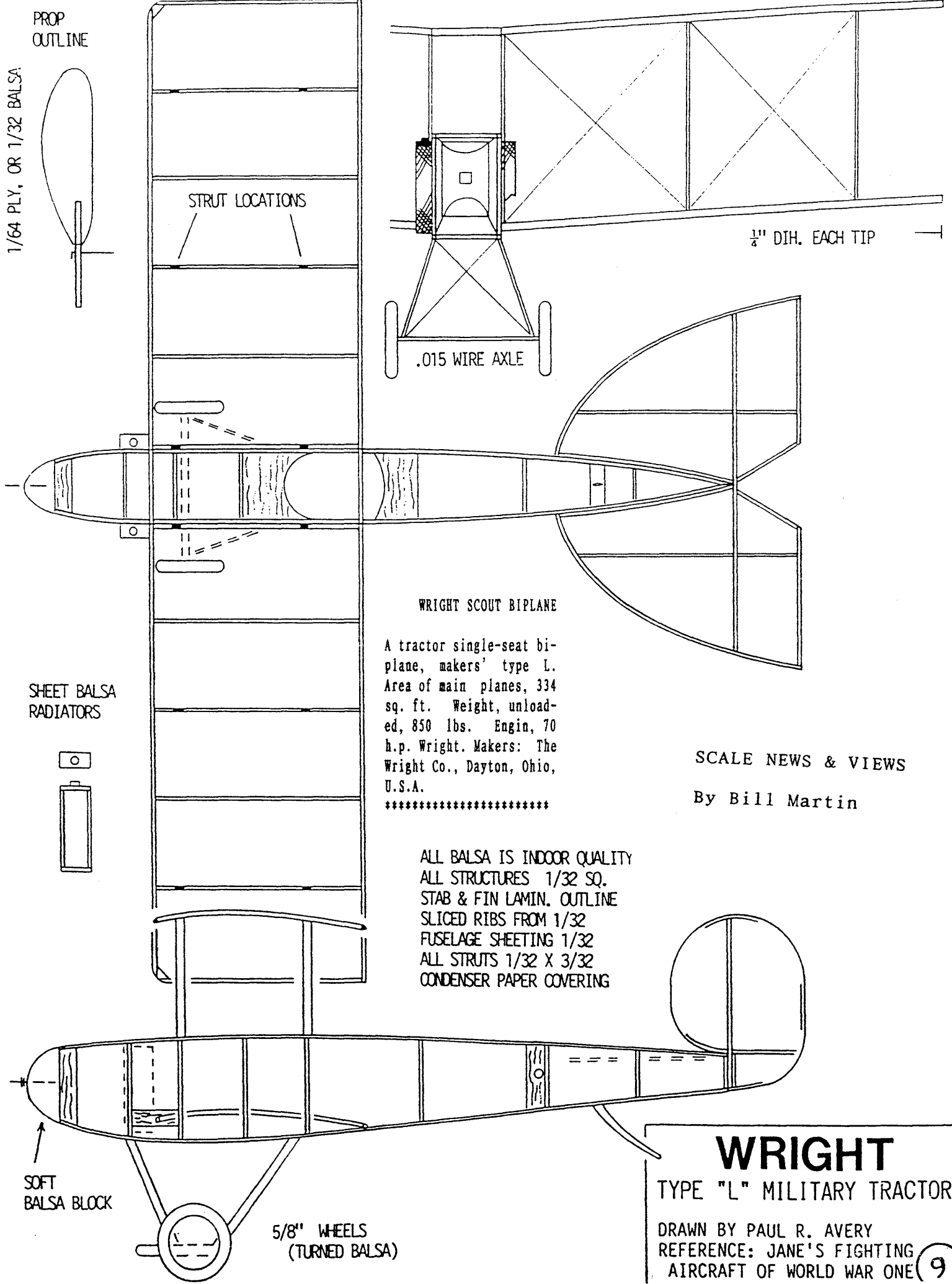
By Bill Martin

Just a few words to inform you what we intend to do in the coming issues. Most of all, I would like to use the column as a vehicle to share your ideas and comments on the subject of scale building. So, please send along any building tips, plans, 3-views, articles or questions that you may have.

If you are in need of a 3-view, color data, photos, etc. on a particular A/C, we will print your request in hopes that someone "out there" can be of help.

Building tip for this issue concerns ways to improve your instrument panels. The plan follows, so get out your tweezers, magnifiers & the 1/32" sq. and build the Wright Type L Military Tractor.





WRIGHT SCOUT BIPLANE

A tractor single-seat biplane, makers' type L. Area of main planes, 334 sq. ft. Weight, unloaded, 850 lbs. Engin, 70 h.p. Wright. Makers: The Wright Co., Dayton, Ohio, U.S.A.

ALL BALSA IS INDOOR QUALITY
ALL STRUCTURES 1/32 SQ.
STAB & FIN LAMIN. OUTLINE
SLICED RIBS FROM 1/32
FUSELAGE SHEETING 1/32
ALL STRUTS 1/32 X 3/32
CONDENSER PAPER COVERING

SCALE NEWS & VIEWS

By Bill Martin

WRIGHT

TYPE "L" MILITARY TRACTOR

DRAWN BY PAUL R. AVERY
REFERENCE: JANE'S FIGHTING
AIRCRAFT OF WORLD WAR ONE

STRAIGHTENING CROOKED

TAIL BOOMS

By Larry Coslick

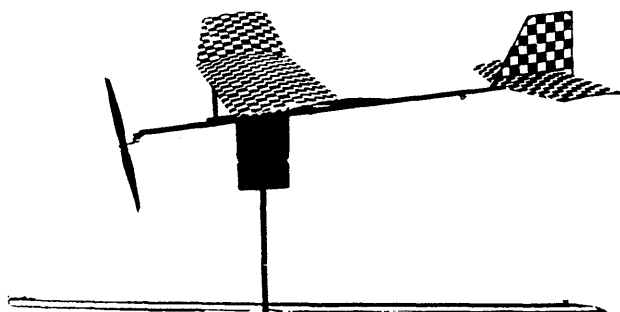
I have been building intermediate sticks for the past 3 years and it seems that every time I build a tail boom, the last 1/3 of the boom has had a curve in it. I have tried steaming the boom on a tapered form and soaking the boom and form in water. However, these procedures did not work. Some builders tell us to use the curve to obtain a left turn, but I do not like to sight down a motor stick and see a crooked boom. Recently, I glued a boom together and again I had the same curve when it was removed from the tapered form. I set the boom aside and while working on another project, I laid a pair of pliers across the aft section of the boom and crushed it. The damaged area was small, so I decided to cut out the damaged section and butt joint the two together. After the repair was made, I noticed the boom was straightened, yet not straight enough. After three more butt joints, I had a boom that I could live with that only added .004 grams. For the builder who is interested in appearance, the butt joints are hardly noticeable.

The procedure is as follows:

Determine where the curve starts and mark it. Slide the boom over the tapered form and wrap a 1/8" wide strip of Scotch 230 drafting tape (available at office supply stores) around the boom, where the cut is to be made. Draft-

ing tape will not tear .006 C grain balsa. Match the ends of the tape so that a perfect circle can be cut. I use the tape because it is very difficult to make a perfect cut freehand. Hold the tapered form in your right hand and only rotate the form while following the edge of the tape with a new razor blade.

Separate the two sections and check for a good fit. Set the front piece aside and cut the back section in two equal parts. Check again for a tight fit. Apply thinned Dued or Ambroid glue with a plastizer added to each end of the aft section where the last cut was made. Slide the 2 aft sections on the form and align the two. Take a small brush and apply acetone around the joint and rub the joint back and forth. Also, rotate the form so that the glue won't stick to the form. Remove the boom and check for straightness. It might be necessary to reverse the seam on several sections along the boom to get it straight, but normally this is not necessary. When the aft section is straight, slide the forward and aft sections on to the form and reattach the two. On the last 2 booms that I made, one took 6 butt joints, with 2 seam reversals and only added .006 grams. The other boom took 2 joints and added .002 grams. Although I don't use this procedure to straighten bowed motor sticks, I'm sure it would work. After the boom has been straightened, I usually leave it on the tapered form for several days to let the glue cure.



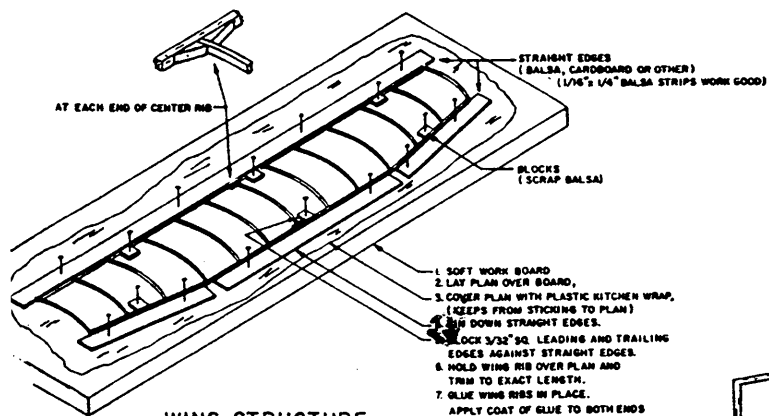
ROY WHITE'S CHECKERBOARD
BLACK AND YELLOW P-24

P-24 CONDOR

If you are having trouble getting fliers interested in indoor flying, introduce them to Don Mace's P-24 Condor. This slow-flying stick model has a 24 inch wing span, with sliced ribs, a 7-inch plastic prop and is covered with Jap tissue. The only requirement for flying in competition is that the model must be built with the wood supplied in the kit and the finished weight must be from 11.5 to 13 grams. When flown in a 40 foot site, these models will turn in times of 3 to 4 minutes on a loop of rubber .087 x 48. The kits are available from:

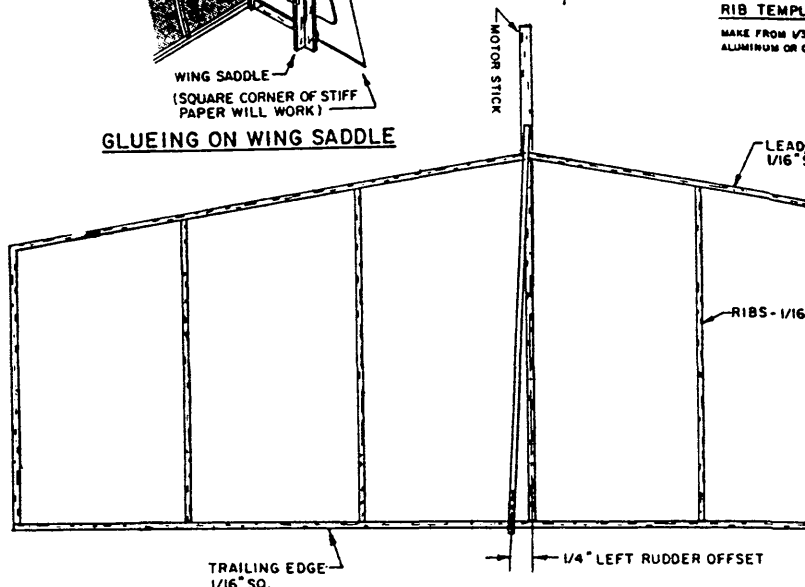
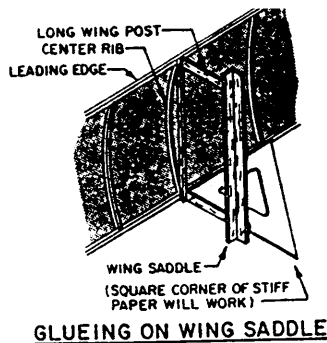
MACE MODEL AIRCRAFT COMPANY
359 SOUTH 119TH EAST AVENUE
TULSA, OKLAHOMA 74128
(918) 437-5490

The cost is \$9.95, plus \$2.00 postage. Don has been selling the P-24 since 1989 and has sold over 3000 kits, some of them going to the Air Force Academy and several other Universities. He also carries a smaller version of the P-24 called the P-18 Hawk, as well as kits, plans and supplies.

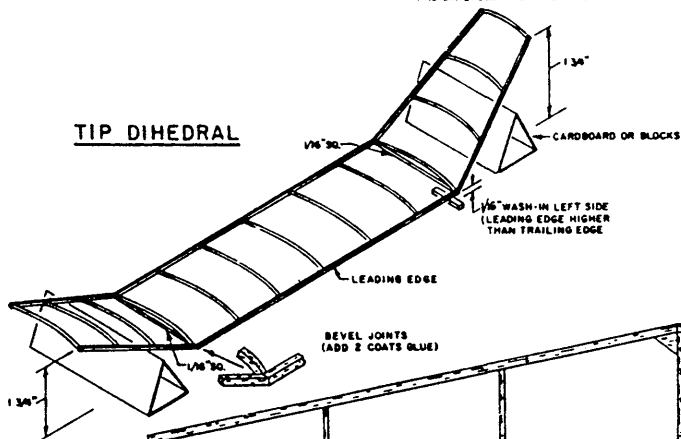


WING STRUCTURE

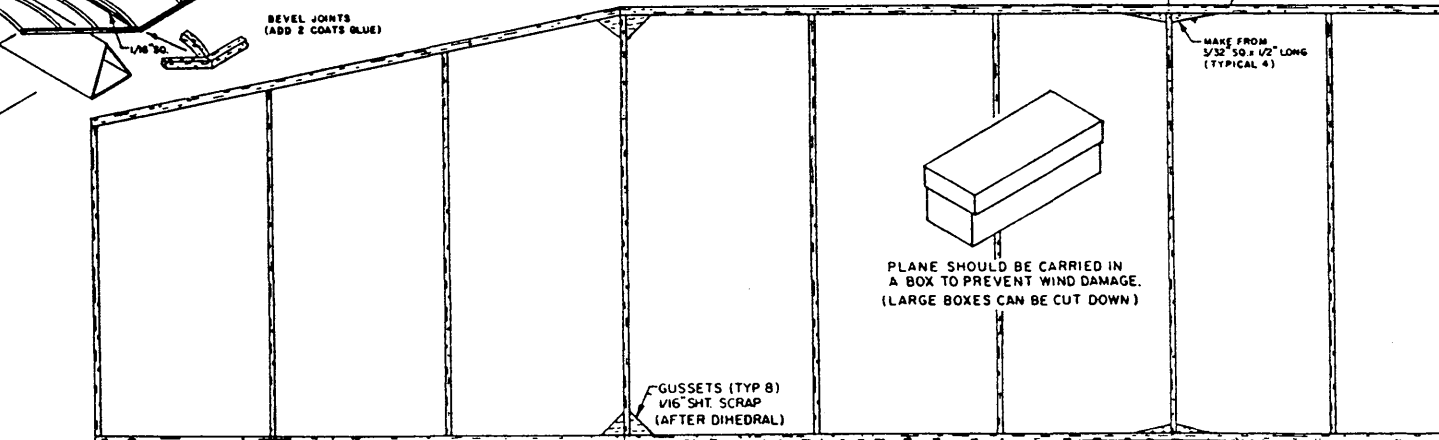
NOTE: TAIL IS BUILT SIMILAR



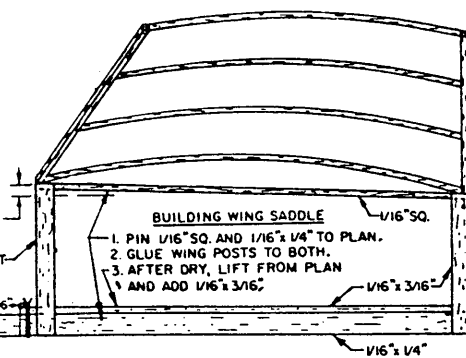
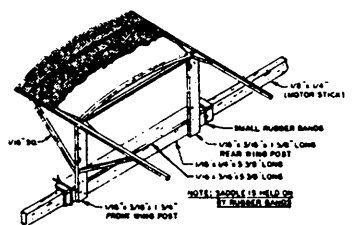
TAIL PLAN



TIP DIHEDRAL



WING PLAN



NOTE: WING SADDLE IS FREE TO SLIDE ALONG MOTOR STICK AND IS HELD IN PLACE BY SMALL RUBBER BANDS (AFTER ADJUSTING FOR BEST FLYING POSITION, MARK POSITION OF WING SADDLE WITH FELT TIP PEN.)

WING INCIDENCE MAY BE INCREASED OR DECREASED BY PLACING BALSA SHIMS UNDER FRONT OR REAR OF WING SADDLE.

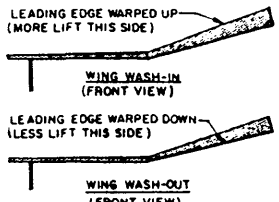
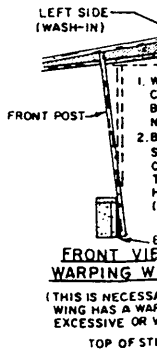
RUBBER BAND (TIGHT ENOUGH TO HOLD WING FIRM)

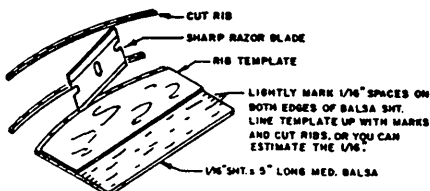
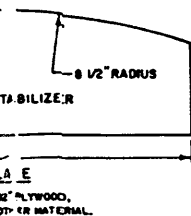
TYING RUBBER



FLYING SITES

GYMNASIUMS
ARMORIES
CHURCHES
AIRPLANE HANGARS
CONVENTION HALLS
AUDITORIUMS
SHOPPING MALLS
THEATERS



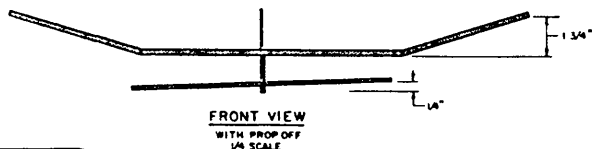
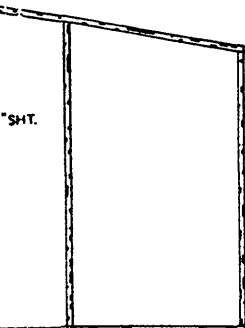


CUTTING WING AND TAIL RIBS

NOTE: ALL RIBS ARE CUT TOO LONG AND SHOULD BE INDIVIDUALLY TRIMMED TO FIT.

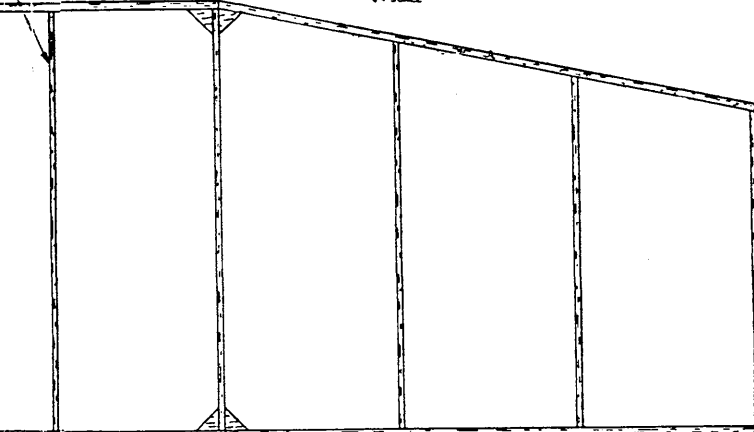
GENERAL NOTES

1. IT IS IMPORTANT TO OIL PROP SHAFT WITH LIGHT OIL.
2. FOR BEST RESULTS RUBBER SHOULD BE BROKEN IN AS FOLLOWS:
STRETCH RUBBER ABOUT 3 LENGTHS AND HOLD FOR ABOUT 5 MIN.. RELAX RUBBER FOR ABOUT 3 MIN.. REPEAT 3 LENGTH STRETCH FOR 4 MIN.. LUBE WITH RUBBER LUBE AND FLY.
3. A 36" LOOP OF 3/32" RUBBER SHOULD TAKE AT LEAST 2500 WINDS WHICH SHOULD GIVE 2 MIN. PLUS FLIGHTS.



ALL WING RIBS 1/16" MEDIUM SHT.

FRONT VIEW
WITH PROP OFF
1/4" SCALE



TRAILING EDGE 3/32" SQ.

WITH WING MOUNTED ON STICK, CUT WING POST LOOSE FROM BOTTOM ON WING SADDLE, DO NOT CUT COMPLETELY LOOSE, END POST AND SLIP TAPER HIM IN PLACE. SIGHT FROM CENTER OF WING AT FRONT, THE LEFT SIDE OF WING SHOULD HAVE ABOUT 1/16" WASH-IN. SHIMMING REAR WING POST WILL HAVE OPPOSITE WARP.)

Balsa Shim

WING

TRY WHEN UP THAT IS (WING.)

CK IS STRAIGHT

3/32" V6" S.

REAR HO 6-032" WIRE

3 COATS GLUE

(DRY BETWEEN COATS)

WINDERS

WINDERS

WINDERS

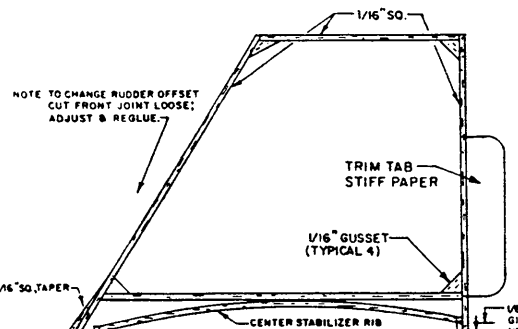
WINDERS

WINDERS

WINDERS

WINDERS

WINDERS



NOTE TO CHANGE RUDDER OFFSET CUT FRONT JOINT LOOSE; ADJUST & REGUE.

TRIM TAB STIFF PAPER

1/16" GUSSET (TYPICAL 4)

1/16" SQ. TAPER

CENTER STABILIZER RIB

WINDING ALONE

WINDING

TWO PEOPLE WINDING

1. HOOK KNOT END ON HOOK.

2. STRETCH RUBBER 3 OR 4 LENGTHS AND WIND. MOVE IN WHILE WINDING.

3. UNHOOK FROM WINDER AND HOOK TO PROP SHAFT WHILE HOLDING PROP, HOOK OTHER END.

ONE PERSON HOLDS PROP & SHAFT WITH THUMB & FINGER.

WINDER

PROP

OTHER PERSON HOLDS WINDER, STRETCHES RUBBER ABOUT 3 LENGTHS AND WINDS WIRE TIGHTER.

WINDER

PROP

WINDER

PROP

WINDER

PROP

WINDER

1/16" BLOCK

GIVES STABILIZER NEGATIVE INCIDENCE

1/16" BLOCK

GIVES STABILIZER NEGATIVE INCIDENCE

1/16" BLOCK

GIVES STABILIZER NEGATIVE INCIDENCE

1/16" BLOCK

GIVES STABILIZER NEGATIVE INCIDENCE

1/16" BLOCK

GIVES STABILIZER NEGATIVE INCIDENCE

1/16" BLOCK

GIVES STABILIZER NEGATIVE INCIDENCE

APPROX 30° DIA

SEATTLE CLIMBING ORBITAL TO LEFT

IDEAL FLIGHT PATTERN

PLANE SHOULD REACH A CRUISING ALTITUDE ABOUT 1/3 OF TURNS. IT SHOULD FLY FOR A TIME AT THIS ALTITUDE AND GRADUALLY START TO DESCEND. THE PLANE SHOULD LAND WITH A FEW WINDS LEFT.

1/16" BLOCK

GIVES STABILIZER NEGATIVE INCIDENCE

1/16" BLOCK

GIVES STABILIZER NEGATIVE INCIDENCE

1/16" BLOCK

GIVES STABILIZER NEGATIVE INCIDENCE

1/16" BLOCK

GIVES STABILIZER NEGATIVE INCIDENCE

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1/16" BLOCK

GIVES STABILIZER NEGATIVE INCIDENCE

1/16" BLOCK

GIVES STABILIZER NEGATIVE INCIDENCE

1/16" BLOCK

GIVES STABILIZER NEGATIVE INCIDENCE

COVERING COVER WITH LIGHT TISSUE DO NOT SHRINK

STABILIZER



1. CUT OVER SIZE PIECE.

2. APPLY GLUE ABOUT 1/2" ALONG LEADING AND TRAILING EDGE.

3. LAY TISSUE OVER STRUCTURE AND STICK TO GLUE AREAS.

4. RAISE ONE END OF TISSUE AND APPLY GLUE TO LEADING EDGE, TRAILING EDGE AND TIP RIB.

5. CAREFULLY WORK TISSUE TOWARDS TIP RIB.

6. AFTER DRY TRIM WITH RAZOR BLADE.

WING

1. CUT OVER SIZE TISSUE FOR CENTER SECTION.

2. BEGIN AT CENTER RIB AND PROCEED TO COVER FOLLOWING STABILIZER COVERING DIRECTIONS. (GLUE ONLY TO LEADING EDGE, TRAILING EDGE AND DIHEDRAL RIBS.)

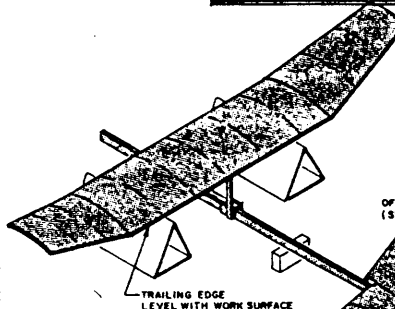
3. AFTER DRY TRIM WITH RAZOR BLADE.

4. CUT OVER SIZE TISSUE FOR WING TIPS.

5. OVERLAP DIHEDRAL RIB 1/16" AND GLUE TO RIB, TIP RIB, LEADING AND TRAILING EDGES.

NOTE: RUDDER IS COVERED ON LEFT SIDE ONLY.

MOUNTING STABILIZER



1. MOUNT WING TO MOTOR STICK.
2. SUPPORT WING LEVEL TO WORK SURFACE. USE CARDBOARD (SHOWN), BLOCKS OR OTHER.
3. BLOCK UP REAR OF MOTOR STICK.
4. GLUE 1/16" BLOCK UNDER TRAILING EDGE THEN BLUE STABILIZER TO MOTOR STICK.
5. GLUE ON RUDDER IN OFFSET POSITION AND LINE UP WITH WING POSTS.

OFFSET RUDDER (SEE TOP VIEW)

1/16" BLOCK UNDER TRAILING EDGE (PROVIDES NEGATIVE INCIDENCE) GLUE RUDDER POST TO 1/16" 1/16" BLOCK.

WORK SURFACE

ADJUSTMENTS

LESS DOWN THRUST

DOWN THRUST

PROPELLER POSITION

NOTE: PLANE NEEDS SOME DOWN THRUST.

THRUST - PULL OF PROPELLER

NOTE: WING FORWARD (MORE CLING)

1. WITH RUBBER REMOVED AND PROPELLER MOUNTED IN PLACE, INST. PLANE AND BALANCE ON FINGER.

2. TOP MAY HAVE TO SLIDE WING TO FRONT OR TO REAR.

3. AFTER BALANCE PROCEED WITH TEST FLING.

INCIDENCE

NOTE: WING NEEDS SOME INCIDENCE

BALANCE POINT - MIDDLE OF WING

1. WITH RUBBER REMOVED AND PROPELLER MOUNTED IN PLACE, INST. PLANE AND BALANCE ON FINGER.

2. TOP MAY HAVE TO SLIDE WING TO FRONT OR TO REAR.

3. AFTER BALANCE PROCEED WITH TEST FLING.

NEGATIVE INCIDENCE

NOTE: STABILIZER NEEDS SOME NEGATIVE INCIDENCE

RUBBER MOTOR

LONGER RUBBER - LESS THRUST, MORE WINDS

SHORTER RUBBER - MORE THRUST, LESS WINDS

TEST GLIDE

1. HOLD PLANE AS SHOWN WITH NOSE SLIGHTLY DOWN. GIVE THE PLANE A SLIGHT THRUST.
2. IF PLANE HAS TENDENCY TO STALL AS SHOWN, SLIDE PLANE TO REAR ABOUT 1/4" AND REPEAT GLIDE.
3. IF PLANE DIVES SLIDE WING FORWARD.

FLYING

(FLY INDOORS - SEE "FLYING SITES") (FLY OUTDOORS WHEN AIR IS DEAD CALM.)

1. AFTER OBTAINING A GOOD GLIDE, GIVE PLANE ABOUT 100 TURNS.
2. HOLD PLANE AS SHOWN WITH NOSE SLIGHTLY UP. WITH OTHER HAND HOLDING PROP, RELEASE PROP AND LIGHTLY LAUNCH PLANE.
3. IF PLANE HAS TENDENCY TO STALL SLIDE WING TO REAR ABOUT 1/4". IF PLANE DIVES OR DOES NOT CLIMB ENOUGH, SLIDE WING FORWARD.
4. IF FLIGHT TENDENCY APPEARS GOOD GIVE PLANE ABOUT 1000 TURNS.
5. PROCEED TO FLY AND ADJUST. KEEP ADDING WINDS AND FLYING.
6. AFTER RUBBER IS BROKE IN YOU SHOULD GET 2500 TO 3000 TURNS ON A 36" LOOP OF 3/32" RUBBER.
7. LONGER RUBBER YIELDS LESS THRUST, LESS CLIMB, MORE TURNS.
8. SHORTER RUBBER YIELDS MORE THRUST, MORE CLIMB, LESS TURNS.

GLUES

1. FRANKLIN'S HOME SHOP & CRAFT GLUE (WOOD - 2 PARTS GLUE TO 1 PART WATER, COVERING - 1 PART GLUE TO 1 PART WATER)
2. TITEBOND GLUE
3. MICRO-K FAST DRYING CEMENT FOR WOOD
4. TESTORS FAST DRYING CEMENT FOR WOOD
5. AMBROD CEMENT
6. DUCO CEMENT

NOTE: THERE ARE OTHER GLUES WHICH WILL WORK. USE TOOTHPIK TO APPLY GLUE TO WOOD.

GLUING WOOD JOINTS

1. COAT EACH PIECE TO BE JOINED WITH LIGHT COAT OF GLUE AND LET SOAK IN FOR A FEW SECONDS.
2. APPLY A SECOND COAT OF GLUE AND JOIN PIECES.

WOOD

ALL Balsa

TOOLS

SOFT WORK BOARD, RAZOR BLADES, STRAIGHT PINS, GLUE, SANDPAPER, LONG NOSE CUTTING PLIERS, POINTED BRUSH, PLASTIC WARP SCISSORS

MANY THANKS TO LES SHAW WHO SUGGESTED THIS PLANE AND AIDED IN PLANES DESIGN.

MACE MODEL AIRCRAFT CO.
TULSA, OKLAHOMA

P-24 "CONDOR"

WING SPAN - 24" LENGTH - 23 5/8"
WING AREA - 115 sq. in. STABILIZER AREA - 45 sq. in.
RUDDER AREA - 10 sq. in.

RUBBER STRETCH TESTING

by Howard Henderson

Since rubber is the life blood of this hobby, I guess it is natural that we should talk about it a lot. Much has already been written on rubber, but since we now have the new stuff, maybe somebody will be inspired to write about how to get the most from it.

In this issue, we are including one method of testing rubber. Most old-time rubber flyers have developed their own method. However, it is still common for people to hand me a piece of rubber to test. (As if I have the only know-how around here! Hi!) The enclosed sample test sheet, in full size, may be copied and used as-is. The equipment required couldn't be more simple.

A 1"x2" board, 6' long, with a large headed nail (protected by fuel linetubing) about 2" from one end is used as an anchor for the test rubber. An old measuring tape is strapped to the board. It would be slightly better, if it read in tenths of an inch, but a standard scale is o.k. Interpolation can be made to tenths. All test pieces are 1/8" wide loops 5 1/2" to 6" long, tied with your favorite knot. Pre-stretch it, if you wish. I'm not sure TAN II benefits a lot from it. There are a variety of opinions on this. My experience with the old TAN I was that it got better each time it was used, if it got a 1/2 to 1 hour rest.

We have a 10 lb. fish-scale by "Normark", which has worked fine to do the stretching. They are inexpensive at the discount fishing departments. It has a guaranteed accuracy of about 2 oz. giving a little over 1% full scale, but we have found them to be better than that. The digital read-out helps. If you are in doubt, you can get a couple of calibration points by taking a couple cans of bolts to your friend with an "O Hous" or a digital scale at the post office.

How far do you pull this sample? To what percent of the average breaking point should it be pulled?

TAN II gets pretty hard at 10 lbs. and if you want to know how much total energy there is in the stuff, go to 10 lbs.. We used to take TAN I to 8 lbs. and quit. Relatively speaking, that is good enough to tell you how good the rubber really is.

Hold the test board in a good vise. Set a tape recorder up and pull the rubber to your max load and call out the deflection every pound as you relax the tension (After 4 lbs, every 1 lb, 8 oz.)

Plot this on the sample graph. If you do not want to test this sample again later, cut off the knot with a razor, while the rubber is in tension, and weigh it. It should be close to 1 gram. The area under the curve is determined by adding a succession of elements as shown by the example. ((28-24) x 1.5 = 6.0 in lbs.)

by the weight in grams will give you the energy in ft. lbs. per lb.

Many indoor models can't use the last portion, an example being the cross-hatched area shown. If you start comparing the energy without that portion, it could be more meaningful for indoor use. What do you think? Chris Matsuno tells me they use everything they can get for FIB. However, I've heard some old-time outdoor modelers don't torture the rubber that much, particularly in the SAM events. Incidentally, a piece of very creamy TAN II given to me a J.C. tested over 4200 ft. lbs./lb! Nothing I've seen has been as good.

What portion of the curve you might cross hatch, when comparing data is subject to debate, I suppose. All rubber testing here is done in the basement at a pretty uniform temperature year round.

..... RUBBER STRETCH TEST

Date 6-22-93

Prestretch? unstretch Sample size 6 1/2" x 1/8" strands

Rubber type FBI TAN II Date obtained 6-23-93

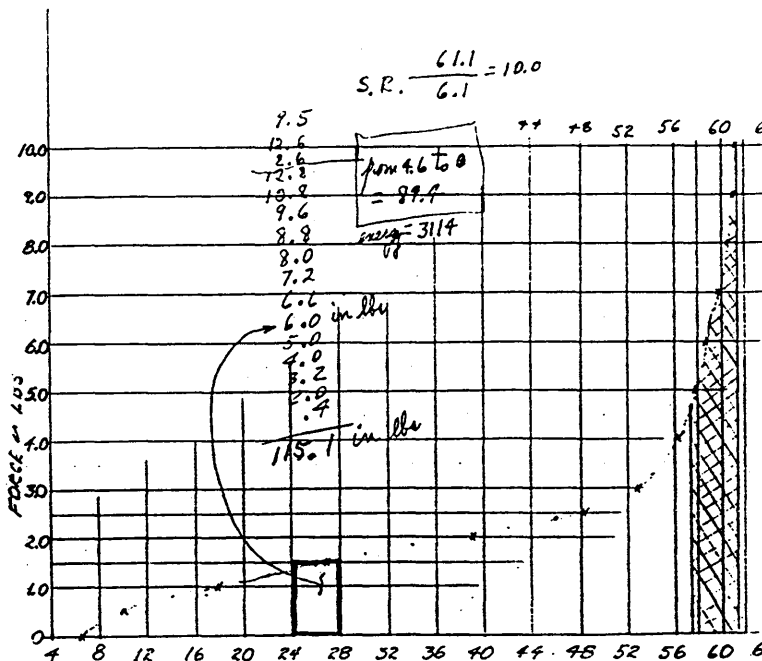
Determine "A" (area under curve) 115.1 in lbs in lbs

Weight of sample 1.085g Second test _____

Energy = "A" x 16 x 28.35 / Wt(g) x 12; or 37.8 x "A" / Wt(g) = _____

Second test = _____

ENERGY; first test 4010 second test _____



Telephone: 0257 452624.

403 Mossy Lea Road.
Wrightington.
Wigan,
Lancs., England.
WN6 9SB.
2/5/94.

Dear Indoor Flyer.

First of all thank you for entering the forth Living Room Stick Postal Contest. Please find below the full classified results. I hope you all had FUN in flying this little model and I hope you will enter next year's event which will start on the 1st January 1995.

LIVING ROOM STICK POSTAL CONTEST 94 RESULTS.

Contestants Name.	Country	Site Ceiling Height in Ft.	Best Actual Time in Sec.	Corrected Time.	Place Overall & (Class)
W. Van Gorder	U.S.A.	23.25	552	901.36	OVERALL CHAMP
J. O'Donnell	U.K.	9.33	422	860.38	2 (1st U.K.)
W. Van Gorder	U.S.A.	17.92	504	873.65	3
W. Van Gorder	U.S.A.	22.04	521	853.02	4
L. Coslick	U.S.A.	9.00	410	842.85	5 (1st Int.)
W. Van Gorder	U.S.A.	13.33	445	832.96	6
L. Mzik	U.S.A.	20.00	492	827.66	7 (2nd Int.)
V. Hacker	U.S.A.	20.00	492	827.66	7 (Joint)
R. Lotz	Germany	7.48	385	824.41	8 (3rd Int.)
B. J. Hunt	U.K.	24.83	510	807.03	9 (2nd U.K.)
A. Abell	U.K.	7.67	374	796.61	10 (3rd U.K.)
D. Yates	U.K.	9.33	387	789.02	11
R. Eberle	U.S.A.	8.00	373	787.16	12
T. Yatabe	Japan	29.52	513	771.48	13
L. Mzik	U.S.A.	30.00	510	763.26	14
S. Nonaka	Japan	29.52	503	756.44	15
A. Cromberg	Argentina	9.80	373	751.99	16
T. Vallee	U.S.A.	18.60	430	737.87	17
J. Clem	U.S.A.	23.00	455	736.01	18
S. Takeuti	Japan	25.94	463	723.43	19
J. Kagan	U.S.A.	18.00	414	716.75	20
K. Hasimoto	Japan	29.52	471	708.32	21
R. Miller	U.S.A.	30.00	470	703.40	22
J. F. Frugoli	France	8.30	336	703.35	23
K. Kihara	Japan	29.52	466	700.80	24
Y. Sugi	Japan	25.94	446	696.87	25
Y. Sugi	Japan	29.52	460	691.77	26
R. White	U.S.A.	9.00	334	686.62	27
M. Thompson	U.S.A.	30.00	453	677.96	28
K. Kihara	Japan	29.52	448	673.73	29
T. Yatabe	Japan	29.52	446	670.72	30 (Joint)
M. Aosima	Japan	29.52	446	670.72	30 (Joint)
A. E. Hares	U.K.	7.813	315	668.21	31
D. Barry	U.S.A.	21.00	399	662.19	32
M. Thomas	Canada	9.25	323	659.89	33
D. Belieff	U.S.A.	18.60	381	653.79	34

Y. Sugi	Japan	29.52	434	652.67	35
Y. Sugi	Japan	29.52	430	646.66	36
L. Loucka	U.S.A.	30.00	430	643.53	37
C. Banks	U.S.A.	23.20	393	634.16	38
H. Offerdinger	Germany	7.48	291	623.13	39
V. Hacker	U.S.A.	30.00	415	621.08	40
D. Robelen	U.S.A.	26.00	397	619.89	41
K. Hara	Japan	25.94	393	614.06	42
Y. Tawaka	Japan	29.52	406	610.57	43
Z. Fuziwara	Japan	29.52	405	609.06	44
Y. Tanaka	Japan	29.52	404	607.56	45
W. Baker	U.S.A.	18.60	347	595.45	46
M. Thomas	Canada	18.833	348	595.14	47
Z. Fuziwara	Japan	29.52	392	589.51	48
S. Tamai	Japan	29.52	388	583.50	49
H. Motegi	Japan	29.52	387	581.99	50
Z. Fudiwara	Japan	29.52	383	575.98	51
S. Tamai	Japan	29.52	381	572.97	52
K. Komura	Japan	29.52	377	566.95	53
M. Fukuda	Japan	25.94	360	562.49	54
M. Yamanasi	Japan	29.52	372	559.43	55
R. Weisman	U.S.A.	18.60	321	550.83	56
K. Komura	Japan	29.52	366	550.41	57
M. Yamanasi	Japan	29.52	365	548.91	58
R. Harada	Japan	29.52	361	542.89	59 (Joint)
S. Takeuti	Japan	29.52	361	542.89	59 (Joint)
R. Platt	U.S.A.	26.00	345	538.69	60
C. Westerman	U.K.	19.50	314	532.92	61
D. Deller	Canada	9.25	260	531.18	62
T. Sova	U.S.A.	30.00	349	522.31	63
M. Osima	Japan	29.94	327	510.93	64
K. Hara	Japan	25.94	326	490.26	65
F. Takagi	U.S.A.	23.20	301	485.70	66
K. Komura	Japan	29.52	316	475.22	67
T. Tudi	Japan	29.52	315	473.71	68
S. Takeuti	Japan	29.52	310	466.20	69
J. Diebolt	U.S.A.	26.00	296	462.18	70
J. Williamson	U.S.A.	30.00	303	453.47	71
J. Triana	U.S.A.	21.00	270	448.10	72
H. Inoue	Japan	25.94	296	445.14	73
T. Vallee	U.S.A.	7.92	209	442.07	74
M. Fukuda	Japan	25.94	292	439.13	75
K. Halsas	Finland	22.97	263	425.59	76
D. Belieff	U.S.A.	7.92	201	425.15	77
H. Tamura	Japan	25.94	281	422.58	78
H. Kurihara	Japan	25.94	269	420.31	79
F. Breisch	U.S.A.	30.00	278	416.05	80
H. Kurihara	Japan	25.94	268	403.03	81
W. Collins	U.S.A.	26.00	256	399.73	82
P. Brocks	U.S.A.	26.00	253	395.04	83
H. Inoue	Japan	25.94	249	389.06	84
Y. Ikeda	Japan	25.94	256	384.97	85
D. Nakao	Japan	25.94	252	378.97	86
D. Braun	U.S.A.	8.33	181	378.59	87
T. Westlin	Finland	22.97	231	373.81	88
R. Eberle	U.S.A.	7.25	173	372.93	89
J. Wackers	(J)Holland	8.00	176	371.42	90

D. Braun	U.S.A.	21.00	199	330.26	91
A. Tatimori	Japan	25.94	214	321.83	92
H. Phillips	U.S.A.	26.00	204	318.53	93
D. Henshaw	U.S.A.	30.00	212	317.28	94
F. VanHauwaert	Belgium	29.00	204	308.42	95
E. Sullivan	U.S.A.	26.00	176	290.43	96
J. W. Alling	U.S.A.	23.20	178	287.23	97
W. Booth	U.S.A.	23.20	175	282.39	98
P. Owen	U.S.A.	21.00	168	278.82	99
F. Baird	U.S.A.	18.60	161	276.27	100
A. Petit	Belgium	29.00	165	249.46	101
T. Westlin	Finland	8.10	117	246.24	102
A. Breisch	U.S.A.	30.00	159	237.96	103
A. Petersen	U.S.A.	21.00	138	229.03	104
R. Weisman	U.S.A.	7.92	75	158.64	105

To save you counting here are some of the vital statistics of this year's event. A total of 85 entrants posted 264 competitive flights. Flyers from 10 countries flew in sites ranging from 30 feet down to 7.25 feet.

Prizes will be sent to the overall champion and to the top three in international class and U.K. class. No contestant will receive more than one prize. Well that is just about it for now.

Thermals for ever even Indoors.

Mike Colling

Mike Colling
BMFA Indoor Technical Committee Chairman.

..... RUBBER STRETCH TEST

Date_____

Prestretch?_____

Sample size_____

Rubber type_____

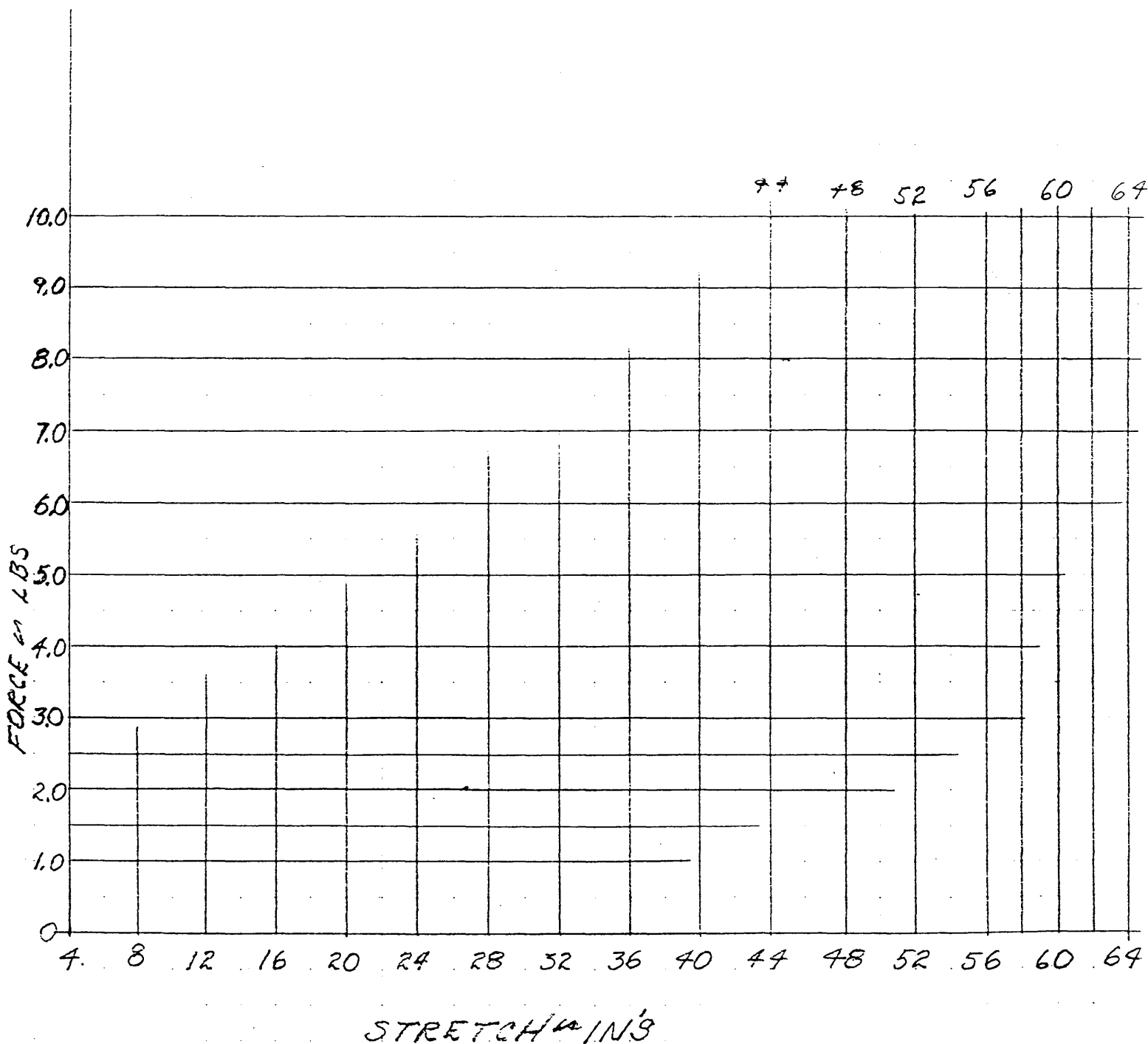
Date obtained_____

Determine "A" {area under curve} _____ in lbs _____ in lbs

Weight of sample_____ Second test_____

Energy = "A" X 16 X 28.35 / Wt{g} X 12 ; or 37.8 X "A" / Wt{g} = _____
Second test = _____

ENERGY; first test_____ second test_____



INDOOR

NEWS and VIEWS

Indoor News And Views
1025 Cedar Street
Catawissa MO 63015

TROUBLE AT JOHNSON CITY

WE HAVE LEARNED THAT A NUMBER OF CONTESTANTS AT THE JUNE 1994 USIC CAUSED SOME PROBLEMS THAT DAMAGED OUR RELATIONSHIP WITH THE PEOPLE AT EAST TENNESSEE STATE UNIVERSITY.

THE MINI-DOME IS A GREAT SITE FOR FLYING, SO WE ARE ANXIOUS TO MEND OUR RELATIONSHIP WITH ETSU. WE SINCERELY HOPE THAT IT WILL NOT HAPPEN AGAIN. WE ASK EVERYONE TO PLEASE COOPERATE.

Japan Vs USA

International Postal Contest
USA Rules Easy B Models
Three Man Teams

Dates - 1 August thru 31 October

For complete rules and entry form
send stamped envelope to

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Laurel, MD 20724

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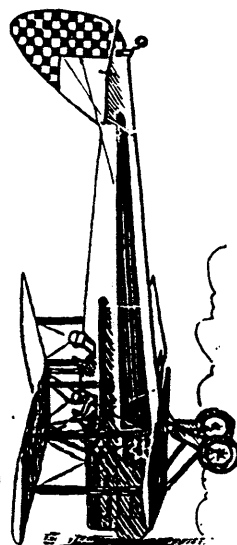
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THE HANGAR PILOT



INDOOR

NEWS and VIEWS

1025 Cedar Street
Catawissa, MO 63015

ISSUE 2 - JULY, 1994 **7 7-78-79**

EDITORIAL

By

MARY JANE REILLY

EXTRA! EXTRA! EXTRA!

Our hero, LARRY COSLICK
does it again!

At the USIC in Johnson
City, Tennessee in June, he
won nine awards, plus the
coveted Grand Champion Award!

In Akron, Ohio in the
blimp hangar on July 2 & 3, he
established two new national
records. On July 2, he flew
an incredible thirty minutes
and six seconds (30.06) with
his EZB! Then, on July 3, he
flew an outstanding thirty
seven minutes and twenty six
seconds (37.26) with his
Intermediate Stick! We are so
proud of him!

When asked how he did it,
he replied in his usual
modest, unassuming manner:

"Well, I arrived at the
airlock around 1 pm and after
I was there about 1/2 hour, I
heard thunder in the distance.
My plan was to fly EZB the
first day because I had to do
some assembly work on the two
Intermediate Stick models that
I brought to get them ready.

By the time I had the EZB
put together and a 1/4 motor
selected, it was getting dark-
er by the minute inside the
building. I used a 3 3/4 inch
loop of .048 TAN II rubber and
launched at a torque of .2
inch ounce. With this size
loop, it normally would climb
to around 30 feet; but this
time it climbed to between 50
or 60 feet and dead-sticked at
7:28 minutes, and the model
was still 20 feet up. I tied
up a new loop 4 1/8 inches and
.045 wide and launched it with
the same torque. I use black
"O" rings and it was getting
so dark inside that I could
hardly see to hook up the
motor. The rain was really
coming down by then and there
were several major leaks to-
wards the West wall. This
time, the model climbed toward
40 feet and flew all the way
down at around 7:30 minutes.

I was ready for the first
official flight, but it was so
dark inside that we had trou-
ble seeing the ceiling and we
decided that it was too chancy
to launch at this time. After
about 45 minutes, it started
to lighten up and the air was
still very buoyant. The tem-
perature had dropped from 80
degrees to 76 degrees and the
humidity was on the rise.

I got two timers and put 2680 turns into the motor and then backed off about 40 turns to 2640. I noticed there had been a slight drift from East to West, so I launched it toward the East side. I used a 16 1/2 inch loop with .2 inch oz. torque. The model climbed quickly at first and when it got to 130 feet, it started to drift toward the center of the building. When it finished the climb, at around 175 feet, it was perfectly centered just under the ceiling with no touches. After a long cruise, it started to drift South and then a little toward the East side again. It was never in any danger of striking anything and landed around 150 feet South of where I launched it, with around 20 knots left. The time was thirty minutes and six seconds (30.06)."

Outstanding! Was he born to fly, or what? We think so. We also think it couldn't happen to a nicer guy.

The staff of INAV will certainly be busy for the 1994-95 season. Along with publishing an international newsletter, we have decided to take charge of the U.S.I.C. at Johnson City, Tennessee. ROY WHITE will be your Contest Director.

ATTENTION GUYS:

Our Facilities Director, GARY UNDERWOOD will negotiate five days for the 1995 USIC. We plan to use Monday for a controlled practice day. Also on Monday, we will have a P-24 mass launch at high noon. The last ten planes to land will have a flyoff. The last five of these planes will have a flyoff, and finally, the last two will have a flyoff for a winner. Tuesday through Friday will be competition days. This will enable us to re-schedule some of the events so that our Senior Citizens won't have such a long day.

ATTENTION GALS:

We have made arrangements for the banquet to be held in the newly remodeled ballroom of the Buffalo Hills Country Club on Thursday evening. Located 5 miles from the Mini-Dome, it boasts a lovely swimming pool and an 18 hole golf course. The views are breathtaking! We have reserved a block of rooms at the special rate of \$29.77 (any number of persons in room). First come, first served. As soon as possible, please let us know if you would like to reserve a room. They will go fast. Some are already spoken for. We promise you a large variety of delicious food, desserts, soft drinks and excellent service. A cash bar is located adjacent to the ballroom.

ATTENTION ADVERTISERS,
SPONSORS & FLYING CLUBS:

We plan to have a Handout Program for the contest at U.S.I.C. If you wish to sponsor an event, advertise or donate money, your name will appear in the program. Call or write and we will quote the prices.

Thanks to all of those who have already contributed. Checks should be made payable to U.S.I.C. and mailed to:

ROY WHITE
1025 Cedar Street
Catawissa, MO 63015

We have returned all outdated checks to you. Your new checks are arriving and our records are posted. We hope that everyone is covered.

Regarding the numbering system, the last issue should have been 74-75-76 and this

issue 77-78-79. The system for expiration notices will be evolving as renewals are received. Your expiration date will appear on the mailing label.

Indoor Flying Models by LEW GITLOW is well-written and easy to understand. To order send \$25.00 to:

Lew Gitlow
Box 3511
Salem, Oregon 97304

Many thanks to PLENNY BATES for all the pictures he took and had printed for us. We appreciate it very much. Thanks also to the DOIGs for the instant results and the advice offered. MARY JANE REILLY's flying fingers will certainly help with typing at USIC in 1995.

Someone always has an intriguing gadget at contests.

PHIL SMITH
2662 Sharon Dr.
Adrian, MI. 49221
517-263-4573

has been experimenting with a method of indoor control of a small electric airplane using a pulsed infra-red signal for guidance of small airplanes (scale, coconut, etc.). In small gyms, a crash into a wall can be discouraging. Phil would like to talk with any electronics experimenters. We have been locked into rubber power for years, but there is no reason why CO 2 or electric should not be considered when technology permits.

Ornithopter Design Manual

This fully illustrated, 42 page booklet will tell you what's been done in the field, how to overcome ornithopter trim problems, how to design a flapping mechanism, and much more. Includes ornithopter terms and principles of flight. Stop trying to build ornithopters without it! Send \$3 to Nathan Chronister, 3140 Rt 209 #2A, Kingston, NY 12401.

TAN II

By Larry Coslick

What a difference a year makes when it comes to rubber. Several modelers used TAN II at the 1993 USIC and their times reflected its fantastic energy. Everyone made a scramble to get their hands on it. Check the record books and just look at the times posted at the 1994 USIC. Would you believe 37 minutes in Intermediate Stick? Five of the fliers with over five minutes in Bostonian? Twelve contestants with over 21 minutes in EZB? All this, and most of us are still just learning how to use it.

I have made a comparison test on three batches of TAN

II. (6/93, 8/93 and the latest 5/94.) Test motors were stripped .045 wide and made 16" long. By weight, each motor was within 5% of each other. The motors were wound a total of two times each to a torque of .4 with a one hour rest between winds. The air temperature was 83 degrees F and 60% humidity and Son-of-a-Gun was used as a lubricant.

One hour after the last wind, each motor was measured and each had stretched 5/8". The motors were inspected for chafe marks and the 6/93 motor came out the best, with very slight cuts near the knot. The 8/93 motor had major cuts at the knot. The 5/94 motor fared slightly better than the 8/93 batch. Refer to Chart #1 Comparison Test.

TAN II WIND TEST

TAN II BATCH 6/93	WIND 1	MAX TORQUE	1/2 WINDS TORQUE	WIND II	MAX TORQUE	1/2 WINDS TORQUE	PINKISH BEIGE COLOR
	2680	.4	.06	2820	.4	.07	VERY SLIGHT TEARS AT KNOT
TAN II BATCH 8/93	WIND I	MAX TORQUE	1/2 WINDS TORQUE	WIND II	MAX TORQUE	1/2 WINDS TORQUE	PINKISH WHITE OR FLESH COLOR
	2860	.4	.07	2980	.4	.07	MAJOR TEARS AT KNOT
TAN II BATCH 5/94	WIND I	MAX TORQUE	1/2 WINDS TORQUE	WIND II	MAX TORQUE	1/2 WINDS TORQUE	LIGHT TAN COLOR
	2620	.4	.065	2760	.4	.07	SLIGHT TEARS AT KNOT

MEMORIAL FOR
BOYD FELSTEAD
By
MANNY RADOFF

In late 1971, I asked Boyd to enter the 1972 W.C., so I could be his proxy and have the thrill of flying with the great ones. This began a correspondence in which I told him all I knew about F1D construction. After this experience, Boyd's thirst for indoor knowledge was unquenchable. Eventually, he told me that he corresponded with 21 indoor builders. In 1973, my wife and I visited Australia and Boyd came to the airport to see a real live indoor modeler. He aroused indoor interest in Australia and actually got one Wakefield flyer (Richard Blackham) to build and become proficient in F1D.

Some years later, Boyd decided to enter the W.C. himself, combined with a trip around the world. He flew at Santa Ana, Lakehurst, Akron and Cardington, then Eastward stopping in world capitols on the way home. He won most microfilm events in Australia, except when Lady Luck was against him. From what he wrote and the pictures he sent, I believe he could have been a world-class competitor if he could have flown at

Santa Ana, Akron, Lakehurst or Cardington regularly. He often expressed a desire to fly in our airlocks.

Boyd was a good friend and pen-pal. I would tell him of flyers at Lakehurst and he would keep me informed of doings and techniques of the F1D flyers at Santa Ana, Akron and even Cardington. Many a time the phone would ring, "Boyd here". He would have some hot news or need something that I could personally do or get for him here in the States. His last request was for two of my special glue guns.

I will miss his gentle jibes because I didn't use his ideas and techniques; his improved F1D wing and tail building and covering boards; his improved F1D wing bracing jig; his willingness to share ideas and even the scarce Pirelli before the new TAN I & TAN II.

I will miss his enthusiasm. I will miss a good friend. The world will miss a good fellow, a good indoor modeler. There will be a void for many of us.

(Edited)

1994 USIC

EASY B - #206

CONTESTANT	AMA #	1	2	3	4	5	BEST FLIGHT	PLACE	GRAND CHAMP POINTS
Larry Coslick	404651	00:25:47	00:09:09	-	-	-	00:25:47	1	100.00
Don Slusarczyk	5490	00:20:47	00:19:38	00:24:44	-	-	00:24:44	2	95.93
Mike Thomas	MAAC #1964	00:22:43	00:06:30	00:24:43	-	-	00:24:43	3	95.86
Bernard Hunt	SMAE# 56209	00:19:59	00:22:44	00:23:18	00:24:13	00:23:55	00:24:13	4	93.92
Bob Eberle	411591	00:18:57	00:22:55	00:18:01	00:23:48	00:23:23	00:23:48	5	92.31
Walter Van Gorder	19912	00:15:46	00:21:08	00:23:10	00:19:09	00:18:42	00:23:10	6	89.85
Howard Henderson	302944	00:21:26	00:22:33	00:19:40	00:22:27	-	00:22:33	7	87.46
Jack McGillivray	MAAC# 1025L	00:08:30	00:10:21	00:19:39	00:22:13	-	00:22:13	8	86.17
Jim Richmond	4936	00:21:56	00:19:45	-	-	-	00:21:56	9	85.07
Larry Cailliau	79985	00:20:25	00:21:20	00:21:44	00:07:25	-	00:21:44	10	84.29
Michael Thompson	1484	00:21:15	00:19:40	-	-	-	00:21:15	11	82.42
Walter Eggert	292	00:21:10	-	-	-	-	00:21:10	12	82.09
John Marett	MAAC# 651L	00:16:52	00:20:26	00:06:35	-	-	00:20:26	13	79.25
Stuart Weckerly	13250	00:16:09	00:19:11	00:07:43	00:20:16	00:17:27	00:20:16	14	78.60
Manny Radoff	28833	00:18:05	00:05:14	00:20:02	-	-	00:20:02	15	77.70
Vladimir Linardic (SR)	MAAC #38165-J	00:19:11	00:18:00	00:19:40	00:12:52	-	00:19:40	16	76.28
John Kagan	469254	00:18:03	00:19:35	00:15:30	-	-	00:19:35	17	75.95
Jon Vancil	338494	00:15:02	00:16:23	00:18:20	00:16:57	00:19:24	00:19:24	18	75.24
Dick Hardcastle	847	00:05:20	00:18:50	-	-	-	00:18:50	19	73.04
Doug Deller	MAAC #15800	00:14:41	00:18:45	00:03:41	00:14:32	00:17:26	00:18:45	20	72.72
Anthony D'Alessandro	1316	00:18:09	00:18:39	-	-	-	00:18:39	21	72.33
Larry Mzik	3687	00:13:58	00:16:21	00:18:35	00:07:38	-	00:18:35	22	72.07
Dan Belieff	12816	00:18:17	00:08:44	-	-	-	00:18:17	23	70.91
Tom Vallee	1126	00:18:02	00:18:16	00:17:58	00:04:04	-	00:18:16	24	70.85
Jack Archibald	192711	00:17:05	00:18:10	-	-	-	00:18:10	25	70.46
Mark Vancil	124866	00:18:08	-	-	-	-	00:18:08	26	70.33
John Fellin	95353	00:13:37	00:17:37	00:11:08	00:08:44	-	00:17:37	27	68.33
John Ganser	179424	00:07:27	00:12:30	00:15:27	00:17:26	00:14:31	00:17:26	28	67.61
Rob Romash	130061	00:17:00	00:17:26	-	-	-	00:17:26	29	67.61
John Barker	2095	00:11:11	00:11:30	00:16:13	00:14:48	00:17:24	00:17:24	30	67.49
Dave Robelen	12555	00:02:05	00:15:44	00:17:24	00:13:32	00:15:39	00:17:24	31	67.49
Dan O'Grady	MAAC# 6192	00:17:23	00:08:44	00:09:39	-	-	00:17:23	32	67.42
Jim Clem	L-55	00:14:08	00:17:20	00:16:59	00:16:37	00:16:23	00:17:20	33	67.23
Ted Seaver	397891	00:15:40	00:16:18	00:17:01	-	-	00:17:01	34	66.00
Louis Leifer	MAAC# 2418L	00:12:01	00:15:05	00:13:42	00:16:45	00:12:44	00:16:45	35	64.96
Jesse Shepherd, Sr	4257	00:16:06	00:09:47	00:14:58	00:13:12	-	00:16:06	36	62.44
Tony Italiano	2386	00:02:35	00:08:25	00:01:25	00:15:45	ATT	00:15:45	37	61.09
Fred Rash	63458	00:15:40	00:14:42	00:14:09	00:12:27	-	00:15:40	38	60.76
James Zufelt	MAAC# 945	00:09:10	00:14:55	00:05:42	00:09:13	00:13:35	00:14:55	39	57.85
Len Singer	209081	00:12:47	00:11:39	00:14:44	-	-	00:14:44	40	57.14
John Diebolt	97263	00:11:58	00:14:35	-	-	-	00:14:35	41	56.56
Vernon Hacker	44137	00:12:42	00:14:02	00:13:04	00:13:00	00:12:30	00:14:02	42	54.43
Karl Von Bueren	51477	00:12:15	00:12:36	-	-	-	00:12:36	43	48.87
John Chizmadia	33580	00:07:23	00:10:52	00:12:22	-	-	00:12:22	44	47.96
Dick Obarski	560	00:12:03	00:03:52	00:08:07	-	-	00:12:03	45	46.74
Abram Van Dover	894	00:11:51	00:11:44	00:10:21	-	-	00:11:51	46	45.96
Peter Olshefsky	MAAC #864-L	00:10:26	00:11:17	00:10:06	00:10:49	00:09:35	00:11:17	47	43.76
Phillip Hartman	8667	00:09:49	00:10:32	-	-	-	00:10:32	48	40.85

1994 USIC

EASY 8 - #206

CONTESTANT	AMA #	1	2	3	4	5	BEST FLIGHT	PLACE	GRAND CHAMP POINTS
David Raymond-Jones	MAAC #13157	00:07:10	00:08:23	att	00:09:16	-	00:09:16	49	35.94
Stan Chilton	L-30	00:08:20	-	-	-	-	00:08:20	50	32.32
Chuck Slusarczyk	2643	00:07:38	-	-	-	-	00:07:38	51	29.61
Doug Barber	56270	00:07:28	-	-	-	-	00:07:28	52	28.96
Dave Henshaw	MAAC #2261	00:05:32	00:05:36	00:06:00	00:05:32	00:06:00	00:06:00	53	23.27
Chester Wnzos	20454	-	-	-	-	-	00:00:00	54	0.00
Joseph Nuszer	29036	-	-	-	-	-	00:00:00	55	0.00
Jim Grant	159477	-	-	-	-	-	00:00:00	56	0.00
Gordon Wisniewski	716	-	-	-	-	-	00:00:00	57	0.00
Leonard Wieczorek	10105	-	-	-	-	-	00:00:00	58	0.00
Millard Wells	65503	-	-	-	-	-	00:00:00	59	0.00
Chris Sydor (SR)	280169	-	-	-	-	-	00:00:00	60	0.00
Edward Sullivan	69585	-	-	-	-	-	00:00:00	61	0.00
William Smith	12271	-	-	-	-	-	00:00:00	62	0.00
Richard Miller	179518	-	-	-	-	-	00:00:00	63	0.00
Dan Marek	2350	-	-	-	-	-	00:00:00	64	0.00
Tom Green	2689	-	-	-	-	-	00:00:00	65	0.00

1994 USIC

HAND LAUNCH STICK - #201

CONTESTANT	AMA #	1	2	3	4	5	BEST FLIGHT	PLACE	GRAND CHAMP POINTS
Richard Doig	5392	00:39:34	00:11:25	00:36:33	00:33:57	00:41:36	00:41:36	1	100.00
Jim Richmond	4936	00:41:12	-	-	-	-	00:41:12	2	99.04
Don Slusarczyk	5490	00:36:52	00:36:09	-	-	-	00:36:52	3	88.62
Stan Chilton	L-30	00:34:35	00:33:45	00:36:46	00:07:26	-	00:36:46	4	88.38
Jim Grant	159477	00:36:15	-	-	-	-	00:36:15	5	87.14
Bernard Hunt	SMAE# 56269	00:20:03	00:16:05	00:36:14	00:34:28	-	00:36:14	6	87.10
Dick Hardcastle	847	00:16:44	00:27:14	00:29:28	00:33:13	-	00:33:13	7	79.85
Larry Coslick	404651	00:32:51	-	-	-	-	00:32:51	8	78.97
Chuck Slusarczyk	2643	00:32:27	-	-	-	-	00:32:27	9	78.00
Tom Vallee	1126	00:29:36	00:32:02	-	-	-	00:32:02	10	77.00
Valdimir Linandic (SR)	MAAC# 38165-J	00:23:01	00:24:05	00:25:15	00:31:32	-	00:31:32	11	75.80
Dan Belieff	12816	00:22:26	00:21:30	00:30:08	-	-	00:30:08	12	72.44
Larry Mzik	3687	00:29:18	00:06:30	00:28:06	-	-	00:29:18	13	70.43
George Chabot	466544	00:19:48	00:26:53	00:19:29	-	-	00:26:53	14	64.62
Michael Thompson	1484	00:24:42	00:22:31	00:26:17	-	-	00:26:17	15	63.18
Vernon Hacker	44137	00:08:26	00:17:07	00:20:41	-	-	00:20:41	16	49.72
Edward Burke	153313	00:19:17	00:20:06	-	-	-	00:20:06	17	48.32
Billie Landrum	52674	-	-	-	-	-	00:00:00	18	0.00
Rob Eberle (SR)	411592	-	-	-	-	-	00:00:00	19	0.00
Larry Cailliau	79985	-	-	-	-	-	00:00:00	20	0.00

1994 USIC

PEANUT SPEED

CONTESTANT	AMA #	1	2			BEST MPH	PLACE
Chris Sydor (SR)	280169	12.84	18.38	12.84	23.38	5.67	1
Dave Robelen	12555	-	-	0.00	5.00		2
Chuck Wojtkiewicz	178300	-	-	0.00	5.00		3
Abram Van Dover	894	att	-	0.00	5.00		4
Rob Romash	130061	-	-	0.00	5.00		5

1994 USIC

ORNITHOPTER - #210

CONTESTANT	AMA #	1	2	3	4	5	BEST FLIGHT	PLACE	GRAND CHAMP POINTS
Larry Coslick	404651	06:01	11:03	-	-	-	11:03	1	100.00
Tom Nied	75537	02:22	01:59	02:27	01:32	01:13	02:27	2	22.17
Edward Ripley	484619	00:56	-	-	-	-	00:56	3	8.45

1994 USIC

PENNYPANE - #207

GRAND
CHAMP

CONTESTANT	AMA #	1	2	3	4	5	BEST FLIGHT	PLACE	POINTS
Dick Hardcastle	847	15:23	16:56	15:38	16:45	-	16:56	1	100.00
Larry Coslick	404651	16:00	11:00	16:50	-	-	16:50	2	99.41
Dan O'Grady	MAAC# 6192	16:40	15:56	-	-	-	16:40	3	98.43
Phillip Hartman	8667	14:48	15:53	15:59	16:20	15:45	16:20	4	96.46
Anthony D'Alessandro	1316	14:56	15:59	-	-	-	15:59	5	94.39
Mark Vancil	124866	14:44	14:30	14:55	15:46	-	15:46	6	93.11
John Maret	MAAC# 651L	11:48	14:08	14:41	15:37	-	15:37	7	92.22
Jim Clem	L-55	12:04	14:24	15:24	13:12	-	15:24	8	90.94
John Kagan	469254	13:43	11:51	14:33	15:19	-	15:19	9	90.45
Walter Eggert	292	12:36	13:21	13:43	14:54	14:21	14:54	10	87.99
John Ganser	179424	10:49	14:13	14:48	11:30	-	14:48	11	87.40
Mike Thomas	MAAC# 1964	13:08	04:34	09:23	14:28	10:30	14:28	12	85.43
Chuck Slusarczyk	2643	14:21	10:30	-	-	-	14:21	13	84.74
Manny Radoff	28833	14:10	13:40	-	-	-	14:10	14	83.66
John Triolo	13141	14:05	13:36	01:15	-	-	14:05	15	83.17
Rob Romash	130061	13:08	13:17	-	-	-	13:17	16	78.44
Fred Rash	63458	13:07	13:06	-	-	-	13:07	17	77.46
Tom Green	2589	13:06	12:17	03:35	-	-	13:06	18	77.36
Jim Buxton	75154	13:02	-	-	-	-	13:02	19	76.97
Jim Jones	986	05:14	12:56	11:01	-	-	12:56	20	75.38
Joseph Nuszer	29036	11:11	12:45	11:34	09:24	12:45	12:45	21	75.30
Vladimir Linardic (SR)	MAAC#38165-J	10:36	12:27	10:41	-	-	12:27	22	73.52
David Raymond-Jones	MAAC# 13157	08:13	12:20	10:32	11:18	-	12:20	23	72.83
Jim Richmond	4936	12:16	-	-	-	-	12:16	24	72.44
John Fellin	95353	12:08	10:12	11:09	10:31	-	12:08	25	71.65
Bud Tenny	16718	04:29	08:55	12:06	10:55	-	12:06	26	71.46
Chris Sydor (SR)	280169	09:06	11:02	11:54	11:25	06:45	11:54	27	70.28
Howard Henderson	302944	11:48	02:46	04:52	-	-	11:48	28	69.69
Vernon Hacker	44137	11:28	02:46	11:05	04:29	-	11:28	29	67.72
Kris Forward (JR)	332265	09:50	08:52	11:08	11:17	09:53	11:17	30	66.63
Louis Leifer	MAAC# 2418L	11:14	07:49	10:24	10:08	-	11:14	31	66.34
Jim Grant	159477	07:46	10:31	02:42	-	-	10:31	32	62.11
Peter Olshesky	MAAC# 864-L	09:24	10:19	09:17	10:12	-	10:19	33	60.93
James Zufelt	MAAC# 945	10:06	08:29	07:32	-	-	10:06	34	59.65
Billie Landrum	52674	09:53	07:22	09:54	05:11	-	09:54	35	58.46
Tony Italiano	2386	08:04	06:11	07:30	03:29	09:11	09:11	36	54.23
Edward Sullivan	69585	06:30	08:59	06:00	05:03	-	08:59	37	53.05
Jack Boone	107857	07:56	06:19	07:05	07:27	08:04	08:04	38	47.64
Chester Wozos	20454	07:39	05:06	-	-	-	07:39	39	45.18
Dick Obarski	560	07:12	03:38	03:50	-	-	07:12	40	42.52
Abram Van Dover	894	06:26	-	-	-	-	06:26	41	37.99
Gordon Wisniewski	716	-	-	-	-	-	00:00	42	0.00
Robert Wamann	18748	-	-	-	-	-	00:00	43	0.00
Tom Vallee	1126	-	-	-	-	-	00:00	44	0.00
Michael Thompson	1484	-	-	-	-	-	00:00	45	0.00
Don Slusarczyk	5490	-	-	-	-	-	00:00	46	0.00
Larry Mzik	3687	-	-	-	-	-	00:00	47	0.00
Jack McGillivray	MAAC# 1025L	-	-	-	-	-	00:00	48	0.00
Bernard Hunt	SMAE# 56209	-	-	-	-	-	00:00	49	0.00
Ron Ganser	7532	-	-	-	-	-	00:00	50	0.00
Doug Barber	56270	-	-	-	-	-	00:00	51	0.00

1994 USIC

FAI INDOOR (F1D) - #203

CONTESTANT	AMA #	1	2	3	4	5	6	BEST FLIGHT	2ND FLIGHT	TOTAL BEST 2	PLACE	USA TEAM REGIONAL POINTS	GRAND CHAMP POINTS
Richard Daig	5392	00:40:54	00:40:59	00:42:01	00:39:57	00:39:55	-	00:42:01	00:40:59	01:23:00	1	100.00	100.00
Jim Richmond	4936	00:08:35	00:09:44	00:31:06	00:41:36	00:39:37	-	00:41:36	00:39:37	01:21:13	2	97.85	97.85
Don Siusarczyk	5490	00:34:40	00:28:03	00:27:10	00:35:21	00:35:19	-	00:35:21	00:35:19	01:10:40	3	85.14	85.14
Chuck Siusarczyk	2643	00:11:20	00:11:43	00:27:29	00:34:04	00:35:47	-	00:35:47	00:34:04	01:09:51	4	84.16	84.16
Jack McGillivray	MAAC# 1025L	00:37:34	00:29:59	-	-	-	-	00:37:34	00:29:59	01:07:33	5	-	81.39
Bill Hulbert	13143	00:24:10	00:31:58	00:32:27	00:31:33	00:33:26	-	00:33:26	00:32:27	01:05:53	6	79.38	79.38
Dan Belieff	12816	00:22:40	00:29:40	00:34:25	00:23:39	-	-	00:34:25	00:29:40	01:04:05	7	-	77.21
Mike Thomas	MAAC# 1964	00:04:16	00:31:57	00:31:40	-	-	-	00:31:57	00:31:40	01:03:37	8	-	76.65
Tom Vallee	1126	00:31:50	00:29:10	00:31:19	00:15:14	-	-	00:31:50	00:31:19	01:03:09	9	76.08	76.08
Vladimir Linardic	MAAC #38165JL	00:24:01	00:26:38	00:26:33	00:29:06	00:31:04	00:30:49	00:31:04	00:30:49	01:01:53	10	-	74.56
Larry Mzik	3687	00:26:32	00:28:29	00:28:57	-	-	-	00:28:57	00:28:29	00:57:26	11	69.20	69.20
George Chabot	466544	00:24:38	00:31:52	00:09:05	00:02:13	-	-	00:31:52	00:24:38	00:56:30	12	68.07	68.07
Rob Eberle (SR)	411592	00:20:43	00:02:09	00:24:16	00:25:46	00:26:50	-	00:26:50	00:25:46	00:52:36	13	63.37	63.37
John Kagan	459254	00:23:02	00:12:17	00:24:23	-	-	-	00:24:23	00:23:02	00:47:25	14	-	57.13
Michael Thompson	1484	00:19:48	00:12:21	00:22:31	-	-	-	00:22:31	00:19:48	00:42:19	15	-	50.98
Vernon Hacker	44137	00:08:29	00:15:42	-	-	-	-	00:15:42	00:08:29	00:24:11	16	29.14	29.14
Edward Burke	153313	00:21:53	-	-	-	-	-	00:21:53	00:00:00	00:21:53	17	-	26.37
Gary Underwood	1314	-	-	-	-	-	-	00:00:00	00:00:00	00:00:00	18	-	0.00
Dan O'Grady	MAAC# 6192	-	-	-	-	-	-	00:00:00	00:00:00	00:00:00	19	-	0.00
Dan Marek	2350	-	-	-	-	-	-	00:00:00	00:00:00	00:00:00	20	-	0.00
Bernard Hunt	SMAE# 56209	-	-	-	-	-	-	00:00:00	00:00:00	00:00:00	21	-	0.00
Dick Hardcastle	847	-	-	-	-	-	-	00:00:00	00:00:00	00:00:00	22	-	0.00
Jim Grant	159477	-	-	-	-	-	-	00:00:00	00:00:00	00:00:00	23	-	0.00
Walter Eggert	292	-	-	-	-	-	-	00:00:00	00:00:00	00:00:00	24	-	0.00
Stan Chilton	L-30	-	-	-	-	-	-	00:00:00	00:00:00	00:00:00	25	-	0.00
Anthony D'Alessandro	1316	-	-	-	-	-	-	00:00:00	00:00:00	00:00:00	26	-	0.00

1994 USIC

HAND LAUNCHED GLIDER - #212

CONTESTANT	AMA #	1	2	3	4	5	6	7	8	9	BEST FLIGHT	2ND FLIGHT	TOTAL (BEST 2)	PLACE	GRAND CHAMP POINTS
Jim Buxton	75154	76.5	73.6	76.0	-	-	-	-	-	-	76.5	76.0	152.5	1	100.00
Bernie Boehm	92567	66.2	67.4	69.9	74.1	74.3	73.5	74.8	72.5	72.6	74.8	74.3	149.1	2	97.77
Michael Thompson	1484	66.0	65.0	65.0	68.3	-	-	-	-	-	68.3	66.0	134.3	3	88.07
Rob Romash	130061	61.9	61.2	60.3	63.0	61.2	61.7	61.5	60.6	62.9	63.0	62.9	125.9	4	82.56
Richard Peterson	151145	27.3	43.3	20.0	32.0	40.9	38.3	59.7	20.7	59.7	59.7	59.7	119.4	5	78.30
Karl Von Bueren	51477	54.7	53.6	55.9	59.6	56.8	59.2	-	-	-	59.6	59.2	118.8	6	77.90
Chris Sydon (SR)	280169	49.0	53.0	45.0	53.1	54.3	49.8	38.9	47.2	44.3	54.3	53.1	107.4	7	70.43
Bob Eberle	411591	43.9	48.3	48.0	-	-	-	-	-	-	48.3	48.0	96.3	8	63.15
Dave Robelen	12555	39.9	38.3	29.5	14.1	17.4	37.4	35.6	32.2	34.7	39.9	38.3	78.2	9	51.28
Jim Forward	330048	20.0	22.0	27.0	19.0	23.0	35.1	35.4	36.0	33.2	36.0	35.4	71.4	10	46.82
John Kagan	469254	31.0	5.0	4.0	5.0	4.0	28.2	3.0	19.8	10.4	31.0	28.2	59.2	11	38.82
Abram Van Dover	894	21.0	21.0	17.0	25.0	10.0	18.2	-	-	-	25.0	21.0	46.0	12	30.16
Tom Sanders	244075	43.2	-	-	-	-	-	-	-	-	43.2	0.0	43.2	13	28.33
Rob Eberle (SR)	411592	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	14	0.00
Bill Schlarb	14425	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	15	0.00
Phillip Hartman	8667	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	16	0.00
John Fellin	95353	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	17	0.00
Neal Henderson	12368	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	18	0.00

CONTESTANT	AMA #	1	2	3	4	5	6	7	8	9	BEST FLIGHT	2ND FLIGHT	TOTAL (BEST 2)	PLACE
Bill Schlarb	14425	80.1	75.0	73.2	59.0	77.4	80.2	-	-	-	80.2	80.1	160.3	1
Dan Belieff	12816	74.6	78.0	80.2	71.0	21.0	10.0	52.5	72.2	68.0	80.2	78.0	158.2	2
Keith Fulmer	31552	68.7	70.0	70.3	70.7	74.3	72.5	75.2	79.0	78.2	79.0	78.2	157.2	3
Ralph Schlarb	322352	73.5	75.6	77.9	75.1	71.0	77.5	-	-	-	77.9	77.5	155.4	4
Bernie Boehm	92567	62.4	68.2	72.0	75.6	71.0	74.0	75.0	73.2	3.0	75.6	75.0	150.6	5
William Passarelli	15623	64.2	61.0	69.6	70.8	72.9	71.6	75.7	74.9	-	75.7	74.9	150.6	6
Michael Thomson	1484	73.3	76.4	-	-	-	-	-	-	-	76.4	73.3	149.7	7
Artie Jessup	10269	68.0	65.2	69.5	70.9	71.6	69.6	74.1	74.3	70.7	74.3	74.1	148.4	8
Karl Von Bueren	51477	61.4	68.0	66.3	71.7	74.0	59.4	-	-	-	74.0	71.7	145.7	9
Lee Person	383504	63.8	59.8	62.0	65.1	69.5	72.1	72.0	71.2	69.6	72.1	72.0	144.1	10
Neal Henderson	12368	15.5	63.2	73.0	5.6	67.0	70.2	14.8	68.1	53.7	73.0	70.2	143.2	11
Mark Vancil	124866	65.6	59.4	67.7	73.8	-	-	-	-	-	73.8	67.7	141.5	12
Vito Garifalo	331457	66.7	70.4	69.9	66.4	69.6	64.4	0.6	62.0	50.0	70.4	69.9	140.3	13
Rob Romash	130061	67.7	57.5	-	-	-	-	-	-	-	57.7	67.5	135.2	14
Fred Rash	63458	51.1	58.4	59.4	59.4	55.0	63.0	48.0	63.0	27.1	63.0	63.0	126.0	15
Jim Buxton	75154	63.5	61.3	61.9	-	-	-	-	-	-	63.5	61.9	125.4	16
Richard Peterson	151145	56.6	61.2	58.5	62.0	60.9	46.9	11.8	11.1	57.3	62.0	61.2	123.2	17
Jim Richmond	4936	5.2	59.4	46.6	44.1	15.1	62.3	21.6	8.2	43.3	62.3	59.4	121.7	18
Phil Klintworth	861	54.8	59.2	52.1	53.8	39.2	25.1	-	-	-	59.2	54.8	114.0	19
Robert Wamann	18748	67.6	45.5	-	-	-	-	-	-	-	67.6	45.5	113.1	20
Tony Italiano	2386	45.7	47.0	35.0	51.4	47.0	49.3	47.0	47.0	49.1	51.4	49.3	100.7	21
Bill Harding	430847	48.6	38.5	44.8	40.3	42.4	40.9	39.6	48.0	51.9	51.9	48.6	100.5	22
Mark Sistrunk	506117	46.6	44.2	36.4	41.0	48.0	42.1	50.9	49.4	47.0	50.9	49.4	100.3	23
Edward Ripley	484619	5.8	46.9	45.3	44.1	49.3	47.2	36.4	-	-	49.3	47.2	96.5	24
Ted Seaver	397871	38.4	48.0	45.1	33.0	36.0	45.4	-	-	-	48.0	45.4	93.4	25
Manny Radoff	28833	43.5	45.2	42.6	-	-	-	-	-	-	45.2	43.5	88.7	26
Donald Brimmer	1097	30.2	40.4	27.7	37.8	41.8	45.7	25.6	40.0	32.0	45.7	41.8	87.5	27
Stuart Weckerly	13250	5.3	7.0	39.0	41.1	15.1	43.0	40.6	13.3	43.7	43.7	43.0	86.7	28
Jim Kelly	37564	50.4	4.0	7.1	8.2	29.1	7.6	23.2	5.0	6.2	50.4	29.1	79.5	29
Bud Tenny	16718	34.3	36.2	35.5	15.7	10.1	-	-	-	-	36.2	35.5	71.7	30
Bob Ebenle	411591	43.9	-	-	-	-	-	-	-	-	43.9	0.0	43.9	31
Tom Sanders	244075	43.4	-	-	-	-	-	-	-	-	43.4	0.0	43.4	32
Chris Sydon (SR)	280169	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	33
David Thomson	8410	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	34
Rob Ebenle (SR)	411592	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	35
Gordon Wisniewski	716	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	36
John Triolo	13141	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	37
Billie Landrum	52674	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	38
William Bigge	L-127	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	39
Dan Marek	2350	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	40
Jim Grant	159477	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	41

CONTESTANT	AMA #	1	2	3	4	5	6	7	BEST MPH	PLACE
Larry Coslick	404651	6.42	6.04						14.19	1
Chris Hales (JR)	One Day	12.68	9.02	9.64	12.74	9.07	7.81	7.16	11.97	2
George Chabot	466544	10.76	10.96	7.30					11.74	3
Jesse Shepherd, Sr.	4257	14.34	17.03	11.20	17.09	10.05			8.53	4
Vernon Hacker	44137	10.81							7.93	5
David Thomson	8410	-							0.00	6
Richard Doig	5392	att							0.00	7
Neal Henderson	12368								0.00	8

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CONTESTANT	AMA #						BEST	PLACE
		1	2	3	4	5	FLIGHT	
Bernard Hunt	SMAE# 56209	11:00	11:30	-	-	-	11:30	1
Lainy Cailliau	79985	10:14	10:53	11:04	10:54	11:24	11:24	2
Dick Hardcastle	847	09:55	11:23	08:55	-	-	11:23	3
Walter Van Gorden	19912	10:27	07:40	11:18	08:54	-	11:18	4
Larry Coslick	404651	10:50	08:06	03:08	09:17	-	10:50	5
Jim Clem	L-55	09:14	09:20	10:47	-	-	10:47	6
Ted Seaver	397891	08:12	09:54	10:39	-	-	10:39	7
Rob Romash	130061	10:36	-	-	-	-	10:36	8
Michael Thompson	1484	08:22	10:18	10:34	-	-	10:34	9
Bob Eberle	411591	09:24	10:08	-	-	-	10:08	10
John Kagan	469254	10:06	03:37	08:31	07:15	-	10:06	11
Jack McGillivray	MAAC# 1025L	07:07	09:01	10:04	-	-	10:04	12
Anthony D'Alessandro	1316	10:02	-	-	-	-	10:02	13
Doug Deller	MAAC #15800	08:58	09:49	05:17	-	-	09:49	14
Dick Obarski	560	09:48	06:26	03:59	-	-	09:48	15
Mark Vancil	124866	08:46	07:01	09:25	-	-	09:25	16
William Pavak	319915	06:03	09:23	-	-	-	09:23	17
Howard Henderson	302944	08:51	09:18	-	-	-	09:18	18
John Fellin	95353	08:32	09:13	08:37	08:58	-	09:13	19
W.L.Martin	41300	09:10	09:05	06:53	08:36	-	09:10	20
Jack Archibald	192711	08:00	08:26	08:57	-	-	08:57	21
Larry Mzik	3687	08:30	08:42	-	-	-	08:42	22
Vladimir Linardic	MAAC# 38165-J	08:40	08:02	-	-	-	08:40	23
Robert Warmann	18748	08:39	-	-	-	-	08:39	24
Karl Von Bueren	51477	07:26	06:35	05:06	08:31	-	08:31	25
Bill Harding	430847	07:00	08:23	08:20	-	-	08:23	26
Tom Vallee	1126	08:06	-	-	-	-	08:06	27
Stuart Wackerly	13250	07:49	05:33	-	-	-	07:49	28
John Barker	2095	06:44	06:51	06:48	06:49	07:47	07:47	29
John Vancil	338494	06:48	07:44	07:40	-	-	07:44	30
John Ganser	179424	07:28	-	-	-	-	07:28	31
John Diebolt	97263	06:58	07:26	05:28	04:05	-	07:26	32
David Raymond-Jones	MAAC# 13157	03:45	05:57	05:58	06:26	02:30	06:26	33
George Chabot	466544	05:58	-	-	-	-	05:58	34
Edward Ripley	484619	04:21	02:25	05:28	04:18	-	05:28	35
Vernon Hacker	44137	03:58	03:01	04:40	-	-	04:40	36
Mark Sistrunk	506117	04:37	-	-	-	-	04:37	37
Dave Henshaw	MAAC #226L	04:15	04:06	04:02	03:50	03:22	04:15	38
Bud Tenny	16718	03:57	-	-	-	-	03:57	39
Jim Jones	986	-	-	-	-	-	00:00	40
Phillip Alvarez	228391	-	-	-	-	-	00:00	41
William Bigge	L-127	-	-	-	-	-	00:00	42
Dan Belieff	12816	-	-	-	-	-	00:00	43
Leonard Wiecezorek	10105	-	-	-	-	-	00:00	44
Robert Wells	512604	-	-	-	-	-	00:00	45
John Tricla	13141	-	-	-	-	-	00:00	46
David Thomson	8410	-	-	-	-	-	00:00	47
Edward Sullivan	69585	-	-	-	-	-	00:00	48

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CONTESTANT	AMA #	1	2	3	4	5	BEST FLIGHT	PLACE
William Smith	12271	-	-	-	-	-	00:00	49
Dave Robelen	12555	-	-	-	-	-	00:00	50
Richard Peterson	151145	-	-	-	-	-	00:00	51
Richard Miller	179518	-	-	-	-	-	00:00	52
Billie Landrum	52674	-	-	-	-	-	00:00	53
Jim Grant	159477	-	-	-	-	-	00:00	54
Walter Eggert	292	-	-	-	-	-	00:00	55
Stan Chilton	L-30	-	-	-	-	-	00:00	56
John Triolo	13141	-	-	-	-	-	00:00	57
Mark Sistrunk	506117	-	-	-	-	-	00:00	58
Jon Vancil	338494	-	-	-	-	-	00:00	59
Larry Mzik	3687	-	-	-	-	-	00:00	60
W.L. Martin	41300	-	-	-	-	-	00:00	61

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-----INTERMEDIATE STICK - #202-----

CONTESTANT	AMA #	1	2	3	4	5	BEST FLIGHT	PLACE	GRAND CHAMP POINTS
Bernard Hunt	SMAE# 56209	00:32:59	00:34:10	00:37:22	-	-	00:37:22	1	100.00
Jack McGillivray	MAAC# 1025L	00:17:34	00:32:32	00:35:07	-	-	00:35:07	2	93.98
Dick Hardcastle	847	00:29:23	00:33:06	00:33:14	-	-	00:33:14	3	88.94
Stan Chilton	L-30	00:32:59	00:31:47	00:32:31	-	-	00:32:59	4	88.27
Jim Richmond	4936	00:01:49	00:01:18	00:23:04	00:32:01	00:31:11	00:32:01	5	85.68
Larry Coslick	404651	00:27:30	00:30:52	00:29:44	00:25:33	-	00:30:52	6	82.60
Chuck Slusarczyk	2643	00:09:35	00:27:42	00:29:40	-	-	00:29:40	7	79.39
Walter Eggert	292	00:27:53	-	-	-	-	00:27:53	8	74.62
Dan Belieff	12816	00:21:32	00:26:23	00:11:00	00:27:50	-	00:27:50	9	74.49
Mike Thomas	MAAC #1954	00:22:52	00:27:38	00:24:38	-	-	00:27:38	10	73.95
Dan O'Grady	MAAC# 6192	00:25:41	00:13:19	-	-	-	00:25:41	11	68.73
John Barker	2095	00:08:57	00:15:42	00:20:23	00:20:55	00:25:16	00:25:16	12	67.62
Jim Grant	159477	00:25:14	00:24:06	00:07:27	-	-	00:25:14	13	67.53
Ron Gansen	7532	00:19:31	00:23:15	00:24:25	00:22:48	-	00:24:25	14	65.34
Michael Thompson	1484	00:24:11	00:24:13	-	-	-	00:24:13	15	64.81
Dick Obarski	560	00:21:24	00:13:34	00:23:37	00:10:26	00:22:27	00:23:37	16	63.20
John Marek	MAAC# 651L	00:10:13	00:21:19	00:08:28	-	-	00:21:19	17	57.05
Vladimir Linardic	MAAC #38165-J	00:16:14	00:19:27	00:17:12	00:18:25	00:02:46	00:19:27	18	52.05
Vernon Hacker	44137	00:05:09	00:04:33	00:04:28	00:12:35	00:19:24	00:19:24	19	51.92
Joseph Nuszer	29036	00:17:55	00:17:54	-	-	-	00:17:55	20	47.95
Larry Mzik	3687	00:16:26	00:16:03	-	-	-	00:16:26	21	43.98
Chris Sydon (SR)	280169	00:11:35	00:13:35	-	-	-	00:13:35	22	36.35
Phillip Hartman	8667	00:10:14	-	-	-	-	00:10:14	23	27.39
Don Slusarczyk	5490	00:08:05	-	-	-	-	00:08:05	24	21.63
Tom Vallee	1126	00:04:14	-	-	-	-	00:04:14	25	11.33
Chester Wozos	20454	-	-	-	-	-	00:00:00	26	0.00
David Raymond-Jones	MAAC #13157	-	-	-	-	-	00:00:00	27	0.00
Dan Marek	2350	-	-	-	-	-	00:00:00	28	0.00
Billie Landrum	52674	-	-	-	-	-	00:00:00	29	0.00
Rob Eberle (SR)	411592	-	-	-	-	-	00:00:00	30	0.00
Anthony D'Alessandro	1316	-	-	-	-	-	00:00:00	31	0.00
Edward Burke	153313	-	-	-	-	-	00:00:00	32	0.00
Jim Buxton	75154	-	-	-	-	-	00:00:00	33	0.00

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LIMITED PENNYPLANE - #208

GRAND
CHAMP

CONTESTANT	AMA #	1	2	3	4	5	BEST FLIGHT	PLACE	POINTS
Bernard Hunt	SMAE# 56209	13:50	14:20	15:04	-		15:04	1	100.00
Chuck Slusarczyk	2643	12:34	13:03	13:20	14:41	-	14:41	2	97.46
Walter Eggert	292	14:33	10:58	12:53	-		14:33	3	96.57
Tom Green	2589	02:08	14:23	14:11	14:25	-	14:25	4	95.69
Michael Thompson	1484	13:26	14:22	-			14:22	5	95.35
Larry Coslick	404651	12:21	06:35	13:09	12:41	13:53	13:53	6	92.15
Dick Hardcastle	847	13:31	13:12	13:33	10:43	13:50	13:50	7	91.81
Fred Rash	53458	11:57	12:46	13:38	-		13:38	8	90.49
Ted Seaver	397891	11:42	11:47	13:33	04:11	12:23	13:33	9	89.93
Jim Grant	159477	13:22	13:13	11:20	11:57	12:24	13:22	10	88.72
Ron Ganser	7532	03:48	11:56	13:22	-		13:22	11	88.72
Dan O'Grady	MAAC# 6192	12:30	13:06	12:22	11:10	-	13:06	12	96.95
Anthony D'Alessandro	1316	13:05	10:25	-			13:05	13	86.84
Jim Clem	L-55	12:50	12:23	13:00	-		13:00	14	86.28
Tom Vallee	1125	02:55	12:59	03:15	12:50	-	12:59	15	86.17
Richard Miller	179518	12:58	03:07	-			12:58	16	86.06
Robert Warmann	18748	11:37	12:29	12:40	11:49	12:53	12:53	17	85.51
Jim Buxton	75154	11:41	12:53	11:34	11:48	-	12:53	18	85.51
Jim Richmond	4935	02:30	05:46	12:47	12:28	-	12:47	19	84.85
Paul Avery	158011	12:31	12:42	08:45	09:55	-	12:42	20	84.29
Mike Thomas	MAAC# 1964	11:39	08:45	12:42	08:23	03:04	12:42	21	84.29
Walter Van Gorden	19912	06:40	11:56	08:40	08:42	12:40	12:40	22	84.07
John Ganser	179424	11:15	12:36	12:32	-		12:36	23	83.63
Joseph Nuszer	29036	08:20	12:34	11:52	10:24	-	12:34	24	83.41
Tom Nied	76537	10:52	12:18	03:27	12:30	-	12:30	25	82.96
Larry Mzik	3587	09:43	12:29	04:39			12:29	26	82.85
Don Slusarczyk	5490	11:17	11:50	11:18	12:25	-	12:25	27	82.41
Rob Romash	130061	11:19	11:31	12:20	-		12:20	28	81.86
John Triolo	13141	09:46	11:57	11:04	12:15	-	12:15	29	81.31
Stuart Weckerly	13250	03:52	11:38	09:06	11:48	12:07	12:07	30	80.42
Chris Sydon (SR)	280169	09:40	10:59	12:01	06:41	11:38	12:01	31	79.76
John Barker	2095	06:08	09:03	12:01	09:31	08:19	12:01	32	79.76
James Zufelt	MAAC# 945	11:19	11:50	06:18	-	07:03	11:50	33	78.54
John Maret	MAAC# 651L	11:29	10:36	04:27	11:48	03:57	11:48	34	78.32
Karl Von Bueren	51477	10:34	10:16	10:16	11:34	11:44	11:44	35	77.88
William Pavak	319915	09:03	10:55	11:43	10:13	-	11:43	36	77.77
Dick Obarski	560	08:06	11:43	10:22	02:43	-	11:43	37	77.77
Bud Tenny	16718	07:29	10:42	11:19	-		11:19	38	75.11
Manny Radoff	28833	11:18	08:23	09:39	08:24	-	11:18	39	75.00
Vladimir Linardic (SR)	MAAC#38165-J	07:56	10:20	04:07	10:21	11:09	11:09	40	74.00
John Kagan	469254	11:03	09:36	05:46	08:02	-	11:03	41	73.34
Howard Henderson	302944	03:20	09:20	08:31	11:00	-	11:00	42	73.01
Phillip Hartman	8667	08:19	10:57	07:17	-		10:57	43	72.68
Vernon Hacker	44137	10:53	10:06	09:56	-		10:53	44	72.23
David Raymond-Jones	MAAC# 13157	09:04	09:21	08:00	06:41	10:53	10:53	45	72.23
Leonard Wieczorek	10105	10:47	07:38	-			10:47	46	71.57
Doug Deller	MAAC# 15800	05:28	08:09	09:20	10:14	10:46	10:46	47	71.46
Peter Olshefsky	MAAC# 864-L	08:22	08:20	10:11	10:40	05:44	10:40	48	70.80

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LIMITED PENNYPLANE - #208

CONTESTANT	AMA #						BEST	PLACE	POINTS
		1	2	3	4	5	FLIGHT		
Mark Vancil	124866	09:56	10:50	10:34	-		10:34	49	70.13
W.L. Martin	41300	05:31	09:31	09:29	10:23	-	10:23	50	68.92
Jack Archibald	192711	09:56	10:19	-			10:19	51	68.47
Jack Boone	107857	09:37	09:53	09:01	09:28	09:58	09:58	52	66.15
Jim Forward	330088	07:43	08:34	08:15	09:54	09:40	09:54	53	65.71
John Fellin	95353	09:00	06:04	09:49	09:00	07:14	09:49	54	65.15
John Diebolt	97263	06:46	08:17	09:06	05:14	-	09:06	55	60.40
Doug Barber	56270	08:42	-				08:42	56	57.74
Tony Italiano	2386	04:15	08:05	07:14	04:54	03:57	08:05	57	53.65
John Blain	29698	07:47	07:31	-	-	-	07:47	58	51.66
Chester Wnzos	20454	05:51	05:28	07:23	04:17	-	07:23	59	49.00
Edward Sullivan	69585	06:52	04:20	-			06:52	60	45.58
Dave Henshaw	MAAC #226L	03:00	05:22	06:10	06:16	06:11	06:16	61	41.59
Herbert Stevens	13086	05:20	05:45	-			05:46	62	38.27
Jack McGillivray	MAAC# 1025L	dnf					00:00	63	0.00
Gordon Wisniewski	716	dnf					00:00	64	0.00
Richard Peterson	151145	dnf					00:00	65	0.00
Billie Landrum	52674	dnf					00:00	66	0.00
Jim Jones	986	dnf					00:00	67	0.00
Harry Geyer	17708	dnf					00:00	68	0.00
William Bigge	L-127	dnf					00:00	69	0.00

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MANHATTAN CABIN - #205

CONTESTANT	AMA #						BEST	PLACE	POINTS
		1	2	3	4	5	FLIGHT		
Mike Thomas	MAAC# 1964	10:54	11:48	12:31	-	-	12:31	1	100.00
John Maret	MAAC# 651L	09:03	11:15	08:00	12:23	-	12:23	2	98.93
Walter Van Gorden	19912	10:26	11:47	12:18	-	-	12:18	3	98.27
Jim Grant	159477	04:40	11:30	11:46	-	-	11:46	4	94.01
Larry Coslick	404651	11:33	11:10	11:28	11:05	-	11:33	5	92.28
Anthony D'Alessandro	1316	07:50	10:12	11:10	-	-	11:10	6	89.21
Chuck Slusarczyk	2643	07:20	08:16	09:59	10:54	-	10:54	7	87.08
Stuart Weckerly	13250	08:31	09:38	10:36	10:05	-	10:36	8	84.69
Ron Ganser	7532	10:35	07:10	02:46	-	-	10:35	9	84.55
Paul Avery	158011	08:47	09:49	09:44	08:14	09:37	09:49	10	78.43
John Diebolt	97263	02:26	05:07	05:40	07:08	06:46	07:08	11	56.99
Abram Van Dover	894	02:04	02:27	04:03	03:46	03:17	04:03	12	32.36
James Zufelt	MAAC# 945	02:55	-	-	-	-	02:55	13	23.30
John Triolo	13141	-	-	-	-	-	00:00	14	0.00
Richard Peterson	151145	-	-	-	-	-	00:00	15	0.00
Bernard Hunt	SMAE# 56209	-	-	-	-	-	00:00	16	0.00
Tom Green	2689	-	-	-	-	-	00:00	17	0.00

1994 USIC

R.O.G. CABIN - #204

CONTESTANT	AMA #						BEST	PLACE	POINTS
		1	2	3	4	5	FLIGHT		
Dan Belieff	12816	07:38	22:27	-	-	-	22:27	1	100.00
Ron Ganser	7532	14:21	22:05	12:44	21:39	-	22:05	2	98.37
Anthony D'Alessandro	1316	09:49	13:38	18:42	-	-	18:42	3	83.30
Mike Thomas	MAAC 1964	16:01	-	-	-	-	16:01	4	71.34
John Maret	MAAC 651L	10:52	10:11	15:22	-	-	15:22	5	68.45
Don Slusarczyk	5490	-	-	-	-	-	00:00	6	0.00

CONTESTANT	AMA #						BEST	2ND	TOTAL	CHARISMA	TOTAL	PLACE
		1	2	3	4	5	FLIGHT	FLIGHT	BEST 2			
Jim Grant	159477	01:24	03:15	05:03	05:31	04:58	05:31	05:03	10:34	1.14	722.76	1
Larry Coslick	404651	04:27	04:56	04:48	01:52	05:32	05:32	04:56	10:28	1.15	722.20	2
Mike Thomas	MAAC #1964	05:11	05:16	05:09	04:15	05:17	05:17	05:16	10:33	1.11	702.63	3
Tom Sanders	244075	04:35	04:50	05:02	-	-	05:02	04:50	09:52	1.09	645.28	4
Richard Miller	179518	04:27	00:42	05:06	03:34	-	05:06	04:27	09:33	1.09	624.57	5
Paul Avery	158011	03:46	04:16	04:00	04:12	-	04:16	04:12	08:28	1.20	609.60	6
Joseph Nuszer	29036	04:03	01:31	04:06	-	-	04:06	04:03	08:09	1.15	562.35	7
William Pavlek	319915	04:14	03:36	03:35	03:17	04:12	04:14	04:12	08:26	1.10	556.60	8
John Maret	MAAC# 651L	04:20	04:22	02:55	03:15	-	04:22	04:20	08:42	1.04	542.88	9
Richard Peterson	151145	03:38	03:09	03:58	-	-	03:58	03:38	07:36	1.12	510.72	10
Michael Thompson	1484	03:16	03:32	03:42	03:37	-	03:42	03:37	07:19	1.16	509.24	11
John Barker	2095	03:40	03:16	02:48	04:02	03:20	04:02	03:40	07:42	1.08	498.96	12
Ron Ganser	7532	04:05	03:35	-	-	-	04:05	03:35	07:40	1.05	483.00	13
Tom Nied	76537	02:21	02:27	02:40	03:07	03:31	03:31	03:07	06:38	1.20	477.60	14
Dave Robelen	12555	03:22	03:48	03:33	02:59	02:05	03:48	03:33	07:21	1.08	476.28	15
John Triolo	13141	02:09	03:15	03:57	-	-	03:57	03:15	07:12	1.07	462.24	16
Herbert Stevens	13086	03:00	03:17	02:03	02:22	03:02	03:17	03:02	06:19	1.03	390.37	17
Bill Martin	41300	02:53	02:57	02:28	02:14	-	02:57	02:53	05:50	1.07	374.50	18
Karl Von Bueren	51477	02:32	02:05	02:30	-	-	02:32	02:30	05:02	1.12	338.24	19
Ted Seaver	397891	02:35	02:41	-	-	-	02:41	02:35	05:16	1.04	328.64	20
Jim Buxton	75154	02:32	02:41	02:35	-	-	02:41	02:35	05:16	1.04	328.64	21
Doug Deller	MAAC #15800	02:01	00:47	02:17	-	-	02:17	02:01	04:18	1.03	265.74	22
Millard Wells	65503	02:03	01:59	-	-	-	02:03	01:59	04:02	1.05	254.10	23
Jim Richmond	4936	03:30	-	-	-	-	03:30	00:00	03:30	1.14	239.40	24
John Blair	29698	02:58	-	-	-	-	02:58	00:00	02:58	1.10	195.80	25
John Kagan	469254	02:25	-	-	-	-	02:25	00:00	02:25	1.10	159.50	26
Leonard Wieczorek	10105	00:59	-	-	-	-	00:59	00:00	00:59	1.14	67.26	27
Don Slusarczyk	5490	-	-	-	-	-	00:00	00:00	00:00	1.20	0.00	28
Abram Van Dover	894	-	-	-	-	-	00:00	00:00	00:00	1.13	0.00	29
Anthony D'Alessandro	1316	-	-	-	-	-	00:00	00:00	00:00	1.13	0.00	30
Vito Garofalo	331457	-	-	-	-	-	00:00	00:00	00:00	1.12	0.00	31
William Passarelli	15623	-	-	-	-	-	00:00	00:00	00:00	1.10	0.00	32
David Thomson	8410	-	-	-	-	-	00:00	00:00	00:00	0.00	0.00	33
Ken Lazarus	371820	-	-	-	-	-	00:00	00:00	00:00	0.00	0.00	34
Robert Warmann	18748	-	-	-	-	-	00:00	00:00	00:00	0.00	0.00	35
Edward Sullivan	69585	-	-	-	-	-	00:00	00:00	00:00	0.00	0.00	36
Phillip Hartman	8667											37

CONTESTANT	AMA #	SUBJECT										TOTAL	FLIGHT	STATIC	TOTAL	PLACE
			1	2	3	4	5	6	7	8	9	(Best 2)	POINTS	POINTS		
Donald Brimmer	1097	Citabria	57.7	47.9	35.6	52.8	57.7	60.6	31.0	-	-		3	1	4	1
Dr. John Martin	712	Goldwing	87.0	111.2	-	-	-	-	-	-	-	198.2	2	6	8	2
Millard Wells	65503	Curtiss Jenny	31.6	32.5	-	-	-	-	-	-	-	64.1	6	4	10	3
Millard Wells	65503	Andreasson	42.0	59.0	-	-	-	-	-	-	-	101.0	5	6	11	-
Dr. John Martin	712	Messerschmitt M-206	54.0	61.0	-	-	-	-	-	-	-	115.0	4	7	11	-
Jack McGillivray	MAAC# 1025L	Hosler Fury	123.0	120.0	-	-	-	-	-	-	-	243.0	1	10	11	4
Robert Wells	512604	P-51 Mustang	12.0	10.0	-	-	-	-	-	-	-	22.0	10	2	12	5
Chuck Wojtkiewicz	178300	Microplano Veloz	15.0	9.0	-	-	-	-	-	-	-	24.0	9	3	12	6
Millard Wells	65503	Waco E	27.0	-	-	-	-	-	-	-	-	27.0	8	5	13	-
Millard Wells	65503	Huntington H-12	56.1	-	-	-	-	-	-	-	-	56.1	7	8	15	-
Millard Wells	65503	MO-1	-	-	-	-	-	-	-	-	-	-	-	6	6	-
John Blair	29698	Hergt Monoplane	-	-	-	-	-	-	-	-	-	-	-	9	9	-
Mason Plank	268274													-	0	-

1994 USIC

NO-CAL SCALE

CONTESTANT	AMA #	1	2	3	4	5	BEST FLIGHT	PLACE
Mike Thomas	MAAC #1964	06:38	07:17	07:47	-	-	07:47	1
Robert Warmann	18748	05:49	05:32	07:25	-	-	07:25	2
Howard Henderson	302944	06:10	06:52	-	-	-	06:52	3
Larry Coslick	404651	05:37	05:43	06:34	04:59	06:14	06:34	4
Chuck Slusarczyk	2643	06:22	06:15	05:54	06:15	-	06:22	5
Daniel Baird	334655	03:22	05:23	03:19	05:48	05:05	05:48	6
Dave Robelen	12555	05:23	00:51	05:45	05:18	05:35	05:45	7
Dick Obarski	560	04:28	05:40	05:23	05:44	05:06	05:44	8
William Pavak	319915	03:46	04:49	05:42	-	-	05:42	9
John Ganser	179424	05:18	03:37	05:15	05:37	04:27	05:37	10
Jim Buxton	75154	05:31	05:03	-	-	-	05:31	11
John Marett	MAAC# 6511L	04:14	03:09	00:49	05:05	-	05:05	12
Louis Leifer	MAAC# 2418L	01:28	04:53	05:01	-	-	05:01	13
Tom Nied	76537	05:00	04:31	03:42	03:00	04:51	05:00	14
Rob Romash	130061	03:21	04:19	-	-	-	04:19	15
Walter Eggert	292	03:47	03:50	-	-	-	03:50	16
Larry Mzik	3687	03:48	01:51	-	-	-	03:48	17
Fred Rash	63458	02:46	03:09	02:48	03:15	03:05	03:15	18
Abram Van Dover	894	02:55	03:03	02:49	-	-	03:03	19
Jon Vancil	339494	02:34	02:28	02:17	-	-	02:34	20
Edward Ripley	484619	02:18	-	-	-	-	02:18	21
Karl Von Bueren	51477	02:09	02:15	-	-	-	02:15	22
Richard Peterson	151145	00:58	01:24	01:24	-	-	01:24	23
Mark Vancil	124866	-	-	-	-	-	00:00	24
Ted Seaver	397831	-	-	-	-	-	00:00	25
Joseph Nuszer	29036	-	-	-	-	-	00:00	26
Bernard Hunt	SMAE# 56205	-	-	-	-	-	00:00	27
Bill Harding	430847	-	-	-	-	-	00:00	28
Vernon Hacker	44137	-	-	-	-	-	00:00	29

1994 USIC

COCONUT SCALE

CONTESTANT	AMA #	SUBJECT	1	2	3	BEST FLIGHT	FLIGHT RANKING	STATIC RANKING	TOTAL RANKING	PLACE
Dave Rees	33928	Citabria	125	128	-	128	4	1	5	1
Walter Eggert	292	Air Coach	158	166	-	166	1	5	6	2
Millard Wells	65503	Ford 2-AT	58	-	-	58	8	2	10	3
Tim Lavender	applied 6/3/94	Aristocrat	117	157	150	157	3	10	13	4
Dr. John Martin	712	Goldwing	74	77	-	77	7	7	14	5
Stuart Weckerly	13250	Found	109	-	-	109	6	11	17	6
Walter Schlesinger	5954	Hi-max	37	35	38	38	9	12	21	7
Donald Brimmer	1097	PT-19	-	-	-	0		4	4	-
Jack McGillivray	MAAC# 1025L	Keith Ourtiss	-	-	-	0		6	6	-
Dave Rees	33928	Travel Air 6000	102	127	-	127	5	3	8	-
Dave Rees	33928	Zippy	160	164	-	164	2	8	10	-
?	?	Alexander	-	-	-	0		9	9	-
Don Slusarczyk	5490									

1994 USIC	SCALE	TOTAL	GRAND
CONTESTANT	POINTS	POINTS	CHAMP POINTS
Don Slusarczyk	112.50	225.00	1 100.00
Jack McGillivray	112.50	225.00	2 100.00
Ron Ganser	112.50	207.50	3 92.22
Michael Thompson	94.50	189.00	4 84.00
Stuart Weckerly	123.50	188.50	5 83.78
Walter Eggert	82.00	155.05	6 68.91
Jim Miller	103.50	152.50	7 67.78
Richard Peterson	76.00	151.00	8 67.11
Millard Wells	94.50	146.20	9 64.98
Jim Pollard	90.00	131.25	10 58.33
Dick Hardcastle	48.75	97.50	11 43.33
Robert Wells	63.00	91.55	12 40.69
Herbert Stevens	52.50	0.00	13 0.00
Robert Wells	58.13	0.00	14 0.00
William Passarelli			15 0.00
Dr. John Martin			16 0.00

1994 USIC	FEDERATION R.O.G.										BEST	
CONTESTANT	AMA #	1	2	3	4	5	FLIGHT	PLACE				
Jim Clem	L-55	08:55	01:31	-			08:55	1				
Daniel Baird	334655	07:50	05:48	05:45	06:56	03:42	07:50	2				
Larry Coslick	404651	06:21	06:20	06:13	07:07	06:53	07:07	3				
Fred Rash	63458	06:09	03:40	03:45	-		06:09	4				
Howard Henderson	302944	04:43	02:20	06:04	05:09	05:08	06:04	5				
Neal Henderson	12368	05:35	03:47	04:34	-		05:35	6				
Edward Ripley	484619	01:41	03:41	05:00	04:49	05:07	05:07	7				
Ted Seaver	397871	03:41	04:30	03:03	04:28	-	04:30	8				
John Fellin	95353	02:41	-				02:41	9				
TEAM F.R.O.G.												
TENN-Baird							13:59	1				
Rash												
MISSOURI-Coslick							13:11	2				
Henderson												
TEXAS- Clem							08:55	3				
WISCONSIN-Seaver							07:11	4				
Fellin												

1994 USIC	PEANUT SCALE - #505															BEST	BEST	2ND	2ND	AVERAGE
CONTESTANT	AMA #	SUBJECT	1	2	3	4	5	6	7	8	9	FLIGHT	MAX	FLIGHT	MAX	FLIGHT	MAX	FLIGHT	MAX	BEST 2
Don Slusarczyk	5490	1911 Voisin	129.2	117.8	-	-	-	-	-	-	-	129.2	112.5	117.8	112.5	112.5	112.5	112.5	112.5	112.5
Jack McGillivray	MAAC# 1025L	Issac's Fury	112.5	90.0	134.0	-	-	-	-	-	-	134.0	112.5	112.5	112.5	112.5	112.5	112.5	112.5	112.5
Ron Ganser	7532	1911 Voisin	60.0	59.0	10.0	42.0	88.0	94.0	96.0	96.0	-	96.0	96.0	94.0	94.0	95.0	95.0	95.0	95.0	95.0
Michael Thompson	1484	1935 Farman F-450	116.4	122.1	-	-	-	-	-	-	-	122.1	94.5	116.4	94.5	94.5	94.5	94.5	94.5	94.5
Stuart Weckerly	13250	Float Plane	24.0	63.0	62.0	67.0	-	-	-	-	-	67.0	67.0	63.0	63.0	65.0	65.0	65.0	65.0	65.0
Walter Eggert	292	Focker D III	74.8	71.3	-	-	-	-	-	-	-	74.8	74.8	71.3	71.3	73.1	73.1	73.1	73.1	73.1
Jim Miller	89382	Santos Dumont 14bis	49.0	49.0	-	-	-	-	-	-	-	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0	49.0
Richard Peterson	151145	Let Zlin	79.0	49.0	74.0	-	-	-	-	-	-	79.0	76.0	74.0	74.0	75.0	75.0	75.0	75.0	75.0
Millard Wells	65503	P-40	50.5	52.9	-	-	-	-	-	-	-	52.9	52.9	50.5	50.5	51.7	51.7	51.7	51.7	51.7
Jim Pollard	345975	Waterman Gosling	34.8	37.0	33.2	45.5	-	-	-	-	-	45.5	45.5	37.0	37.0	41.3	41.3	41.3	41.3	41.3
Dick Hardcastle	847	Mo I	58.0	95.0	126.0	-	-	-	-	-	-	126.0	48.8	95.0	48.8	48.8	48.8	48.8	48.8	48.8
Robert Wells	512604	Andreasson	57.1	-	-	-	-	-	-	-	-	57.1	57.1	0.0	0.0	28.6	28.6	28.6	28.6	28.6
Herbert Stevens	13086	Cougar	-	-	-	-	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Robert Wells	512604	Ford AT											0.0		0.0	0.0	0.0	0.0	0.0	0.0
William Passarelli	15623																			
Dr. John Martin	712																			

1994 USIC

KIT PLAN SCALE - #213

CONTESTANT	AMA #	SUBJECT	1	2	3	4	5	BEST FLIGHT	BEST (MAX)	2ND FLIGHT	2ND (MAX)	FIDELITY POINTS	CRAFT POINTS	TOTAL BEST 2 FLIGHTS	TOTAL POINTS	PLACE
Richard Miller	136518	Howard DGA-9	104.0	109.0	-	-	-	109.0	95.0	104.0	95.0	59.0	36.0	190.0	285.0	1
John Blair	23659	Fairchild Ranger	101.0	90.0	-	-	-	101.0	91.0	90.0	90.0	55.0	35.0	181.0	272.0	2
Dr. John Martin	712	Dornier Komet	74.0	97.0	85.0	-	-	97.0	86.0	86.0	86.0	56.0	30.0	172.0	258.0	3
Walter Eggert	292	Russ Moth	113.0	111.0	-	-	-	113.0	85.0	111.0	85.0	53.0	32.0	170.0	255.0	4
Dave Rees	33928	Zippy Sport	141.0	127.0	-	-	-	141.0	78.0	127.0	78.0	46.0	32.0	156.0	234.0	5
Ken Lazarus	371820	Curtiss Robin	28.0	45.0	46.0	-	-	46.0	46.0	45.0	45.0	51.0	24.0	91.0	166.0	6
Jim Grant	159477	YO-57 Taylorcraft	18.0	-	-	-	-	18.0	18.0	0.0	0.0	54.0	36.0	18.0	108.0	7
Herbert Stevens	13086	Curtiss Falcon	-	-	-	-	-	0.0	0.0	0.0	0.0	20.0	36.0	0.0	0.0	8
Oliver Benton	46662	Sperry Monoplane	-	-	-	-	-	0.0	0.0	0.0	0.0	52.0	28.0	0.0	0.0	9
Paul Avery	158011															10
Robert Wells	512604															11
Jack Boone	107857															12
David Thomson	8410															13
Edward Sullivan	69585															14

1994 USIC

HI-WING MONOPLANE

CONTESTANT	AMA #	SUBJECT	1	2	3	BEST FLIGHT	FLIGHT POINTS	STATIC POINTS	TOTAL POINTS	PLACE
Donald Brimmer	1097	Cessna C-37	57	57	78	78	69.00	49.50	119	5
Dr. John Martin	712	Dornier Komet	89	-	-	89	74.50	51.00	126	3
Jack McGillivray	MAAC# 1025L									-
Jim Miller	89382	Lacey						50.00	50	-
Jim Miller	89382	Hi-max	93	102	120	120	82.50	52.25	135	1
Jim Pollard	345975	Cessna Airmaster	23	51	56	56	56.00	45.00	101	6
Walter Schiesinger	5954	Leopard Moth						46.00	46	-
Michael Thompson	1484	Lacey	142	152	146	152	82.50	49.25	132	2
Stuart Weckerly	13250	Ford AT	106	107		107	79.25	42.50	122	4
Robert Wells	512604	Aeronca	40	-	-	40	40.00	43.25	83	10
Robert Wells	512604	Ford AT	38	-	-	38	38.00	47.00	85	9
John Blair	29698	Stinson Reliant	46	-	-	46	46.00	46.00	92	7
Millard Wells	65503	Douglas OBS VID-43	42	49	-	49	49.00	43.00	92	8
Bill Harding	430847									-

1994 USIC

AMA SCALE - #507

CONTESTANT	AMA #	SUBJECT	1	2	3	4	BEST FLIGHT	2ND FLIGHT	AVERAGE BEST 2	SCALE POINTS	TOTAL POINTS	PLACE
Ed Stoll	1243	Corbin S Ace	68	85	91	97	90	91	90	93.0	183.0	1
Ron Ganser	7532	Cessna	82	88	90	96	90	90	90	92.3	182.3	2
Jack McGillivray	MAAC# 1025L	SE5	87	110	100	-	90	100	90	92.2	182.2	3
John Blair	29698	Church mid wing	58	85	87	-	87	85	85	86.0	179.6	4
William Passarelli	15623	Nesmith cougar	99	108	-	-	90	99	90	90.0	166.0	5
Stuart Weckerly	13250	Found centennial	66	100	100	-	90	100	90	90.0	163.0	6
Dave Rees	33928	Travel air	110	98	-	-	90	98	90	90.0	162.0	7
Jim Miller	89382	Lacey M10	60	77	64	24	90	77	77	83.5	159.5	8
Doc John Martin	712	Dornier Komet	72	97	100	-	90	97	90	90.0	155.0	9
Jim Pollard	345975	Martin M I	54	62	64	51	64	62	62	63.0	132.0	10
Joe Nuszer	29036	Fairchild trainer	-	-	-	-	0	0	0	0.0	70.0	11
Millard Wells	65503									61.0	61.0	12
Robert Wells	512604	Waco cabin								55.0	55.0	13

1994 USIC GRAND CHAMPION.

1994 USIC	201	202	203	204	205	206	207	208	210	212	215	205	207	TOTAL
CONTESTANT	FLG STICK	INT STICK	F10	ROG CABIN	MANH CABIN	EZB	PP	LEP	ORNI	FLG	BOSTON	PAUT SCALE	AMA SCALE	CHAMP POINTS
Larry Coslick		80.60			82.28	100.00	99.41	92.15	100.00		99.92			666.36
Anthony D'Alessandro		0.00		83.30	89.21	72.33	94.39	86.84			0.00			426.07
Walter Eggert		74.62	0.00			82.09	87.99	96.57				68.91		410.18
Ron Gansen		55.34		98.37	84.55			88.72			66.83	92.22	99.62	595.65
Dick Handcastle	79.85	98.94	0.00			73.04	100.00	91.81				43.33		476.97
Bernard Hunt	37.19	100.00	0.00		0.00	93.92	0.00	100.00						381.02
John Kagan			57.13			75.95	90.45	73.34		38.82	22.07			357.76
John Marett		57.05		58.45	98.93	79.25	92.22	78.32			75.11			549.34
Jack McGillivray		93.98	81.39			86.17	0.00	0.00				100.00	99.56	461.10
Mike Thomas		73.95		71.34	100.00	95.86	85.43	84.29			97.21			598.10
Michael Thompson	63.18	64.81				82.42	0.00	95.35		88.07	70.46			464.29
Tom Vallee	77.00	11.33	76.08			70.85	0.00	86.17						321.44
Vladimir Linardic (SR)						76.28	73.52	74.00						223.81
Don Slusarczyk	66.62	21.63	65.14			95.93	0.00	82.41				100.00		473.74
Chuck Slusarczyk	78.00	79.39	84.16		87.08	29.61	84.74	97.46						540.45

1994 USIC

FAC SCALE

CONTESTANT	AMA #	SUBJECT	1	2	3	BEST FLIGHT	FLIGHT POINTS	STATIC POINTS	TOTAL POINTS	FLYOFF	PLACE
Jack McGillivray	MAAC# 1025L	SE-5 Replica	117	-	-	117	81.75	76.75	158.50		1
Stuart Weckerly	13250	Centennial 100/Floats	77	73	100	100	77.50	65.00	142.50		2
William Passarelli	15623	Nesmith Cougar	122	-	-	122	82.50	55.00	137.50	144	3
Dave Rees	33928	Citabria	115	121	-	121	82.50	55.00	137.50	129	4
Jim Miller	89382	Martin MO-1	86	53	104	104	78.50	58.25	136.75		5
Richard Miller	179518	Volksplane	37	62	92	92	75.50	58.25	133.75		6
John Blain	29698	C-165 Airmaster	96	76	116	116	81.50	48.25	129.75		7
Dr. John Martin	712	Howard Ike	76	74	66	76	68.00	57.00	125.00		8
Oliver Benton	46662	Volksplane	57	68	60	68	64.00	60.50	124.50		9
Jim Miller	89382	Voison	33			33	33.00	79.00	112.00		10
Chuck Wojtkiewicz	178300	Albatross DIII	31	-	-	31	31.00	65.50	96.50		11
Jim Pollard	345975	Sopwith Tabloid	13	-	-	13	13.00	64.25	77.25		12
Walter Schlesinger	5954	Fokker DVII	10	12	-	12	12.00	63.50	75.50		13
Robert Wells	512604	Ford AT	-	-	-	0	0.00	49.00	0.00		14
Robert Wells	512604	Martin MO-1	-	-	-	0	0.00	45.50	0.00		15
Randolph Lane	448191	Gee Bee Model D	-	-	-	0	0.00	21.25	0.00		16
Jim Buxton	75154		-	-	-	0	0.00		0.00		17
Michael Thompson	1484		-	-	-	0	0.00		0.00		18

1994 USIC

GOLDEN AGE SCALE

CONTESTANT	AMA #	SUBJECT	1	2	3	FLIGHT TOTAL	FLYOFF	PLACE
Stuart Weckerly	13250	Stout 2AT	120	120	120	360	155	1
Jack McGillivray	MAAC# 1025L	Cessna C-38	120	120	120	360	153	2
Michael Thompson	1484	Farman	120	120	120	360	144	3
John Blain	29698	Taylor Cub	78	83	93	254		4
Donald Brimmer	1097		77	67	61	205		5
Walter Schlesinger	5954	OH Leopard Moth	38	38	42	118		6
Jim Miller	89382	Martin MO-1	111	-	-	111		7
Jim Pollard	345975	Monocoupe 90L	52	31	-	83		8
Chuck Wojtkiewicz	178300	Taylorcraft	46	-	-	46		9
Chuck Wojtkiewicz	178300	Brewster Buffalo	23	-	-	23		10
Pienny Bates	29541							11
Walter Eggert	292	Cessna C-34						12
Dr. John Martin	712							13
Dave Rees	33928							14
Oliver Benton	46662							15

1995 U.S.I.C

WE HAVE PRINTED A FLYING SCHEDULE
FOR THE 1995 CONTEST IN THIS ISSUE.
WHAT DO YOU THINK?

	7:30	10:30	12:00	1:00	3:15	5:30
DAY 1	HEAVY OVER 1.5 GRAM	LIGHT UNDER 1.5 GRAM	P-24 MASS LAUNCH	HEAVY	PRACTICE	LIGHT
	PRACTICE					

	7:30	11:00	1:00	2:00	5:00	11:00
DAY 2	H.L. GLIDER CATAPULT GLIDER	INTERMEDIATE STICK HELICOPTER ORNITHOPER	NO FLY	INTERMEDIATE STICK HELICOPTER ORNITHOPER		FID CABIN 35.CM

	7:30	11:30	1:00	1:45	5:45	10:00
DAY 3	AMA SCALE FAC SCALE UNLIMITED SPEED NO. CAL. KIT/PLAN FROG	PENNYPLANE MANHATTAN	NO FLY	PENNYPLANE MANHATTAN	FID PRO 20	

	7:30	11:30	1:30	2:15	5:15	6:30	?
DAY 4	COCONUT SCALE BOSTONIAN PEA SCALE GRAND PRIZ SCALE FAC H WING FAC GOLDEN AGE	LIMITED P.P.	NO FLY	LIMITED P.P.		BANQUET	
		COCONUT SCALE MASS LAUNCH 11:30					

	7:30	11:30	1:30	2:15	5:30
DAY 5	MINI STK AUTOGIRO	EZB	NO FLY	EZB	
		MINI STK MASS LAUNCH 11:30			

1. THE MODEL MUST BE BUILT ACCORDING TO PLAN. NO DEVIATIONS WILL BE ALLOWED.
2. A 7 INCH PLASTIC PROP WITH PLASTIC THRUST BEARING MUST BE USED WITH NO ALTERATIONS. CLAY MAY BE ADDED TO THE LIGHT SIDE FOR BALANCE.
3. THE PROP SHAFT MAY BE GLUED TO THE PROP TO ELIMINATE EXTRA PLAY.
4. MINIMUM WEIGHT FOR THE MODEL IS 12 GRAMS.
5. JAPANESE TISSUE MUST BE USED FOR COVERING THE MODEL.
6. TIP DIHEDRAL MUST BE 1 3/4 INCHES.
7. THE WING SADDLE MUST BE BUILT ACCORDING TO PLAN.
8. THE MODELS MUST BE HAND-LAUNCHED.
9. THE DISTANCE BETWEEN THE FRONT OF THE THRUST BEARING AND THE REAR MOTOR HOOK MUST BE 17 INCHES.
10. THE SAME MOTOR MUST BE USED THROUGHOUT THE COMPETITION. IF THE MOTOR BREAKS, IT CAN BE RETIED.
11. THE LAST TEN PLANES TO LAND FROM THE MASS LAUNCH WILL HAVE A FLY-OFF. THE LAST FIVE OF THESE PLANES WILL HAVE A FLYOFF. FINALLY, THE LAST TWO WILL HAVE A FLYOFF FOR A WINNER.
12. THERE ARE NO RESTRICTIONS ON RUBBER SIZE.
13. ALL MODELS WILL BE PROCESSED.

IF YOU NEED A P-24 CONDOR, KITS MAY BE ORDERED FOR \$9.99,
PLUS \$2.00 POSTAGE FROM:

MACE MODEL AIRCRAFT COMPANY
359 S. 119 EAST AVENUE
TULSA, OK 74128

"PRO-20"

MONOPLANE.

MAXIMUM PROJECTED WING SPAN 20 INCHES.

MAXIMUM PROJECTED WING AREA 68 SQUARE INCHES.

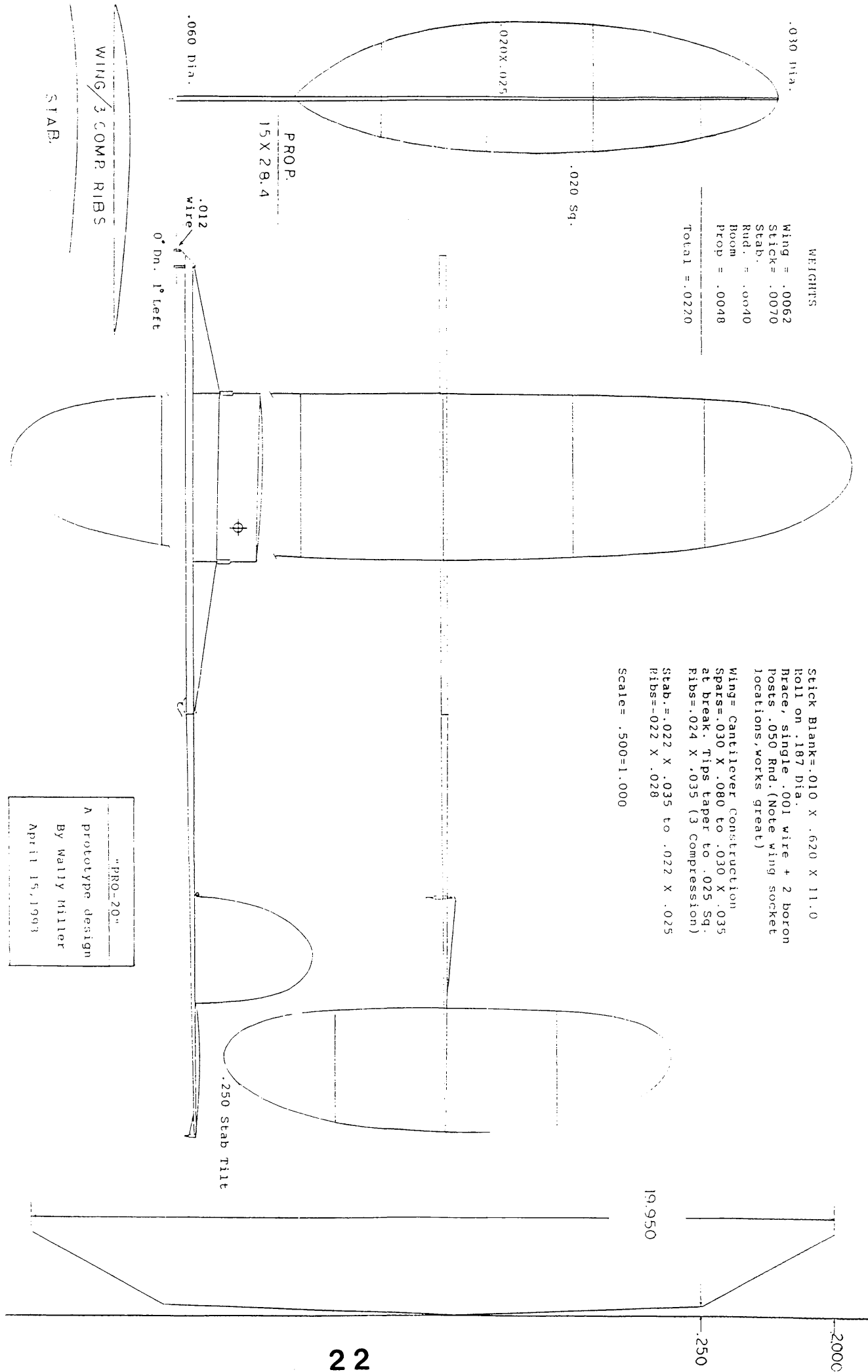
MAXIMUM STABILIZER AREA 50% OF WING AREA.

PROPELLER: MUST BE BUILT UP, MICROFILM OR PLASTIC COVERED.
NO VARIABLE PITCH OR VARIABLE DIAMETER MECHANISMS PERMITTED.
PROPELLER HUBS WHICH PERMIT BLADE REPLACEMENT AND MANUAL
ADJUSTMENT OF PITCH ARE ACCEPTABLE.

MOTOR STICK: MUST BE BUILT UP (NO SOLID MOTOR STICKS)

ENERGY RESTRAINING DEVICES OTHER THAN THE PROPELLER ARE
PROHIBITED.

IN ADDITION TO THE ABOVE, RULES FOR FREE FLIGHT INDOOR
RUBBER AND STICK MODEL SHALL APPLY.



WEIGHTS

Wing = .0062
 Stick = .0070
 Stab =
 Rud. = .0040
 Boom
 Prop = .0048

Total = .0220

Stick Blank=.010 X .620 X 11.0
 Roll on .187 Dia.
 Brace, single .001 wire + 2 boron
 Posts .050 Rnd. (Note wing socket
 locations, works great)

Wing= Cantilever Construction
 Spars=.030 X .080 to .030 X .035
 at break. Tips taper to .025 Sq.
 Ribs=.024 X .035 (3 Compression)

Stab=.022 X .035 to .022 X .025
 Ribs=.022 X .028

Scale= .500=1.000

PROP.
 15 X 28.4

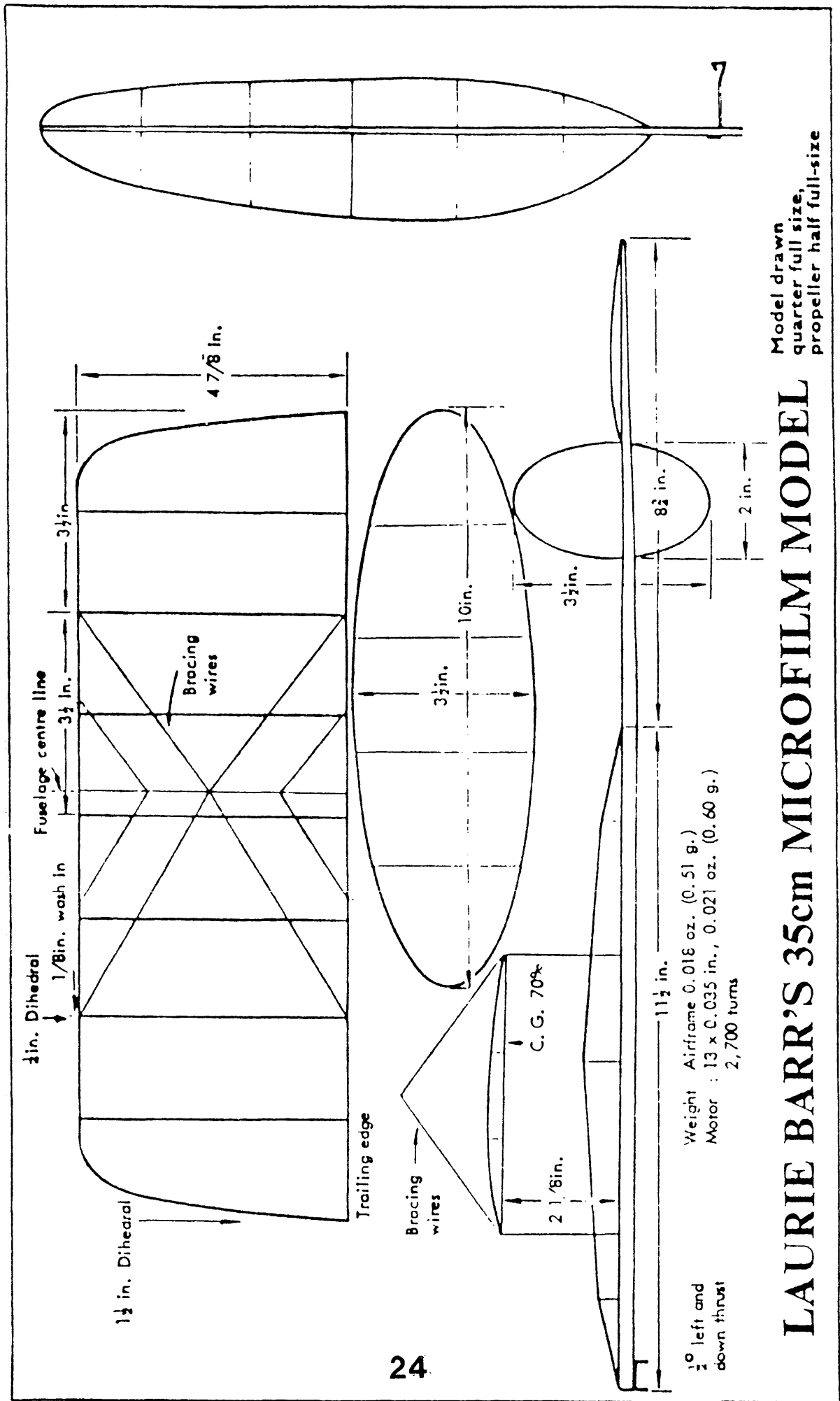
.012
 wire
 0" Dia. 1" Left

WING/3 COMP RIBS

STAB

.250 Stab Tilt

"PRO-20"
 A prototype design
 By Wally Miller
 April 15, 1993



INDOOR NEWS & VIEWS PHOTO PAGES
UNITED STATES INDOOR CHAMPIONSHIPS 1994

(CONTINUED)

- 22 Mike Thomas of Etobicoke Ont., Canada and winning NO-CAL Hosler Fury, a 1930's racer. It has a rolled motor tube and wing struts but the motor runs outside the struts. Mike also took first in Manhattan.
- 23 GEE BEE racer NO-CAL by Dick Peterson of Southern California. Plan was from the Blacksheep Squadron.
- 24 Flying Aces Stick from (what else) Flying Models of early 1993 fitted with I.R. control. All of this the product of the mind and hand of Phil Smith. And it does work. This model a little fast for a small gym but there is no doubt the working of the control system. See notes on photo 18 for Phil's address.
- 25 This is a complete airborne side of the control system for indoor I.R./C. It is just a little longer than a AA pen cell.
- 26 Frog by Jim Clem took first, something of a habit for him. Note set up for a partial motor as Bob Randolph says "It is the 'Royal Road'to successful ----- Indoor model flying" This one has boron on rolled tube and a wire braced motor tube.
- 27 Indoor slope soaring by Rob Roman. This is no joke Rob could keep it up as long as he kept walking. Control was good.
- 28 LASA 60 by Lockheed - Aeromachia. The turbine powered model was picked by Dave Robelen. Dave who is a Brainbuster uses the extended fowler flap to give undercamber for a more efficient airfoil at model speeds. Model entered in FAC scale at USIC but has also placed in AMA outdoor contests as a P-30. Dave also got second in P-Nut Speed.
- 29 USIC 1994 GRAND CHAMPION and editor of INAV Larry Coslick. Shown here with his flapper which placed first.
- 30 Howard Henderson INAV treasurer and generator of mailing labels for INAV.
- 31 Roy White handles correspondence for INAV with Mary Reilley managing editor of INAV.
- 32 Walt Eggers took fourth in Kit-Plan-Scale using a Puss Moth. Shown here with his Limited Penny Plane.
- 33 Citabria Coconut Scale by Rees. Double covered as is his Zippy Sport. Dave says it is a good flyer.
- 34 Don Slusarczyk with his winner of the Coconut Scale mass launch event. Chuck Slusarczyk was more excited than Don. Don also took first in P-Nut and Chuck a fourth in F 1 D.
- 35 The winners of the FROG event. L to R. Dan Baird - second, Howard Henderson - fifth, Larry Coslick - third, Jim Clem - first, and Fred Rash - fourth.
- 36 Bud Tenny the fellow who got INAV started and the current indoor editor of Model Aviation, AMA indoor contest board etc. We all owe him.
- 37 Cessna C 37 by Donald Brimmer entered in FAC high wing monoplane. A very nice job.
- 38 The Great Earl Stahl is not catching flies but rather is looking at the Coconut mass launch event.
- 39 Cessna C 38 entered in FAC Golden Age Scale by Jack McGilvery of Toronto. It has his usual high level of workmanship. Jack was third in the very tight AMA Scale race.
- 40 Tim (son) Lavender launching his Embryo. Both Lavenders are very active FAC flyers.
- 41 Dan Belief winner of Catapult Glider event.
- 42 Jim Buxton winner of Hand Haunch Glider.
- 43 Left to right, Erv Rodemsky indoor world champ West Baden Springs, 1980 and the maker of the film solution "used by champions." Cliff Culpepper Jr. and Allen Culpepper.
- 44 Pistachios by the Lavenders - Waterman Racer by Tim (father) and Jodel by Tim (son) Lavender. They both do nice work.
- 45 Messerschmitt Transport in Pistachio by Tim (father) Lavender.
- 46 Church Midwing AMA and FAC scale by John Blair. This one really has the detail such as spoked wheels, magneto with spark plug wires, three part spark plugs, other engine detail and all bracing and control wires. This was another of the models that were for all practical purposes in a four way tie for first place. John was fourth.
- 47 Coconut General Aristocrat by Tim Lavender. Never got very high and was only about six or seven seconds short of winning the mass launch, five or six seconds behind second. As usual, Tim did a very nice job.



NFFS
NATIONAL FREE FLIGHT SOCIETY

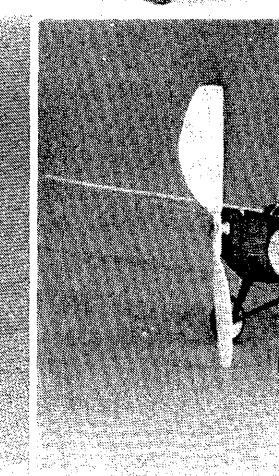
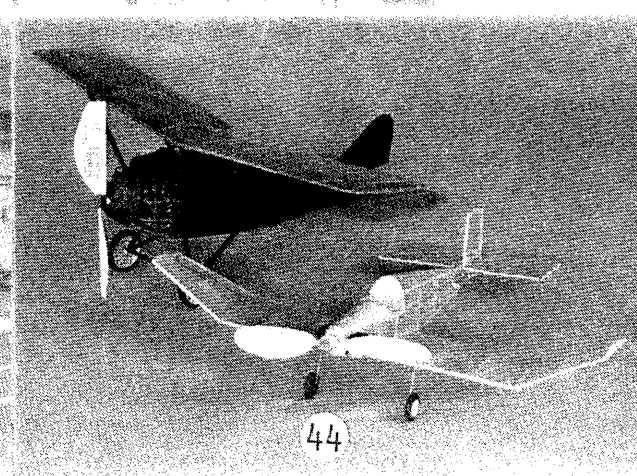
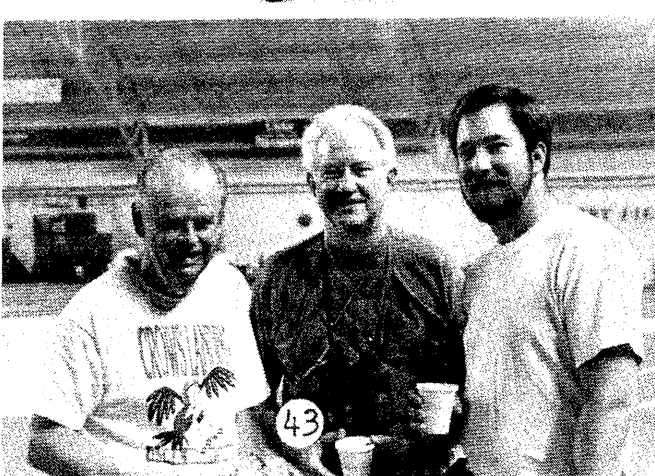
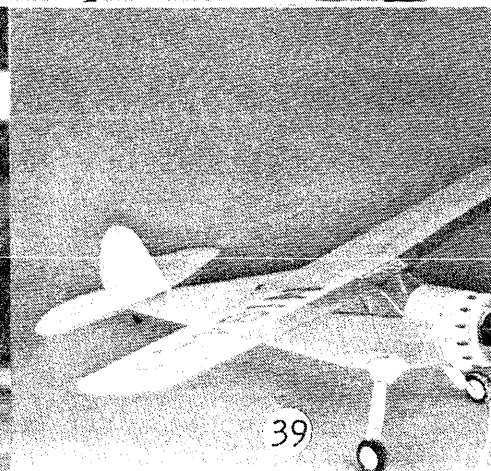
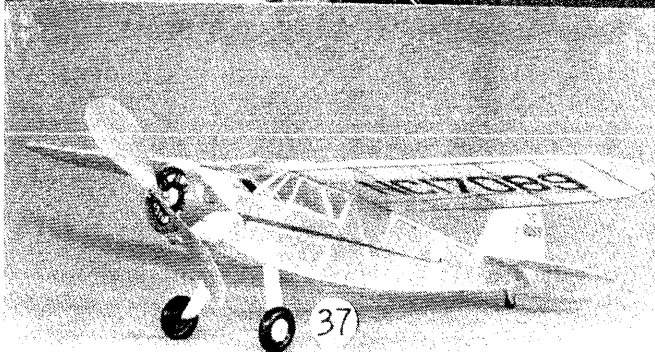
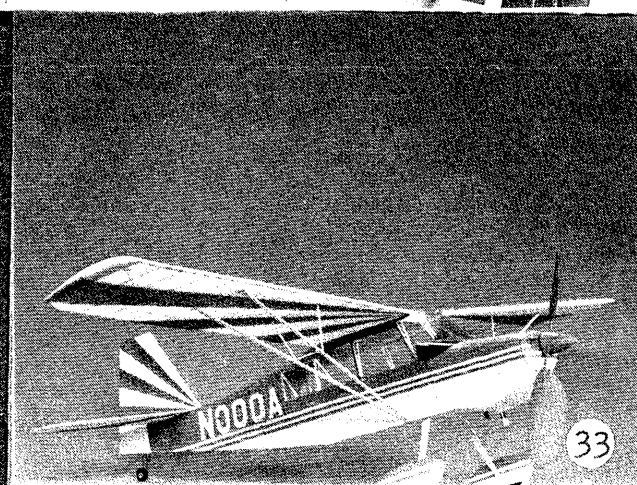
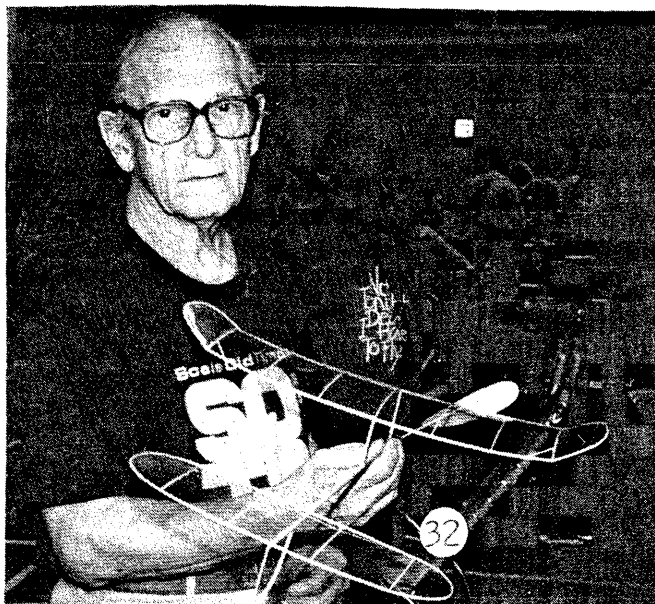
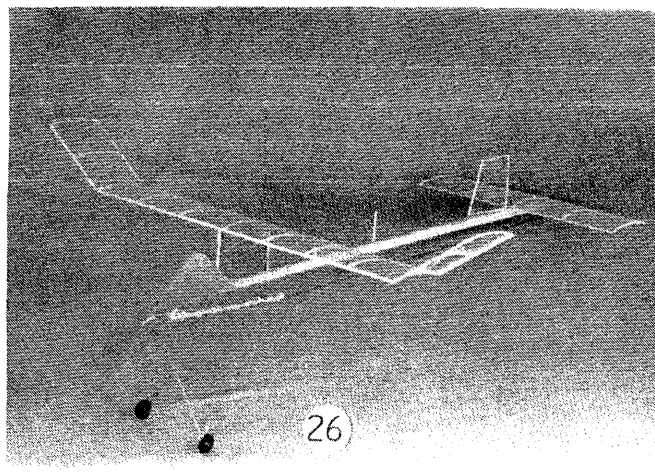


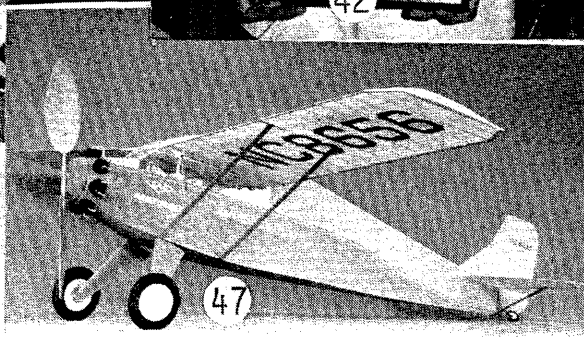
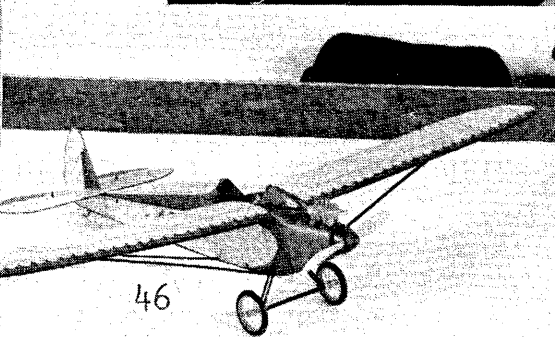
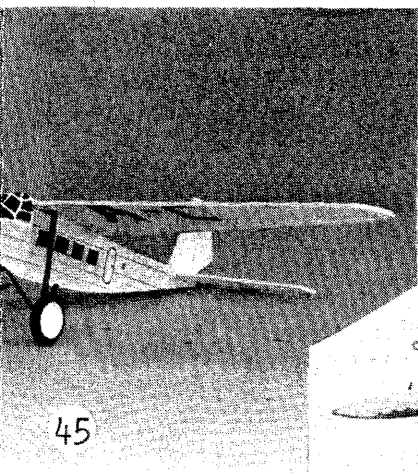
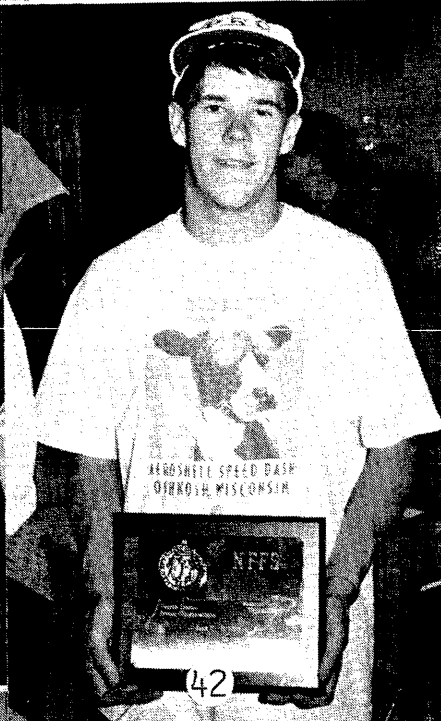
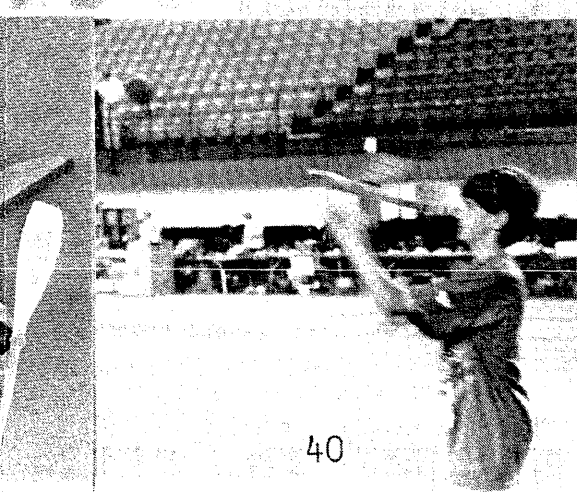
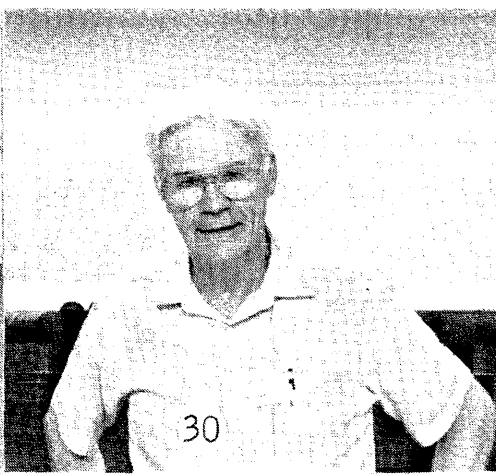
INDOOR NEWS & VIEWS PHOTO PAGES

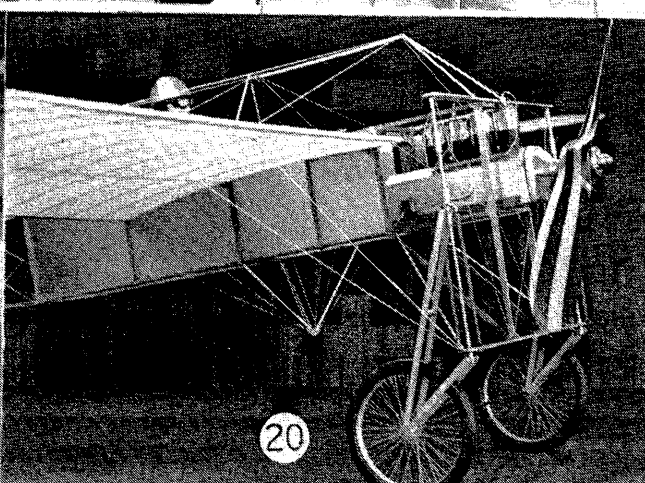
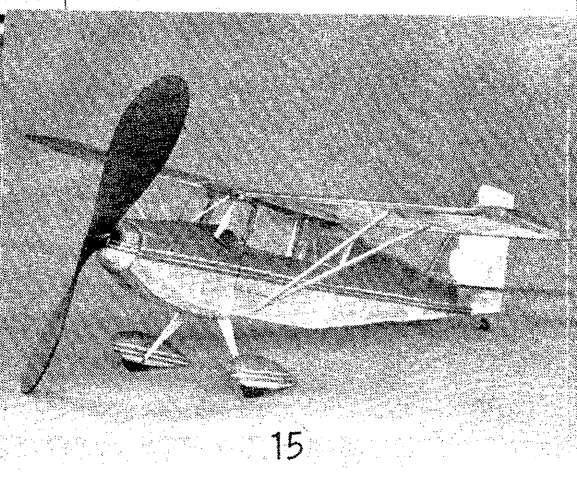
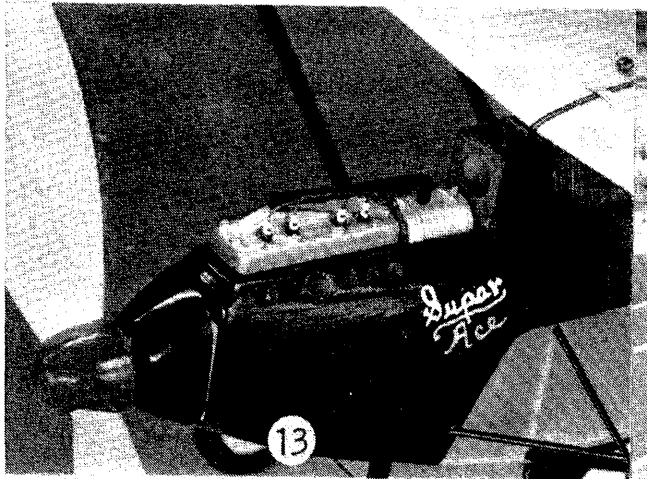
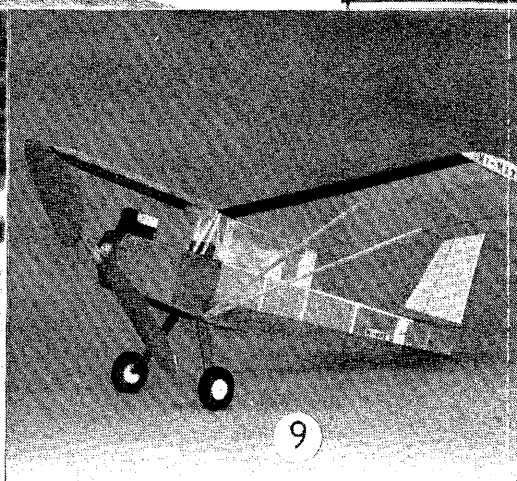
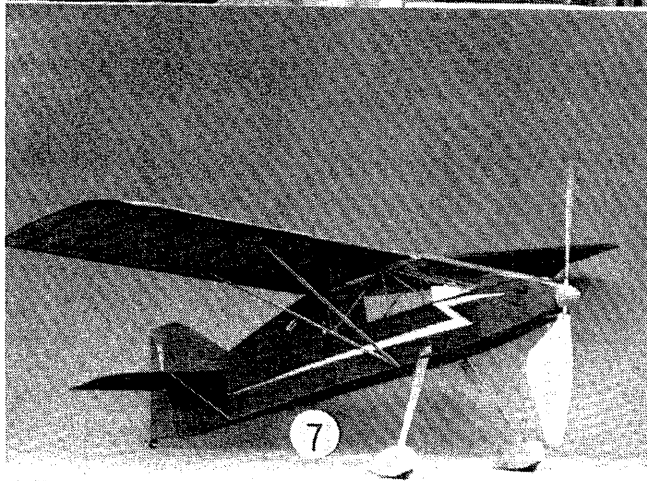
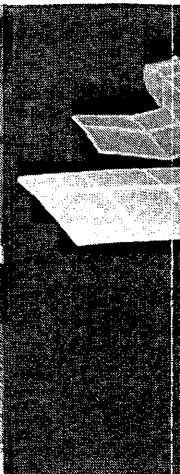
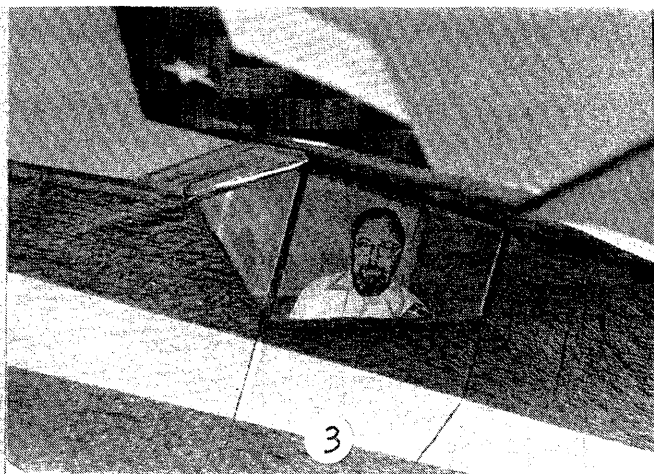
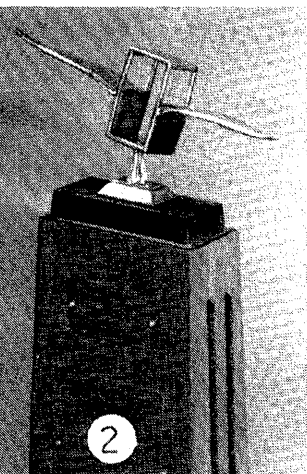
UNITED STATES INDOOR CHAMPIONSHIPS 1994

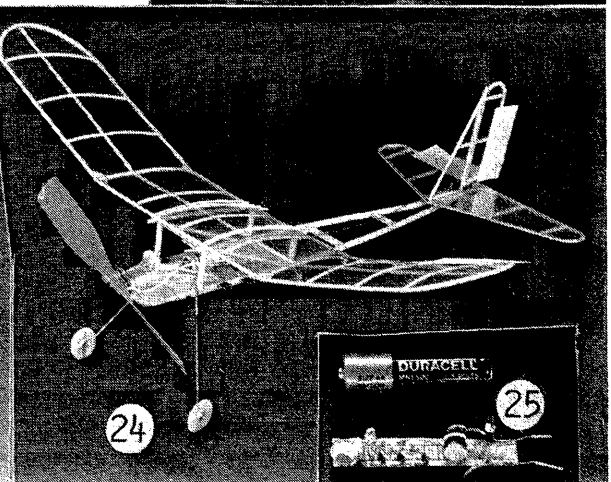
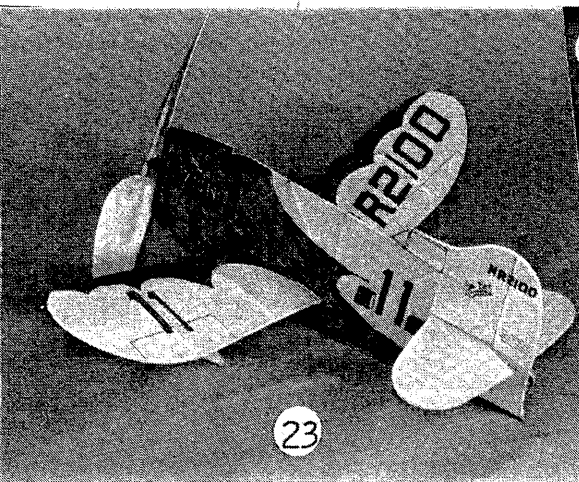
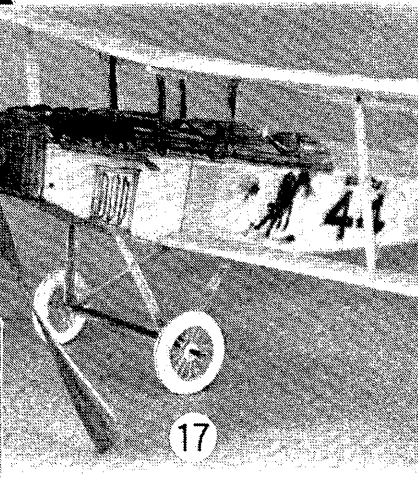
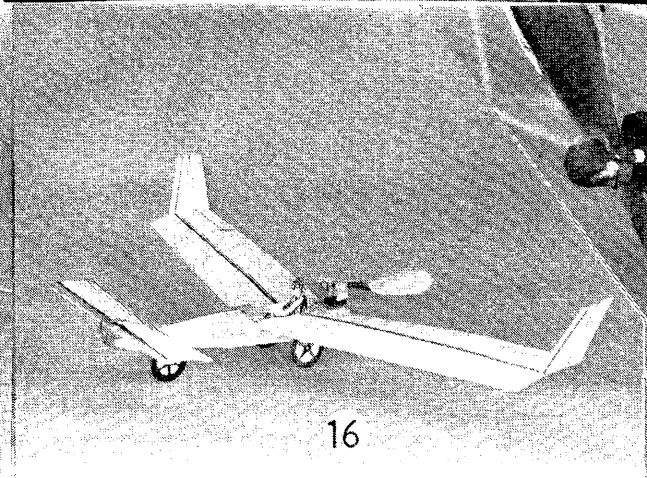
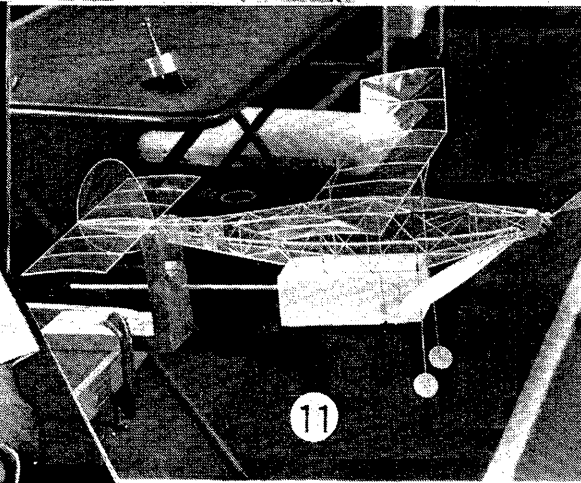
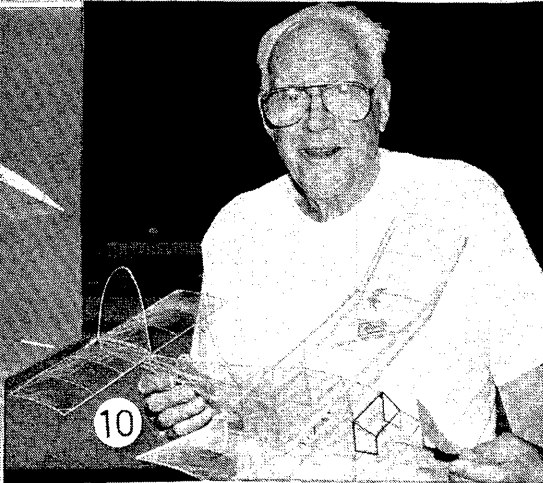
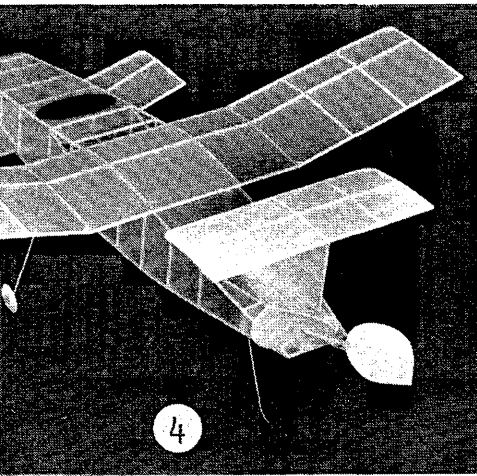
- 1 Melody Doig and the very new Doig. He looks like a good one. Melody again did the computer tabulation of results at the USIC. Richard Doig took first in F 1 D.
- 2 The Don Lindley Trophy for first place in Bostonian. Designed by Vito M. Garofalo and presented as a perpetual trophy by the Chicago Aeronuts. Don was a moving force behind Bostonian and Kit-Plan-Scale. Jane Lindley presented trophy to Jim Grant this years Bostonian winner.
- 3 The likeness of Don Lindley looks from the window of Tom Nied's Lindley designed Bean Machine, a simple easy to build Bostonian, which appeared in the April 1992 INAV. Tom built the prop from a blank supplied by Don. All built for flying at the College of DuPage have done well for their builders.
- 4 Tri surfaced Bostonian "Three If By Air" by William Passarelli of Long Island NY. It is covered with condenser paper. The fuselage applied then shrunk and one light coat of dope. Bill took fifth in AMA Scale.
- 5 Paul Avery's Bostonian sports tinted windows and a Richard Miller prop design.
- 6 Abram Van Dover calls his David Aronstein designed Boston Celtic "B-ARF" but it looks good. Those Brainbusters have a sense of humor. Abram took fourth in P-Nut Speed.
- 7 Zippy Sport Coconut by Dave Rees took second by only one or two seconds in the mass launch event. This is not a minimum model as it has double covered flying surfaces and the complex "Bird Cage" cockpit of the full scale subject.
- 8 Marie and Dave Rees with 36" FAC scale Citabria. They run HiLine, P.O. Box 11558, Goldsboro NC 27532. The latest products are two ducted fan units. Catalog is \$ 1.00.
- 9 Peanut HI-MAX by Jim Miller of Fayetteville Ohio. George Benson who did a construction article for Model Builder on this plane helped with detail information. Mace, the builder of the full scale ship also supplied information. Jim was eighth in AMA Scale.
- 10 Jim Grant and his Manhattan. Jim won the Lindley / Aeronuts award for first in Bostonian this year. Jim was also forth in Manhattan and seventh in Kit-Plan-Scale.
- 11 Walt Van Gorder's Manhattan Pieces. Walt has been a consistent winner in this class and gave indoor a nice boost when M.A. published "Pieces" a few years ago. Walt was third (12:18) Mike Thomas first (12:31) and John Marett third (12:23).
- 12 John Blair looks at his models resting on the plans from whence they came. At right Chuck Schultz of Schultz Plan Service, 910 Broadfields DR, Louisville KY 40407. Catalog is SASE and \$ 1.00. The plans are first rate.
- 13 Corben Super Ace by Ed Stoll. Look at that engine detail which is covered in flight. This model took first place in AMA scale. Four of the models in scale were so close to perfection they were separated by only fractions of a point.
- 14 Ed Stoll of Mt Clemens Mich. and Corben of photo # 13. Ed has been a member of the Balsa Bugs since the conception 52 years ago. They ran the USIC this year. Everyone owes them thanks.
- 15 First place winner Pistachio a Citabre by Don Brimmer of the M.I.A.M.I. club. Time was one minute.
- 16 Second place Pistachio Goldwing ultralight by Dr John Martin of the M.I.A.M.I. club. The best time was 1 min 51 sec.
- 17 Third place Pistachio Curtiss Jenny by Millard Wells of the M.I.A.M.I. club. This model is full of detail. The usual high quality workmanship by Millard.
- 18 The well equipped I.R./C flyer heading for the local gym. That is not a misprint, this indoor electric is controlled by an infrared beam. Designer and builder was Phil Smith, 2662 Sharon Drive, Adrian Michigan 49221 (517) 263-4572. Smith Engineering specializes in printed circuits, special labels and custom electronic assemblies. See photos # 24 and # 25 for more detail.
- 19 Stu Weckerly of Dearborn Mich. and his Found Centennial FAC AMA scale. The big one that was on floats two years ago is now on wheels. Stu was second in FAC Scale and first in Golden Age FAC Scale.
- 20 Ron Ganser's 1911 Cessna 26" AMA scale. Ron used a Gene Thomas plan and scale data. Landing gear is scale with functional springs wound from .008" music wire. Balsa wheels and tires with aluminum hubs each have 72 spokes of polyester thread. The engine is built up - each spark plug is of three parts plus the high tension lead. This model was second by 0.7 of a point out of 183 points. Ron was also third in P-Nut Scale.
- 21 Richard Miller won Kit-Plan-Scale with this 25" Howard DGA-9 from a Comet 25 cent kit plan.

EXCLUSIVE INDOOR NEWS AND VIEWS PHOTO COVERAGE 1994 USIC











1025 Cedar Street
Catawissa, MO 63015
314-271-2243

80-81-82

USA SWEEPS

INDOOR F 1 D CHAMPIONSHIP

1ST - STEVE BROWN

2ND - CESAR BANKS

3RD - BOB RANDOLPH

EXCITING DOMEDUSTER PRODUCTS!

Dress Up That Scale Ship by Stan Fink is a new booklet which explains **8 proven ways** to beautify stick and tissue models including Tissue Collage, Tissue Dyeing, Art Markers, Solvent Transfer, Brush Painting, Copy Machine, Computers and Border Tape. With 8 illustrations and 2 charts of best uses, it is designed for both beginners and advanced modelers uses. The price is **\$10 ppd.**

Domeduster Plan Packet #3 has 12 new full size plans for 7 classes including Ministick, Peanut Scale, Pistachio, Bostonian, EZB, Beginner Duration and Hand Launched Glider. These plans are printed on 11 x 17" sheets for easy building. Cover art is by Dave Linstrum. **\$8 ppd.**

Domeduster Plan Packets #1 and #2 are sold out.

Domeduster Spoked Wheel System, 2nd Ed. is a fully illustrated, step-by-step booklet which gives you complete instructions for making your own spoked wheels. It has 20 illustrations and 6 photos. **\$8 ppd.**

The price of each booklet includes postage and handling. Add \$2 for foreign orders. When ordering, please make checks payable to Stan Fink, 1810 Pine St., Phila., PA 19103.

* * * * *

* TO: INDOOR NEWS & VIEWS (INAV) *

* 1025 CEDAR STREET *

* CATAWISSA, MO 63015 *

* ENCLOSED: _____ FOR RENEWAL _____ *

* NEW SUB _____ *

* NAME _____ *

* ADDRESS _____ *

* CITY & ZIP _____ *

* SUGGESTIONS _____ *

* * * * *

1995 USIC



United States Indoor
Championship

EDITORIAL

By Larry
Coslick

The paper work is almost completed for Johnson City, Tennessee to host the 1995 USIC contest for the best indoor fliers in the world! Gary Underwood has acquired the Mini-Dome for five days, beginning with a practice day on May 31. Practice will start at 8:00 am and run until 5:00 pm. The contest will officially begin at 5:15 pm on May 31 with F1D, Hand Launch Stick, 35 CM and ROG Cabin.

Most of you approve of the schedule as published. We incorporated a few changes per your suggestions. We have moved unlimited rubber speed away from the scale events, in the hope of drawing more contestants to this interesting event. Scale events have been crammed into two days in the past, with as many as eight events scheduled in a four hour period. In 1995, we have scheduled three days for scale and no more than five events in a four hour period. Our wish is to have most of the events completed by 6:00pm, so that our senior citizens (the lifeblood of our organization) will be able to endure the schedule.

Since the 1995 USIC will run for five days, we are inviting the overseas fliers to plan a trip to Johnson City. You will not be disappointed. This is an opportunity to fly in one of the best flying sites in the United States.

A heartfelt thank you to those who have contributed to the 1995 USIC maintenance fund. As of today, we are still \$1000 short of our goal, so any donations will be much appreciated. We are striving to make this the best ever indoor championship!

We still have some rooms available at the Buffalo Hills Country Club at \$29.77. Call Roy White 314-271-2243 for reservations.

Thanks to all who contributed information for this issue of the newsletter. We appreciate it greatly. Please keep sending us your news items.

If anyone wishes to be a CD or event director, please let us know. We need all the help we can get.

Great Reports From F.A.I.

By Larry Coslick

Hey, Guys, there's a great supply of new 1/8 inch rubber from F.A.I. We were running short of outdoor rubber and ordered 20 pounds of 1/8 inch from batch 6/94 and 8/94. I tested it as soon as it arrived and they both tested slightly over 4100 ft./lb. per pound. I got slightly more stretch out of the 8/94 batch and at 71 F, there was very little tearing at the knot. We have been hearing reports that Tan II breaks very easily at temperatures above 90 degrees. I was at the SAM champs and was breaking in a motor, and I broke several strands at 60% winds. The air temperature was 90 degrees. **8/94 IS THE BEST**

NEW CATEGORY IV RECORDS SET AT AKRON!

Over the Labor Day weekend at Akron, Ohio, CHRIS SYDOR set three new senior records - 1:50 in Standard Catapult Glider & 1:55 in unlimited Catapult Glider. Chris also pushed his Limited Penny Plane close to the ceiling and had a record flight of 13:20. Great job!

STAN CHILTON put up two great flights in F1D of 45 and 46 minutes and wrapped it all up by setting a new Intermediate Stick record of 40:06 using a variable pitch prop. Hearty Congratulations to both of you!

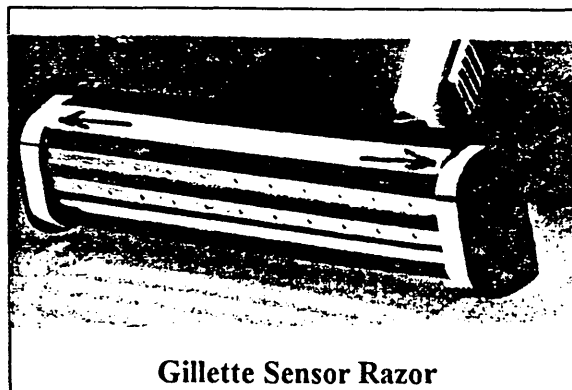
Thoughts to Ponder

He who laughs, lasts.

Talk is cheap because the supply exceeds the demand.

Building Techniques

Ran Ganser has developed a new technique for making prop bearings for EZB's and Mini Sticks using clips found on Gillette Sensor disposable razors.



Gillette Sensor Razor

The clips are left on the razor and a 1/8 in. spacer block and scribe are used to mark lines on each end prior to drilling with a No. 77 (.018) drill. After drilling, the clips are removed from the razor for filing and trimming.

MORE ON PAGE 15.

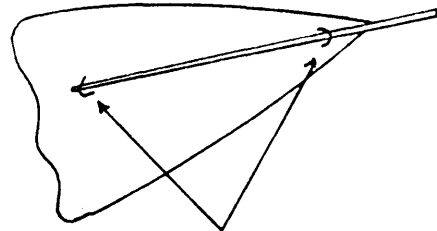
PROP CONSTRUCTION TIP

By LARRY COSLICK



Here's an easy way to hold and position prop blades to spar while glue sets for Ministick, EZB, Ltd. Penny, etc.

Instructions: Affix blade to spar with music wire staples. Wire size varies with project (.010 or larger). Tack glue blades at spar tip and hub with thinned aliphatic or solvent cement. Set desired pitch. When dry, place small drops of glue every 1/4" along the prop spar. When dry, remove staples.



Music Wire Staples

New Cat. IV Records at Lakehurst

Tom Green Limited PP. 17:03

Tony D'Alessandro Penny Plane 19:21

481 Woodhill Rd.
Wayne, PA 19087
18 July, 1994

Back about May of this year Larry Coslick called me and asked if I would provide the plan for my LPP for publication in INAV. I said I would, so here it is, belatedly.

I think everything of importance is on the drawing. Can't swear that all wood densities are accurate, my records aren't that good.

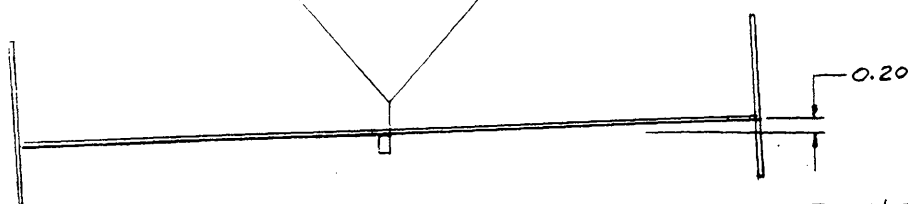
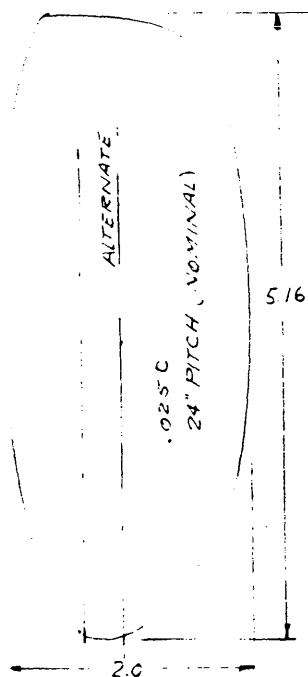
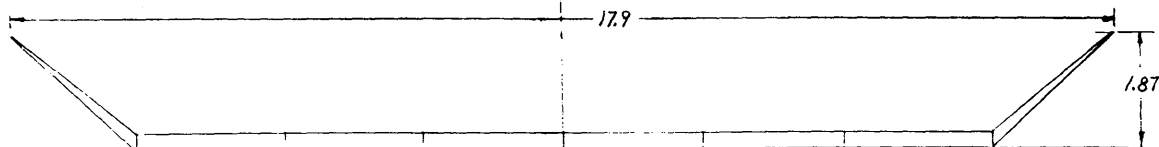
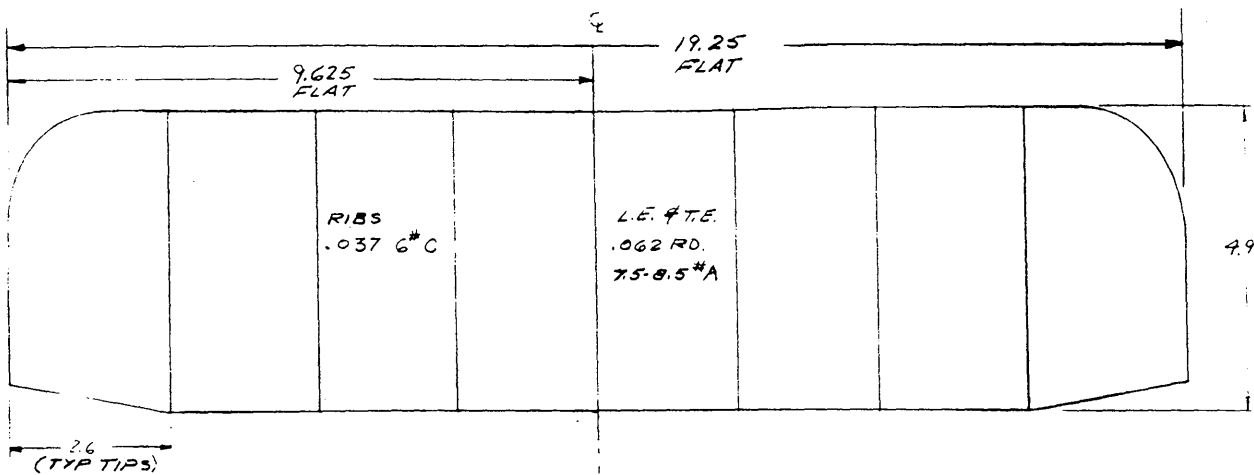
A word about the propeller; I fly mostly at Lakehurst and I like to take advantage of the 170' ceiling height. For that reason I use a "reverse-flare" propeller (fwd. spar location on the prop blade dwg.). This configuration provides a fast climb to high altitude, though at the cost of high initial RPM and consequent loss of turns. This problem can be minimized, though not eliminated, by matching propeller pitch and motor size to suit the flying site and ambient air conditions. I recommend the alternate spar location shown on the prop blade drawing for all but very high ceilings and the conventional "forward-flare" propeller for low ceilings.

If you have any questions give me a call at 610-688-8474.

Best Regards,

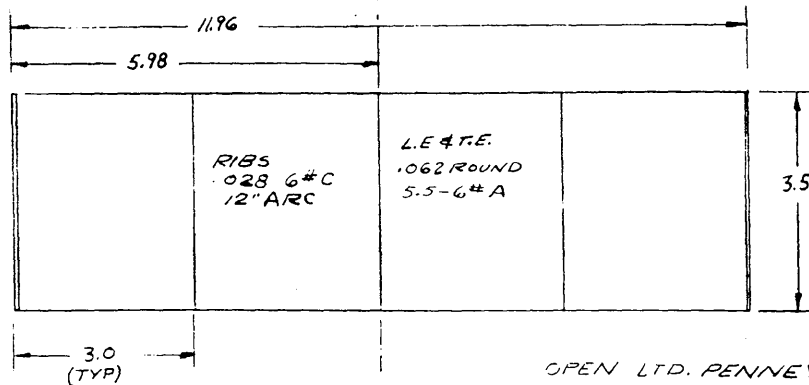
A handwritten signature in cursive script that reads "Tom Green".

Tom Green

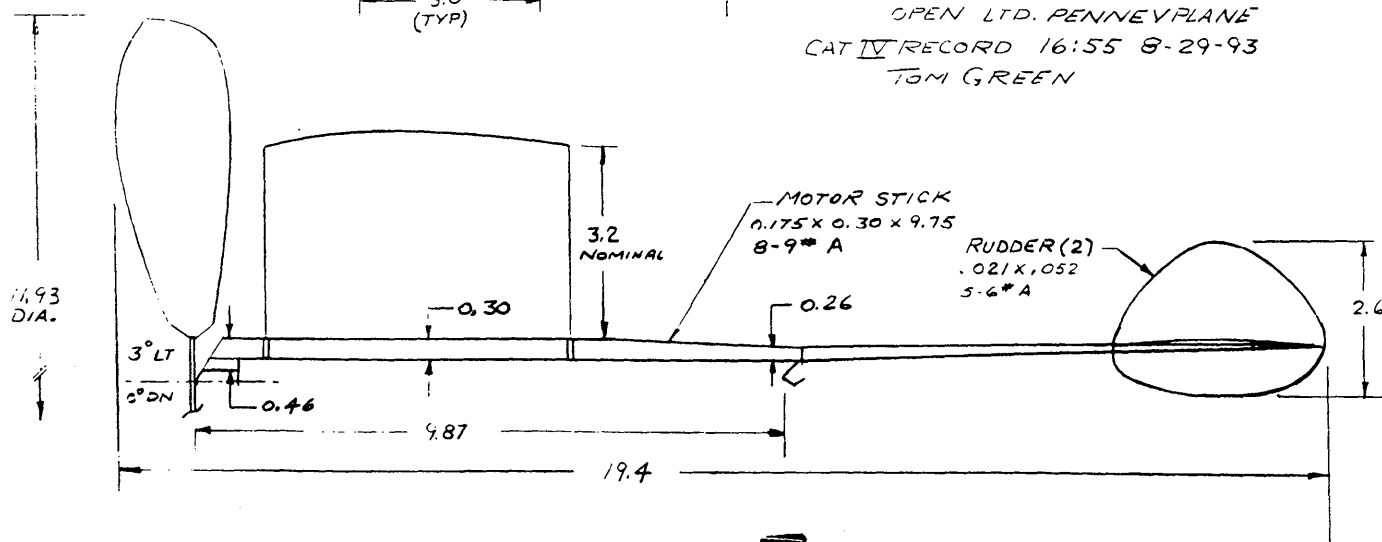


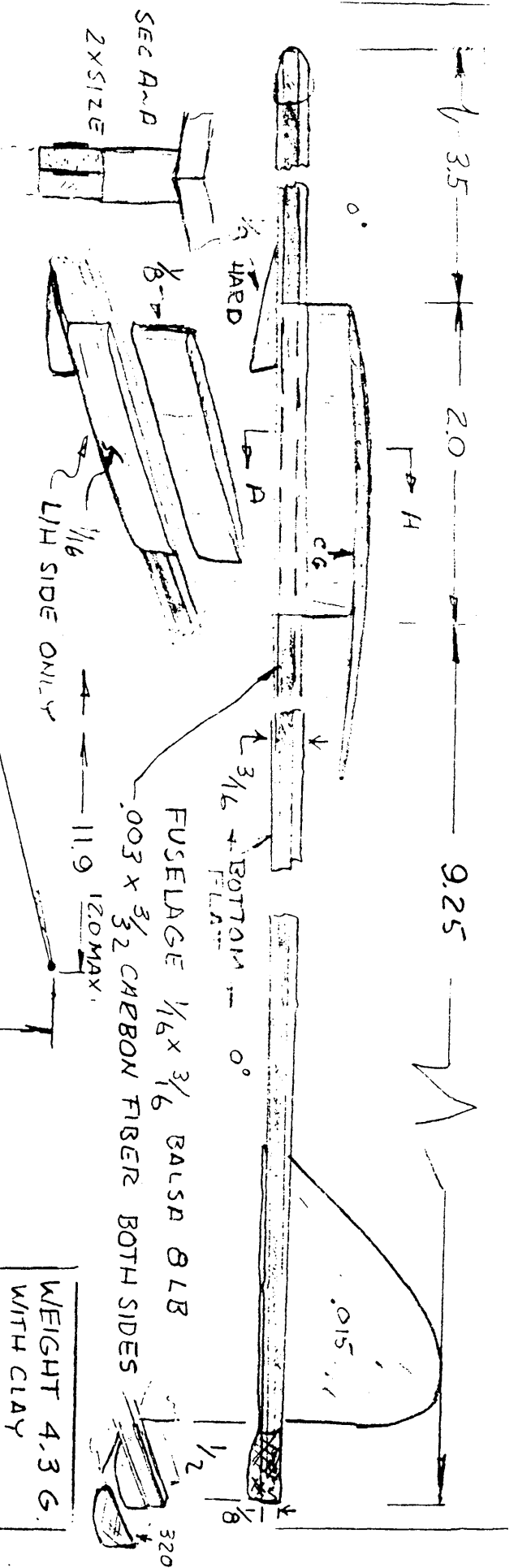
FRONT VIEW

G.M.	
BODY/TAIL	1.34
WING	0.86
PROP	0.935
<u>TOTAL</u>	<u>3.135</u>



OPEN LTD. PENNEVPLANE
CAT IV RECORD 16:55 8-29-93
TOM GREEN

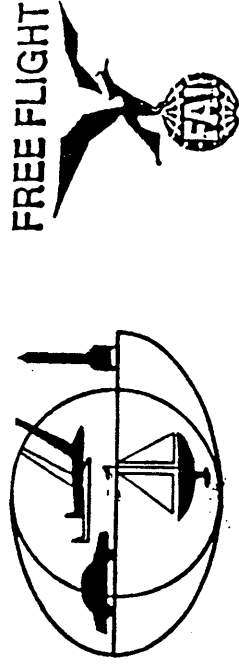




CATEGORY III RECORD 121.0
OR 2:01.0
LITTLE SHOOTER
STD. CLASS
INDOOR CATAPULT GLIDER
DESIGNED BY
BOB BIENENSTEIN AMA 268
4-94 FULL SIZE

THE 17 TH FAI WORLD CHAMPIONSHIPS
FOR INDOOR MODELS FID
SLANIC-PRAHOVA. ROMANIA. 20-25 SEPT. 1994

Final Results - SENIORS



FREE FLIGHT

FRMd

INDIVIDUAL RESULTS FOR ALL COMPETITORS

Place	#	Name	Country	Rnd 1	Rnd 2	Rnd 3	Rnd 4	Rnd 5	Rnd 6	Best Round	2nd Best	Total
1	77	Steve Brown	United States of America	9:43	42:15	43:48	43:50	39:15	38:15	Rnd 4	Rnd 3	87:38
2	75	Cezar BANKS	United States of America	44:23	39:57	14:20	4:18	26:42	35:36	Rnd 1	Rnd 2	84:20
3	76	Robert RANDOLPH	United States of America	35: 8	38: 7	41:23	35: 0	42:17	12: 0	Rnd 5	Rnd 3	83:40
4	59	Andras REE	Hungary	40:17	41:23	38:15	40:45	0:50	1:11	Rnd 2	Rnd 4	82: 8
5	83	Corneliu MANGALEA	Romania	10:27	41:15	39:21	8:43	35:30	37:38	Rnd 2	Rnd 3	80:36
6	58	Dezso ORSOVAI	Hungary	37: 5	28:55	10:56	39:10	36:30	34:32	Rnd 4	Rnd 1	76:15
7	81	Aurel POPA	Romania	10:54	40:21	35:54	14:15	22:12	14:54	Rnd 2	Rnd 3	76:15
8	82	Vasile NICOARA	Romania	32:32	38: 4	35:53	32:20	37:16	35: 7	Rnd 2	Rnd 5	75:20
9	64	Hideyo ENOMOTO	Japan	30:46	35:48	15:40	26:16	37:47	30:55	Rnd 5	Rnd 2	73:35
10	65	Edward CIAPALA	Poland	34:47	34:27	29:53	30:32	37:28	33:41	Rnd 5	Rnd 1	72:15
11	28	Dieter SIEBENMANN	Switzerland	22:53	0: 9	11:52	33:35	34:23	36:27	Rnd 6	Rnd 5	70:50
12	27	Rene BUTTY	Switzerland	36:20	23: 4	30:56	24:54	23:42	32:33	Rnd 1	Rnd 6	68:53
13	66	Jan DIHM	Poland	34:43	15:40	32:19	28:35	31:25	1: 6	Rnd 1	Rnd 3	67: 2
14	61	Peter KUTTLE	Germany	31: 4	1:20	16: 6	30:45	35:10	23:53	Rnd 5	Rnd 1	66:14
15	60	Thomas MERKT	Germany	0: 2	24:27	33:40	32:22	26:23	29: 8	Rnd 3	Rnd 4	66: 2
16	57	Ferenc BAKOS	Hungary	25:25	1:49	24:52	30:31	31:46	30:28	Rnd 5	Rnd 4	62:17
17	56	Pentti MORE	Finland	24:32	28:43	19:39	29:20	30:41	23: 3	Rnd 5	Rnd 4	60: 1
18	71	Victor ORLOV	Russia	26:44	29:35	30: 6	24:13	29:54	24:28	Rnd 3	Rnd 5	60: 0
19	23	Robert CHAMPION	France	30:45	13:35	26:25	24:44	18:55	27:37	Rnd 1	Rnd 6	58:22
20	93	Lu XIUSEN	China	23:13	2:46	28:18	28:45	0: 0	0: 0	Rnd 4	Rnd 3	57: 3
21	73	Alexandr ROMASHOV	Russia	0:17	28:54	0:40	13:52	28: 6	0: 0	Rnd 2	Rnd 5	57: 0
22	67	Sylvester KUJAWA	Poland	28:28	25:39	17:25	27:50	1:17	13: 1	Rnd 1	Rnd 4	56:18
23	62	Lutz SCHRAMM	Germany	0: 0	26:57	13:31	21:35	0:10	28:45	Rnd 6	Rnd 2	55:42
24	24	Jean-Marie CHABOT	France	23:21	16:41	11:25	17:38	0:37	30: 5	Rnd 6	Rnd 1	53:26
25	94	Gao GUOJUN	China	5:27	0: 0	19: 8	22:12	25:26	25:21	Rnd 5	Rnd 6	50:47
26	95	Chen GANG	China	14:28	0: 0	24: 8	0: 0	19:53	26:38	Rnd 6	Rnd 3	50:46
27	87	K. GERSHENTSVETIG	Ukraine	0: 0	0: 0	24:10	18:30	25:25	24:56	Rnd 5	Rnd 6	50:21
28	54	Leif ENGLUND	Finland	0: 9	9:41	18:10	8:54	23:38	26: 5	Rnd 6	Rnd 5	49:43
29	72	Anatoly PETROV	Russia	20:18	28:54	2:15	18:29	1:39	4:18	Rnd 2	Rnd 1	49:12
30	25	Bernard TRACHEZ	France	25: 3	19:20	18:29	21:51	19:37	22: 7	Rnd 1	Rnd 6	47:10

Team Member Report
The 1994 Indoor World Championships
Slanic, Romania

by Steve Brown

The 1994 U.S. Indoor Team's trip to the salt mine in Slanic, Romania was a success and a great experience for each of us. The team placed first, with Brown, Banks and Randolph winning the gold, silver and bronze medals individually. The salt mine is unlike any other flying site in its height (208 feet), the 50 degree temperature, and its lack of illumination. It was uncharted territory to those of us accustomed to the balmy air of Santa Ana. Only Banks, who had flown there in 1982, and Team Manager Bud Romak had first-hand knowledge of the mine.

Each day began and ended with a 22 mile bus ride from our hotel in Ploesti through farm country to Slanic. As we stepped from the mine elevator we would gaze in wonder at an enormous structure that resembled an underground cathedral.

The salt mine has a nasty reputation as "a terribly difficult place to fly." In response to past criticism the organizers maintained strict crowd control during most of the contest, minimizing the ground turbulence and severe drift that caused so much grief in 1982. Flying conditions on the first two days were good, with mild side-to-side drift. It is an unforgiving site, however, and so it was critical that the model be launched so that it would be centered in the relatively narrow (109 feet) width of the floor. Models that did not have a tight circle and stable pattern after launch would quickly hit the opposite wall before the hapless flyer could steer. The walls seemed to be made of Velcro.

Cezar Banks issued a wake-up call in the first round by posting an outstanding time of 44:23. My first round flight hung on a light below the catwalk. Before one of the mine personnel could retrieve it I saw a little puff and pieces of model began to descend. The hot light had melted the motor. It was an expensive way to learn the right launch torque, which turned out to be about 170% of typical Santa Ana torque.

The walls and the darkness began to take a toll on our models as the contest progressed. Banks lost his two best ships by the end of the second day. Randolph struggled with difficult launches to post a 41:23 in the third round and a 42:17 in the fifth, securing the team gold medal for the U.S.

Conditions began to deteriorate on the third day when the crowd control was relaxed. My best model hit the wall in the fifth round while I stood philosophizing with the Romanian team about the necessity of steering it. The model I selected for the sixth refused to climb to the ceiling. Having flown first in the round six, I could only sit and wait to find out if Banks, Randolph or Andras Ree (who was having a great World Championship) would produce another big flight.

Speculation about the behavior of Tan II in the cold, damp air of the mine provoked anxiety before the contest. Reports from the Romanian team had indicated that it might "grapevine." Bernard Hunt had predicted that cruise torque might be reduced by about 25% at 50 degrees, which seems to have been correct. I did not encounter "grapevining" or the unpredictable breakage that I have come to associate with this super rubber.

To go to such a far away place and return with the championship is a dream come true. It is especially meaningful to have had fellow team members like Cezar Banks and Bob Randolph. These are the gentlemen from whom I learned to fly F1d. Both are relentless competitors and either could have won the gold medal.

A special note of appreciation must go to Team Manager Bud Romak. Aside from obtaining special handling for our boxes and arranging all the details of the trip, Bud kept us relaxed and focused with his humor and low-key advice. Dr. Herb Robbins and Dr. Vern Hacker, and Larry Parsons also lent support, especially in tracking the models in the darkness, which was often a two- or three-person job.

The Romanian Modeling Federation is to be congratulated for all that they accomplished with limited resources. While the hotel and transportation were not what we might expect in the States, they did not detract from the experience for me. Instead, they formed part of a picture of a country emerging from a troubled past.

I would also like to thank the A.M.A. for sponsoring our trip to Slanic. It is a great feeling to know that your team has traveled 6,000 miles and returned with first place.

CHOOSING MOTOR SIZE FOR VARIABLE PITCH PENNY PLANE PROPS IN LOW CEILINGS

By Jim Clem

I was asked to write about choosing rubber size for variable pitch P.P. props. At Oklahoma City, Larry Coslick had chosen a large cross-section, short motor with the prop set with high pitch and a low RPM. Although he had optimum trim and used most of the turns, he ran out of turns at 10+ minutes. I used a cross-section motor smaller and slightly longer that would take more turns. The prop was set at a lower pitch and higher RPM. In proper trim, this combo was good for 11+ min.

For 60 years, indoor modelers have strived for lower and lower RPM. This has been our tunnel vision! The Federation ROG has changed this vision! This 3.1 gm, 30 sq.in. model with a 6" plastic prop can do nearly 10 minutes! It does not matter what the RPM is on an indoor model as long as we have enough turns in the rubber motor to get the desired duration!

Enough philosophy. Specifics:

1. P.P. motors can vary in width from .090 - .115 Tan II
2. We want to determine the optimum motor for existing conditions.
3. Larger motors can be used in sites where you can "ceiling scrub."

4. Use partial motor test flights. See INAV 7/93 Bob Randolph's article, & Model Aviation, 9/91.
5. Use "O" rings.
6. Make a 'WAG' as to the best length and thickness. Use enclosed rubber charts to play "what if" with RPM. Use this RPM and the rubber charts to pick the size and length of the motor to give you the number of turns you think it will take to win the contest at this RPM.
7. From your test flights, you can establish an RPM, and this eliminates one variable in your 'WAG' equation.
8. You want to land with as few turns as possible. (6% to 8%)
9. Remember that small cross section, short motors weigh less, so lower the overall wing loading.
10. Set the hi-pitch stop for a very high pitch (46"), and the lo-pitch stop for low pitch (15").
11. The model does not climb above head high (and may actually descend) in the first 1-1/2 to 2-1/2 min. of flight. Adjust switch-over point with tension screw. The model then climbs just to the ceiling and descends to the floor.

12. Think about the greatest secret of all in indoor flying. Any well-built, proven design will be a winner if the prop and rubber combination is optimum. These are steps for trying to achieve that combination.

Examples for a place to start:

I. 4-18-93 Bedford TX Cat I
Record 12:46

Motor: .119 x .040 x 21
Weight: 3.28 gm
Turns: 1533

Turns Remaining: 87 (6%)
Torque: 1.16 in.oz.

Lo-Pitch: 15.41
Hi-Pitch: 46.23"
(Model on ceiling to 11:30)

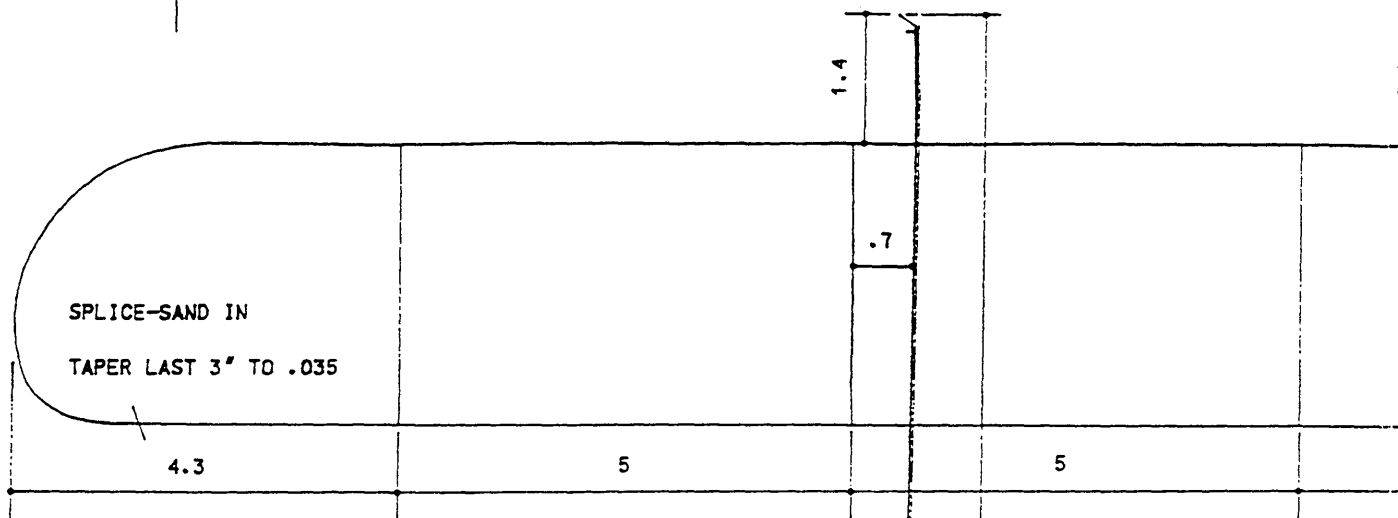
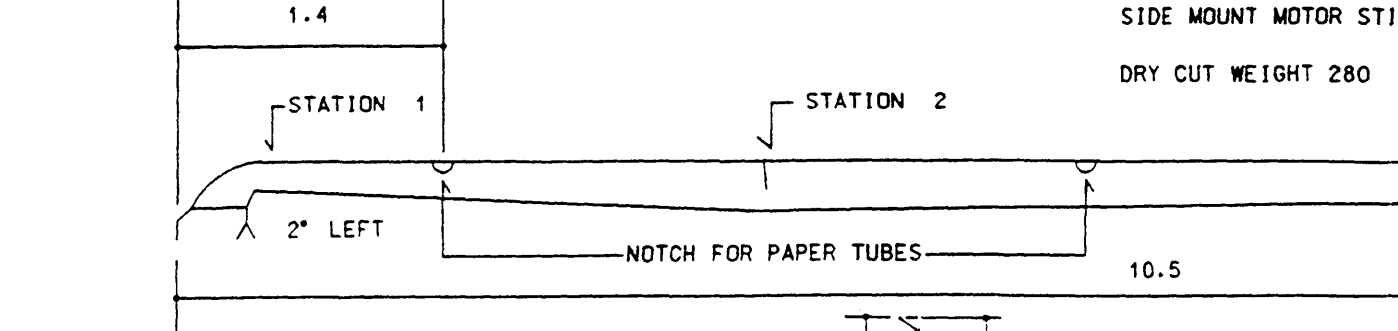
II. 3-6-94 Oklahoma City, OK
Cat II, 1st place P.P. 11:17
(altitude used: 35 ft.)

Motor: .100 x .044 x 15
Weight: 2.14 gm
Turns: 1440
Turns Remaining: 125 (8.7%)
Torque: .8 in.oz.

Lo-Pitch: 15.1"
Hi-Pitch: 46.23"
RPM: 116

Bob Randolph's absolute world record of 55+ minutes proves that V.P. props are the way to go in any ceiling!! (The best I have been able to do is 14 mins, in Cat IV) I was also asked to write about winding technique.

1. Use Armorall, Dow Corning #33 Silicon Grease, Castor oil, or favorite lube.
2. Stretch motor to four times its made-up length, five times at the most. (More will lead to premature crystallization of the rubber.)
3. Put in half the desired turns rapidly.
4. Pause at this point to allow both rubber and the rubber winder to relax. Move the rubber gently in and out to align the knotting.
5. Give the rubber a little slack and continue winding slowly.
6. Keep an eye on the torque meter as it climbs, and as you relax the motor, observe the torque. It should go lower. When you pull the motor back, if the torque follows you right on back, it's time for more slack!
7. Continue in this manner until the desired turns and hook length are reached. It will take about five minutes to wind a motor in this manner.



WING

L/E CENTER SECTION .068 X .028 NO TAPER 7.25 LB

T/E CENTER SECTION .059 X .028 NO TAPER 7.25 LB

L/E TIP .022 X .068 TO .035 5.25 LB

T/E SEE WING OUTLINE FOR TAPER

WING RIBS (3) .018 X .045 4.5 LB

WING DRY WEIGHT 120 - 125 MG

WING COVERED 170 MG

WING POSTS .062 X 1.5 6 LB

STAB .022 X .033 4.5 LB

STAB RIBS .018 X .033 4.5 LB

STAB DRY 20 - 23 MG

STAB TILT $\frac{1}{8}$ "

BOOM 11" FRONT .080 W X .062 D

REAR .055 W X .055 D 68 MG

M/S C GRAIN 10.5" 4.22 LB

STATION 1 .150 W X .120 D

STATION 2 .250 W X .140 D

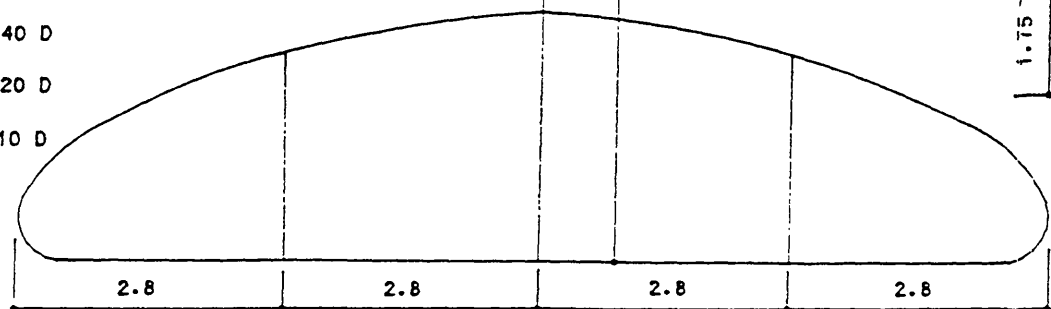
STATION 3 .210 W X .120 D

STATION 4 .165 W X .110 D

WING AND ST

SIDE MOUNT MOTOR

STICK



STATION 4 _____

KEVLAR THREAD AND .028 WEB

.010 WIRE

HALF ACTUAL STAB

V-STAB

2.6

4.3

2.8

2.8

AB RIB

L/E

14/28

007

EZB - AKRON

DESIGNED BY: LARRY COSLICK

DRAWN BY: JAMES MERSEAL

1 ST 1994 USIC 25:47

ACTUAL WING TIP

2.98

4.3

1.7

.7 OFFSET

V-STAB

REAR VIEW

Larry Coslick
4202 Valley Crest Hills Dr.
St. Louis, Mo. 63128
Tel. 314 892 3803
Fax. 314 296 4554

EZB Weight Data

November 1993

WOOD SIZES, DENSITIES, AND WEIGHTS:

Motor Stick	Size: .160D x .080W to .240D x .120W to .160D x .080W x 9.5 in. L. Density: 3.7 lb/ft ³ . Weight: .191 gm. (Note: Outstanding quality balsa!)
Tail Boom	Size: .090D x .075W to .045D x .040W x 11.5 in. L. Density: 4.2 lb/ft ³ . Weight: .051 gm.
Front Wing Spars	Size: .070D x .030W to .035D x .022W x 10 in. L. Density: 6.5 lb/ft ³ . Weight: .027 gm @ 10 in. L before cutting to final length.
Rear Wing Spars	Size: .065D x .027W to .030D x .025W x 10 in. L. Density: 4.0 lb/ft ³ . Weight: L. spar: .020 gm @ 10 in. L. R. spar: .018 gm @ 10 in. L.
Wing Ribs	Size: .030D x .019W. Density: 4.0 lb/ft ³ . Weight: 5 ribs .006 gm.
Stab Spars	Size: .040D x .020W to .020D x .020W to .040D x .020W x 15 in. L. Density: 5.5 lb/ft ³ .
Stab Ribs	Size: .025D x .019W. Density: 4.0 lb/ft ³ .
Fin Frame	Size: .020D x .020W. Density: 5.0 lb/ft ³ .
Wing Posts	Size: .047 Dia. x 1 in. L. Density: 5.5 lb/ft ³ . Weight: 2 posts, .009 gm.
Prop Spar	Size: .028 Dia. to .059D x .052W to .028 Dia. x 12 in. L. Density: Center 3 in. section: 6.0 lb/ft ³ . Outer 4.5 in. tips: 4.0 lb/ft ³ . Weight: .032 gm. (Prop spar + .010 shaft + Teflon washers: .049 gm).
Prop Blades	Size: .005/.006 in. Quarter Grain (Sand to dimension on glass sheet). Grain at 30 deg. to prop spar. Glue blade sections together with .06 lap joints before cooking (220 F, 20 min.) on form. Density: 4.0 lb/ft ³ (As low as possible). Weight: .045 gm finished weight for each blade.

FINISHED COMPONENT WEIGHTS:

Flat wing frame	.112 gm	ULTRA FILM + 3M-77 SPRAY WEIGHTS:	
Covered flat wing frame	.192 gm	Wing Ultra Film + 3M-77: .080 gm	
Covered wing w/ posts & dih.	.205 gm	Stab Ultra Film + 3M-77: .040 gm	
Stab frame	.030 gm	Fin Ultra Film + 3M-77: .006 gm	
Covered stab	.070 gm	TOTAL Ultra Film + 3M-77: .126 gm	
Fin frame	.003 gm	FINISHED WEIGHTS:	
Covered fin	.009 gm	Body + Tail: 0.352 gm	
Total wt. Ultra film + 3M-77	.126 gm	Wing + Posts: 0.205 gm	
Propeller bearing (.010 MW)	.006 gm	Propeller: 0.149 gm	
Motor stick (MS)	.191 gm	TOTAL WT: 0.706 gm	
Motor Stick+Prop Bring (PB)	.208 gm		
MS + PB + Rear Hook	.214 gm		
MS + PB + RH + Tis. Tubes	.217 gm		
Tail Boom	.051 gm		

(Note: Data typical for 3 EZB's that built in 1990. Best time: 22:03 91 USIC Johnson City)

AKRON SETUP PROCEDURE FOR 30 MINUTE EZB

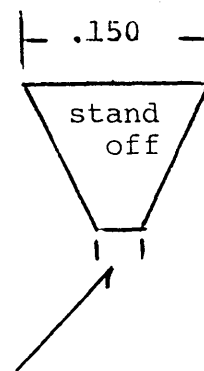
By Larry Coslick

1. Use C grain balsa for the side mount motor stick to get more torsional resistance to twist since the M/S is quite long. Use 4.2 lb. balsa or under and the C grain must show on the wide or top side and A grain will be on the side.
2. The boom is a very important part of this design. Flex it too much and the model will hang on the prop at launch instead of a nice steady climb. You will need to change to a stiffer boom if this happens.
3. Mount the boom 1 degree negative.
4. Use a 3 percent airfoil on the stab instead of the one shown on the plan.
5. The wing is set with 1.5 degree negative incidence.
7. Mount the stab with two stand offs cut from .022, 4.5 lb. balsa. I cut a triangle with each side .150 inches, then cut off one of the tips to match the width of the boom.

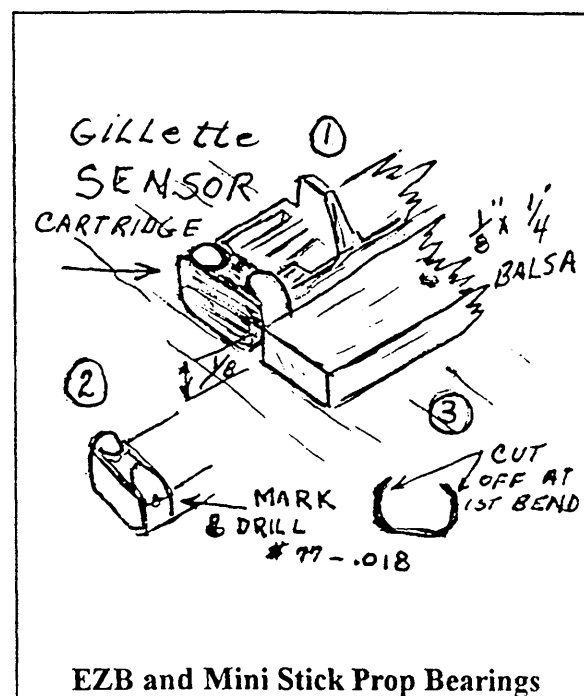
The standoffs can be mounted directly to the face of the spars or they can be cut to fit under the spars.

8. Motor size used on the 30 minute flight was .045 x 16 inches.

wing---200 mg
stab--- 55 mg
boom--- 68 mg
M/S--- 332 mg
prop---180 mg
835 mg



Width of boom



CHILTON'S CORNER
By Stan Chilton

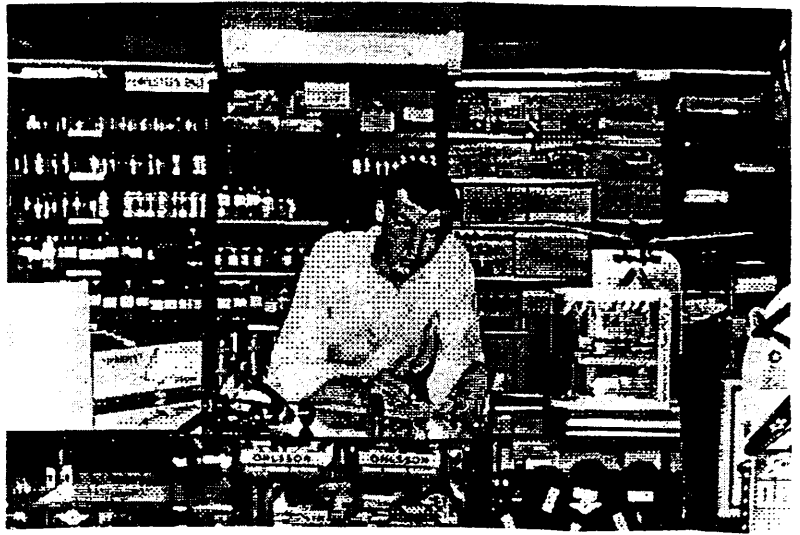


Photo of Stan Chilton at work, taken in model airplane department of Orr's Downtown book store, Wichita, year 1942. Small square sign above Chilton's head and below the ceiling light reads "No glue without empty tube." Larger sign on counter to Chilton's right announces a contest for gas, rubber and glider, 50 cents entry fee for each.

Sharing ideas of model construction and flying helps raise the proficiency of all of us who build and fly model airplanes.

In this column I'll share some of my ideas and construction methods. They may not be the best but they are what I use. I hope some of you may find this column helpful.

The most important points in indoor model construction are to build your model as light as possible, but strong enough to fly. If you never break a model then it is too strong (also too heavy) but if it continually breaks it is too frail (too light). You cannot be a consistent winner if you're spending too much time repairing your model.

Every building tip offered here will present methods of building stronger, lighter, more accurate models to insure that successively built models are built as close as possible to the original but with any intentional modifications.

CEMENT: or GLUE. We'll start off with the old reliable acetate (or butyrate) based cement we've all used for years.

My favorite starting cement base is "Duco" household cement, which comes in 1 3/4 ounce tubes and is generally available at K-Mart stores, as well as most hardware stores. Acetate cements from IMS (Indoor Model Supply) and Micro-X can also be used.

I use six or seven different mixtures utilizing the Duco base in my construction. I prepare 5 one ounce bottles labeled 1 through 4, and 1A. I like the square bottles with a cone shaped teflon plug (gasket) in the lid. This type of lid will always be easy to unscrew.

Bottle #1 is Duco thinned with acetone close to 1 to 1. I use this for rib to spar joints, motor stick posts and wherever I need a good strong joint. All joints are double glued. Coat each surface, wait a few seconds then apply cement to one surface and press parts together for 10 seconds. I'll cover the different kinds of applicators next month including my favorite, a formed teflon glue stick.

Bottle #1A is the same viscosity as #1 but it has 2 to 3 drops of plasticizer tri-octyl phosphate in it. Irv Rodemsky has the only stock of this since it has supposedly been discontinued unless you buy a tanker truck of it. Irv calls it "TOF" and sells it for \$5 per bottle of about 1 ounce. His address and phone number are:

Mr. Irv Rodemsky
1600 Rockspring Place
Walnut Creek, CA 94596
(510) 938-9225

The "TOF" is a dry plasticizer, compared to castor oil and TCP (tricresyl phosphate) which are sticky, and never dry. One can have a usable cement mixture even if up to 6 drops or more of TOF per ounce are added.

Except for occasional joints where I want a flexible non shrink cement the main place I use 1A is to bridge across the cut butt jointed dihedral joints of a wing before it is covered. Applied with a fine 3-0 brush, just a little is applied to hold the joint together when dihedral is put into the newly covered wing.

Bottle #2 is just a little bit thinner than #1. It is used in place of #1 when I try to save weight or just prefer a thinner cement then the thicker #1.

Bottle #3 is thinner than #2 and is about 2 parts acetone to 1 part Duco, with 3 drops of TOF per ounce. Bottle #3 is part of the secret to straight sheet ^{ROLLED} formed tail booms. If a cement such as #1 is used to cement the tail boom (or motor stick) seam, the result is a banana shaped tail boom. Four drops of TOF per ounce for #3 is tolerable.

Bottle #4 is a water thin mixture of acetone and Duco. The ratio is about 6 or 7 parts acetone to 1 part Duco. Bottle #4 is used only as a primer for tail boom and motor stick seams. It is applied with an appropriate size small brush (a #3 to #5 size) sparingly, but evenly to both edges of the raw seam.

The seams are then cemented with #3 cement which will dry in less than 10 seconds. The prime coat gives the #3 cement a good anchor in the balsa, which without the prime coat, #3

would be too thin to provide a good joint. As used, however, it gives a very strong seam with light weight.

The five cements described so far are all thinned with acetone and will tack dry in 10 seconds. Methyl Ethyl Ketone (MEK) may be used if you prefer a slower drying cement. I use regular lacquer thinner to thin the Duco for a slower drying cement. For a really slow dry mixture thin the Duco with a blush retarding thinner.

If any of the cements blush, it can be removed with a brush barely wet with blush retarding thinner, brushed very lightly over the blushed area.

Future columns will cover other adhesives and applicators used in indoor model construction. Feel free to call or write me if you have any questions.

Stan Chilton

300 South Topeka

Wichita, Kansas 67202

(316) 262-3538 day or (316) 686-9634 evening

The Big and Little Shooter
Category III Record Holding
Std & Unlimited Class Indoor
Catapult Gliders

By Bob Bienenstein

I have been flying variations of this design since 1985, mostly in low ceilings. Highest ceiling flown = 79 ft. The first designs were super-sensitive to adjust before going to the present design adding the pylon (ala Stan Buddenbohn). I also use his four piece wood layout for the wing on the unlimited glider. Both gliders are of the flex flap design pioneered by Mike and Stan Stoy.

If you are not familiar with the pylon trimming method, start by taping the pylon to the wing, warp flaps down about 1/16. Then, tape wing to fuselage at location shown. Add weight for C/G loc. shown on plan. Adjust incidence angle by sanding bottom of pylon. When you can firmly h/launch the glider in a level launch and get a smooth recovery, glue the pylon to the fuselage. Final tweaking for right launch and left glide somewhat like a conventional H/L.

INDOOR RUBBER MOTORS

By Dick Hardcastle

I'm sure there are similar "max turns" equations and charts from other fliers. How does my chart and formulas compare to yours? How do you determine "max winds" for a given loop of Tan II? I think a comparison of approaches from different parts of the country would be of interest to all fliers.

Here is a simple explanation of my method of determining maximum turns for a given Tan II motor. Take the formula you use to determine max turns in Pirelli rubber and multiply it by a factor of 125% to 138%. Chilton says he can get 140%. I get closer to 133%. Way back in 1968, I saw a formula to determine "N", the maximum turns for Pirelli rubber, in Indoor News & Views. I think Charlie Sotich developed the formula back in 1962. At least I'm going to credit him.

Before I get into Sotich's formulas, here are some things I've observed in handling Tan II. More records have been set using Tan II in a shorter time than were ever set using Pirelli. There's no comparison. Tan II 8-93 is

the best that I've tried. Tan II is lighter and softer than Pirelli. Most use shorter loops. Tan II can't take 93 degree heat. Neither can I. I noticed this at the NATS in Lubbock. The loop would explode in the middle, way short of max torque and turns. Tan II takes longer to recover than Pirelli. It also chafes near the knot, causing nicks even after one wind.

Using Sotich's formulas, determine (N) as if the rubber was Pirelli. Then multiply this number by a factor of 1.25 to 1.35. Chilton feels he can get at least 135% of N in Tan II. I can't wind as well as he and I get 125% to 133%.

Sotich Formula

$$W = .046 \times T \times L:$$

W = Weight (oz)

T = Thickness

L = Length

$$N = 6.35 \times L \times \text{Sq root } L/\text{wt}$$

The density of Pirelli is greater than the density of Tan II. Therefore, if a loop of Pirelli and a loop of Tan II are identical in weight and length, the cross-section of the Tan II will be greater.

The size listed in the following chart assumes the second dimension to be .040.

When Sotich worked out his formula, that was the most common thickness of Pirelli stock. Tan II has a thickness on average closer to .044. So, take this into consideration.

I'm looking at one of my Tan II loops. It is 16.2" in length and has a cross-section of .044 x .046, which when multiplied out is .002024 sq ins. It weighs .037 oz. Using the formula $W = .046 \times T \times L$, I get a (T)thickness of .050. Now, if you take the cross-section area and divide by .040, you get close to .050 as the second dimension. So, instead of using .044 or .046, I would use the size .050 in the chart and get 172 turns per inch times 16.2 inches = 2786. This, of course, is just a guide and it relates only to Tan II 8-93. But I've got to start somewhere.

Using the formula $W = .046 \times T \times L$ is the best way to be consistent in determining rubber size. It's quick and easy. First measure and weigh the loop. Then divide the weight by .046 and by the length and you have a size based on weight rather than measurement. Then go to the chart.

What the chart really shows is the result of the two formulas. You can get the

same result quickly by using a simple hand calculator. First you take the length of the loop and divide it by the weight and press square root. Then, multiply by the length, the constant 6.35, and percent increase (125%-140%)

INDOOR RUBBER MOTORS
Approximate maximum turns (N)

Handwritten note: H-Hwally wk 1

SIZE .040 x size	PIRELLI WTAN	PIRELLI TURNS/N (N)	TAN II TURNS/N 135A(N) FAI-B/93	TAN II TURNS/N 133A(N) FAI-B/93	TAN II TURNS/N 130A(N) FAI-B/93	TAN II TURNS/N 125A(N) FAI-B/93
0.0100	0.000460	296	400	394	385	370
0.0110	0.000506	282	381	375	367	353
0.0120	0.000552	270	365	359	351	338
0.0130	0.000598	260	351	345	338	325
0.0140	0.000644	250	339	333	325	313
0.0150	0.000690	242	326	322	314	302
0.0160	0.000736	234	316	311	304	293
0.0170	0.000782	227	307	302	295	284
0.0180	0.000828	221	298	294	287	276
0.0190	0.000874	215	290	286	279	268
0.0200	0.000920	209	283	278	272	262
0.0210	0.000966	204	276	272	266	255
0.0220	0.001012	200	269	265	259	250
0.0230	0.001058	195	264	260	254	244
0.0240	0.001104	191	258	254	248	239
0.0250	0.001150	187	253	249	243	234
0.0260	0.001196	184	248	244	239	230
0.0270	0.001242	180	243	240	234	225
0.0280	0.001288	177	239	235	230	221
0.0290	0.001334	174	235	231	226	217
0.0300	0.001380	171	231	227	222	214
0.0310	0.001426	168	227	224	219	210
0.0320	0.001472	166	223	220	215	207
0.0330	0.001518	163	220	217	212	204
0.0340	0.001564	161	217	214	209	201
0.0350	0.001610	158	214	210	206	198
0.0360	0.001656	156	211	208	203	195
0.0370	0.001702	154	208	205	200	192
0.0380	0.001748	152	205	202	197	190
0.0390	0.001794	150	202	199	195	187
0.0400	0.001840	148	200	197	192	185
0.0410	0.001886	146	197	194	190	183
0.0420	0.001932	144	195	192	188	181
0.0430	0.001978	143	193	190	186	178
0.0440	0.002024	141	191	188	183	176
0.0450	0.002070	140	188	186	181	174
0.0460	0.002116	138	186	184	179	173
0.0470	0.002162	137	184	182	178	171
0.0480	0.002208	135	182	180	176	169
0.0490	0.002254	134	181	178	174	167
0.0500	0.002300	132	179	176	172	166
0.0510	0.002346	131	177	174	170	164
0.0520	0.002392	130	175	173	169	162

INDOOR RUBBER MOTORS
Approximate maximum turns (N)

Ht-wally wk1

INDOOR RUBBER MOTORS
Approximate maximum turns (N)

Ht-wally wk1

SIZE .040 x size	PIRELLI WTAN	PIRELLI TURNSAN (N)	TAN II TURNSAN 135Axx(N) FAI-B/93	TAN II TURNSAN 133Axx(N) FAI-B/93	TAN II TURNSAN 130Axx(N) FAI-B/93	TAN II TURNSAN 125Axx(N) FAI-B/93
0.0960	0.004416	96	129	127	124	119
0.0970	0.004462	95	128	126	124	119
0.0980	0.004508	95	128	126	123	118
0.0990	0.004554	94	127	125	122	118
0.1000	0.004600	94	126	125	122	117
0.1010	0.004646	93	126	124	121	116
0.1020	0.004692	93	125	123	121	116
0.1030	0.004738	92	125	123	120	115
0.1040	0.004784	92	124	122	119	115
0.1050	0.004830	91	123	122	119	114
0.1060	0.004876	91	123	121	118	114
0.1070	0.004922	91	122	120	118	113
0.1080	0.004968	90	122	120	117	113
0.1090	0.005014	90	121	119	117	112
0.1100	0.005060	89	121	119	116	112
0.1110	0.005106	89	120	118	116	111
0.1120	0.005152	88	119	118	115	111
0.1130	0.005198	88	119	117	114	110
0.1140	0.005244	88	118	117	114	110
0.1150	0.005290	87	118	116	113	109
0.1160	0.005336	87	117	116	113	109
0.1170	0.005382	87	117	115	113	108
0.1180	0.005428	86	116	115	112	108
0.1190	0.005474	86	116	114	112	107
0.1200	0.005520	85	115	114	111	107
0.1210	0.005566	85	115	113	111	106
0.1220	0.005612	85	114	113	110	106
0.1230	0.005658	84	114	112	110	106
0.1240	0.005704	84	114	112	109	105
0.1250	0.005750	84	113	111	109	105
0.1260	0.005796	83	113	111	108	104
0.1270	0.005842	83	112	110	108	104
0.1280	0.005888	83	112	110	108	103
0.1290	0.005934	82	111	110	107	103
0.1300	0.005980	82	111	109	107	103
0.1310	0.006026	82	110	109	106	102
0.1320	0.006072	81	110	108	106	102
0.1330	0.006118	81	110	108	106	101
0.1340	0.006164	81	109	108	106	101
0.1350	0.006210	81	109	107	105	101
0.1360	0.006256	80	108	107	104	100
0.1370	0.006302	80	108	106	104	100
0.1380	0.006348	80	108	106	104	100

SIZE .040 x size	PIRELLI WTAN	PIRELLI TURNSAN (N)	TAN II TURNSAN 135Axx(N) FAI-B/93	TAN II TURNSAN 133Axx(N) FAI-B/93	TAN II TURNSAN 130Axx(N) FAI-B/93	TAN II TURNSAN 125Axx(N) FAI-B/93
0.0530	0.002438	129	174	171	167	161
0.0540	0.002484	127	172	169	166	159
0.0550	0.002530	126	170	168	164	158
0.0560	0.002576	125	169	166	163	156
0.0570	0.002622	124	167	165	161	155
0.0580	0.002668	123	166	164	160	154
0.0590	0.002714	122	165	162	158	152
0.0600	0.002760	121	163	161	157	151
0.0610	0.002806	120	162	159	156	150
0.0620	0.002852	119	161	158	155	149
0.0630	0.002898	118	159	157	153	147
0.0640	0.002944	117	158	156	152	146
0.0650	0.002990	116	157	154	151	145
0.0660	0.003036	115	156	153	150	144
0.0670	0.003082	114	154	152	149	143
0.0680	0.003128	114	153	151	148	142
0.0690	0.003174	113	152	150	147	141
0.0700	0.003220	112	151	149	145	140
0.0710	0.003266	111	150	148	144	139
0.0720	0.003312	110	149	147	143	138
0.0730	0.003358	110	148	146	142	137
0.0740	0.003404	109	147	145	141	136
0.0750	0.003450	108	146	144	141	135
0.0760	0.003496	107	145	143	140	134
0.0770	0.003542	107	144	142	139	133
0.0780	0.003588	106	143	141	138	133
0.0790	0.003634	105	142	140	137	132
0.0800	0.003680	105	141	139	136	131
0.0810	0.003726	104	140	138	135	130
0.0820	0.003772	103	140	138	134	129
0.0830	0.003818	103	139	137	134	128
0.0840	0.003864	102	138	136	133	128
0.0850	0.003910	102	137	135	132	127
0.0860	0.003956	101	136	134	131	126
0.0870	0.004002	100	136	134	130	125
0.0880	0.004048	100	135	133	130	125
0.0890	0.004094	99	134	132	129	124
0.0900	0.004140	99	133	131	128	123
0.0910	0.004186	98	132	131	128	123
0.0920	0.004232	98	132	130	127	122
0.0930	0.004278	97	131	129	126	121
0.0940	0.004324	97	130	128	126	121
0.0950	0.004370	96	130	128	125	120

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Roy White (INAV) 1025 Cedar St, Catawissa, Mo 63015

DE HAVILLAND PUSS MOTH—Hearts Content

THE first westward solo flight was accomplished by Captain J. A. Mollison, a British flyer, in his De Havilland Puss Moth, "Hearts Content." Captain Mollison took off from Portmarnock Strand, Ireland, and landed at Pennfield Ridge, New Brunswick, Canada, August 19, completing the flight in 30 hours 12 minutes. This marks the shortest time from land to land on a westward crossing. Leaving Canada, Mollison set his

wheels down on Roosevelt field, Long Island, New York, August 21.

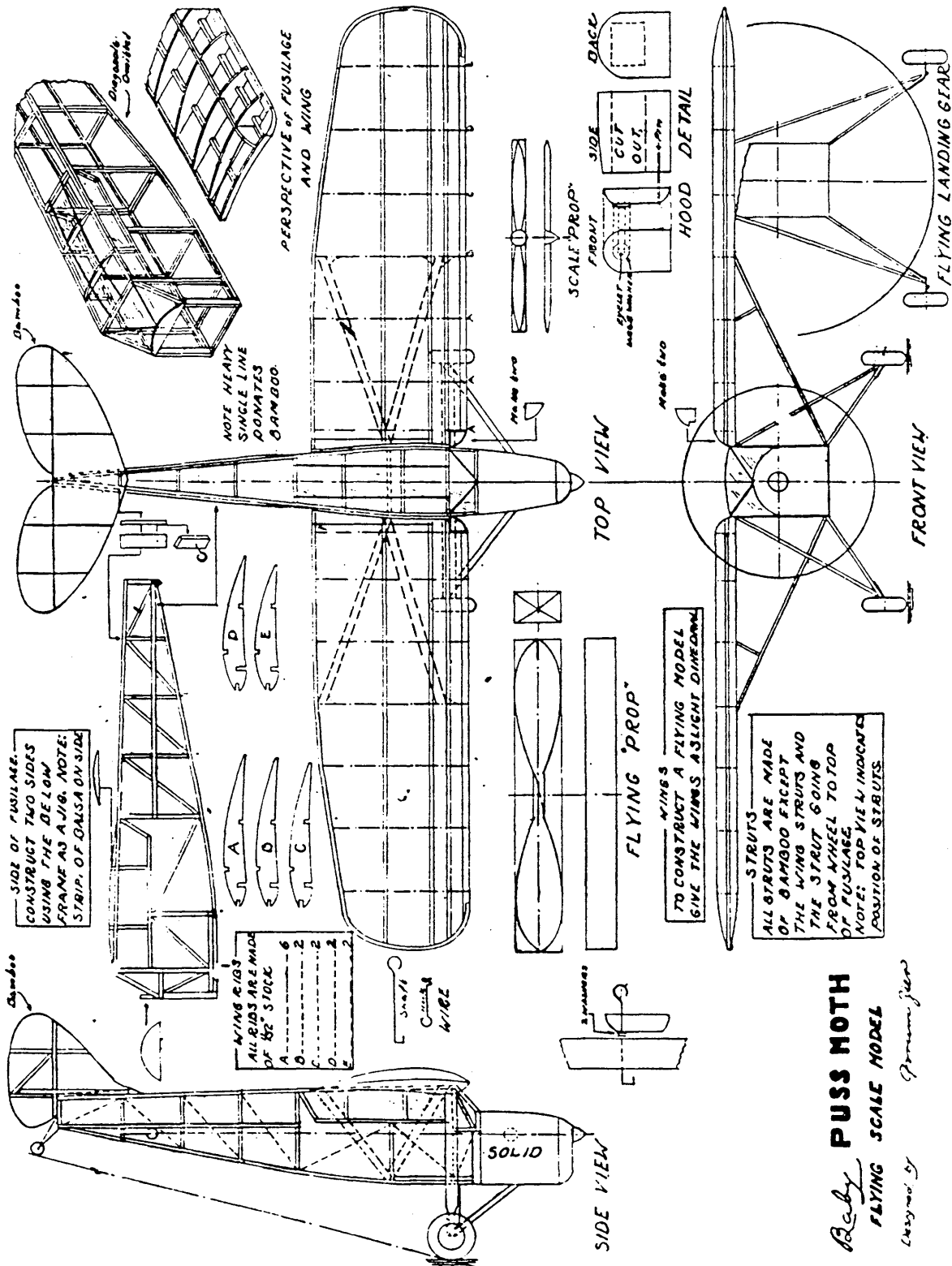
The "Hearts Content" is powered with a Gypsy 3 inverted 4-cylinder air-cooled engine of 120 horsepower. The body of the Puss Moth is constructed of steel tubing, covered with fabric, the tail assembly consisting of a balanced rudder and an adjustable stabilizer. The tail wheel is of steerable type, and is controlled from the cabin.

G-ABXY

HELPFUL HINTS

LETTERS TO BE CUT OUT AND PLACED ON UPPER PART OF WING IN THE FOLLOWING MANNER: A-B TO BE PLACED ON LEFT WING; D-Y TO BE PLACED ON RIGHT WING. IT IS ADVISED.

ABLE TO DUPLICATE THE LETTERS ON TISSUE FOR A FLYING MODEL TO ATTAIN A PERFECT BALANCE HOOD SHOULD BE FOLLOWED OUT UNTIL THE PLANE IS IN A STATE OF EQUILIBRIUM



Deaby PUSS MOTH

FLYING SCALE MODEL

Designed by *Norman J. Deaby*

ATTENTION EZB FLYERS!

JULY, 1995 - KIBBIE DOME, MOSCOW, IDAHO, U.S.A.

The groundwork is being laid for the first Wally Miller International EZB contest. This will be flown as a separate event in conjunction with the 1995 AMA Nationals and Andrew Taglifico's Kibbie Dome annual contest. U.S.A. EZB rules will apply. We are considering proxy flying for those overseas flyers who would not be able to attend personally.

A fee of \$35.00 (U.S.) will be required to cover the cost of the dome rental and awards. Pre-registration will be required eight weeks in advance. Do not send any money now.

In order to have a successful contest, we need to know how many of you would be interested in such an event. Please contact one of the following with your response:

Andrew Taglifico
2860 Pack Saddle Drive
Portland, Oregon 97219
503-452-0546

Wally Miller
10039 SW Quail Post Road
Coeur D'Alene, Idaho 83814
208-772-4814

Larry Coslick
4202 Valley Crest Hills Drive
St. Louis, MO 63128
314-892-3803 (After 10:00 pm)
FAX: 314-296-4554

IN MEMORY OF MANNY BADOFF

JUST A FEW THOUGHTS FROM
THE COMMITTEE ABOUT MANNY
BADOFF, WHO RECENTLY PASSED
AWAY. HIS TABLE WAS NEXT
TO OURS AT THE 1994 USIC.
ALTHOUGH HE WAS TOO TIRED
TO FLY HIS PLANES, HE ENJOYED
THOROUGHLY BEING A PART OF IT.
ROY AND LARRY FLEW HIS EZB IN
PROXY. HIS BEST TIME WAS 20.02
MINUTES. HE WAS SO DELIGHTED!
IT WAS A JOY TO WATCH HIM. WE
WILL ALL MISS HIM.

FAX # 314-286-4554
Fax info to Larry Coslick

New Address

Gary Underwood
24 Kennebec Ct.
Bordentown, NJ. 08505
Tel. 609 324 9004
Fax. 609 324 9005

David Arostene
2405 Candlewood Dr.
Alexandria, Va. 22308
Tel. 703 360 3352

DOME HOURS 8:00 10:00 12:00 1:00 2:30 5:00 5:15 10:00

Wed 5/31 8am to 11pm
LIGHT PRACTICE UNDER 1.5 GRAM
HEAVY PRACTICE
P-24 MASS LAUNCH
FID, HAND LAUNCHED STICK 35 CM, CABIN ROG

7:30 11:30 1:00 2:00 5:30 6:00 11:00

Thurs 6/1 7:am to 12pm
H.L. GLIDER STD. CAT. GLIDER UNLIMITED CAT. GLD UNLIMITED RUB SPD.
INT. STK. HELICOPTER ORNITHOPTER LAUNCH *
INT. STICK HELICOPTER ORNITHOPTER
FID, H.L. STICK PRO 20, AUTOGYRO

7:30 11:30 1:00 1:45 5:15 6:30

Fri 6/2 7am to 6 pm
FAC. SCALE BOSTONION PISTACHO F.A.C. HIGH WING
PENNYPLANE MANHATTAN *
PENNYPLANE MANHATTAN
BANQUET

1995 U.S.I.C.

BOSTONIAN MASS LAUNCH 11:30

7:30 11:30 1:30 2:15 5:15

Sat 6/3 7am to 6pm
FAC. GOLDEN AGE COCONUT SCALE NO-CAL SCALE PEANUT SCALE F.R.O.G.

LTD. PP

LTD. PP

*

COCONUT SCALE MASS LAUNCH 11:30

7:30 11:30 12:00 2:00 2:45 5:45

Sun 6/4 7am to 6:30 pm
MINI- STICK KIT PLAN AMA SCALE

EZB

*

EZB

MINISTICK MASS LAUNCH 11:45

*Retrieval starts when last airplane is down.

USIC Grand Champion

HLG, STD CAT GLIDER
H L STK, FID, EZB
INT STK, ROG CABIN
P NUT SCALE, AMA SCALE
PP, LPP, BOSTONIAN MANHATTAN

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ISSUE #83

February, 1995



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UPDATE OF THE 1995 USIC PLANS

In just a few short months, the 1995 USIC will be looking at us squarely in the face. We are ready for the big event to begin and it has been a great learning experience for us. We have all enjoyed working together. The combined effort of the contest management team made putting on this contest a real pleasure!

Roy White and Mary Jane Reilly will be making a trip to Johnson City in February to make arrangements for television and newspaper coverage of the contest. They will finalize contracts with vendors and make the final arrangements for the banquet.

The real heroes of the 1995 USIC are those that generously supported our cause. Without the financial support, it would not have been possible to bring you a four-day contest, with a full day for practice. This support also helped us to upgrade the quality of the awards.

After the last flight is down and all of the awards have been presented, the door will close on the 1995 USIC. Then it will be time for someone to volunteer to run the 1996 USIC. To facilitate the next director, we have streamlined the work of managing the USIC. We have compiled a list that will guide the director through the process of managing a contest of this magnitude. We have duplicate copies of all correspondence, contracts, score cards and score sheets. All of this will be turned over to the new director for the 1996 USIC. Please contact INAV if you are interested.

Roy White (INAV)
1025 Cedar Street
Catawissa, MO 63015
314-271-2243

FAX# 314-296-4554 (Larry Coslick)

1995 UNITED STATES INDOOR CHAMPIONSHIP PROGRAM

Every flyer who enters the contest will receive a Program. The contents will include:

- General information about the Johnson City site.
- Site records (so that you will know what times you have to beat!)
- Nostalgia plans
- Most of the winning designs from the 1994 USIC

This valuable program will be available to anyone who cannot attend the contest for \$7.00. Shipping and handling for U.S. and Canada - \$2.00. Overseas - \$4.00. (Please allow 6-8 weeks for delivery.)



RUBBER MEASUREMENT BY WEIGHT

by Wally Miller

Most indoor modelers spend a great deal of time and effort selecting the proper wood, weighing every piece, keeping records and building as light as they dare. Then, at the flying site, quite often an eyeball evaluation of the power requirement is made and from a container that has the desired size marked on it, you remove a length of rubber. Well, I can almost guarantee that, if certified mechanically, the size will be in error.

A while back, I was stripping rubber for an upcoming contest. (I use both Harlan & Oppergard strippers.) After a pass on a 20' length, a check of the profile revealed that I had once again created a trapezoid, not extreme, but enough to raise my pressure a few points. Now I know this rubber is perfectly usable, but what size is it? After thinking about it considerably, I produced a formula for finding the average size of any profile configuration. With a slight deviation, it will enable the calculation of the weight of any known size to length.

The inconsistency of the rubber we use dictates that a "Base" must be established from a sample of the proposed length to be stripped. This is the key to our formula. Start by inspecting approx. 22' of rubber with a 10X scope. If all looks good, cut it off 21' long, then remove some exact amount from each end. 6" seems right. Their combined lengths are the "L" of our formula. Weigh each piece and total it for "WT". Next, measure for "W" This is best done with a dial vernier caliper, set it to .253 (for 1/4 Stk) and let the jaws hang over the edge of your bench. Now, check all four ends of the

sample, adjust the setting until the rubber just hangs on its own. With the above information, just follow the instructions on the left side of the chart and you will soon have a "Base" to suit your needs.

Now - Sizing rubber.

✂ From a strip, cut off a length as if to make up a motor

✂ Measure and record its length

✓ Weigh it to a 4-place decimal

✂ Follow the "Unknown Size" instructions on the right side of the chart.

✂ Cut the remainder of the 20' strip into usable lengths. Weigh, calculate and store it in marked containers.

While researching this project, 2 dozen 20' lengths were stripped. Each usable length within a strip was recorded for weight and size variation. From six to seven motors per strip, the average variation in weight was .0015 and .002 for size. Considering that both stock and cut size were simultaneously averaged, the results seem quite remarkable. Other batches may be different. Only time will tell.

In conjunction, and of equal importance, it was found that by reversing our formula, we are able to calculate the weight of any given size to length. This has been produced in a chart form as a "Visual Scale" for field use, and should prove to be a valuable tool for maximizing various flying conditions.

One final note: In Lew Gitlow's new book, on page 73, is a chart for the optimum motor weight as a percentage of the model weight. Combine the two charts and perhaps your watch will tick a little longer.

For a free chart, send a sase to

Wally Miller

2860 Packsaddle Dr.

Coeur d'Alene, ID 83814

RUBBER SIZE

RUBBER SIZE

	.025	.028	.030	.032	.034	.036	.038	.040	.042	.044	.046	.048	.050	.052	.054	.056	.058	.060	.062	.064	.066	.068	.070	.072	.074	.076	.078	.080
6.0	.007	.008	.009	.009	.010	.010	.011	.012																				
6.5	.008	.008	.009	.010	.011	.011	.012	.012																				
7.0	.008	.010	.010	.011	.011	.012	.013	.013	.014																			
7.5	.009	.010	.011	.011	.012	.013	.014	.014	.015																			
8.0	.010	.011	.011	.012	.013	.014	.015	.015	.016	.017																		
8.5	.010	.011	.012	.013	.014	.015	.016	.016	.017	.018																		
9.0	.011	.012	.013	.014	.015	.016	.016	.017	.018	.019	.020																	
9.5	.011	.013	.014	.014	.016	.016	.017	.018	.019	.020	.021																	
10.0	.012	.013	.014	.015	.016	.017	.018	.019	.020	.021	.022	.023																
10.5	.013	.014	.015	.016	.017	.018	.019	.020	.021	.022	.023	.024	.025															
11.0	.013	.015	.016	.017	.018	.019	.020	.021	.022	.023	.024	.025	.026	.028														
11.5	.014	.015	.017	.018	.019	.020	.021	.022	.023	.024	.025	.026	.028															
12.0	.014	.016	.017	.018	.020	.021	.022	.023	.024	.025	.026	.028	.029	.030	.031	.032	.033	.035										
12.5	.015	.017	.018	.019	.020	.022	.023	.024	.025	.026	.028	.029	.030	.031	.032	.034	.035	.036	.037	.038	.040	.041						
13.0	.016	.017	.019	.020	.021	.022	.024	.025	.026	.027	.029	.030	.031	.032	.034	.035	.036	.037	.039	.040	.041	.042	.044					
13.5		.018	.019	.021	.022	.023	.025	.026	.027	.029	.030	.031	.032	.034	.035	.036	.038	.039	.040	.041	.043	.044	.045	.047	.048			
14.0			.020	.022	.023	.024	.026	.027	.028	.030	.031	.032	.034	.035	.036	.038	.039	.040	.042	.043	.044	.046	.047	.048	.050	.051	.052	
14.5					.023	.025	.026	.028	.029	.031	.032	.033	.035	.036	.038	.039	.040	.042	.043	.045	.046	.047	.049	.050	.052	.053	.054	
15.0						.026	.027	.029	.030	.032	.033	.035	.036	.037	.039	.040	.042	.043	.045	.046	.048	.049	.051	.052	.054	.055	.056	
15.5						.028	.030	.031	.033	.034	.036	.037	.039	.040	.042	.043	.045	.046	.048	.049	.051	.052	.054	.055	.057	.058	.060	
16.0							.031	.032	.034	.035	.037	.038	.040	.041	.043	.045	.046	.048	.049	.051	.052	.054	.055	.057	.058	.060	.061	
16.5								.033	.035	.036	.038	.040	.041	.043	.044	.046	.048	.049	.051	.052	.054	.055	.057	.059	.060	.062	.063	
17.0										.036	.038	.039	.041	.042	.044	.046	.047	.049	.051	.052	.054	.055	.057	.059	.060	.062	.064	
17.5										.039	.040	.042	.044	.045	.047	.049	.050	.052	.054	.055	.057	.059	.060	.062	.064	.066	.067	
18.0											.041	.043	.045	.047	.048	.050	.052	.054	.055	.057	.059	.060	.062	.064	.066	.067	.069	

"VISUAL SCALE"

WEIGHT ROUNDED TO NEAREST .001

TO ADD TO THIS CHART

(BLS) = WT

EXAMPLE, 14.0 LOOP/.048 SIZE

.0240 X 28.0 X .048 = .0322

(B) (L) (S) = (WT)

TO FIND "BASE" OF ANY SAMPLE
WEIGHT & SIZE RUBBER

WT = WEIGHT
L = LENGTH
W = WIDTH
B = BASE

WALLY MILLER 1994

EXAMPLE THIS CHART

WT = .0729 (12.0 X .253 TAN II, 8/93 BATCH)

L = 12.0

W = .253

WT = .0729
LXM = 3.0360 = .0240 BASE

TO FIND UNKNOWN SIZE
(Have weight & length)

(WT/L/B) = S

EXAMPLE WT = .0310 LOOP = 14.0

.0310/28.0/.0240 = .0461

(WT) (L) (R) = (S)

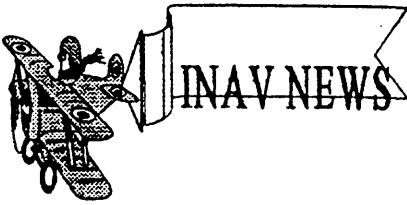


SOME FOOD FOR THOUGHT ABOUT RUBBER

BY MOE WHITTEMORE

Mostly scientific, some subjective, that might be of interest to modelers.

- Losses due to friction among strands of a wound motor are negligible, as there is virtual equivalence between stretched and wound motors. Lube, and forget friction!
 - Approximately 1/3 of the energy you wind into the motor is lost to hysteresis during unwinding.
 - Hysteresis is due to:
 - ✱ latent heat of crystallization.
 - + breaking of weak crosslinks.
 - ✓ possible slippage among molecular chains.
 - Reducing hysteresis losses requires changes in manufacturing – including adjustments in the quantity of sulphur used in vulcanization. (Costs money!)
 - Vulcanization reduces the tendency of rubber to crystallize.
 - Vulcanization reduces the tendency of rubber to crystallize.
 - An 8% sulphur/natural rubber vulcanized showed little, if any crystallization (2.6% is considered a normal production value). (How come we don't get any of this stuff?)
 - The 'knee of the curve' marks the onset of crystallization; the extension ratio at this point is 5.72 in vulcanized rubber. (Since a ratio of 8.0 is a good rule of thumb marker for good contest rubber, we all crystallize.
 - There is a time lag, which can be from seconds to hours between the application of stress and the appearance of a crystallization x-ray diffraction pattern. That's why wound motors occasionally blow up after launch!
 - For extension ratios of less than three, the internal energy losses are negligible. (But, who winds this wimpy?)
 - Processing with carbon black increases tensile strength and abrasion resistance. (Sounds like FAI black!)
 - Softening agents (mineral oils, paraffin, etc.) Cause swelling of rubber. (Beware of castor oil!)
- Now you know what I know!
- From SAM86 Newsletter



Catapult Glider

By Dick Hardcastle

It would be much easier for me to write about something I know, like Pennyplane, EZB or Intermediate Stick than to explain my approach to Catapult Glider. Although I have had little experience in Catapult Glider, I did throw HLG in Category I sites years ago. As I recall, 32 feet up was max for me. When I learned it was legal to shoot a glider up with a rubber band, I was intrigued. I built a low/medium ceiling glider. I selected Chuck Markos' "Sub Sweep" from NFFS Digest, May 1988. Why I built this "V" wing glider, I'll never know. Even the designer says it won't fly as well as his polyhedral "High Roller." I built the glider for a 40' to 50' ceiling. It weighs 3.9 grams. I had planned to fly it on vacation at one of the MacDill AFB contests. Never did.

HLG and Catapult were well underway at the NATS site when I arrived, so I had ample time to see how others were flying. Gordon Wisniewski and Bud Tenny showed me their gliders and told me their planes would climb turning right and then glide left. Their gliders were heavier than mine. There was no way mine could get to the 79-foot catwalk, but determined to learn something about Catapult, I asked a lot of questions. Tenny cautioned me to proceed slowly and try to get the feel of the transition before launching to maximum height. Good advice!

The first thing to do with a glider is to make it glide. Right? I pointed the nose down slightly and gave it a gentle shove a few times and it was obvious this glider wanted to turn right. I looked at the right wing and noticed it had a little washin, so I decided to let it turn right. I would fly it as a low ceiling glider (right-right) because it was so light. After adding a little clay, the glide seemed seemed okay. Now, for the moment of truth . . . the launch.

I know this sounds strange, but as I pulled back the sandpaper ripper behind the stab, I thought:

→ "What's going to happen when I let this thing go?"

→ "Will the glider destroy itself by crashing into the 6-inch dowel I hold in my left hand?"

→ "What makes the glider fly past the catapult?"

After a moment of indecision, I let it go. It went up 25 feet at about a 75-degree angle, did a loop and attacked me from behind. I got out of its way. The glider was still in one piece, so I tried launching it at different angles and different banks without success. After thinking about it, I decided that I had too much incidence in the stab, hence the looping effect.

My fellow flyers in St. Louis kid me about my steamer. I take it to every contest. It works well to remove or add warps to my models. (It is really a Hot Steam Vaporizer, purchased years ago for the kids' room to help them breathe when they were sick.) So, it was off to the steamer to reduce the negative incidence in the stab. I wanted to get close to zero. I steamed the tail boom down and removed nose weight a little at a time. The results were astonishing. The glider started going

higher and higher with the same tension on the rubber band and the glider started to kick out at the top into a fairly good transition. With this approach, I kept bending the boom and reducing the nose weight until I went too far and gave the stab positive incidence. This sent the glider into an outside loop. It was a good thing I had a clay cushion on the nose, because the positive stab angle gave a hard dive into the concrete floor.

Flying with the wing/stab setting at zero, the glider at launch acts like an arrow or dart↗, knifing through the air without a trace of loop or roll. Better yet, it puts less pressure on the wings because the launch goes straight until the glider kicks out, very much like a low-ceiling glider at its peak. The launch angle is approximately 75 degrees ↗. 90 degrees is straight up †

Once, in an effort to improve the transition, I launched at a shallower angle. Big mistake! Ripped the lightweight wings right off the body. After gluing the wings back in place, I made sure I launched at 75 degrees or greater.

To gain consistency and to evaluate trim adjustments, each launch was made from a specific mark on the floor. I'm right-handed, so I pointed the tip of the catapult stick in my left hand at a distinctive light or beam in the roof structure, pulled the tail grip back and let her go. In retrospect, caution got the best of me. I didn't press the glider to its limits. A maximum altitude was approximately 50 feet with the best time of 51.6 seconds.

My next project will be to build Markos' "High Roller" and then try to get to Johnson City early enough to fly it. Try Catapult sometime. It's quite a challenge. ➔

MORE ON ADHESIVES:

In addition to the nitro cellulose based adhesives referred to in last month's column I use the following at one time or the other or for specific singular uses:

INSTANT (Cyanoacrylate) Use all the different viscosities plus accelerator. But I use the thinnest viscosity over 90% of the time. For application I put one drop on a non-absorptive surface (piece of aluminum or metal, glass or plastic) then dip a small insect mounting pin into this drop then apply this minuscule amount to the part to be cemented. I use the several different sizes of insect mounting pins and obtain them from almost any scientific or lab supply.

Never apply instant glue straight from the bottle. Gary Underwood has a technique for cementing motor tube and tail boom seams with instant glue dispensed via a super small plastic nozzle probably on the order of .005 inches inside diameter.

I asked him how he kept from cementing the motor tube or tail boom onto the metal forms and he replied he used so little cy-a on the seams that it didn't penetrate all the way to the form. I'm going to ask him to write up the details of his technique.

I use cy-a mainly for repairing spars and other broken parts while flying. I use cy-a during construction only to really strengthen the wire thrust bearing and rear hook areas. And also prop shaft to spar areas. Use of variable pitch props requires launch torque of about double that of conventional props, with very few turns backed off. One needs all the strength you can get in the motor stick.

Elmer's Water Based Contact Cement and 3M 75 Contact Cement: Both these cements are used only as adhesives for the plastic films such as Poly Micro II L.

Elmer's (use this brand only) is thinned with water about 6 to 10 parts water to one drop Elmer's. It is brushed lightly on the uncovered framework and then covered via your favorite method with the poly

micro. A burnishing tool is helpful to force and burnish the plastic covering to the framework. I used to use a ½ inch round wood burnishing tool I bought at an artist's supply but I've recently been using a metal burnishing tool that Dan Marek gave me. I think he got it at an artist's supply also.

By burnishing the poly micro down with firm strokes after trimming, less adhesive can be used.

To use the 3M 75 spray, lay the bare wood outline on a large sheet of newspaper and holding the 75 can about 4 feet above make one - just one sweep of spray across the outline below. Keep putting on less and less adhesive until it doesn't want to stick then back up a little. I've found it helps build my confidence if after spraying ever so lightly, I pick up the framework then run my hand across the newspaper. You'll find that there really has been enough adhesive applied to the framework by how much is oversprayed onto the newspaper. Do not use the 3M 75 to spray inside your work shop. I spray inside our double garage (autos out) with doors closed to keep out the wind.

I vacillate between the adhesives - it's just whatever is your favorite except the 3M 75 must be used to adhere the plastic film to boron outlines.

Titebond or Titebond II. A p p l i e d sparingly just like I do with cy-A, using a drop and an insect pin.

To be able to use acetone to loosen bracing wire anchor points on a microfilm wing, tail, etc., I cement small .016 inches square times height of the spar balsa brace wire anchors with the Titebond. I also cement the balsa wedges inserted into the spars after adding dihedral breaks with Titebond.

This then allows you to re-adjust wing wash at the contest if you have to. The acetone will soften the cellulose cement you've used to adhere the brace wires without dissolving the Titebond.

Applicators For The Cement: I make liberal use of the insect mounting pins as noted above, but they don't work as well on the cellulose based cements described in last month's article.

For these cements use one of two methods.

Method one is to use small brushes from 000 size up to #4. The O size brush works well on cementing motor tube and tail boom seams. I prefer sable brushes rather than the new synthetic bristles. Some modelers have mastered the technique of using a hypodermic syringe and needle to dispense cement to the seams but I feel I can get lighter results with the brushes. I use a brush and #3 cement to cement boron stringers on motor sticks and tail booms.

The second method is with a glue stick applicator. Some modelers use round toothpicks. I use a piece of ¼" square teflon by 6 inches long. One end is gradually tapered to an end about .010 x .030 inches. the other end is more sharply tapered to form sort of a screwdriver slot bit size of .085 x .025. This end is not used for cementing, but is used to more accurately position the part after it has been cemented.

The small end is used to cement wing ribs and other butt joints. A very small precise amount of cement may be applied using this small end. If cement builds up on this end merely remove it with your finger nail.

To grasp the teflon glue stick more easily I wrap masking tape around about 2 inches at the center. I then stick 4 pieces of the hook side of velcro on each of the 4 sides of the stick at the center. The velcro is cut into strips ⅛" x 2" for this application. I find a lot of uses for this hook side of velcro for handling smooth objects. I put it on my electric razor to keep from dropping it, and around cement bottle lids for easier removal.

I have some extra teflon ¼" square by 6 inch pieces I'll send anyone who requests. I had to buy a piece of teflon 12" square just to make 1 glue stick for myself.

KEEP RECORDS TO GET RECORDS

Many indoor modelers keep excellent flight records but I don't know how many keep construction records also. Both are important for one to keep improving construction and flight times.

Many years ago I made up a flight performance sheet to record the most critical points of each flight. The sheet is 8½ x 11 and is reproduced at the end of this article. Jim Richmond uses a flight record that is about 4" x 6", but he must write smaller than I do.

I have seen Dick Hardcastle talking into a tape recorder while winding and flying, later playing it back and reducing it to writing. Jim Clem keeps extremely detailed flight records sometimes having his wife Fran write down the details he dictates while flying.

Keeping complete records over a long period of time allows a flyer to go to a new site and be very close to motor size, turns, and torque on the first flight. Keeping flight records is an integral part of serious indoor flying.

Keeping construction records is every bit as important as flight records. Generally the better you build a model, the better it flies.

Some modelers weigh every rib, spar and every other tiny part of the model. I weigh only the finished parts and the wood that goes into making them.

For instance I will record the weight of the sheet of wood that I will make wing spars from. I'll note the density in pounds per cubic foot, the amount of flex and the thickness of the sheet. I'll then weigh each strip that is cut from this sheet.

I will not weigh the individual wing spars but I will record the weight of the strip from which they were made and the completed wing framework. The finished airframe components I weigh are motor stick, tail boom, stab, rudder, wing and prop.

Written construction records are extremely

important when making the first of a design or even model to be flown. Build your prototype strong enough to fly. For the second model of the same design, try to cut all the wood sizes and weight 5%. Keep making successive models lighter until parts start breaking, then increase the wood sizes back up to where the part was satisfactory.

In order to weigh spars, sheets, and other component parts accurately your goal should be to acquire a balance or electronic scale that has a readability of .001 gram. But with a scale this sensitive, a plexiglas baffle or enclosure should be made to keep air movement from affecting its readability.

•
OOPS!

Stan
Chilton's
record
time for
Intermediate

Stick is 40:45! It was
incorrectly reported to us
as 40:06. Quite a
difference! We are very
proud of you, Stan! ☆

CONGRATULATIONS!

ATTENTION

By Howard Henderson

Starting with this newsletter, we are abandoning the old confusing numbering system. This issue is called #83 (only). From now on, each issue will have only one number. Your label will now show your expiration date rather than a number. In this process of "change over", your poor struggling computer operator may have made a mistake. If you think so, drop us a card and we will take your word for any errors. We trust you.

RUBBER MOTOR
TAN-II 0.83g 32.5cm loop
2240 turns - 200 back-off 93.8rpm

WEIGHTS
Wing 220mg
Stick 359mg
Plop 159mg
Total 738mg

U.S.A VS JAPAN POSTAL CONTEST
CAT-I (7.47m) SEPTEMBER 17, 1984
BEST TIME 20min04sec

The drawing includes several views of the aircraft:
- A top-down view showing the wingspan (75.5), fuselage length (65.5), and tail section.
- A side profile view showing the wing area ($0.376m^2$), fuselage diameter ($\phi 20.9$), and tail fin height (1.53×2.7).
- A front view showing the fuselage width (1.1×0.9) and tail fin width (1.1×0.9).
- Various other dimensions are provided for different parts, such as the propeller (0.7×0.75), landing gear (0.7×0.75), and tail fin (0.7×0.75).

WEIGHTS	
Wing	220mg
Stick	359mg
Plop	159mg
Total	738mg

U. S. A VS JAPAN POSTAL CONTEST
CAT-I (7.47m) SEPTEMBER 17, 1994
BEST TIME 20min04sec

EE-B
SATOSHI KINOSHITA
KANASAKI CTIY JAPAN
三田岡大雄 1/1

1 9 9 4 E Z - B USA Rules

日米対抗通信競技チーム成績

JAPAN-U.S.A POSTAL CONTEST team standing

1	川崎Aチーム KAWASAKI-A-team				ToTal
	木下 哲 KINOSHITA	間崎 隆次 MAZAKI	三沢 正敏 MISAWA		合計
	20' 04"	17' 11"	14' 42"		51' 57"
2	West Coast Flyers				
	Bob De Shielde	Bob Gibbs	Steve Brown		合計
	16' 10"	15' 36"	15' 13"		46' 59"
3	Greet Plains/Southwest				
	Stan Chilton	Bud Tenny	Jim Clem		合計
	16' 31"	13' 04"	12' 29"		42' 04"
4	Goddard Flyers				
	Dan Belieff	Tom Vallee	Ray Weisman		合計
	15' 49"	15' 02"	10' 57"		41' 48"
5	St, Louis Flyers				
	Dick Hardcastle	Larry Coslick	Bill Martin		合計
	14' 42"	12' 56"	12' 10"		39' 48"
6	東京チーム TOKYO-team				
	野中 繁吉 NONAKA	小俣 昇 OHMATA	山梨 雅弘 YAMANASHI		合計
	16' 42"	14' 11"	08' 50"		39' 43"
7	Cleveland Clowns				
	Larry Loncka	Larry Mzik	Vernon Hacker		合計
	14' 23"	13' 40"	08' 42"		36' 45"
8	川崎Bチーム KAWASAKI-B-team				
	金子 昌司 KANEKO	田中 泰孝 TANAKA	小村 和正 KOMURA		合計
	12' 26"	12' 09"	10' 04"		34' 39"

9	東京新宿グループ	SHINJUKU-group				
	原 一馬 HARA	田村 久雄 TAMURA	栗原 弘 KURIHARA	合計		
	12' 20"	11' 03"	10' 47"			34' 10"
10	Brainbusters A					
	Dave Robelen	Abram Van Dover	John Diebolt	合計		
	11' 49"	09' 59"	09' 42"			31' 30"
11	川崎麻生グループ	ASOH-group				
	玉井 清造 TAMAI	富田 定佳 TOMITA	池田 洋一 IKEDA	合計		
	10' 54"	09' 28"	09' 19"			29' 41"
12	江戸川グループ	EDGAWA-group				
	林 修 HAYASHI	寺尾 孝 TERAOKA	藤原 瑞吉 FUJIWARA	合計		
	09' 45"	09' 06"	10' 43"			29' 34"
13	Memphis Indoor Modelairs					
	Mark Vancil	Jim Lynch	Jon Vancil	合計		
	11' 38"	07' 39"	05' 38"			24' 55"
14	いわきグループ	IWAKI-group				
	柴田 進 SHIBATA	小池 広 KOIKE	鈴木 利一 SUZUKI	合計		
	08' 22"	07' 57"	07' 28"			23' 47"
15	Brainbusters B					
	Bob Platt	Walt Collins	Paul Robelen	合計		
	11' 49"	08' 24"	02' 30"			22' 43"
16	Oakland Cloud Dusters					
	Mike Pairang	Herb Robbins	Stu Bennett	合計		
	09' 58"	06' 18"	06' 01"			22' 17"

1 9 9 4 E Z — B USA Rules

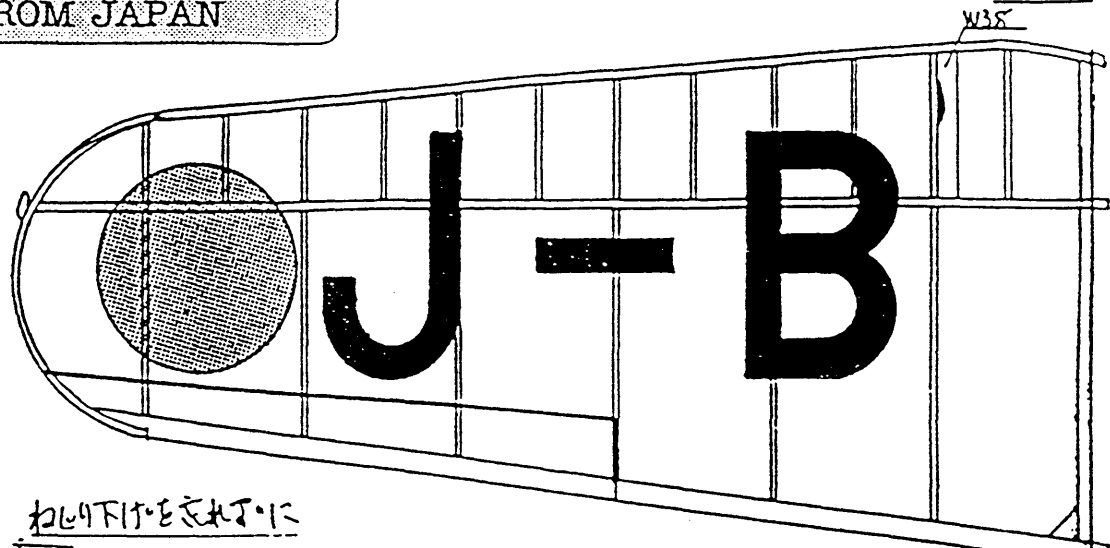
日米對抗通信競技個人成績

JAPAN×USA. POSTAL CONTEST individual standing

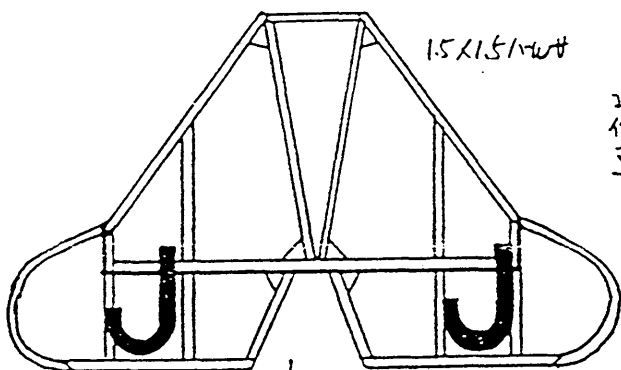
1 木下 哲 KINOSHITA	20' 04"	25 田村 久雄 TAMURA	11' 03"
2 間崎 隆次 MAZAKI	17' 11"	26 Ray Weisman	10' 57"
3 野中 繁吉 NONAKA	16' 42"	27 玉井 清造 TAMAI	10' 54"
4 Stan Chilton	16' 31"	28 栗原 弘 KURIHARA	10' 47"
5 Bob De Shields	16' 10"	29 藤原 瑞吉 FUJIWARA	10' 43"
6 Dan Belieff	15' 49"	30 小村 和正 KOMURA	10' 04"
7 Bob Gibbs	15' 36"	31 Abran Van Dover	9' 59"
8 Steve Brown	15' 13"	32 Mike Pairang	9' 58"
9 Tom Vallee	15' 02"	33 林 修 HAYASHI	9' 45"
10 Diek Hardcastle	14' 42"	34 John Diebolt	9' 42"
11 三沢 正敏 MISAWA	14' 42"	35 富田 定佳 TOMITA	9' 28"
12 Larry Loncka	14' 23"	36 池田 洋一 IKEDA	9' 19"
13 小俣 昇 OHMATA	14' 11"	37 寺尾 孝 TERAO	9' 06"
14 Larry Mzik	13' 40"	38 山梨 雅弘 YAMANASHI	8' 54"
15 Bud Tenny	13' 04"	39 Vernon Hacker	8' 42"
16 Larry Coslick	12' 56"	40 Walt Collins	8' 24"
17 Jim Clem	12' 29"	41 柴田 進 SHIBATA	8' 22"
18 金子 昌司 KANEKO	12' 26"	42 小池 広 KOIKE	7' 57"
19 原 一馬 HARA	12' 20"	43 Jim Lynch	7' 39"
20 Bill Martin	12' 10"	44 鈴木 利一 SUZUKI	7' 28"
21 田中 泰孝 TANAKA	12' 09"	45 Herb Robbins	6' 18"
22 Dave Robelen	11' 49"	46 Stu Bennett	6' 01"
23 Bob Plott	11' 49"	47 Jon Vancil	5' 38"
24 Mark Vancil	11' 38"	48 Paul Robelen	2' 30"

PEANUT PLAN FROM JAPAN

Designed & Drawn by Shoichi Uchida

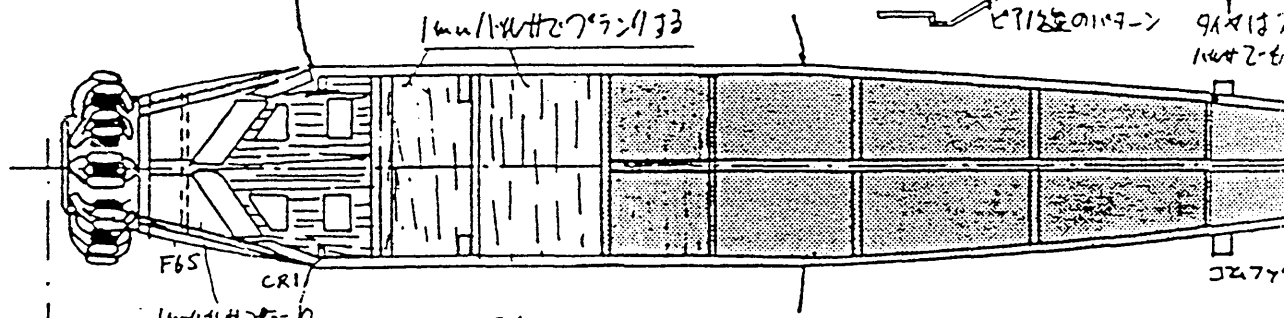
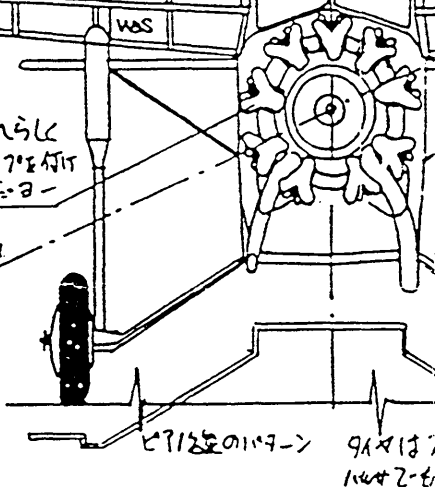


ねじり下付を忘れずに
この各段 位置 W13 W12 W11 W10 W9 W8 W7 W6 W5 W4 W3 W2 W1
位置で上反角を増やした

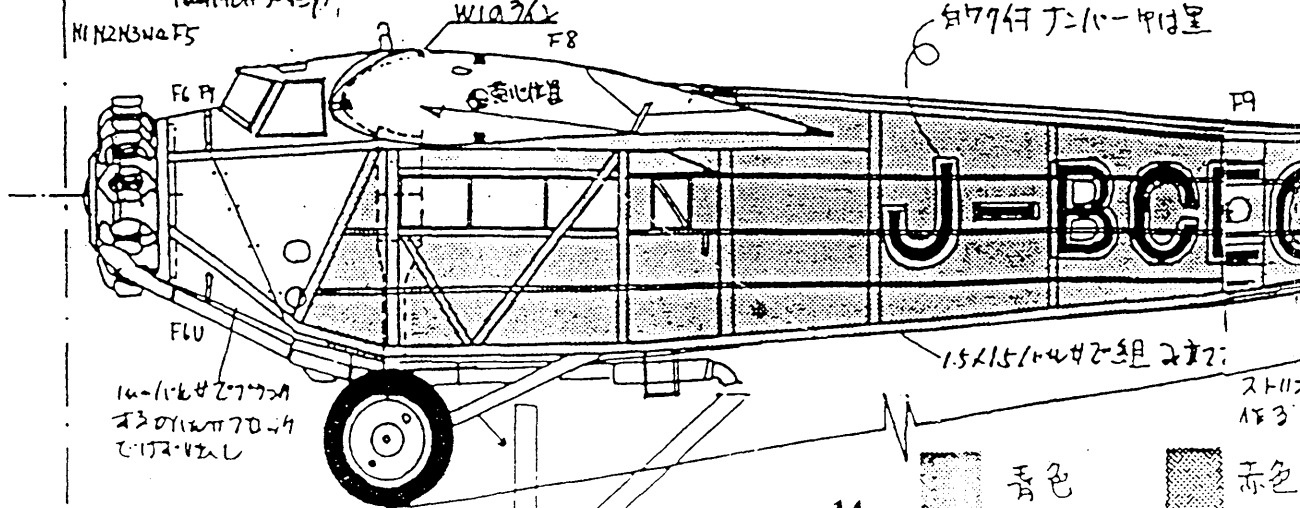


コンメンはR127-6から
作4Y形のイヤー-ストリッパを付
マ77-15/14W4のR127-6

脚本は1/14W4でイ4
銀色に塗る W3Sに
しかり接する



F6S
CRI
1.4x1.4/1.4W4
MIN2N3W4F5



W10.76
F8
F6
F6U
1.4x1.4/1.4W4
マ30Y14W47D-4
で152.4mm

白7747 J-10-4は星

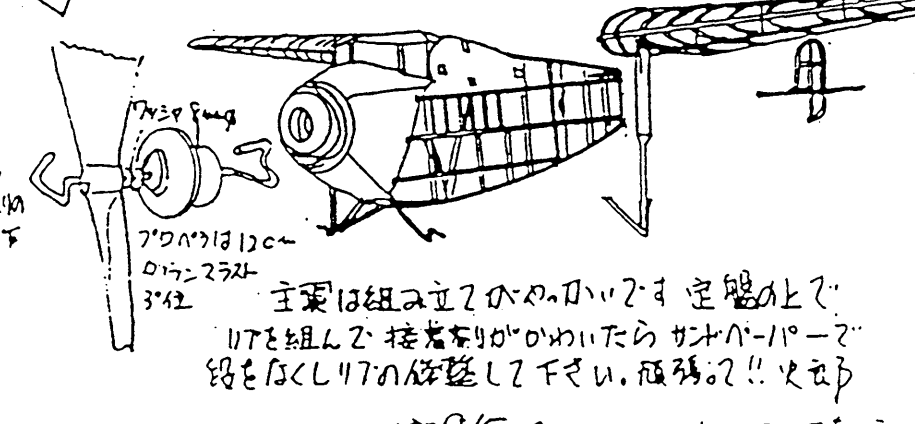
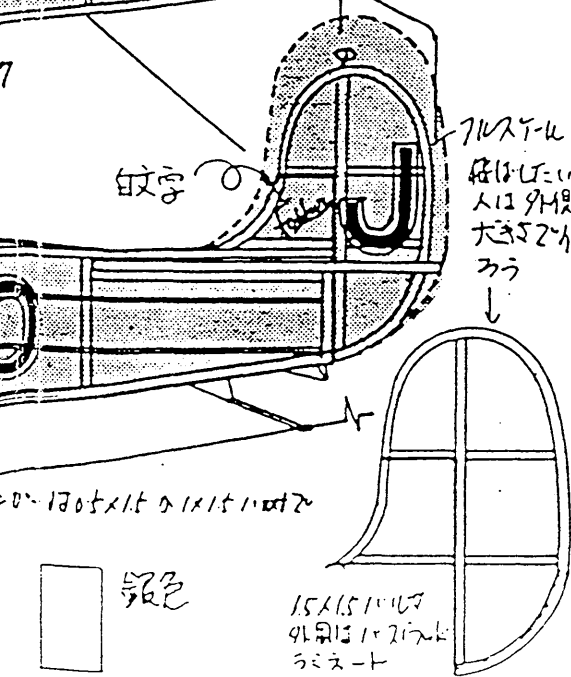
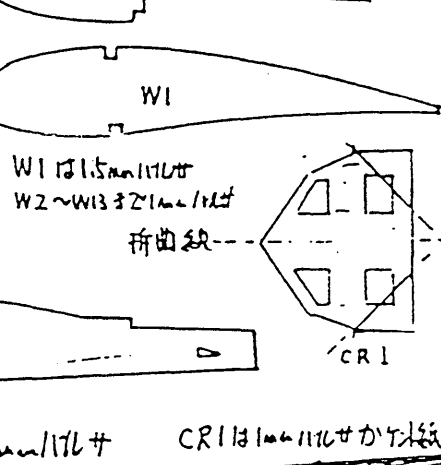
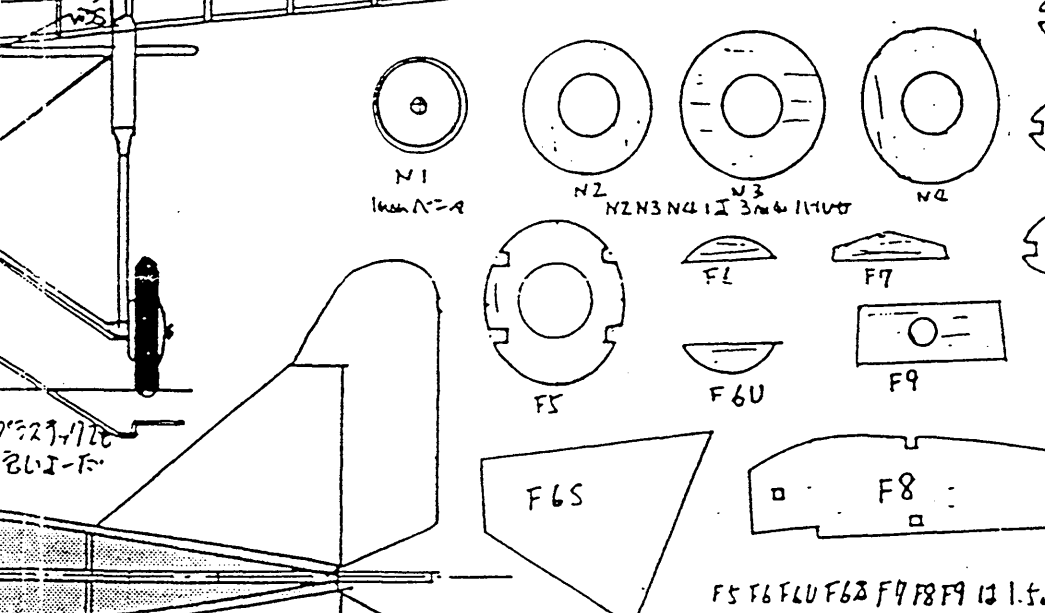
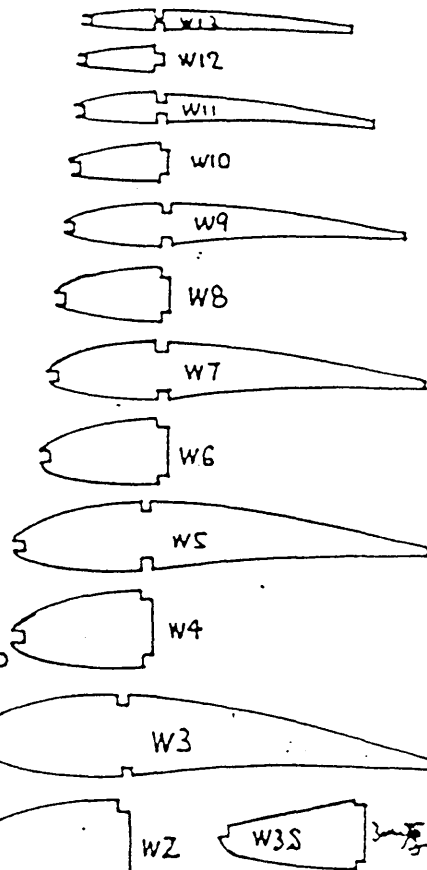
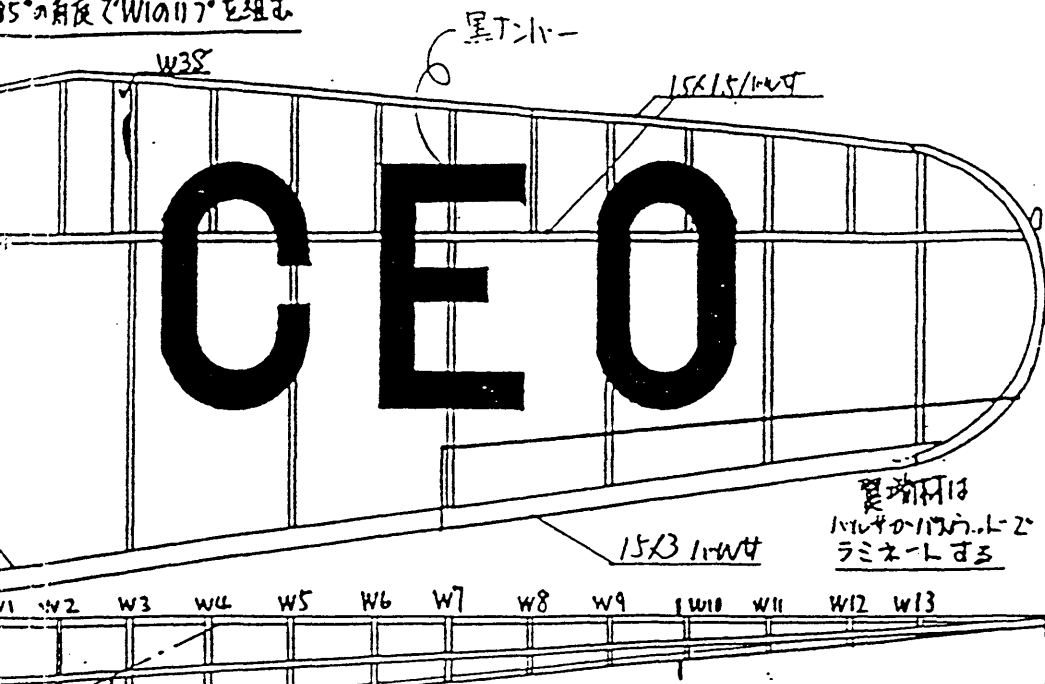
1.5x1.5/1.4W4で組 2.72

スト
1.43

青色

赤色

22.75
35°の角度でW1の117°を組む



主翼は組み立てたのから117°の定盤の上で
117°を組んで接着剤がのりついたらサナホーパード
線をなくして117°の角度に下ろす。頑強で!! 火を

エルの初飛行 1984年2-3月 21歳で27歳

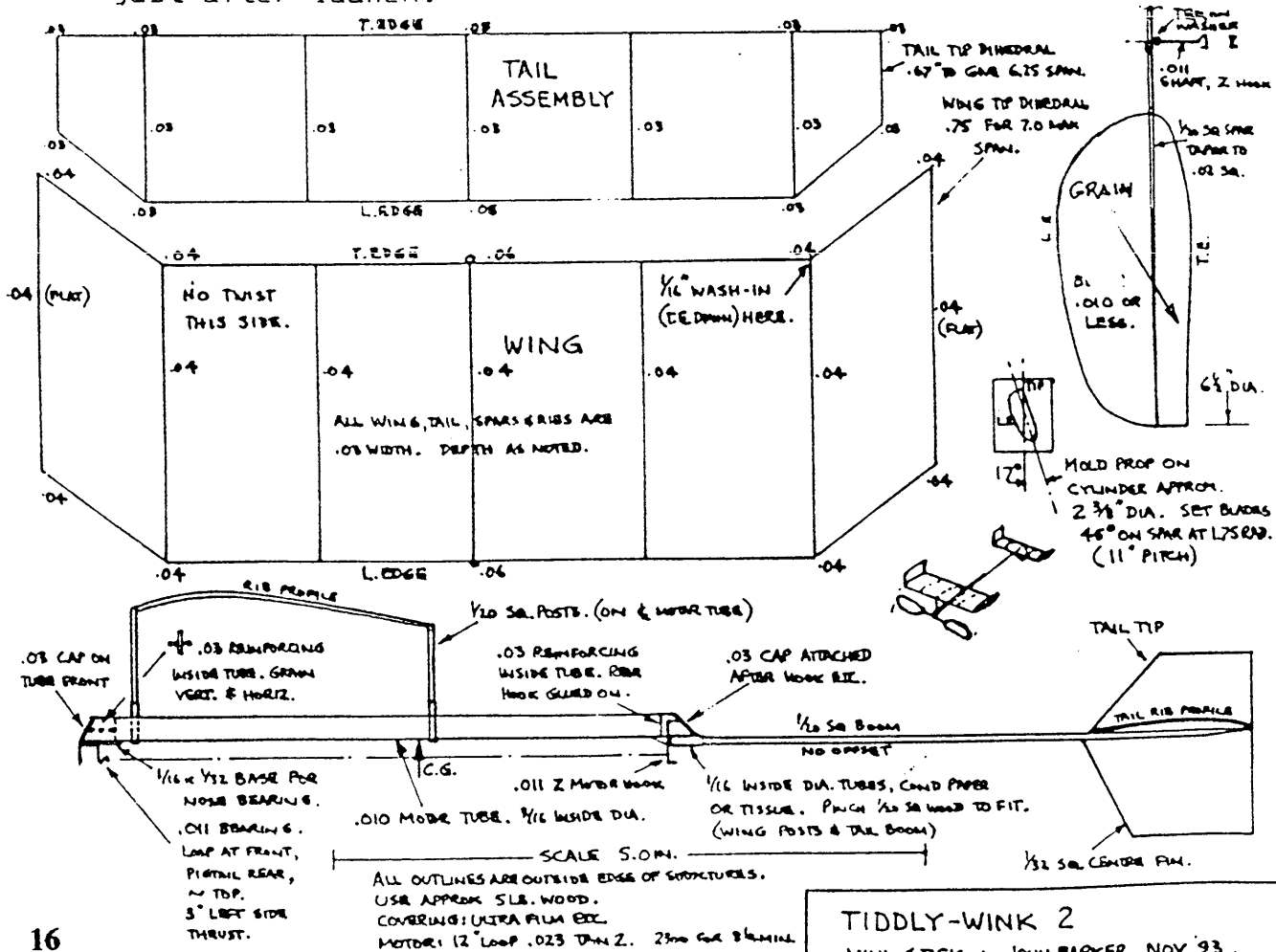
中島 FOKKER.SUPER.UNIVERSAL 旅客機			
昭和54年11月初飛行 色は銀と青 脚は赤と白には黒サト			
のハッチは877付 ヒーリング 1988.9月 17日 中島			

Tiddly-Winks 2 was developed from no. 1. Principal changes are: -new wing section

- new wing section
- simplified wingtip shape
- underfin added to improve turning under full power
- tubular stick to minimize trim changes due to stick twist as torque varies
- new prop copied from Wayne Trivin

Of all the changes it appears that the tubular stick is the most beneficial. At the MIAMA contest at McDill AFB on Feb. 12/13 on the second contest flight, it climbed to within two or three feet of the roof, lightly hit a couple of obstructions, and did a long, slow descent for a time of 8:14 to win the Mini-Stick event.

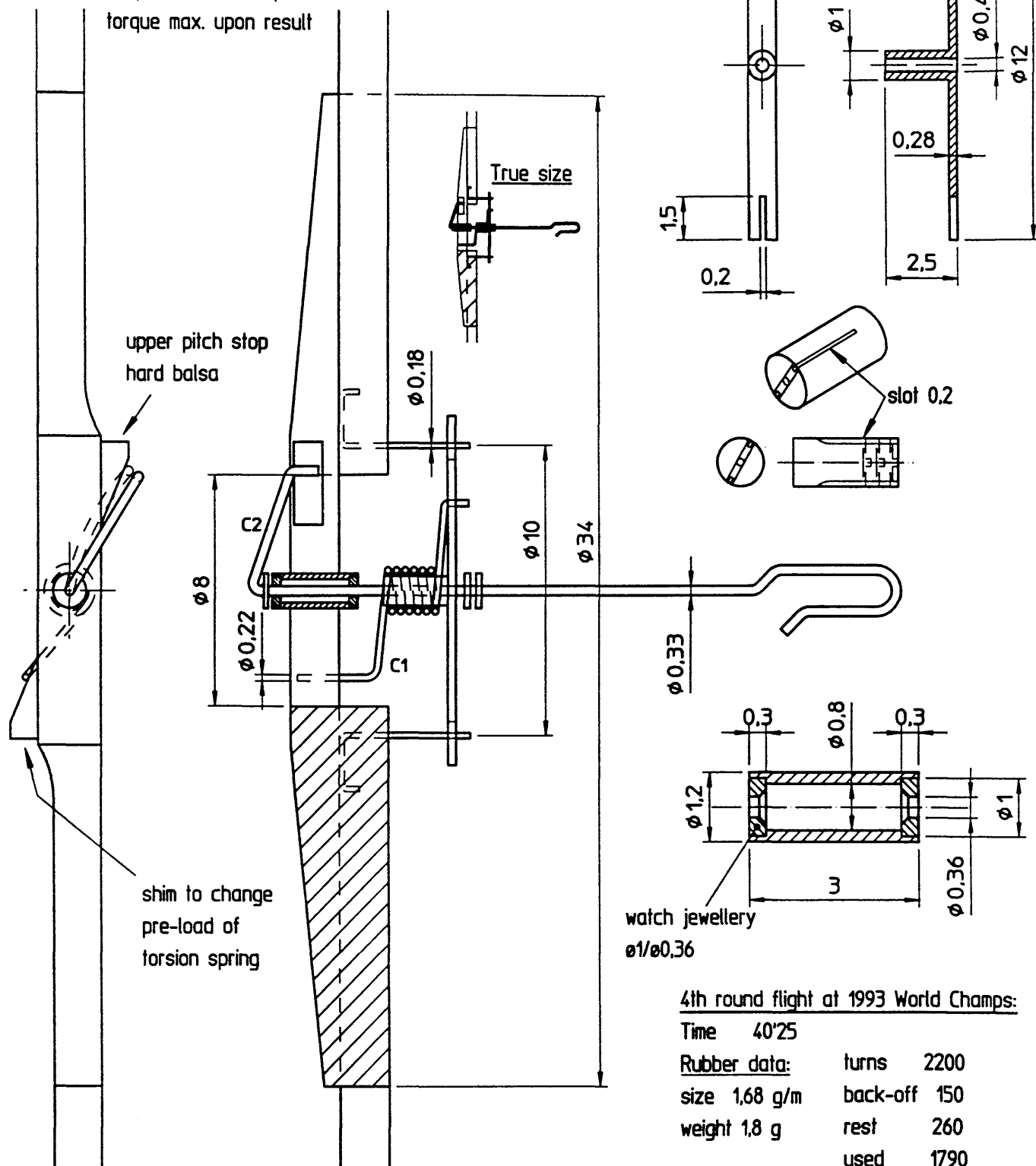
Flying in the McDill hangar is a challenge. Lamps hang down fifteen to twenty feet from the roof like a forest. Close to the roof is an array of beams and supporting rods. To avoid the lamps, trim for a smallish circle and try to launch into a gap between them. To get a long flight without getting hung in the roof clutter requires a simple winding technique. A torque meter must be used. First, put in a lot of turns, then back off a few-usually one, two, or three turns on the winder. This will drop the torque quite a lot and kill that fast climb to the roof where death and destruction await! However, there are still a lot of power turns left which will give a long slow climb. This requires experimenting with turns and back-off until the model is just in danger of hitting the roof junk for a maximum flight time. This approach also aids trimming for that high torque time just after launch.



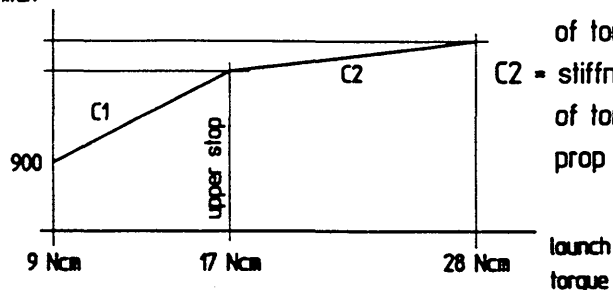
min. pitch 900 mm / $\phi 510$ mm
max. pitch upon result

torque at lower stop is 7 Ncm
torque max. upon result

torque arm glued
to prop shaft
with epoxy



pitch



C1 = stiffness constant
of torsion spring
C2 = stiffness constant
of torsion part of
prop shaft

RPM 44,3/min.

Weight of prop: 0,19 g

F1D Variable Pitch Prop

by René Butty (SWI)

F1D European Champion 1993

FORTY MINUTE CLUB

January 1, 1995

NAME	COUNTRY	TIME	1*	2*	YEAR	SITE
RANDOLPH, BOB	USA	55:06	X		1993	SANTA ANA
ASLETT, BERNARD	ENGLAND	52:22	X		1983	CARDINGTON
RICHMOND, JIM	USA	52:14	X		1979	AKRON
KOWALSKI, DICK	USA	50:41	X		1976	AKRON
ROMAK, BUD	USA	49:35		X	1991	LAKEHURST
BANKS, CEZAR	USA	49:00		X	1991	LAKEHURST
BROWN, STEVE	USA	48:37		X	1993	AKRON
RICHMOND, JIM	USA	47:44		X	1986	CARDINGTON
BARR, LAURIE	ENGLAND	47:28		X	1982	CARDINGTON
HARLAN, RAY	USA	47:13		X	1980	AKRON
DOIG, RICHARD	USA	46:24	X		1983	AKRON
CHILTON, STAN	USA	46:10		X	1994	AKRON
RODEMSKY, ERV	USA	45:50	X		1974	SANTA ANA
RIEKE, K. H.	W. GERMANY	45:40	X		1962	CARDINGTON
HUNT, BERNARD	ENGLAND	45:40		X	1992	CARDINGTON
RANDOLPH, BOB	USA	45:35		X	1993	AKRON
REDLIN, CARL	USA	45:17	X		1962	CARDINGTON
ANDREWS, PETE	USA	44:59		X	1979	AKRON
MATHER, CLARENCE	USA	44:44	X		1974	SANTA ANA
BUTTY, RENE	SWITZERLAND	44:44		X	1990	LAKEHURST
ASLETT, BERNARD	ENGLAND	44:37		X	1985	CARDINGTON
HULBERT, BILL	USA	44:27		X	1994	AKRON
HACKLINGER, MAX	W. GERMANY	44:20	X		1961	CARDINGTON
DOIG, RICHARD	USA	44:06		X	1991	LAKEHURST
NORE, PENTTI	FINLAND	44:01		X	1986	CARDINGTON
ANDRE, THEDO	NETHERLANDS	44:01		X	1986	CARDINGTON
GIBBS, BOB	USA	43:43		X	1993	AKRON
KOPECKY, ERNIE	USA	43:42	X		1963	SANTA ANA
ORSOVAI, DEZSO	HUNGARY	43:37		X	1986	CARDINGTON
KUJAWA, SYLWESTER	POLAND	43:35		X	1992	WROCLAW
CUMMINGS, FRANK	USA	43:28	X		1963	SANTA ANA
REE, ANDRAS	HUNGARY	43:27		X	1992	DEBRECEN
ATWOOD, BILL	USA	43:17	X		1963	SANTA ANA
PLOTZKE, RON	USA	42:53	X		1969	LAKEHURST
UNDERWOOD, GARY	USA	42:53		X	1994	LAKEHURST
FOSTER, JOE	USA	42:44		X	1987	SANTA ANA
DE BATTY, BOB	USA	42:42		X	1994	SANTA ANA
LOUCKA, LARRY	USA	42:34		X	1991	AKRON
SIEBENMANN, DIETER	SWITZERLAND	42:33		X	1986	CARDINGTON
CAILLIAU, LARRY	USA	42:29		X	1985	AKRON
DOMINA, DAN	USA	42:25		X	1979	AKRON
CANNIZZO, SAL	USA	42:20		X	1983	LAKEHURST
PYMM, DAVE	ENGLAND	42:03		X	1986	CARDINGTON
ROMAK, BUD	USA	42:01	X		1965	MOFFETT NAS
OBARSKI, DICK	USA	41:30		X	1981	AKRON
FINCH, TOM	USA	41:27	X		1963	SANTA ANA
SLUSARCZYK, DON	USA	41:25		X	1990	AKRON
CHAMPINE, BOB	USA	41:23	X		1963	SANTA ANA
RODEMSKY, ERV	USA	41:23		X	1979	AKRON
STOLL, ED	USA	41:21	X		1963	SANTA ANA
MANGALEA, CORNELIU	ROMANIA	41:15		X	1994	SLANIC-PRAHOVA
HOFFMAN, EARL	USA	41:13		X	1987	SANTA ANA
MATHER, CLARENCE	USA	40:54		X	1974	SANTA ANA
DRAPER, RON	ENGLAND	40:44	X		1962	CARDINGTON
BILGRI, JOE	USA	40:37	X		1965	SANTA ANA
NONAKA, S.	JAPAN	40:36		X	1978	CARDINGTON
STEVENS, DARRYL	USA	40:35		X	1986	SANTA ANA
BAILEY, BOB	ENGLAND	40:25		X	1987	CARDINGTON
POPA, AUREL	ROMANIA	40:21		X	1994	SLANIC-PRAHOVA
GITLOW, LEW	USA	40:15		X	1987	SANTA ANA
MCGILLIVRAY, JACK	CANADA	40:14		X	1988	JOHNSON CITY
KALINA, JIRI	CZECH	40:11		X	1975	CARDINGTON
RODENBURG, OTTO	NETHERLANDS	40:11		X	1986	CARDINGTON
TRIOLO, JOHN	USA	40:06	X		1974	LAKEHURST

* CLASS 1 - Over 65 cm
CLASS 2 - FAI 65 cm - 1 gram

Official and unofficial flights included (best effort only, by individual, by class is shown)

For additions, corrections, etc. send details to: BOB GIBBS 22870 Springmist Drive, Moreno Valley, CA 92557 USA

Phone 0257 452624

403 Mossy Lea Road,
Wrightington,
Wigan, Lancs..
England. WN6 9SB

Dear Club Secretary or Contact / Magazine Editor,
and Indoor Flyer.

Once again the British Model Flying association, Indoor Technical Committee would like to invite your members / readers to take part in "THE 1995 LIVING ROOM STICK / MINI STICK INTERNATIONAL INDOOR POSTAL CONTEST", to be run over this winter period. Can you please pass on / publish this contest for your members / readership. This will be the 5th year that I have run this event and due to extra work this will be the LAST TIME, if any one wants to take it over please let me know.

The rules for this contest will be as follows :-

1. The contest is open to Indoor models which comply with Living Room Stick / Mini Stick Rules, (the spec. is the same as last year).
2. Contest flights are to be made between 1st Jan 1995 and 31st March 1995.
3. Any number of flights can be made at any number of sites.
4. All contest flights to be timed by someone other than the flyer.
5. All contest flights to be recorded on an official Results Form, available from the above address, (please send SSAE etc. you can make extra copies).
6. Best single flight time wins, after the flight time has been corrected for the different ceiling heights. Ceiling height to be measured as per F.A.I. but with a 5 meter diameter circle. The correction factor is 627 divided by (167 plus 46 times the square root of the ceiling height in feet). The time in seconds will be multiplied by this to give the corrected time.
7. Prizes will be awarded dependent on the number of contestants.
8. All Results Forms to be returned to the above address no later than 10 April 1995.
9. Entry is FREE to ALL contestants (A club sticker sent to the organiser would be appreciated)
10. Results will be sent if a SSAE is included with the Results Forms.

'LIVING ROOM STICK/MINI STICK' Model Rules

Model

Monoplane, Max. Span (projected)	7.0 inches
Max. Wing Chord	2.5 inches
Stick Length	5.0 inches
Max. Model length (less prop)	10.0 inches
Stab (Tail) area	Max. = 50 per cent of wing
Covering	Plastic / Paper. NO Microfilm
Propeller	Wood prop 7" Diameter max.
Minimum weight	0.43 gms.) 0.015 ounces
NO V.P. or V.D. Props or 'Torque Burners' are to be used (keep it low tech.)	

Flying

- Steering 4 ten second steers *
- Attempt Fifteen seconds or more *
- * Special flying rules for very small rooms only ! (Living room flying only)

GOOD FLYING & HAVE FUN

Mike Colling

Mike Colling
BMFA Indoor Technical Committee Chairman.

THE LAST GREAT LIVING ROOM STICK POSTAL CONTEST RESULTS FORM

Name of Club _____

Contest Held on (Date) ____/____/____

At (Site name) _____ Ceiling Height _____ Ft

Contestants name	Contestants Address	Flight Time (seconds)	Timekeeper (inits)	Leave Bank
		1.		
		2.		
		3.		
SMAE No.		4.		
		5.		
Age if Jnr		6.		
		1.		
		2.		
		3.		
SMAE No.		4.		
		5.		
Age if Jnr		6.		
		1.		
		2.		
		3.		
SMAE No.		4.		
		5.		
Age if Jnr		6.		
		1.		
		2.		
		3.		
SMAE No.		4.		
		5.		
Age if Jnr		6.		

WALLY MILLER INTERNATIONAL EZB CONTEST

JULY 14, 1995

FRIDAY - 9am to 5pm

KIBBIE DOME MOSCOW, IDAHO

Contest will precede the 1995 AMA Nationals

ENTRY FEE \$35

This fee is based on the exclusive use of the Kibbie Dome for this very special event.
No other model, other than EZB will be allowed to fly.

Please make checks payable to EZB International and mail to Larry Coslick

TROPHIES WILL BE AWARDED TO THIRD PLACE

RULES:

1. The best two of six flights will win. Six rounds will be flown at one hour intervals, with ½ hour between rounds.
 2. The start time will be 9 a.m. The last round will start at 4:30 p.m..
 3. The official flight time will be one minute. Two attempts will be allowed to make one official flight.
 4. Three official flights (of at least 15 minutes) must be made to qualify for the championship.
 5. The AMA rules on model only. Contestants may process three models.
-

CONTEST SPONSORS

Larry Coslick
4202 Valley Crest Hills
St. Louis, Mo 63128
314-892-3803 (After 10:00 P.M.)
FAX # 314-296-4554

Wally Miller
10039 Sw Quail Post Road
Coeur D'alene, Idaho 83814
208-772-4814

Everyone WELCOME
MAKE PLANS NOW TO FLY WITH US!

8:00 AM 10:00 12:00 2:00 4:00 6:00 8:00 PM

SATURDAY JULY 13, 1995	ARRIVAL & SET-UP		H L G		F1D, ROG CABIN &		EAST
*F1D CONTESTANTS MEETING			STD. CATAPULT GLIDER		AMA STICK PRACTICE		CENTER
			UNL. CATAPULT GLIDER		AMA TEAM F1D PRACTICE		WEST

SUNDAY JULY 16, 1995			FLYING SCALE		MAN HATTAN		EAST
			& PEANUT SCALE		ROG CABIN & AMA STICK		CENTER
			EVENTS		F1D TEAM SELECTION PRACTICE RND. 1	RND. 2	WEST

MONDAY JULY 17, 1995			SCALE		BOSTONIAN		EAST
			EVENTS		ORNI THOPTER, AUTOGIRD & EXP. AUTOGIRD		CENTER
			NOVICE PENNYPLANE		F1D TEAM SELECTION PRACTICE RND. 3	RND. 4	WEST

TUESDAY JULY 18, 1995			PENNYPLANE		== Z ID		EAST
			INTERMEDIATE STICK				CENTER
			F 1 D		F1D TEAM SELECTION PRACTICE RND. 5	RND. 6	WEST

FOURTEENTH UNITED STATES INDOOR CHAMPIONSHIPS

MAY 31, & JUNE 1, 2, 3, 4, 1995

"MINI-DOME" - East Tennessee State University, Johnson City, Tennessee

Sponsored by National Free Flight Society

Send Entry Payable To:
USIC, 444 BRYAN, ST. LOUIS, MO 63122

DOMES HOURS	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
WEDNESDAY MAY 31 8:00 A.M. TO 11:00 P.M.			LIGHT PRACTICE UNDER 1.5 GRAM		HEAVY	P-24 MASS LAUNCH		LIGHT		HEAVY PRACTICE						F1D, HAND LAUNCHED STICK 35 CM, CABIN ROG	
THURSDAY JUNE 1 7:00 A.M. TO 12:00 P.M.			H.L. GLIDER STD. CAT. GLIDER UNLIMITED CAT. GLD. UNLIMITED RUB. SPD.			INT. STK. HELICOPTER ORNITHOPTER		NO LAUNCH ★		INT. STICK HELICOPTER ORNITHOPTER						F1D, HAND LAUNCHED STICK PRO 20, AUTOGYRO	
FRIDAY JUNE 2 7:00 A.M. TO 6:00 P.M.			FAC. SCALE BOSTONIAN PISTACHIO HIGH WING MONO			PENNYPLANE MANHATTAN		★		PENNYPLANE MANHATTAN							BANQUET
SATURDAY JUNE 3 7:00 A.M. TO 6:00 P.M.			GOLDEN AGE COCONUT SCALE NO-CAL SCALE PEANUT SCALE F.R.O.G.			LTD. PP		★		LTD. PP							
SUNDAY JUNE 4 7:00 A.M. TO 6:30 P.M.			MINI STICK KIT PLAN AMA SCALE					EZB		★		EZB					

CONTEST MANAGEMENT

HOWARD HENDERSON, BILL MARTIN, MARY JANE REILLY, JIM MILLER, ROY WHITE, LARRY COSLICK, GARY UNDERWOOD.

CONTEST MANAGER
HOWARD HENDERSON
444 BRYAN
ST. LOUIS, MO 63122
PH. 314-822-3980

CONTEST DIRECTOR
ROY WHITE
1025 CEDAR ST.
CATAWISSA, MO 63015
PH. 314-271-2243

CONTEST DIRECTOR
LARRY COSLICK
4202 VALLEY CREST HILLS DR.
ST. LOUIS, MO 63128
PH. 314-892-3803 AFTER 10 P.M.

TABLE AND CHAIRS

If you are driving, please **BRING TABLES AND CHAIRS ALONG**. There will be a limited amount of tables and chairs available for rent at \$14.00 for the contest (1 table and 2 chairs*). No partial days rent—you may do your subleasing (no gouging!) NOTICE: *You are responsible to pick up your table and chairs and return them at the end of the meet.*

LIGHTING

Bring your own portable fixture along with plugs and extra long extension cord.

SCALE JUDGING

Models must be submitted with documentation and contestants name—FAC Scale, Bostonian, Pistachio, and High-Wing Mono by 3:00 p.m. on Thursday, June 1. Golden Age, Coconut and P-Nut Scale by 12:00 on Friday, June 2. Kit Plan and AMA Scale by 3:00 p.m. on Saturday, June 3. Turn-in room located at northeast end of dome.

REGISTRATION

Pick up your flying packet between 9:00 a.m. and 5:00 p.m. on May 31 at the registration desk.

All Seniors and Open fliers will be required to time flight and assist as called upon (be happy and VOLUNTEER!) *Bring Your Own Stopwatch!*

All 1995 AMA rules apply. All rule change "proposals" DO NOT APPLY!

PRACTICE

During official events, practice is permitted in two basketball courts on north end of dome (at your risk).

Boxes may be dropped off at the Mini-Dome between 5:00 p.m. and 7:00 p.m. on May 30. Absolutely no flying in Mini-Dome prior to May 31.

NOTICE: Flying schedule may be modified during the contest. The absolute final/official/positively exact schedule will be that which is posted at the official's table. It is your responsibility to check and know the start/stop times of the events. (It may be advantageous to overlap some events.)

(Ceiling—116', floor—208'x420').

Astroturf may not be on floor.

Helium available, bring your own balloons. NOTE: USIC will provide a Balloon Pool for retrieving models only. Balloons must be returned to pool immediately after you have retrieved your model. A \$5.00 fee will be charged for breakage of any balloon used from the pool to cover cost of balloon and helium.

All entrants must be AMA members or members of their country's governing body. (Contestants provide proof.)

Entries must be postmarked by April 23, 1995. Late fee \$10.00 payable on site.

RULES FOR FAC EVENTS

1. No P-Nut Sized Models.
2. If you have any questions on FAC events, send a self-addressed stamped envelope or self-addressed postcard to: Jim Miller, 107 Lorelei Drive, Fayetteville, OH 45118.

COCONUT AND PISTACHIO SCALE

For contest rules, send a large self-addressed stamped envelope to Dr. J. Martin, 2180 Tigertail Avenue, Miami, FL 33133.

F1D AND AMA H.L. STICK

It is not permitted to have one flight apply to two events. Each event must be separately flown.

CATAPULT GLIDER

Standard

1. Maximum wingspan—12".
2. Maximum wing chord—3".
3. Maximum launching stick length—6".
4. Nine official flights (all launches count).
5. Sum of best two flights determines winner.

Unlimited

1. See AMA rules.

MINI STICK RULES

- Wingspan 7" max.
- Wing chord 2-1/2" max.
- Length, front bearing to rear most point 10" max.
- Motor stick front bearing to rear hook 5".
- Stab area max 50% of wing.
- All wood prop 7" max. diameter.
- Any covering except micro-film.
- No exotic materials & no fancy gadgets permitted.
- .43 grams/.015 oz. min. wet. less rubber.
- Best flight of 5 officials. 20 sec. min. 2 attempts/flight.
- Mass launch. One flight. Last one down wins.
- Note: A perpetual Burr Stanton memorial trophy will be presented in Mini Stick by the I.M.A.R.C. (Indoor Model Association of River City.)

NO-CAL PROFILE SCALE

1. A recognizable model of a full-scale aircraft, with a wingspan not exceeding 16".
2. The weight of the model (excluding the rubber motor) shall be no less than 6.2 grams (two pennies).
3. No fancy gadgets permitted—plastic prop is permitted. Balsa and Jap tissue shall be the main construction materials. Use of hi-tech materials such as carbon fiber, boron, etc., is not permitted.
4. Model must have control surface outlines, window outline, and registration markings.
5. Win based on best single flight of five flights (20 second minimum and two attempts/flight).
6. Model must have full landing gear as per full size aircraft. No profile gear allowed. Models of aircraft with retractable gear may be depicted with gear retracted.

UNLIMITED RUBBER SPEED

1. Models must be rubber powered and propeller driven.
2. Models must start from an unassisted ROG launch from a normal three-point sitting position. This rule will be enforced.
3. Model to be timed for two complete laps around two pylons set 20 feet apart.
4. Flights will be disqualified if the model touches the pylon or ground after crossing the starting line.
5. The timer will stand in line with the two pylons. Timing starts when the model crosses the line determined by the two pylons and ends when it crosses the line after completing two laps.
6. Shortest time for two full laps determines winner.
7. No limit to the number of models or launches.

KIT PLAN SCALE

See AMA Rule Book.

USIC FEDERATION ROG

1. The model must be powered by a single loop of rubber, hung between the prop shaft hook and a fixed hook of the motor stick. NOTE: Any mechanism, device, or gadget that alters the torque delivered to the prop by the rubber loop is not allowed.
 2. All flights must rise off ground.
 3. The assembled model without rubber must weight 3.1 grams or more.
 4. The propeller must be of one-piece molded plastic. The propeller diameter must be six inches or less. NOTE: You may add a bushing to the prop shaft hole. You may lighten the prop by scraping or sanding, etc. You may cut down a larger prop. You may alter the pitch of the prop. You may not cut out and recover any part of the prop.
 5. The projected wing area must be 30 sq. inches or less.
 6. The projected stab area must be 50% or less of the projected wing area.
 7. The length of the model from the front of the propeller to rearmost part must not be greater than 18 inches.
 8. The landing gear must have two wheels and support the model in a normal position when at rest. The diameter of the wheels must be 1/2 inch or more. The wheels must turn freely while supporting the model. NOTE: The above gear and wheel tests must be met before the flight and after the landing, without any repairs or adjustments. If not, the flight is disqualified!!!
 9. Except as noted above, there are no restrictions for coverings, dimensions, or construction.
 10. Minimum flight of 20 seconds counts. Best flight of five decides.
 11. Trophies for first, second and third.
- The intent of these rules is to define a new model based on the original "Federation R.O.G.". Models that meet these rules have already flown seven minutes. NOTE: The "Delaware Valley Federation of Model Airplane Clubs" wants the original "Federation R.O.G." to continue to exist, unchanged.

PRO-20

1. Maximum projected wing span—20".
2. Maximum projected wing area—68 sq. in.
3. Maximum stabilizer area 50% of wing area.
4. Propeller: Must be built up. Microfilm or plastic covered. No variable pitch or variable diameter mechanisms permitted. Propeller hubs which permit blade replacement and manual adjustment of pitch are acceptable.
5. Motor Stick: Must be built up (no solid motor sticks).
6. Energy restraining devices other than the propeller are prohibited.
7. In addition to the above, Rules for Free Flight indoor rubber and stick models shall apply.

P-24 CONDOR

1. The model must be built according to plan. No deviation will be allowed.
2. The 7-inch plastic prop provided must be used with no alterations. Clay or tape may be added for balance.
3. The prop shaft may be lengthened to clear the plastic thrust bearing.
4. Minimum weight for the model is 12 grams.
5. Japanese tissue must be used for covering the model.
6. Tip dihedral must be 1 1/4 inches.
7. The distance between the front hook and the rear motor hook must be 17 inches.
8. The same motor must be used throughout the competition. If the motor breaks, it can be retied.
9. The last ten planes to land from the mass launch will have a fly off. The last five of these planes will have a fly off. Finally, the last two will have fly off for a winner.

KIT AVAILABLE FROM MACE MODEL AIRPLANE CO., 359 So. 119th East Avenue, Tulsa, OK 74128, Phone (918) 437-5490. Cost \$9.95 plus \$2.00 postage.

PLANS AVAILABLE from Larry Coslick, address on other side.

35 CM STICK

1. 13.77 inch wingspan projected.
2. In addition to the above, rules for free flight indoor rubber and stick models shall apply.

USIC GRAND CHAMPION (J S O COMBINED)

If you wish to participate for the Grand Champion Award, you must select a maximum of seven events for scoring. Your declaration of events must be made before you compete.

EVENTS ELIGIBLE: HLG, F1D, H.L. STK, ROG CAB, STD, CAT, GLIDER, EZB, INT, STK, P-NUT, AMA SCALE, PP, LPP, MAN, BOSTONIAN.

Awards to 3 places or more per event depending on the number of entries.

Dormitory Housing will be in Carter Hall (see map). DORMITORY RULES WILL BE STRICTLY ADHERED TO, if you share a room, each person must be registered to that room. We have instructed the dormitory staff to advise us of anyone who is in violation of dormitory rules. Removal from the dormitory and expulsion from participating in the USIC could result. Rules will be in flying packet.

LODGING

BROADWAY HOTEL, INC., P.O. Box B-CRS, 37602. 2808 North Roan Street (615) 282-4011. 80 units.

CAPRI MOTEL, P.O. Box 5114-EKS, 37603. 3008 West Market Street. (615) 926-2952. 12 units.

COMFORT INN, 1515 US 19-E By-Pass, Elizabethton, TN (615) 542-4466. 58 units.

DAYS INN, 2312 Brownsmill Road. (615) 282-2211.

11-E MOTEL, Route 3, Box 451, 37604. Hwy. 11-E and 321 South. (615) 928-2131. 25 units.

ECONOMY INN, 106 West Millard Street, 37601. (615) 926-4131. 112 units.

FAIRFIELD INN, 207 East Mountcastle Drive, 37601. Reservations (615) 282-3335. 132 rooms.

FAMILY INNS OF AMERICA, at Buffalo Mountain Resort. Route 2, 100 Country Club Drive, Unicoi, TN 37692. (615) 743-9181. 69 units.

FOX MOTEL, 3406 West Market Street, 37604. (615) 928-0267. 22 units with kitchen.

GARDEN PLAZA HOTEL, 211 Mockingbird Lane, 37601. (615) 929-2000. 187 units. \$57.00 per night with double occupancy.

HOLIDAY INN-Johnson City, 2406 North Roan Street, 37601. (615) 282-2161. 197 units.

JOHNSON INN, 2700 West Market Street, 37601. (615) 926-8145. 44 units.

JONESBOROUGH BED & BREAKFAST, P.O. Box 722, Jonesborough, TN 37659. (615) 753-9223. 8 rooms.

RED ROOF INN, 210 Broyles Drive, (615) 282-3040. 115 rooms.

ROBERTSON HOUSE, 212 East Main Street, Jonesborough, TN 37659. (615) 753-3039. 3 units.

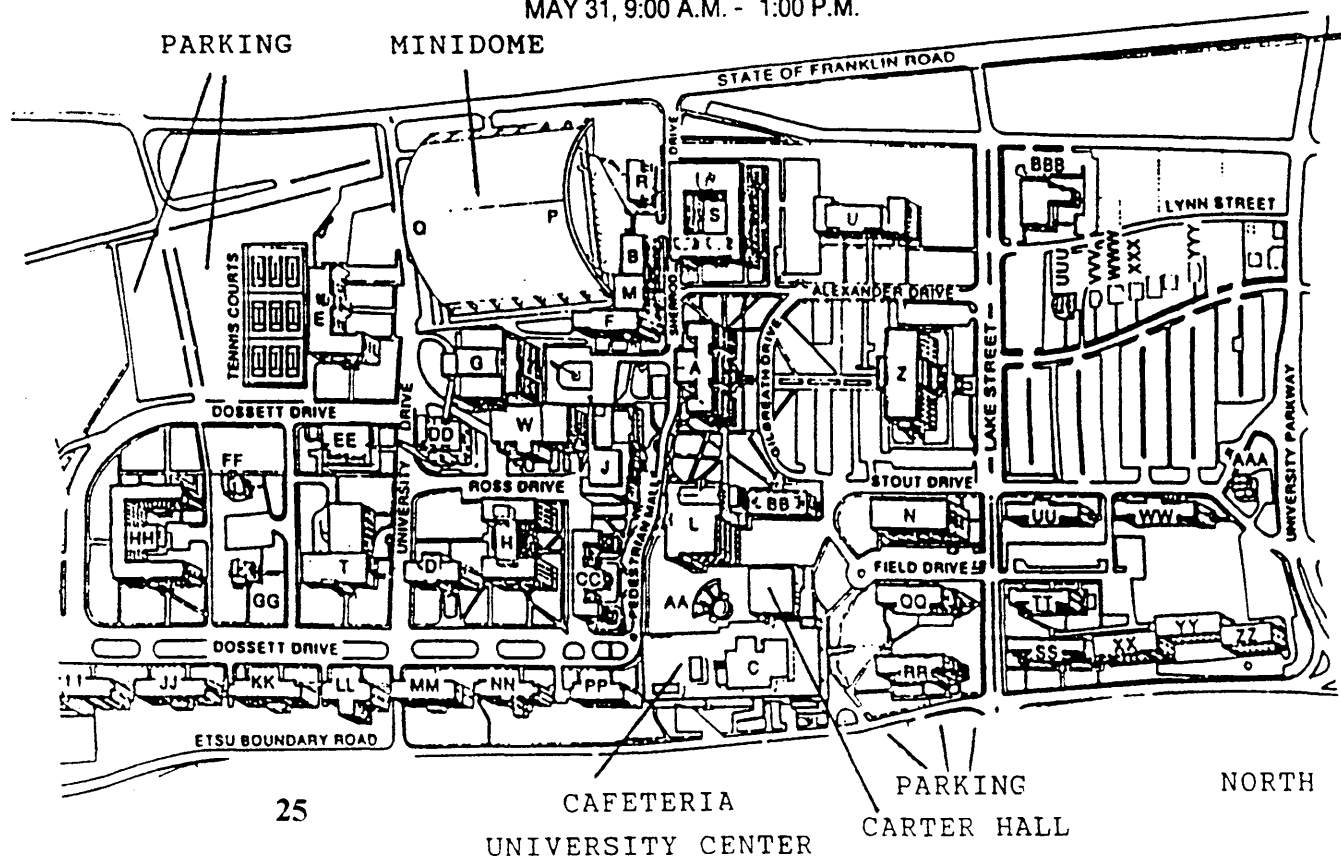
SHERATON HOTEL, 101 West Springbrook Drive, 37604. 205 units. \$61.00 per night with double occupancy. Reservations 800-325-3535. State you are part of NFFS for special rate.

SUPER 8 MOTEL, 108 Wesley Street, 37601. (615) 282-8818. 63 units.

TENNESSEE HILLS MOTEL, Route 1, Box 197, Unicoi, TN 37692. (615) 743-5680. 24 units.

WHEN CALLING FOR RESERVATIONS, STATE YOU ARE PART OF NFFS USIC FOR POSSIBLE SPECIAL RATE.

DORMITORY CHECK-IN TIME
MAY 30, 6:00 P.M. - 10:00 P.M.
MAY 31, 9:00 A.M. - 1:00 P.M.



FOURTEENTH UNITED STATES INDOOR CHAMPIONSHIPS

MAY 31, JUNE 1, 2, 3, 4, 1995

"MINI-DOME" - East Tennessee State University, Johnson City, Tennessee

Sponsored by: National Free Flight Society

Send Entry Payable To:
USIC, 444, Bryan, St. Louis, MO 63122

NAME _____
STREET _____ JUNIOR ☐ SENIOR ☐ OPEN ☐
CITY _____ STATE _____ ZIP _____
PHONE _____

I hereby certify that I understand all of the rules which I will compete and will diligently follow the official AMA Safety Code as well as any that may be established on site as well as apply the use of good accepted common sense in all my flying and affairs at the contest site.

Signature _____

ALL ENTRANTS MUST BE AMA MEMBERS OR MEMBERS OF THEIR COUNTRY'S GOVERNING BODY.
(CONTESTANTS PROVIDE COPY OF MEMBERSHIP CARD WITH ENTRY FORM.)

FEES:

Basic Entry Fee includes one event.

USIC Entry - Open	\$30.00	_____
Junior and Senior Entry	\$5.00	_____
Additional USIC Events - Open	\$7.00 ea.	_____
Junior and Senior	\$1.00 ea.	_____
\$ Dormitory		_____
Banquet	\$21.00	_____
8' Table & 2 Chairs (must submit with entry)	\$14.00	_____
TOTAL FEES:		_____

Make checks payable to USIC:

Are you a member of NFFS? ☐ Yes ☐ No

OVERSEAS ENTRANTS MUST INCLUDE \$10.00 INSURANCE FEE.
Banquet will be held at the Sheraton Plaza Hotel (see schedule).

DORMITORY AT ETSU RESERVATION

Single Occupancy Room	\$28.00 per night
Double Occupancy Room	\$30.00 per night
Triple Occupancy Room	\$40.00 per night

No linen will be provided, so bring your own (sheets, pillow cases, towels, etc.). For double and triple occupancy rooms, you must recruit your own room mate or mates. Some rooms are with bath and others have adjoining baths (shared). NOTE: A \$25.00 fee will be charged for lost or unreturned keys. No exceptions.

Rebates will be made as appropriate on rooms.

Dormitory Housing will be in Carter Hall (see map).

EVENTS ENTERED

☐ 201 Hand Launch Stick
☐ 202 Intermediate Stick
☐ 203 F I D
☐ 204 ROG Cabin
☐ 205 Manhattan
☐ 206 EZB
☐ 207 Penny Plane
☐ 208 Limited Penny Plane
☐ 209 Helicopter
☐ 210 Ornithopter
☐ 211 Autogiro
☐ 212 Hand Launch Glider
☐ 213 Kit-Plan Scale
☐ 215 Bostonian &
Bostonian Mass Launch
☐ 218 Std. Catapult Glider
☐ 219 Unltd. Catapult Glider
☐ 505 Peanut Scale
☐ 507 AMA Scale
☐ P-24 Mass Launch No Charge

GRAND CHAMPION SELECTIONS (Please Circle)

☐ 9 Hi-Wing Monoplane
☐ 10 FAC Scale
☐ 11 Golden Age
See CD for any
non-official
event flying.
☐ 1 Federation ROG
☐ 2 No-Cal Scale
☐ 3 Unltd. Rubber Speed
☐ 4 Pistachio Scale
☐ 5 Mini-Stick & Mass Launch
☐ 6 Coconut Scale & Mass Launch
☐ 7 35 CM Stick
☐ 8 PRO 20

*Please Indicate Reservation In:

	MAY 30	MAY 31	JUNE 1	JUNE 2	JUNE 3	JUNE 4	No. of Rooms
Single Occ.							
Double Occ.							
Triple Occ.							

Name of room mates if known: _____

In Case Of Emergency, Please Contact:

Name _____

Street _____

City _____

State _____ Zip _____ Phone: _____

Send fees to:

USIC

444 Bryan
St. Louis, MO 63122

Note: You can join NFFS and AMA on premises. It is best if you join NOW!

Must be postmarked by April 23, 1995
Late Entry Fee of \$10.00 payable on site.



World
News

We repeat our special invitation to all of our overseas flyers! Make your plans now to fly in one of the best flying sites in America! The 1995 United States Indoor Championships will be held at the Eastern Tennessee State University in Johnson City, Tennessee. We will begin with a practice day on May 31, 1995. The contest will start on that evening and continue through June 4, 1995. The Banquet will be on Thursday evening. We welcome all of you!



Great Britain

Congratulations to Bob Bailey for setting a new record for 1.2g EZB of 26:42 at the United

Kingdom Indoor Nationals!

CORRECTION

Andy Tagliafico
10039 SW Quail Post Rd
Portland, OR 97219
503-453-0546

TAN II UPDATE

Walt Van Gorder reports that 8/94 TAN II worked great at the King Orange Int'l contest, with no fraying at the knots.

INDOOR NEWS & VIEWS
is produced in St. Louis by

✍ Larry Coslick
✉ Roy White
✍ Mary Jane Reilly
✉ Howard Henderson
✍ Bill Martin

Dues: ☐ U.S. \$9.00/yr
☐ Canada \$12.00/yr
☐ Overseas \$15.00/yr air mail

We will publish four to six issues per year, depending on the budget and availability of material.

The number at the far right of the label indicates when subscription expires. A few back issues are available. Please write for details.

Send all dues and correspondence to

Roy White (INAV)
1025 Cedar Street
Catawissa, MO 63015

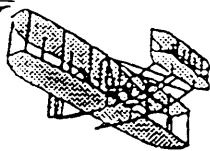
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Name _____

Address _____

City/State/Zip _____

Suggestion _____

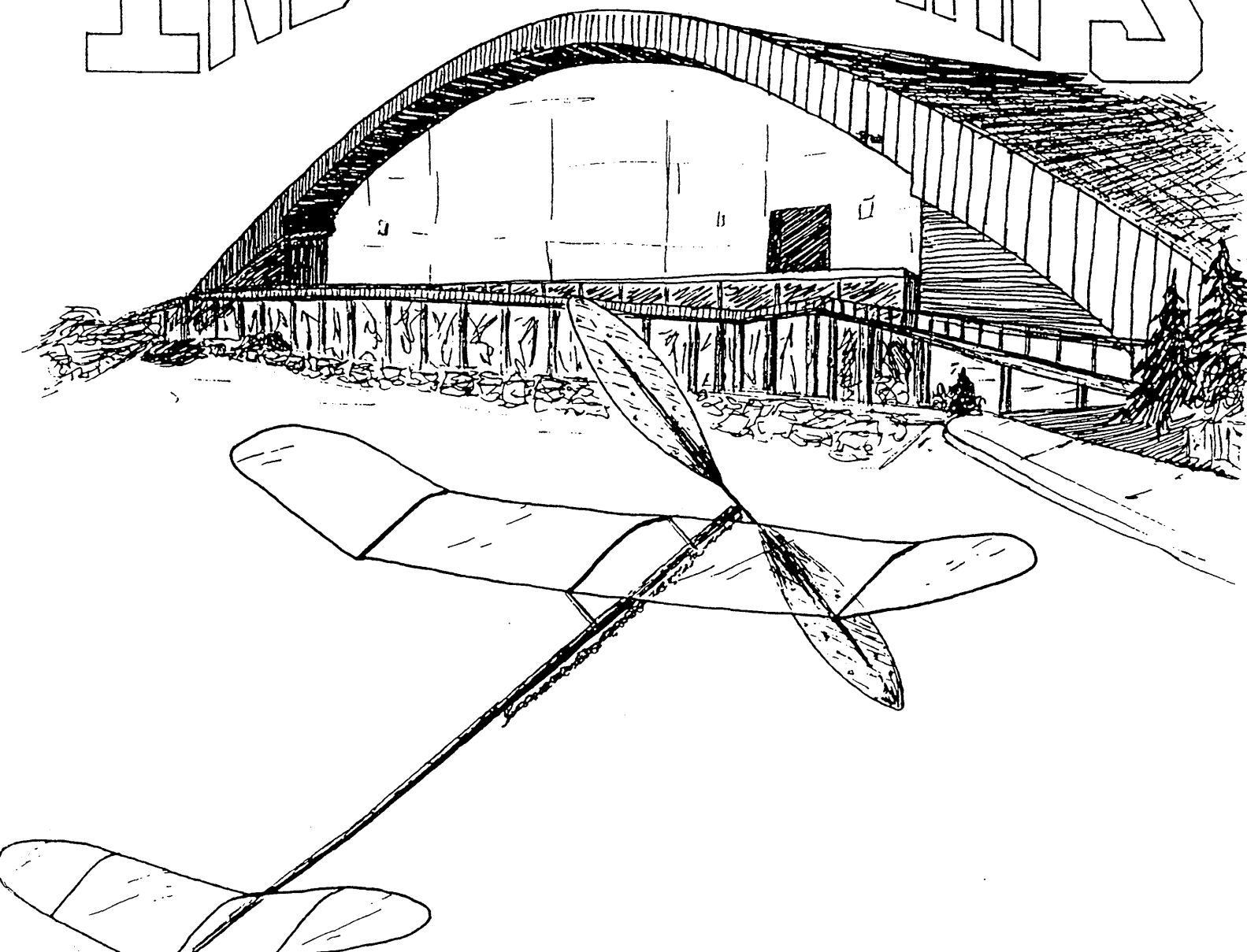


ISSUE 184 JUNE 1995

1995

UNITED STATES INDOOR CHAMPS

RESULTS



H ighlights of the 1995 U.S.I.C.



By Larry Coslick

The contest was a success, with only a few minor hitches. We were not prepared for the deluge of changes in flight

schedules that occurred in the first two hours of allowable set-up time. The practice day had to be rearranged, so that modelers would not have to assemble and disassemble their models for the afternoon session.

Our first competition was P-24, a paper-covered stick model, with a plastic prop. Jim Clem won the Mass Launch with a nice flight of over 5 minutes.

We officially started the contest Wednesday evening with FID, 35cm Stick and Cabin ROG. Jack McGillivray did not waste any time in FID, and put up two 43 minute flights back-to-back to win first place in FID. A new site record of 27:30 in ROG Cabin was set by Larry Loucka. Tom Sova won 35cm stick.

Thursday morning, the air was filled with Catapult and Hand Launched Gliders. When the competition was finished, Mike Thompson placed first in both Standard and Unlimited Catapult Glider.

Thursday afternoon was devoted to Intermediate Stick, Ornithopter and Helicopter. Bernard Hunt quickly set the pace with a 36 minute flight in Intermediate Stick and backed it up with a 38 minute flight to capture first place. Ray Harlen has not participated in the USIC for several

years. He said that his ornithopter had been in his model box for the past four years. Ray set a new Category IV Ornithopter record with a flight of 18:13. FID had already been decided the first day of competition, so most of the modelers concentrated on Hand Launched Stick. Bernard Hunt flew a newly designed FID tandem, with an 18 inch motor stick. The wing and stab are approximately 125 sq. in. each, and both are unbraced. He cranked it up the second day of competition and took Hand Launched Stick, with a great flight of 46:14.

Pro-20 was introduced to the East Coast this year. The model features a higher aspect wing than 35cm Stick and a good EZB design could be enlarged to meet the 68 sq.in. requirement. This model should do 30 minutes plus at a weight of around .4 gms. Ron Ganser set a new autogiro record with a flight of 12:48 in an event that he dominates.

Scale modelers had a chance to show their stuff on Friday. Doc Martin said that the Pistachio models were turning in times close to 2 minutes per flight.

Penny Plane showed Dan O'Grady leading the way with a great flight of 17:04.

If any of you feel that your age keeps you from competing, take a good look at the times Jim Grant is setting at 80 years of age. He is an inspiration to all of us! His planes (dyed red) are noticable to all. He flew a 374 sq.in. Hand Launched Stick this year, which made the Mini-Dome look small. Jim placed First in Manhattan Cabin, Third in Intermediate Stick & Fourth in Bostonian. He also won Bostonian Mass Launch.

On Saturday, Vladimir Linardic, a Senior from Canada, posted the best flight in Limited Penny Plane - 15:53. He was using a 12 x 16 prop, with a long loop of 8/93 TAN II and he cranked in 3600 turns. Jack McGillivray won Open Limited Penny Plane with 15:23.

The last and my favorite event was EZB. It started at noon on Sunday and it was evident from the start that the times were going to be high. The contestants are building lighter models, with very slow rotating props, and the models seemed to float to the ceiling. It was apparent that it was not necessary to crash around in the ceiling to get good times.

Ninety-six people attended the banquet on Friday night. The food was delicious and plentiful and everyone seemed to have a good time. We all enjoyed meeting our speaker, Ed Lockhart. All of us crowded around to see his tiny one-inch microfilm plane. It flies on a motor made from a cross-section of the neck of a toy balloon. Amazing!

We hope that all of you had as much fun as we did. Our committee has such a good rapport that everything flowed, just like we knew what we were doing. We really do have mutual admiration for each other.

The 1996 Nationals and U.S. Indoor Championships will be held at Johnson City and will be sponsored by AMA and NFFS. The contest will begin on May 29 (Wednesday) and run through June 1, 1996. We look forward to seeing all of you next year.

New PM2L Plastic Covering Material

By Dick Obarski

The weight loss factor (approx. 2/1) of using PM2L vs. Microfilm is a deterrent, but dimensional stability, puncture and shock resistance are much better, all of which would minimize problems of shipping and handling models.

SPECIFICATIONS

	Weight. In oz. Per* 100 sq in.	Thickness in inches
Ultra Film (Ray Harlen)	.0045	.00006
Ultimate (Wayne Trivin)	.00366	.000047
PM2L	.00271	.0000353
Microfilm	.0015 Appx.	Varies

* above weights determined using a Harlen beam scale. Weight for microfilm varies depending on sheet color after pouring.

PM2L - USA pricing \$15.00 - 15 ft.- P.Paid

Send to: R. W. Obarski
2112 N. Halcyon Drive
Sun City Center, FL 33573

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE	CHAMP POINTS
01 Larry Coslick	4652	21:55	24:51	27:01	-	-	27:01	1	100
57 Bernard Hunt	5MAE56209	21:16	23:15	25:57	-	-	25:57	2	96.0
50 L Cailliau	79985	12:04	18:56	24:51	23:59	25:34	25:34	3	
104 L Barr	ENG	11:00	16:27	23:54	25:25	05:46	25:25	4	
49 J McGillivray	MAAC 1025L	22:00	25:06	24:57	-	-	25:06	5	92.9
19 W Van Gorder	19912	21:59	23:50	04:13	22:33	-	23:50	6	
64 M Thompson	1484	19:57	22:55	21:47	21:38	-	22:55	7	84.8
68 J Lenderman	879	20:40	22:50	17:48	-	-	22:50	8	
98 Larry Loucka	1210	20:41	22:39	19:47	21:57	-	22:39	9	
15 Jim Grant	159477	22:29	05:30	-	-	21:17	22:29	10	83.2
36 Ray Harlan	131	20:01	21:51	-	-	-	21:51	11	
83 John Maret	MAAC 651L	19:03	21:14	17:52	20:52	20:32	21:14	12	
84 W.L. Martin	41300	09:44	14:04	21:03	20:19	19:07	21:03	13	
25 Stu Weckerly	13250	07:03	13:43	15:18	20:48	15:25	20:48	14	
32 P Olshefsky	MAAC 864L	20:44	16:01	20:22	16:00	18:27	20:44	15	
53 Jim Clem	L-55	20:38	-	-	-	-	20:38	16	
21 Dick Obarski	560	16:33	17:27	20:27	-	-	20:27	17	
23 Dan O'Grady	MAAC 6192	20:19	00:12	06:58	-	-	20:19	18	
34 Joseph Nuszer	29036	16:4	20:03	-	-	-	20:03	19	
42 Gord Wisniewski	716	10:04	05:00	19:40	-	-	19:40	20	
18 Tom Sova	473169	17:11	13:49	14:21	17:59	19:38	19:38	21	
02 John Ganser	179424	17:06	18:01	19:34	18:28	16:54	19:34	22	
73 John Kagan	469254	05:00	16:05	17:17	07:54	19:30	19:30	23	72.2
65 R Hardcastle	847	19:06	04:32	11:55	-	-	19:06	24	
41 Rob Romash	130061	14:52	17:48	19:00	-	-	19:00	25	70.3
111 John Barker	2095	18:48	16:46	15:43	15:37	11:02	18:48	26	
46 Bob Eberle	4117	18:40	-	-	09:53	-	18:40	27	
92 Ted Seaver	397891	11:03	14:58	16:05	18:13	-	18:13	28	
120 Mark Vancil	124866	08:50	17:08	17:08	17:56	-	17:56	29	
121 Jon Vancil	338494	10:06	11:31	17:50	17:34	-	17:50	30	
115 Louis Leifer	MAAC 2418L	16:09	04:52	17:40	-	-	17:40	31	
103 H Phillips	?	17:17	17:39	-	-	-	17:39	32	
77 A Tagliafico	5533	17:36	16:45	09:25	-	-	17:36	33	
93 Fred Rash	63458	15:34	-	16:22	16:50	16:53	16:53	34	
79 J Diebolt		15:48	16:48	14:38	-	-	16:48	35	
102 Doug Barber	56270	14:21	10:36	16:16	-	-	16:36	36	
28 James Zufelt	MAAC 945	15:14	05:18	15:58	10:39	-	15:58	37	
70 D Raymond-Jones	63358	12:13	14:44	-	-	-	14:44	38	
123 Len Singer	209081	09:50	07:51	14:17	-	-	14:17	39	
44 K Van Bueren	51477	13:44	13:54	10:21	-	-	13:54	40	
96 Tony Italiano	2386	12:13	10:20	12:35	05:10	10:51	12:35	41	
03 J Chizmadia	33580	12:07	05:51	03:33	06:29	-	12:07	42	
24 Chester Wrzos	20454	10:45	10:29	10:35	-	-	10:45	43	
11 A Van Dover	894	06:53	10:05	10:45	-	-	10:45	44	
86 Bud Tenny	16718	06:15	08:12	07:48	-	-	08:12	45	
48 Doug Oleson	480646	-	-	-	-	-	00:00	46	
61 D Semeraro	460910	-	-	-	-	-	00:00	47	
118 S Schriver	459504	-	-	-	-	-	00:00	48	
76 Phil Hartman	8667	-	-	-	-	-	00:00	49	
75 L Wieczorek	10105	-	-	-	-	-	00:00	50	
80 W Miller	742	-	-	-	-	-	00:00	51	
117 Dan Belieff	12816	-	-	-	-	-	00:00	52	
04 Ed Sullivan	69585	-	-	-	-	-	00:00	53	
85 John Feilin	95353	-	-	-	-	-	00:00	54	

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE	GRAND CHAMP POINTS
23 Dan O'Grady	MAAC 6192	15:40	16:38	17:04	-	-	17:04	1	100
76 Phil Hartman	8667	16:04	16:56	14:36	-	-	16:56	2	
42 Gord Wisniewski	716	16:33	16:51	04:35	-	-	16:51	3	
53 Jim Clem	L-55	05:47	16:51	12:47	15:01	15:45	16:51	4	
98 Larry Loucka	1210	14:06	15:05	15:30	16:26	-	16:26	5	
15 Jim Grant	159477	14:20	14:43	15:57	16:11	07:13	16:11	6	94.8
68 J Lenderman	879	15:21	14:02	15:52	15:21	15:29	15:52	7	
32 P Olshefsky	MAAC 864L	15:08	12:34	09:36	15:52	13:37	15:52	8	
65 R Hardcastle	847	15:26	15:04	07:35	-	-	15:26	9	
02 John Ganser	179424	14:27	14:34	14:55	03:32	11:23	14:55	10	
41 Rob Romash	130061	14:15	14:49	-	-	-	14:49	11	
83 John Maret		13:20	14:09	13:40	14:31	13:06	14:31	12	
57 Bernard Hunt	SMAE56209	12:10	13:39	13:54	14:25	14:20	14:25	13	84.5
49 J McGillivray	MAAC 1025L	11:27	14:24	-	-	-	14:24	14	84.4
01 Larry Coslick	4652	14:23	-	-	-	-	14:23	15	
17 Gene Joshu	260643	09:18	13:43	14:20	13:07	14:10	14:20	16	
64 M Thompson	1484	13:31	14:08	13:30	-	-	14:08	17	82.8
120 Mark Vancil	124866	14:08	03:30	05:36	13:08	11:20	14:08	18	
18 Tom Sova	473169	08:54	07:04	13:01	13:45	10:41	13:45	19	
73 John Kagan	469254	09:28	08:21	12:44	13:24	13:43	13:43	20	80.3
21 Dick Obarski	560	13:39	03:56	13:39	03:41	-	13:39	21	
62 Robert Warmann	18748	13:38	11:54	07:01	07:42	-	13:38	22	
108 Vlad Linardic	MAAC 38165	05:39	07:35	09:40	12:22	13:37	13:37	23	
79 John Diebolt	97263	07:18	13:15	13:33	-	-	13:33	24	
45 Rob Eberle	411592	11:26	12:43	13:21	-	-	13:21	25	
93 Fred Rash	63458	10:51	12:51	03:37	-	-	12:51	26	
99 Chris Sydor	280169	12:51	11:28	12:35	12:11	-	12:51	27	
70 D Raymond-Jones	63358	08:10	08:25	12:39	-	-	12:39	28	
103 H Phillips	?	12:15	-	-	-	-	12:15	29	
85 John Fellin	95353	12:00	10:16	12:12	09:03	11:35	12:12	30	
28 James Zufelt	MAAC 945	08:25	11:09	08:43	11:57	-	11:57	31	
25 Stu Weckerly	13250	11:12	10:14	05:39	-	-	11:12	32	
115 Louis Leifer	MAAC 2418L	10:13	-	-	-	-	10:13	33	
96 Tony Italiano	2386	08:19	07:54	06:20	08:42	07:39	08:42	34	
102 Doug Barber	56270	05:13	08:32	05:34	08:18	-	08:32	35	
106 N. Leonard JR.		04:31	01:57	06:20	05:53	07:46	07:46	36	
26 Dave Henshaw	MAAC 226L	03:46	05:09	03:55	05:26	05:51	05:51	37	
11 A Van Dover	894	02:43	05:00	03:49	05:29	-	05:29	38	
34 Joseph Nuszer	29036	-	-	-	-	-	00:00	39	
63 Rich Ennis	45450	-	-	-	-	-	00:00	40	
40 Jim Jones	986	-	-	-	-	-	00:00	41	
86 Bud Tenny	16718	-	-	-	-	-	00:00	42	
24 Chester Wrzos	20454	-	-	-	-	-	00:00	43	
87 Vernon Hacker	44137	-	-	-	-	-	00:00	44	
67 Tom Green	2689	-	-	-	-	-	00:00	45	
104 L Barr	ENG	-	-	-	-	-	00:00	46	
59 Billie Landrum	52674	-	-	-	-	-	00:00	47	

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE	GRAND CHAMP POINTS
49 J McGillivray	MAAC 1025L	14:14	14:39	14:43	05:51	15:23	15:23	1	100
19 W Van Gorder	19912	14:58	11:16	14:19	14:09	-	14:58	2	
83 John Marett	MAAC 651L	13:47	14:56	-	-	-	14:56	3	
41 Rob Romash	130061	12:43	14:15	14:43	13:00	14:50	14:50	4	96.4
53 Jim Clem	L-55	14:39	14:46	05:53	13:55	-	14:46	5	
64 M Thompson	1484	14:05	14:23	14:37	14:22	13:52	14:37	6	95.0
98 Larry Loucka	1210	14:02	14:29	14:14	13:44	-	14:29	7	
68 J Lenderman	879	13:45	03:17	14:01	14:17	02:27	14:17	8	
32 P Olshefsky	MAAC 864L	14:09	13:59	08:50	12:53	12:35	14:09	9	
57 Bernard Hunt	SMAE56209	13:45	05:12	14:02	04:40	13:58	14:02	10	91.2
15 Jim Grant	159477	5:14	13:58	5:00	13:37	-	13:58	11	90.8
66 Richard Miller	179518	13:53	06:08	04:53	-	-	13:53	12	
65 R Hardcastle	847	13:50	10:00	11:06	-	-	13:50	13	
23 Dan O'Grady	MAAC 6192	13:50	02:44	10:03	10:35	-	13:50	14	
55 Phil Alvarez	228391	13:37	13:09	13:20	12:20	08:27	13:37	15	
74 Ron Ganser	7532	11:17	11:52	12:46	13:28	-	13:28	16	87.5
44 K Van Bueren	51477	13:22	13:23	12:36	-	-	13:23	17	
46 Bob Eberle	4117	13:19	03:20	12:52	13:23	-	13:23	18	
42 Gord Wisniewski	716	13:22	12:48	-	-	-	13:22	19	
62 Robert Warmann	18748	13:00	12:43	13:13	12:40	-	13:13	20	
80 W Miller	742	11:03	13:12	12:10	08:33	12:47	13:12	21	
111 John Barker	2095	10:33	12:01	13:07	01:38	11:21	13:07	22	
02 John Ganser	179424	11:53	12:36	13:01	-	-	13:01	23	
109 H Vonasek		10:26	10:16	11:54	12:42	05:26	12:42	24	
93 Fred Rash	63458	12:35	07:10	10:30	12:41	11:52	12:41	25	
70 D Raymond-Jones	63358	12:36	12:38	-	-	-	12:38	26	
37 William Pavsek	319915	12:36	11:58	09:05	03:45	-	12:36	27	
104 L Barr	ENG	11:25	12:31	02:55	-	-	12:31	28	81.4
92 Ted Seaver	397891	08:09	03:19	12:08	12:24	11:26	12:24	29	
43 Herb Stevens	13086	02:30	12:23	07:50	09:17	-	12:23	30	
110 J Koptonak	?	10:16	10:55	11:57	11:31	12:08	12:08	31	78.9
21 Dick Obarski	560	10:16	2:55	12:04	2:57	3:17	12:04	32	
18 Tom Sova	473169	11:44	4:40	10:52	11:51	-	11:51	33	
25 Stu Weckerly	13250	11:43	11:50	09:34	03:16	08:49	11:50	34	
84 W.L. Martin	41300	11:20	09:18	11:04	11:24	11:20	11:24	35	
96 Tony Italiano	2386	10:06	11:13	09:39	08:36	07:47	11:13	36	
116 Jack Boone	107857	08:14	08:43	10:33	11:05	10:38	11:05	37	
86 Bud Tenny	16718	08:35	04:54	10:58	06:56	10:54	10:58	38	
59 Billie Landrum	52674	10:54	10:57	10:55	-	-	10:57	39	
102 Doug Barber	56270	09:35	09:55	10:46	09:46	09:51	10:46	40	
28 James Zufelt	MAAC 945	08:00	08:31	09:07	09:12	10:28	10:28	41	
120 Mark Vancil	124866	09:53	08:17	-	-	-	09:53	42	
73 John Kagan	469254	06:15	09:23	09:53	02:00	-	09:53	43	
105 Nick Leonard	497461	09:52	06:56	08:53	05:55	-	09:52	44	
82 D Campbell	346641	02:31	09:52	08:44	09:09	00:15	09:52	45	
103 H Phillips	?	09:47	-	-	-	-	09:47	46	
85 John Fellin	95353	08:13	08:44	09:35	09:37	-	09:37	47	
26 Dave Henshaw	MAAC 226L	07:46	08:53	06:51	08:58	04:09	08:58	48	
11 A Van Dover	894	8:21	7:21	8:58	5:54	8:41	8:58	49	
04 Ed Sullivan	69585	06:38	07:53	7:49	7:58	8:17	8:17	50	
58 R Stonecipher	372732	05:46	05:46	06:22	05:22	08:15	08:15	51	
114 Greg Krol	514743	03:49	03:22	08:07	-	-	08:07	52	
17 Gene Joshu	260643	8:01	-	-	-	-	8:01	53	
79 John Diebolt	97263	07:28	05:55	-	-	-	07:28	54	
24 Chester Wrzos	20454	06:49	04:54	06:18	-	-	06:49	55	
95 William Bigge	127L	02:11	04:10	05:18	-	-	05:18	56	
90 Louis Black	31369	03:32	04:13	04:37	-	-	04:37	57	
76 Phil Hartman	8667	03:32	-	-	-	-	03:32	58	
30 Walt Liszewski	?	02:02	-	-	-	-	02:02	59	
48 Doug Oleson	480646	-	-	-	-	-	00:00	60	
34 Joseph Nuszer	29036	-	-	-	-	-	00:00	61	
40 Jim Jones	986	-	-	-	-	-	00:00	62	
07 Harry Geyer	17708	-	-	-	-	-	0:00	63	
61 D Semeraro	460910	-	-	-	-	-	00:00	64	
67 Tom Green	2689	-	-	-	-	-	00:00	65	
72 C Culpepper	?	-	-	-	-	-	00:00	66	

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE
104 L Barr	ENG	08:30	08:15	07:34	11:51	12:33	12:33	1
50 L Cailliau	79985	11:55	12:30	-	-	-	12:30	2
57 Bernard Hunt	SMAE56209	09:58	09:00	11:48	04:48	-	11:48	3
46 Bob Eberle	4117	09:26	08:15	11:45	07:20	-	11:45	4
80 W Miller	742	09:30	11:40	10:35	-	-	11:40	5
68 J Lenderman	679	11:32	11:13	11:25	-	-	11:32	6
120 Mark Vancil	124866	-	11:07	-	-	-	11:07	7
77 A Tagliafico	5533	11:06	-	-	-	-	11:06	8
21 Dick Obarski	560	10:53	10:56	11:03	07:12	02:47	11:03	9
19 W Van Gorder	19912	10:52	-	-	-	-	10:52	10
55 Phil Alvarez	228391	10:43	10:48	10:12	10:43	-	10:48	11
64 M Thompson	1484	10:09	10:25	09:42	-	-	10:25	12
85 John Fellin	95353	09:46	10:02	08:53	06:09	-	10:02	13
53 Jim Clem	L-55	09:33	00:18	10:00	04:32	-	10:00	14
18 Tom Sova	473169	09:09	08:00	03:09	09:46	-	09:46	15
17 Gene Joshu	260643	09:41	04:27	09:35	07:48	-	09:41	16
121 Jon Vancil	338494	05:25	09:35	08:52	-	-	09:35	17
23 Dan O'Grady	MAAC 6192	09:30	02:27	-	-	-	09:30	18
44 K Van Bueren	51477	08:15	06:17	09:23	08:19	09:26	09:26	19
111 John Barker	2095	07:26	04:20	08:23	07:33	09:23	09:23	20
41 Rob Romash	130061	09:22	-	-	-	-	09:22	21
62 Robert Warmann	18748	00:18	09:14	08:10	08:26	06:59	09:14	22
36 Ray Harlan	131	09:09	08:59	-	-	-	09:09	23
02 John Ganer	179424	08:09	08:56	09:06	-	-	09:06	24
65 R Hardcastle	847	09:00	01:00	07:07	-	-	09:00	25
83 John Merett	MAAC 651L	08:27	06:38	08:54	-	-	08:54	26
86 Bud Tenny	16718	01:16	08:33	02:28	08:50	07:10	08:50	27
110 J Koptonak	?	08:11	08:04	02:24	08:29	07:37	08:29	28
92 Ted Seaver	397891	07:30	06:02	08:19	03:51	-	08:19	29
22 Chas Johnson	473525	05:41	07:42	08:15	07:10	07:29	08:15	30
79 John Diebolt	97263	07:47	02:01	-	-	-	07:47	31
84 W.L. Martin	41300	04:11	07:24	-	-	-	07:24	32
94 Edward Ripley	484619	00:40	06:05	01:47	07:15	00:32	07:15	33
73 John Kagan	469254	06:32	07:13	-	-	-	07:13	34
37 William Pavek	319915	06:59	07:10	07:09	06:51	-	07:10	35
70 D Raymond-Jones	63358	06:44	06:36	-	-	-	06:44	36
58 R Stonecipher	372732	03:08	06:43	04:08	-	-	06:43	37
123 Len Singer	209081	04:58	06:00	-	-	-	06:00	38
123 Len Singer	209081	04:58	06:00	-	-	-	06:00	39
106 Nick Leonard Jr	?	04:27	04:45	05:10	04:05	-	05:10	40
118 S Schriver	459504	00:26	01:43	01:38	01:46	01:34	01:46	41
48 Doug Oleson	480646	-	-	-	-	-	00:00	42
75 L Wieczorek	10105	-	-	-	-	-	00:00	43
95 William Bigge	127L	-	-	-	-	-	00:00	44
105 Nick Leonard	497461	MINI STICK MASS LAUNCH WINNER:					00:00	45
04 Ed Sullivan	69585	-	-	-	-	-	00:00	46
15 Jim Grant	159477	-	LARRY CAILLIAU			-	00:00	47
108 Vlad Linardic	MAAC 38165J	-	-	-	-	-	00:00	48
34 Joseph Nuszer	29036	-	-	-	-	-	00:00	49
45 Rob Eberle	411592	-	-	-	-	-	00:00	50
98 Larry Loucka	1210	-	-	-	-	-	00:00	51
26 Dave Henshaw	MAAC 226L	-	-	-	-	-	00:00	52
66 Richard Miller	179518	-	-	-	-	-	00:00	53
97 D Thomson	8410	-	-	-	-	-	00:00	54
59 Billie Landrum	52674	-	-	-	-	-	00:00	55

CONTESTANT	AMA #	1	2	3	4	5	6	7	8	9	BEST FLT	2nd FLT	TOTAL BEST 2	PLACE	GRAND CHAMP POINTS
64 M Thompson	1484	72.6	81.5	78.3	83.0	77.3	76.5	80.4	76.5	82.2	83.0	82.2	165.2	1	100
14 Ralph Schlarb	322352	79.3	78.9	74.0	73.1	69.0	78.1				79.3	78.9	158.2	2	95.8
13 W Schlr	14425	75.6	73.9	0.59	0.61	78.4	77.4	-	-	-	78.8	77.4	156.2	3	94.5
44 K Van Bueren	51477	71.6	73.1	72.3	70.7	59.6	73.6	69.6	76.5	73.4	76.5	73.6	150.1	4	90.9
117 Dan Belieff	12816	52.0	55.0	10.0	74.1	65.3	66.7	64.0	68.2	74.4	74.4	71.1	148.5	5	89.9
29 Bernie Boehm	92567	75.1	70.3	72.8	03.0	-	-	-	-	-	75.1	72.8	147.9	6	89.5
47 Keith Fulmer	31552	70.0	71.0	72.0	73.0	68.0	49.0	-	-	-	73.0	72.0	145.0	7	87.8
41 Rob Romash	130061	65.8	66.8	65.3	66.3	65.1	66.1	-	-	-	66.8	66.3	133.1	8	80.6
62 Robert Warmann	18748	35.8	29.2	55.5	43.8	75.2	10.8	26.8	10.3	-	75.2	55.5	130.7	9	79.1
107 W Passarelli	15623	59.3	61.7	63.1	60.4	65.5	57.8	64.3	59.7	54.9	65.5	64.3	129.8	10	78.6
93 Fred Rasn	63458	63.9	63.5	58.0	38.7	51.0	56.7	-	-	-	63.9	63.5	127.4	11	77.1
74 Ron Ganzer	7532	47.6	51.6	48.3	51.9	57.4	62.0	62.1	63.6	55.5	63.6	62.1	125.7	12	76.1
109 H Vonasek		51.7	51.4	48.7	51.0	48.5	28.2	59.6	61.4	63.3	63.3	61.4	124.7	13	75.6
110 J Koptonak	?	53.6	60.2	58.2	46.8	52.3	62.6	54.6	61.1	49.8	62.6	61.1	123.7	14	74.9
25 Stu Weckerly	13250	31.6	51.4	55.6	05.6	51.8	14.5	61.7	58.7	43.0	61.7	58.7	120.4	15	72.9
31 George Batiuk	135	47.1	49.4	49.6	51.5	52.0	55.7	56.5	55.9	56.2	56.5	56.2	112.7	16	68.2
42 Gord Wisniewski	716	43.5	49.6	26.3	50.6	48.5	34.1	58.4	-	10.0	58.4	50.6	109.0	17	66.0
52 D Brimmer	1097	15.0	24.0	25.0	47.0	43.0	47.0	26.0	21.0	14.0	47.0	47.0	84.0	18	56.9
99 Chris Sydor	280169	43.8	48.9	30.0	-	-	-	-	-	-	48.9	43.8	92.7	19	56.1
96 Tony Italiano	2386	33.5	34.1	39.3	39.8	39.1	43.3	41.6	39.8	36.8	43.3	41.6	84.9	20	51.4
86 Bud Tenny	16718	39.9	31.0	39.6	31.2	03.3	37.2	37.2	16.7		39.9	39.6	79.5	21	48.1
58 R Stonecipher	372732	14.5	07.3	24.8	19.3	24.5	25.2	06.8	13.3	22.6	25.2	24.8	50.0	22	30.3
46 Bob Eberle	4117	-	-	-	-	-	-	-	-	-	-	-	000.0	23	00
54 Jack Green	9282	-	-	-	-	-	-	-	-	-	-	-	000.0	24	00
59 Billie Landrum	52674	-	-	-	-	-	-	-	-	-	-	-	000.0	25	00
45 Rob Eberle	411592	-	-	-	-	-	-	-	-	-	-	-	000.0	26	00
72 C Culpepper	?	-	-	-	-	-	-	-	-	-	-	-	000.0	27	00
97 D Thomson	8410	-	-	-	-	-	-	-	-	-	-	-	000.0	28	00

CONTESTANT	AMA #	1	2	3	4	5	6	7	8	9	BEST FLT	2nd FLT	TOTAL BEST 2	PLACE	GRAND CHAMP POINTS
64 M Thompson	1484	81.1	76.9	78.4	75.7	75.9	82.3	83.1	83.1	82.4	83.1	83.1	166.2	1	100
62 Robert Warmann	18748	48.4	56.7	52.2	71.9	67.6	80.0	73.8	82.7	83.0	83.0	82.7	165.7	2	99.7
71 Jim Buxton	75154	77.3	80.0	78.8	81.3	81.7	61.0	--	-	-	81.7	81.3	163.0	3	98.1
14 Ralph Schlarb	322352	78.5	77.7	-	-	-	-	-	-	-	78.5	77.7	156.2	4	94
13 W Schlarb	14425	70.1	45	70.3	77.3	76.5	75.0	-	-	-	77.3	76.5	153.8	5	92.5
117 Dan Belieff	12816	70.0	68.9	69.7	71.3	74.0	77.0	69.1	68.0	74.0	77.0	74.0	151.0	6	90.8
44 K Van Bueren	51477	58.6	62.2	65.7	70.2	68.2	75.4	73.6	70.8	68.4	75.4	73.6	149.0	7	89.6
93 Fred Rash	63458	46.7	01.0	41.3	65.1	54.1	38.5	-	-	-	65.1	64.1	129.2	8	77.7
29 Bernie Boehm	92567	58.1	53.1	61.1	66.0	63.0	61.0	-	-	-	66.0	63.0	129.0	9	77.6
54 Jack Green	9282	58.3	59.9	57.6	--	-	-	-	-	-	59.9	58.3	118.2	10	71.1
31 George Batiuk	135	50.1	56.2	48.8	49.0	53.4	36.0	-	-	-	56.2	53.4	109.6	11	65.9
52 D Brimmer	1097	15.0	11.0	21.0	39.0	13.9	16.3	43.2	43.0	45.1	45.1	43.2	88.3	12	53.1
25 Stu Weckerly	13250	30.4	40.4	38.0	05.0	14.8	-	-	-	-	40.4	38.0	78.4	13	47.2
95 William Bigge	127L	17.0	30.0	-	-	-	-	-	-	-	30.0	17.0	47.0	14	28.3
56 W Schlesinger	5954	18.0	20.0	19.0	20.0	21.0	19.0	21.0	21.9	22.1	22.1	21.9	44.0	15	26.5
47 Keith Fulmer	31552	-	-	-	-	-	-	-	-	-	-	-	000.0	15	
46 Bob Eberle	4117	-	-	-	-	-	-	-	-	-	-	-	000.0	16	
99 Chris Sydor	280169	-	-	-	-	-	-	-	-	-	-	-	000.0	17	
71 Jim Buxton	75154	-	-	-	-	-	-	-	-	-	-	-	000.0	18	
96 Tony Italiano	2386	-	-	-	-	-	-	-	-	-	-	-	000.0	19	

1995 USIC

-----FAI INDOOR(F1D)#203-----

CONTESTANT	AMA#	1	2	3	4	5	6	BEST FLT	2nd FLT	TOTAL BEST 2	PLACE	USA TEAM REGIONAL POINTS	GRAND CHAMP POINTS
49 J McGillivray	MAAC 1025L	30:27	43:50	43:59	-	-	-	43:59	43:50	01:27:49	1		100
98 Larry Loucka	1210	31:32	32:15	39:32	39:43	-	-	39:43	39:32	01:19:15	2		90.2
57 Bernard Hunt	SMAE56209	37:48	40:00	38:42	-	-	-	40:00	38:42	01:18:42	3		89.6
08 Bill Hulbert	13143	15:28	34:14	33:17	37:02	38:42	19:20	38:42	37:02	01:15:44	4		86.2
101 Richard Doig	5392	36:07	24:51	36:27	17:54	32:52	33:39	36:27	36:07	01:12:34	5		82.6
104 L Barr	ENG	25:59	32:40	34:52	-	-	-	34:52	32:40	01:07:32	6		76.9
73 John Kagan	469254	02:26	28:36	09:48	26:44	26:17	34:57	34:57	28:36	01:03:33	7		72.4
64 M Thompson	1484	25:28	29:27	-	-	-	-	29:27	25:28	00:54:55	8		62.5
45 Rob Eberle	411592	-	-	-	-	-	-	-	-	00:00:00	9		
108 Vlad Linardic	MAAC 38165J	-	-	-	-	-	-	-	-	00:00:00	10		
51 Ed Burke	153313	-	-	-	-	-	-	-	-	00:00:00	11		
65 R Hardcastle	847	-	-	-	-	-	-	-	-	00:00:00	12		
87 Vernon Hacker	44137	-	-	-	-	-	-	-	-	00:00:00	13		

1995 USIC

-----INTERMEDIATE STICK #202-----

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE	GRAND CHAMP POINTS
57 Bernard Hunt	SMAE56209	36:08	38:06	-	-	-	38:06	1	100
01 L Coslick	4652	33:25	37:29	-	-	-	37:29	2	98.4
15 Jim Grant	159477	24:03	29:16	32:11	27:37	34:09	34:09	3	89.6
65 R Hardcastle	847	30:09	33:45	08:15	-	-	33:45	4	88.5
104 L Barr	ENG	31:15	-	-	-	-	31:15	5	82.0
98 Larry Loucka	1210	28:01	27:53	30:29	30:59	-	30:59	6	81.3
18 Tom Sova	473169	20:59	27:53	28:51	26:58	-	28:51	7	75.7
111 John Barker	2095	26:01	09:11	27:56	28:44	-	28:44	8	75.4
74 Ron Ganser	7532	24:23	26:09	28:11	-	-	28:11	9	73.9
21 Dick Obarski	560	20:02	26:25	24:14	-	-	26:25	10	69.3
23 Dan O'Grady	MAAC 6192	21:58	25:16	24:17	-	-	25:16	11	66.3
110 J Koptonak	?	17:26	23:19	24:48	24:07	24:17	24:48	12	65.0
117 Dan Belieff	12816	24:09	-	-	-	-	24:09	13	63.4
32 P Olshefsky	MAAC 864L	14:15	24:03	19:57	16:48	24:01	24:03	14	63.1
64 M Thompson	1484	22:45	21:53	22:47	-	-	22:47	15	59.7
83 John Marett	MAAC 651L	18:57	20:01	19:27	19:28	07:56	20:01	16	52.5
70 D Raymond-Jones	63358	10:39	17:16	-	-	-	17:16	17	45.3
108 Vlad Linardic	MAAC 38165J	15:41	-	-	-	-	15:41	18	41.1
76 Phil Hartman	8667	-	-	-	-	-	00:00	19	
45 Rob Eberle	411592	-	-	-	-	-	00:00	20	
19 W Van Gorder	19912	-	-	-	-	-	00:00	21	
80 W Miller	742	-	-	-	-	-	00:00	22	
87 Vernon Hacker	44137	-	-	-	-	-	00:00	23	
51 Ed Burke	153313	-	-	-	-	-	00:00	24	
49 J McGillivray	MAAC 1025L	-	-	-	-	-	00:00	25	
71 Jim Buxton	75154	-	-	-	-	-	00:00	26	
34 Joseph Nuszer	29036	-	-	-	-	-	00:00	27	

CONTESTANT	AMA#	1	2	3	4	5	FLIGHT	FIGHT	BEST 2	CHARISMA	TOTAL	PLACE
69 D Aronstein	97976	05:19	05:34	-	-	-	05:34	05:19	653	1.15	750.95	1
64 M Thompson	1484	04:17	04:47	04:36	-	-	04:47	04:36	563	1.19	669.97	2
01 Larry Coslick	4652	04:25	04:39	04:32	-	-	04:39	04:32	551	1.18	650.18	3
15 Jim Grant	159477	03:32	03:27	-	04:30	04:51	04:51	04:30	561	1.15	645.15	4
34 Joseph Nuszer	29036	03:26	04:20	04:26	04:02	-	04:26	04:20	526	1.15	604.90	5
119 Paul Avery	158011	04:06	04:16	03:26	-	-	04:16	04:06	502	1.20	602.40	6
107 W Passarelli	15623	02:12	03:39	03:54	03:59	-	03:59	03:54	473	1.18	558.14	7
37 William Pavak	319915	03:32	03:47	03:01	03:56	02:56	03:47	03:32	439	1.19	522.41	8
111 John Barker	2095	00:56	01:56	03:34	03:40	-	03:40	03:34	434	1.16	503.44	9
92 Ted Seaver	397891	02:30	03:44	03:17	02:15	03:04	03:44	03:17	421	1.14	479.94	10
43 Herb Stevens	13086	00:21	03:16	02:46	03:27	03:37	03:37	03:27	424	1.12	474.88	11
66 Richard Miller	179518	03:17	03:20	02:29	00:44	01:35	03:20	03:17	397	1.18	468.46	12
44 K Van Bueren	51477	02:37	00:44	02:54	03:06	03:13	03:13	03:06	379	1.09	413.11	13
73 John Kagan	469254	-	01:41	02:27	02:30	03:37	03:37	02:30	367	1.07	392.69	14
58 R Stonecipher	372732	01:36	01:31	02:12	02:23	02:02	02:23	02:12	275	1.15	316.25	15
27 Sidney Gilbert	1803	02:27	02:30	02:07	-	-	02:30	02:27	297	1.05	311.85	16
114 Greg Krol	514743	-	02:05	-	02:01	00:29	02:05	02:01	246	1.08	265.68	17
31 George Batiuk	135	01:42	00:31	01:18	01:57	-	01:57	01:42	219	1.19	260.61	18
103 H Phillips	?	02:11	00:50	-	-	-	02:11	00:50	181	1.09	197.29	19
11 A Van Dover	894	00:49	00:60	00:60	-	-	00:61	00:60	121	1.09	131.89	20
118 S Schriver	459504	00:29	00:39	00:55	00:54	01:07	01:07	00:55	122	1.03	125.66	21
84 W.L. Martin	41300	01:38	-	-	-	-	01:38	-	98	1.10	107.80	22
38 Ken Lazarus	371820	00:44	-	-	-	-	00:44	-	44	1.11	48.84	23
39 Bob Butsch		00:19	-	-	-	-	00:19	-	19	1.14	21.66	24
61 D Semeraro	460910	-	-	-	-	-	-	-			0	25
97 D Thomson	8410	-	-	-	-	-	-	-			0	26
72 C Culpepper	?	-	-	-	-	-	-	-			0	27
21 Dick Obarski	560	-	-	-	-	-	-	-			0	28
46 Bob Eberle	4117	-								1.10	0	29
91 Fred Dippel		-									0	30
20 Tom Savage	484618	-	-	-	-	-	-	-		1.14	0	31
36 Ray Harlan	131	-	-	-	-	-	-	-		1.08	0	32
112 Millard Wells	65503	-	-	-	-	-	-	-			0	33
76 Phil Hartman	8667	-	-	-	-	-	-	-			0	34
75 L Wiczerek	10105	-	-	-	-	-	-	-			0	35

1995 USIC

-----FAC SCALE-----

CONTESTANT	AMA#	MODEL	BEST			FLIGHT	SCALE	TOTAL	PLACE
			1st	2nd	3rd				
			FLIGHT	FLIGHT	FLIGHT	POINTS	SCORE	SCORE	
16 Jim Miller	89382	Voisin Hydro	1:15	1:27	-	73.5	87	160.5	1
49 J McGillivray	MAAC 1025L	SE-5	1:47	2:04	-	82.5	76.5	159	2
12 Dave Rees	33928	Nicholas Beasely	2:07	-	-	82.5	66.5	149.0	3
12 Dave Rees	33928	Piper Super Cruiser	2:10	-	-	82.5	62	144.5	4
25 Stu Weckerly	13250	Found Centennial	1:41	1:58	1:59	82.25	62	144.25	5
107 W Passarelli	15623	Nesmith Cougar	2:09	-	-	82.5	57	139.5	6
09 Dr. John Martin	712	Beardmore Inflexible	1:03	0:58	1:06	63	75	138	7
16 Jim Miller	89382	Martin MO-1	2:03	-	-	82.5	51	133.5	8
112 Millard Wells	65503	Waco SRE	0:58	-	-	58	64	122	9
27 Sidney Gilbert	1803	Compur Swift	1:24	-	-	72	39	111	10
110 J Koptonak	?	Helicat	0:49	60.0	:59	60	50	110	11
30 Walt Liszewski	?	Compur Swift	1:11	1:29	1:03	74.5	30	104.5	12
31 George Batiuk	135	PT-19	:54	0:46	:55	55	47	102	13
89 Robert Wells	512604	Heinkel 112	:33	-	-	33	39	72	14
66 R Miller	179518	Cessna C-34	-	-	-	-	47.5	-	-
113 B Hiscock	463447	Fokker D-7	-	-	-	-	44	-	-
52 D Brimmer	1097	Cessna C-37	-	-	-	-	56	-	-

CONTESTANT	AMA#	SUBJECT	1	2	3	4	5	BEST FLIGHT	BEST 2nd (MAX)	2nd FLIGHT	2nd (MAX)	FIDEL.CRAFT PNTS	BEST PNTS	TOT 2FLTS	PLACE
15 Jim Grant	159477	0-57 Taylorcraft	110	111	-	-	-	111	98	110	98	98	294	1	
66 Richard Miller	179518	???????	120	111	-	-	-	120	95	111	95	95	285	2	
09 Dr. John Martin	712	Dornier Komet	102	111	-	-	-	111.0	92	102	92	92	276	3	
52 D Brimmer	1097	Taylorcraft	62	62.5	81.1	88	87	88	88	87	87	94	269	4	
27 Sidney Gilbert	1803	Comper Swift	76	94	95	-	-	95	81	94	81	81	243	5	
103 H Phillips	?	????????	66	70	-	-	-	70	70	66	66	92	228	6	
56 W Schlesinger	5954	Pilatus Porter	56	58.2	61	63	62	63	63	62	62	92	217	7	
38 Ken Lazarus	371820	?????	36	53	51.5	60	-	60	60	53	53	89	202	8	
122 Glenn Campbell	15173	?????	28.3	46	-	-	-	46	46	28.3	28.3	92	166	9	
16 Jim Miller	89382	??????	-	-	-	-	-	-	-	-	-	94	-	10	
113 Wm Hiscock	463447	?????	-	-	-	-	-	-	-	-	-	82	-	11	

1994 USIC

-----HAND LAUNCHED STICK #201-----

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE	GRAND CHAMP POINTS
57 Bernard Hunt	SMAE56209	41:07	46:14	-	-	-	46:14	1	100
101 Richard Doig	5392	37:25	20:35	41:31	19:38	-	41:31	2	89.8
104 L Barr	ENG	37:08	38:19	-	-	-	38:19	3	82.9
65 R Hardcastle	847	19:35	26:59	31:39	-	-	31:39	4	68.4
108 Vlad Linardic	MAAC 38165J	16:03	29:57	10:31	-	-	29:57	5	64.8
117 Dan Belleff	12816	26:24	26:37	28:45	-	-	28:45	6	62.2
64 M Thompson	1484	09:17	28:43	21:00	08:33	-	28:43	7	62.1
15 Jim Grant	159477	07:38	14:51	-	-	-	14:51	8	32.1
45 Rob Eberle	411592	06:38	-	-	-	-	06:38	9	14.3
50 L Cailliau	79985	-	-	-	-	-	00:00	10	
51 Ed Burke	153313	-	-	-	-	-	00:00	11	
87 Vernon Hacker	44137	-	-	-	-	-	00:00	12	
98 Larry Loucka	1210	-	-	-	-	-	00:00	13	

1995 USIC

-----MAN CAB #205-----

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE	GRAND CHAMP POINTS
15 Jim Grant	159477	11:09	11:45	13:17	-	-	13:17	1	100
83 John Marett	MAAC 651L	09:10	09:18	09:53	11:36	12:35	12:35	2	94.7
19 W Van Gorder	19912	12:29	12:29	-	-	-	12:29	3	94.0
104 L Barr	ENG	09:42	10:58	10:15	10:58	-	10:58	4	82.6
66 Richard Miller		10:26	09:20	10:45	10:53	08:16	10:53	5	81.9
01 Larry Coslick	4652	10:24	10:10	10:26	10:40	-	10:40	6	80.3
79 John Diebolt	97263	06:24	06:59	10:27	-	-	10:27	7	78.7
74 Ron Ganer	7532	08:31	09:51	10:01	-	-	10:01	8	75.4
25 Stu Weckerly	13250	09:14	06:00	10:01	09:16	06:26	10:01	8	75.4
119 Paul Avery	158011	08:32	09:10	-	-	-	09:10	10	69.0
110 J Koptonak	?	07:44	08:14	08:45	06:16	08:49	08:49	11	66.4
36 Ray Harlan	131	-	05:40	-	-	-	05:40	12	42.7
28 James Zufelt	MAAC 945	03:11	04:22	04:49	-	-	04:49	13	36.3
11 A Van Dover	894	01:47	03:52	-	-	-	03:52	14	29.1
67 Tom Green	2689	-	-	-	-	-	00:00	15	0
98 Larry Loucka	1210	-	-	-	-	-	00:00	16	0

1995 USIC

-----NO-CAL SCALE-----

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE
98 Larry Loucka	1210	7:03	7:05	7:44	8:02	-	8:02	1
62 Robert Warmann	18748	6:44	6:06	6:41	2:09	7:20	7:20	2
34 Joseph Nuszer	29036	6:03	6:21	4:51	6:45	-	6:45	3
41 Rob Romash	130061	5:24	5:28	2:44	5:35	-	5:35	4
21 Dick Obarski	560	5:01	5:01	3:27	5:27	5:21	5:27	5
104 L Barr	ENG	3:53	4:56	4:00	5:18	5:25	5:25	6
37 William Pavek	319915	4:44	4:43	5:22	4:59	5:12	5:22	7
02 John Ganser	179424	4:42	1:41	4:56	-	-	4:56	8
92 Ted Seaver	397891	3:46	3:46	3:14	3:45	4:20	4:20	9
115 Louis Leifer	MAAC 2418L	2:38	1:42	4:15	4:07	-	4:15	10
57 Bernard Hunt	SMAE56209	3:06	3:10	3:50	-	-	3:50	11
84 W.L. Martin	41300	3:35	3:32	2:20	3:43	3:14	3:43	12
11 A Van Dover	894	3:36	-	3:16	-	-	3:36	13
31 George Batiuk	135	3:05	3:25	-	-	-	3:25	14
93 Fred Rash	63458	3:22	-	-	-	-	3:22	15
60 Daniel Baird	29698	3:10	1:21	-	-	-	3:10	16
73 John Kagan	469254	1:54	2:35	-	-	-	2:35	17
44 K Van Bueren	51477	2:09	2:00	-	-	-	2:09	18
114 Greg Krol	514743	0:51	1:40	-	-	-	1:40	19
58 R Stonecipher	372732	0:46	1:30	0:54	-	-	1:30	20
39 Robert Butsch	93988	0:51	-	-	-	-	:51	21
100 David Franks	170859	-	-	-	-	-	0:00	22
43 Herb Stevens	13086	-	-	-	-	-	0:00	23
110 J Koptonak	?	-	-	-	-	-	0:00	24
38 Ken Lazarus	371820	-	-	-	-	-	0:00	25

1995 USIC

-----FEDERATION ROG-----

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE
77 A Tagliafico	5533	07:39	02:59	09:15	-	-	09:15	1
60 Daniel Baird	29698	07:10	02:26	06:22	05:44	06:18	07:10	2
18 Tom Sova	473169	06:09	05:59	02:48	06:52	-	06:52	3
94 Edward Ripley	484619	03:40	04:31	05:42	04:21	05:47	05:47	4
93 Fred Rash	63458	00:38	04:2	02:10	-	-	04:42	5
53 Jim Clem	L-55	04:11	-	-	-	-	04:11	6
86 Bud Tenney	16718	01:16	-	-	-	-	01:16	7
79 John Diebolt	97263	-	-	-	-	-	00:00	8
92 Ted Seaver	397891	-	-	-	-	-	00:00	9
97 D Thomson	8410	-	-	-	-	-	00:00	10

1995 USIC

-----AUTOGYRO #211-----

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE
74 Ron Ganser	7532	12:48	12:32	12:01	-	-	12:48	1
79 John Diebolt	97263	09:23	11:20	-	-	-	11:20	2
93 Fred Rash	63458	02:50	03:38	05:09	-	-	05:09	3
11 A Van Dover	894	00:10	00:33	00:28	01:04	00:08	00:31	4
98 Larry Loucka	1210	-	-	-	-	-	00:00	5
02 John Ganser	179424	-	-	-	-	-	00:00	6

1995 USIC

----- GOLDEN AGE SCALE -----

CONTESTANT	AMA#	SUBJECT	FLIGHT			TOTAL	FLYOFF	PLACE
			1	2	3			
09 Dr. John Martin	712	Dornier Komet						
16 Jim Miller	89382	Martin MD-1						
25 Stu Weckerly	13250	Ford AT	159	156	161	360	230	2
52 D Brimmer	1097	Cessna C-34						
56 W Schlesinger	5954	-----						
64 M Thompson	1484	Farman	132	141	123	360	?	-
108 Vlad Linardic	MAAC 38165J	-----						
110 J Koptonak	?	Cessna C-34						
49 J McGillivray	MAAC 1025L	Cessna C-38	161	173	157	360	248	1
66 Rich Miller	179518	Cessna C-34						
103 H Phillips	?	Douglas YO						
12 Dave Rees	33928	Nicholas Beasley	?	?	?	360	220	3

1995 USIC

----- PISTACHIO SCALE -----

CONTESTANT	AMA#	SUBJECT	1	2	3	4	5	6	7	8	9	TOTAL FLIGHT STATIC			
												BEST 2	POINTS	POINTS	TOT PLACE
09 Dr. John Martin	712	Goldwing	1:18	47.6	1:15	-	-	-	-	-	-	2:33	1	5	6 1
52 D Brimmer	1097	Citabria	54.0	1:00	46.0	53.9	38.0	1:03	53.9	1:00	57.9	2:03	4	3	7 2
12 Dave Rees	33928	Lacey M-10	45.0	52.0	1:07	59.0	-	-	-	-	-	2:06	3	5	8 3
27 Sidney Gilbert	1803	Fike	57.4	1:04	1:10	-	-	-	-	-	-	2:14.6	2	7	9 4
94 Edward Ripley	484619	Wee Bee	28.7	42.4	44.8	44.6	58.0	1:03	-	-	-	2:01	5	5	10 5
112 Millard Wells	65503	SE-5	40.4	36.9	-	-	-	-	-	-	-	1:17	7	4	11 6
89 Robert Wells	512604	Mig 17	13.0	20.8	23.6	-	-	-	-	-	-	44.4	10	2	12 7
56 W Schlesinger	5954	Cougar AR	26.2	28.0	-	-	-	-	-	-	-	54.2	9	8	17 8
52 D Brimmer	1097	Bucker Jungman	-	-	-	-	-	-	-	-	-	-	-	1	- -
95 William Bigge	127L	-----	-	-	-	-	-	-	-	-	-	-	-	-	- -
09 Dr John Martin	712	Quetzloatl	57.5	59.6	58.0	-	-	-	-	-	-	1:57.6	6	5	11 -
112 Millard Wells	65503	Waco E	37.0	38.9	-	-	-	-	-	-	-	1:15	8	4	12 -

USIC 1995

----- HI-WING MONOPLANE -----

CONTESTANT	AMA#	MODEL	1st	2nd	3rd	BEST	FLIGHT	SCALE	TOTAL	PLACE
			FLIGHT	FLIGHT	FLIGHT					
64 M Thompson	1484	Lacey M-10	2:42	-	-	2:42	82.5	56	138.5	1
16 Jim Miller	89382	HI-MAX	2:27	-	-	2:27	82.5	53	135.5	2
27 Sidney Gilbert	1803	Lacey M-10	1:30	-	-	1:30	75	54	129	3
09 Dr. John Martin	712	Puss Moth	1:04	-	-	1:04	62	51	113	4
52 D Brimmer	1097	Lacey M-10	1:04	-	-	1:04	62	51	113	5
112 M Wells	65503	Cessna Cardinal	0:51	0:51	0:63	0:63	61.5	51	112.5	6
56 W Schlesinger	5954	Fike	0:35	0:33	0:34	0:35	35	52	87	7
89 R Wells	512604	Stout Ford AT	0:40	0:38	0:39	0:40	40	39	79	8
20 Tom Savage	484618	-----	-	-	-	-	-	-	000.0	9
39 R Busch	93988	Lacey M-10	-	-	-	-	-	55	000.0	10
113 Wm Hiscock	463447	-----	-	-	-	-	-	-	000.0	11

1995 USIC

-----PEANUT SCALE-----

CONESTANT	SUBJECT										SCALE		BEST	BEST	2nd	2nd	SCALE+		PLACE
		1	2	3	4	5	6	7	8	9	SCORE	FLIGHT	MAX	FLIGHT	MAX	AVE	AVE OF		
		BEST	2	BEST							BEST	2	BEST	2	BEST	2	BEST	2	
Ron Ganser	Voison Hydro	78.0	82.0	153	112	-	-	-	100	-	118.35	153	118.3	112	112	115.7	233.53	1	
J McGillivray	Isaac's Fury	85.0	101.0	113	-	-	-	-	90.4	-	107.18	113	107.18	101	101	104.09	211.27	2	
M Thompson	1935 Farman	114	99.09	-	-	-	-	-	77.0	-	90	114	90	99.09	90	90	180	3	
W Passarelli	PAMA	86.0	121	-	-	-	-	-	-	-	85.5	86.0	85.5	81	81	83.25	168.75	4	
Jim Grant	Gipsy Moth	59.7	50.8	58.2	-	-	-	-	-	-	102.15	60.8	-	59.7	-	60.25	162.4	5	
Stu Weckerly	DH-6	71.0	72.0	-	-	-	-	-	-	-	85.0	72.0	-	71.0	-	71.5	156.5	6	
Mark Vancil	Vagabond	82.0	58.0	79.0	-	-	-	-	-	-	74.98	82.0	74.98	79.0	74.98	74.98	149.96	7	
Sidney Gilbert	Lacey M-10	85.0	116	132	-	-	-	-	-	-	68.95	132	68.95	116	68.95	68.95	137.90	8	
Dr. John Martin	Ansaldo SVA	49.0	51.0	-	-	-	-	-	-	-	85.95	51.0	-	49.0	-	50.0	135.95	9	
J Koptonak	Curtiss P40B	32.0	21.0	32.0	36.0	39.0	45.0	41.0	57.0	-	90.3	45.0	-	41.0	-	43.0	133.3	10	
Millard Wells	Ansaldo SVA-5	52.1	51.0	50.8	-	-	-	-	-	-	74.9	52.1	52.1	51.1	51.0	51.55	126.45	11	
S Schriver	Lacey M-10	46.9	53.9	51.3	65.5	61.7	66.9	73.5	73.0	-	63	73.5	63	73	63	63	126.0	12	
Don Brimmer	Martin MO-1	42.6	41.5	26.5	22.5	29.0	45.0	34.9	-	-	76.65	45.0	-	42.5	-	43.8	120.45	13	
Sidney Gilbert	Volksplane	31.0	53.3	56.5	-	-	-	-	-	-	64.05	56.5	-	53.3	-	54.9	118.95	14	
Robert Wells	Andreason	48.0	45.0	-	-	-	-	-	-	-	61.25	48	-	45	-	46.5	107.75	15	
George Batiuk	1911 Caudron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	16	
Robt Wells	Aviatik O1	32.0	33.0	-	-	-	-	-	-	-	-	-	-	-	-	-	0	17	
Bill Hiskock	Cessna Cardinal	-	-	-	-	-	-	-	-	-	50.75	-	-	-	-	-	0	18	
Richard Miller	Volksplane	-	-	-	-	-	-	-	-	-	74	-	-	-	-	-	0	19	
Robt Butsch	Beechcraft Stg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	20	

1995 USIC

-----AMA SCALE -#507-----

CONTESTANT	AMA#	SUBJECT	1	2	4	5	BEST FLIGHT	2nd FLIGHT	AVERAGE BEST 2	SCALE POINTS	TOTAL POINTS	PLACE
49 J McGillivray	MAAC 1025L	SE5 Replica	126	114	-	-	126	114	90	97.7	187.7	1
74 Ron Ganser	7532	1911 Cessna	99	114	-	-	114	99	90	97.5	187.5	2
16 Jim Miller		Voisin	95	95	-	-	95	95	90	97	187	3
107 W Passarelli	15623	Nesmih Cougar	92	139	-	-	139	92	90	83	173	4
25 Stu Weckerly	13250	Found Centenial Flt	113	108	-	-	113	108	90	78	168	5
122 Glenn Campbell	15173	J-3 Cub	38	52	60	67	67	60	63.5	75	138.5	6
110 J Koptonak	?	Miles Sparrow Hawk	60	75	73	-	75	73	74	62	136	7
15 Jim Grant	159477	Cranwell	-	-	-	-	-	-	-	-	000	8
106 Vlad Linardic	MAAC 38165J	-----	-	-	-	-	-	-	-	-	000	9

1995 USIC

-----COCONUT SCALE-----

CONTESTANT	AMA#	SUBJECT	1	2	3	BEST FLIGHT	FLIGHT RANKING	STATIC RANKING	TOTAL RANKING	PLACE
09 Dr. John Martin	712	Beardmore	1:07	1:05	-	1:07	5	4	9	
12 Dave Rees	33928	Piper Supe Cruis	1:50	1:57	-	1:57	-	1	-	
12 Dave Rees		Nicholas Beasley	2:27	-	-	2:27	2	2	4	1
25 Stu Weckerly	13250	Found	1:25	1:48	1:52	1:52	3	5	8	3
56 W Schlesinger	5954	DNE	-	-	-	-	-	-	-	
59 Billie Landrum	52674	Cessna Bird Dog	1:25	1:13	1:20	1:25	4	5	9	
69 D Aronstein	97976	Ant-25	3:35	4:05	-	4:05	1	3	4	2
69 D Aronstein		Miles M-18	-	-	-	-	-	6	-	
89 Robert Welis	512604	Focke W A-47	1:00	1:00	-	1:00	6	5	11	
112 Millard Wells	65503	Ford 2-AT	:52	:35	-	:52	7	4	11	

COCONUT MASS LAUNCH WINNER: DAVE ARONSTEIN

CONTESTANT	AMA #	1	2	3	4	5	6	7	8	9	BEST FLT	2nd FLT	TOTAL BEST 2	PLACE	GRAND CHAMP POINTS
71 Jim Buxton	75154	70.8	75.0	73.6	68.4	71.1	74.2	-	-	-	75.0	74.2	149.2	1	100.0
29 Bernie Boehm	92567	67.0	71.3	73.1	72.0	70.0	75.3	69.6	70.3	71.5	75.3	73.1	148.4	2	99.4
64 M Thompson	1484	62.0	65.0	61.0	-	-	-	-	-	-	65.0	62.0	127.0	3	85.1
41 Rob Romash	130061	58.8	54.6	58.8	60.0	54.7	59.4	57.5	60.4	61.5	61.5	60.4	121.9	4	81.7
44 K Van Bueren	51477	55.5	54.8	59.2	51.6	50.5	55.8	49.8	51.0	42.7	59.2	55.8	115.0	5	77.1
110 J Koptonak	?	35.9	43.8	19.2	42.0	44.3	49.9	47.9	41.9	46.9	48.9	47.9	96.8	6	64.6
73 John Kagan	469254	27.6	29.2	28.7	26.8	32.5	38.5	39.3	-	-	39.3	38.5	77.6	7	52.1
11 A Van Dover	894	-	-	-	-	-	-	-	-	-	-	-	000.0		
46 Bob Eberle	4117	-	-	-	-	-	-	-	-	-	-	-	000.0		
43 Herb Stevens	13086	-	-	-	-	-	-	-	-	-	-	-	000.0		

1995 USIC

-----ROG CABIN #204-----

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE	GRAND CHAMP POINTS
98 Larry Loucka	1210	15:05	22:09	21:46	27:30	-	27:30	1	
74 Ron Ganer	7532	14:33	-	-	-	-	14:33	2	
117 Dan Belieff	?	12:20	-	-	-	-	12:20	3	
59 Billie Landrum	52674	-	-	-	-	-	00:00		
79 John Diebolt	97263	-	-	-	-	-	00:00		

1995 USIC

-----ORNITHOPTER #210-----

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE	GRAND CHAMP POINTS
36 Ray Harlan	131	17:24	05:25	18:13	-	-	18:13	1	100
01 L Coslick	4652	06:31	09:58	10:41	12:44	-	12:44	2	69.8
58 R Stonecipher	372732	01:55	02:33	01:45	-	05:47	05:47	3	31.7
94 Edward Ripley	484619	01:15	00:47	01:34	02:26	04:24	04:24	4	24.1
05 Roy White	6300	-	-	-	-	-	00:00		
17 Gene Joshu	260643	-	-	-	-	-	00:00		

1995 USIC

-----HELICOPTER #209-----

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE	GRAND CHAMP POINTS
01 Larry Coslick	4652	09:35	-	-	-	-	09:35	1	100
41 Rob Romash	130061	07:08	-	-	-	-	07:08	2	73
79 John Diebolt	97263	00:00	00:00	03:58	02:18	05:30	05:30	3	57.4
93 Fred Rash	63458	02:12	03:19	-	-	-	03:19	4	34.6
99 Chris Sydor	280169	-	-	-	-	-	00:00		
98 Larry Loucka	1210	-	-	-	-	-	00:00		
95 William Bigge	127L	-	-	-	-	-	00:00		
73 John Kagan	469254	-	-	-	-	-	00:00		
11 A Van Dover	894	-	-	-	-	-	00:00		

1995 USIC

-----UNLIMITED SPEED-----

CONTESTANT	AMA#	1	2	3	4	5	6	7	BEST MPH	PLACE
01 Larry Coslick	4652	6.0	-	-	-	-	-	-	14.2	1
114 Greg Kro	514740	7.03	6.69	-	-	-	-	-	12.5	2
97 D Thomson	8410	-	-	-	1.4	-	-	-	00.00	

CONTESTANT	AMA #	1	2	3	4	5	6	7	8	9	BEST FLT	2nd FLT	TOTAL BEST 2	PLACE	GRAND CHAMP POINTS
99 Chris Sydor	280169	44.0	43.0	57.0	46.0	50.3	42.5	52.8	49.2	40.0	57.0	52.8	109.8	1	
45 Rob Eberle	411592	40.8	50.2	46.3	50.0	43.2	51.9	57.0	50.1	18.3	57.0	51.9	108.9	2	
118 Scott Schriver	459504	44.0	43.0	57.0	46.0	50.3	42.5	52.8	49.2	40.0	57.0	52.8	109.8	3	

1995 USIC

----- LIMITED PENNY PLANE #208 , (JR-SR) -----

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE	GRAND CHAMP POINTS
108 Vlad Linardic	MAAC 38165J	13:47	15:53	-	-	-	15:53	1	
45 Rob Eberle	411592	12:10	12:27	11:22	08:53	-	12:27	2	80.9*
106 Nick Leonard Jr	?	09:32	08:53	08:05	09:28	06:50	09:32	3	

1995 USIC

-----EZB- #206--(Jr-Sr)-----

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE
108 Vlad Linardic	MAAC 38165J	01:38	20:51	22:56	24:08	-	24:08	1
45 Rob Eberle	411592	09:32	13:50	18:13	16:43	-	18:13	2

1995 USIC

-----35CM-----

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE	GRAND CHAMP POINTS
18 Tom Sova	473169	19:11	18:02	18:27	13:57	17:02	19:11	1	100
41 Rob Romash	130061	15:00	16:31	12:42	-	-	16:31	2	86.1
34 Joseph Nuszer	29036	12:06	16:23	13:14	12:28	-	16:23	3	85.4
70 D Raymond-Jones	63358	10:05	12:43	00:17	13:11	13:48	13:48	4	71.9
24 Chester Wrzos	20454	-	-	-	-	-	00:00		
95 William Bigge	127L	-	-	-	-	-	00:00		
45 Rob Eberle	411592	-	-	-	-	-	00:00		
63 Rich Ennis	45450	-	-	-	-	-	00:00		

1995 USIC

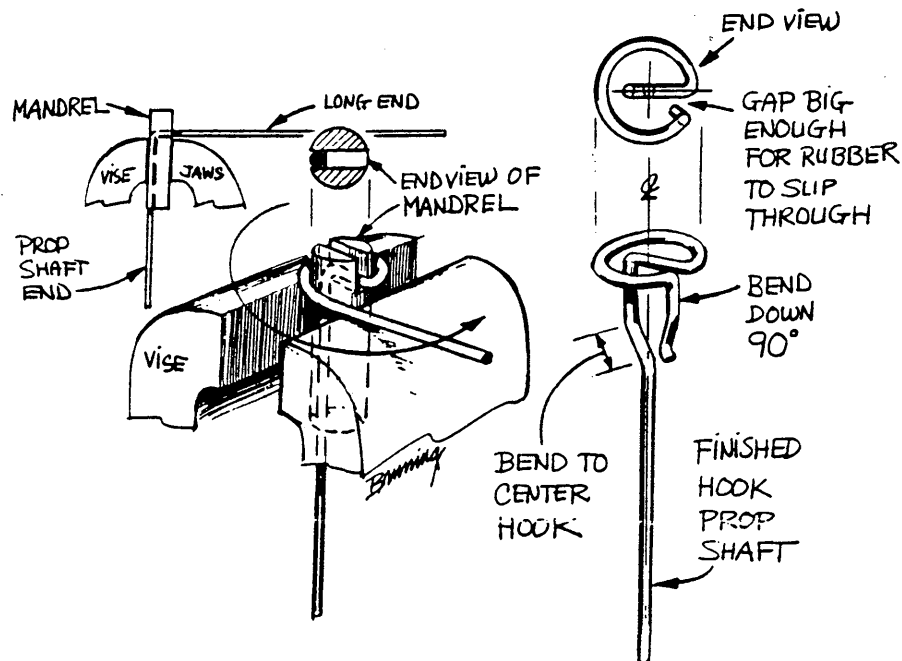
-----PRO20-----

CONTESTANT	AMA No	1	2	3	4	5	BEST FLIGHT	PLACE
49 J McGillivray	MAAC1025L	28:09	-	-	-	-	28:09	1
77 A Tagliafico	5533	23:35	27:31	23:28	07:14	-	27:31	2
18 Tom Sova	473169	21:59	20:23	18:00	13:42	24:42	24:42	3
80 W Milier	742	18:37	06:36	21:11	24:11	23:40	24:11	4
70 D Raymond-Jones	63358	06:21	10:40	14:10	15:25	14:45	15:25	5
59 Billie Landrum	52674	-	-	-	-	-	00:00	6

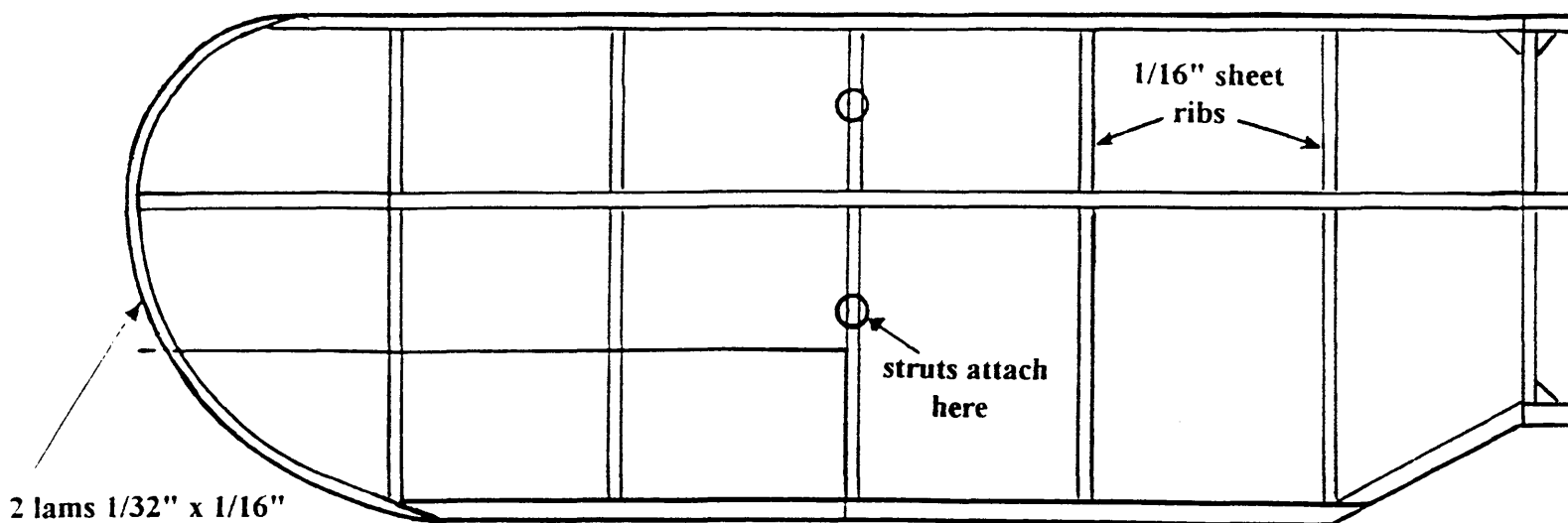
1995 USIC GRAND CHAMPION

CONTESTANT	201 HL STICK	202 INT STICK	203 FID	204 ROG CABIN	205 MANH CABIN	206 EZB	207 PP	208 LPP	212 HLG	215 BOSTON	218 CAT GLID STND	505 PNUT SCALE	507 AMA SCALE	CHAMP POINTS
49 J McGillivray			100			92.9	84.3	100				90.4	100	567.6
74 Ron Ganser		73.9		52.9	75.4			87.5			76.0	100	98.8	564.5
64 M Thompson	62.1	59.7				84.8		95.0	85.1		100	77.0		563.7
104 L Barr	82.9	82.0	76.9		82.5	88.4		81.3						494.1
110 J Koptonak		65.0			66.4			78.8	64.8		74.8	57.0	72.4	479.2
57 Bernard Hunt		100	89.6			96.0	84.4	91.2						461.2
41 Rob Romash						70.3	86.8	96.4	81.7		80.5			415.7
15 Jim Grant	32.1				100	83.2		90.7		85.9				391.9
45 Rob Eberle	14.3					67.4	78.2	80.9	99.1		99.1	-		339.9
73 John Kagan						69.3	80.3	64.2	52.1	52.2				318.1

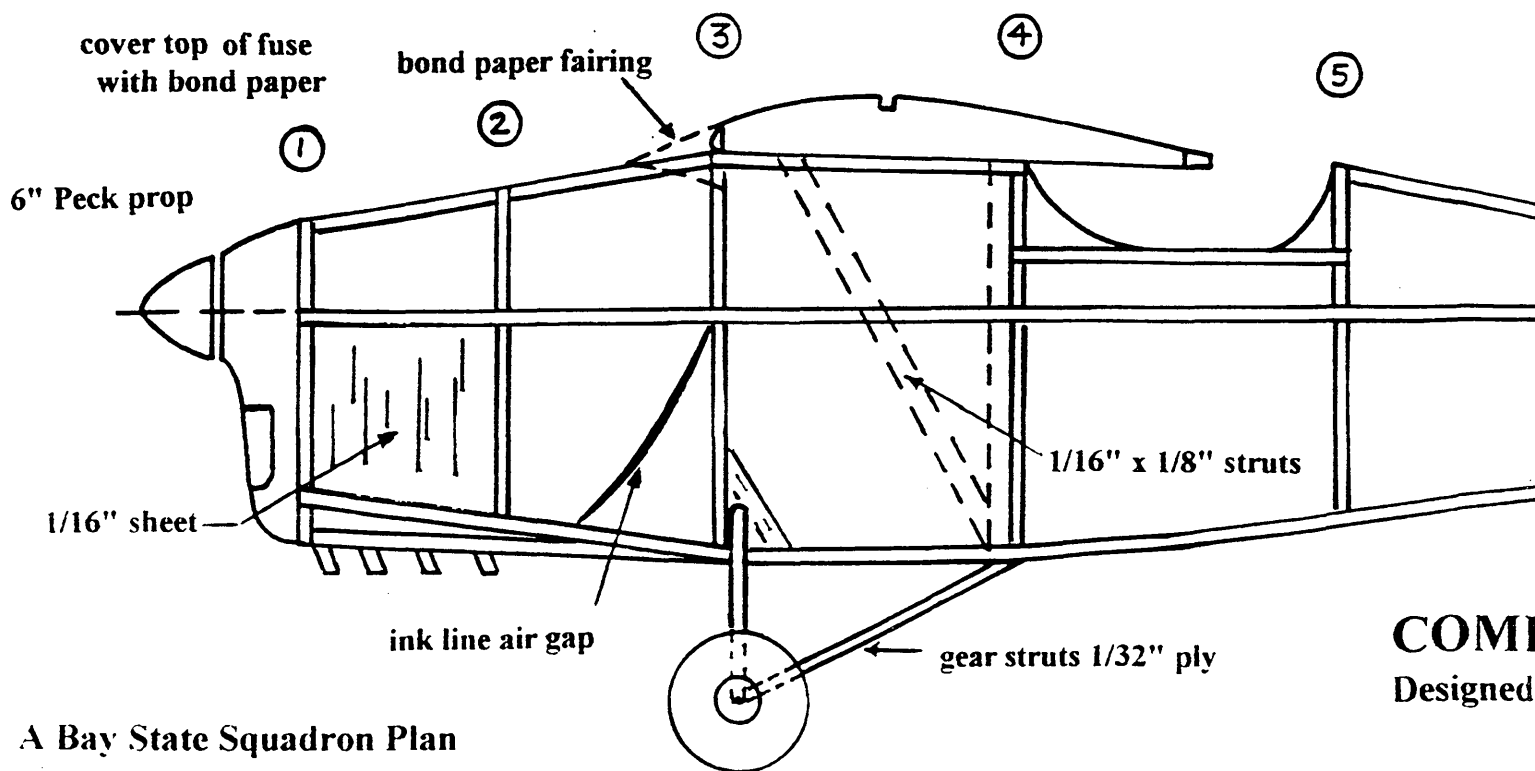
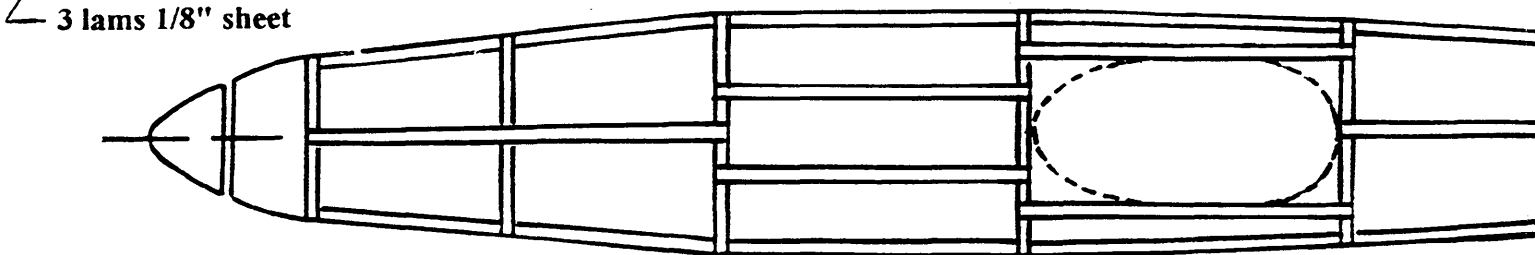
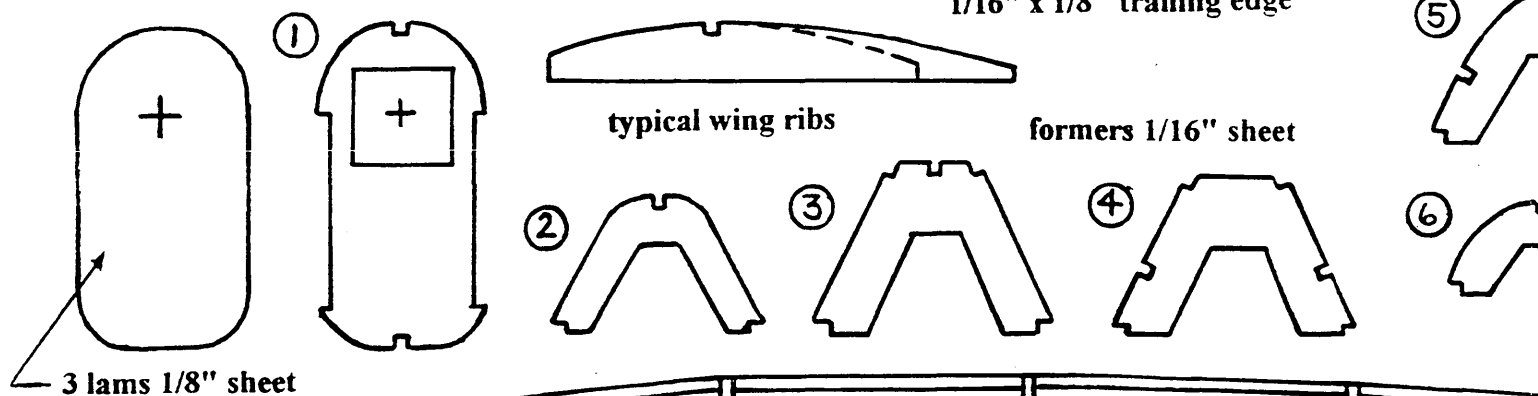
From Scale Staffel Newsletter



George Meyer of Corpus Christi, TX has designed this new prop hook. It will cure both "falloff" and "climbup" problems with the rubber. Drawing is by Pres Bruning.



1/16" x 1/8" trailing edge



A Bay State Squadron Plan

COMI
Designed

1/16" x 1/8" leading edge

1/16" sq. spar

ink line

5/8" dihedral

2 lams 1/32" x 1/16"

all framework 1/16" sq.

6

1/16" sheet

.015 wire
shock axle

2 lams 1/32" x 1/16"

all gussets 1/16"
sheet

Color Scheme

- Fuse top decking black,
sides & bottom red.
- Wing silver with
black lettering.
- Struts & UC black.
- Fin & rudder black.
- Stab & elev. silver

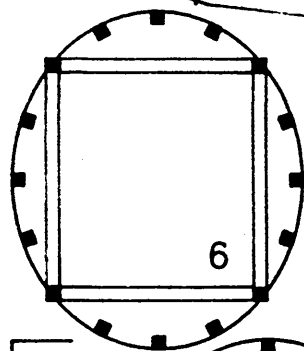
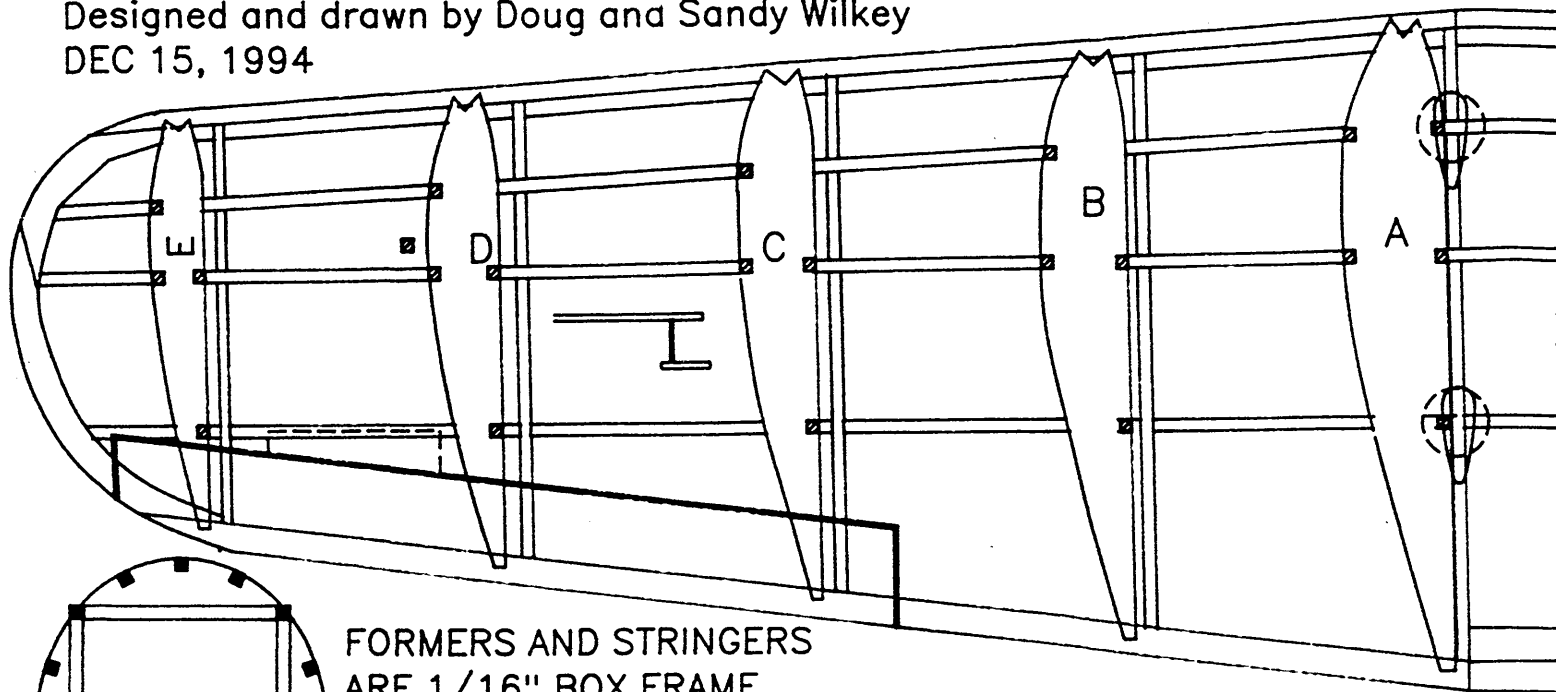
G-ABWW

© Mike Nassise, 12/93

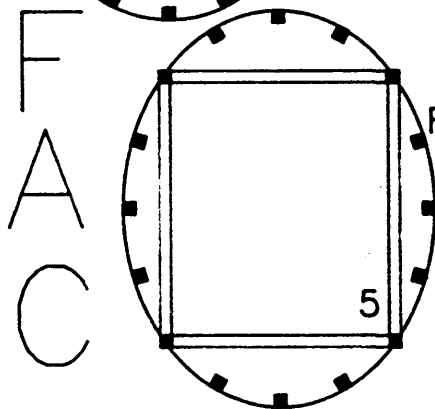
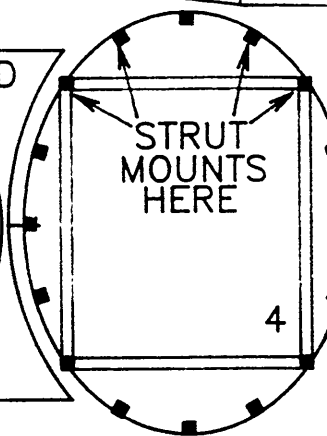
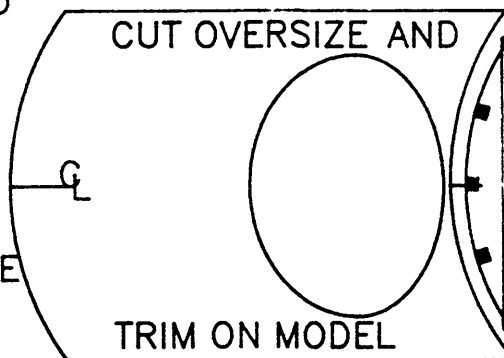
PER SWIFT (Gipsy III Engine)

& Drawn by Mike Nassise, 12/93

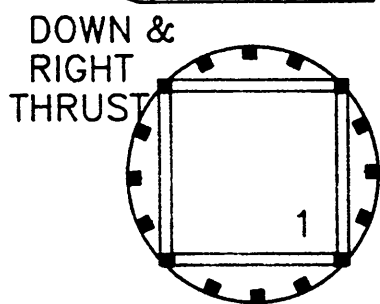
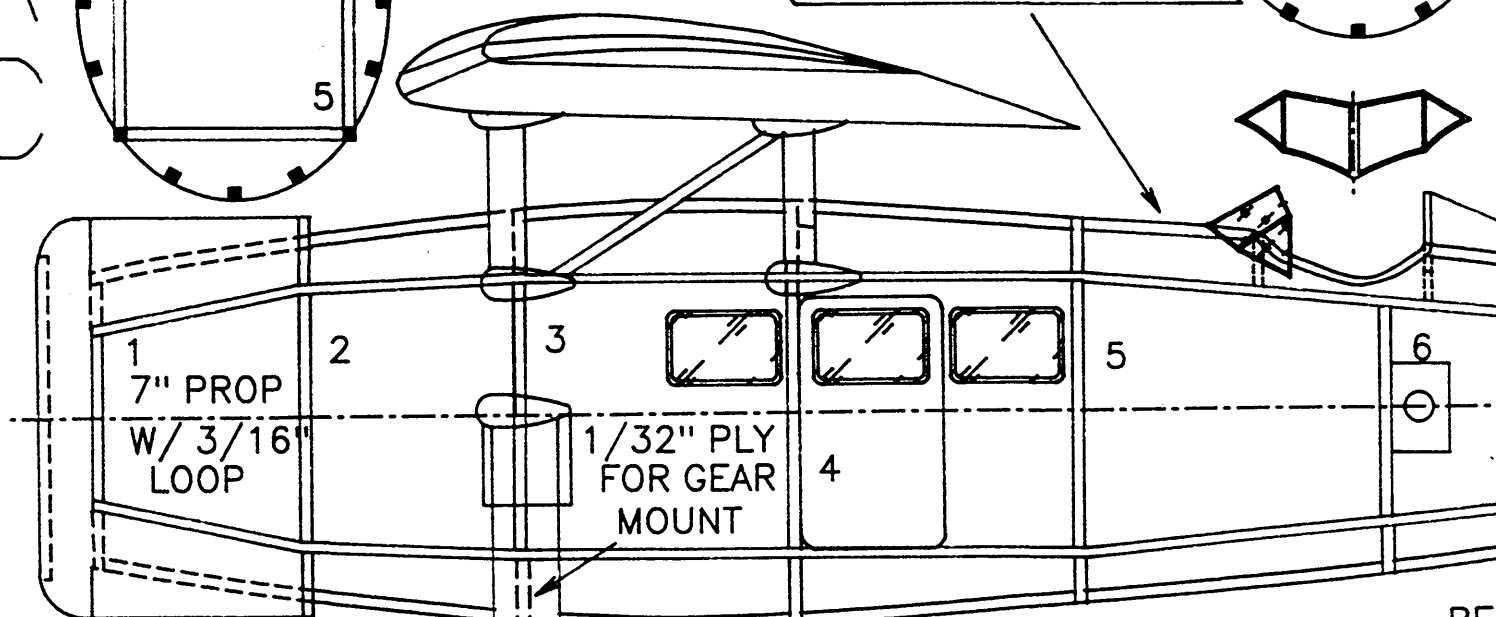
Designed and drawn by Doug and Sandy Wilkey
 DEC 15, 1994



FORMERS AND STRINGERS
 ARE 1/16" BOX FRAME
 LONGERONS ARE SANDED
 TO FORM STRINGERS
 AFTER FORMERS ARE
 ADDED TO BASIC FRAME

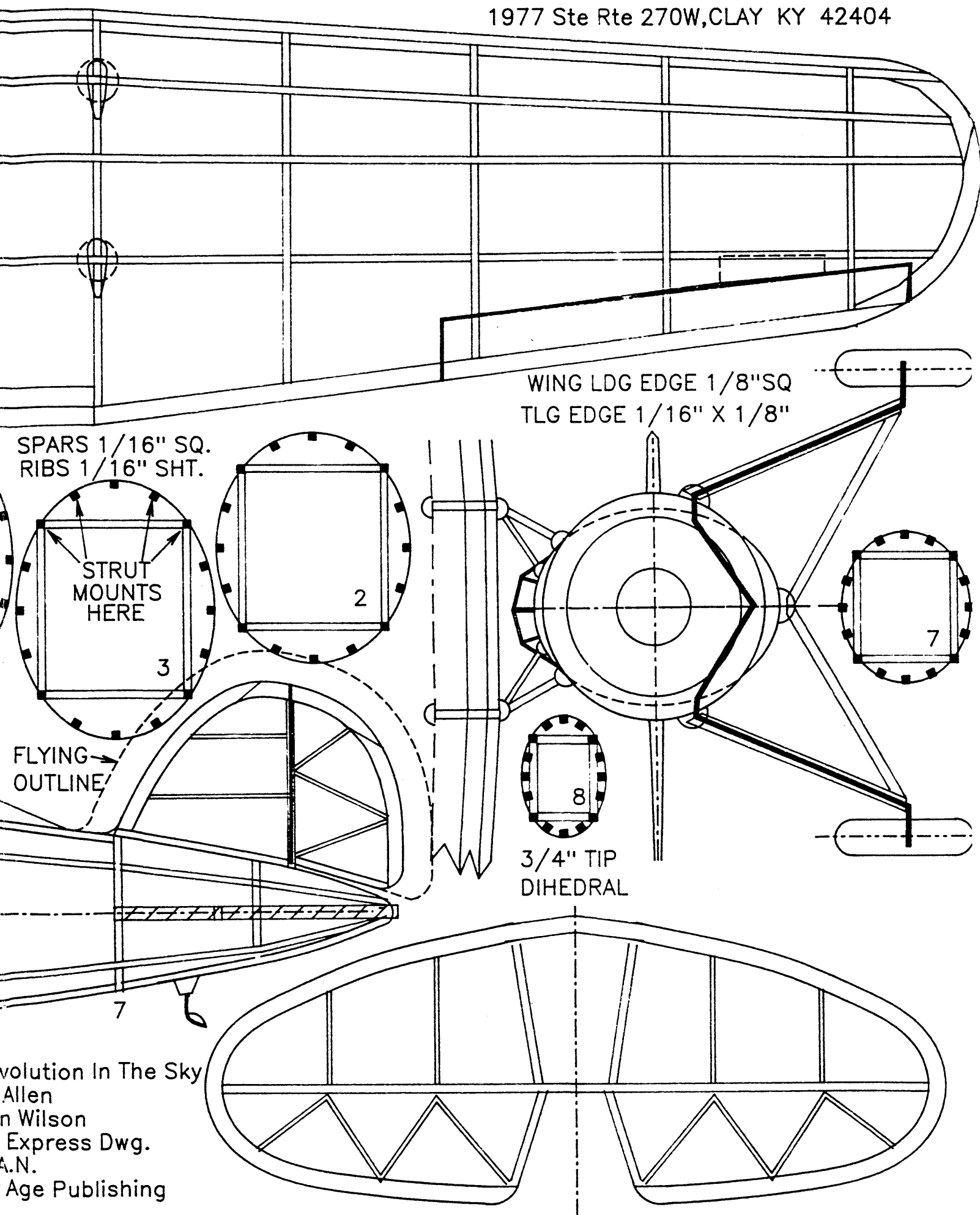


SEE REFERENCE
 FOR COLOR SCHEME



Lockheed
 Air Express
 DESIGN BASED ON
 RAY CHEVEDDEN'S
 COMET KIT OF A VEGA
 DEC. 15. 1934

RE
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 by
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 M./
 Air



F1d Motorstick Construction

by Steve Brown

The motorstick may be the most important single component of an F1d. You can change the wing, even the prop, but it seems that motorstick determines the way the model flies. The stick is also the single heaviest part of the model and is a logical candidate for weight savings

Wood Selection: Wood that is suitable is rare and stringent selection is required. Examine each sheet by laying it on a flat surface. If the sheet isn't perfectly flat remove it from consideration. The grain should be parallel to the edges. Hold the sheet up to a light and look for density variations or heavy streaks. Compare all the sheets to each other to find the stiffest sheets

The most significant variable in the weight of a completed stick is the weight of the raw wood that forms the tube. I eliminate all sheets that weigh more than .0098 oz for a .013" x 1 1/8" x 18" sheet.

The density of a sheet of wood can be misleading since it tells nothing of the uniformity of the grain and resistance to bending. The "density" of the sheet is actually an average of the variations (hopefully few) in density along the length of the sheet. It is rare to find wood less than 3.8 lb. density that is useful.

Use a dial thickness gauge and measure the thickness of the wood. I usually check 7-8 spots at random along the sheet. Take care not to compress the wood as you check it. Look for thin spots in the middle. Boron will not prevent uneven bending if there are thin spots in the middle of the tube.

Rolling the Tube: I use a .250" o.d. rod to form the motorstick. I've tried rod diameters as small as .210" for F1d and, while the weight savings can be significant, I have never had any success with smaller diameters. The resistance of the wood to the twisting force of the rubber torque varies with the density and character of the wood and the diameter of the tube. Small diameter tubes allow tail tilt and wing wash adjustments to change excessively under high torque.

Aluminum arrow shafts (available from archery suppliers) make good forming rods as they are available in 1/64" size increments, have thick walls and are light and easy to handle. Hobby shop tubing, or steel drill rod will also work.

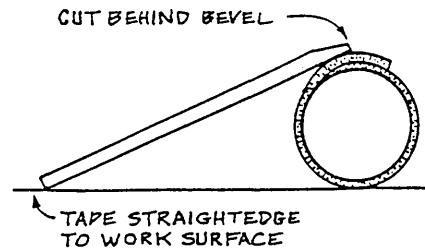
Don't cut the balsa sheet to size before rolling. Trim one edge of the sheet perfectly straight. Position the sheet edge along the edge of your work surface and sand a bevel into the straight edge along the entire 18" length. The bevel should extend about .10" onto the sheet and feather at the edge. Use a waterproof pen (such as a Sharpie) to identify which edge of the sheet has been beveled. Mark both ends.

Soak the sheet in cool water for 15 - 20 minutes. While the wood is soaking cut a 3" X 19" piece of white Japanese tissue. Lay the tissue on the working surface (I use plate glass) and wet the tissue with a soft 1" wide brush. Use the brush to smooth the wrinkles. Place the forming rod along the edge of the tissue and attach it to the rod. Roll the rod about 2/3 revolution so that the paper is evenly attached.

Place the wood on the tissue adjacent to, and almost touching the rod with the waterproof ink marks facing down. Do not attempt to force the sheet into a perfectly parallel position against the rod. The wood will do whatever its internal stresses dictate when it is baked and it isn't possible to force it to be straight. Roll the tube and bake at 200 degrees F for 30 minutes. Remove the rod from the oven after baking and allow to cool to room temperature. Do not unwrap the rod at this time.

Cutting the Joint: Secure both ends of the rod to the work surface with masking tape to prevent rolling. The ink mark at the overlap should be up. Position a wide metal straightedge as shown. Tape the rear edge of the straightedge down to the work surface. Smoothly

cut a clean joint using a *new, sharp* razor blade edge, while applying light pressure to the straightedge with the other hand. Make 2 or 3 passes with the blade to be sure that all the layers of paper and wood have been cut through. About the only thing that can go wrong with this method is failing to cut through all the layers.



Carefully unwrap the outer layers of tissue until the wood is exposed. Using a very fine felt-tipped marker (Sakura Pigma .005 or similar) make 4 or 5 small marks across the seam along the length of the tube. These marks can later be aligned and will assist in gluing a straight seam. Remove the wood and the rest of the paper from the rod. Weigh and record the weight of the tube before putting it back on the rod.

Gluing the Seam: I use Ambroid glue thinned 50/50 with acetone for all construction. I plasticize the glue to be used for stick and boom seams with 3-4 drops of TOF plasticizer per ounce of thinned glue. Apply the glue using a 26 gauge needle with the sharp point removed and smoothed, on a plastic syringe.

It is most important that glue be applied *only* on the edges of the wood. Use eye magnification. Non-prescription magnifying eyeglasses work well. The glue seam can vary in weight as much as 100% depending on the thickness and amount of glue applied.

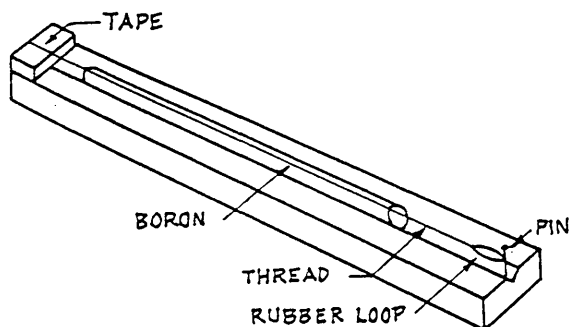
Clamp one end of the metal rod in a vise so that both hands are free. Beginning in the middle of the tube, with the small ink marks aligned, lightly preglove about 1/2" of both edges of the wood at a time. After about 10 seconds apply a second light coat to one side and press the joint together. Minimize pressure from your fingers to the wood, since it is easy to skew the seam or warp the wood from the moisture on your hands. Allow the glue to dry completely, usually 1-2 hours depending on the temperature and humidity, before removing the tube from the rod. Weigh the glued tube and record the weight. Subtract the weight of the unglued tube from the weight of the glued tube and you will know the glue seam weight. Look for a seam weight of about .00035 oz. for an 18" length.

Thrust Bearing, Webs, Rear Hook: I use a Ray Harlan F1d thrust bearing modified to remove excess metal. The stock bearing weighs .00077 oz. Remove metal with a file from the sides and notch the edges of the top of the bearing until it weighs about .0006 oz. Roughen the top of the bearing where it will contact the motorstick. Be careful not to remove too much metal or break off the pigtails. The aluminum cannot be bent more than once without reducing strength.

I use 4.5 lb. C-grain wood, .018-.020" thick for webbing. Orient the grain vertically. A .013" music wire hook will handle torque up to .60 in./oz. without deformation. Whatever hook shape you choose, remember that it is most important that the rubber motor O-ring be easily attached and removed. I reinforce the joint between the rear hook wire and the wood web with one layer of Japanese tissue, but I don't use any CyA because of its weight.

Front End: The glued tube will probably have a slight curve. The location of the seam doesn't matter, just look at the actual curvature. The tube should be oriented to arc "down", that is, to pull against the bracing wire. Mark the top and bottom of the tube 180 degrees apart. Place the tube back on the forming rod and tape both down to your work surface with one of the marks "up". Cut .015" X .750" slots on the top and bottom of the tube, about .25" from the front end. This

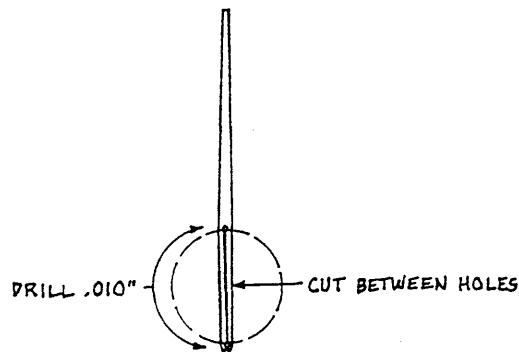
Attaching Boron Filament: Boron filament should be held in a jig that tensions the filament and frees both hands. It is critical that the filaments be glued along their complete length. I use the same plasticized Ambroid glue as for the stick seam, applied using a 26 gauge needle and plastic syringe. Mark the locations for the boron filaments with small dots of ink along the entire length of the tube. Placement of the boron at 12, 3, 6 and 9 o'clock produces the straightest sticks. Unfortunately, locating it at 12 and 6 o'clock causes interference with the stick bracing post. I feel the strength and improved straightness of the tube is worth the extra work required to install the post.



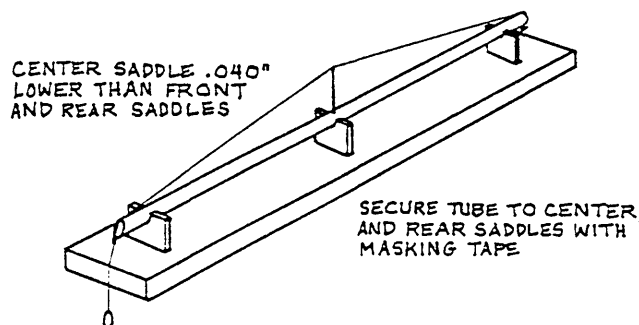
Assembly: Once the boron fibers have been installed lay the tube, on the rod, against a metal straightedge and mark the locations at the rear of the tube that correspond to the top and bottom of the web at the front. Cut two slots about .015" X .60". Remove the tube from the rod. Using a scrap piece of .015" wood inserted in the slots, adjust the slots using 600 grit sandpaper so that both the front and rear webs are in alignment. Cut and insert the previously completed web and hook assembly and glue in place. When the glue is dry slice off the excess wood. Cut the excess .013" wire off so that only about .040" extends above the top of the tube.

Install the thrust bearing with no downthrust and 2 degrees of left thrust. I use Ambroid with no plasticizer for this joint. Coat the bottom of the bearing and the location on the wood tube with thin coats of glue and allow to dry for 10-15 seconds. Apply a second coat of glue to one of the surfaces and place the bearing on the wood. Set the thrustline by placing a *straight* piece of .013" wire about 2.5" long in the bearing using it to adjust the angle of the bearing. This must be done quickly or the joint will be weakened. Once the glue dries apply a second coat in a small "fillet" along the edges of the bearing where it joins the wood.

I use a single 1.75" tall bracing post on all my models. In conjunction with 4 boron filaments it is the strongest bracing method I've tried. Make the center bracing post of 6.5-7.0 lb. "A" grain wood, cut and drilled as shown below. Mark the appropriate locations on the top and bottom of the wood tube and make small holes on either side of the boron with a sharp pin. The holes should be slightly smaller than the bottom diameter of the bracing post. Install the post by lightly "worrying" it into position. The boron filaments will locate themselves in the drilled holes. Be sure that the wood tube stays perfectly round.



Bracing: A bracing jig assures repeatability when tensioning the stick bracing wire. I use .001" tungsten wire from Indoor Model Supply and haven't encountered any breakage. I don't see a need for heavier wire or double strands. Don't use wire that will stretch, such as nichrome.



Place the motorstick in the jig and use small pieces of masking tape with tissue pads to secure the tube at the rear and to pull the tube down to touch the center saddle. Tie the tungsten wire around the stub of the rear hook that protrudes through the top of the stick and glue. Weight the wire with 2 Quarter coins. It is better to have a little too much bow braced into the stick than too little. You can always adjust the tension of the wire at the flying site by *lightly* sanding the top of the bracing post. The goal is to obtain a bracing tension that allows the stick to be straight (no up- or downthrust) at full winds. Don't glue the wire to the top of the post, it is helpful to be able to remove it later.

I use rectangular wing tubes formed by 3 turns of Japanese tissue around a .035" X .064" brass former. I install them by placing the motorstick in a jig that makes round pilot holes at the appropriate angle. The pilot holes are then enlarged with a rectangular toothpick that has been sanded smooth with the corners rounded and the proper width marked.

It isn't possible to cover all the details in an article this short. If I can answer any questions write me at 297 Hartman Ct., San Dimas, CA 91773, or call (909) 394-9685 evenings or weekends.

How To Make a Frog Fly

By Jim Clem

All the data that will be presented in this article comes from the Federation R.O.G. (Javelin XL-extra long) and the USIC FROG (Javelin XS - extra short), but the data should apply to any design.

As with any model, I believe that one of the most important things is to trim the model so that in cruise it will slow down with the nose high, and "get on the step". In order to get the model "on the step", it helps to have the C.G. as far aft as the model will fly consistently. The Javelin (XS) has flown competitively with the C.G. from 88% to 190%. At 190%, it's pure magic, but its consistency is less than one in five!

After the model has been trimmed for cruise, the power pattern needs to be adjusted. I use a 15-25 ft. Dia. Flight circle, and turn the model to the left. No particular reason for the left turn, except for 60 years an indoor model is supposed to turn left! If the power pattern does not work out, use the tried and true mini-stick method: put up-thrust in it till it stalls, and take out the stall with left thrust until you get a nice steep nose-up spiral climb. Be sure and use 1/4 motors because it saves an immense amount of time.

Another important item is the prop. I have had great success with the black Tern 6" plastic prop. The blades are hand-scraped with a very sharp fish-filleting knife and the hub is thinned with a sanding drum on a Dremel Moto tool, then smoothed with knife and sandpaper. When finished, the prop should weigh 1.1 to 1.3 gm. The blade shape for the Tern prop is left stock. The blades have a 35 deg. Angle at a 2" radius

for a pitch of 8.8 in. The other prop that I use is the Dave Aronstein-type prop. It is made from a Peck Polymers 9-12" P-30 prop, cut down to 6" diameter. The blade shape is Dave's, but does not use the tip plates. It also weighs from 1.1 to 1.3 gm., and the pitch is the same 8.8 in.

Here are the specifications for the two FROG models:

USIC FROG JAVELIN - XS (EXTRA SHORT)

<u>Total Weight</u>	3.14 GM
<u>Prop</u>	6" (Dave Aronstein-type made from a Peck 9-1/2" P-30 prop) Pitch 8.8" (35 deg. @2" R.)
<u>Prop Wt.</u>	1.13 gm
<u>Motor</u>	.046" x .044 x 40" Tan II (6/93) Torque - .31 in-oz. 6660 turns - 1140 turns remaining - 619 R .P.M.

This model won at the 1994 USIC in Johnson City, with a flight of 8:55. To my knowledge, this is the top time ever made with a USIC FROG.

FEDERATION R.O.G. JAVELIN - XL (EXTRA LONG)

<u>Total Weight</u>	3.28 gm.
<u>Prop</u>	6" black plastic Tern - 8.8 in. Pitch (35 deg. @ 2"R) stock blade shape.
<u>Prop Wt.</u>	1.25 gm.
<u>Motor</u>	.050" x .040" x 60" TAN I Torque - .5 in-oz 7200 turns - 200 turns remaining - 722 R.P.M.

This model made a flight of 9.41 at Lakehurst on Sept. 3, 1990. To my

knowledge, this is the top time ever made with a Federation R.O.G.

To summarize:

1. Adjust the model in cruise until it is nose-up and "on the step".
2. Adjust the cruise turn with rudder to fit the flying site (I use 15-25 ft. dia.)
3. Adjust the power pattern with the thrust line.
4. Make up a motor from TAN II, comparable to those listed, and go out and break 10 minutes. IT CAN BE DONE!

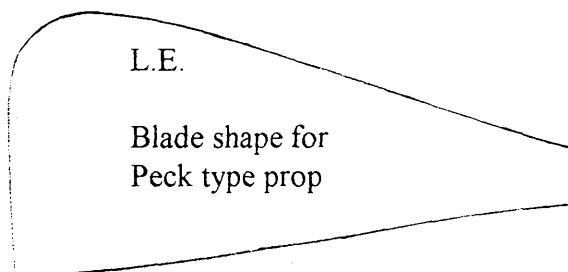
FEDERATION R. O. G. JAVELIN - XL (EXTRA LONG)

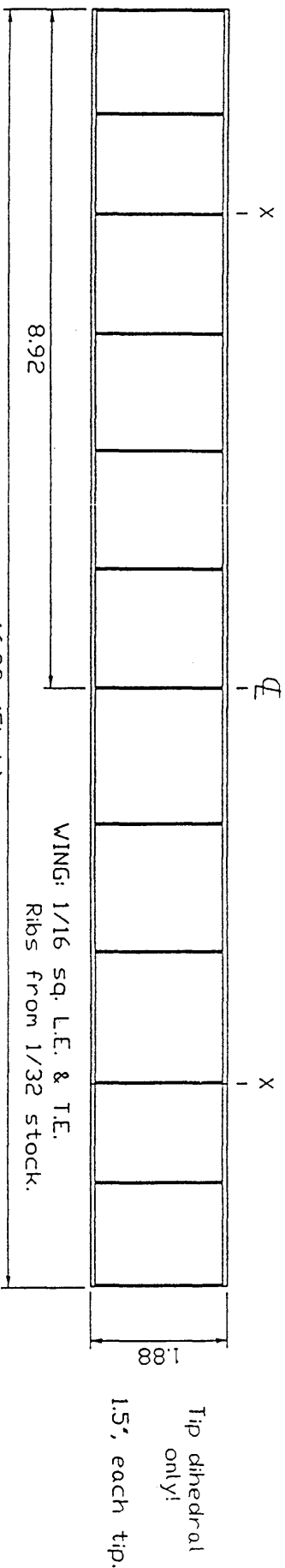
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<u>Prop Wt.</u>	1.25 gm.
<u>Motor</u>	.050" x .040" x 60" Tan I
	Torque - .5 in-oz
	7200 turns - 200 turns remaining - 722 R.P.M.

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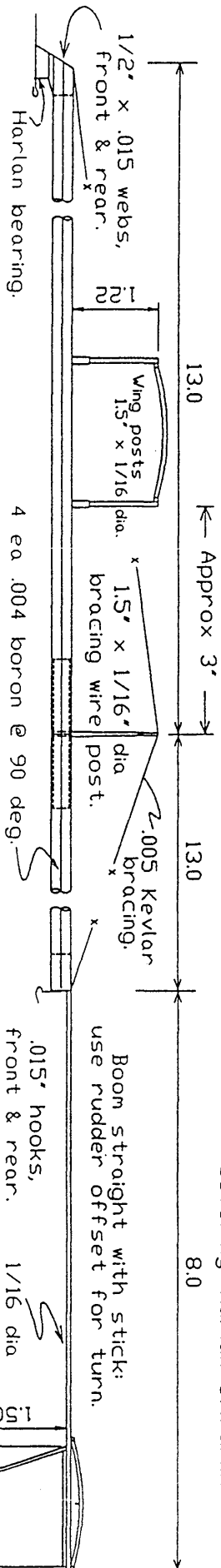




C.G. approx 1 1/4" aft
of rear wing post.

16.89 (flat.)
16.0 projected with dihedral.
Area = 30 sq. in.

.050 x .040 x 60" tan FAI - 6250 turns.
6" TERN plastic prop.
Covering: Harlan Ultrafilm.

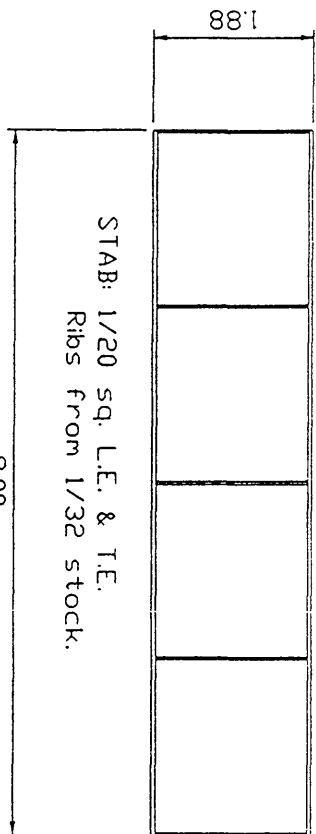
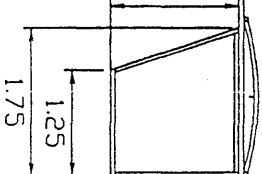


Make 2 motor stick blanks:
19/64 x .018 x 18" from 4 - 41/2 lb stock.
Tubular stick 9/32 dia x 26" long.
(Join with 2" insert to make one 26" stick.)

Weights:

Stick - 1.18 g
Prop - 1.25 g
Wing - 0.52 g
Tail & Boom - 0.21 g
Gear - 0.12 g

Total 3.28 g



Landing gear: 1/16 dia frame.
1/2" dia wheels on .010 dia
music wire axles.

Drawn 8/8/90 - M.J. Whittemore, Jr.

JAVELIN - XL
(Extra Long !!)
A Federation R.D.G.
by Jim Clem.
1st place USIC 1990 (7:51).

CHILTON'S CORNER

By Stan Chilton

MICROFILM TECHNIQUES

Over many years other modelers have asked me how I get the solid color silver and straw brown sheets of microfilm. I used to think anyone could produce this kind of film but I've learned if you don't have the right equipment, tank and frames, pouring and lifting satisfactory microfilm sheets can be quite frustrating. Following is my procedure.

EQUIPMENT:

WATER TANK: The first requirement is a proper size water tank, or pan. I built one out of a 4 x 8 ft. .040 thick aluminum sheet, or rather I took the sheet to a sheet metal fabricator and had him make a tank 4" deep by 3' 4" wide and 7' long. The top edges are folded over and the corners are overlapped and riveted, making a quite water tight assembly. This size tank is larger than needed or useable but I tailor the width by means of a 2" x 2" "L" angle aluminum just shy of 7' long so it will fit snugly lengthwise inside the tank so the width can be adjusted to restrict the spread of the microfilm.

A tank larger than 2½ x 7 ft. will allow the poured film solution to spread too far and you will not be able to pour a large enough quantity of solution to get a sheet thick enough to pick up.

I think a tank size of 30" x 72" x 2" deep is just about optimum and should be able to handle sheets up to 12" x 48".

The Cadillac of all tanks would be made of .032 to .040" thick stainless steel

with welded corners, and a drain plug in one corner.

Some modelers use a 1" x 4" wood framework with a plastic sheet liner. This should work just as well as my aluminum tank, and take less storage space.

MICROFILM FRAMES: I used to use balsa wood frames of about every dimension, whatever I had on hand. But if you're serious about microfilm model flying take the time to build some frames that will assist you in picking up the film colors you want.

Buy some clear 1" thick white pine, any width and strip it into strips about .66" wide. Since the 1" white pine is really only .625 thick your strips are .625" x .66".

I use 3 sizes of frames: (all outside dimensions) 10x30, 12x36, and 12x48.

The 12" outside width produces a sheet of film wide enough to cover a 9.75" chord wing.

Assemble the frames using Titebond glue and small gussets in the corners. Apply one coat of sanding sealer, sand smooth then spray paint with whatever color of spray paint in cans you have on hand.

There is a reason for building these sturdy, heavy frames. If you've ever picked up a sheet of film intact, then had it go splat and disappear, it probably shrunk too tight on the frame. The white pine frames press down on the film sheet on the water and stretch it slightly so you won't lose it after getting it picked up.

An additional benefit is the extra

rigidity. Thin sheets are hard to pick up and retain with flexible frames.

I make up enough frames so that I can make up a 3 to 4 year supply of microfilm sheets.

But if you already have balsa frames on hand they are useable. To get the balsa frames heavy enough to press down on the poured film I lay a 15" metal drafting machine scale (ruler) across the center of the frame, leave this extra weight on the frame for about 5 minutes to stretch the film before attempting to lift the sheet off the water.

MICROFILM: I have used Erv Rodemsky's various formulas of microfilm and the only one I didn't like was his GP83M and S. I think his current batch is GP-90 which is the easiest of all to pick up. I really liked his GP-84-2P and still use it.

I have also used Micro-X Red Label and Lew Gitlow's IMS film. Both these films produce satisfactory sheets, dry and stable. Use whatever product you have the most confidence in. I prefer Erv's batches because they work well for me and I know more about what's in them.

Very important. Any microfilm you purchase that is bottled in plastic bottles should be transferred to glass bottles immediately. Use glass bottles with an aluminum gasket on the lid. Avoid the lids with paper or waxed liners for gaskets. The solvents in the microfilm will escape through the plastic bottles. Very rarely you will need to thin the mixture with acetone but go very slow, thinning only as much as absolutely necessary.

APPLICATORS: I apply the

microfilm solution to the water differently than anyone I know. But it's the main reason I can pour solid color sheets in the color and thickness I desire. It also wastes very little microfilm mixture.

I use a glass 5cc hypodermic syringe with a large 2½" long #12 needle. I'd use a larger needle if I could find one.

There are other methods of dispensing the microfilm fluid onto the water. Erv Rodemsky uses a short piece of 3/16 or 1/8 brass tubing, filling it with the precise amount of film desired, letting gravity flow the film out onto the water.

An added benefit is if the liquid film mixture won't flow evenly out of the tube, it is too thick.

Bernard Hunt uses the same system but with an 8" long graduated approximately ¼" diameter glass tubing and he varies the orifice by heating and forming the size of the orifice to produce the desired outflow (about .050" diameter). He recently picked up solid silver sheets and 6 out of 7 attempts at gold straw brown colors.

THE WATER: I used to purchase 3 - 5 gallon containers of distilled water, and still do occasionally, depending on my results with tap water. I bought a charcoal and sediment filter and use these to filter the tap water into the microfilm tank.

Erv Rodemsky uses distilled water and saves it for reuse. The distilled water definitely will not leave mineral deposit specks on the film. If the filtered tap water leaves any residue on the first few sheets of film, I immediately switch back to distilled water. Our tap water in Wichita comes

from 3 different sources, a nearby lake, drilled wells and underground aqueous beds about 90 miles away. Depending on the particular source, sometimes the filtered tap water works well and sometimes it doesn't. But it's always cheaper than distilled water. The water must be clean and potable, that is you'd drink it.

Be sure the tank is hospital clean. The microfilm solution will not spread well on contaminated water.

TIMING THE POUR: About 25 years ago I was pouring microfilm and having no luck whatsoever picking up almost any kind of sheet. I decided to call it quits for the evening and came upstairs from my model shop. It was raining outside and I just happened to check the barometer. It was 29.40.

About 3 or 4 days later it was cold and clear, barometer 30.30 and I refilled the water tank. The next morning I lifted 15 sheets out of 15 poured, all in silver and gold, some 12 x 48 sheets.

Since then I wait to produce microfilm until the barometer is at least 30.20 or higher. This condition is normally associated with dryer air, which also may be helping. There seems to be more high pressure conditions in winter than summer.

A couple of days before I pour, I disconnect the humidifier from our house furnace, helping keep the air dryer.

PRODUCING THE FILM: Prior to producing the film you should have on hand sufficient frames, the tank, aluminum divider bar, water, hypodermic syringe and of course, the microfilm solution.

Fill the tank 1½" deep with water. Let stand 6 to 8 hours, or overnight to stabilize in temperature evenness. Make sure the atmospheric pressure stays high.

For the amount of film you can dispense on the water through the #12 needle of the syringe, position the divider "L" angle aluminum so your effective water width is 30", times the length of your tank. Different film dispensing methods may require more or less water width, depending on the total amount of film solution laid on the water. Absolutely, the amount of film on the surface area of the water determines the thickness of the film, provided the water surface area isn't too large, and the liquid film has been dispensed evenly on the water.

Fill the syringe with about 2.7 cc's of film. Turn upside down and set for a few minutes for the microscopic bubbles in the film to rise. For a holder, I epoxied a 2 oz. glass jar's base to a 5"x5"x¾" base of balsa. I cut a piece of foam rubber and inserted it into the jar so the plunger end of the syringe rests on the foam and the syringe flange resets on the top of the bottle. (Syringe is still upside down). The plunger must be supported or it will fall down.

Grab a soft hand tissue and cover the needle end of the syringe and top off the film to 2.5cc's of solution.

Standing beside the long dimension of the tank start dispensing the film solution at the left end of the tank and run a stream down the center, hopefully running out of film at the same time you reach the other end of the tank.

During the pour, the syringe will be held at about a 30° angle to the water and

the tip of the needle, filed square, held as close to the water as you can without dipping it into the water.

Just enough pressure is exerted on the plunger to let the microfilm solution escape the syringe, evenly and smoothly.

If the film on the water has circular stripes, the ejected solution has been forced under the water. Try again with less plunger pressure.

Dispensing the film solution is a matter of feel and patience. You must use all the film each try and you must lay the film entirely end of tank to opposite end of tank, at the same time keeping an even dispersion of the film. Keep the same speed traversing the tank every time.

I generally get in the groove of evenly dispensing the film within 4 or 5 trial runs. Even if the laid down solution isn't the exact color and thickness I want, part of it may be, so use one of the smaller frames.

When you are comfortable dispensing the film evenly and accurately you can adjust the amount of film in the syringe to get the thickness you want. 2.5 to 2.6 cc's gives me silver, 2.8 or 2.9 cc's gives me very dark blue. 2.7 cc's is straw brown.

After I've completed a satisfactory pour I fill the syringe for the next pour, set it in the jar holder upside down, getting ready for the next pour.

Leaving the previously poured film on the water, I take whatever size frame I want outdoors and spray it lightly with 3M 77 contact spray or 3M 75 with a fine spray mist nozzle.

If $\frac{1}{2}$ the film on the water is silver and the other $\frac{1}{2}$ is blue or off color, I'll use the 10x30" frame and place it on the desired silver end of the water. If the poured film is of even color I'll use the 12x36 frame.

Place the sprayed frame gently on the film. Next tear off the excess film outside the frame and remove this debris from the water. Wait about 5 minutes then lift the film and frame off the water. Hold very still just above the water with one corner down to allow the water to drain off. This will take about 30 seconds, and when mostly dry, carefully set the frame vertically at the other side of the room. The film and frames must be absolutely dry before putting in the storage boxes.

Lifting the film off the water is a technique all in itself. I have heard of some who lift off one end and slide the film and frame lengthwise out of the water. I don't think you can lift silver sheets this way. Lew Gitlow says you need help from the "Lift Angel" to get off good light sheets.

I grasp the frame by the ends and pull the frame slowly close to me before I start the actual lift. Then raising the long edge farthest away from me, and a little side to side movement, I move the raised edge further from me and rotate this edge to vertical by the time the trailing edge is leaving the water. Gentle is the name of this game. The most critical times of the lift is the first movement off the water and the free film/frame that is just off the water. The lift movement must be all in one smooth motion -- if you stop or hesitate during the lift all is generally lost.

Ron Higgs lifts the edge nearest him and sometimes gently blows under the film

helping it lift off the water. Here again there are slightly different techniques achieving the same result.

After you've set the finished film/frame to one side, the syringe will be ready to pour the next sheet. But before this, examine the water surface and clean it of any residue left from producing the previous sheet.

I use either silver or straw brown for F1D wings, solid silver for stabs and blue for props. Don't worry about the strength of the silver and straw brown film if you are using Rodemsky's film. It is plenty strong enough.

There's probably not much weight saving between gold and blue film. But I know a gold patch on gold film is blue, so gold must be $\frac{1}{2}$ as thick as blue.

Producing really light solid color film is not easy but is certainly worth it when you hear the nice comments from your competitors about the good looking film. And it probably is lighter.

STORING THE FINISHED FILM:

If you have made microfilm previously you probably already have a favorite way to store the finished frames of microfilm.

If you do not have a favorite storage system -- here's mine.

From a wholesale florist I purchased about 8 or 9 large cardboard cartons with shallow top lids. The boxes measure $44\frac{1}{2}$ " long, 12" deep and 22" wide. The lid or top fits over the box with 3" overlapping sides. The florist charged me \$4 to \$7 each. I had to build my own 50" long box to store

the 48" long sheets.

For storage the sheets are laid into the box flat with $\frac{3}{8}$ x $\frac{3}{8}$ x 14" balsa spacers, 2 per sheet. Stacked thusly each box will hold about a dozen frames.

Each box is vented to allow free air circulation around the film, but not much. Just under the top lid on each side cut a vent strip about $\frac{3}{4}$ " x 8" and cut the same size strips near the bottom on each end, for a total of 4 vents per storage box.

The cardboard boxes can then be stacked ceiling high in one corner of your model workshop, but preferable in another room free of sawdust, etc.

1995 International Mini-Stick Postal Contest Results

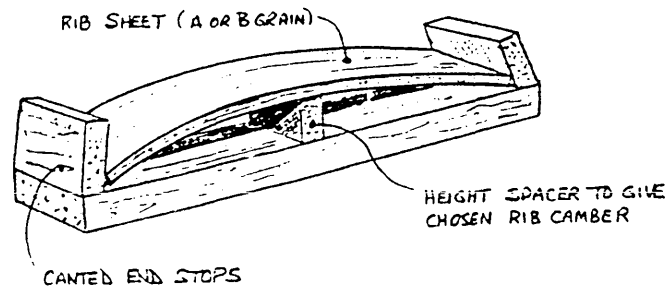
Name	Country	Ceiling Height in Feet	Best Time in Seconds	Corrected Time	Place Overall & Class
W Van Gorder	U.S.A.	23.25	648	1044.99	OVERALL CHAMP
L. Coslick	U.S.A.	8.96	460	946.59	1st PLACE - INT'L
L. Mzik	U.S.A.	20.00	504	847.85	2nd PLACE - INT'L
T. Yatabe	Japan	29.52	552	830.13	3rd PLACE - INT'L
J. F. Frugoli	France	8.20	391	820.68	
J. Clem	U.S.A.	23.00	500	808.81	
M. Vanlil	U.S.A.	10.92	408	801.97	
R. Eberle	U.S.A.	20.00	476	800.74	
M. Thomas	Canada	17.75	448	778.53	
K. Hara	Japan	25.94	498	778.12	
J. O'Donnell	U.K.	9.00	378	777.07	1st PLACE - U. K.
S. Nonaka	Japan	29.52	515	774.49	
K. Kihara	Japan	29.52	508	763.96	
Z. Fujiwara	Japan	29.52	502	754.94	
D. Belieff	U.S.A.	18.60	438	751.60	
S. Nonaka	Japan	25.94	478	745.87	
Y. Sugi	Japan	29.52	481	723.35	
T. Vallee	U.S.A.	18.60	421	722.43	
A. Abell	U.K.	7.67	339	722.00	2nd PLACE - U. K.
K Hashimoto	Japan	29.52	479	720.35	
B. Tenny	U.S.A.	23.00	439	710.13	
Y Takeuchi	Japan	25.94	450	703.12	
D Slusarczyk	U.S.A.	30.00	458	685.44	
Y. Takeuchi	Japan	24.25	423	673.96	

S. Miura	Japan	29.52	441	663.20	
D. Yates	U..K.	9.00	322	661.95	3rd PLACE - U. K.
S. Tamaj	Japan	19.85	242	407.35	
R. Vaucelle	Argentina	22.00	243	398.06	
E. Shiobe	Japan	11.21	201	392.59	
R. Ljubomir	Slovinia	29.20	248	374.18	
H. Anno	Japan	11.21	190	371.11	
T. Ashikawa	Japan	11.21	182	355.48	
N. Nitta	Japan	11.21	181	353.53	
T. Norigoe	Japan	11.21	180	351.57	
J Williamson	U.S.A.	30.00	232	347.21	
S. Vojislav	Slovinia	22.00	227	342.49	
S. Weckerly	U.S.A.	30.00	225	336.73	
M. Slobodan	Slovinia	29.20	219	330.42	
A. Horacio	Argentina	22.00	195	319.43	
T. Uezono	Japan	11.21	145	283.21	
M Matsubara	Japan	11.21	139	271.49	
K. Vacing	Canada	18.00	137	237.18	
S. Nemanja	Slovinia	29.20	135	203.69	
S. Paunovic	Slovinia	29.20	117	176.53	
L. Danijel	Slovinia	29.20	97	146.35	
A. Chisolm	Canada	18.00	53	91.76	
V. Ousan	Slovinia	29.20	20	30.18	

MAKING RIBS

by Brian Kenny (GB)

I have recently been using moulded ribs for all my EZB/F1D wings and built-up props. A sketch of the type of jig I use is attached for your interest.



Brian Kenny. 2/9/93.

The end locators and the central transverse "height" spacer are superglued to the base (all from balsa wood). The height spacer of course determines the % camber of the rib and hence the same height of spacer ensures the same maximum rib height for both chordwise and diagonal ribs if these are used on the same wing.

I trim the length of sheet from which the ribs are to be sliced, whilst it is dry, and by trial and error till, when spring into place, it fits snugly and is held securely by the angled end pieces. The rib sheet is then soaked in hot water for ten minutes, replaced in the jig and dried in a low heat oven (or if I am in a rush as usual, I use a hair drier to dry the sheet + set the curvature). A "Laurie Barr" type of slicer is then used to slice off the required number of ribs from the edge of the permanently curved "rib sheet". Since the grain is along the rib, the bending stiffness of these ribs is optimised for their depth + thickness. So far they have not lost curvature in the sometimes damp Cardington conditions and you don't have to use C-grain wood.

1996 International Mini-Stick Postal Contest

The St. Louis Thermaleers invite all indoor flyers to take part in the 1996 International Mini-Stick Postal Contest to be held over the winter period. The rules for the contest will be as follows:

1. The contest is open to Indoor models that comply with the Living Room/Mini-Stick rules.
2. Contest flights are to be made between 1 Jan., 1996 and 31 Mar., 1996.
3. Any number of flights can be made at any number of sites.
4. All contest flights to be timed by someone other than the flyer.
5. All contest flights to be recorded on an official Results Form. (Included in this issue. Copies can be made.)
6. Best single flight time wins, after the flight time has been corrected for different ceiling heights. Ceiling height to be measured as per the FAI, but with a 5 metre diameter circle. The correction factor is 627 divided by (167 plus 46 times the square root of the ceiling height in feet). The time in seconds will be multiplied by this to give the corrected time.
7. Prizes will be awarded dependent on the number of contestants.
8. All Results Forms to be returned no later than 10 April, 1996 to the address below:

9. Entry is free to all contestants.

10. Results will be sent if a S.A.S.E. is included with the Results form.

Send your results to:

Larry Coslick
4202 Valley Crest Hills Drive
St. Louis, Missouri 63128

MINI-STICK MODEL RULES

Monoplane, max span	7.0 in.
Max Wing Chord	2.5 in.
Stick Length	5.0 in.
Max Model Length (less prop)	10.0 in.
Stab (Tail) Area	Max = 50% of Wing
Covering	Plastic/Paper. <u>NO</u> microfilm
Propeller	Wood Prop, 7" dia. max.
Minimum Weight	(0.43 gms) 0.015 ounces

Flying

Steering	4 Ten Second Steers*
Attempt	15 Seconds or more*

*Special rules for very small rooms only!
(Living Room flying.)

Indoor Postal Contest Results Form

Club Name _____

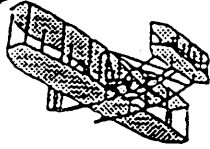
Date of Contest ____ / ____ / ____ **Site Name** _____

Ceiling Height _____ **Feet**

Contestant Name SMAE No. Age (if Jr.)	Address	Time in Seconds	Timer Initials	Leave Blank
		1.		
#		2.		
		3.		
		4.		
		5.		
		1.		
#		2.		
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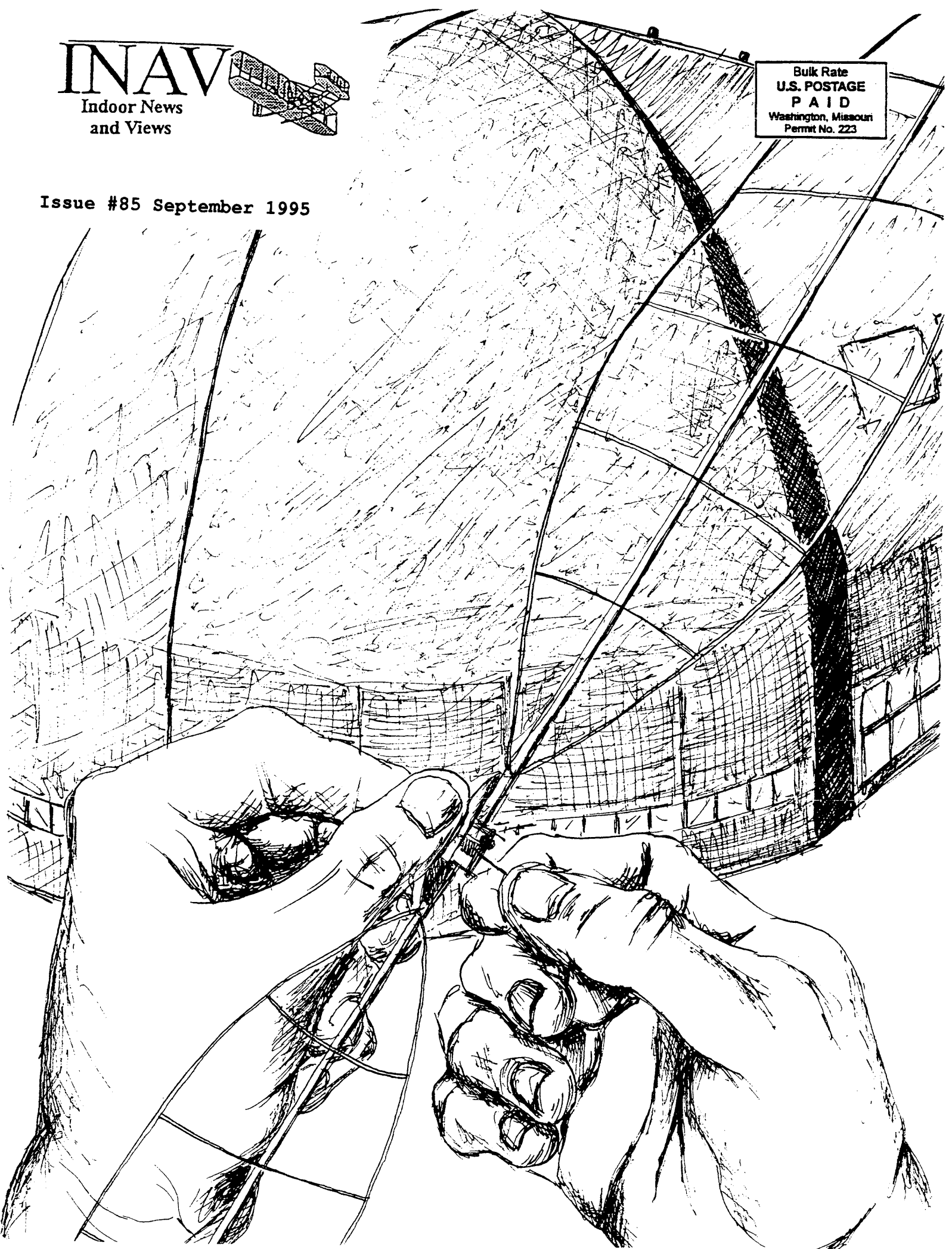
INAV

Indoor News
and Views



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Washington, Missouri
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Issue #85 September 1995



FOR SALE

We have several extra copies of the program books from the 1995 USIC. This book contains about 20 drawings of winning indoor designs, many with sufficient detail to permit easy construction.

Price \$7.00 - USA \$10.00 - Foreign

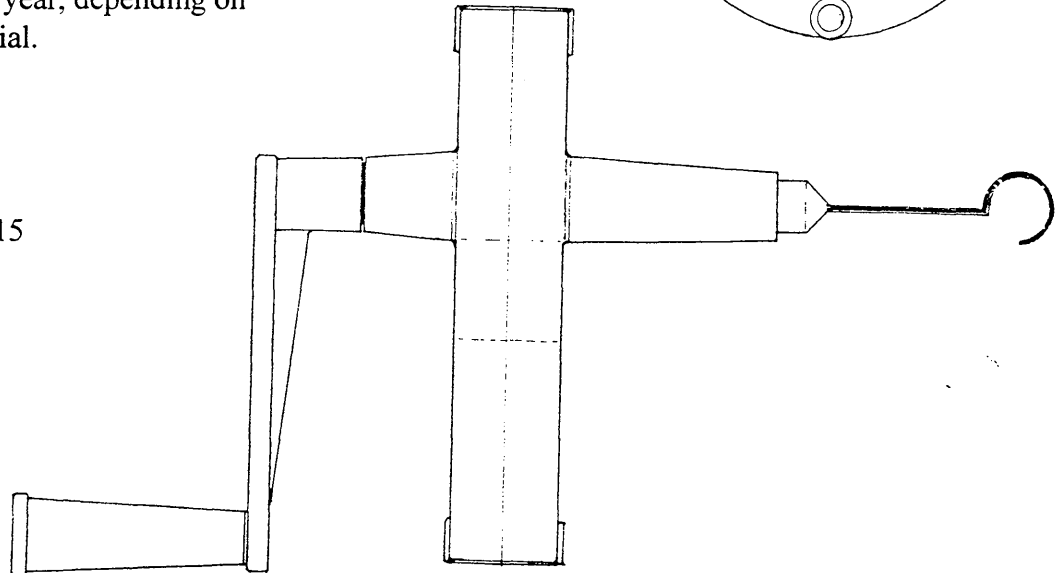
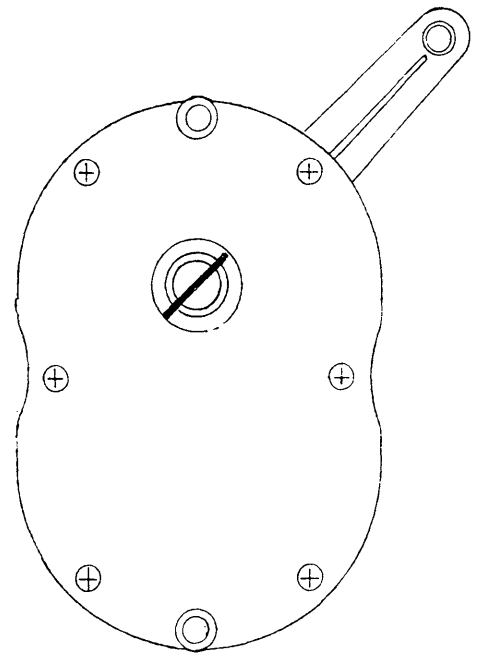
INDOOR NEWS AND VIEWS (INAV)

Published 4-6 times/year, depending on availability of material.

Mail all checks to:
Roy White
1025 Cedar Street
Catawissa, MO 63015

\$9.00 - U.S.A.
\$12:00 - Canada
\$15:00 - Foreign

X
dues
are
due



Indoor Winders

These winders are available in 5:1 10:1 and 15:1. All three winders will wind $\frac{1}{4}$ " loop of rubber to breaking point, so they should cover all aspects of indoor flying. There is a ball bearing thrust race built in and the winding hook is retractable. There are two mounting holes, one top one bottom, so that counters and bench clips can be securely fixed to the winder. The cost is £9.00, which includes world wide post. Payment can be made by Eurocheque or International Money Order made out in £ sterling to John Tipper, 23 Green Lane, Chichester, West Sussex, PO19 4NS, England. U.S.A. \$ accepted - please send \$15.
(The drawing is full size)

Yours sincerely

John

AMA RECORD UPDATE

_____, 1995	Tom Vallee	
Open		
Cat I Intermediate Stick		21:56
July 2, 1995	Ray Harlan	Open
Cat IV Ornithopter		19:44
July 16, 1995	Jake Palmer	Sr.
Cat IV PennyPlane		15:09
July 17, 1995	Steve Brown	Open
Cat IV FID		49:23
Aug 5, 1995	Jim Clem	Open
Cat I Limited PennyPlane		11:48
Aug 5, 1995	Stan Chilton	Open
Cat I Intermediate Stick		30:40
Aug 6, 1995	Jim Clem	Open
Cat I PennyPlane		13:45
Aug 26, 1995	Jim Grant	Open
Cat IV Limited Penny Plane		18:00
Sept. 2, 1995	Roy White	Open
Cat IV Ornithopter		21:44
Sept. 2, 1995	Richard Doig	Open
Cat IV FID		50:41
Sept. 2, 1995	Larry Coslick	Open
Cat IV R.O.G. Stick		22:49
Sept. 3, 1995	Larry Coslick	Open
Cat IV Intermediate Stick		41:48
Sept 11, 1995	Larry Coslick	Open
Cat II Intermediate Stick		31:37

ATTENTION OVERSEAS FLIERS

INAV is interested in publishing all new indoor records for your respective countries. Please include date, flier's name, ceiling height, type of model and time. Send information to:

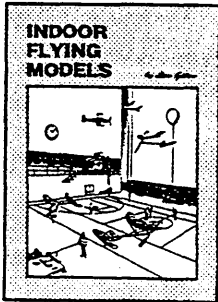
Roy White
1025 Cedar Street
Catawissa, MO 63015

Cover by Rob Eberle

ATTENTION

Dr. Vernon Hacker advises us that Bill Thornbro of Model Aviation magazine would very much like to have pictures of indoor activity. He would especially like to have some pictures that he could use as a cover showing a microfilm in all its iridescent glory. Please send to:

Bill Thornbro
Model Aviation
5151 East Memorial Drive
Muncie, Indiana 47302



INDOOR FLYING MODELS

AT LAST! Lew Gittlow's NEW BOOK!
184 Pages, 8 1/2" x 11" • Send \$22 +
\$3 shipping to: Indoor Model Supply
Box 5311 • Salem • OR 97304

1995 USIC SCORING CLARIFICATION

The scoring at a contest is sometimes controversial. Limited Penny Plane was one of these occasions. Jack McGillivray won the OPEN LPP contest with 15:29. Vladimir Linardic won the JR/SR LPP contest with 15:56.

Although Vladimir's winning time was the highest score, he was competing in as a Senior and the Open Championship points were tabulated, using Jack's time of 15:29. The confusion resulted because Vladimir's times were recorded on the score sheet for open flyers.

35cm Stick

By Tom Sova (see plan)

This is the 3-View of my 35cm stick. The model is my first 35cm and was built about 3 weeks before the Johnson City contest. Two props with identical outlines were built. The original was a 12.25" diameter, 18" pitch. In building the second prop, I rotated the prop shaft on the prop block to increase the pitch. The resulting prop had a pitch of 26" and was the prop I used. The model flies nicely with the high pitch prop, but is a bit tricky at high torque. The next prop will be somewhere in between, probably a 12:25 diameter 24" pitch.

The Columbia Cruiser

By Jim Grant (see plan)

This Manhattan cabin model is so named because I first flew this event in the low library rotunda at Columbia University. The model is conventional in construction with assembly achieved with paper tubes and 1/16 posts. The fuselage diagonal trusses are loaded in tension when the motor torque

tends to twist the fuselage, hence their small cross section. I chose to have the required box section lying flatwise, rather than upright so as to get as much lift from the fuselage as possible. The best rigging I have found is with 2 degrees positive incidence at the wing and 0 degrees at the stabilizer. Both the wing and stabilizer are washed in about 2 degrees on the left panels. The propeller thrust line is parallel horizontally with about 1 degree left thrust. The model flies best with a 26" loop x.098 TAN rubber (8/93) under a Cat IV ceiling and with a 22" loop x.092 under Cat III. During its record (pending) flight on July 3, 1995 (15:17), it bounced off the catwalk (177 ft.) three times and still landed virtually dead stick. This indicates that a longer flight may be possible using a longer loop of rubber in order to:

- 1) provide more energy and more turns and
- 2) increase the gross weight to avoid ceiling contact.

Careful construction to maintain true alignment and avoidance of warps will result in a model which will fly "right off the drawing board."

1/4 Motor Balancer

By John Linderman (see plan)
August, 1995

Add clay to balance beam so it stays level. It will have to be adjusted depending on humidity.

Make up wire spacers to 3/4 of distance of distance between prop shaft hood and rear hook. Use .020 to .025 wire for EZB. Use .035 for Limited Penny Plane. Put 1/4" motor on long end of balance beam. Put spacer on other end, and add clay or copper wire until it balances. Use "o" rings on both ends of motor, with larger "o" ring on knot end. It helps prevent rubber climbing. The wire stop on balancer restricts balance beam from dipping too far when the motor is placed on beam. If using a longer motor (1/4), you may have to place balancer on the edge of work bench to clear motor.

When changing motor size or length, merely add or take away clay until it balances.

We're talking about spacer clay here. Clay should be centered on space.

EZB - AKRON LIGHT

By Larry Coslick

The Akron Light series had dramatically changed my thinking on building EZB's. Last year, I was convinced that a long motor stick and tail boom was the way to go. With better wood selection and improved building techniques, I have been able to build a very light model and still use an 8.4 to 8.75 inch motor stick. The lighter model flies slower, does not climb as high and gets as good or better times than my heavier model.

motor stick

Motor stick wood is selected from sheets of 3/32 balsa and 12 are cut at a time. After they are shaped and weighed, each is tested for stiffness using a spring loaded deflection gauge. M/S weights to shoot for are, .17 gram for a 8.4" stick and .2 gram for a 8.75" stick. The wire thrust bearing is made from .009 wire and the rear hook from .007 wire. The rear hook must be formed as shown on the plan, otherwise it will straighten out.

boom

It has to be stiff, but light. The best source for good boom stock is Indoor Model Supply. I order 10 sheets of 12" tapered stock at a time and cut several booms from each sheet. They are double tapered and no sanding is required.

prop

My new props weigh in at .1 to .11 gram. The spar is also cut from IMS tapered stock and double tapered. Each blade is 4.9 square inches and cut from .006 C grain balsa. Sheet weight must be around .13 grams to make a prop this light. Prop wood is cut on a bias and overlapped .030", then glued with duco. Attach the blades to the spar with thinned carpenters glue.

set up

The wing is adjusted with 1/16 wash in on the outboard wing panel by bending the rear wing post. This will automatically wash out the inboard panel. The wing is set with 1 to 1.5 degrees of negative incidence. Decalage is obtained when the model is launched and the tail boom goes positive. The stab should have no warps. The thrust bearing is set with 2 degrees left and 1 degree down.

testing

Our best flying site is a 27 foot gym and it's ideal for 1/4 motor testing. 1/4 motor testing is the perfect way to fully test your model. The Akron Light will handle a launch torque of .12 inch ounces and 1/4 motor flights of 7 minutes is not uncommon.

OPEN PENNYPLANE

By Dan O'Grady (see plan)

The design is Gord Wisniewski's. (Winning Indoor Designs, p. 48). The changes I made were minor.

- wing tip corners were made as per the stab.
- The motor stick is slightly smaller because of the glass rod I used as a form.

- the props I used were a carry-over from a Dennis Jaecks Pennyplane previously built.
- I used a captive rear hook (a Roy Bourke innovation - SAM 86 Speaks, Apr '93) to prevent the motor from twisting itself off the rear hook when the rubber bunches.
- I left the boom detachable until I put in a couple of trim flights to establish the turning circle, then cemented the boom in that position.

The model is very well behaved, and flies well right off the board - a tribute to an excellent design.

AMA National Contest

July 15-18, 1995

By Larry Coslick

The contest started on Saturday and everyone had plenty of time to get their models trimmed during the Kibbie Dome Annual contest. Abram Van Dover ran the contest and did a great job for the AMA. As in the Kibbie Dome Annual contest, we started at 8:00 am and the last flight was launched around 7:15 pm

Jim Clem had posted good flights with his Penny Plane at the Annual contest, but hung it up on the curtain during an official flight at the National contest. Time was running out, so he asked Bruce Kimball to balloon it down. While Bruce was attempting to free Jim's model, the balloon exploded, sending the model to the floor in pieces. Dick Hardcastle had a motor slip off the hook of his "number one" Penny Plane and it destroyed the motor stick. Dick used his back up model to win Penny Plane with a flight of 16:16. Gene Joshu, in his first year of flying Penny Plane, placed Second. Jake Palmer, a senior from Salem, Oregon, flew a beautifully built Penny Plane to a new senior record of 15:09. Wally Miller flew a new V stab A-ROG which flew a smooth pattern to within 15 feet of the ceiling to win the event with 18:30. Steve Brown, the current FID world champion, won both AMA Stick and FID. Check out Steve's flight in FID. A new Cat IV AMA record - 49:23.

The Kibbie Dome is a great place to fly and there is a very relaxed atmosphere. People take time to chat and exchange ideas. Plan on being there in 1996!

HIGH ROLLER STANDARD/ UNLIMITED CATAPULT GLIDER

By Mike Thompson (see plan)

Here are the plans for my Standard/Unlimited Catapult Glider as requested. There is not much to say about trim on this model. There are probably better ways to trim, described in the "Winning Indoor Designs Book". My glider is launched almost vertical and does 2 rolls to the left. Glide is to the left and is rather fast. The model must not stall (it usually doesn't) but roll out into the glide between and above the bottom of the girders at USIC. This model is "dialed" in for the USIC site and is not a good performer for anything lower and higher. It has ballast, but I think that the record flights (177 seconds, 2 flights) show the limit of this glider.

Best unofficial flights at USIC: 84.1 seconds. Best unofficial flight at Akron: 91.2 seconds. I think 85 seconds is possible at USIC and for Akron 110-120 seconds per flight, but not with this glider.

One note on catapult, any flutter or vibrating parts on launch hurt the airplanes performance. Flappers are okay for up to 90 ft. ceilings but a ridged airplane is the way to go for high ceilings. That's about it.

Kibbie Dome Annual Contest July 12-13, 1995

By Larry Coslick

I had originally planned to fly to Moscow, Idaho to attend the Kibbie Dome Annual, The International EZB, and the AMA National contests. Gene Joshu, from the St. Louis area was planning to drive, so I decided to join him on the long trip. Forty hours later, after driving 2100 miles, we arrived at the Kibbie Dome the day before the start of the Annual contest. Several of the contestants had arrived early and we were able to set up our tables, but had no time for test flying.

If you never have been to the Kibbie Dome, let me tell you a little about it. It has a 147-foot ceiling with acoustical tile plates suspended about 2 feet below the ceiling. There is very little vertical separation between the plates, but around three feet of horizontal separation. Each plate appears to be about 12 x 12 feet. There is a clear spot in the center of the ceiling, with no tile plates, which is about a 60-70 foot square. In the center of the opening, there is a speaker support that is pulled up against the ceiling. It's best to avoid the open area, because a bad bounce off the speaker support would send the model above the tile. Very few planes ever come out. There is a large area to the east and west of the center to get in good flights. There are also three curtains that are suspended from cables at the 135-foot level. A few models get hung up on the curtains, but these can be lowered, so that the models can be retrieved.

Andrew Tagliafico puts on a great contest and everyone enjoys the low key approach. At the Annual, you can fly any of

the AMA events at any time during the two-day meet. FID and lighter models are flown in the center and West sections of the dome and heavier models in the East end of the building. The air was quite good and lots of contestants posted their best personal times. Jim Clem put up a great flight of 15:20 in Limited Penny Plane to ace out John Linderman's 15:05. Dick Hardcastle's "early 1980's" Penny Plane has probably won more First place awards than any other Penny Plane, and he did it again with a good flight of 16:28. We were privileged to have two old-timers, Earl Hoffman and Warren Williams with us. Earl did not mind being hoisted 20 feet up with a fork lift to retrieve his model from the lowered curtain.

July 14, 1995 International EZB Contest

By Larry Coslick

Bob Stalick was our contest director and it was obvious that he had done it many times before. The contest was flown in rounds of 1.5 hours each and the best two out of six flights won. Most of the fliers put up their flights at the start of the round and there was plenty of time to prepare for the next round. I built two new Akron Light EZB's and increased the motor stick length to 8.75 inches. The first two flights were flown with a flaring prop, but the model would not get above 110 feet. The model had flown 28:01 during the Annual contest on the same prop, but the best time I could get was 26:31 during the International contest. I switched over to a back up model using a new symmetrical prop and posted a time of 27:09 to win the contest with a combined time of 53:39. Larry Calliau was second with 52:55 and Mike Palrang, a newcomer, was third with 49:12. There were 18 contestants and 46 flights of more than 20 minutes. We are considering alternating the International contest between Johnson City and the Kibbie Dome in the future.

1995 AMA National Contest Results

MANHATTAN CABIN	Time			Place	
Larry Coslick	11:06			First	
ROG CABIN					
Bob Jamison	1:15			First	
FAC PEANUT SCALE					
Orville Olm	146 Pts			First	
Ken Johnson	125 Pts			Second	
Earl Hoffman	122 Pts			Third	
FAC RUBBER SCALE					
Guy Russo	126 Pts			First	
Orville Olm	122 Pts			Second	
Jim Woods	103			Third	
FAC NO CAL SCALE					
Orville Olm	514			First	
Bob Schaffer	390			Second	
Ed Lamb	381			Third	
INDOOR H L GLIDER					
John Alling	109.7			First	
Darryl Stevens	108.5			Second	
Bruce Kimball	105.7			Third	
UNLTD CATAPULT					
Herb Robbins	103.7				First
Bruce Kimball	100.1				Second
Charles Dorsett	98.0				Third

1995 AMA National Contest Results

FID	Time			Place	
Steve Brown	49:23	*		First	New Record
Darryl Stevens	36:57			Second	
Edmund Liem	35:21			Third	
INTERMED. STICK					
Larry Coslick	37:27			First	
Dick Hardcastle	31:17			Second	
Warren Williams	26:47			Third	
PENNYPLANE					
Dick Hardcastle	16:16			First	
Gene Joshu	15:34			Second	
Bruce Kimball	13:51			Third	
PENNYPLANE SR.					
Jake Palmer	15:09	*		First	New Record
PENNYPLANE JR.					
John Schaff	11:45			First	
Nick Leonard	9:47			Second	
BOSTONIAN					
Larry Coslick	639 Pts			First	
Charles Schaff	515 Pts			Second	
Earl Hoffman	403 Pts			Third	
ORNITHOPTER					
Larry Coslick	18:22			First	
Gene Joshu	12:22			Second	
Mike Palrang	12:07			Third	
STD CATAPULT					
Ed Liem	103.4				First
Charles Dorsett	102.1				Second
Mike Palrang	31.3				Third

1995 Kibbie Dome Annual Contest Results

July 12 & 13, 1995

MINI STICK					
Larry Calliau	11:44				First
Andrew Tagliafico	11:35				Second
Wally Miller	11:28				Third
CATAPULT GLIDER					
John Linderman	99.8				First
Ed Berray	75.0				Second
P-24					
John Linderman	7:25				First
Ed Berray	5:13				Second
Guy Russo	2:48				Third
AMA SCALE					
Dave Haught	1:07		1911	Cessna	First
Ken Johnson	:43				Second
Dave Haught	:33			JU 88	Third
A-ROG					
Larry Coslick	15:44				First
Wally Miller	14:55				Second
Warren Williams	14:12				Third

1995 Kibbie Dome Annual Contest Results

July 12 & 13, 1995

ORNITHOPTER	Time			Place	
Gene Joshu	12:02			First	
Mike Palrang	11:16			Second	
Warren Williams	10:54			Third	
PRO-20					
Andrew Tagliafico	25:52			First	
Earl Hoffman	23:18			Second	
Warren Williams	20:15			Third	
EZB					
Larry Coslick	28:01			First	
Larry Calliau	25:47			Second	
Dick Hardcastle	24:06			Third	
PENNYPLANE					
Dick Hardcastle	16:28			First	
John Linderman	16:22			Second	
Jim Clem	16:15			Third	
LTD PENNYPLANE					
Jim Clem	15:20			First	
John Linderman	15:05			Second	
Bruce Kimball	14:19			Third	
NO CAL SCALE					
Orville Olm	4:46			First	
Michael Morrow	4:17			Second	
Ed Lamb	2:07			Third	

AKRON, OHIO SEPT. 1995
USA TEAM SELECTION FOR THE 1996 FID WORLD CHAMPIONSHIPS

CONTESTANT	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 5	ROUND 6	ROUND 7	ROUND 8	ROUND 9
Rich Doig	00:40:11	00:45:09	00:47:52	00:46:08	00:50:41	00:44:19	00:39:24	00:47:42	00:50:41
Gary Underwood	-	00:25:54	-	00:32:48	00:48:52	00:49:51	-	-	00:42:31
Cezar Banks	00:45:41	00:16:20	00:10:18	00:47:12	00:44:54	00:49:47	-	-	00:45:03
Bob Randolph	-	00:42:37	00:41:12	00:40:50	-	00:40:29	00:21:45	00:45:42	00:49:31
Don Slusarczyk	00:42:31	00:44:39	00:45:30	00:14:02	00:48:10	00:44:07	00:16:49	00:37:38	00:43:05
Larry Loucka	-	00:31:56	00:41:45	-	00:42:29	00:44:16	-	-	00:46:14
Stan Chilton	-	00:34:43	00:44:27	00:43:15	-	00:40:38	00:24:50	00:45:27	00:44:55
Jim Richmond	ATT	00:18:45	00:35:11	00:40:21	00:45:26	00:42:36	00:01:27	00:42:28	00:40:46
Bill Hulbert	-	00:30:11	00:19:58	00:37:27	00:42:43	00:20:08	00:39:10	00:42:12	00:41:53
Jesse Shepherd	00:14:19	-	00:30:28	00:32:25	00:37:50	00:22:50	00:21:37	00:40:33	00:24:26
Larry Mzik	00:33:32	00:36:50	00:26:34	00:33:07	00:39:07	ATT	00:32:57	00:35:02	00:38:35
John Kagan	00:31:21	00:14:37	00:35:48	00:33:30	00:36:20	-	00:35:34	00:31:49	00:37:40
Jim Clem	-	-	00:30:35	00:16:31	-	00:32:32	00:34:41	00:06:10	00:39:27
Tom Vallee	00:30:52	00:35:58	00:32:04	00:20:03	-	-	00:24:59	00:36:40	00:36:52
Bob Gibbs	-	00:14:10	-	00:35:16	00:31:28	-	00:21:22	00:26:32	-
Rob Eberle	-	ATT	00:36:33	00:16:16	00:28:26	-	-	-	00:25:21
George Chabot	00:27:59	-	00:34:59	-	-	00:24:49	00:17:34	00:23:52	00:27:52

CONTESTANT	BEST FLIGHT	2ND FLIGHT	TOTAL (Best 2)	FINALS PLACE	FINALS POINTS	REGIONAL POINTS	TOTAL POINTS	TEAM PLACE
Rich Doig	00:50:41	00:50:41	01:41:22	1	1000.00	100.00	1100.00	1
Gary Underwood	00:49:51	00:48:52	01:38:43	2	973.86	100.00	1073.86	2
Cezar Banks	00:49:47	00:47:12	01:36:59	3	956.76	100.00	1056.76	3
Bob Randolph	00:49:31	00:45:42	01:35:13	4	939.33	97.82	1037.15	4
Don Slusarczyk	00:48:10	00:45:30	01:33:40	5	924.04	100.00	1024.04	5
Larry Loucka	00:46:14	00:44:16	01:30:30	6	892.80	100.00	992.80	6
Stan Chilton	00:45:27	00:44:55	01:30:22	7	891.48	100.00	991.48	7
Jim Richmond	00:45:26	00:42:36	01:28:02	8	868.46	97.85	966.32	8
Bill Hulbert	00:42:43	00:42:12	01:24:55	9	837.72	96.64	934.35	9
Jesse Shepherd	00:40:33	00:37:50	01:18:23	10	773.27	100.00	873.27	10
Larry Mzik	00:39:07	00:38:35	01:17:42	11	766.52	86.66	853.19	11
John Kagan	00:37:40	00:36:20	01:14:00	13	730.02	80.19	810.21	12
Jim Clem	00:39:27	00:34:41	01:14:08	12	731.34	76.39	807.73	13
Tom Vallee	00:36:52	00:36:40	01:13:32	14	725.42	76.08	801.50	14
Bob Gibbs	00:35:16	00:31:28	01:06:44	15	658.34	100.00	758.34	15
Rob Eberle	00:36:33	00:28:26	01:04:59	16	641.07	84.32	725.39	16
George Chabot	00:34:59	00:27:59	01:02:58	17	621.18	83.28	704.46	17

CHILTON'S CORNER

By Stan Chilton

PACKING IN THE TURNS

After you've built and tested your model the final moment of truth is when you wind the rubber motor before making your first official flights.

If you don't get maximum turns in the motor, the other flyer who does may very well beat you assuming everything else is equal, torque, proper rubber size, rubber lube, etc.

In the last several years I have read about crystallization of the rubber motors, maybe caused by excessive stretching (or winding.) However, I have not been convinced enough to change my style of winding, because the bottom line is simply to get as many turns in the rubber motor as it will possibly take.

I have experimented with numerous types of lubricant to facilitate not only getting the winds in but unwinding these same turns with the most efficiency.

And I do know something is happening to Tan II more so than other batches of rubber and it very well may be crystallization, as it may break while winding, or on the model 35 minutes later.

But don't lose sight of the goal, and that is to get the maximum turns consistently every flight. And every official flight is always wound to max turns regardless of how many are backed off to get the desired torque level.

It seems that every indoor modeler has their own particular method of trying to get the maximum number of turns into any given rubber motor. And it also seems that whatever method one uses, it is seldom

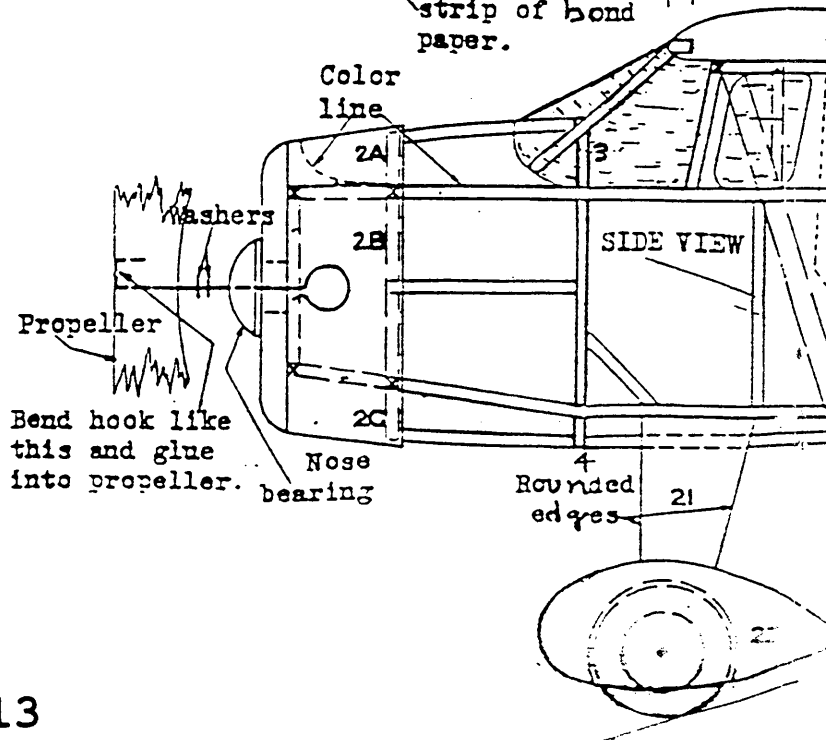
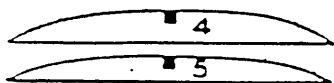
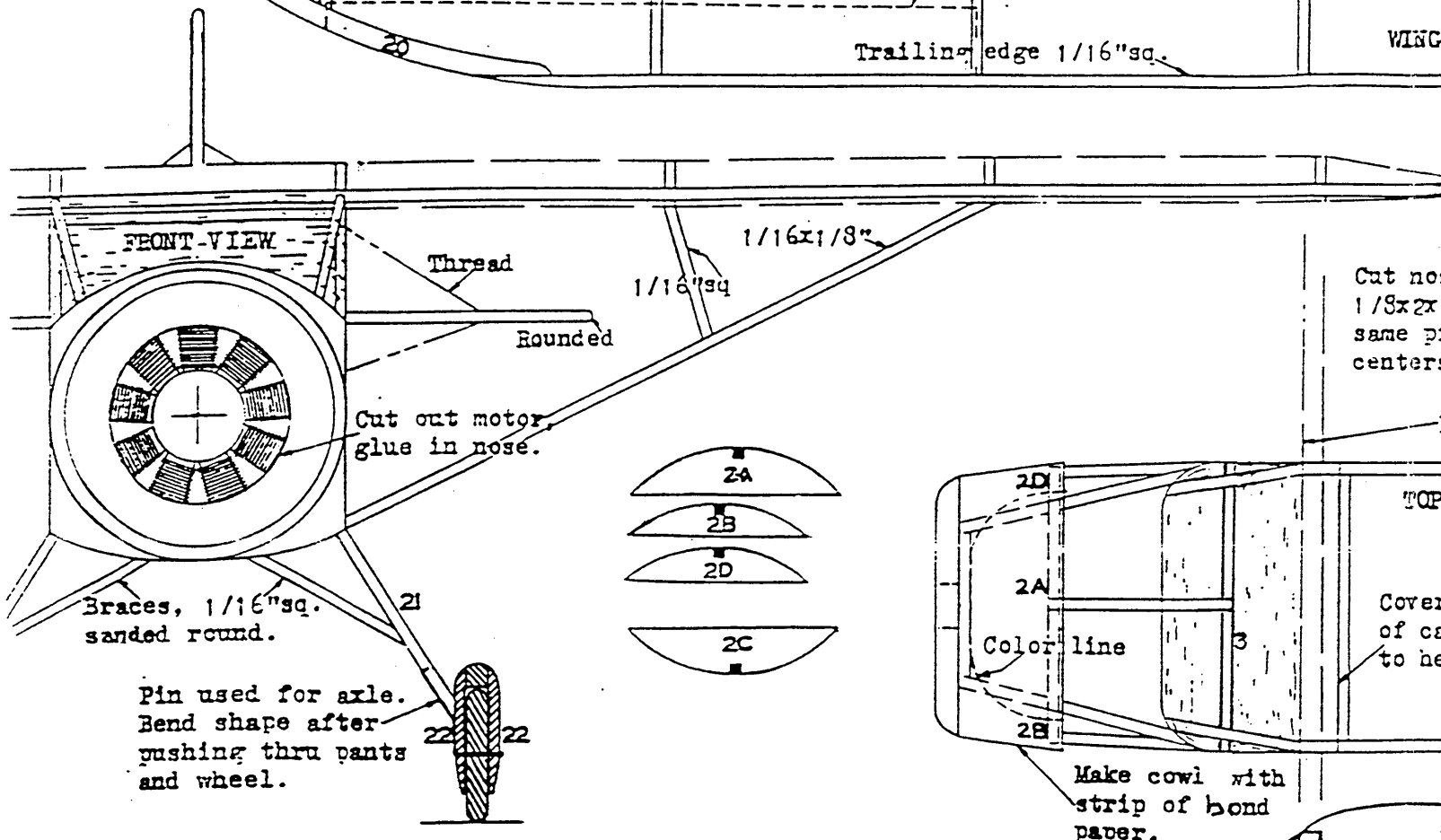
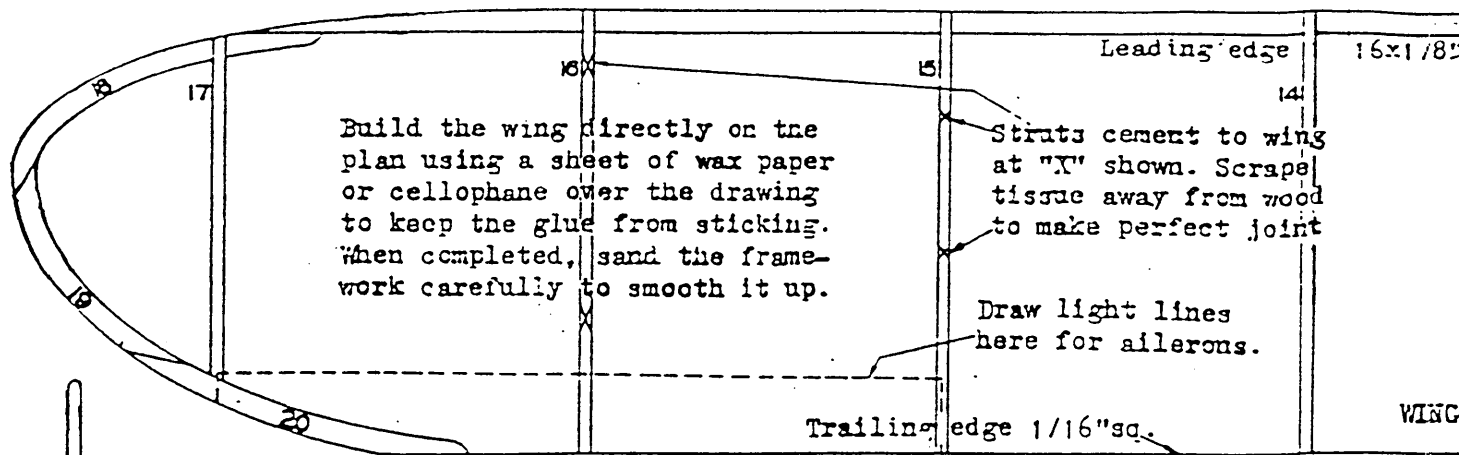
talked about.

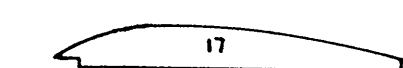
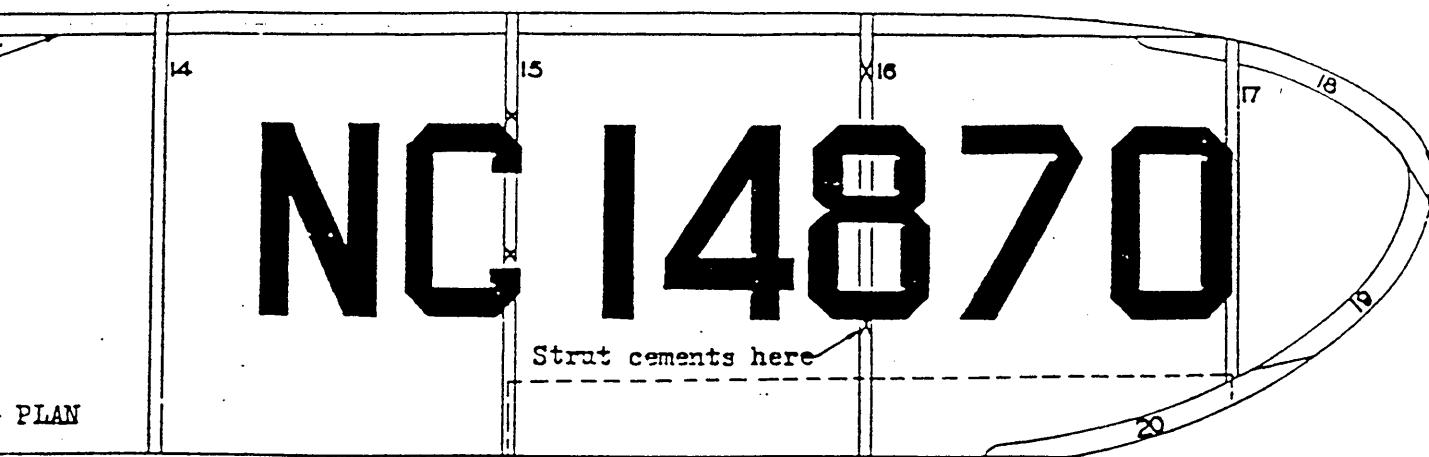
The situation is really very simple: If you can get 10% more turns into your motor you have a 10% advantage over your competitor.

There are many different ways to wind up a rubber motor. I will tell you how I do it although it may be technically flawed. For instance Jim Clem doesn't stretch out the motor as far as I do. He feels that max stretching causes a crystallization of the atomic links of the rubber. Yet I've seen him crank in over 5000 turns on a Federation ROG!

Following is how I wind a motor that I want to put in absolute maximum turns, under these assumptions: 1) The motor has previously been fairly well broken in or stretched to 90% length for 5 minutes and 2) the motor has been lubed with a proven rubber lubricant, preferably with silicon in it. 3) Calculate from a winds chart how many turns this particular motor should take. (For our illustration here we will assume 2000 turns max.) 4) It is helpful to install a brake on your winder so you can hold the winder in your one hand without the danger of free wheeling and losing turns, especially under higher turns and torque. 5) Create some sort of winder-torque meter set up where you can establish a model's hook to hook distance between the winder and the torque motor. The set up must allow the winder to be latched or held firmly at the hook to hook distance but at the same time be easily removable for winding and transfer to the model.

Now for the actual winding. Stretch the rubber loop as far as it can be stretched





numbers also on the bottom of the left wing, in order given.

se block from
3 1/2" Use this
piece for pants
also.

Color scheme. Cover the model with blue and red tissue, red above the color line shown, blue below. Cover all wood parts with tissue.

Position of wing.

VIEW

top
cabin
here.

Cross
braces

Color line

1/16"sq.

Position of
rear rubber
pin.

Draw light
lines for
elevators.

1/16"sq.

Rounded

NC
14870

NC
14870

Cut out these
numbers and
glue to tail

Thread
brace

1/16"sq.

Rear rubber
pin here.

5

4, 15, 16

Dash. Glue to #3

Color
line

1/16"sq.

For cabin
see notes.

Crossbraces
go at "x".

Door
outline

Heavy
outline

5

HOWARD DGA - 8	
EXACT SCALE	FLYING MODEL
Copyright 1937 by	
THE PEERLESS MODEL AIRPLANE COMPANY	
CLEVELAND, OHIO	U.S.A.

just short of breaking it. For Tan II this stretched length is close to 10 times the original motor length. Of course the anchored end of the motor is hooked to the torque meter. Do this by holding the winder with motor hooked to it in your right hand and feeling the rubber tension with your left hand.

Now start winding slowly. At about 40 turns (the 2nd winder turn) start coming in as you continue to wind. Keep the rubber slack enough that it doesn't tighten up and break. Put in 500 turns and stop.

- A. With your right hand holding the winder again and left hand feeling the rubber, back out (stretch) the motor and again to the max, just short of breaking.
- B. Then start winding slowly and coming in at the same time. Put in 300 more turns. Start watching the torque closely now and come in just enough while winding to keep the torque from increasing.

Repeat paragraph A and once again put in 300 turns in the manner described in paragraph B.

At this point while alternating winding, relaxing and stretching drop the turns put in in each cycle to 100.

As you approach 1800 to 1900 turns you will notice the torque increasing in spite of coming in. The torque will increase dramatically as you stretch the motor back out as far as it will go.

The last 100 turns may be put on in 2 cycles of 50. If the motor now appears to

be able to take more turns than your chart shows to be the estimated max turns put additional turns on as you think you can get away with, but never more than 100 at a time.

When you feel absolute max turns has been reached your rubber motor length should be at the model hook to hook distance. The motor tension at this point should be fairly tight at the hook to hook distance.

Back off the required turns to your desired torque immediately upon reaching max winds.

The winder may now be placed in its stand, or jig with its unwind brake on and the wound motor in place between the winder and torque meter ready for transference to the model.

As you are winding you will occasionally notice two things: 1) Knots grapevining out perpendicular to the motor, (Dick Hardcastle calls it "zinging out the side") and 2) Locations along the motor where there will be knots on knots where a heretofore even row of knots bunches up in clumps.

Both of those situations occur mostly when you are coming in while winding or nearing max turns.

Here again hold the winder in your right hand and knead, separate & massage the rubber motor knots with your left hand so you end up with as evenly wound motor possible. I feel that the rubber gets overstressed and is more likely to break at the knot on knot areas.

Some motors of equal size, length and weight will grapevine and knot on knot

much easier than others. Discard these motors when making a serious flight. Causes for the unevenness may be a varying density of the rubber or a varying width or thickness of the strands.

When making an official flight, I always try to have at least 3 identical motors broken in and ready to wind. This allows you to continue to get a flight in in spite of a broken first motor.

My technique of winding is similar to that described by R.W. New in the 1989 Free Flight Forum of the Model Engineers Exhibition, London, England. He described his winding technique as the "relaxation method," but he does not stretch the rubber as much as I. He holds the stretch to not more than 5 to 6 times the motor length, similar to Jim Clem's winding. But he did not have Tan II rubber.

There are two more points to point out in order to get maximum turns.

The first point is to make sure your torque meter's shaft and indicator needle is free and does not bind or drag. I have ball bearings in my torque meter but they are not absolutely necessary.

Once I was breaking motors almost every wind up, sometimes not even close to max turns. I noticed my indicator needle was dragging on the plexiglass face and causing it to jerk erratically. When I freed up the torque meter, I stopped breaking motors.

The second point is 100% mental concentration. Before beginning to wind the motor be sure you have no questions lingering in your mind about your model's adjustments.

When commencing winding, the only thing in the world to think about is your winder, the rubber motor and the torque meter. Focus and concentrate on the winding of the rubber motor.

It requires extra concentration if you have a talkative timekeeper, especially one who likes to tell jokes to other spectators just a few feet from where you're trying to get max turns on a motor!

If someone walks up and asks me questions while I'm winding I invariably will quickly break the motor.

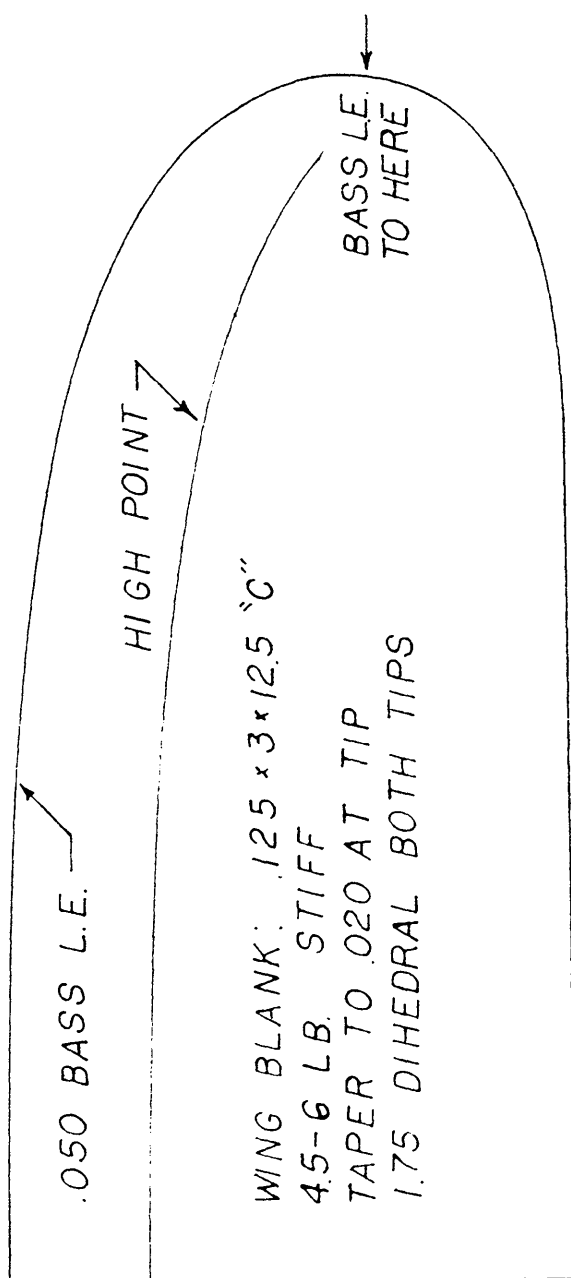
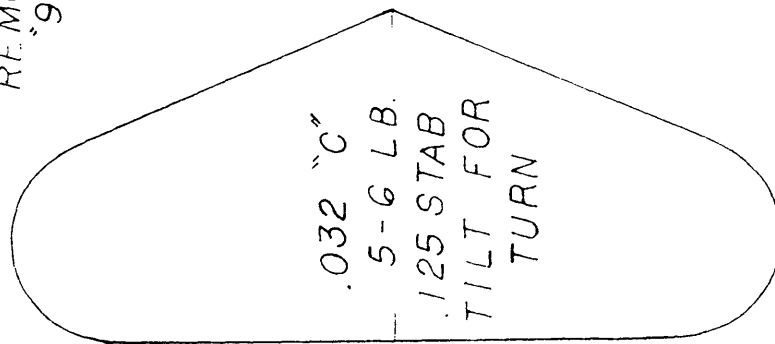
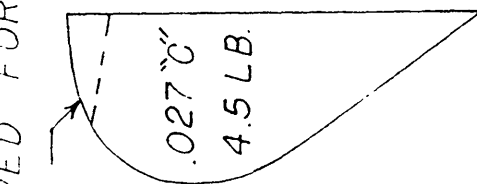
So to get max turns shut out every thought except that of winding the rubber. Do not hurry, the rubber motor isn't going anywhere. But it does take effort to coax maximum turns into the rubber motor, not physical effort, but total focusing of one's concentration toward getting the most turns in the motor.

Always remember if you never break a motor going for maximum winds you are probably underwinding. (Or you have some super rubber, in which case call me collect.)

HIGH ROLLER "95"

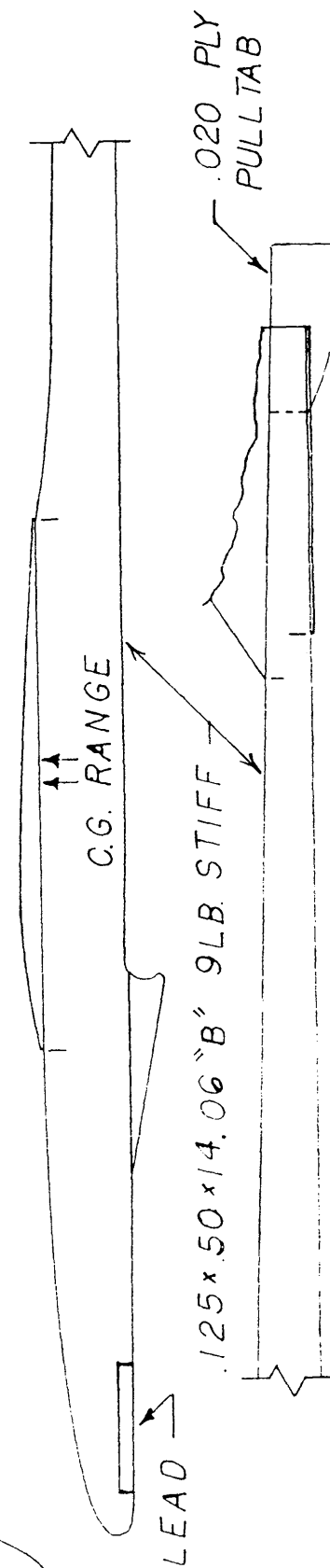
CAT. IV AND USIC RECORD HOLDER

REMOVED FOR
"95"



BASS L.E.
TO HERE

FINISH: 3 COATS THIN NITRATE WITH TCP



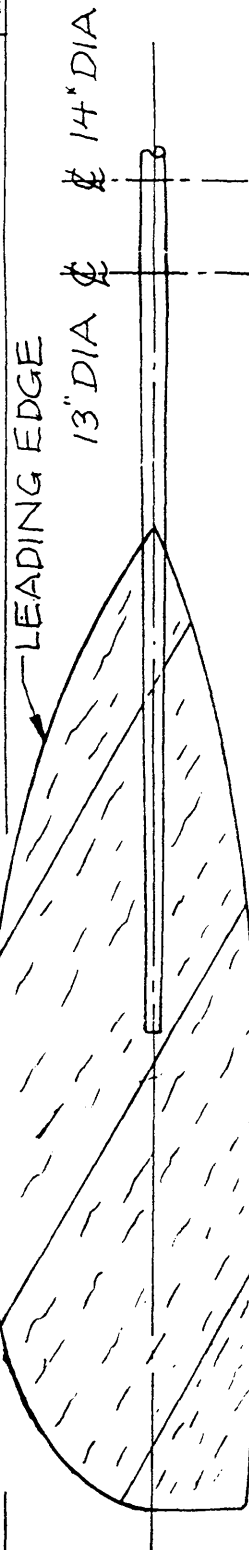
AKRON OHIO 1774 SEC. 2 FLIGHT TOT.

USIC. TENN. 1662 AND 1652 "

POWER: 2 LOOPS

.125 TAN II 8-93

MOD. MARKOS DESIGN BY MIKE THOMPSON "1995"



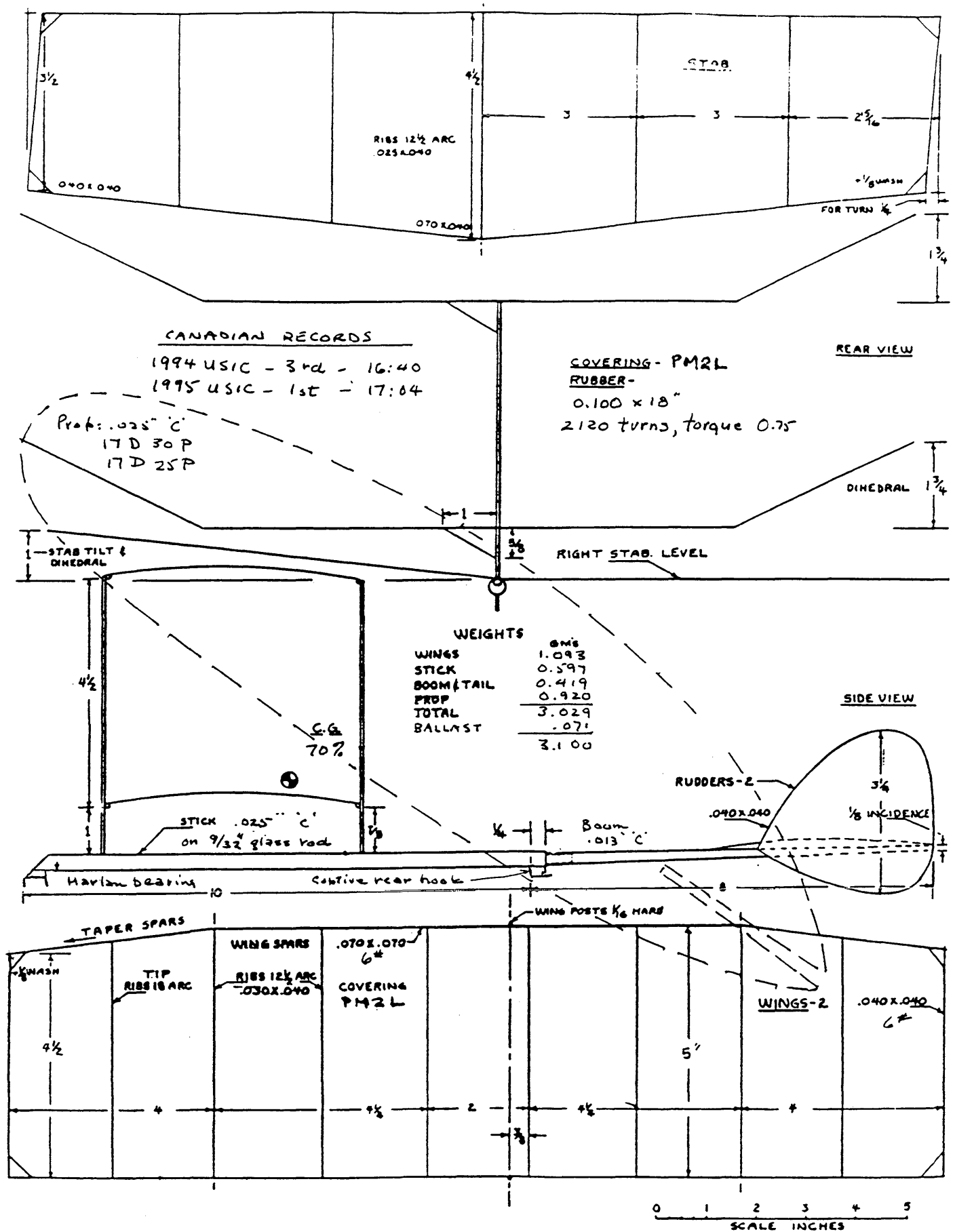
AMA CLASS	MANHATTAN CABIN
-----------	-----------------

DRAWN	JBLmont SEPT'93
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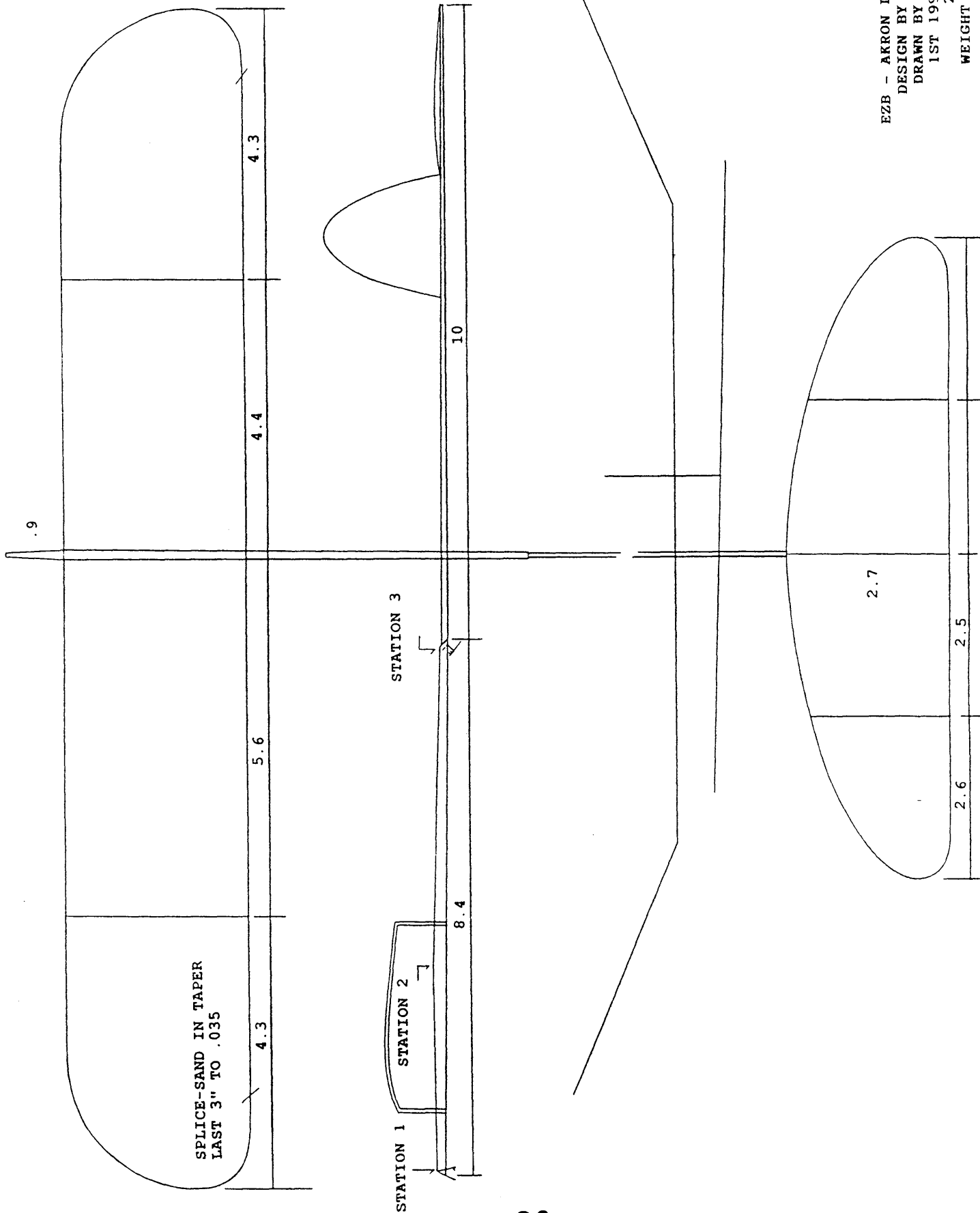
LEADING EDGE

13" DIA Ø 14" DIA

FULL SIZE
PROPELLER
OUTLINE



OPEN PENNYPLANE
BEST TIME: 17:04
1995 USIC
DAN O'GRADY



EZB - AKRON LIGHT, SERIES II
 DESIGN BY LARRY COSLICK
 DRAWN BY J.T. MERSEAL
 1ST 1995 U.S.I.C.
 27:01
 WEIGHT .51 GRAM

AKRON LIGHT

WING

L/E CENTER SECTION .063 X .028 NO TAPER 6.5 LB
 T/E CENTER SECTION .053 X .028 NO TAPER 5.5 LB
 L/E TIP .022 X .063 TO .035 4.0 LB

T/E SEE WING OUTLINE FOR TAPER

WING RIBS (3) .017 X .055 4.0 LB

WING DRY WEIGHT 90 - 95 MG

WING COVERED 140 MG

WING COMPLETE 155 MG

WING POSTS .047 X .85 6 LB

STAB .020 X .028 4.0 LB

STAB RIBS .016 X .028 4.0 LB

STAB DRY 15 MG

STAB COVERED 33 MG

STAB TILT 1/4"

FIN .020 X .020 4.0 LB

FIN COVERED 5 MG

BOOM 10" FRONT .093W X .060D

REAR .030W X .030D 30 MG

M/S 8.4" 4.22 LB

STATION 1 .150W X .100D

STATION 2 .185W X .100D

STATION 3 .120W X .100D

CUT WEIGHT 160 MG

M/S COMPLET 177 MG

PROP SPARS - FROM IMS 12" TAPERED STOCK

CENTER .040W X .070D

TIP .020W X .020D

WIRE PROP HOOK .009

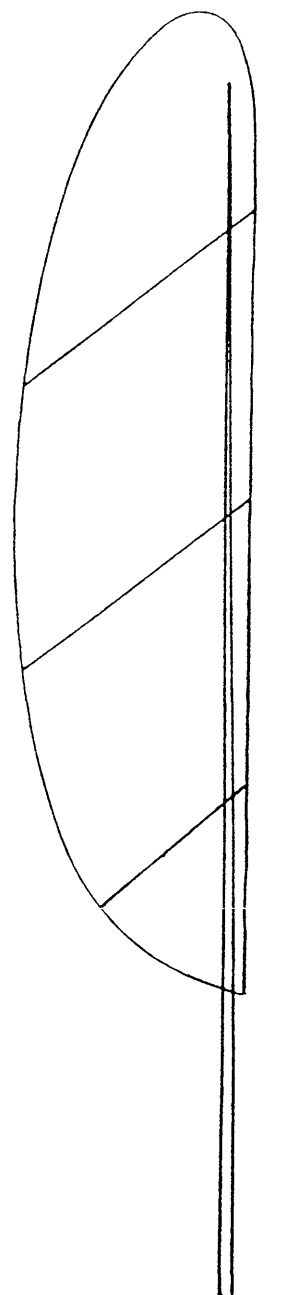
SPAR AND WIRE HOOK 30 MG

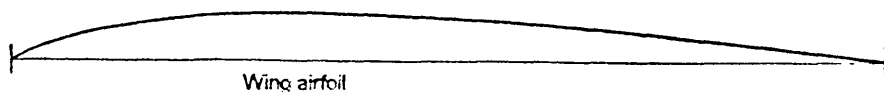
PROP BLADES .006 70 MG

PROP COMPLETE 110 MG

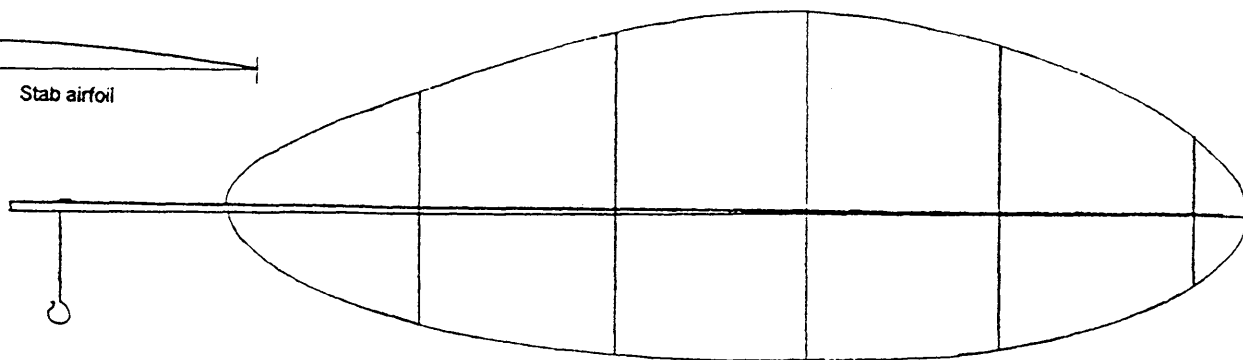
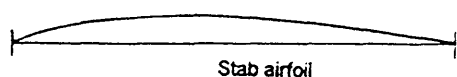
PROP 13.25" X 23P

POWER 8/93 TAN II .037" X 13"





Prop 12.25" diameter
26.00" pitch



35 cm 1st Place 1995 U.S.I.C. 19:11

Motor .037 x 10.5" 1740 turns

Tom Sova (419-882-1273)

5325 Westcroft

Sylvania, Ohio 43560

WEIGHTS

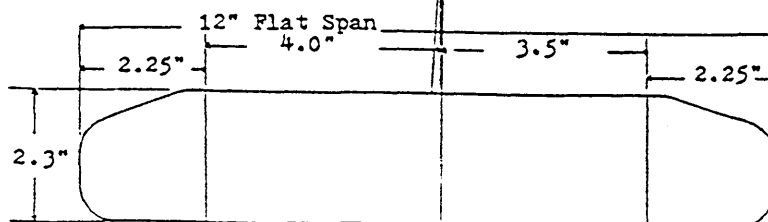
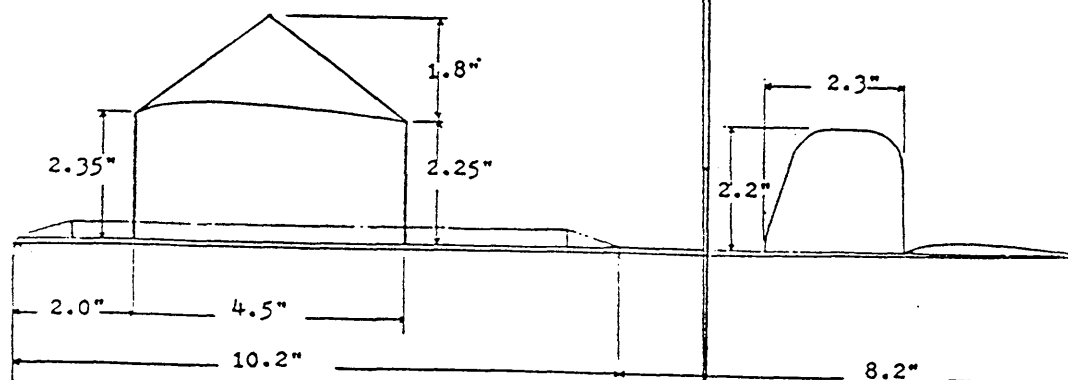
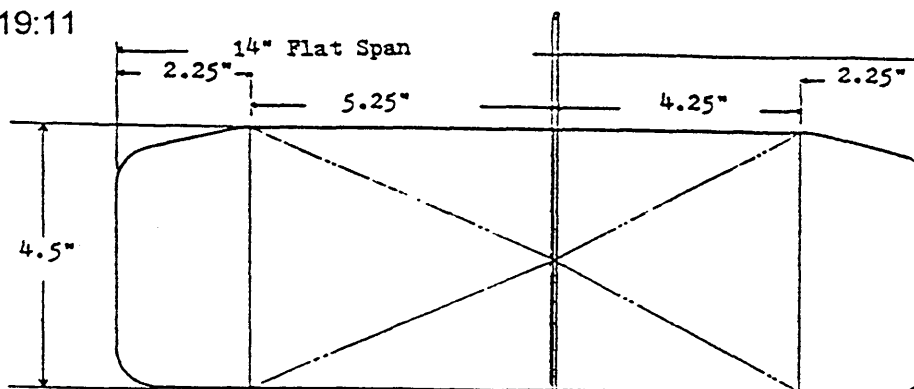
Wing..... 122mg

Stick..... 152mg

Stab/boom/fin...122mg

Prop..... 100mg

TOTAL..... 496mg



Wing.....Center Spars .040 x .028 5.5#
Tips .040 x .025 4.5#
Ribs .038 x .028 5.0#

Stab.....Center Spars .035 x .028 5.5#
Tips .035 x .025 4.5#
Ribs .035 x .028 5.0#

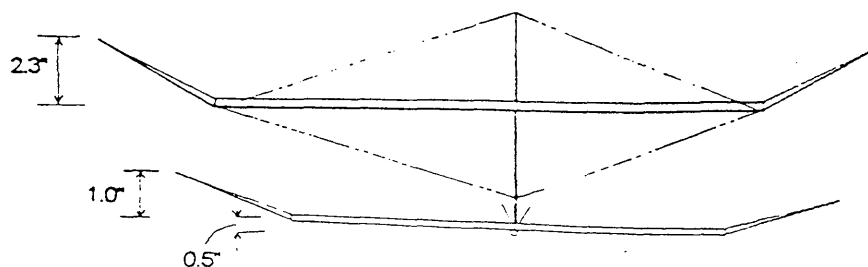
Rudder..... .025 x .020 4.5#

Prop.....Spar (round) .065 -> .025 5.5#
Outline .025 x .020 4.5#

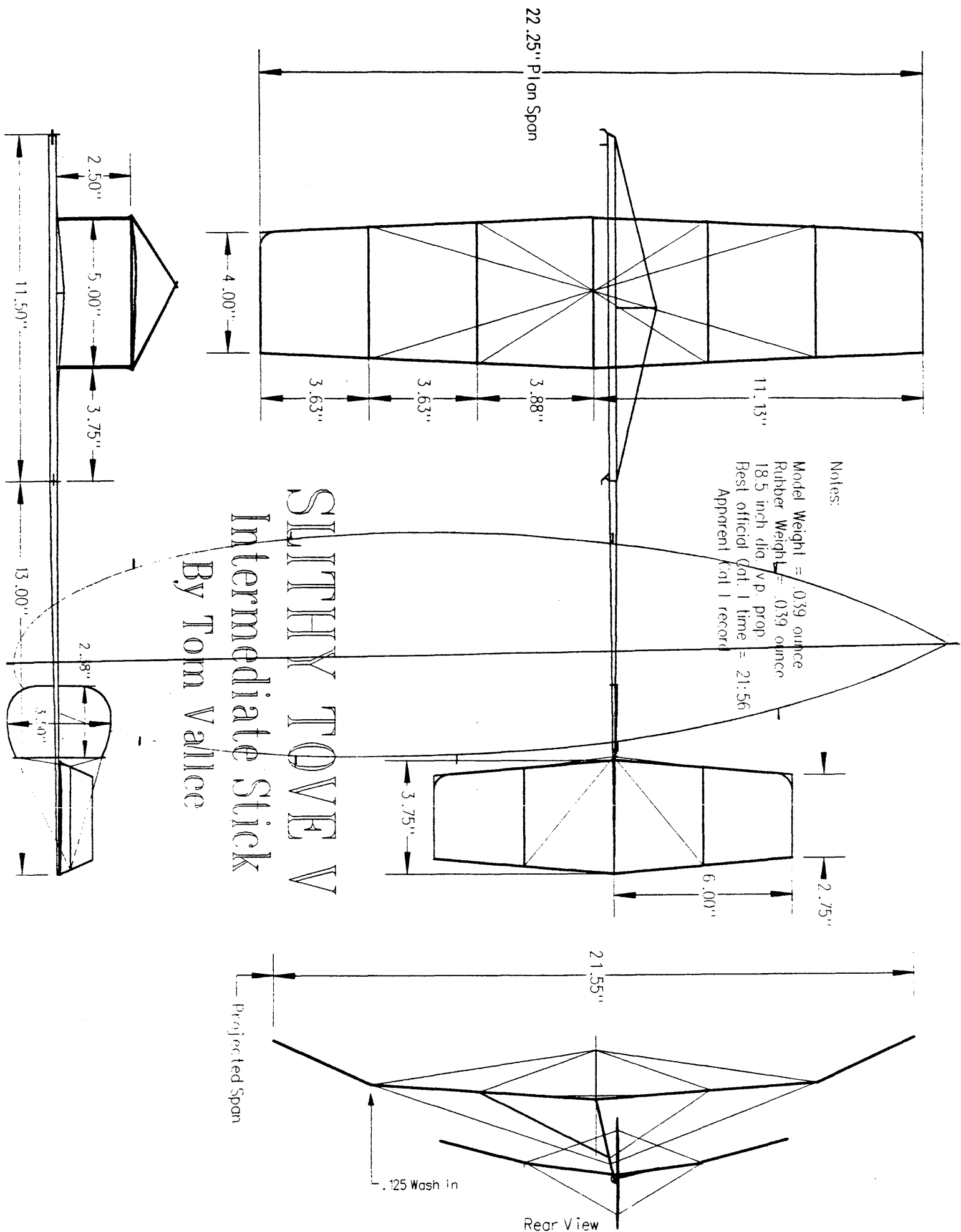
Motorstick..... .014 4.5#

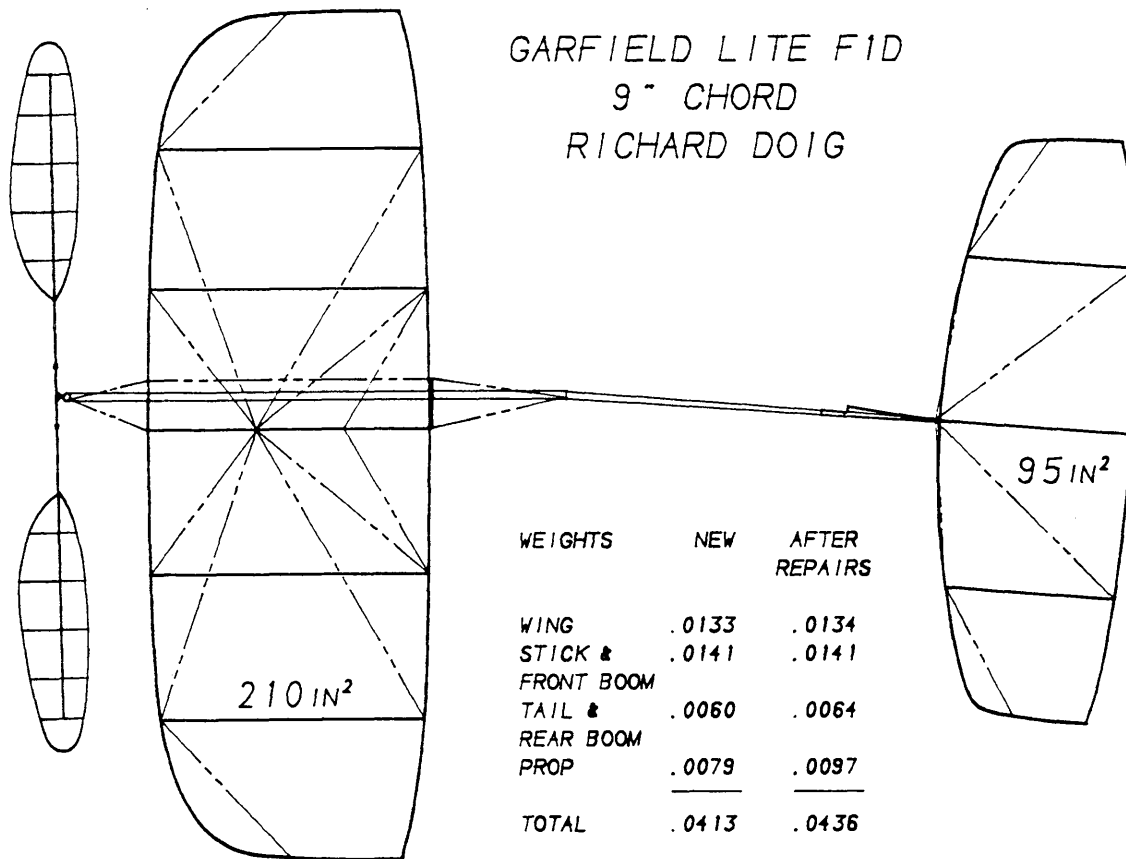
Boom..... .010 4.5#

Wingposts/Cabane 5.6#

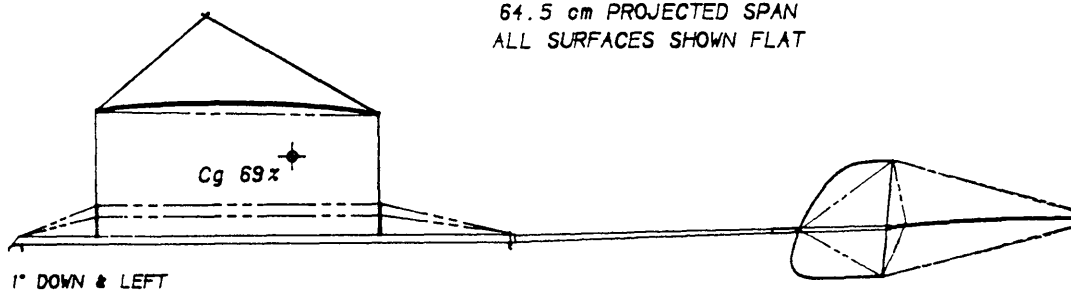


Rear View



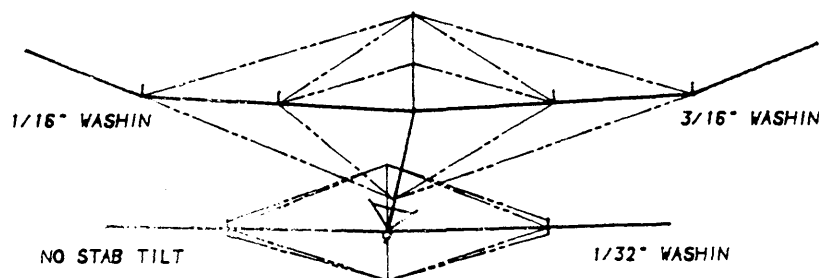


VARIABLE DIAMETER PROPELLER
21-15/16" DIA EXTENDED
18-5/16" DIAMETER RETRACTED
36" HELICAL INITIAL PITCH
64.5 cm PROJECTED SPAN
ALL SURFACES SHOWN FLAT

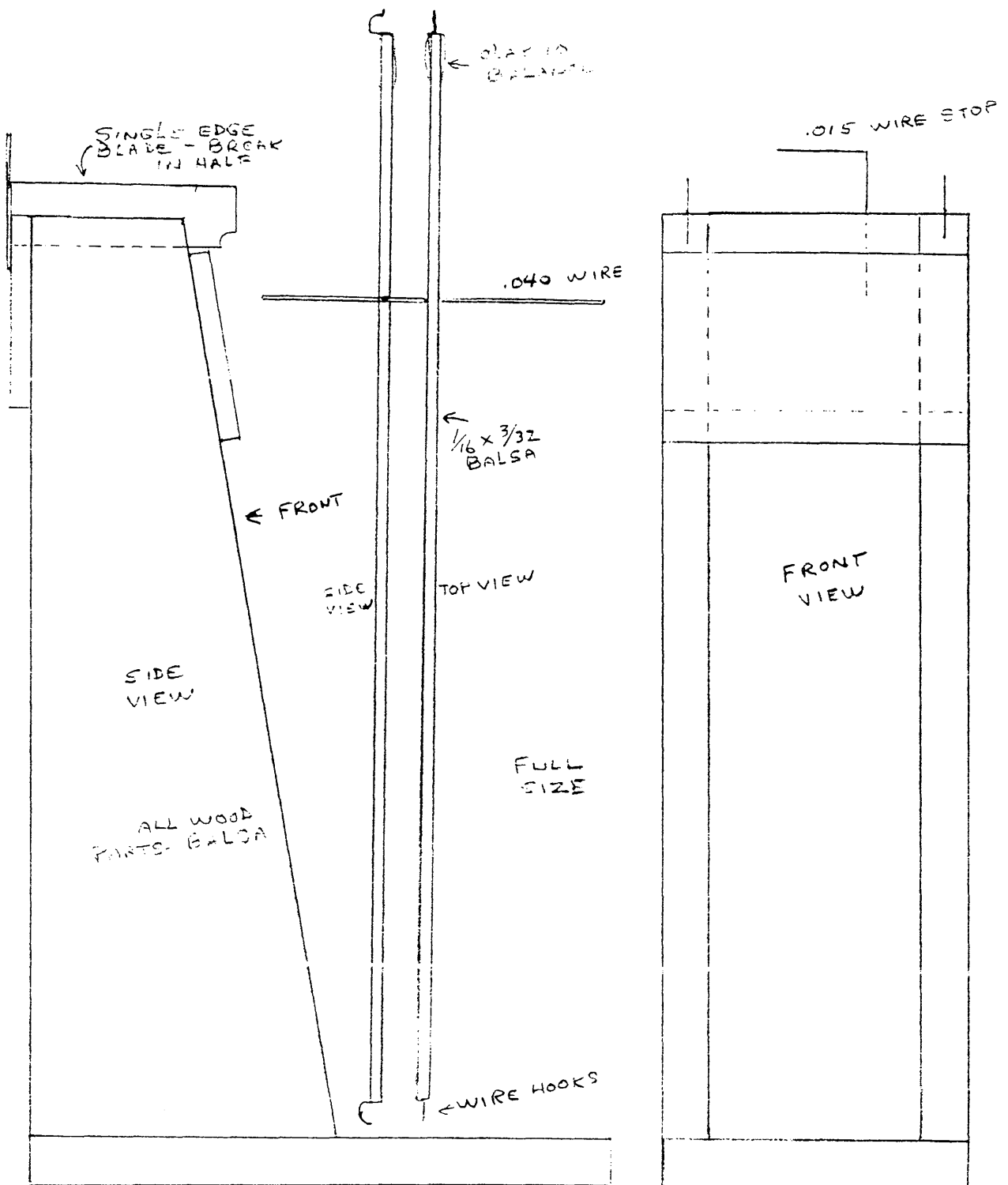


POWER - .068" x .042" FAI TAN-11
16-1/4" LOOP - .052 oz.
2600 TURNS MAX
BACKED OFF TO 2510 @ LAUNCH

1ST PLACE
1995 USA TEAM FINALS
50:41 + 50:41 = 101:22



0 1 2 3 4 5 6 7 8 9 10
INCHES



1/4 MOTOR BALANCER

JOHN LENDERMAN
1994

1996 International Mini-Stick Postal Contest

The St. Louis Thermaleers invite all indoor flyers to take part in the 1996 International Mini-Stick Postal Contest to be held over the winter period. The rules for the contest will be as follows:

1. The contest is open to Indoor models that comply with the Living Room/Mini-Stick rules.
2. Contest flights are to be made between 1 Jan., 1996 and 31 Mar., 1996.
3. Any number of flights can be made at any number of sites.
4. All contest flights to be timed by someone other than the flyer.
5. All contest flights to be recorded on an official Results Form. (Included in this issue. Copies can be made.)
6. Best single flight time wins, after the flight time has been corrected for different ceiling heights. Ceiling height to be measured as per the FAI, but with a 5 metre diameter circle. The correction factor is 627 divided by (167 plus 46 times the square root of the ceiling height in feet). The time in seconds will be multiplied by this to give the corrected time.
7. Prizes will be awarded dependent on the number of contestants.
8. All Results Forms to be returned no later than 10 April, 1996 to the address below:

9. Entry is free to all contestants.

10. Results will be sent if a S.A.S.E. is included with the Results form.

Send your results to:

Larry Coslick
4202 Valley Crest Hills Drive
St. Louis, Missouri 63128

MINI-STICK MODEL RULES

Monoplane, max span	7.0 in.
Max Wing Chord	2.5 in.
Stick Length	5.0 in.
Max Model Length (less prop)	10.0 in.
Stab (Tail) Area	Max = 50% of Wing
Covering	Plastic/Paper. <u>NO</u> microfilm
Propeller	Wood Prop, 7" dia.max.
Minimum Weight	(0.43 gms)0.015 ounces

Flying

Steering	4 Ten Second Steers*
Attempt	15 Seconds or more*

*Special rules for very small rooms only!
(Living Room flying.)

Indoor Postal Contest Results Form

Club Name _____

Date of Contest ____/____/____ Site Name _____

Ceiling Height _____ Feet

Contestant Name SMAE No. Age (if Jr.)	Address	Time in Seconds	Timer Initials	Leave Blank
		1.		
#		2.		
		3.		
		4.		
		5.		
		1.		
#		2.		
		3.		
		4.		
		5.		
		1.		
#		2.		
		3.		
		4.		
		5.		
		1.		
#		2.		
		3.		
		4.		
		5.		

1995 Wally Miller International EZB Contest Results

Kibbie Dome, Moscow, Idaho July 14, 1995

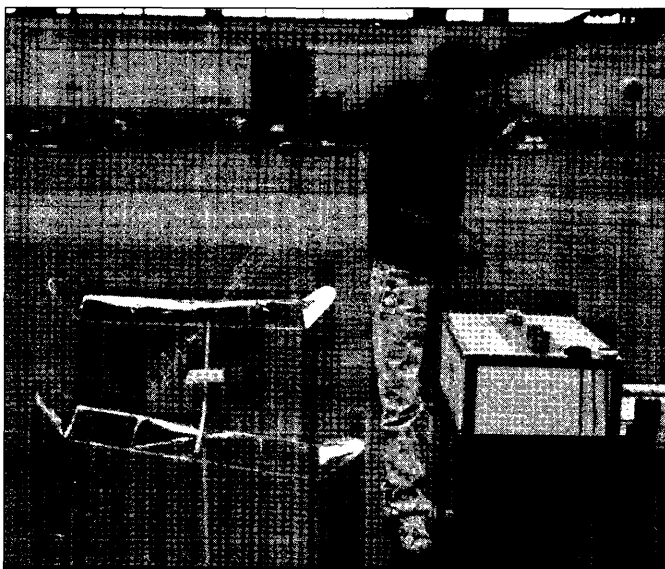
[illegible]

Indoor News & Views

1995 F1D Team Selection Finals



Jesse Shepherd made his first ever 40+ minute flight.



Seventeen year old Rob Eberle in his first F1D Finals. The model is an unbraced tandem similar to Bernard Hunt's design.



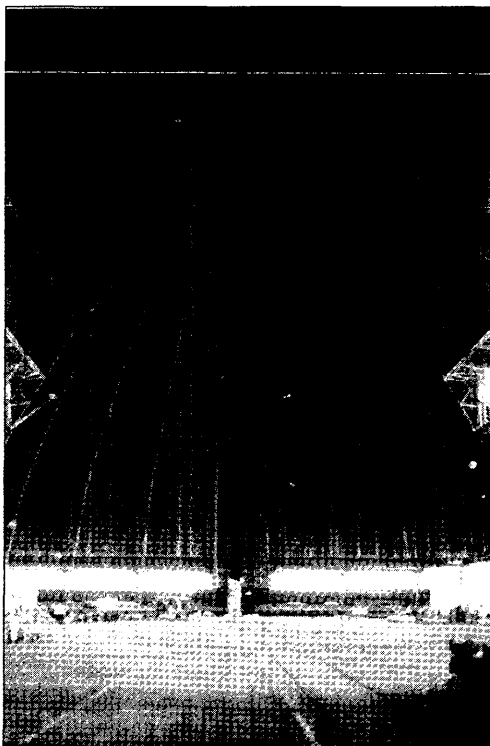
George Chabot had all kinds of problems with over-taught film warping his stabs, but he still had a great time.



Bill Hulbert made the arrangements to use this spectacular site for the Finals, and two other flying sessions earlier in the year. Our hats are off to his continued efforts.



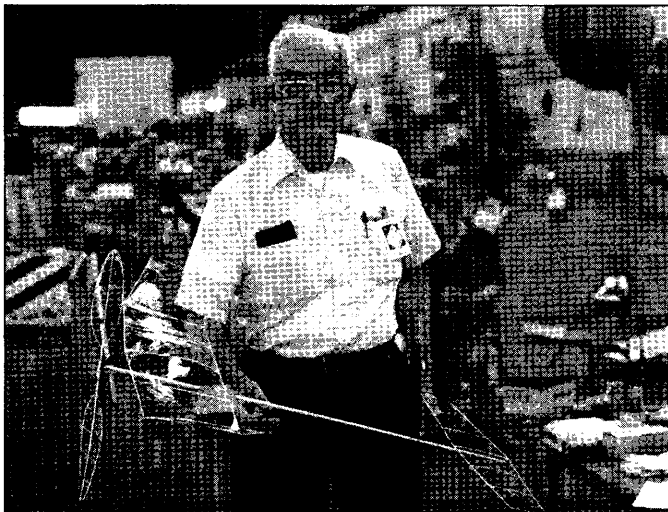
Cezar Banks made the team for the eighth straight time, barely missing 50 minutes with a high time of 49:47. Cezar used a 13 year old prop that has been re-covered numerous times.



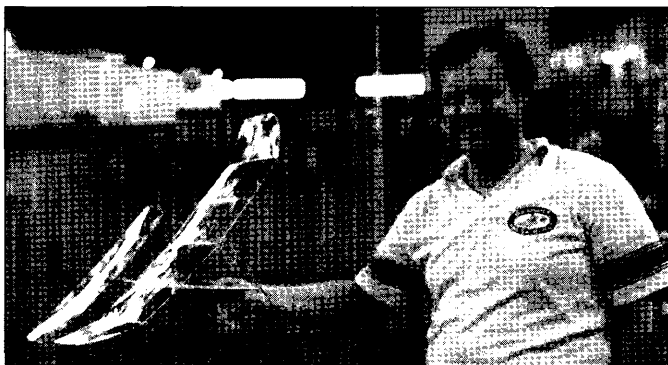
The immense Loral (formerly Goodyear) Airdock. The building is 326' wide at the floor, and 180' high to the beams. This photo was shot from only mid-way down the hanger.



Gary Underwood left everyone stunned as he rallied after a first day slump to post 48:52 and 49:51 in the 5th & 6th rounds, earning his first team spot in only his second Finals; barely missing 50 mins.

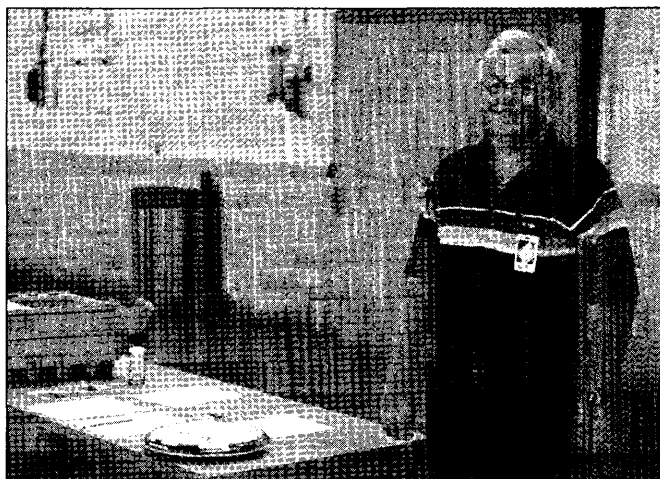


Bob Gibbs flew the same unbraced design as at the 1993 Finals, but was unable to get consistent performance in the turbulent air.



Above: Rich Doig beams after landing the first ever 50+ minute flight in competition. The variable diameter prop worked perfectly, and the model dead-sticked, winding the rubber up 20 turns in the opposite direction!

Right: Rich Doig's "Garfield Lite" F1D scored the first ever 50+ minute flights in competition with two identical flights of 50:41.



CD Dan Belieff managed to keep tempers under control and ran a very smooth contest.



First time Finalist John Kagan unfolding a collapsed wing. John is part of a new group of young flyers who fly regularly at Lakehurst.

