Diary

1st April Area venues	SMAE 2nd Area Centralised event. F1C (Halfax, PL); O/G; O/R (Gamage).
8th April Odiham	Southern Area Spring Gala. O/G; O/R; O/P; CO_2; Electric. Contact, Norman Couling, 7 Gree Walk, Eastbourne, Sussex.
15-16th April Cottesmore	SMAE Centralised 2-day event. Day 1: O/G; O/R; Day 2: F1A; F1B; F1C with five flights. Contact Mike Fantham, tel: 01-736 7163.
22nd April Cardington	Indoor Meet. EZB; Manhatten; HLG. Contact R L Bailey, tel: Stevenage 723642.
6th May Area venues	SMAE 3rd Area Centralised event. F1B (Weston, PL); O/G; O/P (White).
13th May Cardington	Indoor Meet. EZB; CO_2 Duration. Contact, R L Bailey, tel: Stevenage 723642.
20th May Bassingbourn	Croydon Quiet Contest. O/g; O/R; F1A; F1B (no rounds) F1H(A/1); F1G(CdH); HLG; Vintage Rubber. Start, 10.00. Contact, Ray Elliott, tel: 01-997 1563.
26-27th May Rozendaal Heath, Arnhem	Holland International. F1A; F1B.
26-28th May Cardington	Indoor Nationals. 26th: HLG; Manhatten; CO_2 Duration; 27th: F1D; Open Microfilm; 28th: EZB; 35cm Microfilm. Contact, R L Bailey, tel: Stevenage 723642.

MARCH 1979 79/03

FFn

FREE FLIGHT NEWS

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Compiled and published by Ian Kaynes, Paul Masterman, Michael Warren and Malcolm Wood.

TATTOO, F1D by D Morley

FFn is taken to task fairly regularly for failing to present detailed information on our drawings. There are two arguments here, of course. On the one hand, readers may like to have the detail because they themselves are inexperienced and wish to gain the benefits of the work and developments won by others. This is fair enough, especially as it is the norm, rather than the exception, for flyers to share such information. The counter argument to such ideas runs thus: get out to the meetings and use your eyes. This is all very well, but most of us don't have the opportunity to travel everywhere to see what the opposition is doing! A secondary argument is more spurious. Readers of FFn are relatively experienced, it is felt. Therefore, we do not need to go into detail; our readers will know the wrinkles. If that was the case, we wouldn't have published the drawings of Lepp's circle tow hook, way back when. In other words, it all comes down to editorial selection...

It's a very long time since we published the definitive series of articles on indoor building by Laurie Barr. Therefore, when Derl Morley sent us drawings of his F1D ship, complete with many details, we decided it would be very well worth while showing exactly how a top model stays together. Our thanks go to Derl for such attention to his sketches, reproduced here via the hand and eye of Malcolm Wood.

In addition to the drawings, Derl added the following comments:

"I have included much more detail than is usual since obviously any intending builder (first time, that is) of F1D should require this information, particularly the structural detail. It took me two years of building and flying to realise most of this. Generally, the detail applies to all film designs; some of the detail is in general use, some is my own, with one or two other flyers using it.

"Also included are three prop blade shapes, with one in particular being the most tried, ie 508mm (20") diameter by 914mm (36") pitch. My performances over the past eighteen months have all been on much heavier motors than the other people use. For example, in the Trials in 1977, my motors weighed 1.7 grams for 17 inches long, and in the '78 World Championships, I used 1.6 gram, 17 inch long motors - from the same rubber -'Pirelli' purchased in April 1974 from Henry J Nicholls in Potters Bar. Incidentally, the norm is somewhere between 1.35 and 1.45 grams, 17 to 18 inches long".

Indoor footnote: we shall be continuing with the series of notes from Manny Radoff, which give further insights into indoor building and flying techniques.

RUSSIANS, NORDICS AND CATAPULTS - PART 2

The Segrave/Cooper/Grunnet debate (see FFn for January 1979) seems to have attracted a certain amount of interest. Here is an additional contribution from Mike Woodhouse:

"There used to be two myths in free flight, and much rubbish was talked about them. The first was the quality of rubber and what 'it used to be like in the good old days', and the second was the so-called 3-minute A/2. Now we have a third myth entering the scene - the height gain from a catapult launch. But don't get me wrong. I do believe that there is a height gain to be had from this type of launch. What I am at odds with is a) the reason given for the gain, b) how much the gain is, and c) the importance this type of launch is given against other features.

"Firstly, I would like to make a few observations on the points made in FFn, and then I will make a few comments of my own which with luck will cause a few other flyers to make their point of view known.

"Well...the Benedek 6356b has always to my knowledge had a good reputation for dead air performance. Bob Amor's 'Lucifer' used it to good effect. But it was always thought suspect in rough air and it just went out of fashion when Mr Benedek and others brought out and used 'newer' sections. The public relations campaign attached to the Thomann section was fantastic: it was 'the answer to the problem', or so we were told.

"As far as the dead air claims are concerned, this is an area where people quote all sorts of figures out of context. The only true assessment is a comparative check, and even this is open to some doubt. By comparative I mean two models launched together in the same calm air and the first one down is a booby. This needs to be repeated several times to find out which is the best model. It's only the relative performance that really matters. I've got a suspicion that if one was to get a whole heap of decent A/2s and tried the exercise there would be little in it.

"Now, a few of my own thoughts on the subject of circle tow, catapult launch and, in particular, the Russian models. One thing nobody seems to have considered yet, or at least have failed to mention in their comments, is the quality of the Russian A/2s and the effect of this on their flight performance. It is agreed that to fly a cataupult model sucessfully one needs to develop a good technique and a mastery of normal flying first. The Russian models are superb in this respect and would push most other models anyway, even without the launch. I spent a lot of my time retrieving downwind at the '75 and '77 W/Cs and was able to get a good view of the glide of quite a number of models. The Russian A/2s - along with several of the East European models - fly as though they are underweight: they fly very lightly, seeming to respond very easily and take advantage of any good air that is going. This can only be achieved with a good, trimmed model - the catapult is no help.

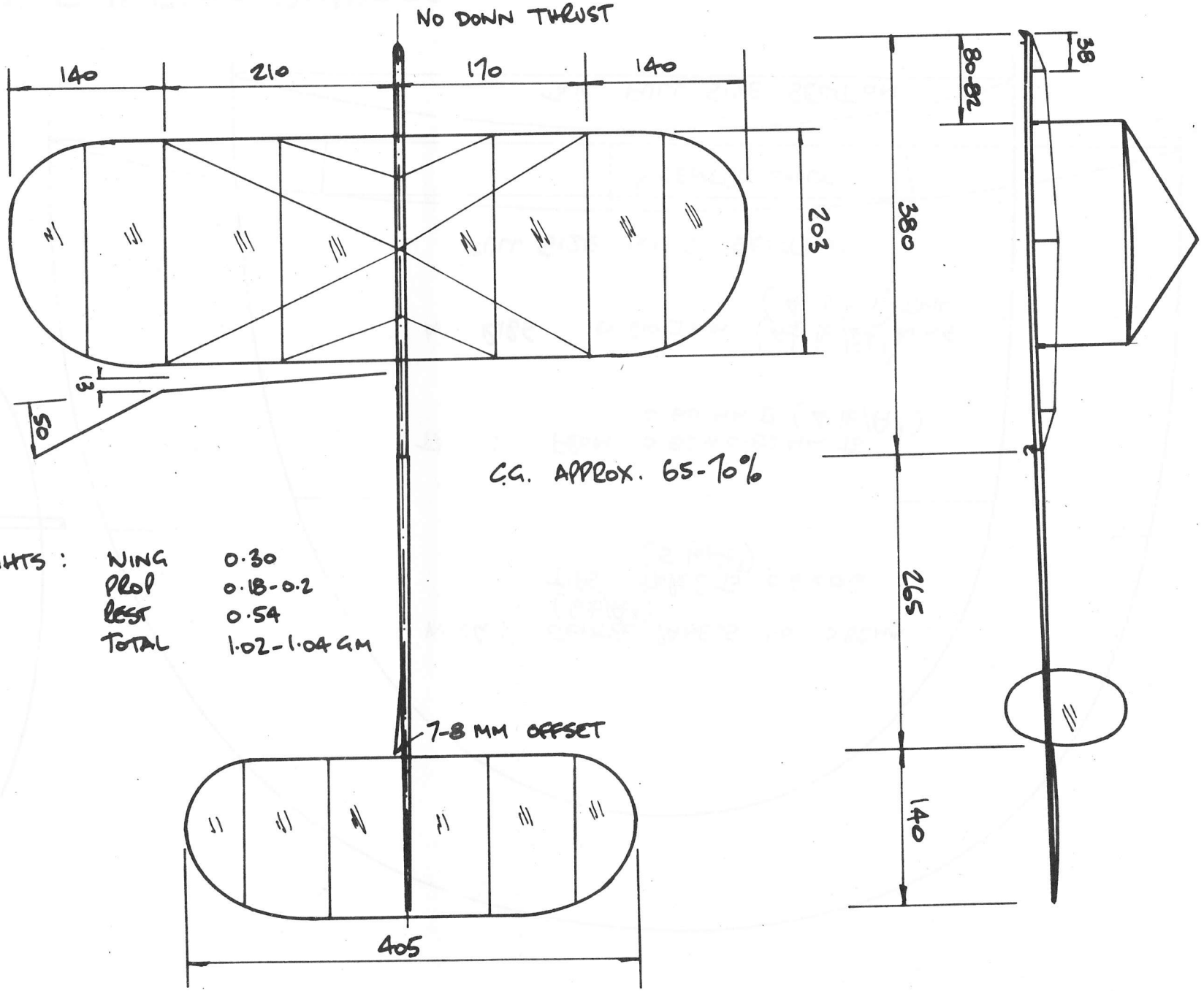
"How about the height gain? Yes, they do make extra height, but how much? And...how?

"Mike Segrave gave a very important clue but attached the wrong reason for it I believe. He said that he thought the Russians were going higher in '75 than in '77. I agree that they were, but why? In Bulgaria, thanks to the weather, there were 40+ in the fly-off. There were none in Denmark. If you launch a model hard and its in good air it looks better than in flat air. The Russians are superb air pickers

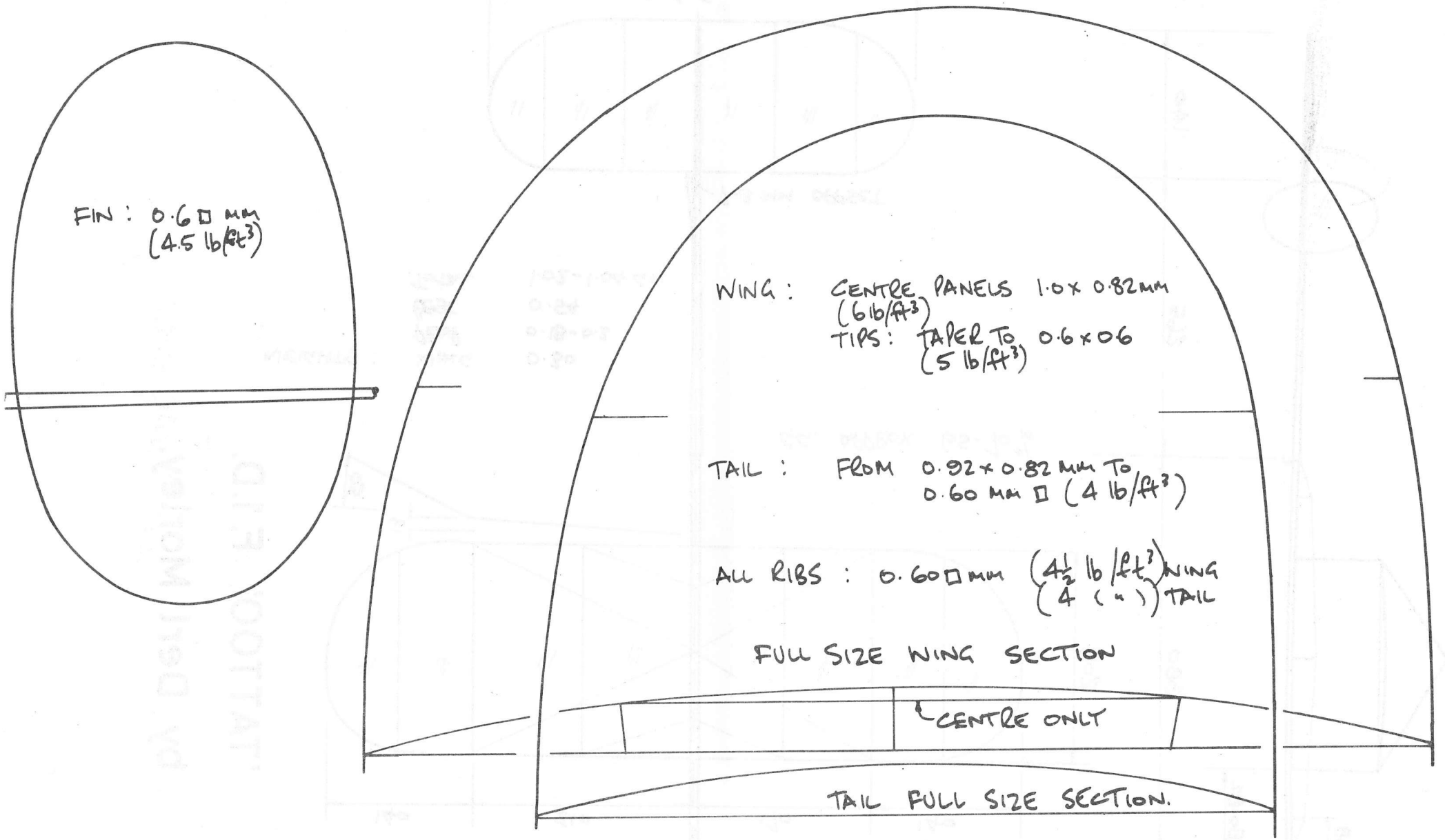
SCALE 1:5 ALL DIMENSIONS IN MILLIMETRES.

'TATTOO' F.1.D.

by Derl Morley.

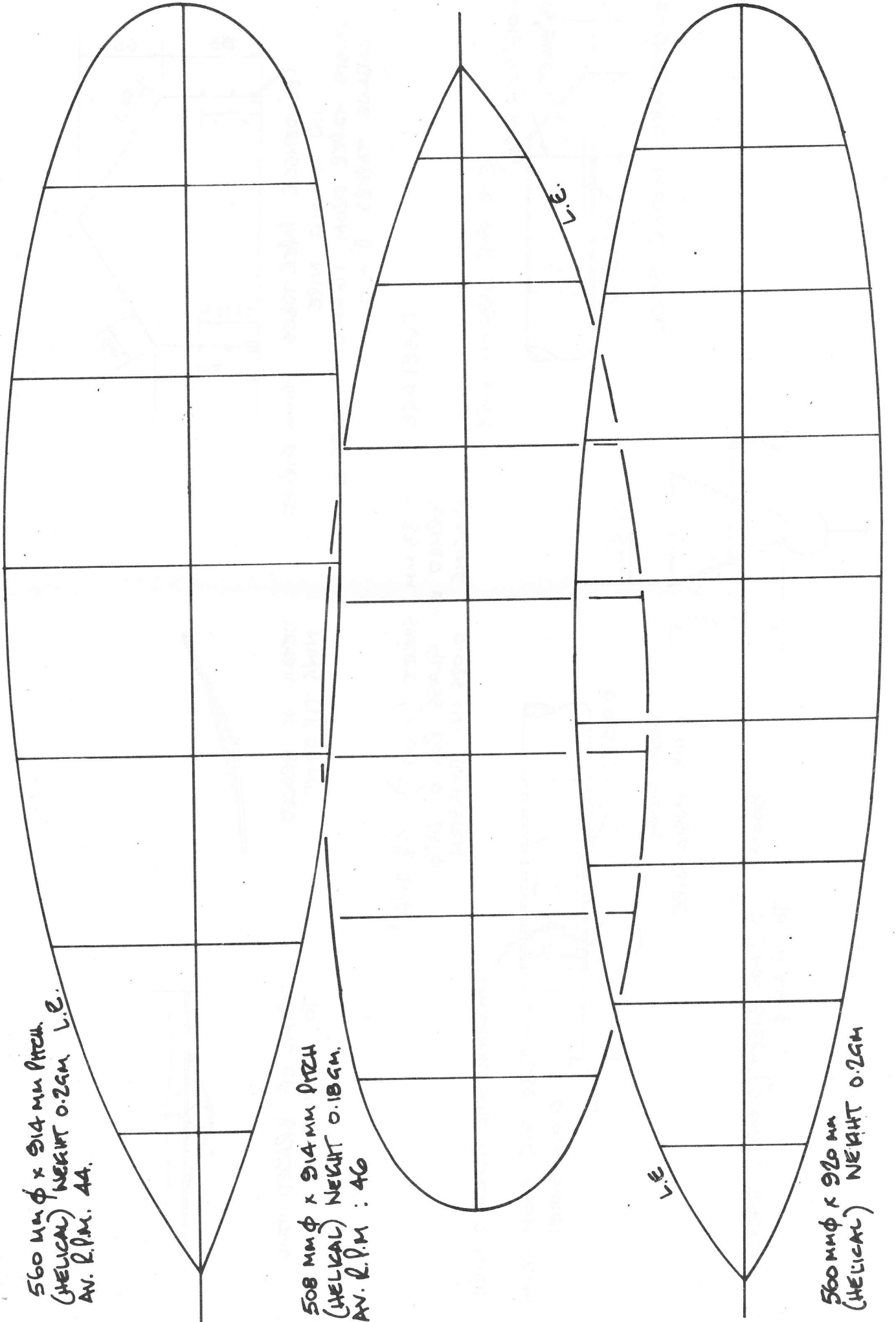


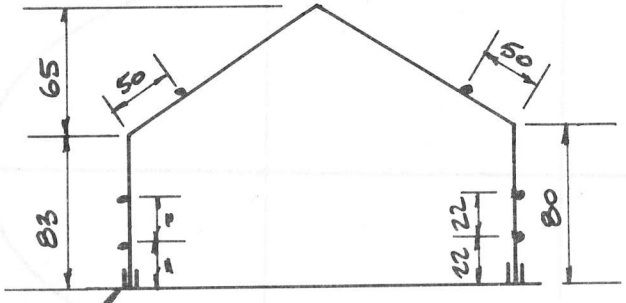
WEIGHTS :		
	WING	0.30
	PROP	0.18-0.2
	REST	0.54
	TOTAL	1.02-1.04 GM



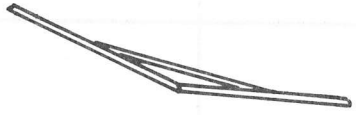
'TATTOO' Full Size Outlines.

'TATTOO' Full Size Propellers.

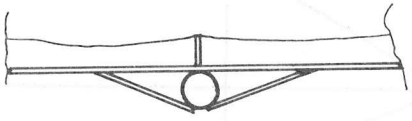




CONDENSER PAPER TUBES 1·6mm FORMED ON 16 S.W.G. WIRE
POSTS TAPER FROM 1·6 mm ϕ TO 0·85 □
CABANE TAPERS ▯ → □

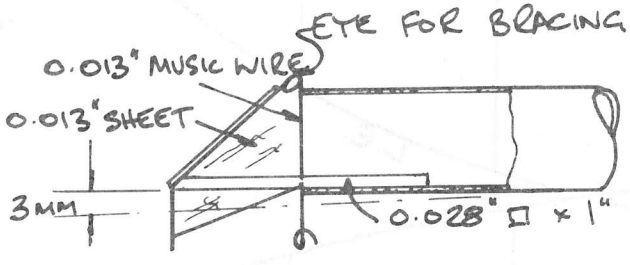


DETAIL OF BRACED WING TIP JOINT

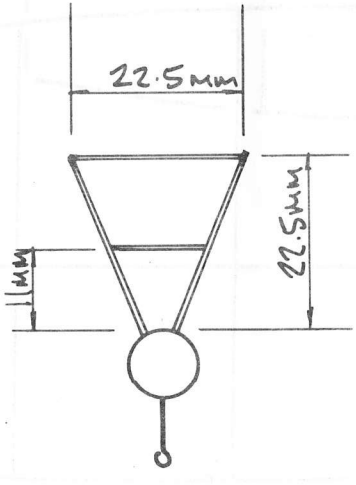


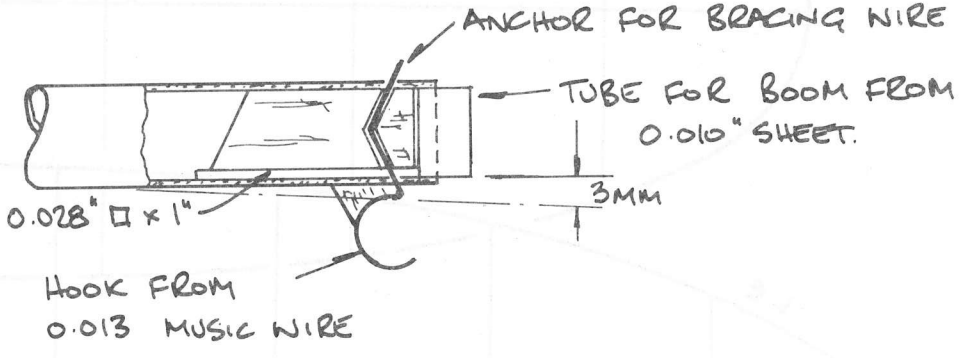
DETAIL OF BRACED TAIL TO BOOM JOINT.

FUSELAGE : 0·33 MM SHEET (0.013") 4½ lb/ft³
FORMED ON GLASS ROD 0·24" ϕ
BRACING : 0·025 MM TUNGSTEN.



PRE-STRESSED MOTOR STICK





HOOK FROM 0.013 MUSIC WIRE

BOOM : 0·2 MM SHEET (0.008") TAPERS TO 4 MM ϕ

and they did it well in '75.

"So how much gain do I believe in? From my experience of watching and flying, I reckon the best gain is around 25 feet and usually about half that distance. I try to gauge the number of wing spans gained by a model relative to when the model was launched or to other models. This can be variable as I have said, according to the quality of the air. Perhaps the best way is to try a series of catapults against standard launch for comparative assessment?

"How will we get this advantage? I think there are two ways. The first, as Per Grunnet says, is practice and lots of it. That's the way to be sure of a good launch each time. The other way is to have the right model. The parameters I would set for model design are as follows:

i) The most important is a proper hook and a system that works positively and correctly. No half measures! Any compromise is like trying trying to jump in the air from standing on one leg.
ii) Model design and structure. You need a good standard design, and nothing extreme. It must be clean to avoid drag and capable of a fast launch. In other words - the Russian approach.
iii) Something I'm very much coming round to is belief in a rigid set-up. I wonder whether a flexible rod fuselage absorbs a lot of the energy and thus has a braking effect on the model as it's launched?"

Our final contribution to the debate - for this month at least - comes from Martyn Cowley:

"Do Russian models gain 50 feet? Well, we just don't know. But short of building 50 meter high towers to observe the phenomena, the alternative is to repeat the experiment at ground level. Many years ago I helped John Cooper on a trimming session to adjust the catapult patter of his models, flying on a 10 - 15 ft towline (and that's not a mis-print)

"Using an up-and-off technique (things happen much faster on a short line) it was possible to fire the model some 50 ft into the air from which it fell back to perhaps 30 ft. In all cases the duration of 40-50 seconds was greater than merely 'floating the model off' at 15 ft.

"More recently I watched Mike Fantham chuck gliding his F1A model. Intrigued by what I saw (it's hard to believe even when you see it) I have since also tried such experiments. It is possible to throw a Nordic model some 30-40 ft into the air, from which it might pull out at 20-25 ft - if your wings can stand it. By throwing (launching) side-wind or in a banking turn it's possible to gain a significant height.

"50 ft? Well, try it yourself and see what you find. If a similar launch speed and attitude can be duplicated 50 m up in the air on the tow line, then certainly 30-odd feet could be gained. Such ground level experiments at least allow closer observation and estimation of the effects of zoom, but when all is said and done, the event is not decided with a tape measure but with a stop watch!"

While this edition has been in production, we have received more in the mail covering the topic. There will be more next month for readers to chew over.

BALSA/FIBREGLASS COMPOSITE FOR NORDIC WINGS CONSTRUCTION - SOME THOUGHTS FROM DENMARK

As we mentioned in the December '78 edition of FFn, the Danes have been experimenting with balsa sheet covered in glassfibre cloth. We now have some more information on the Danes' work from Per Grunnet:

'Two weeks ago Karsten Kongstad made a "typical" 30 cm wing-piece. It had a Benedek 6356-B airfoil, 15 cm wing chord and an area of - naturally - 4.5 sq. dm. The weight was just under 20 grammes. A complete wing could be made with a weight under 130 grammes. Of course some reinforcements should be built in the wing root, but it looks as though it will be possible to make a usable wing weighing 160 grammes. And that is good enough.

The test wing was very stiff, and the surface was nice and smooth. No finishing is needed. When the balsa sheets are taken apart from the vinyl it actually looks like a lot of finishing has already been done.

The method is as follows. We use epoxy from Richard Schley, the kind called 799 (or 791). Schley also has the fibreglass cloth - 18 grms/sq. metre. It takes 18 grammes of epoxy (concentrated) to cover one square metre of 18 grms/sq. metre fibreglass cloth. You mix the epoxy, weigh the correct amount (it is important to have only the needed quantity, otherwise you will get tempted to use more than necessary, with consequent weight-problems ....) and you put thinner (methanol) in it. We use one part epoxy to one part thinner (by weight). Now you divide the epoxy into three equal parts. The first part is brushed onto a vinyl sheet. Then you put the fibreglass cloth on the vinyl sheet. Brush the second part of the epoxy onto the fibreglass cloth. Make sure that it is brushed on evenly. The third part of the epoxy is brushed onto the balsa sheet. Then you put the balsa sheet on the fibreglass cloth. Put the sandwich (and the whole thing is placed on some kind of wooden plate with a straight surface) into a plastic bag and make a vacuum in the bag. We use a compressor from an old refridgator to make the vacuum. Before the sandwich is put into the plastic bag, you can place some flamingo foam on top of the balsa. This will help to distribute the pressure on the sheet evenly.

After 10 hours drying time, you take everything out of the plastic bag, and pull the vinyl off the balsa sheet. And then you'll really be surprised ...

The vinyl sheet we use is the kind that is normally used on desk tops. It is around 1 mm thick, bendable and has a smooth but not shiny surface.

Of course there are lots of problems we have not thought about yet. We have not found an easy way to make the leading edge on the wing for instance. So we have decided to have a weekend meeting to discuss the problems and probably build a complete model together. There are several Danish modellers involved. Besides Karsten and me there are Steffen Jensen, Jørn Rasmussen, Finn Bjerre, Peter Buchwald and probably Kim Køster (Thomas' brother) will turn up too. We hope to come up with an easy-to-build fuselage too. At the European Champs

last year we bought 15 Chop- tubes from Ron Pollard - so we hope to use them in a new type of fuselage.

I have been thinking a lot about making some new models. At last year's Eifel Pokal and later at the European Championships I had the pleasure of watching Gary Madelin flying his straight tow models. Both contests were flown in windy conditions and at the Eifel Pokal in particular the air was very turbulent. I had great problems on both occasions just towing straight with my circle models. Hence the concentration left for finding thermals is very little. On the other hand, Gary and Pieter de Boer both flew straight tow models at the Eifel Pokal, and they did not seem to have trouble with the towing itself. They placed first and third. And Gary came third at the European Champs using his old straight tow model for the six windy rounds. So I will probably make one straight tow model soon. We have a lot of windy weather in Denmark, so it will be needed.

Still, I am very content with my 'old' models. The new one, Cirkeline, is very good in good weather. In dead air it will do just over 180 secs from a catapult launch. The second model, Jazzica, is a bit sick these days. It turns left and stalls when I try to catapult it. I'll check the wing warps and the towhook: it should be cured before the next contest. By the way, the new 'standard' all-balsa models we are building will follow the Jessica layout - long tapered tips and rather small central wing panels.'

(Incidentally, Per Grunnet would normally be a certainty for a Danish A/2 team, but he won't be making the trip to Taft. His wife is expecting a baby in the autumn, so he has stepped down.)

CROOKHAM GALA — Bassingbourn, 25th February

This was the perfect winter day, calm and bright. It was slightly chilly first thing in the morning, but it warmed up and there was plenty of lift around for those patient enough to wait for it. The preceding day - the Saturday - had also had fair weather and this, combined with a good forecast, brought out the crowds. As someone said, 'There are more people here today than I've seen at some Nationals!'

All in all, it was the ideal start to the season. The fly-offs were superb, and the results speak for themselves...

Open Rubber

4 min maxes.
35 flew, 18 in fly-off.

1	T Gray	St Albans	M + 510
2	D Hipperson	Croydon	M + 459
3	C Batty	Bristol	M + 440
4	I Kaynes	Croydon	M + 415
5	P Ball	Grantham	M + 410
	A Grantham	E. Grinstd	M + 410

Open Power

3 min maxes.
16 flew, 9 in fly-off.

1	K Faux	St Albans	M + 460
2	S Screen	B'ham	M + 440
3	T Payne	Biggles	M + 366
4	P Harris	B'ham	M + 327
5	R Peers	Falcons	M + 320
6	R Johnson	St Albans	M + 315

Open Glider

3 min maxes.
43 flew, 21 in fly-off.

1	M Bull	C/M	M + 212
2	M Fantham	Richmond	M + 204
3	M Scott	Leicester	M + 192
4	P Bayram	Richmond	M + 183
5	J Cooper	Biggles	M + 182
6	B Baines	RAFMAA	M + 170

All-In FAI

3 min maxes, five rounds.
47 flew, 12 in fly-off.

1	B Spooner	Croydon	M + 286
2	C P Williams	R'mond	M + 195
3	M Woodhouse	N'wich	M + 179
4	J Young	Five Wells	M + 173
5	J Foster	MFFG	M + 166
6	M Cowley	Biggles	M + 156

Top Junior

1	L Gray	Falcons	O/G	180 + 139
2	C Parry	Biggles	O/G	180 + 135
3	M Simkins	Biggles	O/G	180 + 56

HONING UP FOR THE WORLD CHAMPIONSHIPS

It will be a surprise to no-one to read that the Americans are working hard to make the Taft '79 Champs a success. Their contestants will be tough opposition, too, as the following report bears out. Our thanks to Toni White for the information.

The Max Men FAI Annual took place on 17th and 18th February with an excellent entry - 50 for the three events. Flown to 14 rounds, seven on the Saturday and seven on the Sunday, the weather was beautiful, though sandwiched between inclement weather immediately before and after the contest. Entries came for other States - Colorado, Michigan, Oklahoma, Texas and as far away as Pennsylvania. The Mexican glider team for the World Champs came to fly, as did Peter Allnutt - our frequent visitor from Canada. The only fly-off was in Power, between Hulan Matthes and Doug Galbreath (the latter on the US team, of course). Doug was the eventual winner.

Scores in glider, which had 22 entries, were very close until the 14th round, while in Wakefield (17 entries) Bob White was the only one to max out. However, in this event too, only 32 seconds seperated the top three!

On 10th and 11th March, there was another annual event - the California Eagles Club competition. An exciting drama developed on the second day in Open Rubber. Bob broke the AMA Unlimited rubber record, which had been held by George Batiuk, from Huntsville, Alabama since 1969. After three five minute maxes, Bob managed a further eight flights, each with the max increasing by one minute. While going for the thirteen minute max, he made 10 minutes 24 seconds to set a new record of 88 minutes, 24 seconds - quite exciting - and a lot of fun.

FFn sends congratulations on some superb flying!

Results of Max Men Annual

Glider F1A: 1, Mike McKeever, 2511 seconds; 2, Peter Allnutt, 2448; 3, Jim Leuken, 2430; 4, Matt Gewain, 2360. Wakefield F1B: 1, Bob White, 2520 seconds; 2, Irv Aker, 2515; 3, Earl Boteler, 2488; 4, Bob Piserchio, 2416; 5, Jack Brown, 2395. Power F1C: 1, Doug Galbreath, 2520 + 240 seconds; 2, Hulan Matthies, 2520 + 118; 3, Ed Carroll, 2478; 4, Hardy Brodersen, 2388; 5, Al Bissonnette, 2260.