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FAI Free Flight - What Is It?

This humble newsletter is dedicated to furtherance of the sport of Free Flight Aeromodelling. Now and then it is helpful to cogitate a bit on what Free Flight is all about. It may also be useful to explain to newcomers and potential free flighters just what FAI Free Flight is and where it came from. The following material was written with this objective in mind.

What is FAI Free Flight?

Or for that matter what is Free Flight? Ever watch buzzards soaring gracefully under puffy white clouds? Ever watch smoke rising from a bonfire carrying with it leaves on wispy currents of air? Ever watch gulls gliding and wheeling back and forth effortlessly over the dunes at the beach? If you have, then already you know something about Free Flight. You have seen and felt and been inspired by the atmosphere we live in and the miracle of flight. First, the appreciation of Free Flight comes from the inspiration and beauty generated by just an awareness, in the same way fine music and art is

appreciated. Secondly, personal participation through the mastery of flight by your own efforts rounds out a very rewarding and self satisfying experience. Model flying as well as full scale piloting are subject to these same thoughts. Models too must be made to solve the same riddle of flight.

As thought of in these terms Free Flight excludes those forms of "flight" in which physical restraint is imposed by such things as wires and guide lines from the ground. Radio Control could be considered quasi-Free Flight but to the participants it is a separate classification.

The Free Flight enthusiast naturally feels that his event is superior. The bystander, however, might feel that without direct pilot control something is missing. The point which this bystander often fails to see is that the Free Flighter has solved that riddle of flight-compatability and complete interdependence between the atmosphere and the model.

This is the essence of the challenge that grips the Free Flighter. The attraction is not that of a game but of an art.

That all this is so can be observed from the fact that Free Flight modeling has the earliest of beginnings, tracing back to before the Wright Brothers. The wide spread interest in Free Flight modeling led to the organization of sporting contests on an international scale. Thus, in 1927 Lord Wakefield of England presented a cup designed and executed in sterling by one of the most famous English silversmiths of the day. The Wakefield Cup has been competed for since then for rubber powered Free Flight models conforming to particular specifications. In the early days the English Society of Model Aircraft Engineers organized the international competitions for the cup which were held in various countries.

A rich heritage was built in this period and many thrilling stories can be told. For example, in 1930 the A.M.E.A. and the American Boy Magazine sent the three winners at the American National Model Meet, Ray Thompson, Joe Ehrhardt, and Bill Chaffee, on a trip to Europe as Grand Prizes. While over there they took part in the Wakefield competition. This was held on July 19th on a typical gusty English day at the Halton Aerodrome. On his second

flight, Joe Ehrhardt attained the remarkable time of two minutes and thirty-five seconds, which was nearly a minute more than the second place man.

Probably one of the most beautiful of the pre-WWII Wakefields was Jim Cahills' "Clodhopper" which won for the U.S.A. at the contest held at the Caudron Aerodrome, Guyancourt France in 1938. The lines and construction of this ship were as beautiful and "modern" as anything flying today.

The next year Dick Korda of the U.S.A. flew at the Wakefield championship held on a golf course at the north end of Teterboro Airport, New Jersey and put up a flight of 43 minutes to win. The ship stayed overhead for the entire flight. This was the first flight of the contest and no one could come close to matching it.

The Korda model became an overnight sensation. Construction and lines were simple and functional. It became one of the most widely built models all over the world. At one time you could buy a complete kit less liquids and rubber, for 27¢! Korda became a National hero.

International contests resumed after World War II and two "new" Free Flight events took their place alongside the Wakefield. These were FAI Power and Nordic A-2 towline glider .

Nordic was introduced by the countries of Denmark, Finland, Norway and Sweden and was first competed for internationally in 1950 (Sweden). This event is now the most popular international category mainly due to the low cost and "simple" flying characteristics. It was not until 1959, however, that the U.S.A. lost its' underdog status in this event. Gerry Ritz at Bourg-Leopold Belgium, capped a flawless performance by beating a Russian in a thrilling fly-off.

No event quite captures the thrill of soaring flight the way Nordic does. You can actually feel the tug of thermals while towing the model! For those who are interested in the technical side of aerodynamics, the Nordic is an excellent subject for studies of wing sections, boundary layer transition, boundary layer trips, aspect ratio, pitching moments, stability etc. In fact the work of model builders and fliers has actually contributed to and advanced the state of the art in this field of aerodynamics.

Since the scientists and modelers have still not unravelled all the secrets of flow there is still the challenging sporting side of Nordic flying. Athletic ability and a sixth sense for sniffing thermals, gained through practice, still counts for a lot in winning contests.

FAI Power is the Free Flight gas engine powered event adopted by the international model organization. Gas powered Free Flight has always been very popular in the U.S.A. Through the FAI category, interest has spread rapidly to other countries. A very beautiful trophy was established by Yugoslavia some years ago. A silversmith was commissioned and worked for a year turning out the fine filigree decorated artwork.

The challenge in FAI power comes from turning out screaming power from a few ounces of aluminum and steel, from controlling all that power aerodynamically, and from turning the screaming bomb into a soaring bird. Top engine displacement in this event is .15 cubic inches. Power output is now over one-half horsepower. If this engine were as big as your car engine you would have over 1000 horsepower! These engines are relatively inexpensive. You can buy four of them for the price of a bicycle. Contrary to a popular misconception, it is not necessary to buy dozens of engines and make expensive modifications. Of course, some modellers do anyway but only because they like to tinker with engines. This does not necessarily give them an "unfair" advantage , since actually they end up with less time to solve the other challenges of FAI power-climb control and glide.

International FAI power competition has been quite spirited. For instance the 1960 contest held at the Cranfield College of Aeronautics, England ended with five contestants each putting up seventeen perfect flights. The flying had to be stopped because of darkness and all five were declared winners. The five fliers were from Finland, Italy, New Zealand, Sweden, and the U.S.A.

Of course, the very special attraction of FAI Free Flight as compared, say, to unrestricted "sport" flying should be explained. The FAI organization makes it possible to set up rules and specifications for the guidance of sporting competition. Free Flight modeling certainly can be enjoyed without any such organization. But inevitably comparison, exchange and competitive situations arise which need some kind of ground rules. These ground rules are reached by mutual agreement between the participants which have now evolved into the institution of the FAI Committee for International Aeromodeling.

FAI Free Flight has thrived on a detailed set of model specifications and contest rules, rigidly enforced. It has been found, as it has in other sports, that this is necessary to get and keep people interested. It usually seems tough to the newcomer, but once caught up in it the need for rules and specifications becomes obvious. This poses a dilemma to those of us who would like to see moreand more people become active in FAI Free Flight. How do you get new people into something that looks tough ? One very big source of new participants of course are the trials which are held to select the team that will represent the U.S.A. at the World Championships. Unfortunately there is obviously something inconsistent about recruiting new and inexperienced people in the same affair that picks the best and most experienced people to represent us internationally. The AMA has established Committees to explore this problem and to develop and present courses of action for the selection of teams. The role of FAI Free Flight in the AMA is, of course, just what the membership make it.

If you think that FAI Free Flight sounds like something you might find interesting and be worth your time and effort then take the step. You may not become World Champion next year but you never will if you don't try sometime. In the process you will find out what this challenge really feels like.

1967 Free Flight World Championships - Notes and Comments

This Scatter report is quite late but gives us the ability to plagarize other reports. Several good reports have been recieved, for example, Paul Lagan "South Island News" (New Zealand), Wiseman & Norley "N.A. News" (England), inimitable Hugh Langevin "Model Airplane News" (U.S.A.), Ron Moulton "Aeromodeller" (England), and of course first hand accounts from Van Nest and Patterson, our Scat men on the U.S.A. team.

Our first inkling of bad news for the U.S.A. was reciept of a postcard from Cor Burger showing the pigeon stained roof tops of Prague. There was no message on it. Even under ultra violet light. The W.C. was held on August 16,17 & 18, 1967 at Sazena about 17 miles from Prague.

Nordic A/2 Weather seemed strange for many, a long hot and

calm spell had finally broken with the arrival of squally, turbulent, unsettled air. Wind abated for the meet and was never very strong but the thermal activity was "squirrelly". Many experts had difficulty figuring out what was going on. The English called it "tactical flying", the New Zealanders called it "scabbing", the Americans called it "piggy backing". Mass launches were a lot more ruthless with some "sportsmen" thinking nothing of running across other lines, colliding with other models and in general acting like wild men. In these conditions a 'thermal-pig' type model seemed to be the way to go. The winner, Hirschel, of East Germany had a squared-off functional, simple model. Vöros of Hungary (2nd) had a more sophisticated model, very well built. Modeer (3rd) of Sweden flew a clean well designed model typical of his well known examples. Modeer left his hospital bed for the five rounds and flyoff, returning again for further treatment. Perhaps this will start a new trend!

Van Nest worked his way into four thermals but in the last round couldn't get hooked into one properly. Langenberg and Langevin both missed two max's. In trouble on one tow, Langenberg showed real courage and skill in deliberately pulling his model into the ground to prevent a potential bad launch. U.S.A. efforts were good for 5th place teamwise which wasn't too bad considering that our highest individual place was 20th. Nevertheless opinion seemed to be that we still lacked a cohesiveness and experience in team strategy. Teamwork and effective strategy isn't something that is learned overnight, a problem that we haven't yet been able to come to grips with.

From the Northern Area News: "A2 flying started at 10 am. Two Norwegians got away quickly before many people had even got their models processed. They appeared to find lift from the ground and no one followed them. Barry Halford went when his 20 minute period was nearly up but his stall recovery was a little bit slow: 2:32. Soon after he landed a great number of people launched into a large area thermal. Mike Woodhouse was now ready to fly but Jack North's model hadn't yet been processed and the timekeepers had to return to control. About 10 mins. and two good thermals were wasted.

Jack finds lift but stalls gently for 2:01. Mike decides to tow for his own lift-several others tow at the same time. All release and are battered down by the most violent current of air I have seen for a long time. (Mike gets 1:06) Great commotion near the end of the round - the Cuban models hadn't been processed and they are given ten minutes to refly. One wing breaks and one lost flight is the result, but after a protest the original scores are counted. Pete Jellis protests over a flight that

everyone else saw D/T at 3:20 but the timekeepers insist is 2:20. Second Round.

The wind is now of moderate strength but flying is slow because of recovery and processing difficulties. This seems the easiest round for thermals marked by long calm spells and apparently vast in area. Third Round. Conditions as before - large area thermals in calm periods but with tricky weather in between. Fourth Round. People are now getting fed up with waiting and are towing for their own lift, keeping models on the line longer. The wind is lighter and very steady. Fifth Round. Conditions very similar for the last round but with most of the lift coming earlier."

Comments by Dave Wiseman.

1. "Thermal detection by thermistors, long very light streamers (the Dutch) and soap bubbles. None seemed reliable."

2. "There was no ruthless tactical flying as we know it (i.e. aiming to get as near as possible to the model in lift). (Ed: By British standards?) A lot seemed quite content to watch models for nearly a minute and then launch with the model in lift 200 yards downwind. In many cases this seemed good enough. Some even launched because an expert (?) went whether he was in lift or not."

3. "Lift was dodgy at low level - a stall at the top couldn't be tolerated."

4. "Those in the fly-off got there by a combination of tactical flying and finding their own lift when necessary. Twice I saw Hirschel towing on his own."

The Fly - Off : First away, Tanyii - a great effort this in his first World Champs - followed quickly by Modeer. Neither got lift but before they landed the other two were towing. Voros released quickly but Hirschel towed on and on. In the end he found the only lift-to become a well deserved winner."

Models:	Hirschel.	Absolutely square and practical. Polyhedral with multi-spars and close ribs.
	Voros.	Straight taper tips-sheet leading edge with geodetic bracing. Steel wing tongues. Immaculate finish.
	Modeer.	Probably one of the best gliders at the meet. The model was a drag-beater.

Elliptical tips and tail. Sheet LE with thread turbulator. The wing silk-covered with removable tips and held on by a sliding screw arrangement. Internal D/T setup."

FAI Power Wind was very light and it was overcast. The outcome seemed to be more predictable than in Nordic, with all the well known names toward the top end of the winners list. Cherny and Galbreath were in the fly-off but Joe Wagner had engine trouble which never got fully sorted out. Great Britain took the team win, with French & Monks in the fly-off and Savini missing it by 6 seconds. U.S.A. team was 2nd.

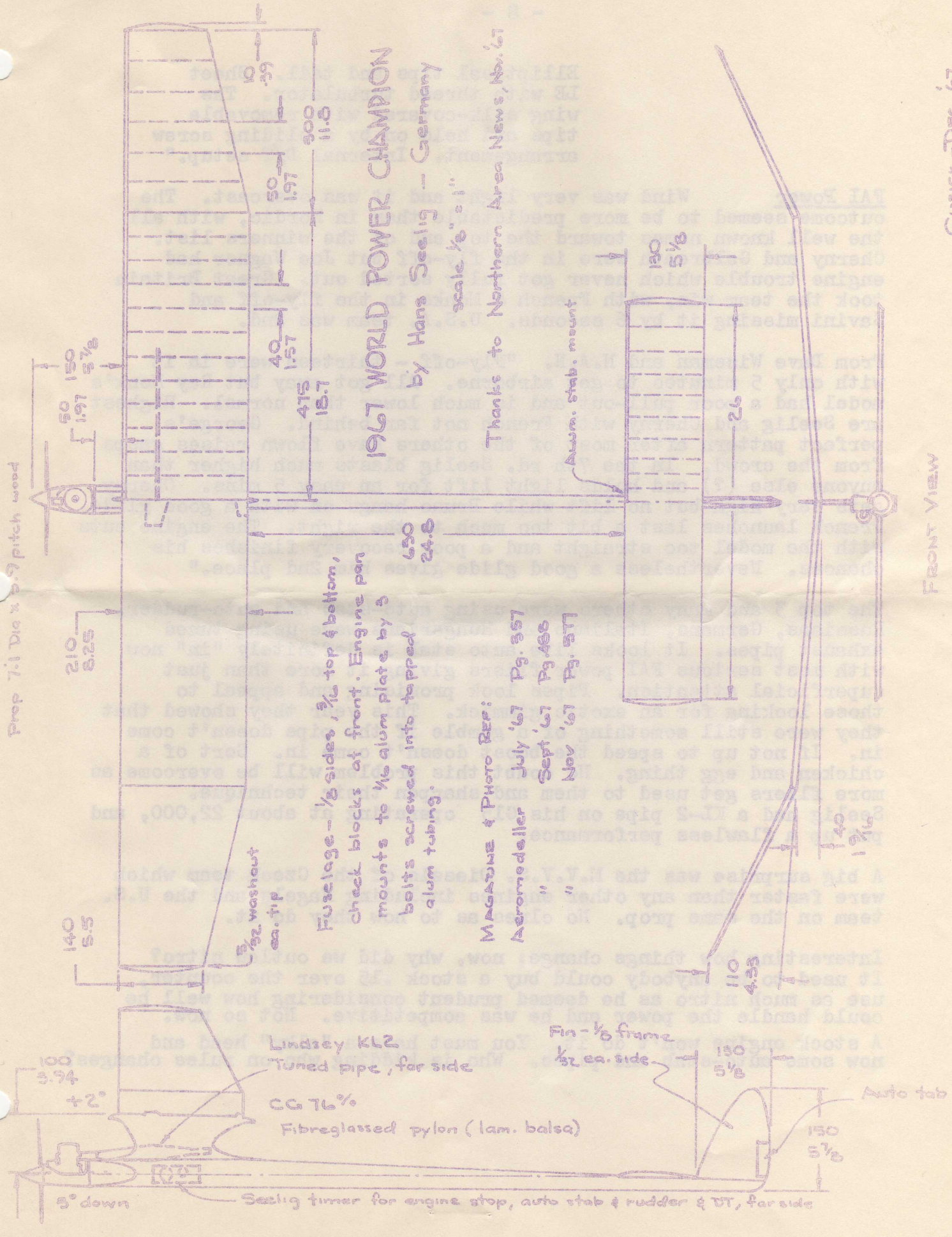
From Dave Wiseman and N.A.N. "Fly-off - thirteen were in it with only 5 minutes to get airborne. All got away but Ray Monk's model had a poor pull-out and is much lower than normal. Highest are Seelig and Cherny with French not far behind. George's perfect pattern after most of the others have flown raises gasps from the crowd. In the 7th rd. Seelig blasts much higher than anyone else (?) and holds light lift for an easy 5 mins. Cherny gets very high-but no lift while Bruno hangs on with a good glide. French launches last a bit too much to the right. The engine cuts with the model too straight and a poor recovery finishes his chances. Nevertheless a good glide gives him 2nd place."

The top 3 and many others were using auto-stab and auto-rudder. Russians, Germans, Italians and Hungarians were using tuned exhaust pipes. It looks like auto stab is definitely "in" now with most serious FAI power fliers giving it more than just superficial attention. Pipes look promising and appeal to those looking for an exotic gimmick. This year they showed that they were still something of a gamble if the pipe doesn't come in. If not up to speed the boost doesn't come in. Sort of a chicken and egg thing. No doubt this problem will be overcome as more fliers get used to them and sharpen their technique. Seelig had a KL-2 pipe on his G15 operating at about 22,000, and put up a flawless performance.

A big surprise was the M.V.V.S. Diesels of the Czech team which were faster than any other engines including Hagels and the U.S. team on the same prop. No clues as to how they do it.

Interesting how things change; now, why did we outlaw nitro? It used to be anybody could buy a stock .15 over the counter, use as much nitro as he deemed prudent considering how well he could handle the power and he was competitive. Not so now.

A stock engine won't do it. You must have a "alky" head and now some auto-stab and pipes. Who is kidding who on rules changes?

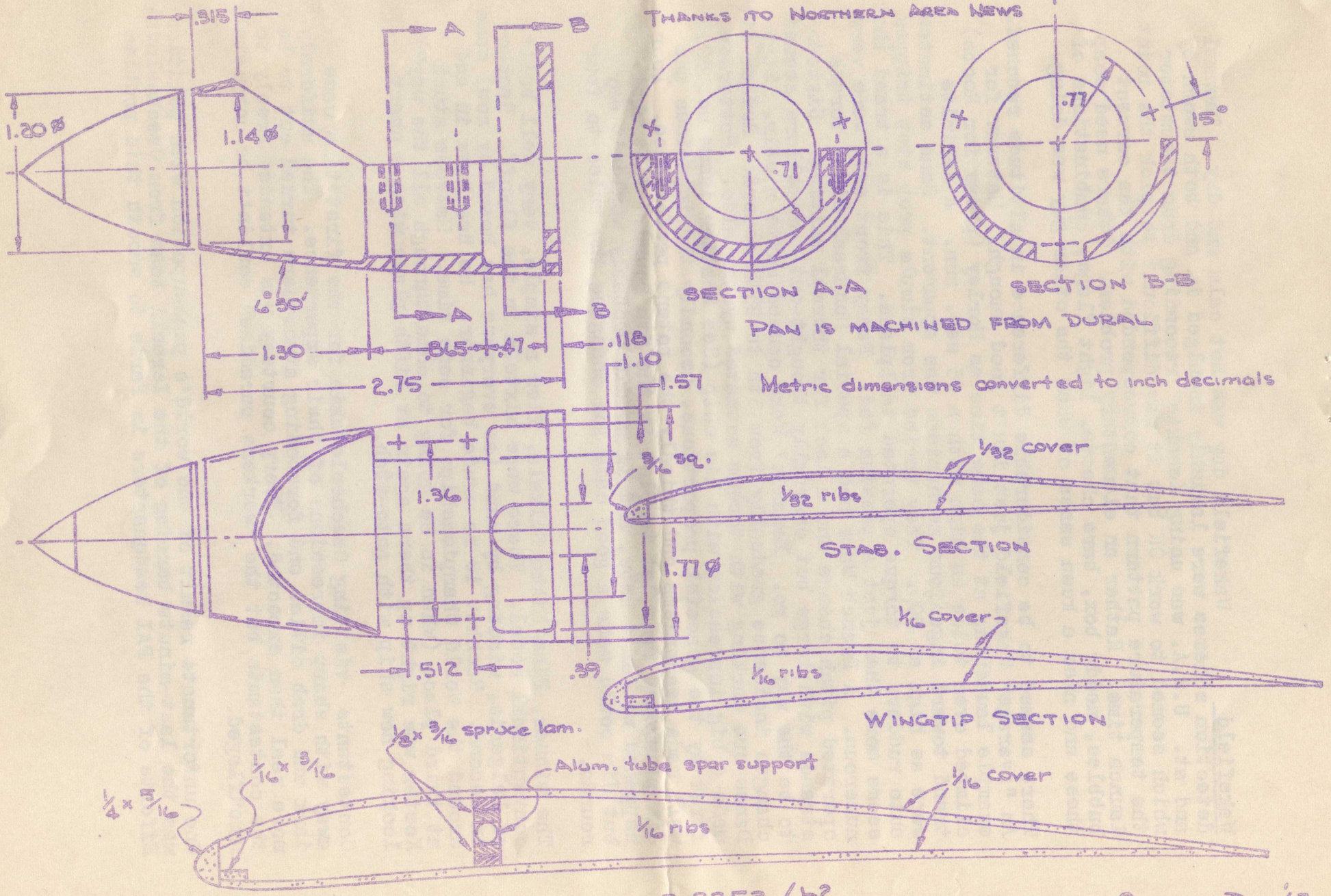

1967 WORLD POWER CHAMPION
by Hans Seelig — Germany
scale 1/8" = 1"
Thanks to Northern Area News, Nov. '67
Cusick-Dec '67
Prop 7:1 Dia x 5.9 pitch wood
100 3.94
150 5 7/8
50 1.97
210 8.25
140 5.5
5/32 washout ea. tip
50 1.97
40 1.57
475 18.7
800 11.8
630 24.8
Fuselage - 1/8 sides, 3/16 top & bottom, check blocks at front. Engine pan mounts to 1/16 alum plate by 3 bolts screwed into tapped alum tubing.
Magazine & Photo Ref:
Aeromodeller July '67 Pg. 357
" Sept '67 Pg. 486
" Nov '67 Pg. 577
Alum. stab. mount
130 5 1/8
240
140 5 1/2
110 4.33
Front View
Lindsey KL2
Tuned pipe, far side
+2°
CG 76%
Fibreglassed pylon (lam. balsa)
3° down
Seelig timer for engine stop, auto stab & rudder & DT, far side
Fin - 1/8 frame
1/32 ea. side
130 5 1/8
Auto tab
150 5 7/8

1967 WORLD POWER CHAMPION – HANS SEELIG

ENGINE PAN DETAILS AND AIRFOILS

SCALE: FULL SIZE

THANKS TO NORTHERN AREA NEWS



PAN IS MACHINED FROM DURAL

Metric dimensions converted to inch decimals

B 8353/62

CUSICK - DEC. '67

Wakefield Wakefield day was hot calm and dry. Thermal detection schemes were lavishly indulged in and both sworn by and at. U.S.A. was using Xenakis' recording drum thermister which seemed to work OK but it was difficult to pick the point in the temperature pattern that corresponded with the correct launch time. Rather an elementary problem. Others used soap bubbles, neddy box, bare chests, light flags, combinations of these and also a keen sense of what the other guy was doing.

There seemed to be considerable difference in altitude reached. An "average" Wakefield just isn't good enough. Matveev for example launching at the same time as Morley (proxy for Roots) climbed over twice as high with a 45 sec. run. A definite trend toward ingenious mechanisms was apparent. Some estimates were as high as 80%. They varied from simple prop stop tripped auto rudders to torque operated tailplane. This is a trend that seems more than just a passing fad. Fancy front ends were very numerous. A French Wake had a special Montreal stop, torque operated pitch change and a lock for thermal waiting. Sixteen strands with large but carefully thought-out propellors seemed to be the way to go. Xenakis' Wake caused quite a stir. Stab changes incidence gradually from 5th to 25th second. Rudder ditto.. Danes are working with torque actuated system also. Patterson made a big impression with his ship (See Scatter issue no. 52) first by the graceful proportions, secondly the ingenious and well made mechanisms and thirdly the potent performance. Poor Jim plummeted from 1st to 51st in the 5th round. Just what happened we don't know, and if we did probably wouldn't say but Jim could make a good case for changing the rules to four rounds.

The winner, Finn Mikko Sulkala, flew a simple, very well built, conventional model. There were sixteen in the flyoff. Rachkov of Bulgaria, winding by hand (as everyone has heard by now) came in second. Rachkov is no crude beginner. He has been in and around the World Championships for some time. Matveew stuck at third place (when is he going to come through all the way?) Koster was right up there again at fifth place with a sharp looking new ship with auto-stab.

Contestants visiting Czechoslovakia for the first time came away with sharp impressions of their experience. The uniformly dark and drab cities and foreboding atmosphere turned out to be more real than expected. Every courtesy was extended freely to the contestants but the "workers paradise" couldn't be completely camouflaged.

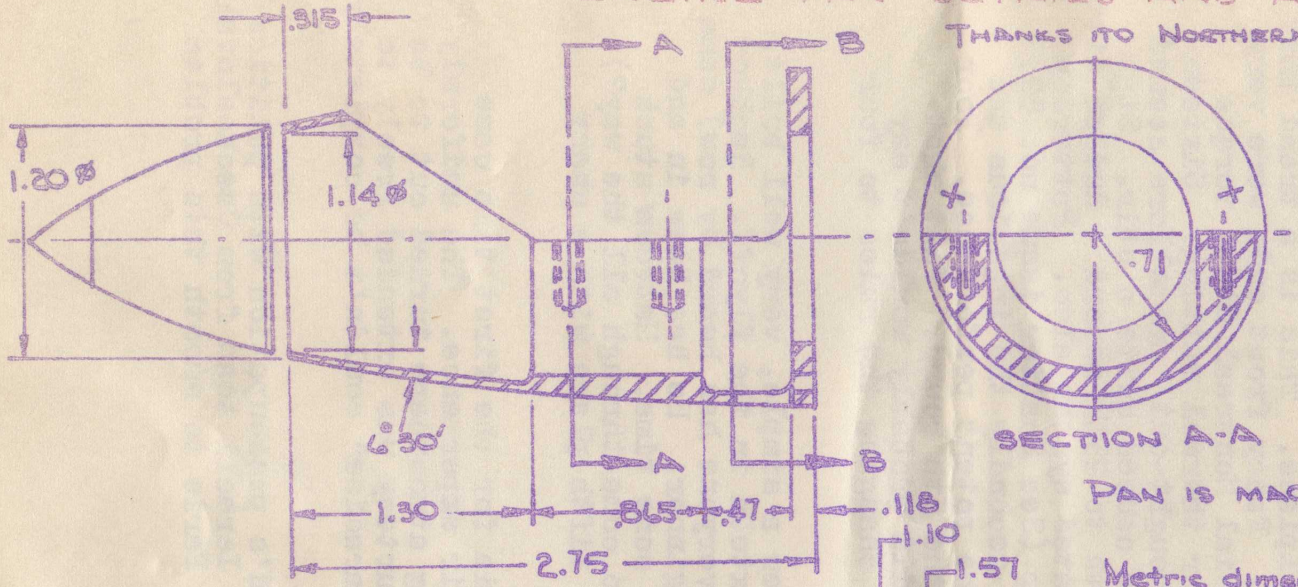
One unfortunate result of the world's preocupation with politics was the last-minute barring of the Israeli team from Czechoslovakia. Efforts of the FAI headquarters in Paris to smooth this problem

1967 WORLD POWER CHAMPION — HANS SEELIG

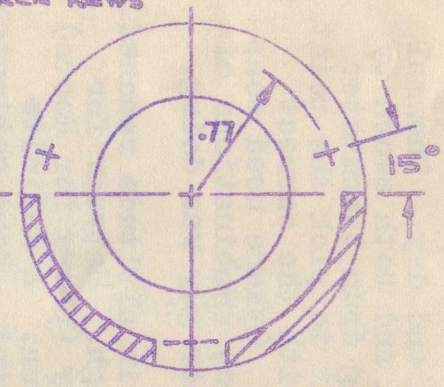
ENGINE PAN DETAILS AND AIRFOILS

SCALE: FULL SIZE

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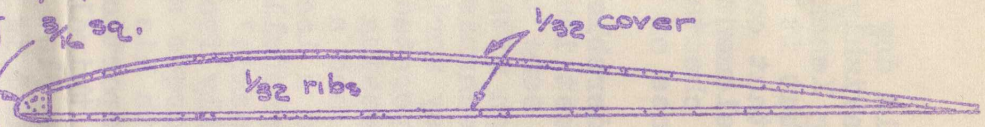
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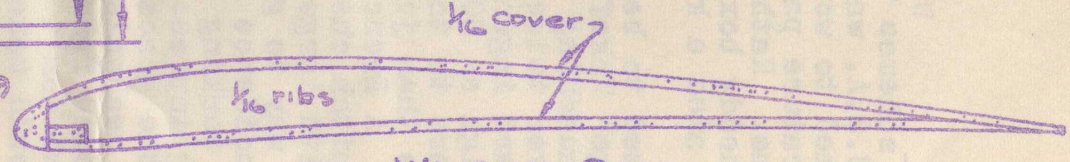
SECTION B-B

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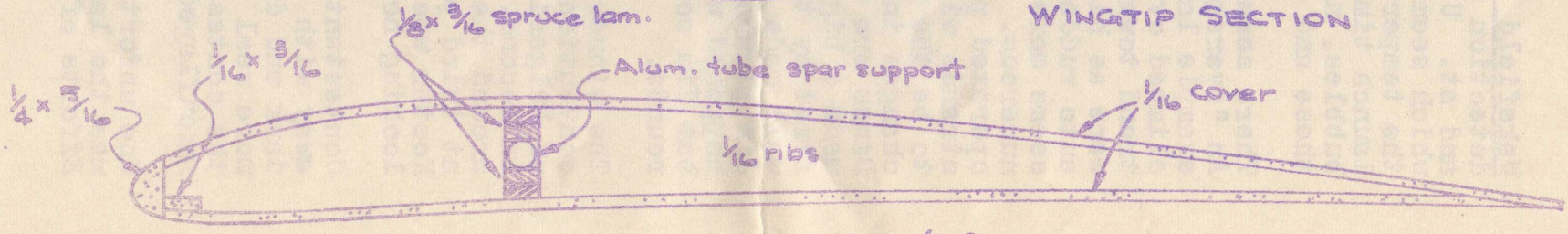
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STAB. SECTION

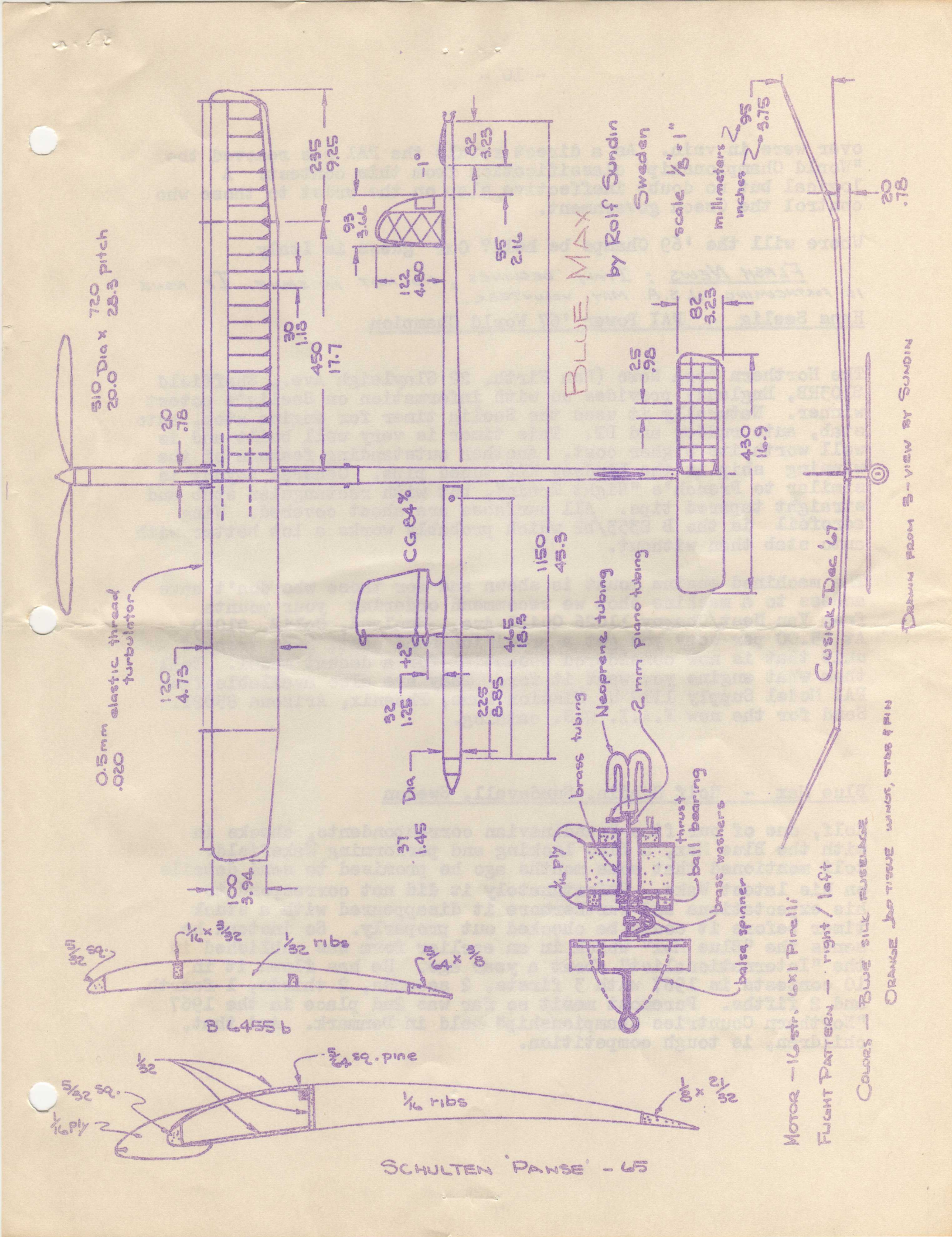


WINGTIP SECTION



B 8353 / b2

CUSICK - DEC. '67



SCHULTEN 'PANSE' - 65

over were in vain. As a direct result the FAI has removed the "World Championship" classification from this contest. A logical but no doubt ineffective slap on the wrist to those who control the Czech government.

Where will the '69 Champs be held? Our guess is Italy.

FLASH NEWS : ITALY DECLINES, NO HOST IN SIGHT. IF NONE IS FORTHCOMING U.S.A. MAY VOLUNTEER.

Hans Seelig - FAI Power '67 World Champion

The Northern Area News (Ron Firth, 22 Slayleigh Ave., Sheffield S103RB, England) provides us with information on Seelig's potent winner. Naturally it uses the Seelig timer for engine stop, auto stab, auto rudder and DT. This timer is very well built and is well worth its higher cost. Another outstanding feature of the winning ship is the Lindsey KL2 tuned pipe. General layout is similar to French's "Night Train", but with rectangular stab and straight tapered tips. All surfaces are sheet covered. Wing aerofoil is the B 8353/b2 which probably works a lot better with auto stab than without.

The machined engine mount is shown and for those who don't have access to a machine shop we recommend ordering your mounts from Van Nest/Cherny 11026 Quill Ave., Sunland, Calif. 91040 At $5.00 per copy you get a precision sand cast, heat treated unit that is now considered essential for a decent model. Tell them what engine you want it for. They are also available from FAI Model Supply 1112 W. Mission Lane, Phoenix, Arizona 85021. Send for the new F.A.I. M.S. catalog.

Blue Max - Rolf Sundin, Sundsvall, Sweden

Rolf, one of our fine Scandinavian correspondents, checks in with the Blue Max, a fine looking and performing Wakefield. Rolf mentioned that some months ago he promised to send details on his latest Wake. Unfortunately it did not correspond to his expectations and furthermore it disappeared with a stuck timer before it could be checked out properly. So instead he sends the "Blue Max" which in an earlier form was published in the "Internationalist" about a year ago. He has flown it in 10 contests in 1967 with 3 firsts, 2 seconds, 2 thirds, 1 fourth and 2 fifths. Foremost merit so far was 2nd place in the 1967 "Northern Countries Championship" held in Denmark. And that, children, is tough competition.

Rolf says it is in no way outstanding with a quite normal climb but a better than average glide and seems to pick up the slightest lift easily. Thanks to the rubber cord turbulator it flies very slowly. In "late evening still air" it does 3:10 - 3:15 but in"early morning still air" it only reaches around 2:50. (?) That airfoil looks more suitable for active air than the still stuff, and since we try very hard not to fly in still air perhaps this will be a trend? Thank you Rolf, keep us informed.

U.S.A. Nationals, 1968

Believe it or not, but remember we warned you, the '68 Nats is going to be one of the best in your memory. There are certain changes that will help ,make it so. First of all the air show will be held the week-end before the contest. Meals will be available at the mess hall on a pay as you go basis. No need to sign up for the whole week. Camping trailer area will be available with services close by.

Emphasis is on the juniors this year. Families and clubs should give a lot of consideration to bringing juniors and seniors and encouraging them to enter.

Odds & Ends

We were expecting to have some comments from Denver on the FAI team selection process. We hope to have it next month. Lots of comments on Floyd Miller's last bulletin on the selection of Bong as the fly-off site. There seems to be confusion over who is taking credit for this dumb decision. Pete Sotich says it was Floyd and himself. Floyd says it was Scatter (!) The committee (lucky for them) wasn't involved.

—— Next Month——

Road Runner FAI Power With Details on a Fool-Proof Auto Stab, and Assorted Scatter Bed Time Stories.

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