THE SCATER

published by Southern California Aero Team (16)

July 1962

President-Jim Trego; Secretary-John Wordin; Editor-Ken Sykora, 6717 Wilkinson, Apt. 205, North Hollywood, California Subscriptions: $2.00 per yr.

MODELLING GAMESMANSHIP...or How to Win Without Really Flying

Ever since Stephen Potter created the art of "gamesmanship" (a system of winning without actually cheating) we've thought this art had real potential for modelers...especially in the intense areas of strained FAI competition.

Say you're a bystander at the starting line in FAI Power. As your opponent (anyone preparing for an official flight) looks around for his official timer, checks his fuse, and starts to fuel up, you say to another bystander, "Naw...must be a check flight...nobody's hit lift for the last half hour." Then as the first seeds of doubt creep into the opponent, you suddenly point skyward (behind him so he can't see what you're indicating) and yell excitedly, "Hey!....Wow! Look at 'em go! Man! WHAT A BOOMER!!!!!" Now quite frustrated the opponent furiously begins flipping his prop, and just before the engine catches, you yell again "No, No, No!!...He didn't get. Yes, sir, fell right through. Boy! Look at 'em come down!" Then as the now trembling opponent frantically scans the empty sky you casually ask the nearby official, "Say, Timer, how many seconds left in this round?"

A/2 of course offers excellent possibilities for such gamesmanship, when you volunteer to assist launching official flights. For example; When the line is strung out and the tower stands waiting for his thermal, you pretend great interest in the model...completely ignoring the tower. When out of the corner of your eye, you see him wave for the start, you look intently in the opposite direction. He will wave harder, shout and stamp his feet. When his cries reach total panic screaming pitch, you suddenly whirl and toss the model, nose high, into the air. The line and the tower's jaw will go slack simultaneously. However, with shouting encouragement from you he will stumble into a wobbly, backward launch...with the model finally falling off the line...for a qualifying flight of about 21 seconds.

Another useful A/2 technique is the "out-of-phase" launch. When the tower starts to run, you hold back somewhat. Each time he looks back, panting and sweating, to check the trouble, you sprint ahead, causing the line to go slack and the tower to plunge ahead again...when, of course, you return to your former "drag" pace.

When the tower has reached both the threshold of collapse and the very edge of the flying site, you give him a very clean launch. Thus he's left, alone and exhausted, to fend for himself...among the trees, power lines, and corn fields.

If all this sounds like too much running for you perhaps the area of

Wakefield winding assistant will be your cup of tea. Here you keep up a running conversation while the winder vainly attempts to count. Idle comments such as "Going out much farther this time, eh?" are useful, but comments involving numbers are even better. For instance: Turning to look at the scoreboard and thus twisting the model completely out of line with the winder, you can say "Hey the entry's really growing...hummmmm, let's see...24, 25, 26,... no that's a fly speck...24, 23, 22 BLAST OFF! Ha! Ha!"

If the winder lasts through this sort of distraction and has come to within about a foot of the nose it's handy to shout, "Hey! What was that?" If he doesn't just drop the winder then and there and burst into tears you bend down, squint at the rear peg and say gravely, "Sounded like two strands let go!"

When the winder has assured himself that there are indeed no broken strands, another useful moment is the inserting of the noseblock. With just a slight amount of jiggling on your part as assistant this basically simple operation can take five munutes and leave the flyer a trembling mass of jelly.

The coupe de grace, however, is to look intently at the noseblock just placed while the flyer weakly tries to wrest the model from your firm grip. You can then say "Hmmmmm...trying left thrust this year, eh?" This is immediately followed by strong physical pushing of the flyer into the launching position...all the while screaming "TIMMMMMER!" into his ear.

Finally there is the technique of offering to give wind direction to opponent with a very sensitive launch-direction model. Here you whip out at the last possible moment a very stiffly starched hankie...and give him the most favorable wind direction...for your final placing in the contest.

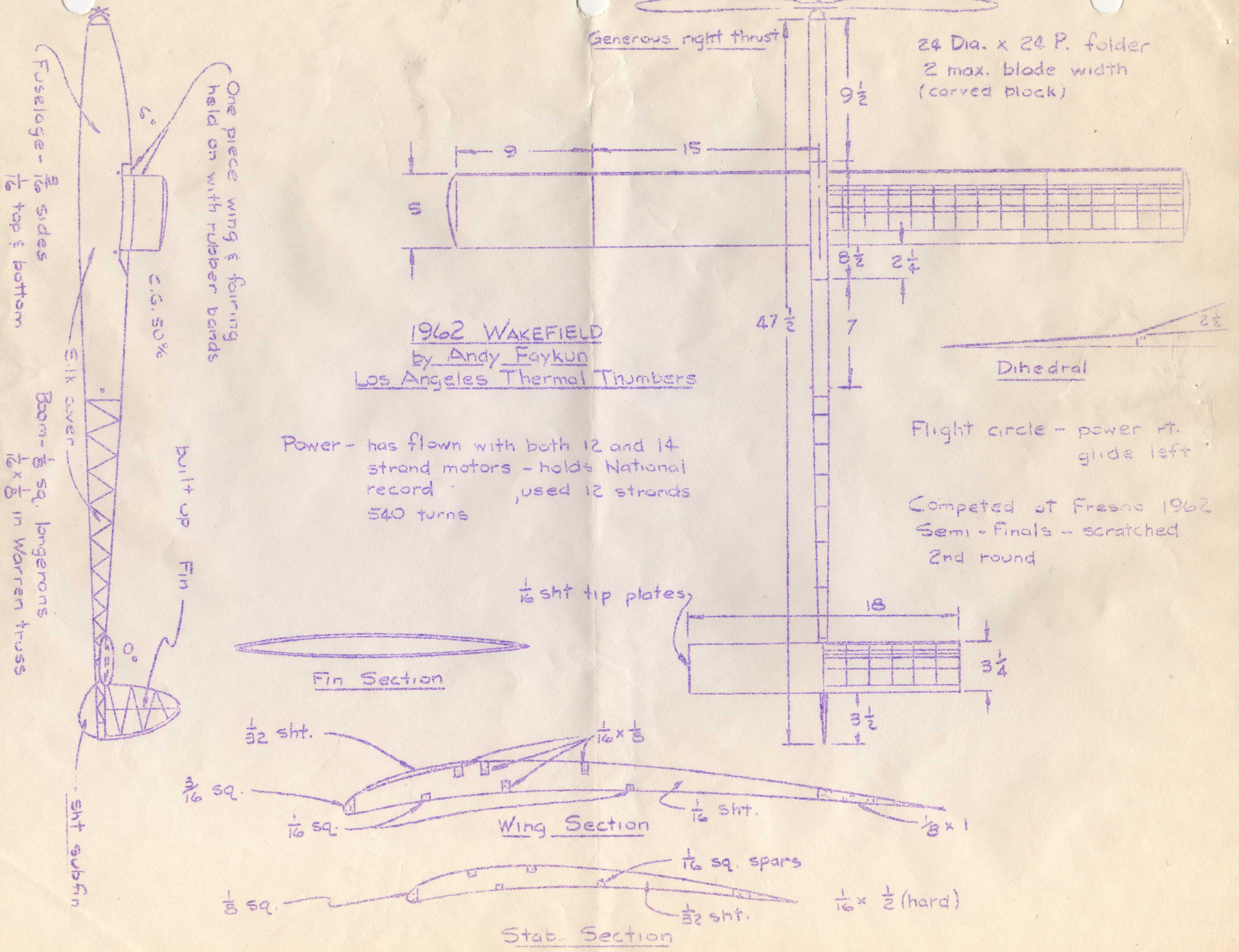
RECORD WAKEFIELD by Andy Faykun, Beverly Hills, Calif.

(Ed. note: This model set a new U.S. Wakefield record of five maxes, plus 3:30 and 2:22 for a total of 1252 seconds. It has also been quite successful for Andy in local competitions, and carried him successfully through the first round of Team Qualifications in June.

Having personnaly seen the model perform in a variety of weather conditions we can atest to the fact that it is a good all weather machine...having a snappy climb to good height, followed by a rather slow and quite stable glide circle.

Construction is simple, reasonably rugged, and straight forward throughout. General design follows most current practices; i.e., sheet fuselage of rather long tail moment; smallish rectangular plan stab; highish a/r wing with simple tips.

Two design deviations from the norm are worth noting: The rudder is placed at the extreme end of the fuselage, behind the stab (as is done on some current Power designs) and the front two-thirds of the fuselage has considerably more cross section than is usual in this design period of the "tiny box" and the "rolled tube". When questioned on this last point, Andy said the extra fuselage area didn't seem to detract from the model's performance, and had the advantage of helping keep it in the timer's sight longer under strong drift conditions. In light of the ship's performance record, both points would seem valid.)


Generous right thrust
24 Dia. x 24 P. folder
2 max. blade width
(carved block)
9½
9
15
5
8½
2¼
47½
7
1962 WAKEFIELD
by Andy Faykun
Los Angeles Thermal Thumbers
Dihedral
Power - has flown with both 12 and 14 strand motors - holds National record , used 12 strands 540 turns
Flight circle - power rt. glide left
Competed at Fresno 1962 Semi-Finals - scratched 2nd round
1/16 sht tip plates
18
1
3¼
3½
Fin Section
1/32 sht.
1/16 x 1/8
3/16 sq.
1/16 sq.
1/16 sht.
1/8 x 1
Wing Section
1/16 sq. spars
1/8 sq.
1/16 x 1/2 (hard)
1/32 sht.
Stab. Section
Fuselage - 1/8 sides 1/16 top & bottom
Silk cover
Balsa - 1/8 sq. longerons 1/16 x 1/8 in Warren truss
Fin up
0°
5°
C.G. 50%
One piece wing & joining band on with rubber bands
1/16 sht. sway

NEWS FROM THE READERS

The paid list rolls on this month with the following new readers:

C.O. WRIGHT, Topeka, Kans.
ART STANLEY, Marblemount, Wash.
WALTER JOHANSSON, Lammhult, Sweden
D.R. GOLDBERG, Reynoldsburg, Ohio

FRANK PRESTON, Saratoga, Calif., writes that he and son, Mike, enjoy their copy of SCATTER...good show!...just what FAIing needs; more active father/son teams! Frank, a professional draftsman, also offers his services if our drawing dept. gets overloaded. Thanks much, Frank. We may call!

OTTO KRAMMER of the Austrian model mag. "Modellsport" writes to say they'll be happy to exchange plans and articles with our rag. He has passed the request for drawings among the local modelers so perhaps we'll have something to show you in the future from this hotbed of modeling experimentation.

ICC-FF Chairman, GERRY RITZ, has issued a request to us for ideas and plans for the fall meeting of the FAI rules makers. All serious U.S. FAIers, either individually, or as club groups, should get on the ball now and get their ideas off to Gerry. Too often we have griped about the outcome of the rules decisions, only to be met with the counter-criticism that we provided no opinions for our own representatives. Let's not be caught lagging again. Get off those opinions and ideas NOW!

BILL COOK, surely one of the world's busiest writers/builders/flyers, finds time somehow to send a long letter from Upper Hutt, N.Z. Also encloses several photos of the local boys in action. Thanks, Bill, these will come in handy for the next photo page in the ole rag! He also mentions that several "Saturns" (Sept. '61 SCATTER) are abuilding there. Let us know how they go when you get things sorted out, Bill.

JOHN POOL, editor of the very sharp Northern Area News, out of England, writes that their contest season got off to its usual start...cold, wind, and sleet (ouch!) Says designing and trimming for effective flight under these conditions puts their boys at a real disadvantage when they reach the much more "bommy" climes of Europe for the finals each summer. John also mentions some victories in skirmishes with the national model association over there. Cheer up, John...the life of a crusading editor is not an easy one! He closes by saying SCATTER is being well recived over there and their publication may look more like ours in the future. (Ed. note: Is that a compliment or a threat, John?)

"PENDENT II" A/2 by John Wordin, SCAT club

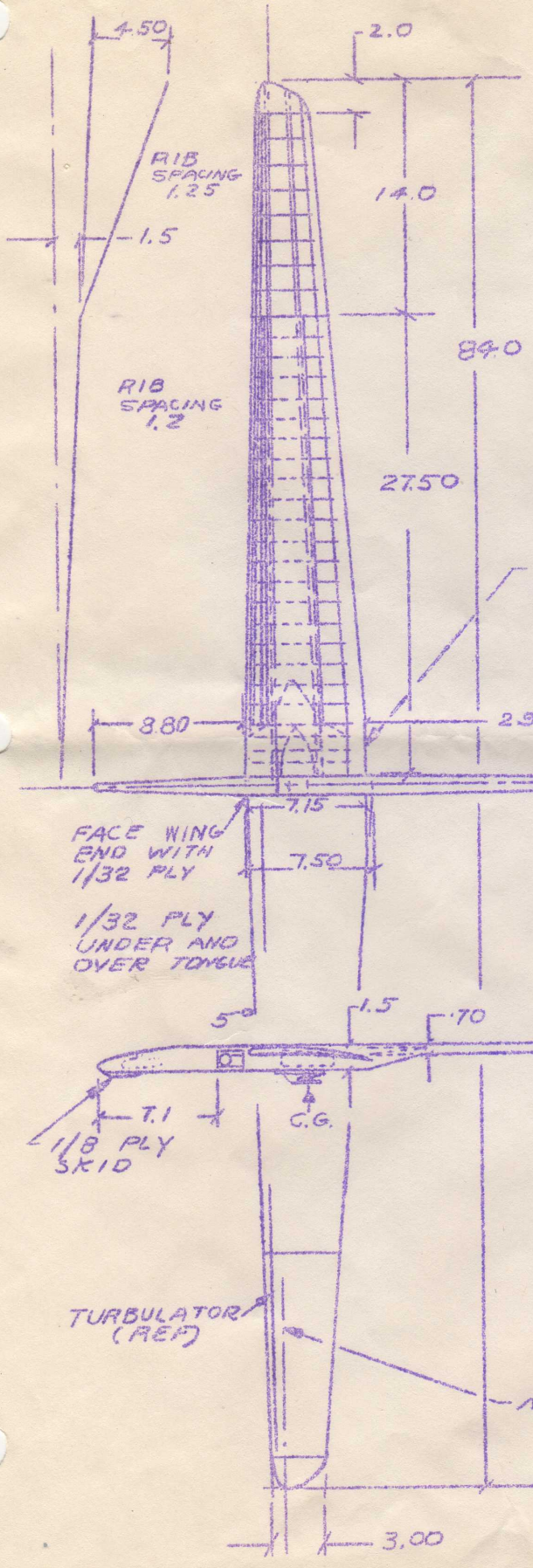
This is the fourth in a series of airplanes that was started in October, 1959. Over these four models I've tried to solve many problems that have bothered me in the design of my airplanes, and a new problem of how to build a high aspect ratio wing that has a 6% maximum thickness airfoil.

The most important component of any glider is the wing, and too much attention to its detail design and construction is impossible. The aerodynamics of the wing are such as to minimize the drag. The wing section, NACA 6406, I found in 1958 when doing a thesis on airfoils in college. I thought then it would be good to use but it hasn't been until now that I've gotten around to trying it. NACA 6406 is a close relative to the old standby NACA 6409.

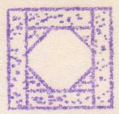
NACA 6406 is good from the standpoint of drag because it has an approx-

WING
AREA 440 IN.²
A.R. 16
λ=.40
NACA 6406

STAB
AREA 85 IN.²
A.R. 6
λ=.595
NACA 6406



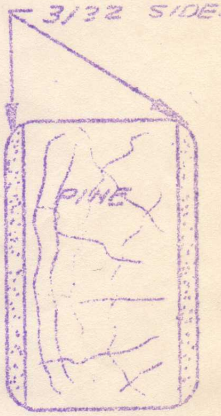
WEIGHTS	
STAB	11 GM.
FUSELAGE	178.2
R. WING	78
L WING	76
BALLEST	86.8
TOTAL	430 GM.



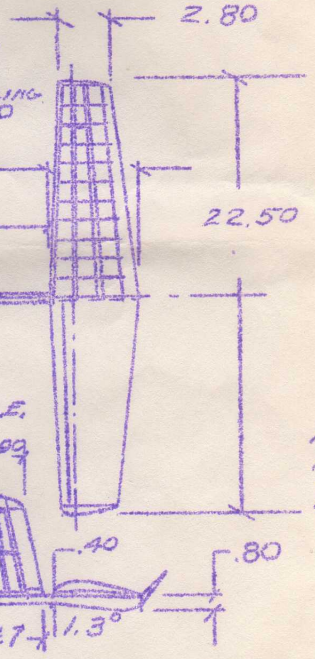
BOOM CROSS SECTION (TYP)

FUSELAGE: PINE BLOCK NOSE 1.5 X .80 X 20 FACE SIDES WITH 3/32 HARD BALSA BOOM, 3/32 SHEET BALSA 1/8 TRIANGLE CORNER LONGERONS

CENTER SECTION SQUARE FOR RIB TONGUE AND SPACING EASE OF CUTTING 1.0
1/16 PLY RIBS
FILL WITH SOFT BALSA



NOSE CROSS SECTION (TYP)



ALL TIPS 1/3 - 2/3 ELLIPSE

PENDENT II

NORDIC BY JOHN WORDIN

THREAD TURBULATOR 16% OF CHORD BACK FROM LE ON BOTH WING AND STAB

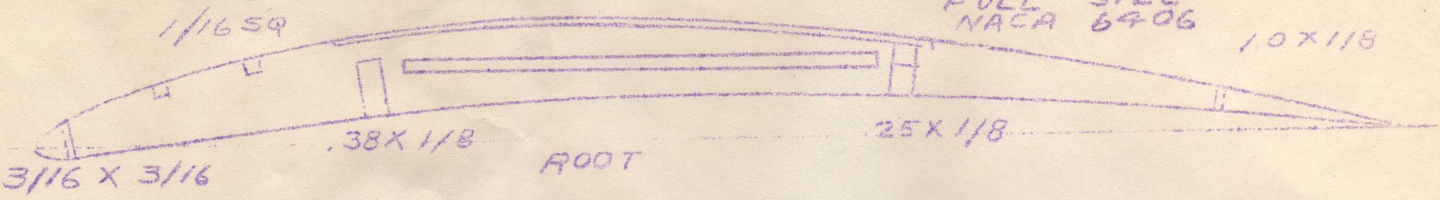
NO SWEEP ABOUT C/4

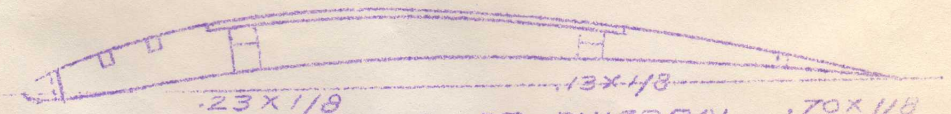
FINISH: WINGS AND STAB COVERED WITH RED JAP TISSUE FUSELAGE YELLOW JAP TISSUE 6 COATS CLEAR NITRATE DOPE ON WING AND FUSELAGE 2 COATS ON EMPENNAGE

WING RIBS

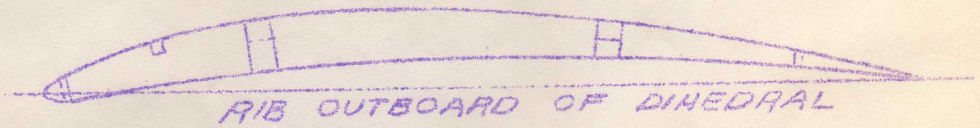
FULL SIZE
NACA 6406

1/32 BALSA SHEET

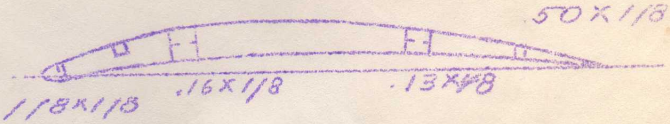




RIB INBOARD OF DIHEDRAL BREAK

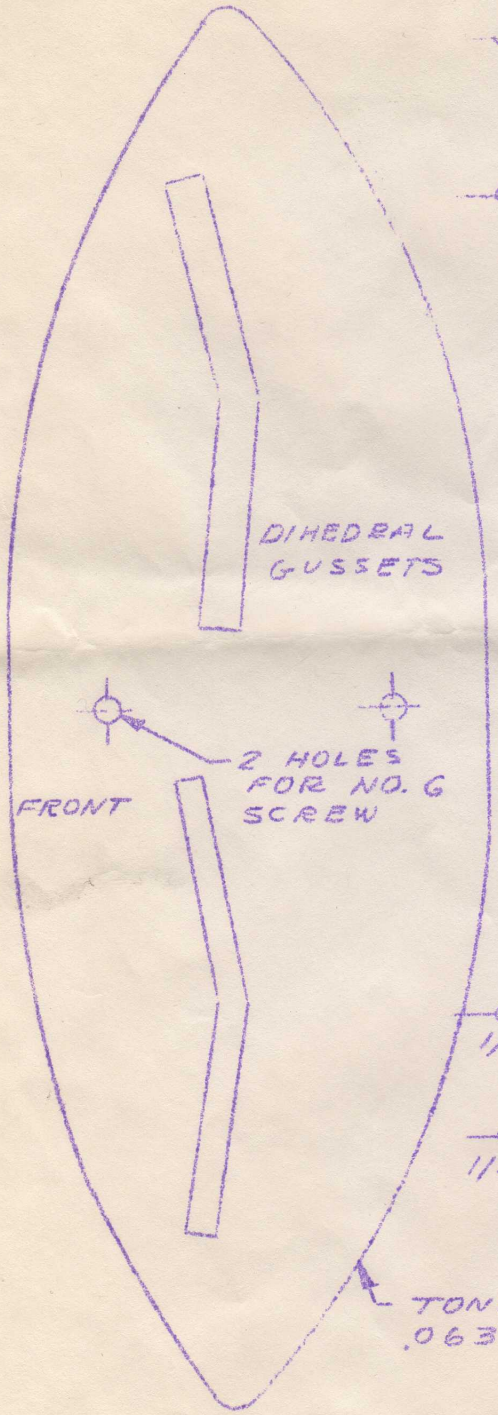


RIB OUTBOARD OF DIHEDRAL BREAK



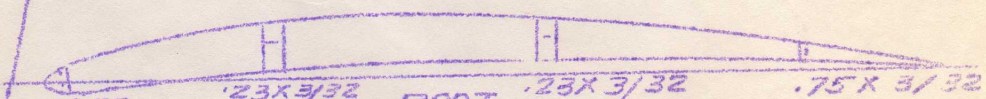
TIP

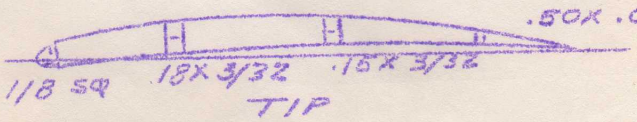
NOTE: ALL RIBS 1/16 BALSA
SPARS FROM HARD BALSA
LE HARD BALSA
TE MED. BALSA



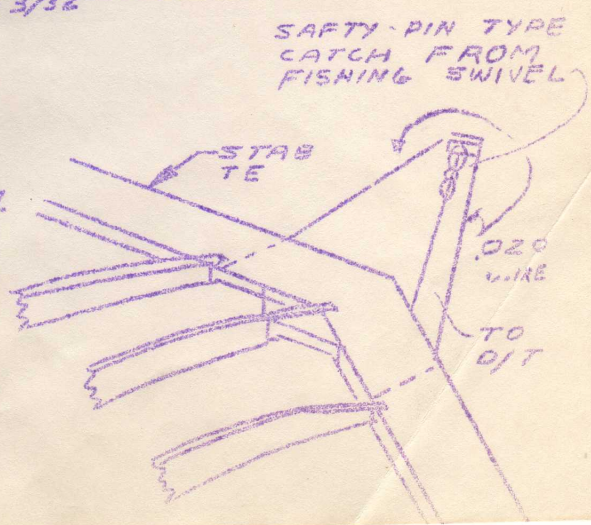
STAB RIBS

FULL SIZE
NACA 4406





TIP



imately constant low profile drag coefficient all the way to the stalling angle of attack. The planform was selected because of its low induced drag. High aspect ratio (A=16) and taper ratio (λ=.4) are factors which keep induced drag low. Also the tip chord was made as large as possible to keep the local Reynolds number large and prevent the flow from going into the critical drag range. (At and below the critical Reynolds number, the profile drag increases.

The wing structure is a stressed skin box beam and a good type of beam to resist both bending and torsinal loads. From "Pendent I" I learned that a sheet covered wing is heavy and hard to repair, so "Pendent II" has a minimum of sheet covering. The upper surface is sheeted because wood is best in compression. The lower surface is covered with silk, then with Jap tissue. The silk is good in tension but not compression and is more elastic than wood allowing the wing to flex, and not break at the root under tow.

The tow hook was made from a "T" section aluminum extrusion. A Hacklinger Release is used on the auto rudder. I have found this the most reliable method for me, however, one disadvantage is the inability to hook up a timer starter. A spring is provided on the timer start lever which is held to "off" by the helper. It helps reduce possible human error.

The stab has an aspect ratio of 6 for two reasons. It is a minimum for aerodynamic efficiency and a maximum for a light-weight stab. I made a stab of aspect ratio 8 and the extra spar length increased the weight quite a bit without a noticeable increase in efficiency. Be patient and wait for the thermals to come to you.

From a performance standpoint this model has stayed aloft in the very lightest of lift. Best official time so far is 12:07 at the June 9-10 Eliminations.

For the future a NACA 6306 will be tried on the wing and stab to increase the longitudinal stability, and to increase the length of the dihedral chord of the wing and decrease the root chord slightly.

PROP TALK by Ed Schnakenburg, Manhattan Beach, Calif.

(Ed. note: Our April editorial on power props prompted Ed to come up with some comments of his own. This article isn't meant to prove anything earth shaking just some more head scratching to keep the pot boiling.)

What pitch do we want? Well, if we assume a 450 ft. climb, and a 60° climb angle (yes, I know it looks steeper than that) then the speed is 450/sin 60°, or 515 feet in 10 seconds, or 51.5 ft/sec (35 mph) or 618 inches/sec.

Assume that your engine is doing 17,000 rpm in the air; that is 283 rps. That means the average propeller advance is 2.18 inches/rev. (effective pitch). The effective pitch to be efficient is usually 75% of geometric pitch, which says you should use a 2.8 inch pitch prop. That is, if all the "assumes" are correct.

By the way, to add to your store of useless facts, if you are using a 10/4 prop at 17,000 rpm, the tip speed is Mach. No. .59 so you're not going to have compressibility effects.

Tip distance/revolution $\sqrt{(\pi 8)^2 + (.75 \times 4)^2}$

17,000 rpm (25.2)(1/12)(1/60) = 596 ft/sec

M = 1 = 1130 ft/sec (standard conditions)

FROM THE NOTEPAD

****Raw courage among manufacturers in the model industry, as we have often stated in these pages, is a rare thing. Therefore, when one of them steps from the "fast-buck-fold" and offers something that has the good of the modeler (especially the beginner) at heart, we feel it should be praised. The case in point is the new line of 69¢ profile scale r.o.g. kits being offered by STERLING MODELS. To be sure many of the items in the kit are pre-formed, but there are some components that must be built...and, so the manufacturer says, everything needed to build each model is in the box...right down to the "automatic tissue covering" (Ed. note: the WHAT?.....)

We don't expect anything like four billion of these kits will be sold... they will be just too tough for the average kids brought up in our "use psychology and plastic" age. And they will also be all but drowned out amid the usual toystore stock of open-the-box-and-it-flies-out-at-you readymade kits. However, out of every flock of these kids, there are always one or two who seek work for their young hands and minds. They toss away the highly touted "feeding-spoon" manufacturer's approach...and in its stead take onto themselves a task of creating something. And how they build is not nearly so important as the actual fact that they have taken on the job...accepted the task. From those few 8, 9, and 10 year old modelers will come the true modeling champions of the future...and, indeed more than likely, many future, good, U.S. FAI teams. Once that first r.o.g. is successfully built the die is almost surely cast...for a lifetime of tougher and more interesting building and flying activities. Thank you, STERLING MODELS.

FAI POWER MODEL by Jim Moseley, Yorkshire, England

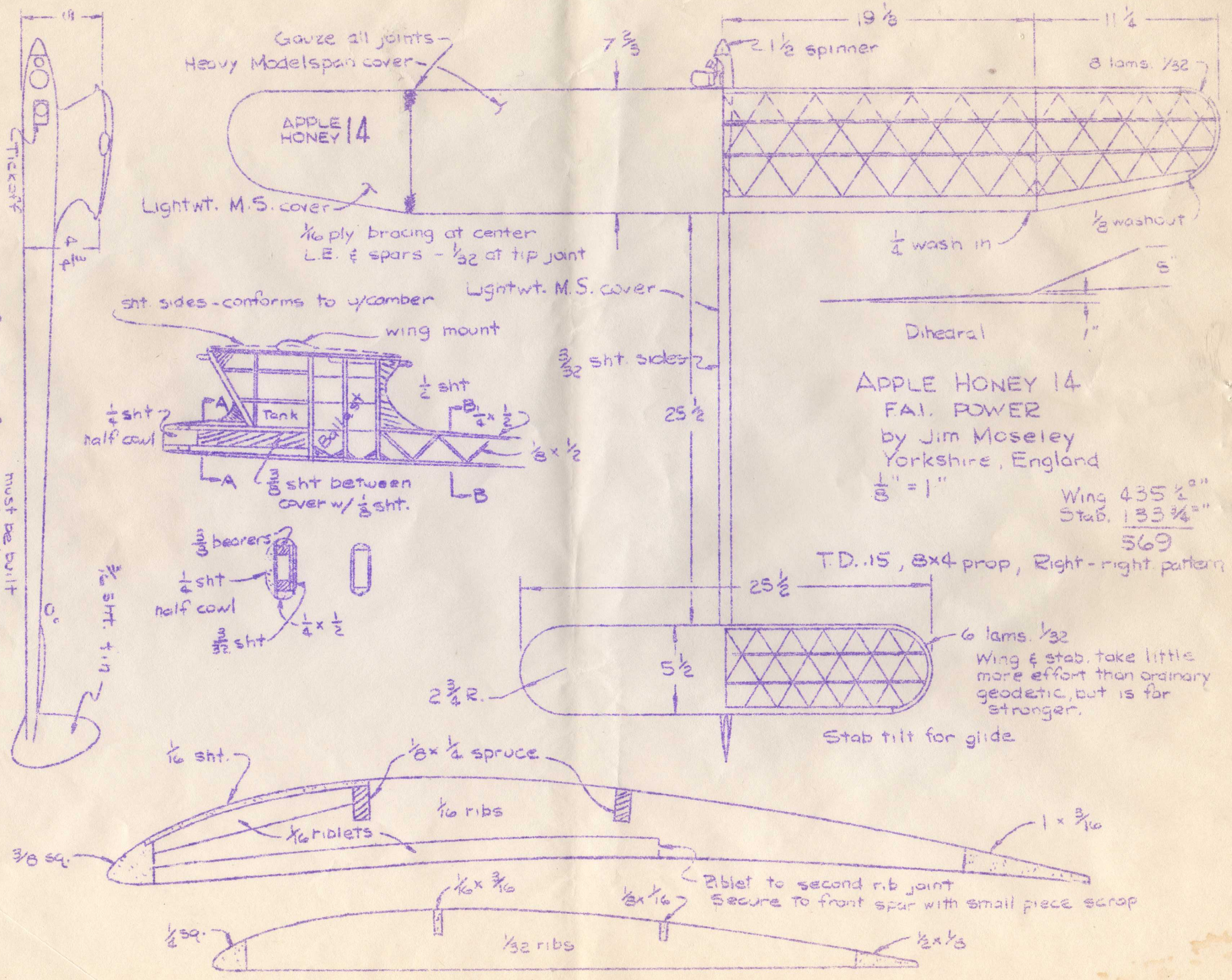
Although this is my first FAI power model, it was most impressive, and I think, of great potential. Note the past tense...in the chase for more performance I started re-trimming with different rigging. You know; full bore and a short motor run...except that the Tatone let me down, the motor kept running, and the trim was out just enough to eventually wind the ship in from quite a good altitude. Coming down, the engine note was the talk of the Nats...who wants half a dozen lumps of TD 15? Anyway, confidence is such that I am planning two more of these models shortly.

The ship is straightforward enough in most respects. It was developed logically from a line of unrestricted models that I've used quite successfully. In these lightweights I've used various types of multi and simple geodeticstructures. But I've finally settled on the one shown as being superior for ridigity and surface contour.

Two joints per rib, as near right angles as possible, give an immensely strong wing...and it doesn't really take much more time or patience to build than a straightforward geodetic. Suffice to say, that after the aforementioned crack-up, the wings held together, although badly shattered.

Although the wings were covered with a heavy tissue, and double covered at the centersection, silk would naturally be superior and will be used in the future; although I'm considering a fully sheeted top surface on one of the new ones.

The ship flew exactly as it came off the drawing board, with just a little rudder tab for power turn...autorudder was not used and I don't consider that one would be necessary or even useful, the transition into glide being smooth with no fuss or loss of altitude.


Gauze all joints –
Heavy Modelspan cover
APPLE HONEY 14
Lightwt. M.S. cover
1/16 ply bracing at center
L.E. & spars – 1/32 at tip joint
7 5/8
19 1/8
11 1/4
1 1/2 spinner
8 lams. 1/32
1/4 wash in
1/2 washout
5°
Dihedral
1"
Lightwt. M.S. cover
3/32 sht. sides
25 1/2
sht sides – conforms to u/camber
wing mount
1/2 sht
1/4 sht
half cowl
Tank
A
B
1/4 x 1/2
1/8 x 1/2
3/8 sht between
cover w/ 1/8 sht.
3/8 bearers
1/4 sht
half cowl
1/4 x 1/2
3/32 sht
Profile type fuselage with non-shrinking cement must be built
3/4 sht. + 1/16
0°
APPLE HONEY 14
F.A.I. POWER
by Jim Moseley
Yorkshire, England
1/8" = 1"
Wing 435 1/2"
Stab. 133 3/4"
569
T.D. .15, 8x4 prop, Right-right pattern
25 1/2
6 lams. 1/32
Wing & stab. take little more effort than ordinary geodetic, but is far stronger.
5 1/2
2 3/4 R.
Stab tilt for glide
1/16 sht.
1/8 x 1/4 spruce
1/16 ribs
1/16 riblets
3/8 sq.
1 x 3/16
Riblet to second rib joint
Secure to front spar with small piece scrap
1/16 x 3/16
1/8 x 1/16
1/2 sq.
1/32 ribs
1/2 x 1/8

If this sounds as though I'm mad about the ship...well I am! Having seen it outclimb unrestricted, overpowered lightweights...and this on medium stro content and no pressurization...I can't wait to get the successors der way.

COMING NEXT MONTH

The August issue, in addition to the usual brand of incoherent ramblings, will feature, among other things; an interesting Wakefield from Poland...a new A/2 from way down South in Africa... and an article on stabilizer airfoils.

SYKORA
6717 WILKINSON
APT. 205
NO. HOLLYWOOD, CALIF.
U.S.A.