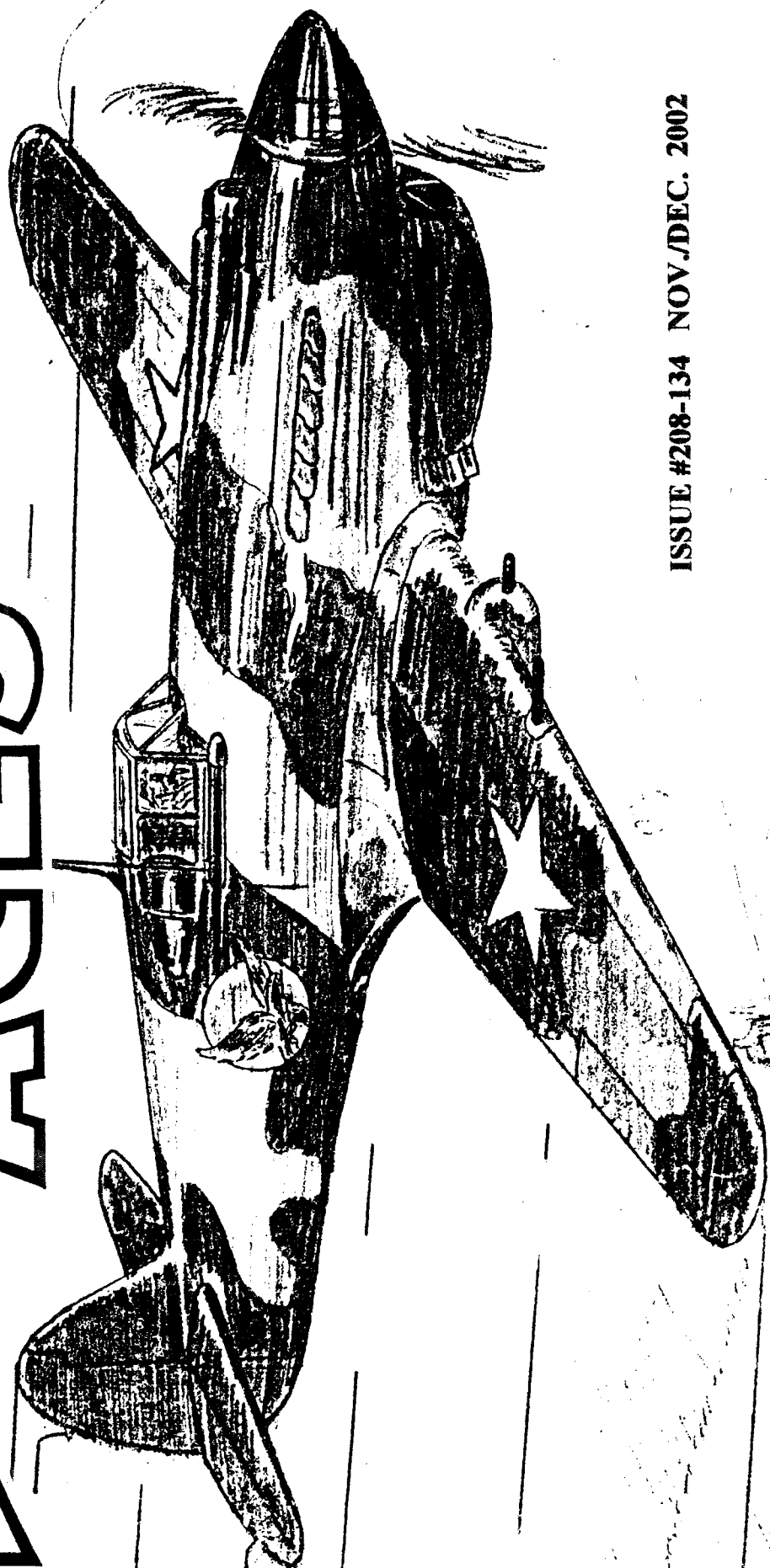


FLYING ACES

Club News



ISSUE #208-134 NOV./DEC. 2002

CURTIS P-40 "TOMAHAWK"



Thanks to all who contributed to this issue of the newsletter. The cover is from Bob Blair and is the work of his father Bob Blair, Sr. The plans included this time came from Jim Van Nice (Boeing XP-9), Nate Sturman (Pitcairn Mailwing), two solid model plans from Fran Ptaszkiewicz (Beech 18 and Sikorsky S-43 by Joe Ott), And the conclusion of our plan from the last issue by Ted Davis (Lohner Tri-plane DR.1 111.04 Same aircraft as the former, only in tri-plane configuration).

We have been asked for some plans for Old Timer indoor HLG which we have included one this time.

We want to up-date our FAC Squadron list at this time. Some of the squadrons have changed leadership without letting GHQ know and a few are no longer active. If you wish to remain an FAC Squadron please check in with GHQ as soon as you can.

Ross Mayo, our "Keeper of the Kanones" has a new address which is; Ross Mayo, 4207 Crosswinds Dr., Erie, Pa. 16506. If your contest winners don't get there wins added to the Kanone list it will be because you sent them to the wrong address. The old address is beyond the mail forwarding time.

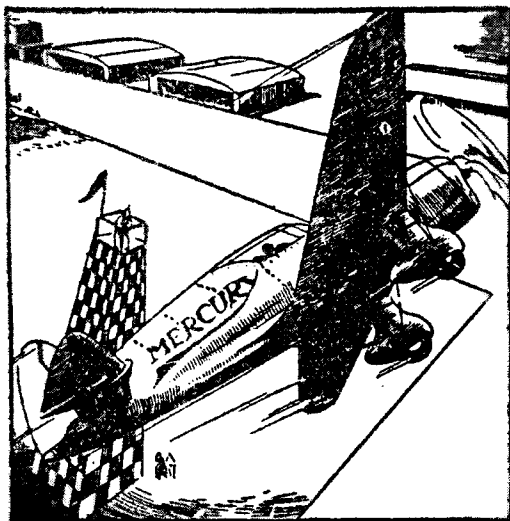
We are looking for some members that have moved and left no forwarding address. If you can help us with these please do so. Last known address; Harry Volk, Box 1374, Nanton, Ab., Canada T0L 1R0, Richard Gillis, 45940 Indian Way #1023, Lexington Park, Md. 20653 and Robert Ochs, 199 14th St. #1610, Atlanta, Ga. 30309.

BUILD--FLY--WIN.....EFF--AAA--CEEE!!!!

Col. Lin Reichel, CinC--FAC

ALL PHOTOS ARE FROM THE FAC NATS

Lin



The FLYING ACES CLUB

is a society of unique individuals with a common interest that at times borders on a passion. It is our intent to preserve and promote the traditional building and flying of free flight stick and tissue model aircraft.

Although competitive at times, the sharing of innovations, Assistance and comraderie is second nature to all who believe in the spirit of the FAC.

FAC T-SHIRTS and PLANS

We now have a beautiful T-shirt from the FAC Outdoor Champs recently held at the AMA flying site available for you Clubsters. This one is of the Seversky SEV-2, The P-35, in race colors of green with yellow trim. Everyone will want this one so hurry and get your order in soon! At the present time we have all sizes in stock, S, M, L, XL, XXL, XXXL. Price as usual is \$12.50 postpaid.

NO XX-L O-38

We still have some Douglas O-38 shirts left, although some sizes are getting low and we are out of medium size. We also have some shirts from the FAC Outdoor Champs from 2001. They have the Ford Tri-motor on them and all that we have are size medium. All shirts are \$12.50 PP.

We are also offering this year's plan from the Outdoor Champs. This one, of course, is of the Seversky SEV-2. This is a Tom Nallen plan and is truly a piece of art. The model spans 22 ½ inches and you can get a copy for \$6.00 postpaid. The Douglas O-38 plan is also still available at \$4.00 pp.

We want to take this opportunity to thank all of you Clubsters who support the Club with your purchases. The money generated from these sales keeps us from having to raise the dues for membership in the FAC. Even with the recent postage increase and an increase in the printing cost we are doing alright and cannot see a need for a dues increase in the fore-see-able future.

Send all orders to; Flying Aces Club,
3301 Cindy Lane, Erie, Pa. 16506.

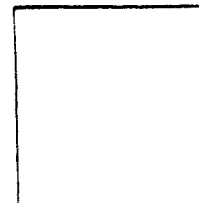


MERRY CHRISTMAS !!!

S.O.S.---S.O.S.

Tom Hallman needs a box of TAN 1 rubber. One of his birds remains true to this rubber and her supply is nearly gone. Tom Hallman, 2553 Mill House Rd., Macungie, Pa. 18062.

If the box on the right has the dreaded RED "X" in it, it is time to renew your membership which includes the newsletter. Cost is \$15.00 per year in the United States. Cost in Canada is \$20.00 per year. Overseas the cost is \$25.00 per year. All in U.S. dollars. Six issues per year, published approximately every other month. Please make checks payable to; "Flying Aces". Send to FAC-GHQ, 3301 Cindy Lane, Erie, Pa. 16506.



EARLY AIRCRAFT REGISTRATION MARKINGS

Assembled by Dave Stott

Ever notice the registration markings on such early birds as the Curtiss Falcon Mailplane operated by TAT and wonder about their origins? Here are highlights clipped from an article of unknown source that explains these markings and their size and location. Good info to have when you lay out your next model of a civil airplane existing before the arrival of the Airworthy Type Certificates and "NC" numbering.

THE Secretary of Commerce is required by law to establish rules for the identification of all aircraft that are licensed. The following system is used for marking airplanes; these symbols are painted on the wing, as noted below, and all licensed aircraft can be readily identified by these symbols.

Commercial aircraft carry the Roman capital letter "C", followed by the license number. Thus: C 4682.

Aircraft used solely for governmental purposes, and belonging to States, Territories, or political subdivisions thereof, carry the Roman capital letter "S" before the license number. Thus: S 219.

Licensed aircraft engaged in foreign air commerce, carry the letter "C" and license number, as noted above, and in addition have the letter "N" preceding. Thus, NC 4682.

Unlicensed aircraft must display, when in flight, an identification mark permanently affixed, consisting of a number only. Thus the lack of a preceding letter clearly denotes the lack of a license, and this protective safeguard for passengers, insuring that a qualified pilot is at the controls, should always be looked for before an aerial trip is made. Over 75 per cent. of accidents occur to unlicensed aircraft and pilots.

PLACES AND DIMENSIONS OF MARKS.

On airplanes the marks are to be located on the lower surface of the lower left wing, and the upper surface of the upper right wing. The top of the letters or figures is to be toward the leading edge, and height is to be at least four-fifths of the mean chord (width of wing). This height need not be more than 30 inches, but shall not be less.

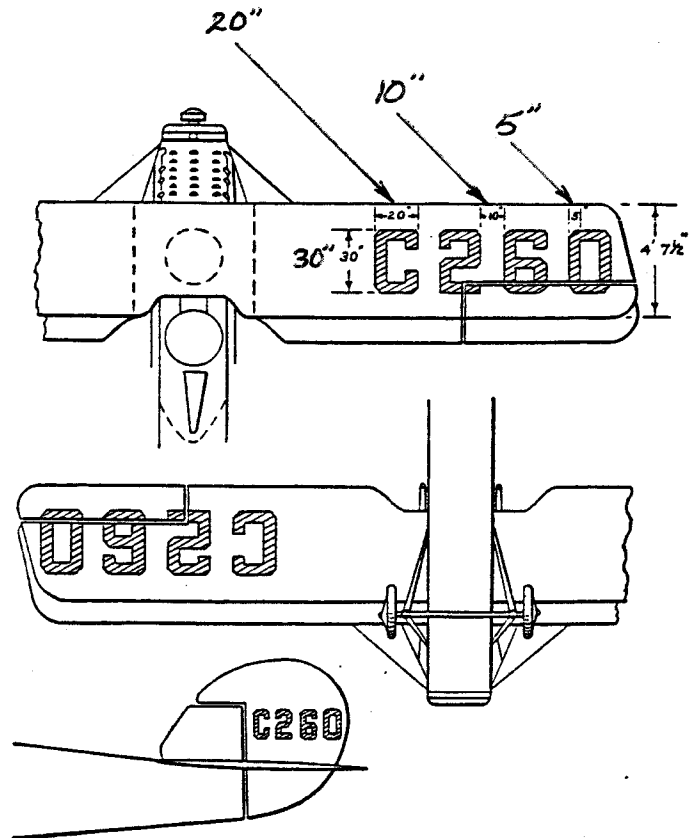
The marks shall also appear on the rudder, as large as possible.

It is against the regulations, except upon direct approval, to place any other design, mark, character or description, if it will in any way modify, add to, or destroy the clearness of the assigned mark. The License number or identification mark, with name and

residence of owner, are inscribed on a metal plate furnished by the Secretary of Commerce, to be affixed to the fuselage, except on governmental craft.

Full details on marking are to be found in Air Commerce Regulations, issued by Aeronautics Branch, Dept. of Commerce, Washington, D. C.

Experimental craft are usually given an "X" number while undergoing tests. All navy craft are so marked.



License Numbers on Airplanes—From Air Commerce Regulations, U. S. Dept. of Commerce.

A GREAT idea for preparing balsa strip for forming around curves. Everybody has gone through the process of soaking wood to soften it. Usually it means filling the sink or a large tub with water so the wood can be soaked for the requisite two days. Due to spouses/kids/available space/pets/etc., this is not always possible. Here's an ingenious solution: Get a piece of PVC pipe and a couple of end-caps from the local hardware store. Glue one end-cap on, fill the tube with water, slide your balsa strips into the tube, and slip the other end-cap in place. You can now store your soaking wood Vertically in any convenient space! You can also leave some balsa strips in the soaking tube for future projects so that there will always be some strips immediately ready for use!

My First OOS Flight

I was 16, and nuts about model building. We flew every weekend out at 79th and Crawford in Chicago-it was our "airfield" back in 1941. It was a mile square, with no houses around, with weeds and tall grass. We had to take the streetcar out, our planes under our arms.

I had built the "Ol' Reliable" rubber model out of Flying Aces Magazine, and was eager to test it out. If it flew half as well under power as it glided, I'd be happy. It looked like it was flying when it was on the ground. It was billed as a "utility" model, whatever that was, but I had grander ideas for it.

The day was hot with a gentle breeze. Norm held while I cranked the turns in, and the plane didn't even stress. I let the prop turn a few turns, then let her go. Ol' Reliable just climbed up toward the blue. She flattened out about 100 feet up and began circling in easy circles. At 3 minutes, she was so high I could barely make her out, and she was still going! Well, another minute and she was gone, straight up. I never forgave her for getting lost-"Ol' Reliable", indeed!

David Crown
9386 Landings Square
#507
Des Plaines, IL 60016

FAC Postal Contests

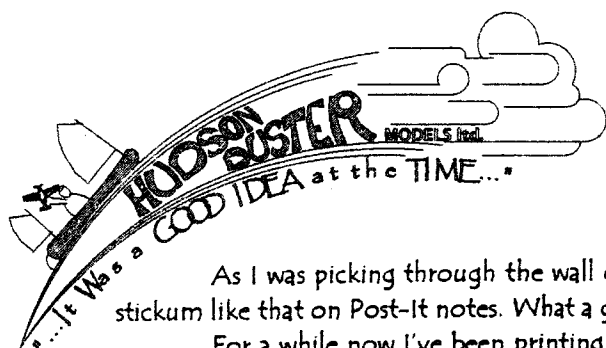
The winter postal contests are now on as you read this! As before, we will have four events. Indoor Peanut and Indoor No-Cal, Outdoor Peanut and Outdoor No-Cal. Send your times to GHQ, 3301 Cindy Lane, Erie, Pa. 16506.

Every time you better a score with a particular model send it in as well. Contest times also count. The contest will end on May 25, 2003. Entries postmarked after May 27, 2003 will not be accepted. BUILD--FLY--WIN..EF.A.CE

Chris Rubrich, Sr. says,
"The spirit that radiates
from the members of the
FAC, is the same spirit
that has made America a
great country!"
"KEEP 'EM FLYING"

AIRCRAFT ODDITIES by MARINAC





TRICKS WITH REMOVABLE GLUE-STIK

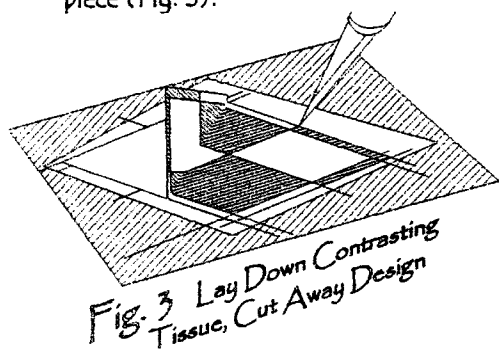
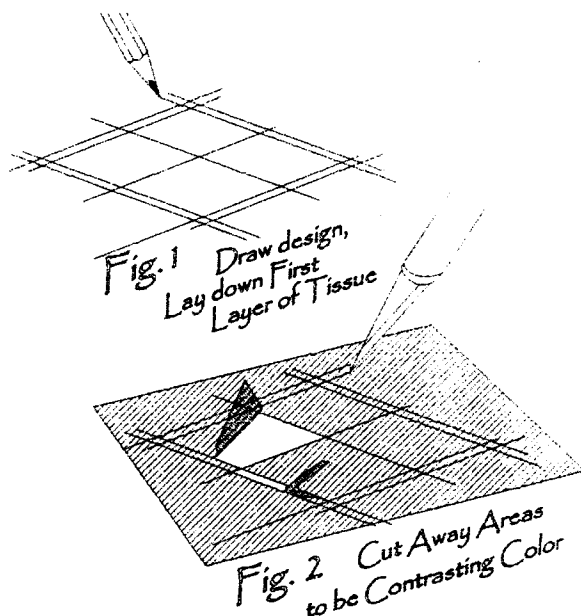
By Michael J. Heinrich

As I was picking through the wall of Glue-Stiks at Staples a while back, I found a 'Removable' type, with stickum like that on Post-It notes. What a gift.

For a while now I've been printing onto tissue, both with my inkjet printer and by Xerox, and with this removable glue-stik I can stick the tissue down to the paper backing right next to the marking I'm copying, minimizing the wrinkling that sometimes occurs when the rollers stretch the tissue overmuch as the backing feeds through. If a little glue was too near to the marking area, I can still peel it off. I haven't tried to mount markings permanently with this stuff, as a regular glue-stik does fine if you're careful in application.

With my PWS-10 Polish fighter, I used removable and permanent glue-stiks selectively to hold and fix different stacked layers of tissue to make the insignia, and it worked great. You can think of other applications for the method if the Purina logo isn't your style.

First I drafted the graphic in pencil right on the blank side of my light-gray cutting mat, extending the lines all the way through and past the outline, to make a reference for subsequent cutting (see Fig. 1). If the design is asymmetrical, it must be drawn in mirror image, as you're laying out the piece *outside down*. Then I rubbed removable glue all over the design, and stuck a piece of red tissue to the mat. I cut around the outlines where I wanted red tissue; here's where this method is really helpful, as I can cut the matching corners of the insignia right to a geometric point. Then I rubbed permanent glue over the red tissue, taking care not to roll up the loose corners, and peeled off the red stuff that wouldn't go into the finished insignia (Fig. 2). What's left on the mat at this point stays stuck while I put the white tissue down, sticking it both to the permanent-glued red pieces and the Post-It-ized mat. Finally I cut around the outer perimeter of the whole insignia and picked up the finished piece (Fig. 3).



This removable Glue-Stik came in handy when I painted my Gee Bee Sportster. I'd Xeroxed the tissue with all the scalloped paint lines, and stuck it down to the model with thin white glue (dope thinner can make the ink run). Then I cut the printed bond paper patterns along the scallop lines and presto, instant masking templates exactly to the contours on the tissue. Stuck 'em down with removable Glue-Stik, sprayed the model, peeled the masks up and the tissue didn't tear.

VOLARE PRODUCTS

PLANS...Flight Tested & Contest Winners...PLANS

14 No-Cals 11 Peanuts 6 FAC Scale 1 Jumbo
10 Racers 8 WWII 4 WWI

**FLYING
ACES**

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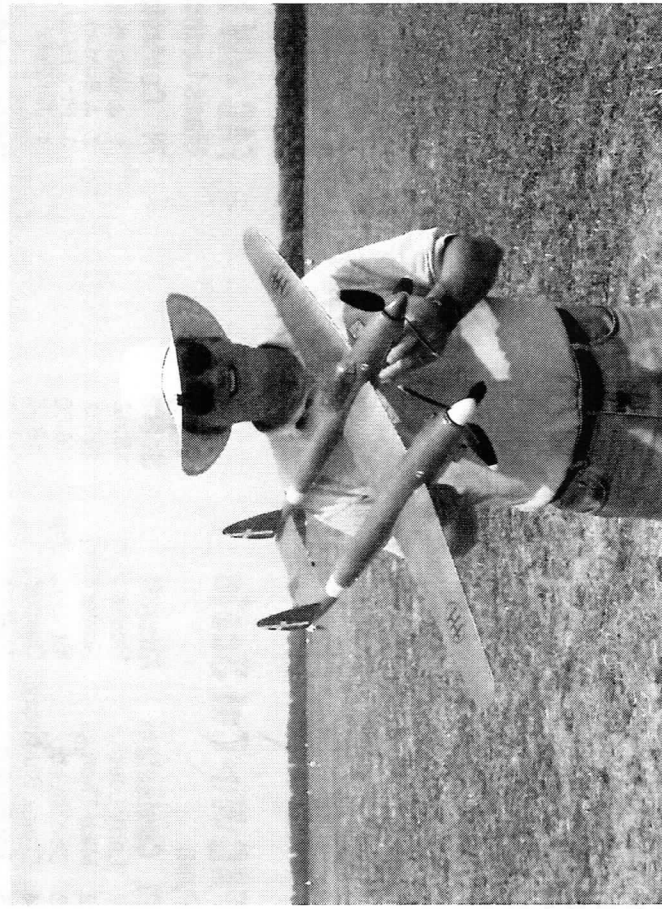
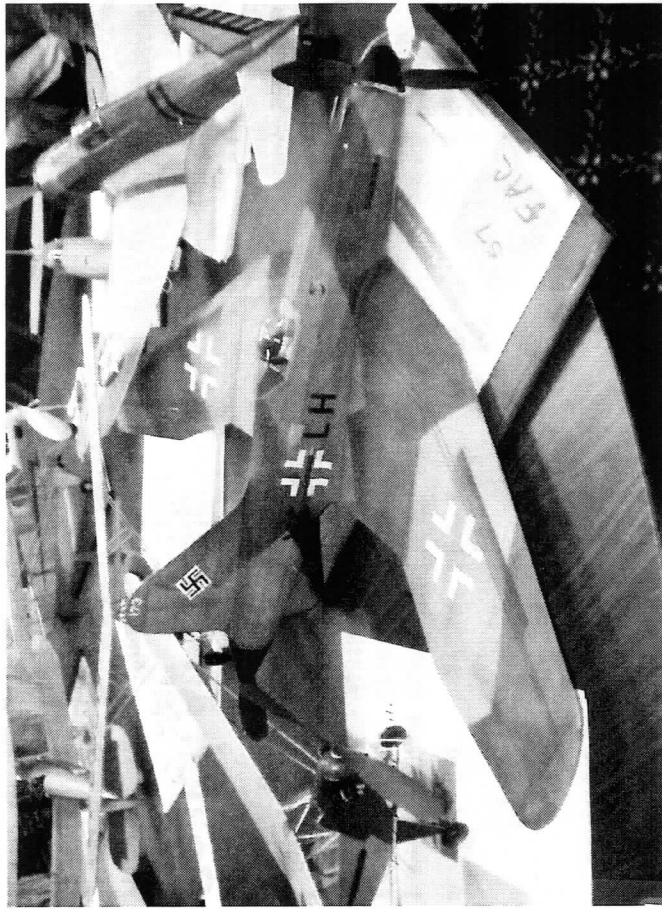
E-Mail: volare@battlecreek.net



PHOTO PAGE

All photos by Pete Kaiteris, top, Frank Rowsome's Lippisch P-13, 1st in FAC Scale. Fernando Ramos and his Fairey Swordfish, beautiful model!

Bottom, Mark Fineman with his SIAI Marchetti S.M.92, good flyer. Power Scale Multi winner Farman Jabiru by Terry Pittman. Photos from FAC-Nats.



5th ANNUAL EMPIRE STATE INDOOR FREE FLIGHT CHAMPIONSHIPS

Science Olympiad

PI	Contestant	Aircraft	Round	Best Flight
1	Jack McGilivray	Found 100 Centennial	1	185
2	Mike Thomas	Found 100 Centennial	2	146
3	Jim DeTar	Vagabond	3	133
4	Don Steeb	Vagabond	X	109

Modern Production

PI	Contestant	Aircraft	Round	Best Flight
1	Jack McGilivray	Found 100 Centennial	1	185
2	Mike Thomas	Found 100 Centennial	2	146
3	Jim DeTar	Vagabond	3	133
4	Don Steeb	Vagabond	X	109

FAC Dime Scale

PI	Contestant	Aircraft	Bns Pts	Total Score
1	Mike Thomas	Miles Sparrowhawk	10	390
2	Richard Miller	BAT	5	375 *
3	Bill Henderson	Mauboussin type 40	15	375 *
4	Mike Thomas	Supermarine Sparrow	3	369
5	Don Steeb	Wiley Post	15	365
6	Walt Kornrich	Pitcairn Fleetwing	15	272
7	Don Steeb	Supermarine Sparrow	3	270
8	Garry Hunter	Hawker Hurricane	10	233
9	Jim DeTar	Arado	10	219

* Fly Off for second place

Richard Miller	BAT	5	125
Bill Henderson	Mauboussin type 40	15	121

FAC No-Cal Scale

PI	Contestant	Aircraft	Total Score
1	Larry Loucka	Hosler Fury	18:42
2	Mike Thomas	Hosler Fury	18:20
3	Don Steeb	Mr. Smoothie	16:30
4	Chuck Slusarczyk	Cassutt	16:29
5	Jim Buxton	Avenger	12:53
6	John Marett	Fike E	10:48
7	David Rosenberg	Mr. Smoothie	10:44
8	Don Steeb	Folkerts	10:18

FAC Scale

PI	Contestant	Aircraft	Fit Pts	Sci Pts	Bns Pts	Total Pts
1	Jack McGilivray	Curtiss P-18	76.00	60	15	151.00
2	Mike Thomas	Sparrowhawk	82.50	55	10	147.50
3	Walt Kornrich	Fairchild 22	78.00	59	3	140.00
4	Don Steeb	Sky Rider	82.00	52	5	139.00
5	Jim Lee	Lacey M-10	82.50	51	0	133.50
6	Stu Weckerly	Ford 2AT	X	46	0	X

Golden Age Scale

PI	Contestant	Aircraft	Final Score
1*	Jack McGilivray	Piper J5 Cub	360
2*	Jim Lee	Taylorcraft	360
3*	Stu Weckerly	Stout 2AT	360
4	Don Steeb	Supermarine Sparrow	356
5	Mike Thomas	Supermarine Sparrow	351
6	Walt Kornrich	Fairchild 22	282
7	Rich Miller	Howard DGA 9	120

FAC WW II

PI	Contestant	Aircraft	Round	Best Flight
1	J. McGilivray	P 51 B	1	1
2	J. Buxton	P 51 A	2	2
3	Rich Miller	P 51 B	3	Broke
4	Jim DeTar	P 51 D	X	X

FAC Peanut Scale

PI	Contestant	Aircraft	Fit Pts	Scale Pts	Bns Pts	Total Pts
1	Mike Thomas	Lacey	55	82.50	15	137.50
2	Jack McGilivray	Found 100 Centennial	54	82.50	10	136.50
3	Don Steeb	Fike E	59	75.50	10	134.50
4	Stu Weckerly	Ford 2AT	49	82.50	131.50	131.50
5	Jim Lee	Lacey M-10	50	76.75	126.75	126.75
6	Garry Hunter	Lacey	46	80.75	126.75	126.75
7	Brian Smith	Grass Hopper	46	68.50	114.50	114.50
8	Jim DeTar	Vagabond	51	49.00	100.00	100.00

FAC Power Scale

PI	Contestant	Aircraft	Scale Pts	Fit Pts	Bns Pts	Total Pts
1	Don Steeb	Waco E Cabin	59	15	82.5	142.00

FAC Peanut Scale

PI	Contestant	Aircraft	Fit Pts	Scale Pts	Bns Pts	Total Pts
1	Mike Thomas	Volsin Hydro	82.25	58.5	30	170.75
2	Jim Buxton	Miss Ashley II	82.50	52.0	10	144.50
3	Bill Henderson	Bleriot VII	79.50	53	10	142.50
4	Jim Buxton	P-51A	82.50	43	10	135.50
5	Walt Kornrich	SE-5A	58.00	60	15	133.00
6	Garry Hunter	Andreson BA-4B	61.00	49	16	126.00
7	Bob Clemens	Mercury Gosling	44.00	60	5	109.00
8	Jim DeTar	Floyd Bean Spec	30.00	54	5	89.00
9	Don Steeb	Wright Flyer	X	54	25	X

Butterfly Under 10

PI	Contestant	Best Flight
1	Sarah Federman	8:18
2	Tyler Richards	5:44
3	Cortney Richards	5:10

Butterfly 11-17

PI	Contestant	Best Flight
1	Mike Bishop	6:30
2	Jeff Bird	4:42
3	Nate Rehmel	4:34
4	Caye Mogie	4:32
5	Andrew Nauss	4:10

Mini-Stick

PI	Contestant	Best Flight
1	Larry Loucka	11:52
2	Don Slusarczyk	11:25
3	Chuck Slusarczyk	10:20
4	Ray Harlan	9:49
5	Brian Smith	6:59
6	Don Steeb	4:44

BULLETIN !!!!!!!!

Subject: TAN II RUBBER UPDATE

THE BAD NEWS;

The rumors are true, no more Tan II rubber will be produced! A critical ingredient is no longer being produced due to the change in golf ball technology. A special version of this additive was crucial to produce Tan II.

CURRENT STATUS;

We are all out of factory cut 1/8 Tan II when the current orders are filled. A few 1 pound boxes are available. We are re-cutting 1/4" into 1/8" with our power stripper for those who would like it. We obviously do have 1/4" available as well as a few 10 pound (or 1 pound) boxes of 3/16". We expect all of this remaining Tan II rubber will be gone in the next few days.

We will keep enough 1/4", 3/16", and 3/32" in small boxes to support the Science Olympiad for this school year. Many of you may know that this event is a fertile breeding ground for Junior F1D fliers and other aspiring modelers. If some of you don't already know, The USA Junior Team blew away the competition in the Jr. World Champs! Please do not try to take advantage of this small S/O stock pile.

THE FUTURE;

There will be no shortage of TAN SPORT! We have asked the factory to see what could be done to make what we would call TAN SUPER SPORT, and they have held meetings this week to see what possibilities exist. This new rubber, if feasible, would have greater energy storage than SPORT, but some what less than the average value for TAN II.

We know that this situation, while not totally unexpected, presents a world wide problem. Please be reassured that it is not being taken lightly! We thank you all for your past and future support!

John Clapp
FAI MODEL SUPPLY

Bostonian

PI	Contestant	Aircraft	Tot Best 2 Flights	Chrsm Bonus	Final Score
1	Bob Clemens	Boston Bee	500	1.16	580
2	Richard Miller	Road runner II	488	1.17	570.96
3	Bill Henderson	Boston Bluefish	504	1.13	569.52
4	John Marett	C Tern	474	1.15	545.10
5	Jim Lee	Box Car	260	1.19	309.40
6	Garry Hunter	Boston Found	246	1.13	277.98
7	Terry Jenkins	Boston Creme Flyer	192	1.18	226.56
8	Len Wiczorek	Skylark	78	1.13	88.14
9	Don Steeb	Boston Greenhouse	X	1.16	X
10	Mike Thomas	?	X	1.15	X

AMA Limited Pennyplane -

AMA Easy B

PI	Contestant	Aircraft	Flight
1	Don Slusarczyk	EZB	21:06
2	Vladimir Linardic	Easy B	20:57
3	Jack McGilivray	Wanda	20:18
4	John Marett		15:38
5	Ray Harlan		15:35

AMA Indoor Electric Duration

PI	Contestant	Aircraft	Best Flight
1	Ray Harlan		25:38
2	Clarence Hurd	Plane Ugly	7:05
3	Don Steeb		1:34

Open Penny Plane

PI	Contestant	Best Flight
1	Larry Loucka	13:44
2	Chuck Slusarczyk	13:25
3	Don Slusarczyk	11:54
4	Steven Bard	11:09
5	Stu Weckerly	10:47
6	John Marett	10:46
7	Vern Hacker	8:43

FAI - F1D

PI	Contestant	Total Best 2 Flights
1	Vladimir Linardic	55:57
2	John Kagan	53:31
3	Ben Saks	50:21
4	Brian Johnson	29:54

Standard Class Catapult Glider

PI	Contestant	Tot Best 2 Flights
1	Jim Buxton	155
2	John Marett	133
3	Stu Weckerly	129
4	Bob Clemens	119

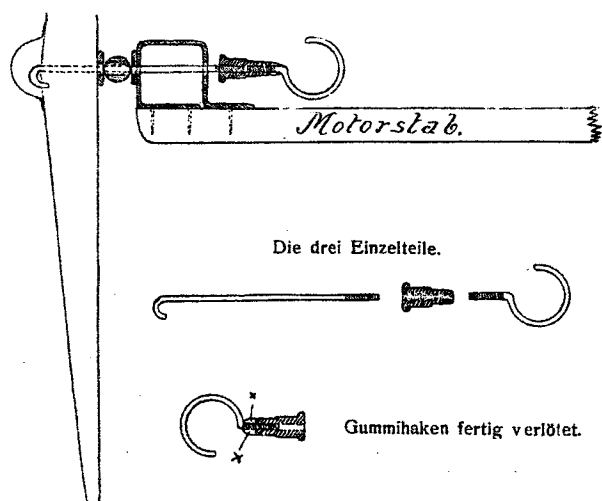
Intermediate Stick

PI	Contestant	Best Flight
1	Don Slusarczyk	32:26
2	Vladimir Linardic	31:03
3	Larry Loucka	27:22

* * Ancient Gadgets * *
Mumbo Jumbo #109

Salutations, disciples! Today we shall ponder two rubber model devices from the World War I era. Both have been "lost" and are no longer in production. Perhaps they were pointless, or profitless, or maybe just plain stupid. On the other hand, is your car really better than a Model A Ford? Not easy, that one. Give these old notions some thought.

The first idea is a rubber motor hook threaded to fit into a nut. With it come an assortment of accompanying threaded music wire bits and pieces, of various lengths and ends. The illustration shows one way of putting it all together.



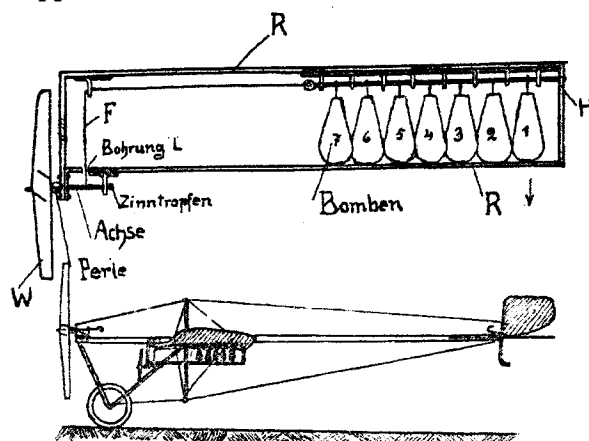
The model is a stick job of the simplest sort. By using the threaded components, a difficult, frustrating task has been eliminated: that of bending the motor hook on assembly. Think back to when you were a kid. Could you really bend that hook without putting a hopeless kink in the shaft? It's not easy, even now, with umpteen years of experience. As for then...

In contrast, threaded components go together perfectly with no alignment problems. Yes, it's a bit heavier, but well worth it. Why don't we have these parts?

The idea and sketch were described in Germany's Flugsport, April 1917, page

223, at a time when war was declared by the USA.

The second idea was offered in Flugsport's June 1916 issue, page 334. This one drops bombs on your competition. It works by wrapping thread F around spindle Achse when the model is in flight. Power comes from an extra prop W, serving as a windmill. As F is wound up, long wire H is gradually withdrawn from its series of supports, dropping one bomb as each upper support is cleared.



Would it work? In principle, yes. But this is one of those murky affairs where much depends on the details -- likely too much. Yet something very like this notion was popular in WW 2 days in commercial kit form and I have a vague recollection of having seen mag. ads pushing the notion. Admittedly this was the time of the hapless GHQ engine, when commercial success signified nothing as a measure of worth and flush modelers could buy most anything except balsa wood and rubber.

Like the "hula hoop", the merit of this notion is uncertain. Still, if you would like to perfect a pointless but challenging scheme--there it is.

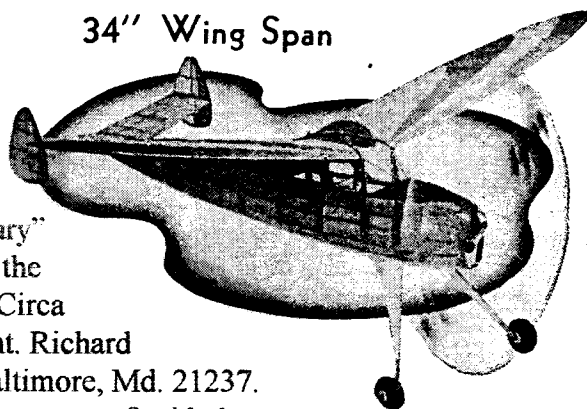
Glue Guru

GOLDEN AGE REPRODUCTIONS illustrated catalog of 212 plans, 31 kits, canopies, decals, wheels, tissue \$3.00. P.O. Box 1685, Andover, MA 01810.

The Peerless "Mercury"

Wing Area 113.5 sq. in.
Length 23"

34" Wing Span



WANTED!

Plans for the "Mercury" which was kitted by the Peerless Model Co. Circa 1941. Pic on the right. Richard Zelina, Box9567, Baltimore, Md. 21237. GHQ would also like a copy of said plan. All costs will be re-embursed.

BOOK REVIEW

Do you have the two books by Don Ross titled "Rubber Powered Model Airplanes" and "Flying Models, Rubber, CO/2, Electric and Micro Radio Control" in your library? You should, as these two books are very informative on just about everything you need to know about building model aircraft and being able to get them to fly.

Included are chapters on structure, covering landing gears, wood selection, props, flight trimming your models, etc. Book 2 even goes into small radio control and electric power, vacuum forming. It is all in these 2 books Skysters. Even our hard core experts in the FAC may learn a few things or bring back some ideas that has laid dormant for a long time!

These books may be purchased from "Aviation Publishers", One Oakglade Circle, Hummels-town, Pa. 17036. The price of the "Flying Models" book is \$19.95 and the "Rubber Powered Model Airplanes" is \$14.95. Postage for 1 book is \$4.95 and add \$1.00 for each additional book. Pa. Residents add 6% of subtotal for sales tax. FAX (717) 566-6423 or e-mailed to AmAeroArch@aol.com

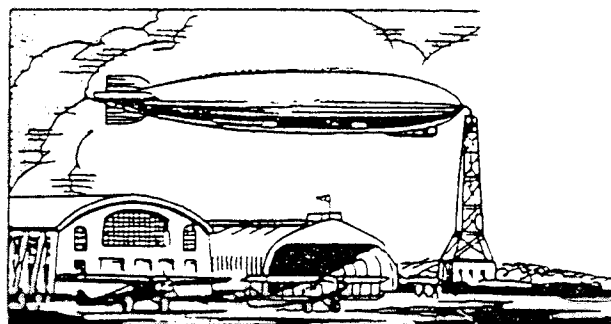
FAC NEWSLETTER

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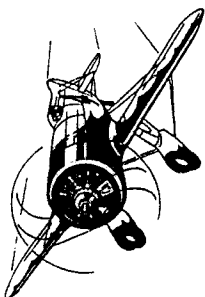


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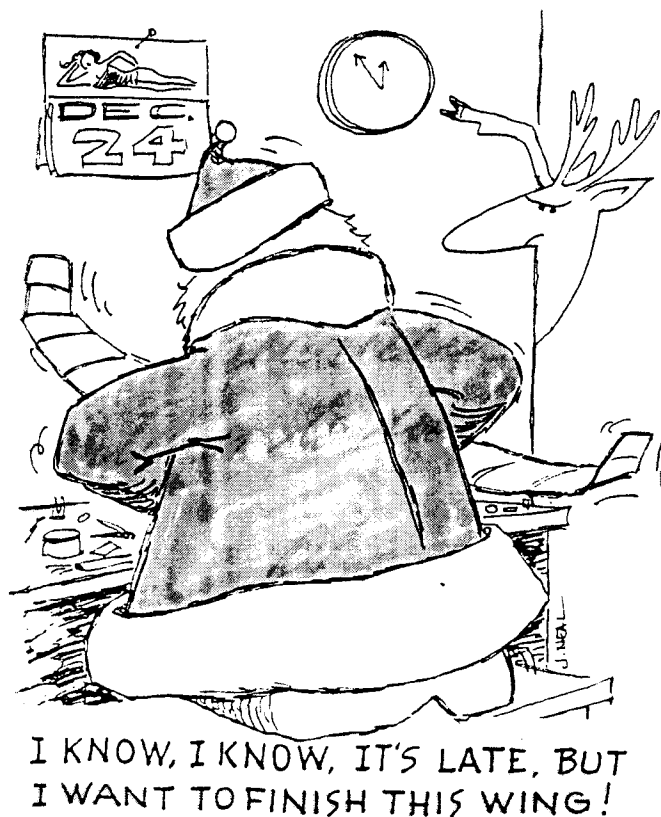
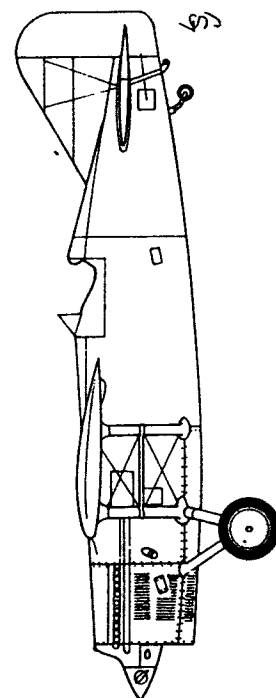
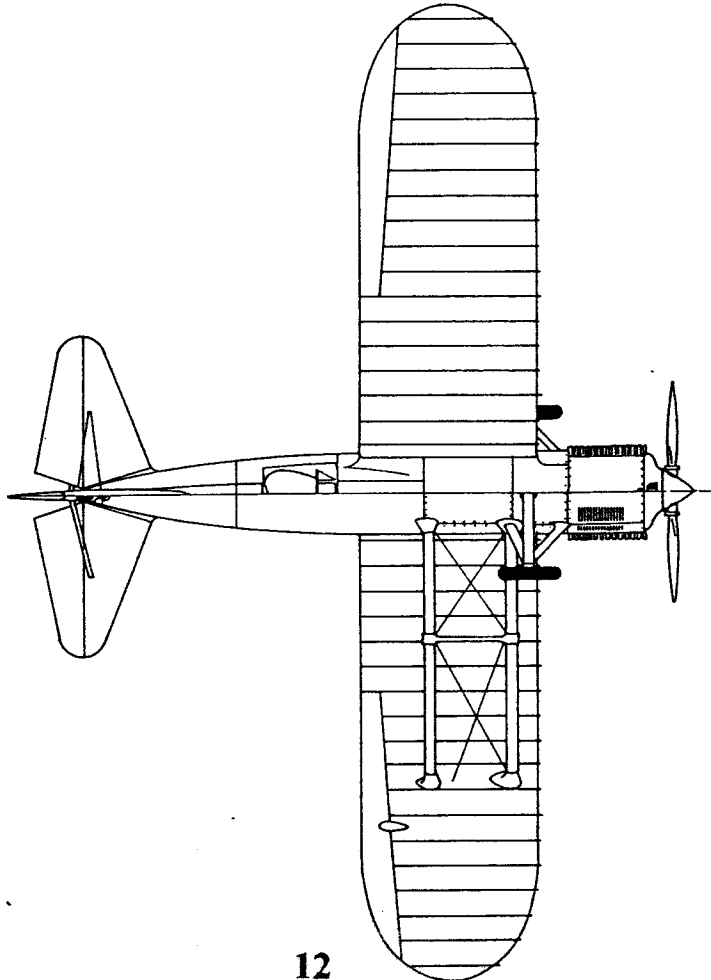
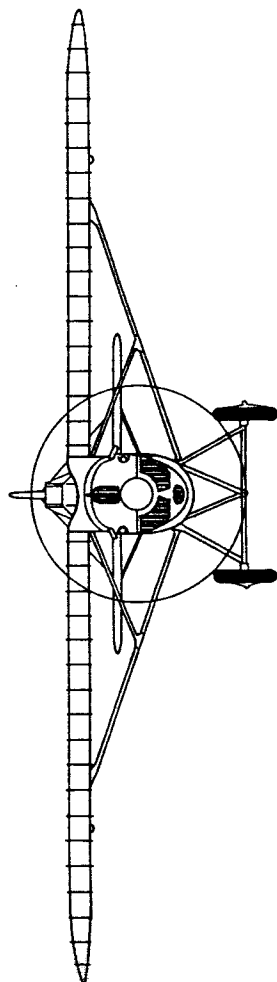
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I KNOW, I KNOW, IT'S LATE, BUT
I WANT TO FINISH THIS WING!

Observations Concerning Propellers for Outdoor Rubber Powered Models

The great search for the perfect prop. continues, but I have made a few observations that might be of some value to fellow 'gum band stretchers'.

1. The higher the pitch and the greater the width of the prop, the lower the rpm. - but - - -
2. High drag, slow flying models require lower pitched props than fast, low drag models.
(Prop pitch can be compared to the gear ratios of a transmission. - - - -
If you are going slow, you must be in low gear = low pitch.)
3. Most plastic props do not have true helical pitch. (so what??) I don't know about this either, but many modelers feel that props should have helical pitch.
4. Helical pitch means that at any point along the blades the prop will theoretically pull the airplane forward the same distance for each revolution. Stated another way, the prop will have the same pitch in inches at any point along the blade. Sounds good doesn't it??
5. Pitch in inches can be calculated by multiplying the tangent of the blade angle by the circumference (diameter x pi) at the same point on the blade.
For example: a 7" diameter prop has a tip circumference of 22". If its tip angle is 20 degrees; $\tan 20 = .364$; so $.364 \times 22" = 8"$. So its pitch is 8" at the tip.
6. The diameter on the blade where the blade angle is 45 degrees is always pitch divided by pi.
For example: at 8" pitch ; $8/3.1416 = 2.57" = \text{diameter at the 45 degree point.}$
7. Most bottle formed props never have a blade angle as high as 45 degrees even at the root because it is difficult to twist the blades enough to get a difference in angle of 45° to 22°.
8. Under cambered blades will create a low tip pitch if the trailing edge sweeps forward at the tip.
This is often responsible for the lack of helical pitch (by calculation) when measuring tip angle of a finished prop. I usually calculate prop blanks to get helical pitch, then mess it up by slanting the tips forward to eliminate tip stall!
9. Plastic props range in aspect ratio from 2.8 to 4.3, averaging about 3.3. (blade length/ blade width). A very low aspect ratio results in a wide blade, but a wide blade with undercamber results in a very great pitch difference from leading to trailing edge and soaks up a lot of power and makes for an inefficient prop.
10. Props for very light weight indoor models are intentionally made very inefficient to keep the RPMs low, but the models are so light that they fly anyway. (Many indoor models have motor weights equal to the airframe weight!)

Now for some personal experiences, maybe worth passing on :

On several biplanes I used props with too high a pitch, blades too wide and/or too large in diameter. They didn't fly well at all. A lower pitch, narrower prop was substituted on some of these planes and flights were very good indeed!

Conclusion: **High drag, slow flying planes need a low pitch prop.**

Too soon old and too late smart, huh?

On the other hand, fast planes like the Mustang and the Chambermaid fly very well on high pitch props. and certainly have longer flight times because of the resulting longer power run due to the slower rpm. of the prop. Any plane will fly well on a low pitched prop, but **you will not get max. flight times on a high speed model with a low pitch prop.**

What is meant by low vs. high pitch. Well, I don't have a firm answer, but I regard a P/D of 1.3:1 or more to be "high pitch" and 1.0:1 or lower to be "low pitch".

Commercial plastic props are generally fairly low in pitch and do not often have helical pitch, but there are exceptions. The red plastic prop with the large hub (#9 on the chart) was most nearly helical and had a good aspect ratio, but it is heavy. Scraping to reduce weight would be a good remedy. Unfortunately there is no identification on the prop, so I don't know its origin. It may have come from an Easy Built kit.

Is there a case for carved vs. props formed on a bottle? (bottle props).

Again, I don't know; I've had success with both types, but generally think that bottle props are best on small planes because bottle props are somewhat fragile even though mine are usually

made with basswood blades. It's also difficult to get truly helical pitch with bottle props but they seem to work very well anyway. (See above item #7).

Is there a case for carved props? Sure, because you can control the pitch. If your plane needs nose weight, why not carve a prop from a heavier wood such as bass or pine to get the weight as far forward as possible. On the other hand, if you need a low pitch prop, some plastic props will be fine and are heavier and stronger than balsa. I generally carve props if their diameters are greater than 7". (Exception - I built a very successful Rearwin Speedster with an 8" 1/32" sheet basswood bottle prop. The plane never crashed so the prop was never put to the test!).

The best aspect ratio for props seems to be about 3.1:1, which means that the blade width should be about 32% of the blade length or 16% of its diameter.

The best prop diameter is generally about 1/3 of the wing span, but if the wing is quite wide and/or has a lot of dihedral, the prop can also be larger, up to 50% of the span. According to the book by W.F. McCombs you may also need a large rudder to compensate for a large prop.

Now, for some illustrations for those who wish to carve their own props:

1. You will need a saw for cutting the blanks. A band saw or scroll saw is best, but a simple coping saw will do if you are careful to saw perpendicular to the work so that all the surfaces are nice and square with each other.
2. A drill press or drill guide is necessary to drill the shaft hole absolutely perpendicular to the blank.
3. a 3/32" dia. drill bit, and 3/32" o.d. aluminum tubing for the prop bushing.
4. I recommend a very sharp carving knife with a stiff blade. I like one I bought from AMT some years ago, but I think they are out of business. As an alternative, Wood Carvers Supply has one identified as #610008 hand carving knife with a 1-7/8" blade that should be fine. It lists for \$11.65 in their current catalog. Another is their model 430000 at \$10.60 Phone: Orders 1-800-248-6229 or Questions: 1-941-698-0123.
- or - If you ever travel to Dover, Ohio you could check out the Warther Museum for their whittling knives.
5. I recommend a steel rule graduated in 1/100" to do accurate measuring.
6. A calculator for calculating the dimensions of the prop blanks.

CALCULATING DIMENSIONS FOR THE BLANK :

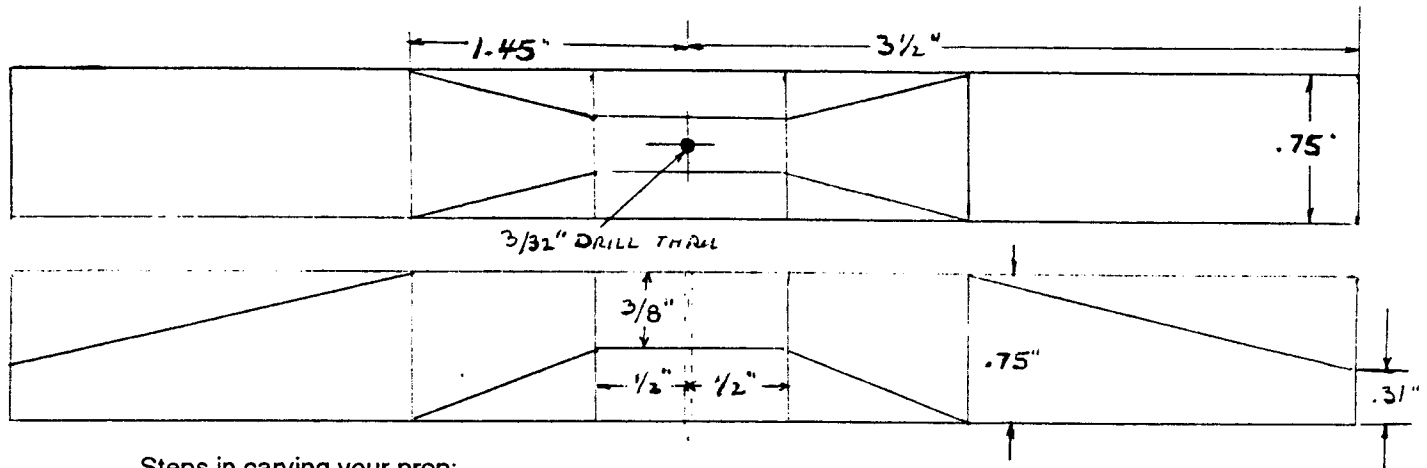
The table on page shows aspect ratios of various commercial props, but I used the term loosely because I really should have called it **blade length over max.blade width** since props do not usually have parallel leading and trailing edges.

To calculate the maximum blade width of the prop you wish to make, you should decide on the ratio you want. Suppose you decide to make a 7" prop with a blade length to width ratio of 3.3. Well, the blade length is $7"/2 = 3.5"$ So the ratio $3.5/3.3 = 1.06"$ This is the maximum blade width. To find the dimensions of the blank for this width, at the 45° point (which is the place where the blade will be widest) multiply 1.06 by the sine of 45° which is .707. This happens to give you .75" for the **width and the thickness** of your prop blank. (the only trigonometry number you really need is this .707).

To determine the pitch of your prop, choose a ratio of P/D (pitch / diameter).

For example: if $P/D = 1.3$; $D \times 1.3 = \text{pitch}$; $7" \times 1.3 = 9.1"$ This means that for every revolution of the prop, the plane will theoretically be pulled forward 9.1" (if there were no slip or inefficiencies). To determine the dimensions of the blank to get this 1.3 P/D ratio we can visualize a triangle illustrating the circumference and the pitch. The base of the triangle represents the circumference of the prop at it tip and the short vertical leg represents the pitch. (see page 5) To get circumference multiply the diameter by pi. ($7" \times 3.1416 = 22"$) , so our triangle can be drawn with a base of 22" and a short vertical leg of 9.1" representing the pitch. If you want to know the angle of the blade at the tip, divide 9.1" by 22" and find the arc tangent on your calculator, but you don't really need to know this unless you are curious.

The tips are to be .31" thick, so mark this on the side of the blank at each tip. Mark the 45 degree diameter ($2.9"/2 = 1.45"$ from the center out on each blade). Connect this to the tip mark with a straight line on the side of the blank. This is the basic blade layout. Inboard of this you will need to decide the dimensions of the hub which are really pretty arbitrary only keeping in mind that it should be thick (long) enough to provide good bearing length and wide enough to be strong and light too. I recommend a length of $3/8"$ and a width of about .30". You will probably want these dimensions to extend about $1/2"$ from the center before the prop blades flare out, so that is what is shown below.



Steps in carving your prop:

1. After you have cut the blank and drilled the shaft hole start carving the back of the blades first. You will notice that there is a difference in cutting one direction versus the other because of the grain of the wood. Carve in the direction that will not cause splits, because you run the danger of cutting too deep if you allow the wood to split as you carve. Carve without under camber at first. The objective is to connect the front and rear corners with a diagonal cut, but be sure you cut the diagonal in the right direction or you could end up with a left handed prop! After you have cut the diagonal in both blades, put a wire through the shaft hole and check balance. It should be close, but may not be perfect especially with balsa because of variations in density which is common with balsa. Try to get a good balance if you can, but if it looks like the wood is too variable, wait till you have carved the front sides before attempting to perfect the balance. If you sight down the diagonal cut you have made you should see a nice spiral now, indicating a helical pitch has been formed.
- 2.. Carve the front in the same manner, except you will want to create a convex airfoil shape here. The tips should be quite thin and the trailing edge should come almost to a knife edge.
3. Check for balance and start sanding or doing light carving to correct the balance. If one blade is a lot softer than the other you can stiffen it and make it heavier with sanding sealer or Hot Stuff. If you want to add some under camber in the rear surface, you can sand this in with coarse sandpaper, but finish up with 120 grit and 400 grit to get a really smooth surface. Go easy on undercamber. The best reason for undercamber is really to stiffen the prop without making it too heavy. Excessive undercamber will result in a variable pitch from leading to trailing edge, and you will undo a lot of the helical pitch if you round off the trailing edges very much.
4. If you want to shape the blades to remove the ugly angular corners and round off the tips, use your knife and sandpaper, but follow up with sanding so the trailing edges will be thin.

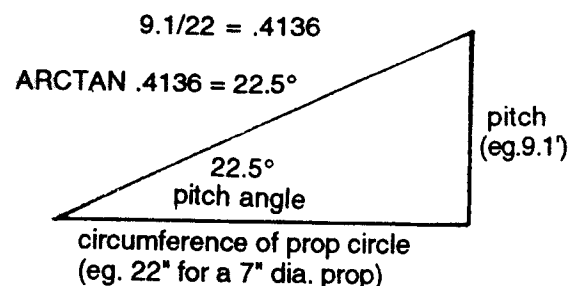
Try carving props. It is not that difficult and the more you make the easier it becomes!

Steve Griebing - - CFFS

TABLE OF PROP PITCHES COMMERCIAL PLASTIC PROPS

# DESCRIPTION	DIAMETER	TIP -----			-- AT MAX. WIDTH --			DIA./WD. (Aspect)
		PITCH	ANGLE	P/D	PITCH	ANGLE	P/D	
1 Black "K"	4"	7"	29	1.75	4.7	35	1.18	3.0
2 Green "2"	4.7"	7.8"	28	1.67	7.0	35	1.49	3.2
3 Gray (Japan)	4.75"	7.6"	27	1.60	4.9	30	1.03	3.2
4 Black nylon (Czech)	5.5"	4.6"	15	0.84	6.9	24	1.25	3.8
5 Red (H)	5.5"	5.9"	19	1.07	6.8	31	1.24	3.9
6 Guillow D6	5.9"	10.7"	30	1.80	8.4	39	1.41	3.6
7 Red OS 150	6"	7.5"	22	1.25	6.9	24	1.15	3.5
8 Red	6.9"	12.5"	30	1.80	9.6	37	1.40	4.5
9 Red (large hub)	7"	10.7"	26	1.50	10.4	36	1.48	3.8
10 Red	7"	6.7"	17	0.96	5.2	21	.74	3.4
11 Dark Blue OS -18	7.125"	8.15"	20	1.14	6.8	27	.95	3.4
12 Gray (Japan)	7.125	7.5"	18	1.05	6.3	25	.88	3.4
13 Gray (Japan)	8"	7.7"	17	0.96	7.4	22	.91	3.3
14 Black	8.7"	7.8"	16	0.90	7.8	18	.89	3.6
15 Gray	9.50"	4.7"	9	0.65	7.5	17	.78	4.0
16 Red Undercamber	6.88"	9.9"	25	1.44	6.2	36	1.17	3.2
17 Blue Cosmo C24	9.38"	11.8"	22	1.26	11.0	27	.92	3.2
18 Black Tern Aero	6"	5.7"	17	0.95	5.5	31	.96	2.9
19 Yellow	9.38"	8.8"	17	0.94	9.0	35	.78	4.3
20 Black IGRA (Czech)	5.75"	5.4"	17	0.94	4.5	31	.78	3.1
Thanks to Vern Neff and Jim Hyka for lending me several of the plastic props in this table.								
21 Red N. Pacific?	6.88"	4.5"	12	0.65	6.2	35	.89	4.6
22 Gray (Japan)	5.88"	5.3"	16	0.90	5.9	25	1.00	3.3
23 Gray (Japan) U-180	7.125"	5.6"	14	0.78	6.8	26	.94	3.4
24 White IKRA (Czech)	12"	23.4"	32	1.95	13.2	38	1.10	3.6
25 White IKRA (Czech)	5.94"	7.5"	22	1.26	7.7	37	1.29	3.1
26 Red	5.38"	8.9"	30	1.82	4.6	36	.86	3.8
27 Red Guillow D5	4.90"	8.9"	30	1.82	6.8	32	1.38	3.5

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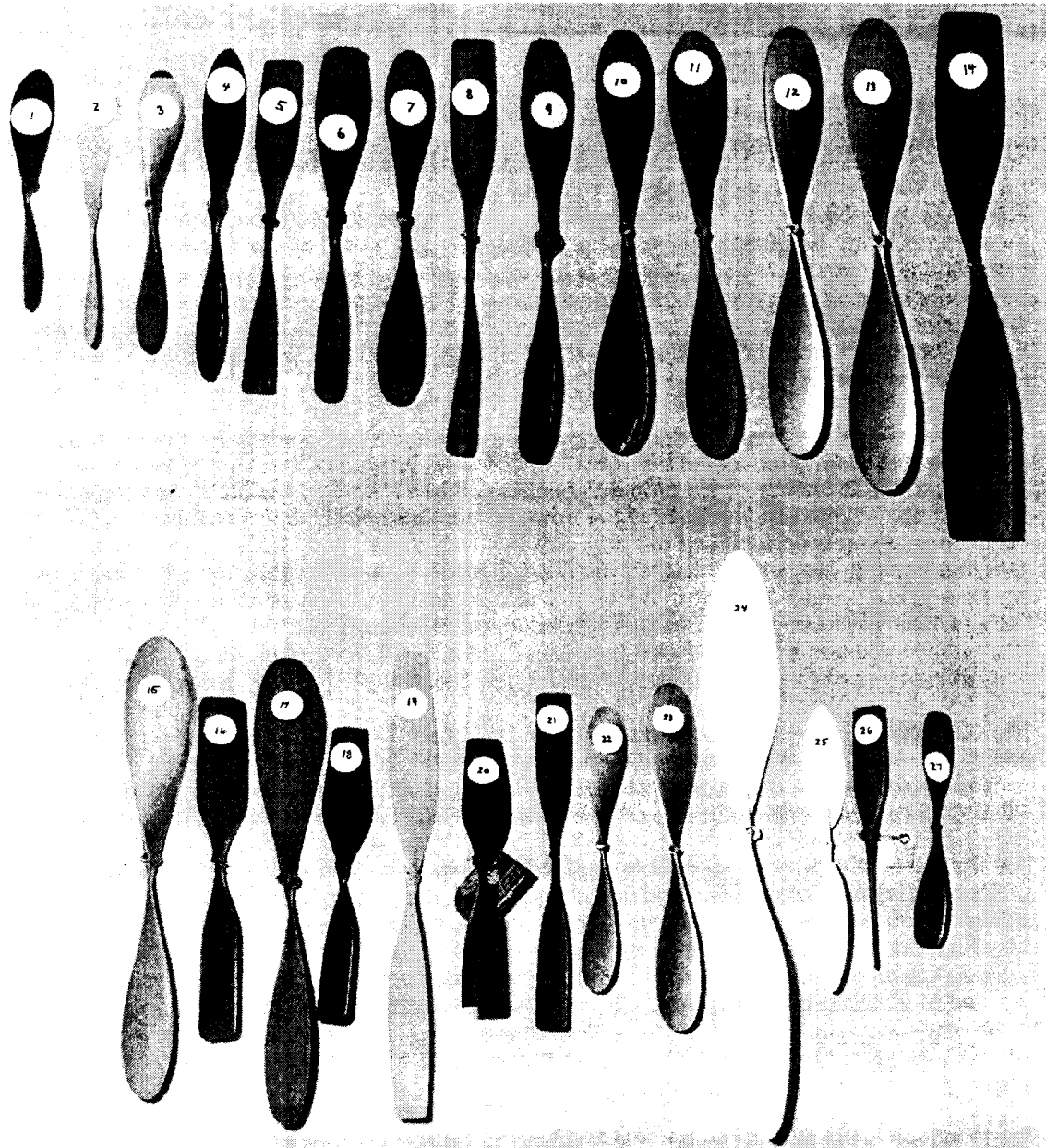


THIS TRIANGLE ILLUSTRATES
THE GEOMETRY
FOR DETERMINING PROP PITCH

TIPS OF THE MONTH:

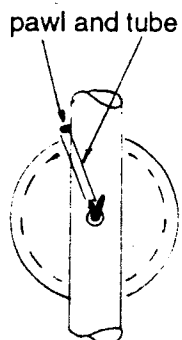
1. When sanding a thin balsa sheet to reduce its thickness, place it on a sheet of 100 to 120 grit sandpaper over a flat surface and sand with a sanding block fitted with 150 to 220 grit paper. The sandpaper under the balsa, laid on the table, will keep the thin balsa sheet from sliding and crimping and reduce the chance of breaking it.
2. To add stringer notches to formers, cut a narrow strip of 120 grit sandpaper the width of the stringer and about 2" long and glue it on the edge of a 4" strip of hard balsa or pine the same thickness and about 1/8" to 1/4" wide. Sand notches in the formers with this tool and you will rarely cause a split or broken former. You can also use this as a straight edge to make sure the stringers are in line from one former to another. I recommend that most stringer notches be filed in after the formers are in place because sometimes the printwood stringer locations are not accurate. This idea came from Ed. Packard of Cleveland Model Supply many years ago, but sometimes these goodies are forgotten! Sanding will be much easier if you support the former close to where you are sanding in the notch. Your fingers or a pair of tweezers work well for this. You can use the tweezers as a guide for the sanding strip! Simply hold the tweezers right next to the intended notch and let the sanding strip rest against the side of the tweezers as you sand.



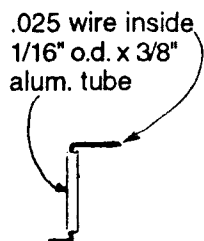


Henry Struck type free wheeler details:

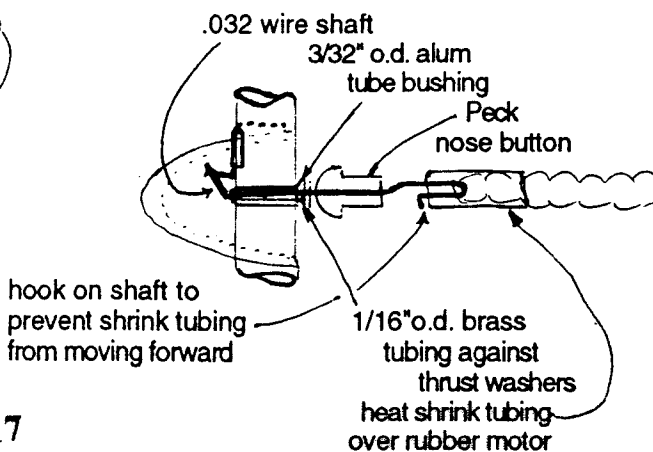
FRONT VIEW



PAWL AND TUBE ASSEMBLY



SIDE VIEW



THE SOLID SCENE by Fran Ptaszkiewicz...D.S.M.

The Joe Ott Name is known to many "vintage" modelers as a vintage model kit manufacturer. His line of Ace Whitman rubber powered models is known to all who participate in the many Flying Aces Club contests across the country and around the world.

In looking thru my files for various solid model plans to be used in our FAC News, I ran across a couple of interesting plans.

The Joe Ott line of solid models, presented kits which were very complete and of a high quality. The balsa appeared to be Grade 'A' and the plans were well drawn and fully detailed.

All of the plans contained an isometric drawing of the model to be assembled, with many break-a-way details depicting the different sections and sub-assembly's. The completeness of these plans made it virtually impossible for a beginner not to finish the model. These extra details probably encouraged more novice builders to continue to participate in the hobby.

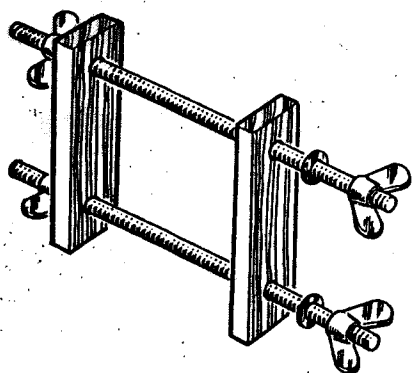
These types of super detailed drawings with the added construction information could also be found in his line of Ace Whitman rubber models, which also more than likely assisted many a first time builder of rubber models, complete a reasonably good looking model. Flying, well, that was the modelers province, although the back side of the plan contained much good information in that respect.

In all, these well done, complete kits were good for both the solid and rubber model builder as well as the good of the hobby.

The two plans presented are;

- Beechcraft - 18, probably one of the most famous and most used twin engine transports ever built. Many are still flying. This writer has many hours in the right hand seat.

Sikorsky S-43, one of the early twin engine amphibians from the famous Russian designer. I have always had a love for seaplanes, float planes and amphibians.



LARGE HANDY CLAMPS

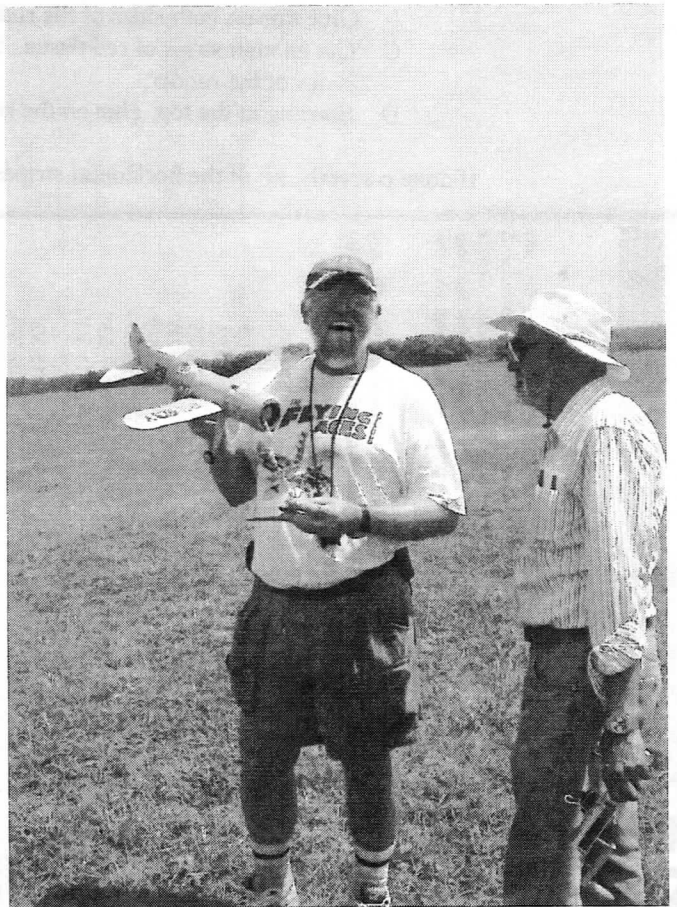
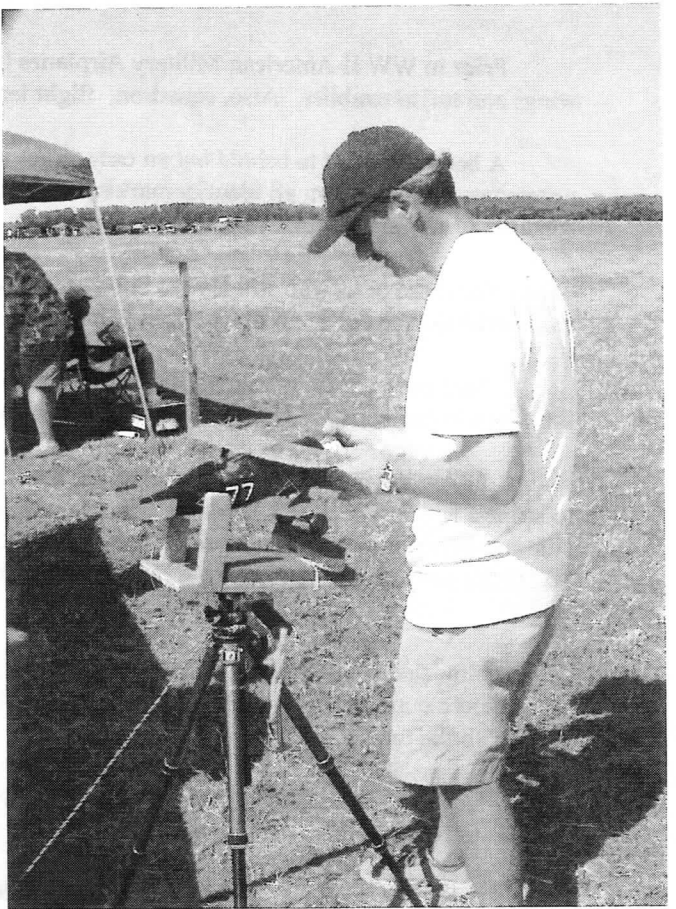
Drill holes in two pieces of hardwood, then insert threaded rods with wingnuts and washers, as shown. This clamp is very useful when pulling two fuselage sides together, or around the house on those "Honey Do's."

Göran Forsberg, Luleå, Sweden

PHOTO PAGE

All photos by Pete Kaiteris, top, Ross Mayo about to start the races. Chris Parent getting his Laird Solution ready for the Thompson Race.

Bottom, Power Scale Single Engine winner, a DH-2 by Tom Hallman. Here is Richard Zapf awaiting the start of the Thompson Race. Photos from the FAC Nats.



MILITARY MARKINGS

Prior to WW II American Military Airplanes had olive drab and later blue fuselages with yellow wings and tail assemblies. Also, squadron, flight leader, number and so on painted on them.

A beautiful sight to behold but an easy target in time of conflict. The beginning of the war necessitated toning down all identity markings. As of this day most, if not all, markings have been greatly subdued or eliminated.

For those of us who still love to build models of these old timers, there is nothing as pretty as a pre-war model decked out in all of its bright colors.

Duplicating these markings is at times difficult. Making your own red, white and blue stars for the wings is bad enough, but dividing the rudder colors into 13 equal width stripes is a real pain.

Following is one way to get the stripes the right width and spaced every time: Lets say you want to stripe a rudder which is 3 3/4 inches tall. On a sheet of paper draw a 6 1/2 inch vertical line on the LEFT side and divide it into 1/2 inch spaces. Now on the far RIGHT side about 10 inches, place a pin point at 90 to the vertical line (3 1/2 inches). Next draw lines from this point to each of the 14 dots on the vertical line.

Now take a full size drawing (in this case 4 inches tall) of the rudder and place it on lines you made before but parallel with the vertical line. Slide it either to the left or right until the top and bottom align with the top and bottom lines of the template.

Next, mark the rudder drawing with a dot at each point where it intersects a line on the template. You should now have 13 equal spaces.

- Cover the rudder with white tissue.
- Cut a strip of blue tissue a little wider than the space between two dots on the rudder. Glue this on both sides of the rudder next to the fin.
- Cut enough strips of red tissue, the width of a space between two dots, to stripe both sides of the rudder.
- Starting at the top, glue on the red tissue stripes.

If done correctly, all of the horizontal stripes will be spaced equally and total 13 stripes.

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	D-3	DeHavilland DH-4	1/2"	21 3/8"
	SF-7	Curtiss "Helldiver"	3/4"	23 7/8"
	SF-12	Neuport 17	3/4"	19 5/8"
	SF-13	Spad XIII	3/4"	19"
	SF-14	Fokker Dr. I	3/4"	17 5/8"
	D-14	Fokker Dr. I	1/2"	11 5/8"
	SF-19	Supermarine S6-B	3/4"	22 1/2"
	SF-22	Akron Fighter	3/4"	18 3/2"
	SF-29	F4B3 or F4B4	3/4"	22 1/2"
	SF-41	Vought V-65 Corsair Biplane	3/4"	26 7/8"
	SF-43	Douglas O-38	3/4"	30"
	D-43	Douglas O-38	1/2"	20"
	SF-46	Laird "Solution"	3/4"	17 5/8"
	SF-47	Wedell-Williams (1933)	3/4"	19 1/2"
	SF-48	Turner Wedell-Williams	3/4"	19 1/2"
	SF-49	Curtiss F-11C3 "Goshawk"	3/4"	23 5/8"
	SF-52	Howard "Mr. Mulligan"	3/4"	23 1/2"
	SF-60	Boeing P-26A	3/4"	21"
	SF-61	Seversky P-35	3/4"	24"
	D-61	Seversky P-35	1/2"	16"
	SF-63	Caudron Racer (1936)	3/4"	16 5/8"
	SF-72	Laird Turner Racer	3/4"	18 3/4"

F A I MODEL SUPPLY

www.faimodelsupply.com

POLYSPAN, AIRSPAN, LITESPAN,
MICROLITES, MYLAR, TOMY TIMERS

F A I T A N II RUBBER

1/4", 3/16", 1/8", 3/32", 1/16", .042 THICK

1 lb. box \$29.99 del. in USA.

10 lb. box \$215.00. UPS del. in USA.

• Made in U.S.A. •

"Mayfly" ROG/RTF \$22.99, "Hangar Rat" ARTF \$25.99,
Bulldog ARF \$20.99, electric lighters \$6.99, Front
ends, winders, stooges, Books, Czech P30
props, Slick Lube, CROCKETT hooks, "Butterfly"
RTF indoor \$20.99, "Super Butterfly" \$21.99, huge
bunch of great FF kits, and Zona Saws.

Basic
Catalog
\$3.00

COUPE & WAKEFIELD
PARTS, KITS, RTF

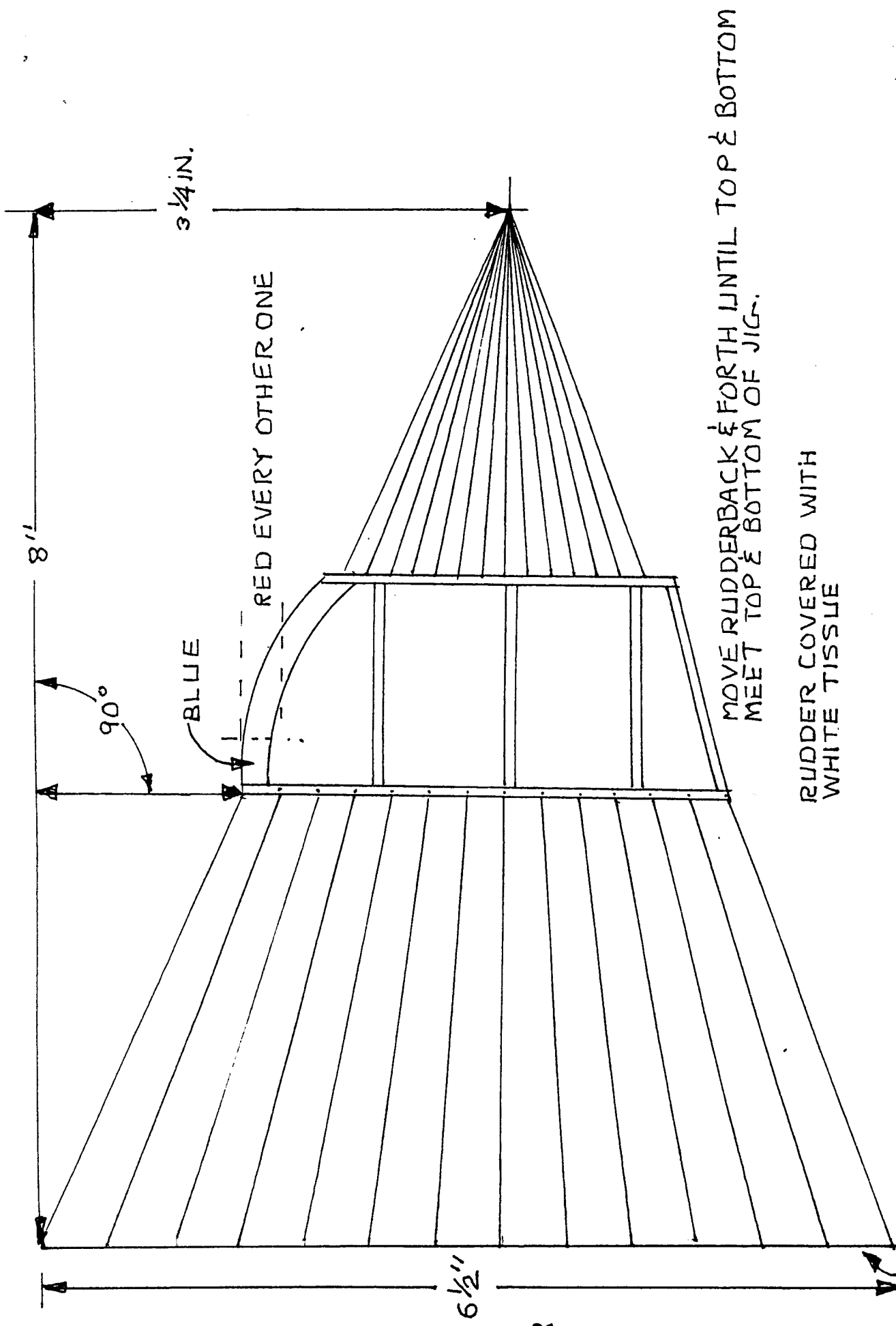
F.A.I. Model Supply

Hi Tech
Catalog
\$1.00

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Sayre, PA 18840-0366

Phone/Fax: 570-882-9873

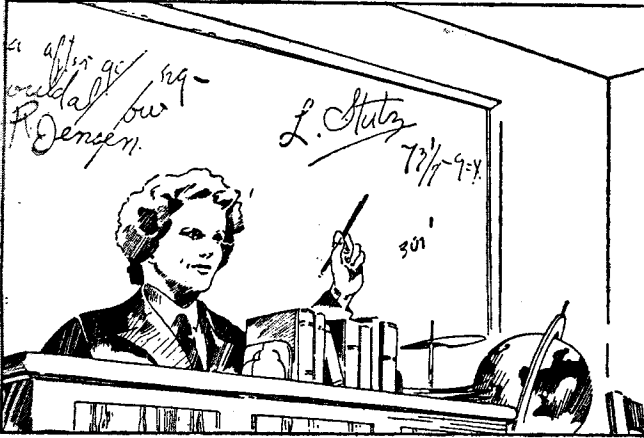


THIS WILL WORK ON RUDDERS FROM 1 TO 6 1/2 INCHS HIGH

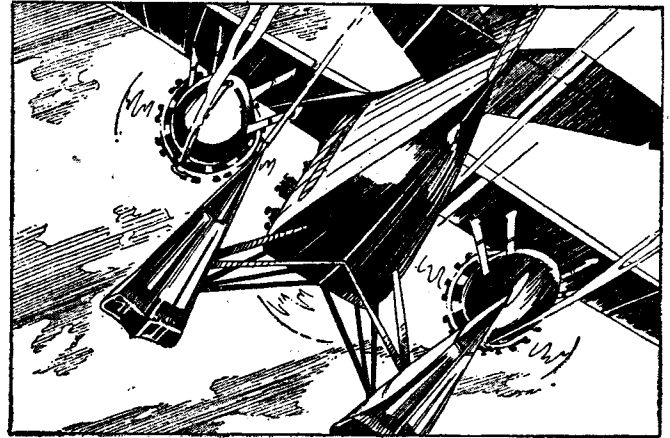
They Had What It Takes

VII—AMELIA EARHART—FIRST LADY OF THE AIR

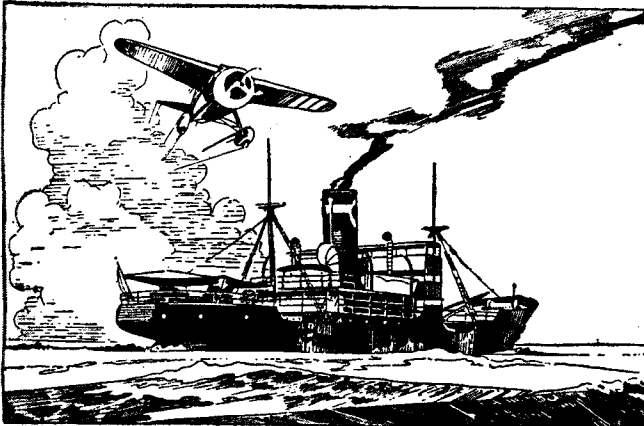
By ALDEN McWILLIAMS



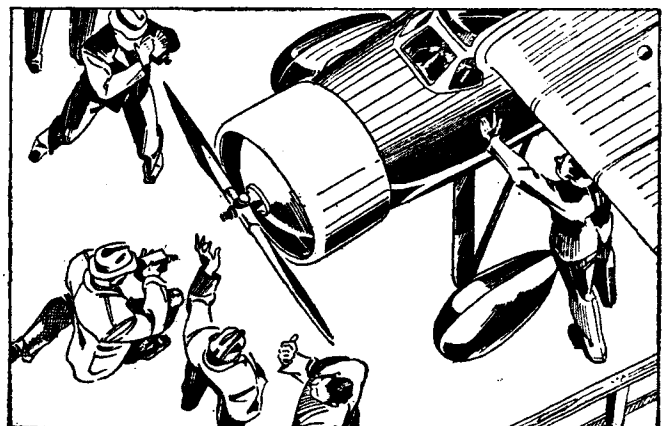
1—Amelia Earhart was born in Atchison, Kansas, on July 24, 1898. Following her graduation from high school, Amelia attended the Ogontz School for Girls. Later, her education was continued at Columbia University in New York City, where she studied medicine. Then in 1926 she became associated with Denison House in Boston as teacher in charge of girls' work.



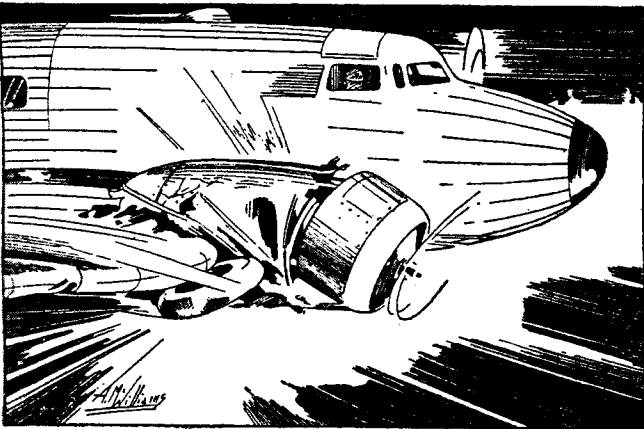
2—But aviation soon became her real interest. And it was Frank Hawks who piloted Amelia on her first flight. She topped off her subsequent intensive air training by becoming, in 1928, the first woman to fly the Atlantic, making the dramatic journey—Newfoundland to Wales—in the Fokker *Friendship* as passenger with the late renowned airman, Wilmer Stultz.



3—The early '30's found Amelia Earhart a highly-reputed flyer; and as vice president of the Ludington Airlines and National Airways, she demonstrated her administrative abilities. Then on May 20, 1932, she astounded the world by flying her Lockheed Vega solo from Newfoundland to Ireland in the striking time of 16 hours. A woman had conquered the Atlantic alone!



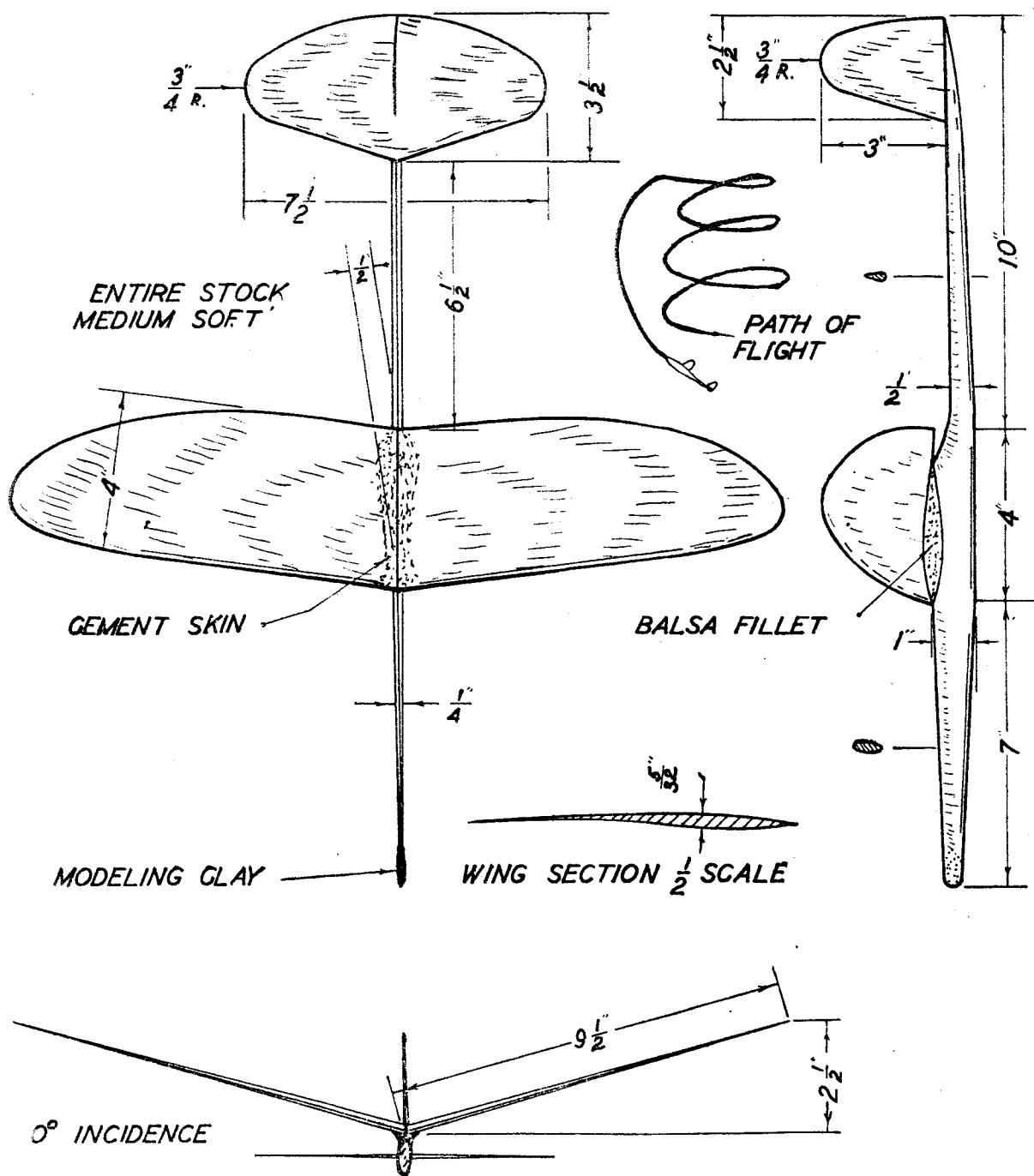
4—Many further sky triumphs were jotted one by one into Miss Earhart's log. Then, after an impressive 17-hour, non-stop, trans-continental flight in her trim Lockheed, the skilled aviatrix again turned to ocean flying. On January 11, 1935, she hopped off from Honolulu, Oakland, Calif., 2408 miles distant, was her goal—and she made it handily in 18 hours.



5—Finally, Miss Earhart set out this March upon a 'round-the-equator, world-girdling flight, and her safe hop to Honolulu was a promising beginning. But in attempting a take-off from Hawaii to continue this ambitious tour, her Lockheed Electra blew a tire and crashed. Only quick action by the famed flyer saved the lives of those aboard.



6—Amelia Earhart is the foremost woman pilot of our day. Our Government has awarded her the Distinguished Flying Cross, France has named her to the Legion of Honor, and the National Geographic Society has paid her tribute with a gold medal. Her rare flying talents and unquestioned courage have won her equal ranking with the world's leading airmen.



WT. .56 OZ. AREA 58 in^2
 GL. ANGLE 13 to 1
 BEST TIME 58.4 SEC.
 1 COAT WOOD FILLER
 2 POLISH 1 WAX

CLASS "B" INDOOR GLIDER
 SENIOR WORLD RECORD HOLDER
 DESIGNED BY
 WALLACE SIMMERS
 CHICAGO AERONUTS

FAC Mosquito Squadron 8th Annual WINTER OUTDOOR CHAMPIONSHIPS

IN CONJUNCTION WITH

Florida Modelers Association
49th Annual KING ORANGE INTERNATIONAL

PALM BAY, FLORIDA
December 29th, 30th, & 31st, 2002

Once again the Mosquito Squadron, commanded by Steve Bacom, will conduct the 8th annual FAC WINTER OUTDOOR CHAMPIONSHIPS in conjunction with the 49th annual FMA KING ORANGE INTERNATIONAL. There will be 16 FAC events with prizes being awarded through third place. There will also be a separate FAC high point trophy awarded to the overall point winner in FAC events.

GENERAL INFORMATION:

- > Flying will be from 7AM to 5PM each day except on Dec 31st when all flying ceases at 3PM.
- > All Mass Launch events will be flown at noon each day.
- > Scale judging will be conducted at the flying field and you are urged to present all models to be judged as soon as possible.
- > The current FAC rules will apply to all events.
- > Dime Scale will not be eligible for Golden Age.
- > Modern Production Scale is for factory built aircraft only; NO homebuilts.

For further information contact Steve Bacom at (386) 788-7309 or Mike McKinney at (386) 254-5173

SCHEDULE OF EVENTS

Sun. Dec. 29th:	Mon. Dec. 30th	Tue. Dec. 31st
FAC Embryo Endurance	FAC Peanut Scale	FAC Rubber Scale
FAC No-Cal Scale	FAC OT Stick	FAC Power Scale
FAC OT Gas(Elec/CO2)	FAC Golden Age	FAC Dime Scale
FAC OT Rubber	FAC Modern Production	FAC Jumbo/Giant Scale
FAC Grove/Thompson Trophy	FAC WWI Mass Launch	FAC WWII Mass Launch
		FAC Peanut Scale (High Wing)

NAME _____ AMA# _____
STREET _____ JR/SR _____ OPEN _____
CITY _____ STATE _____ ZIP _____

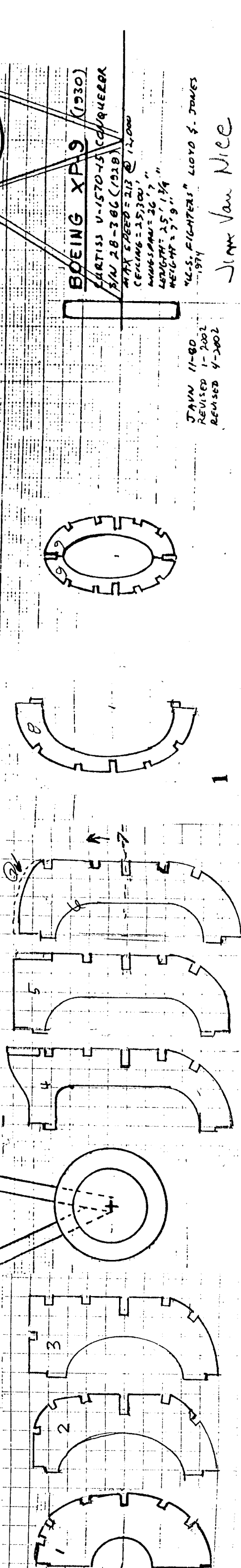
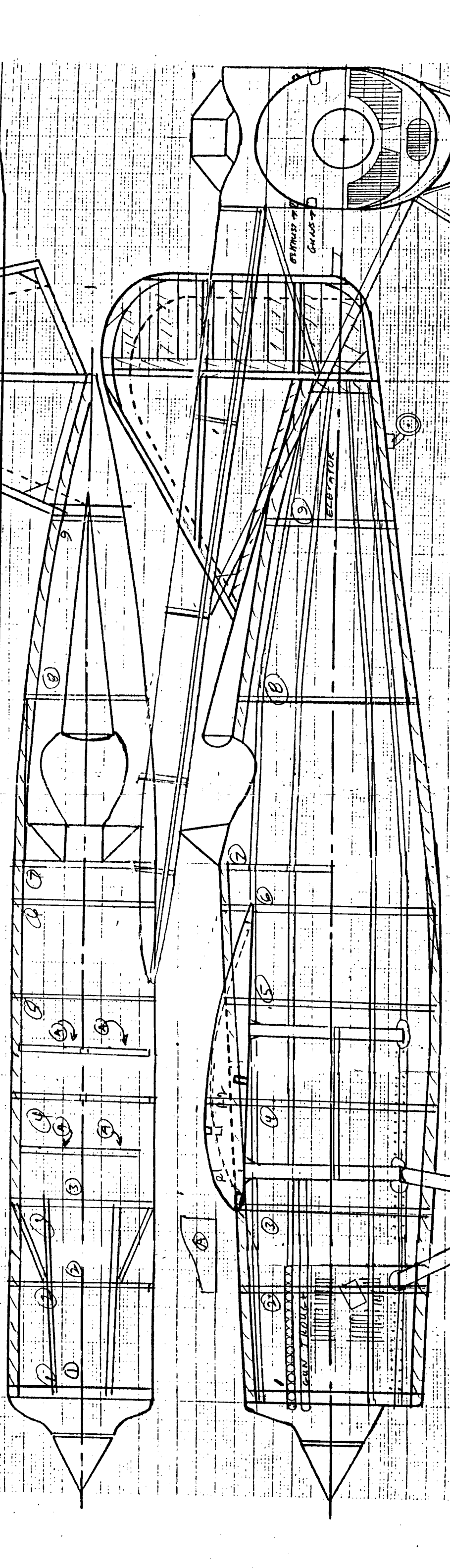
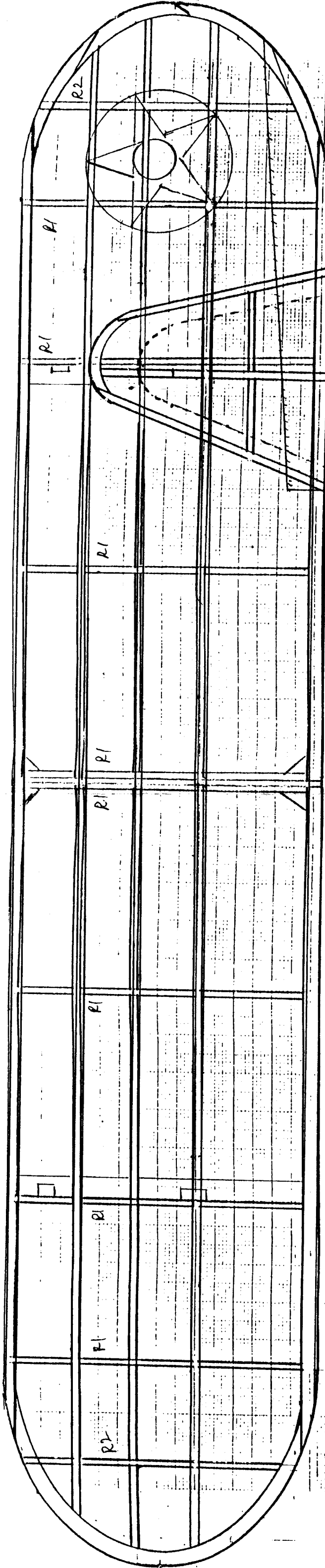
Wing Fillets Can Give A Grown Man Fits!

I've been through several methods of making wing fillets that have left me looking for better. I've tried the paper mache style of molding successive layers of silkspan (P-39 by Cleveland) on a mold using white glue as the mastic. Tried making them of balsa sheet. Even tried dryer anti-static sheets (used up and washed) and stretched across mini formers (Pfalz D-III).

Recent trials with some WWII types told me I had better learn something better. I built a Nallen Defiant and a P-37 and then a Bristol 138 from Bruning plans. What worked was manila folder material covered with the tissue color of the plane. I cut the paper patterns and transfer them to the manila. With those cut and tried for fit, I glue tissue directly to the stock and, when dry, cut the tissue to within 3/32 inch of the outline. Mold the fillet to correct shape with your fingers and attach using thinned white glue stuck to the tissue overlap. It fares the hard edge of the card stock well enough to not show too bad. Sand the edge of the card stock first and it may fare even better.

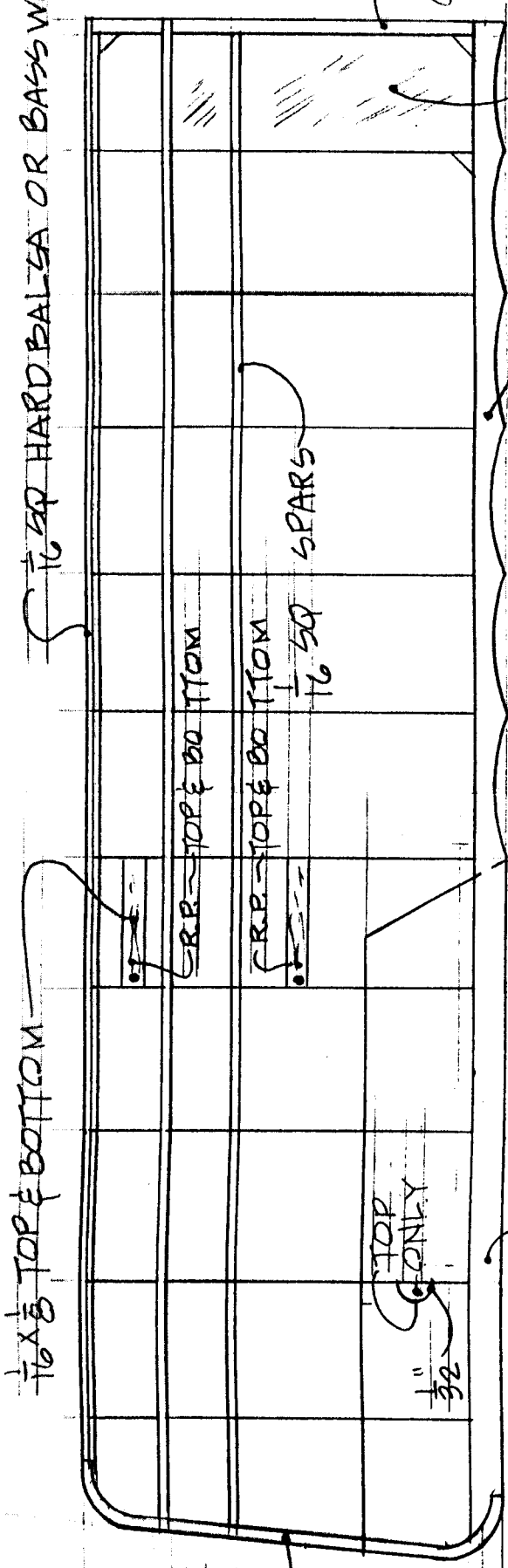


Bristol 138 By Pete Azure



BOEING XP-9 (1930)
 CARTIS V-1570-15 CONQUEROR
 SN 28-386 (1928)
 MAX SPEED = 213 @ 12,000'
 CEILING = 25,300'
 WINGSPAN = 26' 7"
 LENGTH = 25' 1 3/4"
 WEIGHT = 7,900 lbs
 "U.S. FIGHTERS" LLOYD S. JONES
 1974
 JAVN 11-80
 REVISED 1-2002
 REVISED 4-2002
 Jan Van Nieu

1/16" SQ TOP & BOTTOM



3/32 X 1/16
LAMINATED
TIPS

TOP
ONLY
1\"/>

CRP TOP & BOTTOM
CRP TOP & BOTTOM
1/16\"/>

SPARS
1/16\"/>

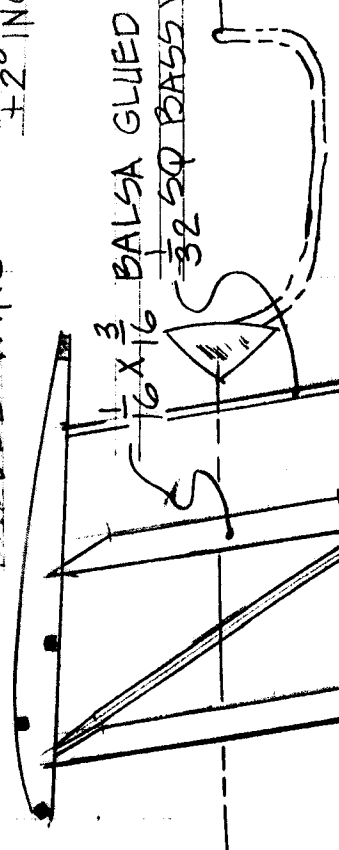
ROOT RIB 3/32 Balsa TILT 3°
TRIM TO FUSE. CURVE

MIDDLE WING
+2° INCIDENCE

3/32 X 3/16 Balsa

THIS AREA CLEAR
TOP & BOTTOM

1/16 X 3/16 Balsa GLUED TO WIRE
1/32 SQ BASS WOOD AILERON ROD



CUT OUT TO
INSTALL SPARS

TRIPLANE FUSELAGE: DETAILS NOT
SHOWN ARE COMMON TO BOTH D1 & D1.1

BOTTOM, MIDDLE WINGS
+3° INCIDENCE

COLOR SCHEME SAME AS D1 III.03

5.015 MW 2

MODEL WING AREA ~ 160 IN²
WINGSPAN: 21 5/8"

8

1/16 Balsa-FRONT MOUNT REAR WING MOUNT 1/16 Balsa
TED DAVIS FEB 2000
LOHNER TRIPLANE Dc. I III.04 SHt 3 of 4

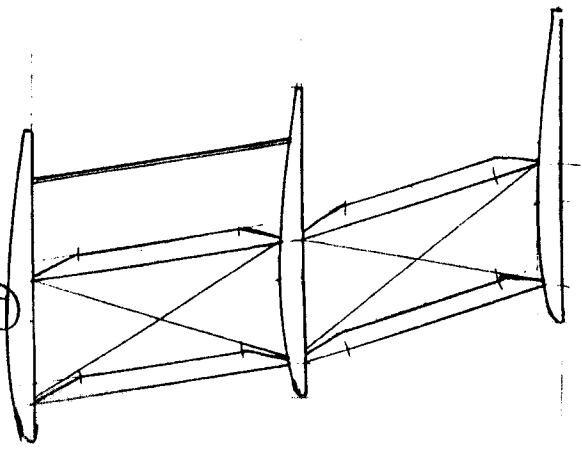
$\frac{1}{2}$ " DIHEDRAL = 3°

BOTTOM ONLY $\frac{1}{16} \times \frac{1}{8}$ BALSA

DIHEDRAL BREAK
BOTTOM ONLY

$\frac{3}{32}$ " WASHOUT BOTTOM ONLY

TOP WING

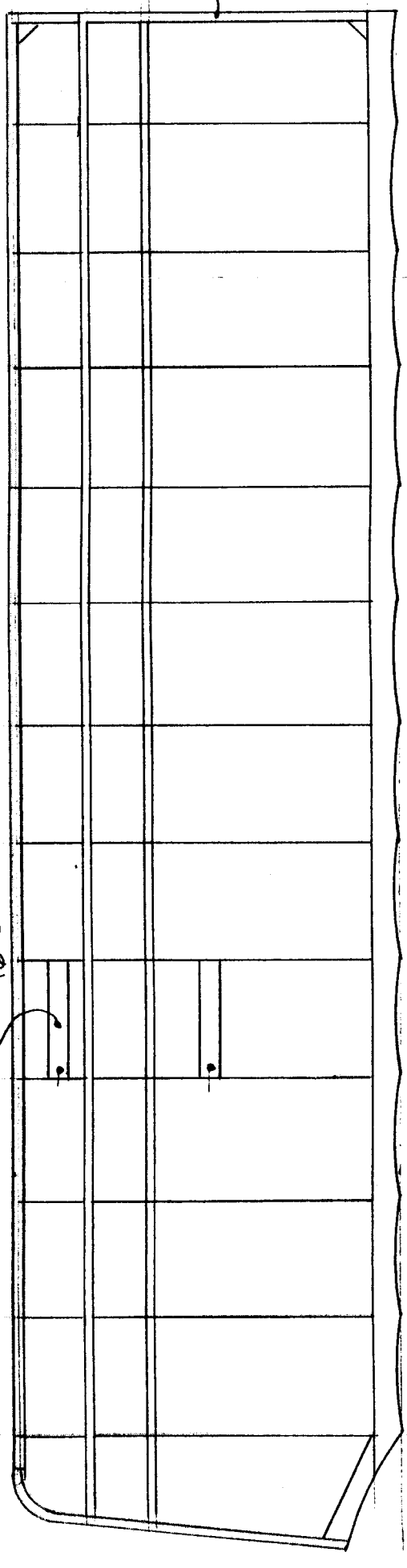


AILERON
PUSH ROD

WING STRUT
ARRANGEMENT
NO SCALE

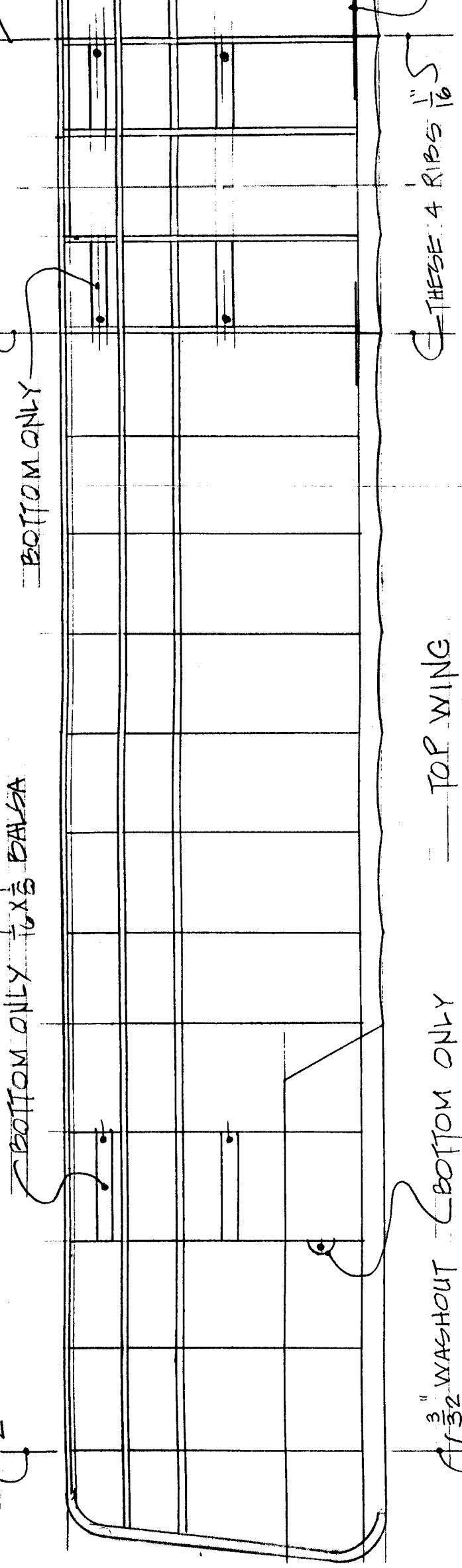
RIGGING WIRES

$\frac{1}{16} \times \frac{3}{8}$ TOP ONLY

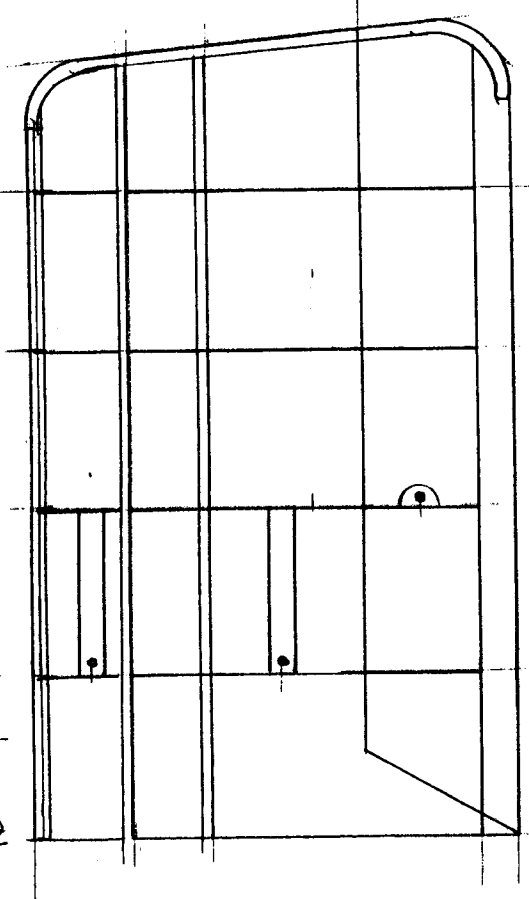


$\frac{3}{32}$ " WASHOUT ALL WINGS

BOTTOM WING



THESE 4 RIBS $\frac{1}{16}$ " S
 $\frac{1}{64}$ PLYWOOD DIHEDRAL BRACES AS RQD

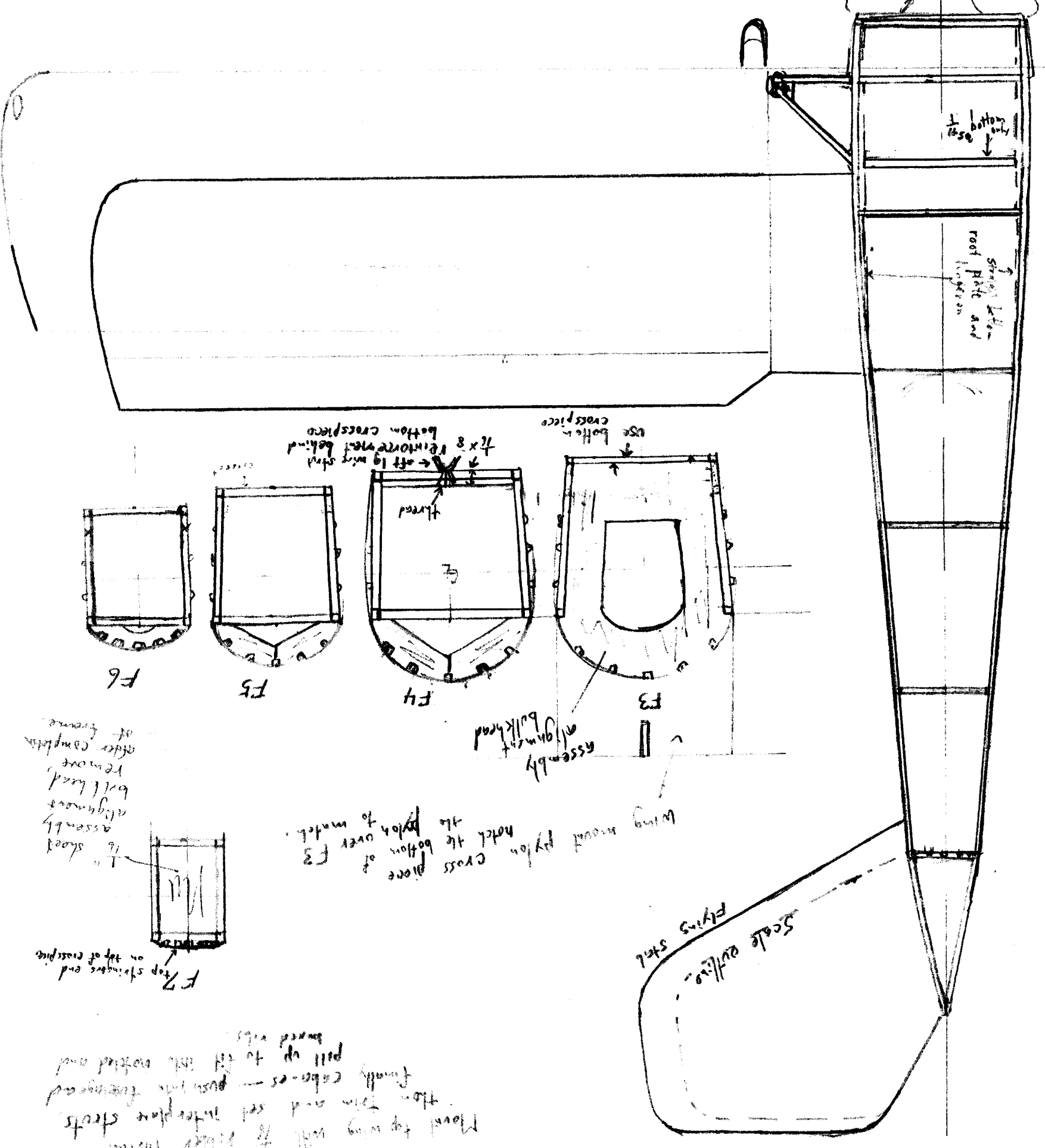
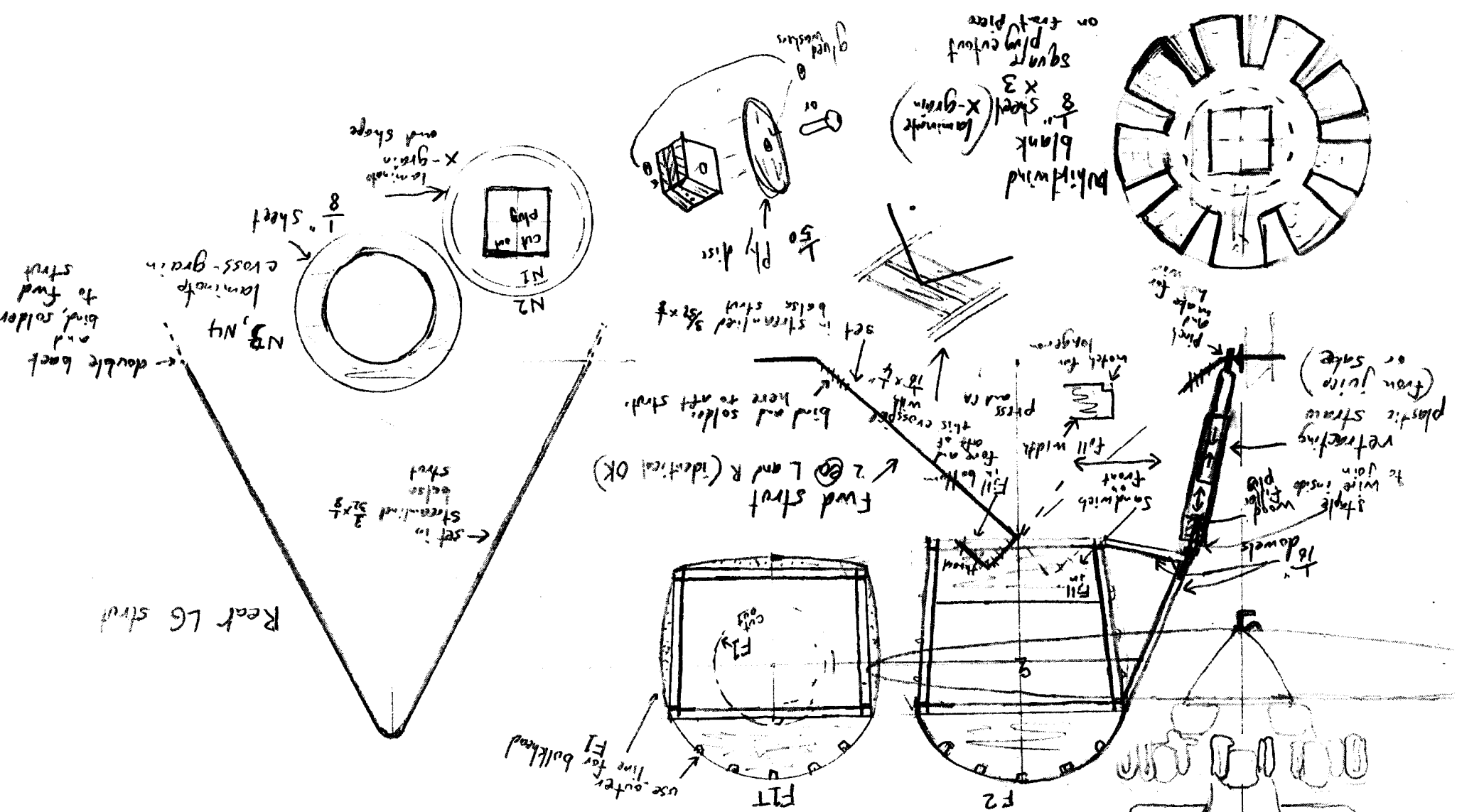


WINGS: RIB SPACING IS SCALE ~ ALL RIBS
 $\frac{3}{32}$ BALSA EXCEPT AS NOTED ~ CONSTRUCTION
FOR ALL WINGS IS THE SAME

$\frac{1}{16}$ BALSA RIB
TILT 3°

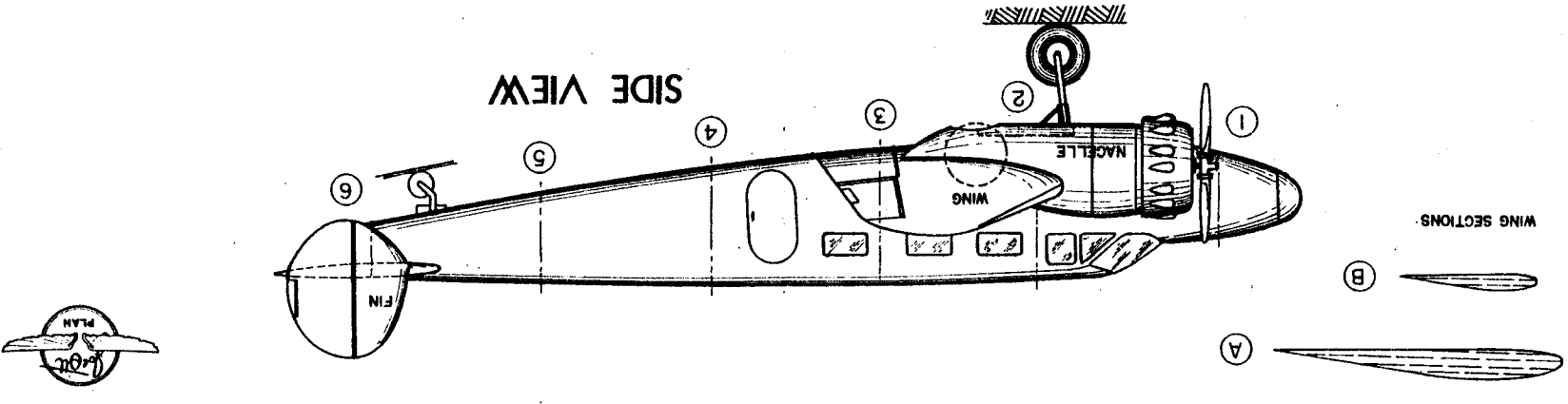
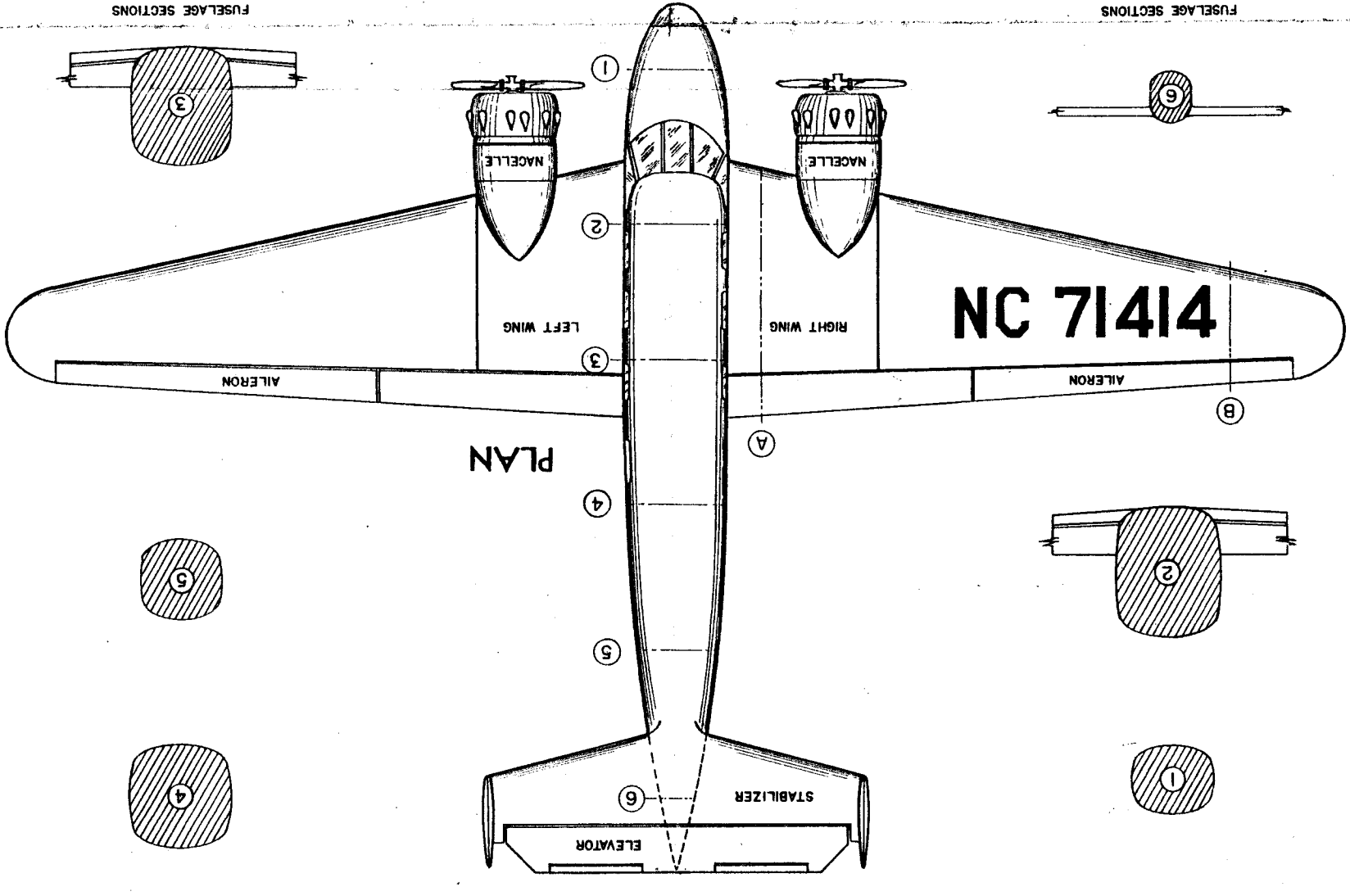
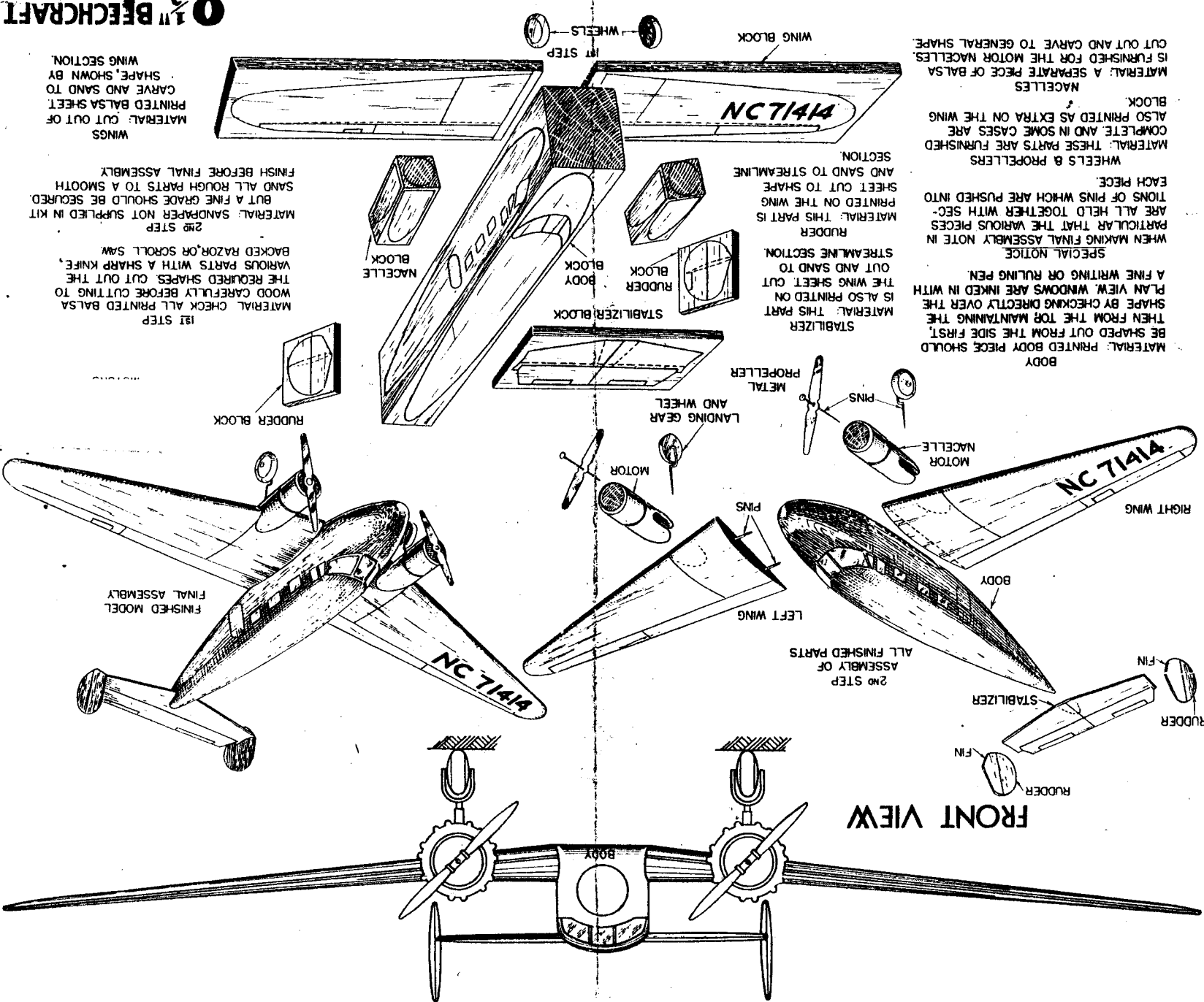
TED DAVIS FEB 2000

LOHNER TRIPLANE Dr.1 III.04 4 of 4



For bottom wings: Take glue pylon assembly
 Mount top wing with 1/8" rubber thread
 then trim and set interplane struts
 finally cables - push into fore-and-aft
 pull up to fit into notched and
 secured with

USE LINES BELOW FOR OUTLINING CONTROLS



WINGS
MATERIAL: CUT OUT OF PRINTED Balsa SHEET CARVE AND SAND TO SHAPE, SHOWN BY WING SECTION.

1st STEP
WOOD CAREFULLY BEFORE CUTTING TO THE REQUIRED SHAPES. CUT OUT THE BACKED RAZOR, OR SCROLL SAW, BUT A FINE GRADE SHOULD BE SECURED. SAND ALL ROUGH PARTS TO A SMOOTH FINISH BEFORE FINAL ASSEMBLY.

2nd STEP
MATERIAL: SANDPAPER NOT SUPPLIED IN KIT. PRINTED ON THE WING SHEET CUT OUT AND SAND TO STREAMLINE SECTION.

MACELLES
MATERIAL: A SEPARATE PIECE OF Balsa IS FURNISHED FOR THE MOTOR MACELLES. CUT OUT AND CARVE TO GENERAL SHAPE.

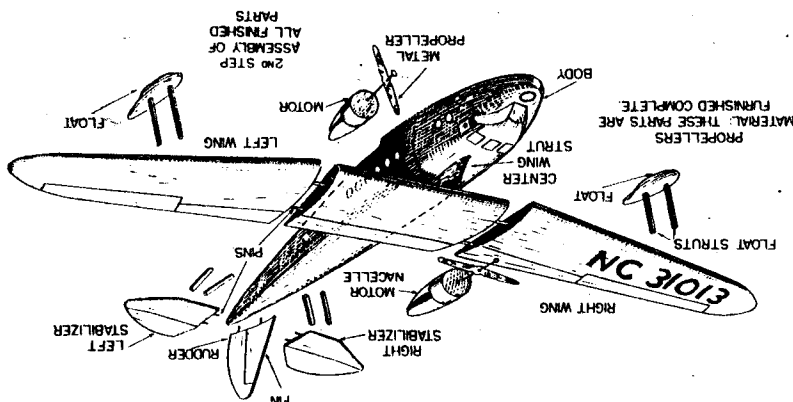
WHEELS & PROPELLERS
MATERIAL: THESE PARTS ARE FURNISHED COMPLETE, AND IN SOME CASES ARE ALSO PRINTED AS EXTRA ON THE WING BLOCK.

SPECIAL NOTICE
WHEN MAKING FINAL ASSEMBLY NOTE IN PARTICULAR THAT THE VARIOUS PIECES ARE ALL HELD TOGETHER WITH SECTIONS OF PINS WHICH ARE PUSHED INTO EACH PIECE.

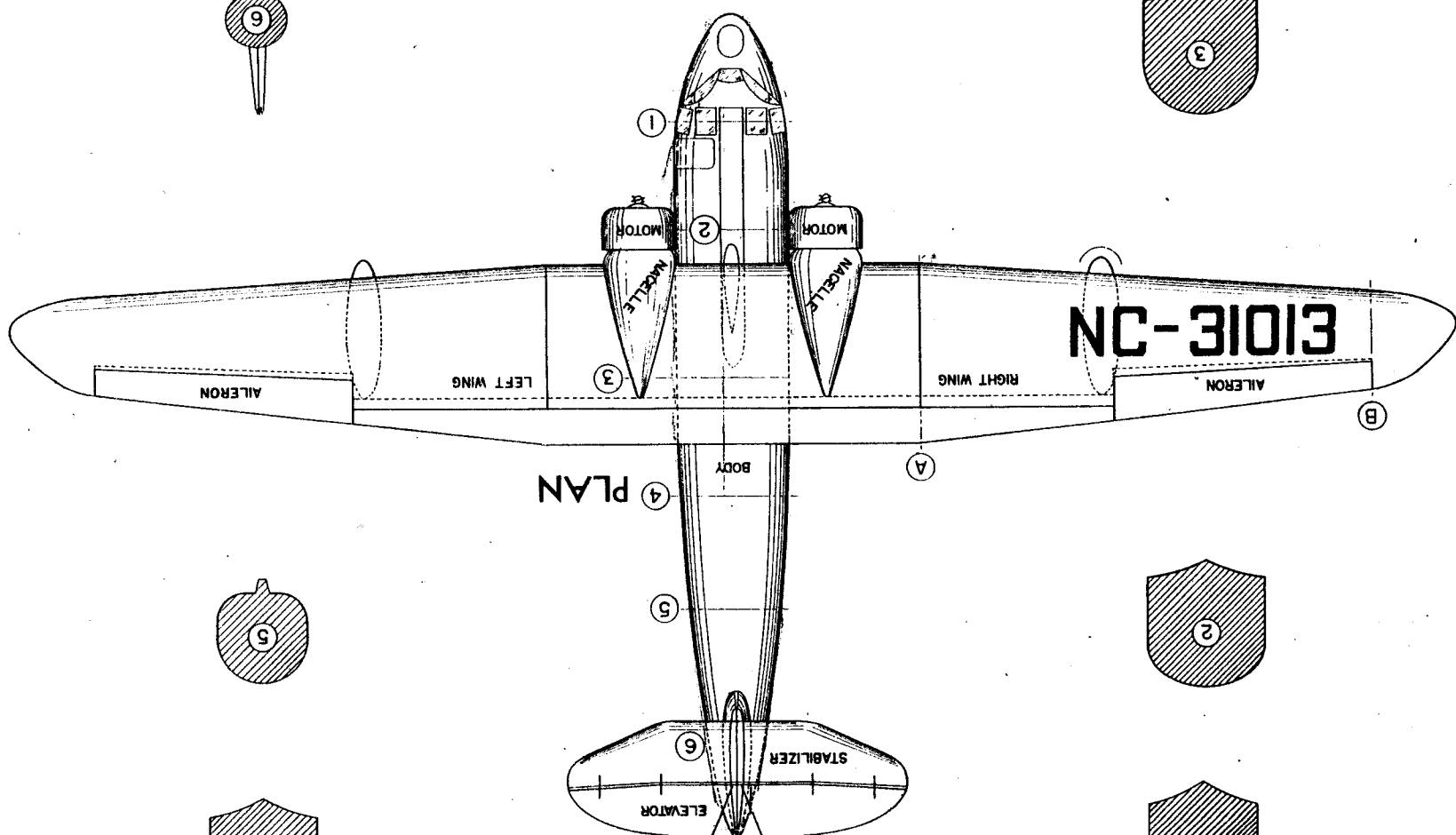
PLAN VIEW
WINDOWS ARE INKED IN WITH A FINE WRITING OR RULING PEN. BE SHAPED OUT FROM THE SIDE FIRST, THEN FROM THE TOP MAINTAINING THE SHAPE BY CHECKING DIRECTLY OVER THE PLAN VIEW.

NACELLES
MATERIAL: A SEPARATE PIECE OF BALSA
IS FURNISHED FOR THE MOTOR NACELLES.
CUT OUT AND CARVE TO GENERAL SHAPE.

FINISHED MODEL
FINAL ASSEMBLY



FUSELAGE SECTIONS



SIDE VIEW



WING SECTIONS