THE SCATER

published by Southern California Aero Team (5)

August 1961

President-Bill Hartill: Secretary-Milt Harker: Editor-Ken Sykora, 6717 Wilkinson, Apt. 205, North Hollywood, California

SOMETHING OF VALUE ?

Shortly after the Los Angeles area Eliminations a member of the SCAT club was talking with a nationally-known modeler from this area. He asked this modeler why he had not competed in the Elimins this year. The answer was simple: "I wasn't prepared."

Now this modeler (his name would be known even to most of our overseas readers) has been a highly successful designer and consistant contest winner for about twenty five years. To hear him say he was unprepared just didn't make sense. He could, at any given time, rummage through the vast supply of models in his workshop, and given a few minutes trimming time to apply his considerable skill and experience, give a very creditable accounting against toughest competition.

When pressed on this point, this modeler voiced his personal philosophy on FAI competition. And it is an approach we would all do well to consider.

To him, the FAI Elimins, Semi-Finals, and Finals are not just "three more contests" on the year's schedule. For him they do not mean winning or losing a contest, but rather, represent earning a privilege. This privilege is to represent his country on the highest level of inter-national sport...no less important that the Olympic Games.

To earn the right to this privilege, this modeler feels the individual should recognize the fact that when he wins a place on one of these teams he is accepting the emotional pressures of three important responsibilities; to his country, to his team mates, and most of all to himself. Any weakness in this mental area of his preparation or performance reflects on all three.

There will be those who laugh off this mental "preparation" as a part of the approach to international competition. They will say, after all, it is only a model airplane competition...and there are those who have walked out to the take off site at the Finals to make that all-important deciding flight, and felt the tremendous pressure build up which finds its way inside the coolest, toughest competitor. These modelers know that these are the critical times when "preparation" goes far beyond well trimmed models. It goes into the fibre of the man...it is the "payoff" for good mental and emotional preparation that helps a true champion do his best, and avoid mistakes, when the chips are down.

We wonder how many of us can look "inside" and say that we had this personal preparation? There is no rule to cover it... no way for the judges to check it...but the responsibility is there. It is an individual

and very personal thing, and should be a part of every modeler's approach to serious FAI competition. Are not the stakes the highest?...and, isn't our common goal of personal success, after all, something of value?

SOMETHING FOR OUR FAR-AWAY FRIENDS

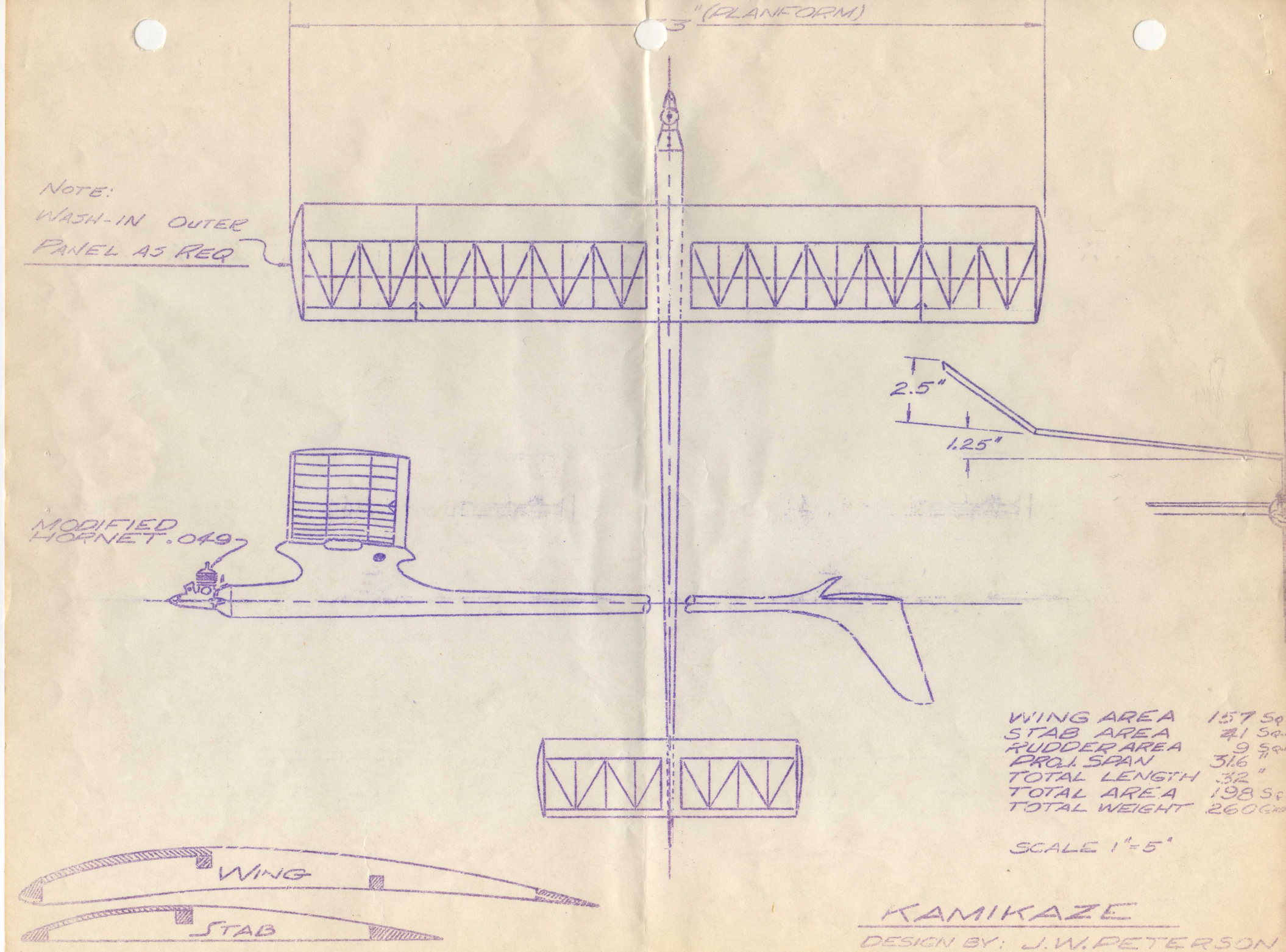
If you're the type reader who thumbs quickly through each issue looking for plans (and completely avoids all this mish-mosh we space between the pictures) you will have noticed that we have included three, instead of the usual one or two, this month. The reason for this is that we hope several copies of this issue will reach some of our FAI modeling friends from other countries during the course of the Finals this month. Since many of these chaps don't read English, and those who do wouldn't understand this junk we write anyway (why should they? Most of our USA readers don't!) we thought it would be nice to give them as much technical stuff as possible in the form of three views by our very capable draftsmen. Also, especially for this issue, we've selected one example each of the three major classes of FAI models. Also, we've tried to select three "our-of-the-rut" examples. For those not familiar with current Americal models we'd like to point out that these models are not typical examples of what you would see at almost any contest here in the states. However, they are, typical of the wide ranging experimentation that goes on here constantly. Too often, we fear, modelers from other countries get the impression (from our very unscientific modeling magazines!) that U.S. builders do nothing but put together kit models, or magazine designs aimed at the mass (10 year old) market. We hope, with the presentation of these three models to correct any such ideas. A large portion of American modelers take this sport very seriously, and do a fine job of designing and flying original concepts.

However, we must admit to one typical American weakness...in the midst of all this serious hard work, most of us just can't seem to take ourselves quite as seriously as we might...so you fellows from other countries will just have to bear with us, if you catch us having a little fun, at our own expense, in the process of all this hard work.

KAMIKAZE! 1/2 A FAI Power, by John Peterson

Design Philosophy: The Kamikaze or "Divine Wind" is an attempt to gain an advantage over larger FAI designs. To be specific a "tuned" Rivers Diesel delivers .300 HP according to its manufacturer...a good 2.5 cc glow engine will put out .300 to .400 HP, depending on fuel, weather and load. The fuzzy area here is that as the engine rpm goes up, the HP curve goes up and high HP readings do not necessarily reflect the actual useable HP under normal load. I.E. normal load is a prop large enough to efficiently propel the model. Example: 8" X 4" pitch. The Holland Hornet has demonstrated its very high HP displacement by putting out .135 HP at 18,000 on standard (supplied) propeller. The modified version used in this ship produced .145 HP, and with a hot fuel blend of 40% nitro, and under proper weather conditions, .152 HP was the top figure. The engine we used was turning 18,400 on Cox Racing Fuel, using a standard prop, and checked by an electronic tach. The end result of these figures works out to something like 20 ounces of static thrust on a 6 X 3 prop.

Equating the HP figures for the Holland .049 to the Rivers figures, and/or Super Tiger, OS Max, Cox 15, etc., results in an appreciable advantage (power/weight) for the Hornet.



WING AREA	157 Sq
STAB AREA	41 Sq
RUDDER AREA	9 Sq
PROJ. SPAN	31.6 "
TOTAL LENGTH	32 "
TOTAL AREA	198 Sq
TOTAL WEIGHT	260 Gr

SCALE 1"=5"

KAMIKAZE

DESIGN BY: J.W. PETERSON

Design Objective: So much for the power approach. The design was kept to the minimum total area required for the minimum weight/FAI specifications. The end design was just under 200 (total) square inches and total weight worked out to just under 9 ounces. A low drag fuselage design was combined with a compromise low drag/high lift airfoil, coupled with a long moment and small stab arrangement for stability during climb. A reasonable sinking rate in glide was also hoped for even though the total area appeared quite inadequate considering the weight compared to 400 square inch/8-1/2 ounce AMA 1/2 A's.

Construction: In general the construction is conventional and straightforward. The fuselage is built up of a box of 1/8" balsa sheet over four 1/8" square spruce longerons. No formers are used, and the completed box is sanded round. Wings use two 1/8" square spruce mainspars with sheeted leading edge. The stab is identical in construction, except the spars are balsa, medium hard. The rudder is medium hard 1/8" sheet balsa.

Flying: Flight pattern is right/right, with no trim tab or engine offset. Power is controlled by washin of the outer left panel (viewed from behind). This effectively prevents torque roll during the crucial acceleration period and allows a good consistant power sprial. The glide is controlled by tilting the stab.

NEWS FROM THE READERS

We're still trying to catch up on the "paid up" list, but it continues to grow too fast. These came off the top of the big, big stack:

ED TURNER, Fairbury, Nebr.
SOAVE PAOLO, Mestre (Venezia) Italy
GEORGE HONDA, Los Angeles, Cal.
BOB HATSCHEK, Long Island, N.Y.
JAMES TAYLOR, Wisconsin Rapids, Wis.
HARRY RYKS, Muncie, Ind.
W.A. LANGENBERG, San Jose, Cal.
FRANK MOCK, Mobile, Ala.
BILL COOK, Trentham Camp. New Zealand
FUDO TAKAGI, San Diego, Cal.
GENE WRIGHT, San Diego, Cal.
FRANK PARMENTER, Hampton, Va.
PATRICK McDONALD, Oxnard, Cal.
SAL CANNIZZO, Staten Island, N.Y.
B. F. JOYNER, Memphis, Tenn.
J. S. SALATNAY, Covina, Cal.

ED TURNER has a job that takes him all over this big country, and being a true FAI'er he takes in international class activities whereever he happens to be. Also, for the benefit of you other readers he sends in reports of these goings on from time to time. Thanks much for this work in the past, Ed, and do keep it up.

FRANK MOCK keeps us posted on the doings in the Mobile area. Says there is lots of R.C. there (like everywhere!) but there are a few FAI nuts still running loose. (Nice to know we're not all locked up yet!) The Mocker dates back to the Baylor Univ. daze when we used to spend every week before Finals (not the FAI kind!) putting together Sailplanes, Pacers, etc. He sends along a picture of his latest power job which looks like a potential winner. It's mid-wing, hi-thrust, droop tail, etc. Send along the plans, Dad.

PATRICK McDONALD writes a letter that restores our faith. He's a teacher (Ocean View Elementary School) of junior modelers who thinks the scientific aspects of the free models these kids produce should be presented to them as more important that the row of trophies they can show off! Brother, in this day of the Big god of WIN, at all cost, it's refreshing to hear this approach. It's high time somebody showed these

eager youngsters how much fun it can be to start (nobody ever finishes!) learning this fascinating field of designing and flying free flight models. There is no greater thrill for a boy than that wonderful moment when he steps across the threshold from stumbling beginner and joins the other "experts" in watching HIS design making those beautiful circles hundreds of feet overhead. This kind of reward can never be dimmed by any row of contest prizes...and yet, the funny thing is, the more a young modeler concentrates on his designing and flying, and trying to learn something, just for the fun of learning, the more those trophies seem to come his way. (One of McDonald's students won A/2 at the '59 Nats with a ship built in class). So, our hat's off to you Mr. McDonald...those students of yours are sure getting off on the right foot...and in a few years they'll be teaching us things!

SOAVE PAOLO writes to us from Italy. The SCATTER has finally caught up with him through a change of address. We've asked him some questions about Pirelli rubber and will print his reply for the benefit of you Wakefielders. He has also promised to send along other material for publication which will give you other readers an opportunity to see what the Italian FAI modelers are currently designing and flying. Thanks Soave.

BILL COOK sends us a real stack of info and plans from the New Zealand FAI'ers. (Bill's on both Wake. and A/2 NZ teams this year). His current letter is too long to publish, but we'll get some meat out of it for some future issues. Has sent some drawings of Wake, A/2 and Power jobs which we'll publish as soon as possible. He's also sent along copies of their club's (Upper Hutt) newsletter which is strong on the technical approach. This NZ bunch is small in number, but boy, they turn out a lot of effective stuff! Thanks Bill, and best of luck to you guys in the Finals!

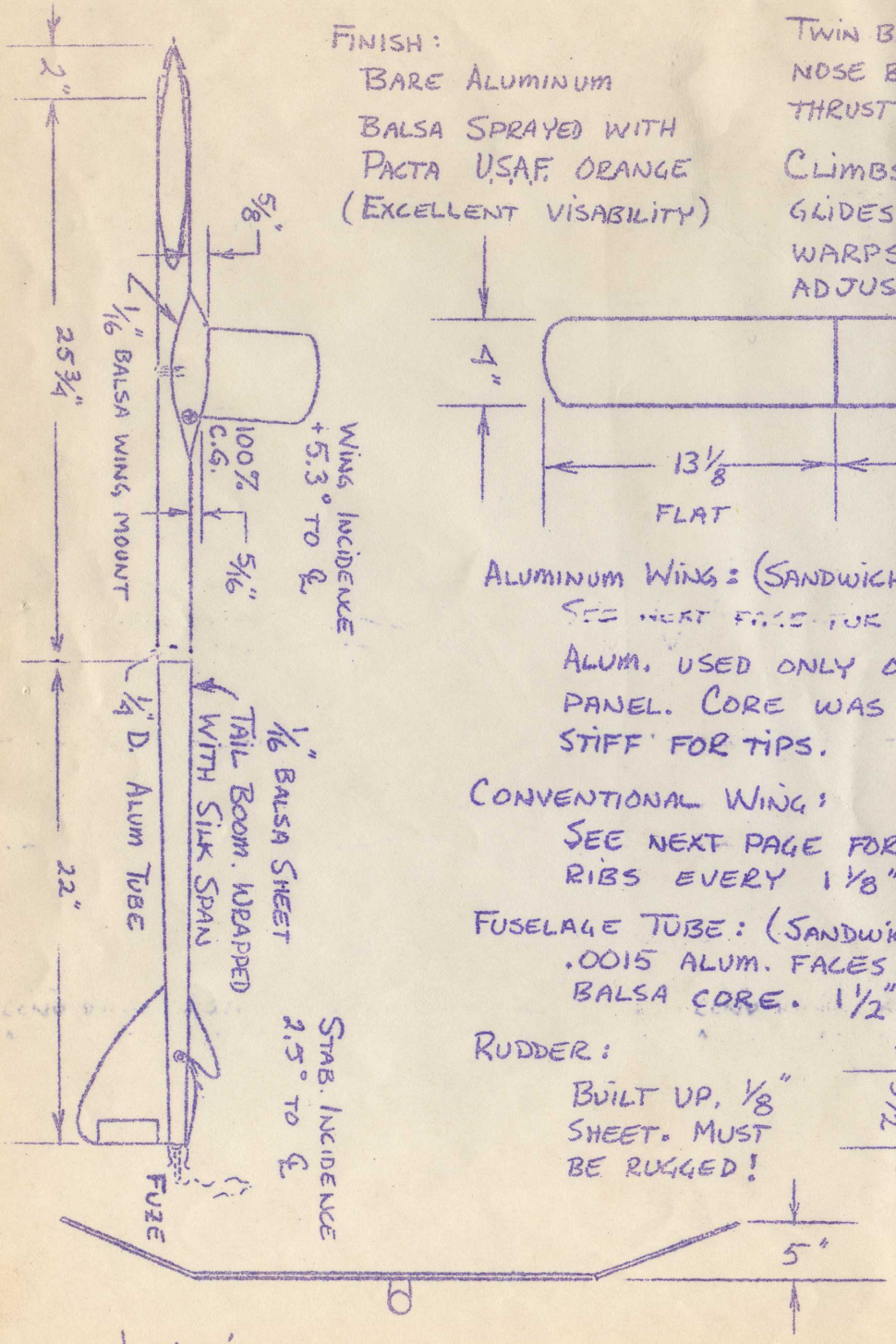
SUNBURST, Wakefield, by Bill Poesch

Have you ever considered making an aluminum sandwich structure to obtain stiffness and warp resistance beyond compare? I did, and the "Sunburst" is the result.

Sandwich construction was used for the fuselage tube and the center section of the wing. The aluminum used was .0015 inch thick 2024-T4 sheet. A good heat treated aluminum alloy is essential because the working stresses are high and yielding must be aboided. The aluminum sheet was bonded to the balsa core with EPOXE resin produced by the Woodhill Chemical Co., Cleveland 14, Ohio. The fabrication procedures cannot be covered here because they would require pictures and more extensive treatment. (How about it M.A.M.?).

The success or failure of the use of a sandwich structure depends on the weight of the core. As can be seen from the weight breakdown, the aluminum wing weighs nearly 3 ounces, which is too much. Note, however, that only about one ounce was aluminum...the rest was balsa core and bond. The bond can be made thinner and the core can be made lighter by using some of the new foam materials rather than balsa. It could be made competitive in weight, with conventional construction, and would have 3 to 4 times the torsional stiffness.

The possibility of making new ultra-thin airfoils with good stiffness opens whole new areas for experimentation. Airfoils which would be difficult to make even with the "Ritz Method" are easy to build and are remarkably stiff. I made one cambered section with a 4 inch cord and a maximum thickness of 1/8 inch. You have to feel it to believe it!

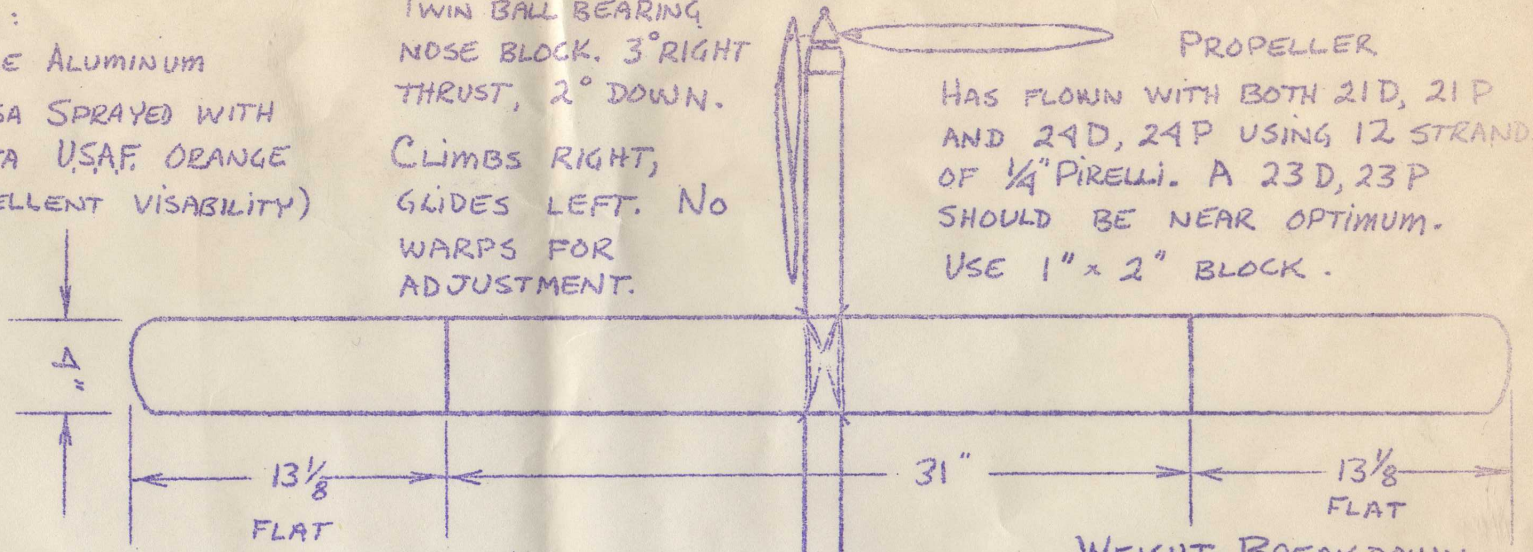


FINISH:
BARE ALUMINUM
BALSA SPRAYED WITH PACTA U.S.A.F. ORANGE
(EXCELLENT VISABILITY)

TWIN BALL BEARING NOSE BLOCK. 3° RIGHT THRUST, 2° DOWN.

CLIMBS RIGHT, GLIDES LEFT. NO WARPS FOR ADJUSTMENT.

PROPELLER
HAS FLOWN WITH BOTH 21D, 21P AND 24D, 24P USING 12 STRANDS OF 1/4" PIRELLI. A 23D, 23P SHOULD BE NEAR OPTIMUM.
USE 1" x 2" BLOCK.

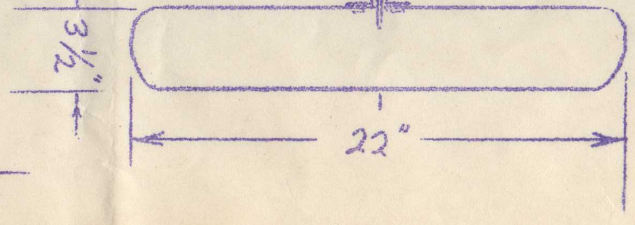


ALUMINUM WING: (SANDWICH CONSTRUCTION)
SEE NEXT PAGE FOR CORE SECTION.
ALUM. USED ONLY ON CENTER PANEL. CORE WAS SUFFICIENTLY STIFF FOR TIPS.

CONVENTIONAL WING:
SEE NEXT PAGE FOR SECTION.
RIBS EVERY 1 1/8".

FUSELAGE TUBE: (SANDWICH CONSTRUCTION)
.0015 ALUM. FACES WITH 1/16 BALSA CORE. 1 1/2" I.D.

RUDDER:
BUILT UP, 1/8" SHEET. MUST BE RUGGED!



WEIGHT BREAKDOWN

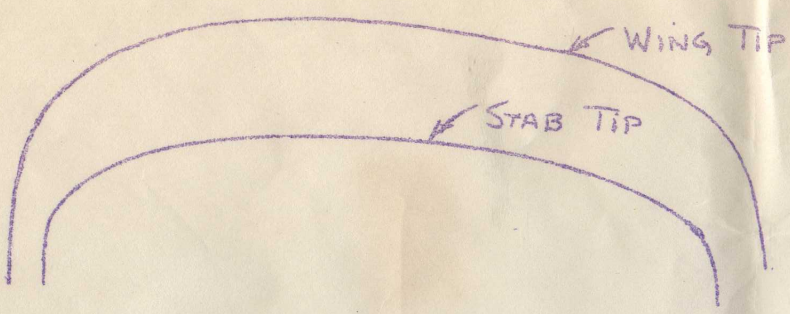
ITEM	GM.	OZ.
WING MOUNT	7.5	.25
WING		
ALUM	83.0	2.95
CONV.	62.0	2.20
FUS. TUBE	42.0	1.40
TAIL BOOM & RUDDER	22.5	.79
STAB.	19.5	.65
PROP ASSY	35.0	1.25
RUBBER	49.0	1.74
TOTAL CONV WING	237.5	8.36
ALUM WING	258.5	9.11

STAB IS 1/32" SHEET BALSA WITH 1/16" RIBS.

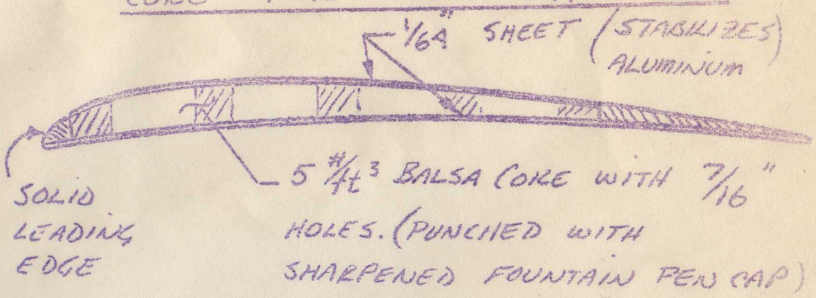
SUNBURST

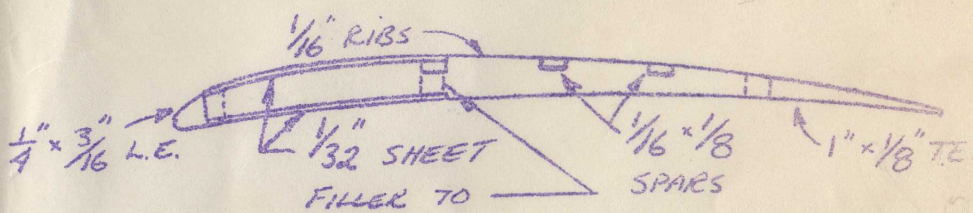
by Wm. L. POESCH

poesch July '61

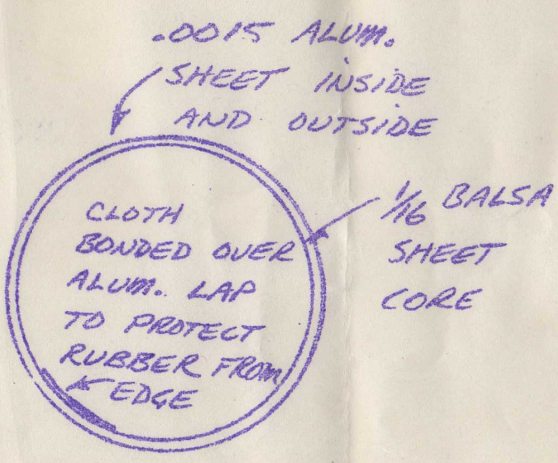


CORE FOR ALUMINUM WING

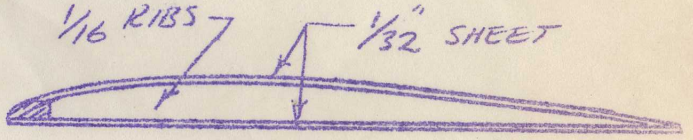




CONVENTIONAL WING
BENEDEK B-6405 b (Jan. 61 MAN.)



FUSELAGE TUBE
(CROSS SECTION)



STABILIZER SECTION (ORIG.)

poesch July '61

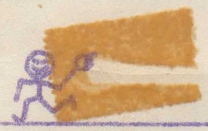
The fuselage tube is acceptable as shown at 1.4 ounce. Consider the following: 1. It is extremely rugged and could easily survive any broken motor. 2. It will not soak up rubber lube. (In fact, it can be swabbed out like a gun barrel.) 3. The fuselage stays cool in the sun and protects the rubber from heat. 4. The aluminum surface glistens in the sun and flashes twice during each full circle in flight so the visability is excellent. Hence the name "Sunburst".

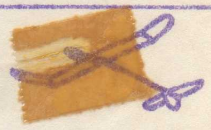
How about performance? This model qualified for the West Coast Wakefield Eliminations. It had good calm air performance but developed a bad tendency to spin under power in the wind. This has been corrected by moving the rudder from the conventional position to the lower position shown in the drawings. The model is now extremely stable and has an excellent glide. The propeller blades are hung away from the fuselage and are permitted to seek their own minimum drag position. The remaining details are described in the drawings. (Author's address is: 8744 Reading Ave., Los Angeles 45, California.)

REAL SAMPLES, YET!

As you've been reading in the SCATTER, our club has been doing some intensive towline experimenting ever since the 5K pull test ruling came into effect. The first thing we did was sit down and have a few beers while we watched the bonfire (we put the match to enough perfectly good nylmntowlines to reach from LA to San Francisco.) Then several of our members started scouting the many sources of line to be found in Los Angeles. After lots of field testing, the best of the bunch seemed to be some fine stranded steel stuff with a thin plastic coating which Bob Van Nest came up with. A little sample of it is taped to the box below. SCAT has a limited supply of this line and will sell it for $3.00 per 170 feet postpaid anywhere in the world. (Standard towline is 164 feet.) It gives a real "hard" feel of the model while under tow; reels well, and has not broken on the pull test yet. Also, no appreciable stretch.

We would like to emphasize that we <u>are not</u> in the towline business. We are only trying to help those serious A/2 modelers who have not yet found their own source for a suitable line to meet this new rule.





STARCHED VULTURE, A/2 Glider, by Bill Hartill

<u>Lecture:</u> (Ed's note: Please take notes, Bill may ask questions later.)

Nordic design through the 1950's was sparked by a handful of clever enthusiasts. Gunic, Hacklinger, Hansen, and Czepa are the names that first come to mind. Since that era Nordic design has followed the same basic arrangement with constant polishing and perfection of details.

Many of us, when faced with an eliminations or other big contest coming up, take the easy way out and put together a design that is "average". This usually ensures that we will probably be as good as the next guy (cross your fingers) so we thumb through the mags and get ideas for a composite. In this fashion we tend to get bogged down, perpetuating ideas that may or may not be the best. Take airfoil design for instance. How do we <u>know</u> when to use a B 6356b and not a NACA 4407-1/2? Have we been building up a monstrous hoax? Sometimes I wonder...Take the 1956 Nordic

Finals for instance. Didn't this prove that the Eiffel 431 was the airfoil to have? Why don't we honestly admit what we don't know and continue to experiment! Let's try some different approaches...there is plenty of room. End of Lecture.

The Model: Starched Vulture was a sort of Semi-intuitive new approach. (Ed note: It was really more like a wild guess.) It was not a complete success. Sweep-back was tried for several reasons. It was reasoned that sweep-back would increase longitudinal and laterial stability. The tips were cranked, in an attempt to reduce the additional tip losses peculiar to sweep-back, and delay tip stall without resorting to inefficient washout.

Flight tests were interesting. S.V. would glide straight ahead until entering a disturbance. On a statistical basis S.V. turned into thermals and circled with auto rudder turn. Downdrafts seemed to make the ship veer away! Later on, after some pesky warps developed (lost for a week in a wet wheat field) S.V. became almost impossible to tow. In spite of tow-hook juggling, S.V. would decide now and then to abort. I still think this approach has some promise and I intend to make the next version with the wing mounted lower. This should make the towing less critical. (Ed's note: Due to the scientific importance of this project we have prevailed upon Hartill to provide us with a series on this subject. You have just read Part I. Part II will be called "How To Catch a Vulture", and Part III will be called, "Good Ways To Boil Starch.")

FROM THE NOTEPAD

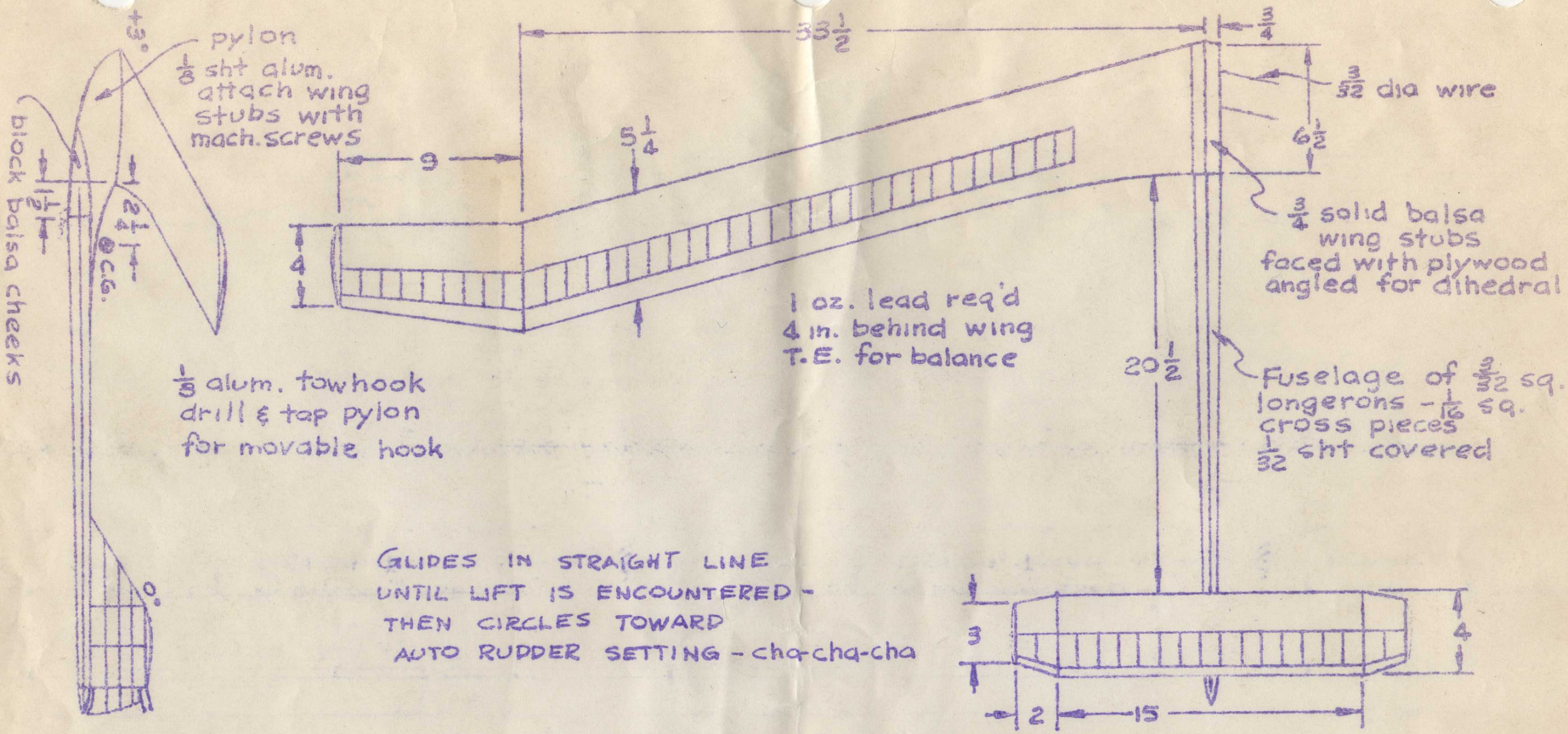
***SCAT member JOHN PETERSON is now in Germany on a duty tour for Lockheed. He writes that he is looking over model activities in the area nearby, and will give us more extensive reports as soon as he takes delivery on his new Porsche Super 90 Coupe. (Some guys just live right, I guess.)

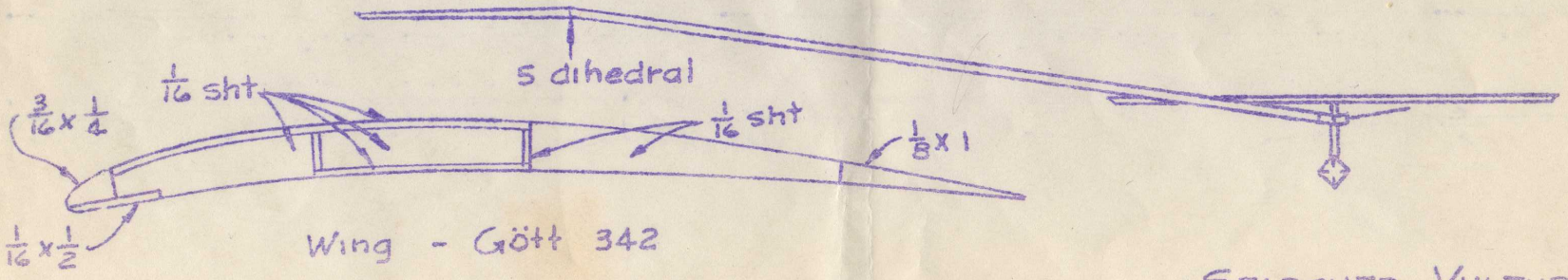
***Response to our plea last month to the ICC FF committee members has been good. Though we haven't heard from all of them yet, those who wrote us had some very interesting things to say, and as soon as we hear from the chairman and remaining members, we'll publish this info for the benefit of all you readers. For now, we'd like to let you know that some of these guys have been doing a lot of hard work, which has met with too little response from AMA HQ. When you readers have had a chance to hear what's been doing, we're sure you'll help us in this effort to get all FAI modelers behind these guys, by taking a personal and active interest in the future doings of U.S. FAI rules proposals and procedures.

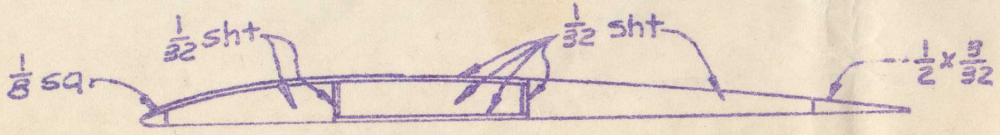
***Have heard from BOB DUNHAM, the Wakefield maestro from Tulsa. He tried an aluminum fuselage also this year...was a bit heavy, but he says the idea looks good. This looks like a coming thing for the wind-and-bust boys.

***VINCE COSTANZO has come up with yet another rubber fuselage idea, and has used it successfully on a small 150 job out at the Basin. This is phenolic tubing. Used, we're told, to house the maze of wiring required in large aircraft. It's available at reasonable cost from some Army/Navy surplus stores in this area. Made of a gauze material held together with a resin goop. Light brown in color, it's available in diameter and lengths suitable for 50 gram motors. Its thin-walled, reasonably light, and should take any motor breakage and a lot of rough handling without giving up.

***Have been bugging Bob Van Nest of SCAT to come up with an article on new glues, dopes, paints, and related chemicals useful for model work. His







STARCHED VULTURE

A TOWLINE GLIDER

by Bill Hartill

Drawn by Cusick - Aug. '61

job at Bendix-Pacific puts him in contact with the latest developments in this line, and he's turned up some very useful new info on some of this "wonder" stuff. He's promised to come through as soon as the new house is moved into. He may even come up with a fuel-proof fuelproofer. Wouldn't that be a kick?

BUCK-UP

We can just see you last stragglers wince when you read that headline! But for once, it's not meant for you. This is just another note to any new readers from other countries who happen to read this issue. The Southern California Aero Team publishes this crazy paper once each month, and tries to send it to every serious FAI modeler, anywhere in the world, that we can reach. In return for this service (?) we ask two things of each reader who wishes to continue to receive it: 1) the payment of $1.00 per year to help pay our publishing and postage costs, and 2) to contribute whatever he can in the way of technical information, news, or model drawings for publication for the mutual benefit of all other readers. (Ed's note: And as soon as we have a million readers we will put this money in a Swiss bank and you will never hear from us again!!)

COMING NEXT MONTH

Results of the FAI FINALS..what else? Also, since we ran out of room in this issue, R.G. Smith's thermal article will be in. A new Wakefield which just broke the U.S. record, a page of ideas on tow hooks, and, like they say on the Tee Vee, and many, many others!!

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