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SCATTER

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FAI FF Team Selection - Theory and Practice -
by George Xenakis, Houston, Texas

U.S.A. Wakefield team member George Xenakis sends along an interesting and challenging analysis of team selection techniques. Let George tell it and we will follow with our comments.

"Your comments on Dick Kowalski's letter in Scatter hit a resonant note with me, and so I sat down and collected the thoughts I've been harboring since the blast at Bong.

It is annoying to hear people arguing the merits of still-air time over thermal flying or vice versa. The fact of the matter is that we need both capabilities for our teams for we are going after two championships, the individual and the team. The following comments expand on this point and suggest a way to account for both factors and pick the best team.

The centralized fly-off is perhaps the largest improvement in the free-flight team selection process that we have had,

or will ever have. The selection process now conforms with the procedures used by many other forms of individual and team competitions where a progressive elimination of contenders occurs until the field is reduced to a managable number who can compete against each other*. There are bound to be many ensuing discussions on the best way to mechanize the centrallized fly-off and its preceeding competitions. In these discussions, however, we should be careful not to negate what has been achieved to date. Accepting our current one as the best approach to the team selection, let's now consider what might be added to it to get us the best teams.

The FAI free-flight finals have two types of winner, the team and the individual. One could get into a lively discussion on which is more important but for the moment let's assume that they are equally important and consider what it takes to win each. The team winner is determined by the results of the five primary rounds flown typically from 8:00am to 6:00pm, whereas the individual winner has predominately been determined by a series of evening fly-off flights. Now the CIAM recently voted to reduce the gas and rubber powered performance potential so that there are likely to be fewer fly-offs in the next Finals. However, the performance has not been, nor is it likely to be, reduced to below that of the Nordic event where we have quite often had fly-offs in the past. Also, as the number of FAI finalists increases, (there are about 60 flyers per event now) the probability that a fly-off will be required will of course increase.

What kind of man-machine (for both man and model are important) combination do we need on our teams to compete most effectively for the two types of prizes then? For the team event, the emphasis is on the man part of the combination, for the ability to know when the lift is there is of paramount importance. Thus, if we are to compete well for the team prize, thermal flying capability is the most important attribute; for even if the model performance potential is such that a model doesn't need lift to max, it is absolutely necessary to avoid down drafts. Considering our three-day, fifteen flight, 8:00am to 6:00pm centrallized fly-off, we obviously are doing the right thing to determine the best team competition members. How about the individual prize? It would appear that team selection process does not attempt to pick a man-machine combination for the individual honors, since here the required emphasis is on the model's potential still-air performance (which we do not evaluate) rather than on the modeler's thermal flying capability. It's true that one must be able to fly the

*It should be noted that it may be necessary to conduct the International Finals this way some day if they get too big.

thermals to get to the fly-off or the question of still-air performance is academic; but we don't want still-air performance potential instead of thermal flying capability. We need both capabilities on the team if we are to compete effectively for both the team and the individual championships.

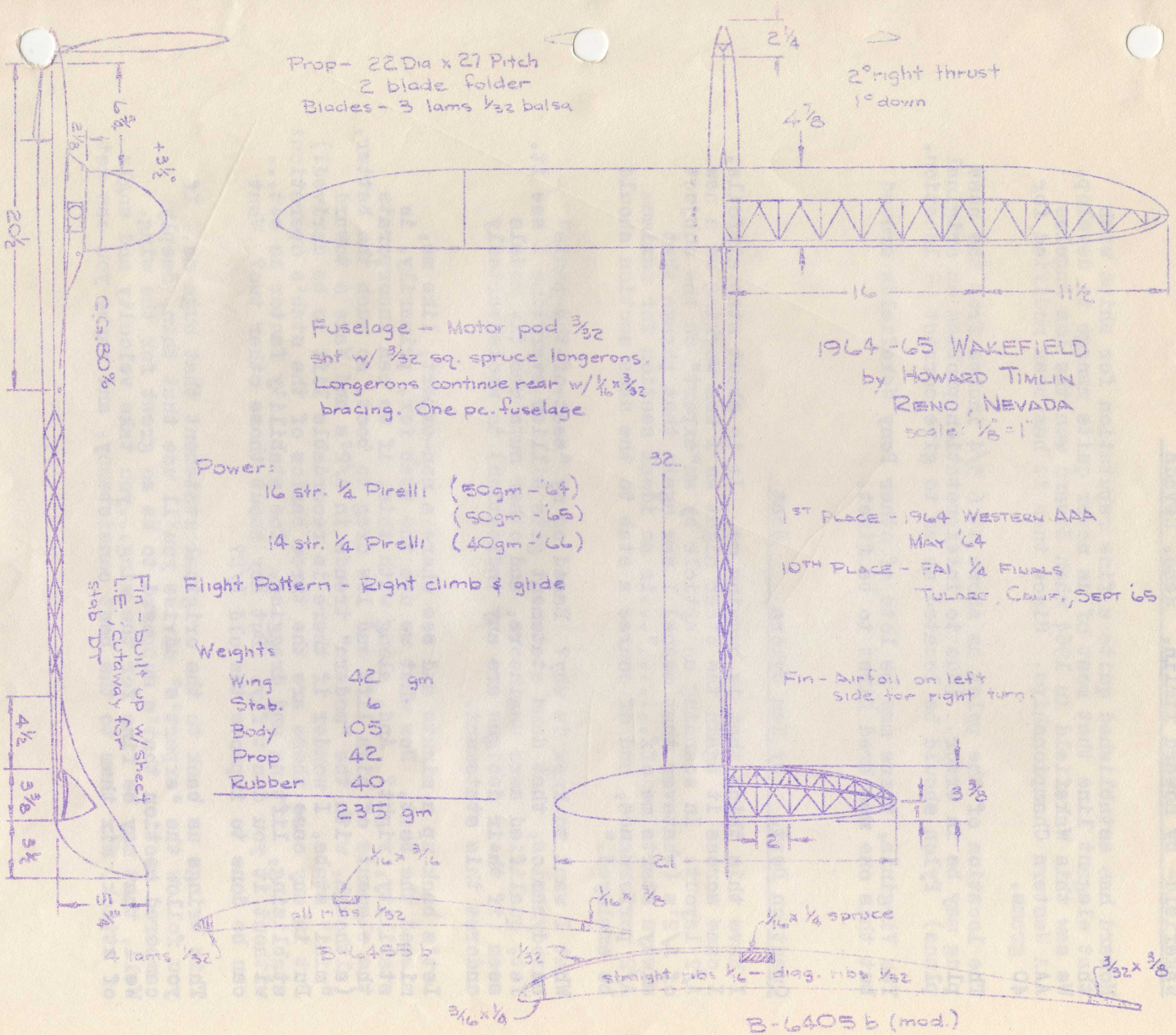
To help achieve this end, it has recently been proposed by some that a few late evening or early morning rounds be included in the centrallized team selections to evaluate both factors. If the still-air and the thermal times are added together, though, it's like adding apples and bananas for it allows a weak thermal flyer to compensate for this weakness with his model's still-air potential. This would therefore compromise the selection of the best team for the team championship. The best procedure would first evaluate an individuals thermal flying potential, and if he survived this, his still-air potential would then be evaluated. A suggested procedure for accomplishing this is the following:

> On the basis of 10* to 15* rounds of 8:00am to 6:00pm flying, determine the best 6* thermal flyers for each free-flight event. Then, on the basis of three additional late evening or early morning (three minute max) flights by each of these six, pick the three team members and an alternate. Any required fly-off flights would be still-air and progressive, as in the finals.

With this procedure, we would pick the best overall team to compete effectively for both the team and the individual championships in free-flight."

We here at Scatter think that this is an excellent suggestion and we agree with George's analysis. It was generally agreed that at least the top 6 in each event at Bong were good team material, particularly with respect to "thermal flying". To test these 6 with additional flights made under conditions closely simulating World Championship Fly-Offs would add a useful dimension. In fact we also agree this would be a good idea for the conduct of the World Championships. Comments anyone?

*These numbers are only suggested and are certainly open for discussion


Prop – 22 Dia x 27 Pitch
2 blade folder
Blades – 3 lams 1/32 balsa
2 1/4
2° right thrust
1° down
4 7/8
5 3/4
+3 1/2°
20 1/2
C.G. 80%
16
11 1/2
Fuselage – Motor pod 3/32 sht w/ 3/32 sq. spruce longerons. Longerons continue rear w/ 1/16 x 3/32 bracing. One pc. fuselage
1964-65 WAKEFIELD
by HOWARD TIMLIN
RENO, NEVADA
scale: 1/8" = 1"
32
Power:
16 str. 1/4 Pirelli (50gm – '64)
(50gm – '65)
14 str. 1/4 Pirelli (40gm – '66)
1ST PLACE – 1964 WESTERN AAA MAY '64
10TH PLACE – FAI 1/4 FINALS TULARE, CALIF., SEPT '65
Flight Pattern – Right climb & glide
Fin – built up w/ sheet L.E., cutaway for stab dih
Weights
Wing 42 gm
Stab. 6
Body 105
Prop 42
Rubber 40
235 gm
Fin – airfoil on left side for right turn.
4 1/2
3 3/8
3 1/2
1/2 x 1/2
3 3/8
2
21
1/16 x 3/16
all ribs 1/32
4 lams 1/32
B-6485 b
1/16 x 1/8
1/16 x 1/4 spruce
1/32
straight ribs 1/16 – diag. ribs 1/32
3/32 x 3/8
3/16 x 1/4
B-6405 b (mod.)

a real good L/D for nice tiny sink rate. But what about the stab? If we continue to follow the "expert" we must assume that the stab is just another "wing" stuck on way back at the tail and that whatever happens to the wing also happens to the stab. (Is there any other logic to using identical sections?) But even seat-of-the-pants aerodynamics will tell you this is crazy. The stab looks like the wing...but it surely has a different set of problems. What happens? Well, to begin with it flies at the same speed as the wing (yeah, yeah, we know, give or take a bit for faster and slower outside and inside wing tips, etc; but reasonably close, anyway). But that is only half the story. To this speed factor we must add angle of attack. And here's where I get lost. I take an A/2 with wing at plus 4 degrees, and the stab at 0 degrees (not unusual?). Now, if I can believe the model glides level with this setting, the stab is flying at 0 degrees. But Frank Zaic's theories have told us that we should also consider the downwash of the wing flowing over the stab. So, just for fun, let's toss in minus 1 degree more on the stab. Now: you take a good "modern" A/2 section (B 6456 f, will do) and plot L/D for plus 4 degrees, and for minus 1 degree...and you tell me what's happening back at the stab!

Now, if we look at this problem of wing/stab airfoils in a realistic light of true velocities and true angles of attack, doesn't it seem that identical sections is the last thing we should want? Wouldn't a Clark Y, or symmetrical, of even a 1/16 sheet balsa flat plate be better than some of the "super" sections we are trying to fly at the worst possible angles of attack?

As I said in the beginning...maybe I've missed something. Maybe the "experts" have a logical reason for airfoil-matching. If there is one, I for one would certainly like to hear it.

Western Free Flight Association - News

A move is afoot to change the name of this proud institution. Not to cover up past indiscretions but to identify more closely with FAI Free Flight. Any ideas, or is it OK as is?

Bill Gieskieng, President of the IMMI club in Denver, Colorado has appointed Hal Blubaugh to be their WFFA representative. Welcome aboard!

Your editor was in Denver this month and had the pleasure of meeting the IMMI, attending a club meeting, visiting with the Gieskiengs & Des Jardins, and looking over their flying field.

They are an enthusiastic group. Bill & Annie put out a clever little newsletter: 730 Moore #2
Denver, Colorado 80215

The MMM are interested in the possibilites of conducting the team selection fly-off at Denver in 1968. They are wondering what everybody else thinks of this idea. My findings can be summarized as follows:

1. Mileage: Taking the 69 Bong finalists on Sotich's list and a standard road atlas the round trip mileage for everyone was 83,220 miles. The same people going to Denver would travel 81,397 miles. Also at Bong 18 people came from over 2000 miles away while at Denver it would be only 1 person.

2. Field condition: I inspected the field and was quite impressed with the size of it. I don't think I have ever seen a model flying field with so few obstructions for so many miles in all directions. Surface is in light, short, prairie grass, very flat except for some rolling contours far off. There are absolutely no trees, or bushes, or houses. Only two outhouses at site.

Access is by gravel road and crossing trails.

3. Location: Fourteen miles from downtown Denver, the last 4 miles of which was to get to the center of the field.

4. Weather: MMM claim that usual wind is 5-7 mph, 10 tops except for storm conditions. Calm morning and evening. Less likely to get storm or rain than at Bong. Temperature and humidity lower than Bong.

5. Local Organization: MMM feel confident that they can handle the manpower and other problems.

6. Disadvantages: Power fliers will probably be apprehensive of the effect of the mile high altitude on engine power. Some adjusting and tinkering may be necessary to get best results. MMM think this problem has been exaggerated both by them and us low landers and the local boys will have little "advantage". Wakefields and Nordics will be affected only in a minor way (slightly lower Reynolds no.) and no trim changes will be necessary. Since all will be flying under the same conditions the locals will really only have a psychological advantage, but to some extent this is true of any site including Bong.

7. Miscellaneous: Bong is not centrally located. Neither is Denver. They do strike a good balance however. It is probably futile to consider anything West of Denver (knowing the Easterners) and I do not know anyone that thinks Texas, Kansas or any spot in the "wind belt" or "corn belt" would be appropriate.

My feeling is that Denver would be a good location. Westerners I have talked to agree.

What do the rest of you WFFA fliers think of this idea? Speak up and be counted, one way or the other.

Magazines - What Are They?

A spirited exchange of correspondence has been taking place between various magazine editors, newsletter writers and interested parties. The question is, what are the roles of the magazines and newsletters and how best enact these roles?

We agree that attempting to cover all aspects of this hobby-sport in one magazine can be a discouraging proposition. With R.C., U.C., F.F., Scale, Indoor, Old Timers and so on it is a struggle to cover all these branches with one magazine. For example, to do justice to all branches of model airplane activity would mean that only one Nordic A-2 article per year could be published. With the space currently available, something has to be short changed. With one breath the editors complain that they don't get material from contributors and with the next breath turn down a lot of material because it would upset the proportion set by the editor to strike a good balance.

One of the results of this dilemma is that the Editors spread themselves too thin and become less conversant with the interesting details of the different model categories. They lose interest (unintentionally) in maintaining the strong empathy with the readers and instead retreat more and more into "news" of the commercial and advertising aspects of the hobby.

The readers tend to resent this and feel deserted. Columns are not an adequate substitute for a sharp editor but of course are better than nothing. The readers will not participate in the magazine if the editor does not "participate" in the hobby. That is if it appears that the editor does not keep up a sincere effort to find out what's going on and report on it he will only get what he deserves-inattention. Unfortunately weak magazines hurt all of us.

The increasing success of newsletters is not entirely due to the fact that they tend to specialize. What the readers like about them is that they are written by people who know what's going on. There is a very valuable ingredient involved - shared experience.

The newsletter writers may be controversial, inept and non-punctual but they and their readers are both interested in the same things.

The magazines must decide what it is they are going to report on and then stick to their convictions. If 99% of a magazines readers are discovered to also be readers of "Good Housekeeping" does this mean that "our" magazines should start articles on dressmaking?

Our suggestion, for whatever it's worth is for the re-discovery of the old approach used in the magazines back before WWII. That is to provide a central theme around which the magazine builds it's character. That theme should be a 2 or 3 page spread with a series of small photos of models from readers. The editor would discuss each picture for one or two paragraphs. All types of models should be included. Hopefully this would give the beginner, potential beginner or casual hobbyist a quick cross section of what is going on, rather than being confused by specialized columns. Also the editor would build up that very important empathy he needs to generate reader participation.

Boy, have we got a nerve to lecture on editorial technique!

Super Snicker - by Jim Trego - Scat

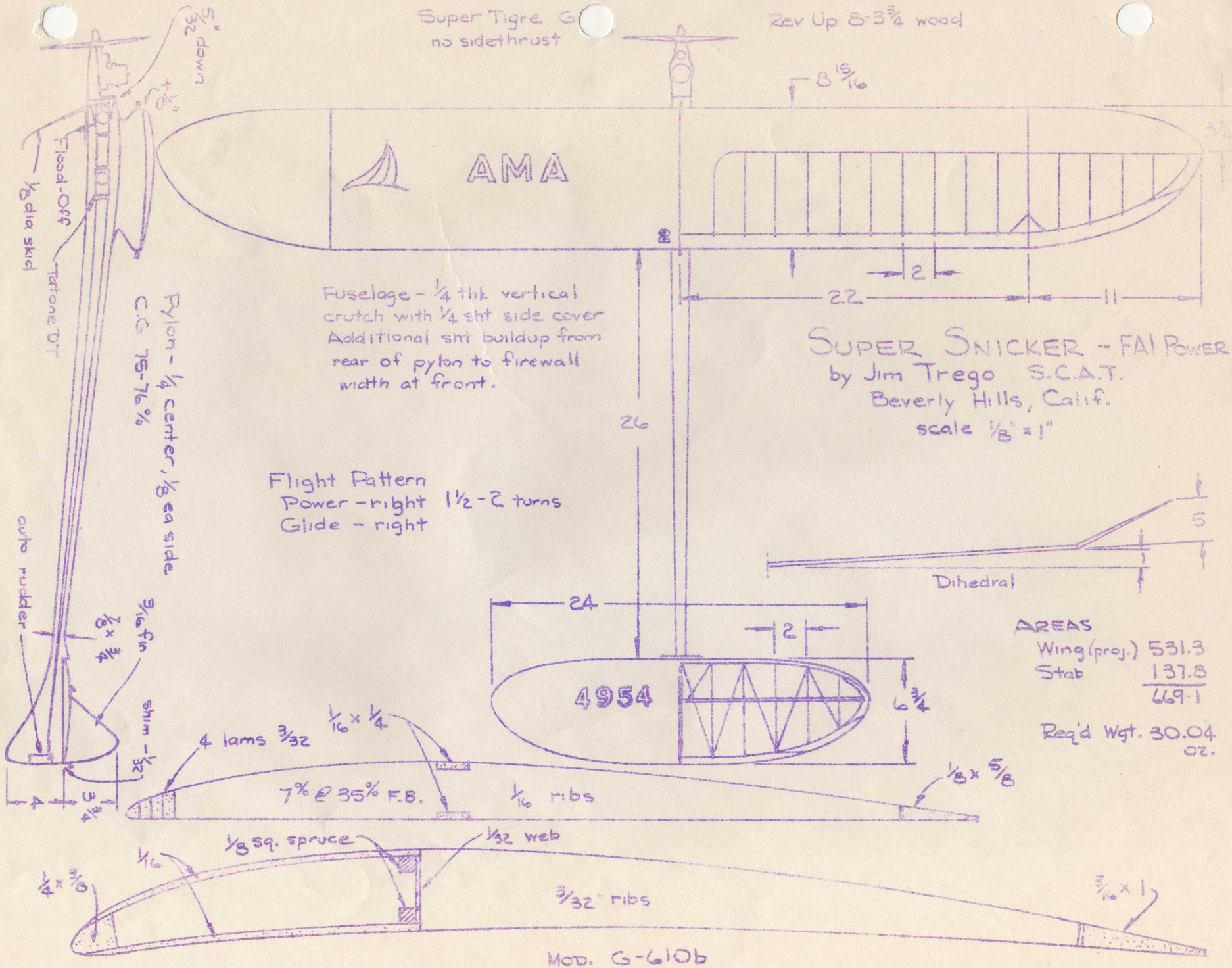
The Super Snicker is the result of having (a) - a "left over" Snicker fuselage which was a bit overweight (which is, I suspect, why it survived) and (b) - a whim to try an oversized, minimum wing loading ship.

A weight of 30½ oz. was selected which allows 670 sq. in. As expected, glide is extra good, and surprisingly, the climb is quite good. The auto-rudder is an important contributing factor for good transition. The best climb pattern is about 1/4 turn to the right against slight left rudder. The auto-rudder should kick in about 1/2 sec. ahead of engine shutoff.

I have allowed (?) the ship to go left on several occasions and it seems to be safe but the transition suffers. (Editor: a gross understatement)

The Super Snicker was used in Seattle for the semi-finals in '65 but I am convinced now that the minimum power loading "hot climb" approach is the best answer. How about you?

Editors notes: This ship was used in the days before the Nitro ban in F/F and so was taking advantage of what amounted to excess power. That is most ships built to minimum size were not


Super Tigre G
no sidethrust
Rev Up 8-3¾ wood
8 15/16
AMA
Fuselage - ¼ thk vertical crutch with ¼ sht side cover
Additional sht buildup from rear of pylon to firewall width at front.
SUPER SNICKER - FAI POWER
by Jim Trego S.C.A.T.
Beverly Hills, Calif.
scale ⅛" = 1"
Flight Pattern
Power - right 1½ - 2 turns
Glide - right
Pylon - ¼ center, ⅛ ea side
C.G. 75-76%
Dihedral
AREAS
Wing (proj.) 531.3
Stab 137.8
669.1
Req'd Wgt. 30.04 oz.
4954
4 lams 3/32
1/16 x 1/4
7% @ 35% F.B.
1/16 ribs
1/8 x 5/8
1/8 sq. spruce
1/32 web
3/32" ribs
3/16 x 1
MOD. G-610b

really taking advantage of the available power because of stability and speed problems in the climb. By going bigger as in Super Snicker, the power was made more controllable. This may not sound like the most efficient arrangement possible but it was a practical solution to a real problem, and that's the name of the game.

Next Month

Neo-Nemesis, the Pride of Denver,
Scintillating FAI Power Ship ,
and perhaps a surprise or two.