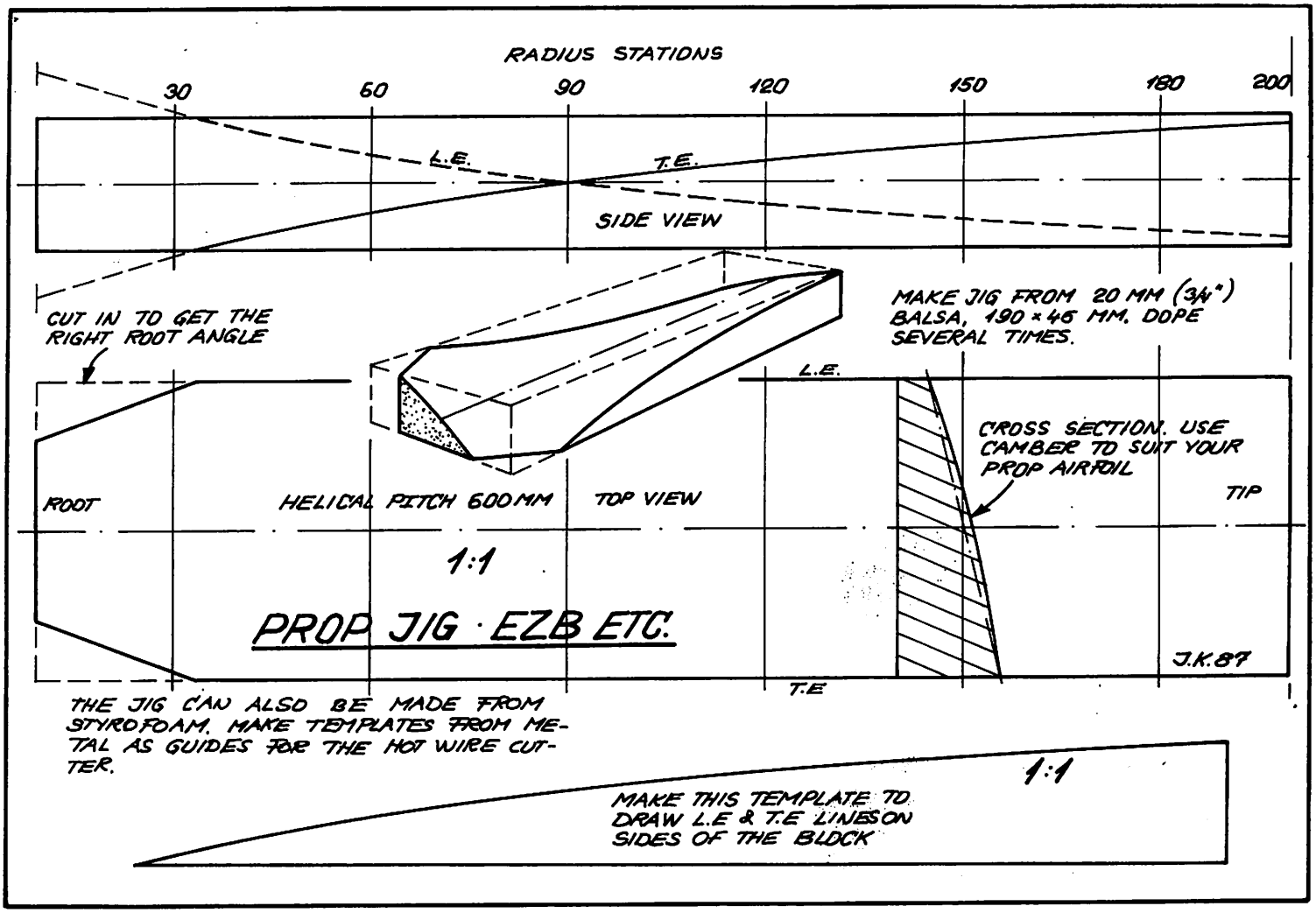


INDOOR NEWS 2/87

Dear friends,

Running out of your Pirelli??? Why not try the latest batch of Champion rubber.... My friend and Wakefield flyer Jens B. Kristensen - on the Danish Team in France - says that this rubber is even better than the best Pirelli!!!! This is the best news in this issue!!

On the international level ... The first officiel European Indoor Championships at the end of August with competitors from CS, D, SF, F, H, I, NL, CH, YUG, GB, PL and USSR for the first time as far as I know. Denmark will not be present from several reasons, amongst them time and money ....

The Romanian Modeling Association has invited to an international championship of Romania in class F1D, on the 24-27 September this year. The contest site is of course the saltmine of Slanic. Entry as soon as possible - officially before July 31st!

The Romanians have also applied for the European Indoor Champs in 1989 in the saltmine. The date is 19-24 September and the entry fee is 280 $ for the full service.

Quite a few people helped making this issue by sending material. This is a good habit so I'm looking forward to hearing from you, too!

Thedo André missed the 30 min flight by just 1 minute and 6 seconds in a CAT I hall - 7.81 meter ceiling ..... read his report ....

EDITOR ETC .....

Jørgen Korsgaard
Ahornweg 5,
D-2397 Ellund-Handewitt
W. Germany

Phone: 04608-6899

3 issues a year, will appear around March, July and November.

Scandinavia		45,- Dkr
Europe		50,- Dkr
Airmailed	p.t.	8,- US $

EXTRACTS FROM THE SIXTH USIC REPORT 1987

BY Anthony J. Italiano, USIC '87, Co-ordinator
1655 Revere Drive, Brookfield, WI 53005

The USIC 1987 was the biggest and the best indoor competition we have seen for decades! What a magnificent site the MINI-DOME was (East Tennessee State University)! The true height measured at 116' and had such a large floor area that at one time there were 41 models flying at one time! To sort of add cream to the festivities, the floor was covered with astro turf, which made it a pleasure to stand all day long and helped save a few HLG. Approximately a 30' width across the floor was bare of turf to allow for ROG activities.

To the best of my knowledge, all models caught in the structure were retrieved (in one piece or more). It did not appear that as many models were caught in the ceiling as we had at all previous sites. At least 99.9% of the modelers were ecstatic about the site and expressed their satisfaction and their desire to go for it next year!

Tables had to be rented and some chairs as well. Two tanks of helium were available, but only one was used as the retrieval activity was minimal. The building was very tight and in general we experienced hardly any drift, so steering was also minimized. Next year we will seal door cracks as well.

The management of the Dome by ETSU personnel was done in a most cooperative manner and they did everything they could to accomodate the activity.

The dormitory facility was clean, neat and air conditioned very comfortably. Most people thought the accomodations were just great.

On a general basis, at least 97.4% of the competitors were enjoying the contest. The joking and general ambivalence between people were evident and good to see. Fun, fun, fun, is what the whole 3 days were about and yet a spirit of competition threaded through it all.

Overall, the banquet went very well. Don Lowe (AMA President) was present and gave the Distinguished Service Award to Don Lindley for his generous service to AMA over the years. NFFS Distinguished Service Awards were also given to W. Hewitt Phillips and David B. Linstrum for their work of early Symposium editorship. There was the featured guest speaker who had the ability to make all people present forget their worries and just plain enjoy. The tears rolled down their cheeks and muscles ached from the laughter. Fire Chief Doug Buckles has an excellent knack for taking an every-day occurance and making it into a most hilarious episode.

We were beseiged by the press and received a lot of newsprint and TV coverage.

. . . . . .

There is no question that the Mini-Dome is a great site, even for International competition. This was well demonstrated by Jim Richmond's flight of 41:36 in AMA Stick and Bud Romak's at 39:18! But, in F1D, Rick Doig led the way with flights of 38:19 and 34:44, and with Jim Richmond pushing at a 2 flight total of 70:57.

. . . . . .

The hotly contested and largest event was EZB with a total of 62 entries. Mr EZB, Jerry Nolin excelled with a great flight of 18:40. However, Walt VanGorder was 2nd at 18:32 followed by Dick Obarski with 18:21 for 3rd, and Chuck Markos 4th at 18:11. That was real competition at its best! Don Sluzarezyk did it for Jr/Sr with a very good 15:40.

. . . . . .

The entry breakdown by origin was:

AL - 2	IN - 10	NY - 5	TX - 5
CA - 2	MA - 1	NC - 3	VA - 7
FL - 10	MD - 1	OH - 10	WI - 3
GA - 1	MI - 8	PA - 5	CANA - 8
IA - 1	MO - 2	RI - 1	
IL - 10	NJ - 2	TN - 1	

The total entry was 98 plus 6 no-shows. This is an all time high!!

As usual the unsung heroes of the contest are the contest directors and the judges and table helpers. So, let us consider them:

CD's	Scale Judges	Helpers
Don Lindley	Ray LeFrancois	Walter
Charlie Sotich	Tony Becker	Hartung
Gordon Wisniewski	George Leffler	Melody
Hardy Brodersen		Doig
Tony Italiano		

Doc John Martin conducted the Grand Prix. He included the Pistachio size as well. Doc's report will be available in the Hanger Pilot Newsletter from the Miama group.

Finances! How did we do? A very difficult question to answer at this point. The final bill from ETSU for the Dome and dormitory will not be available for approximately 3 weeks. However, I can take a gross look, estimate the bill, make allowance for surprises and look in the crystal ball, and it appears that the USIC 1987 should come out plus or minus about $200.00.

The USIC is not financially self sustaining. We should look at a higher entry fee, industry support, and other viable means of raising funds and the possibility of holding the event every other year (only kidding). Got any ideas? It is basic that the higher the participation, the easier it is to break even.

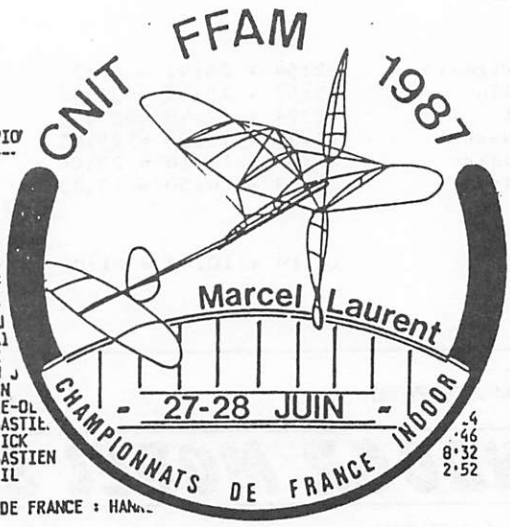
In conclusion: Indoor flying is alive and well when a proper site is available and low priced lodging is in close proximity. It is sad that the indoor community is not more cohesive. We still did not see enough of the North East States flyers and not enough of the Scale flyers. We hope they wake up soon and smell the flowers before it is too late. The ETSU Mini-Dome is an absolutely terrific site. It has all the good attributes we dream about. It has a tight building with minimal drift, a 116' ceiling, large, clean floor space, cooperative management, avoidable obstructions, and a reasonable price. It would also be great for an International contest. The dormitory is very good and so are most of the local hotels. The area is scenic with plenty of historical sites to peruse.

The Mini-Dome has been tentatively reserved for 1988. We need at least 150 competitors. The USIC will then be managed in a delegated manner. Event directors will be needed and committees for publicity, awards, facilities, etc. will be appointed. We might be able to use a computer for instant record keeping.

The Future! We should look strongly at the prospect of combining USIC and the Indoor portion of the Nationals. The ETSU site is terrific and we should avail ourselves of it to the maximum. We should also pursue holding the F1D World Championships at the Mini-Dome. Consider having some of your offspring attend ETSU...It is a beautiful campus!

THANKS TO ED WHITTEN.....

RESULTS NEXT TIME.....



'CHAMPIO'

MICROPAPIER 35 CADE

1	HANRIOT CHRI				
2	WESTRELIN ST				
3	BERLOT JEAN-				
4	CARRE STEPHAI				
5	CHABOT SYLVAI				
6	BESSE XAVIER				
7	GUILLEMINEAU J				
8	RICHON FABIEN				
9	SALNOT PIERRE-OL				
10	CHAUVEAU SEBASTIE				:46
11	MATHIEU PATRICK				8'32
12	BONTEMPS SEBASTIEN				2'52
13	CHAUVEAU CYRIL				

RECORD DE FRANCE : HAN...

MICROPAPIER 35 JUNIORS

1	LE SAINT THIERRY	AC LANDES	13'39	12'09	25'48
2	BOULANGER FREDERIC	UA ORLEANS	8'51	8'18	17'09
3	ISAMBERT BRUNO	UA ORLEANS	8'08	7'51	16'03
4	COLIN STEPHANE	MARCEL LAURENT	8'05	7'06	15'11
5	CHABOT ISABELLE	CA TOURAINE	7'47	7'21	15'08
6	BONNOT NICOLAS	UA ORLEANS	7'34	6'58	14'32
7	RAULT JEAN-FRANCOIS	UA ORLEANS	7'09	6'31	13'40

RECORD DE FRANCE : LE SAINT THIERRY 13'39

MICROPAPIER 35 SENIORS

1	CHAMPION ROBERT	CA TOURAINE	16'00	15'56	31'56
HC	TROBS A.	R.F.A.	15'00	13'08	28'08
2	TRACHEZ BERNARD	AZAY LE BRULE	13'48	13'46	27'34
3	VALERY JACQUES	AC LANDES	13'20	13'16	26'36
HC	KELLER PETER	SUISSE	13'26	12'33	25'59
4	COGNET GUY	AC POITOU	12'43	12'24	25'07
5	TRACHEZ ANDRE	AZAY LE BRULE	12'24	11'57	24'21
6	MARTIN PHILIPPE	UA ORLEANS	11'57	11'48	23'45
HC	KLINCK ALFRED	R.F.A.	12'15	11'28	23'43
7	FRUGOLI JEAN-FRANCIS	MAC MARSEILLE	12'42	10'01	22'43
8	DUCHENNE FRANCOIS	AC POITOU	11'39	10'47	22'26
9	DELCROIX JACQUES	UA ORLEANS	11'22	10'54	22'16
10	BESSE ALAIN	UA ORLEANS	10'14	6'54	17'08
11	HUA-NGOC TRUNG	PESSAC	8'43	7'36	16'19
12	PILLER MICHEL	UA ORLEANS	7'38	7'27	15'05
13	CASTANET MICHEL	MARCEL LAURENT	5'00	4'46	9'46

RECORD DE FRANCE : CHAMPION ROBERT 16'00

THANKS TO R. CHAMPION

F1D BEGINNER

1	VALERY JACQUES	AC LANDES	13'01	12'41	25'42
HC	KELLER PETER	SUISSE	11'51	11'24	23'15
2	FRUGOLI JEAN-FRANCIS	MAC MARSEILLE	10'47	10'38	21'25
3	HUA-NGOC TRUNG	PESSAC	10'23	9'46	20'09
4	BESSE ALAIN	UA ORLEANS	9'41	9'30	19'11
5	CAILLAUD MICHEL	UAC BOURGES	9'31	9'11	18'42
6	DELCROIX JACQUES	UA ORLEANS	9'29	8'56	18'25
7	CHABOT JEAN-MARIE	AC THOUARS	9'03	8'50	17'53
8	PAILHE PIERRE	AC BEARN	8'43	8'28	17'11
9	LE SAINT THIERRY	AC LANDES	8'32	8'06	16'38
HC	LIEM EDMUND	PAYS-BAS	8'14	7'56	16'10
10	PICARD LUC	PESSAC	7'10	6'43	13'53
11	WESTRELIN STEPHANE	AC LANDES	6'19	6'05	12'24

RECORD DE FRANCE : VALERY JACQUES 13'01

E.Z.B.

1	VALERY JACQUES	AC LANDES	14'40	12'58	27'38
2	CHABOT JEAN-MARIE	AC THOUARS	14'15	13'10	27'25
3	TRACHEZ BERNARD	AZAY LE BRULE	13'26	13'16	26'42
4	CHAMPION ROBERT	CA TOURAINE	12'59	12'26	25'25
5	DELCROIX JACQUES	UA ORLEANS	12'57	12'20	25'17
6	DUCHENNE FRANCOIS	AC POITOU	10'30	9'37	20'07
7	HUA-NGOC TRUNG	PESSAC	9'47	9'37	19'24
8	BESSE ALAIN	UA ORLEANS	9'42	9'39	19'21
9	TRACHEZ ANDRE	AZAY LE BRULE	8'26	8'01	16'27
10	COLIN STEPHANE	MARCEL LAURENT	6'14	6'10	12'24

MICROFILM 35

1	CHAMPION ROBERT	CA TOURAINE	15'09	15'08	30'17
2	FRUGOLI JEAN-FRANCIS	MAC MARSEILLE	15'23	13'49	29'12
3	COGNET GUY	AC POITOU	14'48	14'01	28'49
4	DUCHENNE FRANCOIS	AC POITOU	15'31	12'32	28'03
5	BESSE ALAIN	UA ORLEANS	13'43	13'41	27'24
6	MARTIN PHILIPPE	UA ORLEANS	11'24	10'10	21'34

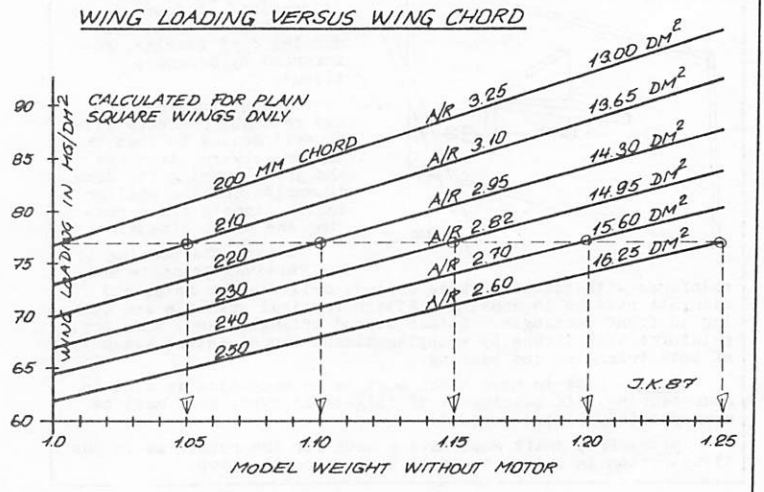
F 1 D

HC	ANDRE THEDO	PAYS-BAS	30'21	25'12	55'33
HC	LIEM EDMUND	PAYS-BAS	27'47	27'30	55'17
1	CHAMPION ROBERT	CA TOURAINE	25'21	24'19	49'40
HC	KLINCK ALFRED	R.F.A.	24'18	24'12	48'30
2	COGNET GUY	AC POITOU	24'32	23'51	48'23
3	ALLAIS JEAN-RENE	MACLA NANTES	24'06	23'53	47'59
4	TRACHEZ BERNARD	AZAY LE BRULE	25'35	21'43	47'18
5	FRUGOLI JEAN-FRANCIS	MAC MARSEILLE	23'00	18'29	41'29
6	VALERY JACQUES	AC LANDES	22'17	18'23	40'40
7	CHAUSSEBOURG PIERRE	VENOURS	20'16	17'45	38'01
8	BESSE ALAIN	UA ORLEANS	19'11	17'19	36'30
9	TRACHEZ ANDRE	AZAY LE BRULE	19'56	16'15	36'11
10	DUCHENNE FRANCOIS	AC POITOU	18'58	15'30	34'28
11	MARTIN PHILIPPE	UA ORLEANS	17'37	15'51	33'28
12	CAILLAUD MICHEL	UAC BOURGES	17'26	13'23	30'49
13	CHATEAU STEPHANE	AC THOUARS	15'08	15'00	30'08
14	GRONNIER XAVIER	UA ORLEANS	15'16	14'18	29'34
15	CHABOT JEAN-MARIE	AC THOUARS	15'15	12'33	27'48

EQUIPE DE FRANCE 1988 : CHAMPION ROBERT
COGNET GUY
TRACHEZ BERNARD
FRUGOLI JEAN-FRANCIS (REMPLACANT)

WING LOADING/WING CHORD

Over the years a wing chord of 200 mm (8") has been widely used in order to keep wing loading low. But now more and more F1D flyers use wider chords to keep loading even lower though some have trouble to keep weight down so the advantage disappears.
In the diagram you can see a range of wing chords put up to model weight without rubber. The dotted lines show the points where wider than 200 mm wing chords have the same wing loading as a model with 200 mm wing chord and a weight of one gram.
A model with a 240 mm wing must weigh less than 1.20 gram to have a lower loading than the 200 mm wing.
At very low speed and high lift coefficient the induced drag plays a major role of the drag budget of the whole model. The question is: Will the lower wing loading of a 250 mm wing not be eaten up by the increase in induced drag???



BOYD FELSTEAD ..... Construction news:

A sheet of .035" x 18" weighed out at .0379 oz = 5.77 lb/sq.ft. Spars stripped from this sheet, .035 x .040", weighed 0.0014 oz for each 18" strip which = 6 lb/sq.ft., which suggests the density varied across a 1 1/8" sheet. This prompted me to calculate (on paper) the weight of various size spars for densities 5, 5.5 and 6 lb/sq.ft. using the formula

$$\frac{\text{length of strip} \times \text{width} \times \text{thickness} \times \text{density}}{108}$$

with dimensions in inches and lb/sq.ft.
For wings 17.5" spars (my centre section):

$$\frac{17.5 \times .035 \times .040 \times 5}{108} = .00113 \text{ oz}$$

5.5= .00124 oz

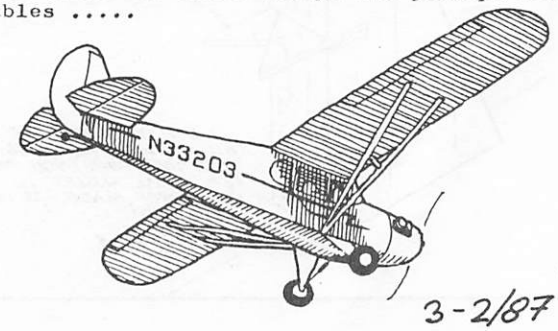
6 = .00136 oz

$$\frac{17.5 \times .030 \times .040 \times 5}{108} = .00097 \text{ oz}$$

5.5= .001069 oz

6 = .001166 oz

and so on. This way you can always have a check on your density of your spars. You can also do the same calculations for other strips and perhaps make some tables .....



3-2/87

DM-INDOOR 1987.

P-15:

1.	Jesper Thorlund	3:15	NATS
2.	Jens Peter Larsen	3:15	
3.	Sønke Boldt	2:45	IN
4.	Niels Putzer	2:39	
5.	Jørgen Olesen	2:35	DK
6.	Jacob Andersen	2:34	
7.	Anders Jensen	2:30	87
8.	Frank Petersen	2:22	
9.	Preben Dyrmose	2:05	
10.	Henrik Nielsen	1:16	

F1D:

1.	Jørgen Korsgaard	22:54	+ 25:41	=	48:26
2.	Frank Dahlin	15:51	+ 15:45	=	31:36
3.	Hugo Ernst	12:24	+ 12:49	=	25:15
4.	Hans Rasmussen	12:35	+ 12:30	=	25:05
5.	Kåre Rasmussen	11:50	+ 11:16	=	23:06
6.	Danny Nielsen	8:33	+ 6:50	=	15:23

35 cm mikro:

1.	Hugo Ernst	10:19	+ 10:43	=	21:02

P-15 m. træ-propel (forsøg):

1.	Henrik Nielsen	5:35
2.	Jørgen Olesen	5:32
3.	Frank Dahlin	5:26
4.	Kåre Rasmussen	4:41
5.	Danny Nielsen	4:13
6.	Jesper Thorlund	1:24

EZB:

1.	Jørgen Korsgaard	10:23	+ 10:37	=	21:00
2.	Hugo Ernst	10:07	+ 10:05	=	20:12
3.	Hans Rasmussen	8:30	+ 10:20	=	18:50
4.	Frank Petersen	4:38	+ 8:13	=	12:51
5.	Jens Peter Larsen	6:34	+ 6:06	=	12:40
6.	Danny Nielsen	5:59	+ 6:25	=	12:24
7.	Poul Rasmussen	5:09	+ 4:16	=	9:25
8.	Frank Dahlin	3:34	+ 2:32	=	6:06
9.	Henrik Nielsen	2:22	+ 1:46	=	4:08

Peanut:

		TYPE	
1.	J. Korsgaard	Farman 450	9.5 M HALL
2.	E. Knudsen	Piper J3	
3.	J. Korsgaard	Bede 4	
4.	H. Rasmussen	Aero 634	
5.	J. Thorlund	Lacey M-10	
6.	E. Knudsen	Lacey M-10	
7.	E. Knudsen	Gipsy Moth	
8.	E. Knudsen	Nesmith Cougar	
9.	S. Boldt	Wittman Tailwind	
10.	J. Korsgaard	Jodel 112 Club	

IHLG (Chuck):

1.	Jørgen Korsgaard	36 + 33 = 69	sek,
2.	Jens Peter Larsen	27 + 29 = 56	
3.	Sønke Boldt	25 + 25 = 50	
4.	Hugo Ernst	24 + 25 = 49	
5.	Niels Putzer	24 + 24 = 48	
6.	Frank Petersen	19 + 24 = 43	
6.	Frank Dahlin	22 + 21 = 43	
8.	Kåre Rasmussen	19 + 19 = 38	
9.	Jørgen Olesen	15 + 6 = 21	

NEW ADDRESS:

INDOOR MODEL SUPPLY

LEW GITLOW

1887 WEST HAVEN, N.W.

SALEM

OREGON 97304

U.S.A

(HAS ALL YOU NEED FOR INDOOR)!

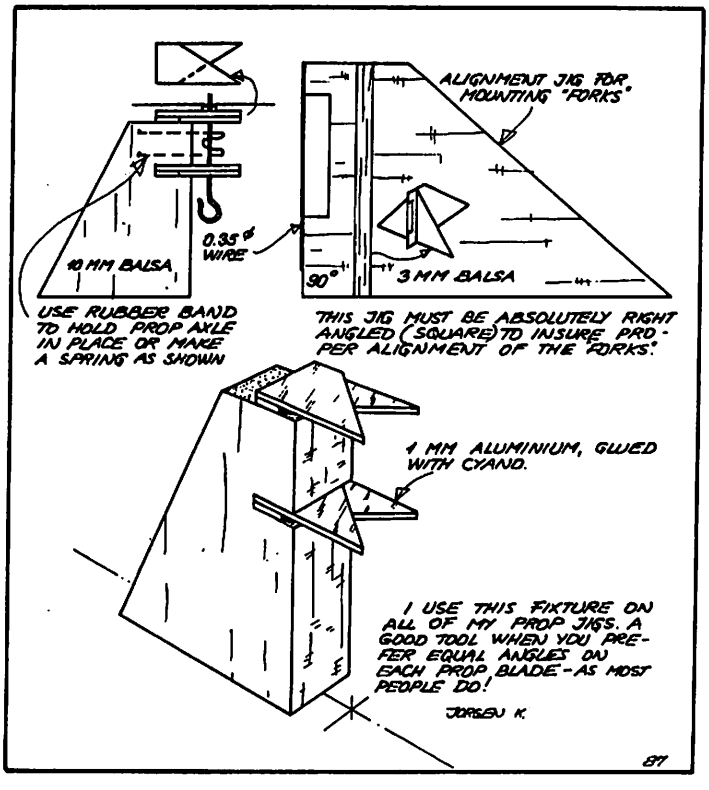
1980

CZECH Team Trials in the "Z-HALL" 11-12 July.

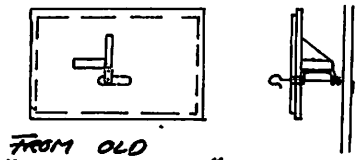
1.	Jiri Kalina	35:17	+ 35:54	=	71:11
2.	Vaclav Walek	34:15	+ 35:54	=	70:09
3.	Leopold Walek	33:10	+ 33:46	=	66:56
4.	Karol Brandejs	31:26	+ 34:40	=	66:06
5.	Jaroslav Jirasky	32:20	+ 32:12	=	64:32
6.	Karl Schonfelder	30:05	+ 30:34	=	60:39
7.	Lutz Schramm	27:21	+ 31:57	=	59:18
8.	Karol Rybecky	26:06	+ 32:12	=	58:18
9.	Rudolf Musil	27:04	+ 26:44	=	53:48
10.	Jindrich Fadrny	29:19	+ 21:56	=	51:15

There were 11 competitors, nr. 6 and 7 are from East Germany (DDR). Contest director was Edward Chlubny!

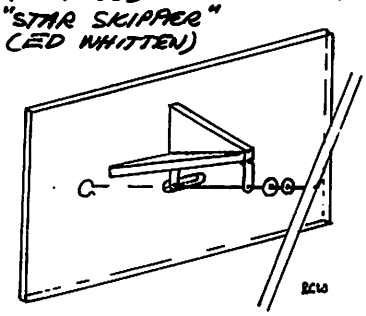
The team is then Kalina, L. Walek and Brandejs as Vaclav will be the member of "technical attendance".



INTERCHANGEABLE PROPELLER BEARING FOR MANHATTANS



FROM OLD "STAR SKIPPER" (ED WHITTEN)



This nose block allows modelers who are not sure of the propeller configuation to experiment. It is especially good for beginners, who may not consistently make adequate propellers, to try a heavy EZB prop.

The noseblock is light; the one constructed weighing only 0.12 grams. It consists of four pieces of balsa wood and a commercial dual bearing, reinforced by Japanese tissue.

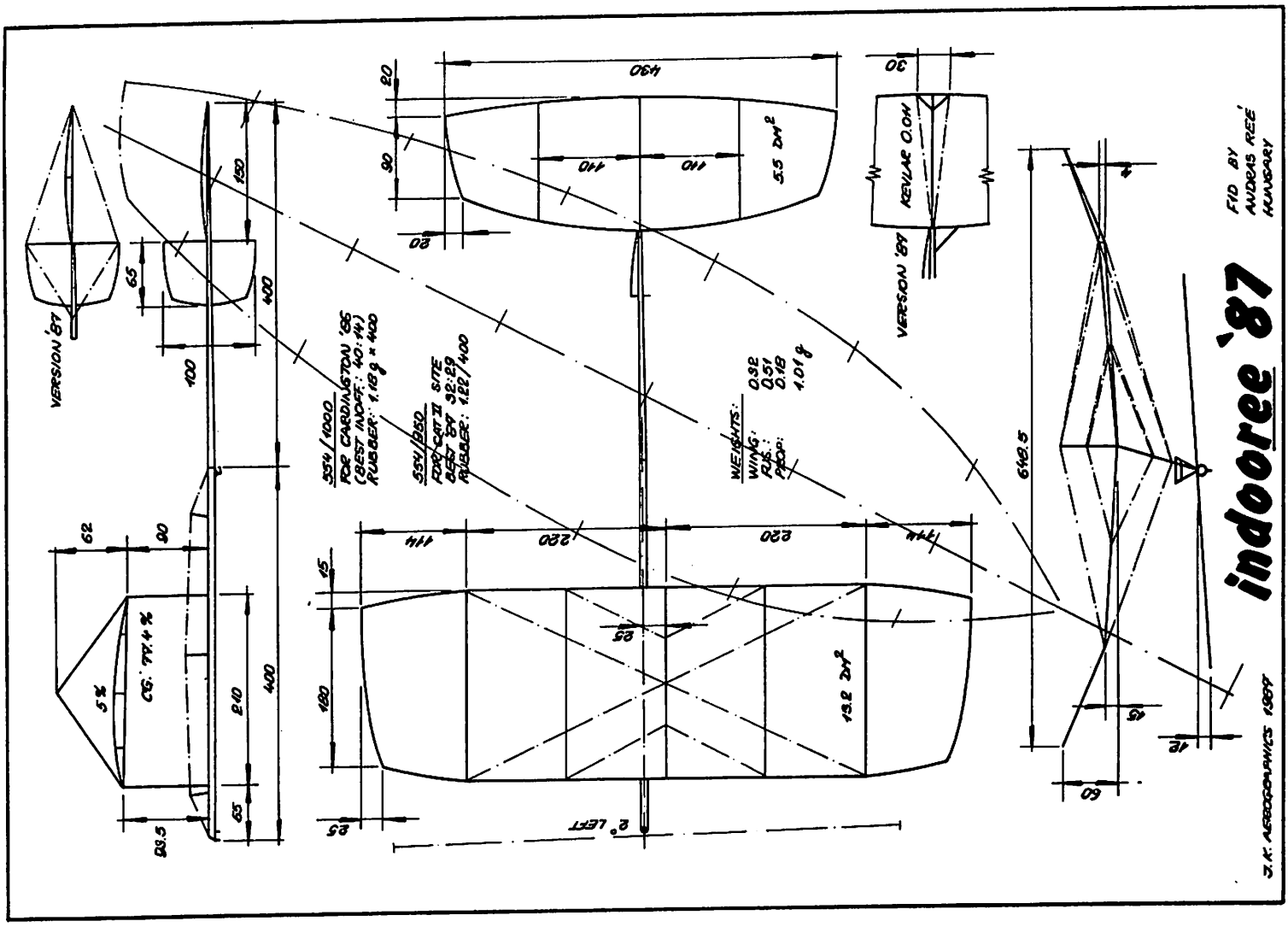
Cement together the two retangular pieces with crossed grains so that the larger forward piece has the grain running the long dimension and the smaller inside piece's grain running the short dimension.

Cement the bearing to the vertical triangle and reinforce with tissue. While drying, drill center hole, and elongate hole as in drawing. Attach vertical triangle and bearing to front rectangle. Attach second triangle, and, when dry, reinforce with tissue by wrapping tissue around entire assembly of both triangles and bearing.

Note: Slot in nose block must be on same side as slot in rear bearing. If bearing is of 'pig-tail' type, slot must be appropriately placed to suit.

Note: Prop shaft must have a hook for the rubber as in the illustration in order to assist putting on the prop.

4-2/87

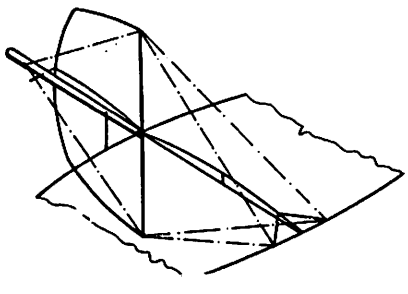


A letter from Andras Reé, H.

.... I also send you a drawing of my new model. The first contest of this model was the W/Ch. It was flown in three rounds. In the 1st 35:57 with bad climbing, in the 2nd and 5th rounds it hanged up. On the test day it did 40:15 after good climbing. In the other rounds I used my old design.

This year I also used this model. The two contests were in the same site and the conditions were not good. You see on the results that only a few flights were good. One of these is my 32:29 with the new model and with FAI rubber ('84)! Last year I also did over 31 min. using my old design in the same site and also with FAI rubber. My elder son, Istvan, also used FAI rubber in Debrecen last year (33:24 was the best). But these results were made in warm air - 24-27° C. We tried this rubber in the salt mine in 1984, but it was terrible - 10° - completely unusable.

This year I have a suspended stab version of my new model, I don't like the braced stabs (I had a few 22 years (!) ago with plug-in booms and a lot of storing and handling problems). But a stab like Banks was not strong enough for me in torsion at the trailing edge. Therefore I use double bracing near to the middle: It works pretty good - the bracing is 0.011 mm Kevlar.



HUNGARY NEWS...

VARSZEGI MEMORIAL II. round 23-24 Aug, 1986
Debrecen (29.3 m site)

1	BEKE, Geza	31:56	32:27	=	64:23
2	REE, Istvan	30:47	33:24	=	64:11
3	EGRI, Antal	31:33	32:15	=	63:48
4	BOTOS, Istvan	32:24	30:30	=	62:54
5	KEMENY, Miklos	28:07	31:16	=	59:23

. . .

HUNGARIAN CHAMPIONSHIPS 1986

1	REE, Andras	3 points	(122:52)
2	REE, Laszlo	3 points	(119:42)
3	ORSOVAI, Dezso	6 points	
4	REE, Istvan	8 points	(+6)
5	BOTOS, Istvan	8 points	(+7)
6	KEMENY, Miklos	9 points	

. . .

CHAMPS. OF BUDAPEST, 30-31 May, 1987 (14.9 m)

1	REE, Andras	30:51	32:29	=	63:20
2	ORSOVAI, Dezso	30:54	30:50	=	61:44
3	REE, Laszlo	27:37	26:17	=	53:54
4	EGRI, Antal	25:11	27:45	=	52:56
5	REE, Istvan	22:22	24:02	=	46:24
6	HELLENBORTH, Csaba	21:35	23:27	=	45:02

. . .

VARSZEGI MEMORIAL, 20-21 June, 1987 (14.9 m)

1	REE, Laszlo	30:28	31:18	=	61:46
2	ORSOVAI, Dezso	29:40	31:04	=	60:44
3	REE, Andras	28:25	26:41	=	55:06
4	EGRI, Antal	24:46	28:03	=	52:49
5	REE, Istvan	24:28	24:50	=	49:18
6	BOTOS, Istvan	23:57	24:04	=	48:01

5-2/87

Dear Mr. Korsgaard,

I have recently received a copy of an excellent drawing from your news letter from my good friend Boyd Felstead in Australia. I was most impressed! Please advise me on how to subscribe to your Indoor Bulletin.

Not being one of the 'great' flyers I can't pass on anything of great interest or importance for your news letter. One thing I have done is to write a computer program which uses a commonly available and relatively cheap Epson dot matrix printer and Apple computer to plot wing and stab outlines. A couple of samples are enclosed for your comment. I would be curious to hear if any of your readers have written similar programs and what the state of the art is. Here's hoping to hear from you soon.

Best regards

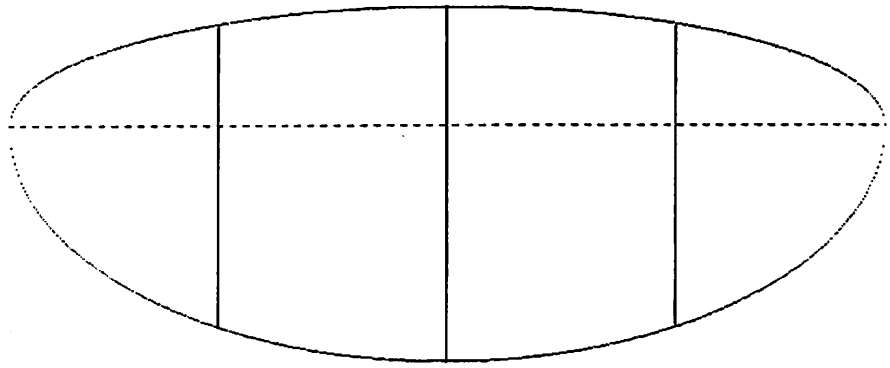
Tom Vallee

Thomas Vallee

444 Henryton So.
Laurel, Maryland
20707 USA

6.5 BY 2.625 ELLIPTICAL ~~WING~~ STAB
AREA = 13.4 SQUARE INCHES)

A-ROG STABS



CHAMPION MODEL PRODUCTS

George Schroeder's latest batch of rubber - made in March or April - has shown very good qualities, up to 3700 lb/ft and the Wakefield flyers are wild about it.....
Manny Radoff has tested an indoor motor .... he says: GOOD RUBBER!

Champion's address:

880 Carmen Court
La Verne
California 91750
USA

MYLAR:

The Dutch glider flyer, Jan Somers, has some very thin MYLAR folie for sale. It is 0.002 mm thick and weighs 2.4 grams/m^2, colourless. It is sold in rolls 30 cm wide and 25 meters long. The price is 25 DFL - Dutch gulden - postage 3.50 or 6.50 DFL for Europe or outside.

Jan Somers
Julianalaan 53
NL-8171 EB Vaassen
Holland

J.H. Maxwell and his wondermachine

can fulfill any - nearly - demands for indoor prop jigs at reasonable prices. Write him at:

14 Upper Craigs
Stirling FK8 2OG
Scotland

RONYTUBE:

sells a HLG composite tube (glass fibre/carbon) which according to Boyd Felstead could be useful as mandrel for making tail booms for F1D models. The dimensions are: 510 mmm long and tapering from 6 to 1.5 mm. 1.70 £ + POSTAGE.
Boyd says that Ray Harlan's alu-former tapers 0.0099" per inch where as RONYTUBE's taper is 0.0088" per inch. It might be good for the less tapered booms now popular with the suspended stabs configuration.

RONYTUBE
23 Ivy Road
Walkerville
Newcastle upon Tyne NE6 4PU
England

O-RINGS .. Uwe Bundesen/Ondraczek, D

Some cars, fx VOLVO, have a "niveaulift" - hydraulic - for which a strong plastic tube is used. It is 3 mm O.D. with a hole of about 1.7 mm. Cut small rings from this material and heat them in the fire of a lighter shortly to remove sharp edges. You can hold them in the fire with a piece of wire. Then you will have some very strong and useful O-rings for your motors.

2ND Offenburger Indoor Contest, 8TH March.

This contest was flown in a tight calm hall with a 7 m ceiling.
The times in the F1D-Beginner class are very good in both senior and junior. The TH class (35 cm, 2g and wood prop) was won by Uwe Bundesen using a tandem design and VP prop.

Results - best two flights:

F1D-Beginner: best single flight 10:38

SENIORS,

1.	Benno Schlosser	20:57
2.	Gunther Ondraczek	20:39
3.	Uwe Bundesen	20:08
4.	Peter Keller, CH	17:31
5.	Hans Franke	16:02

JUNIORS:

1.	Roger Ruppert, CH	15:50
2.	Ribert Grover	14:13
3.	Peter Konig	12:51
4.	Alex Tschallener	11:38
5.	Thomas Merkt	9:45

TH: best single flight 9:52

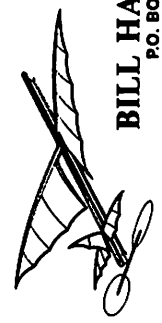
SENIORS:

1.	Uwe Bundesen	19:27
2.	Gunther Ondraczek	15:53

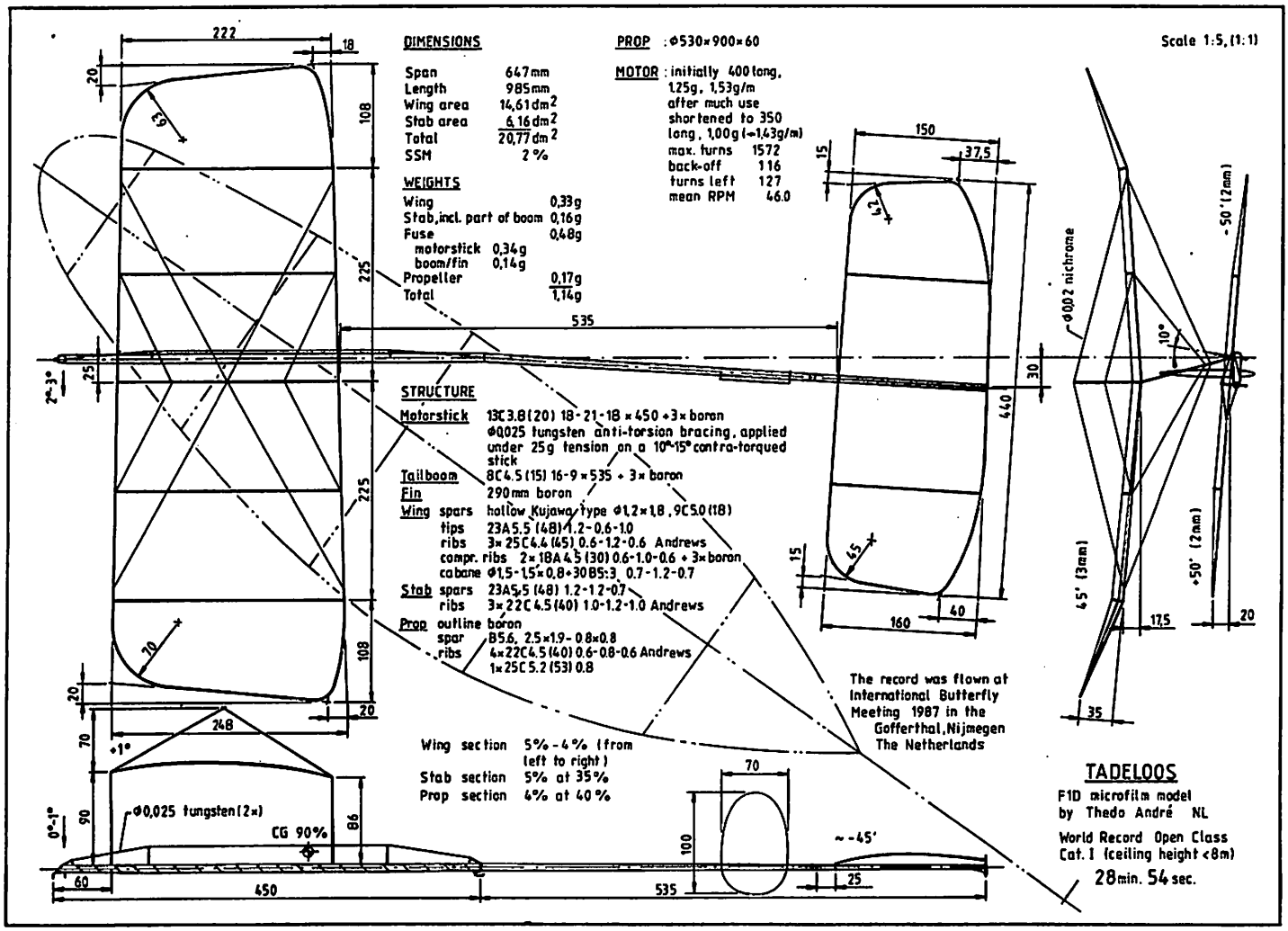
JUNIORS:

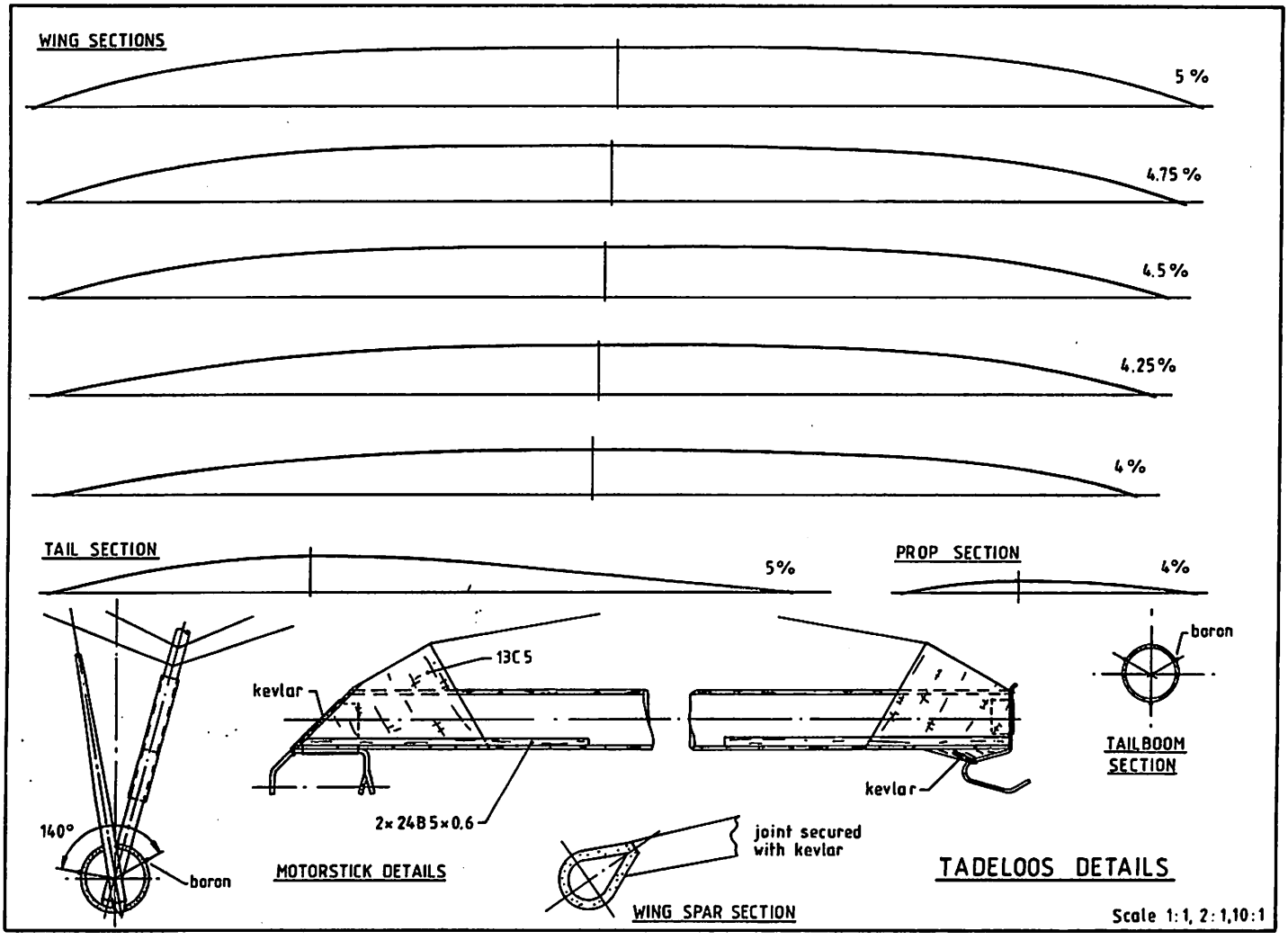
1.	Jan Mckeverne	L5:35
2.	Michael Mckeverne	14:11
3.	Oliver Kriessl	12:32
4.	Thomas Merkt	11:58
5.	Endru Bundesen	9:29
6.	Daniel Kutter	8:56

BILL HANNAN
P.O. BOX A
ESCONDIDO, CA 92025 USA



6-2/87


DIMENSIONS
Span 647mm
Length 985mm
Wing area 14,61dm²
Stab area 6,16dm²
Total 20,77dm²
SSM 2%
WEIGHTS
Wing 0,33g
Stab,incl. part of boom 0,16g
Fuse 0,48g
motorstick 0,34g
boom/fin 0,14g
Propeller 0,17g
Total 1,14g
PROP : Ø530×900×60
MOTOR : initially 400 long, 1,25g, 1,53g/m
after much use shortened to 350 long, 1,00g (=1,43g/m)
max. turns 1572
back-off 116
turns left 127
mean RPM 46.0
STRUCTURE
Motorstick 13C 3.8 (20) 18-21-18 × 450 + 3× boron
Ø0,025 tungsten anti-torsion bracing, applied under 25g tension on a 10°-15° contra-torqued stick
Tailboom 8C 4.5 (15) 16-9 × 535 + 3× boron
Fin 290mm boron
Wing spars hollow Kujawa type Ø1,2×1,8 , 9C 5.0 (18)
tips 23A 5.5 (48) 1.2-0.6-1.0
ribs 3× 25C 4.4 (45) 0.6-1.2-0.6 Andrews
compr. ribs 2×18A 4.5 (30) 0.6-1.0-0.6 + 3× boron
cabane Ø1,5-1,5×0,8+30 BS:3 0.7-1.2-0.7
Stab spars 23A 5.5 (48) 1.2-1.2-0.7
ribs 3× 22C 4.5 (40) 1.0-1.2-1.0 Andrews
Prop outline boron
spar BS 6, 2.5×1.9-0.8×0.8
ribs 4×22C 4.5 (40) 0.6-0.8-0.6 Andrews
1×25C 5.2 (53) 0.8
Wing section 5% - 4% (from left to right)
Stab section 5% at 35%
Prop section 4% at 40%
Ø0,025 tungsten (2×)
CG 90%
Ø0,2 nichrome
The record was flown at International Butterfly Meeting 1987 in the Gofferthal, Nijmegen The Netherlands
TADELOOS
F1D microfilm model by Thedo André NL
World Record Open Class Cat. 1 (ceiling height < 8m)
28min. 54 sec.
Scale 1:5, (1:1)


WING SECTIONS
5 %
4.75 %
4.5 %
4.25 %
4 %
TAIL SECTION
5%
PROP SECTION
4%
13C 5
kevlar
2× 24B 5×0.6
kevlar
baron
TAILBOOM SECTION
140°
baron
MOTORSTICK DETAILS
joint secured with kevlar
WING SPAR SECTION
TADELOOS DETAILS
Scale 1:1, 2:1, 10:1

7-2/87

NO.	PLAATS	DATUM	PROP	α_s	MOTOR			TOEREN/TORSIE						TOERENTAL						TIJD	$\overline{RPM}$	OPMERKINGEN
					L	W	W/m	N_{max}	N_{st}	Q_{max}	Q_{st}	N_{used}	N_u/N_{st}	t / 10N								
	Gofferthal	6-6-'87	53x90	2	400	1.25	1.53	1150	930	20	10			3	14.6							cruise test
				1				1585	1446	30	15	997	0.69	16 20	14.4 14.4					23'18	42.8	
								1661	1529	35	17	1094	0.72	16 20	14.6 14.6					25'27	42.9	
								1746	1600	40	18	917	0.57	0,5	12.0					20'22	45.0	severe prop tip damage
					→ 380			1625	1503	40	20									3'39		left wing tip damaged
								1640	1539	40	20	1110	0.72	20	14.6					25'46	43.1	other wing
					→ 350	1.00		1572	1456	50	23	1329	0.91							28'54	46.0	

World record for indoor models category I. BY THEDO ANDRÉ, NL.

The record flight was made with a standard F1D microfilm indoor model, i.e. maximum wing span 650 mm and minimum airframe weight 1 gram. The model was a derivation of the model I used at the 1986 World Championships in Cardington. The motorstick length was increased to 450 mm. This made it possible to shift the centre of gravity more aft, thereby increasing the lifting force of the stabilizer. The camber of the stabilizer section was increased to 5% in order to retain sufficient stability margin. The long motorstick necessitated the use of thinner rubber motors and smaller propellers in an attempt to limit an increase in total rubber weight.

The very first test flight of the model necessitated a slight decrease in stabilizer incidence. The second flight was an immediate improvement of my personal record, which stood at 22'42. Apart from a pair of flights with damage the following flights were improvements also. On every flight however about 400 turns of the motor stayed unused. This normally indicates that the cross section of the motor used is too thin. The let down phase of the flights however showed such an efficiency that it was decided to shorten the motor from 40 cm to 38 cm. This resulted in a flight time of 25'46. Despite this there were still about 400 turns left. The motor was shortened by another 3 cm and the maximum winding torque as well as the launch torque were increased. When flying in low ceiling halls it is normal use to let the model fly against the ceiling, provided that the ceiling is flat and free of obstructions. On this flight the model reached the ceiling in about 1 minute. It stayed there for about 16 minutes, about 3 minutes longer than on the previous flights. The model had to be steered twice. This was done by changing its direction by touching the tailboom from the side with a fishing pole. A few moments after the model lost contact with the ceiling it flew into strands of a cobweb which caused a loss in height of at least half a meter. The descent phase however proved to be at least as good as on the last flight and finally the model landed at 28 minutes and 54 seconds. Exactly an improvement by 60 seconds of the existing world record by Ron Higgs of Canada.

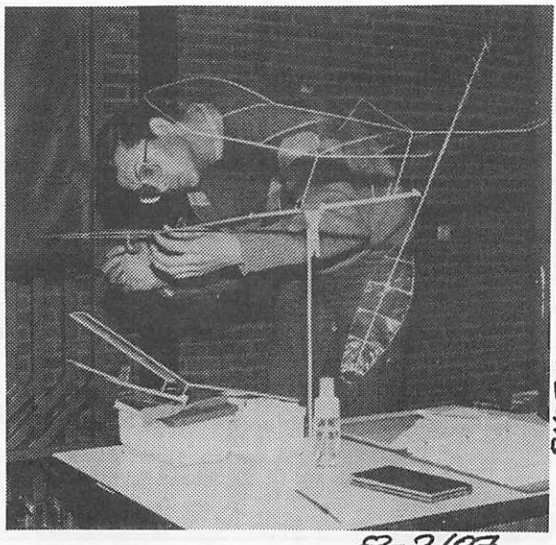
The flight was made at the International Butterfly Meeting in the Gofferthal in Nijmegen, the Netherlands. This hall has a free flying height of 7,91 meter. The weather conditions outside were bad, with a hard wind and rain. Inside however the air was fairly calm. There was mainly some drift near the ceiling.

In addition to the description of my record flight from the record dossier I can supply the following data.

The flight pattern of the model that I flew at the world championships in Cardington can be described as exhibiting an extremely steep and relatively short climb, followed by a normal cruise and quite a good descent. So what I wanted was a flatter, safer and longer climb without sacrificing the cruise and descent. The flight pattern of the British and Swiss models showed the way to a compromise. As I did not want the 'high speed' type of flight of Bernard Hunt I decided for a 45 cm motorstick and a moderate aft shift of the centre of gravity. Excessive movement of the CG is impossible with a wide wing model. A first test by shifting ballast on one of my old models showed identical flight times for 88% and 92% CG respectively. Then I built a new fuselage with a 45 cm motorstick and a new wing with the mean wing camber reduced by 0,5% to speed up the model a bit. Centre of gravity was at 86%. On the first test flight on half motors with a 53 cm prop I completely misjudged the amount of rubber needed as the model hung up in 6 minutes at 25 m high!



THEDO ANDRÉ, NL AND HIS RECORD MODEL

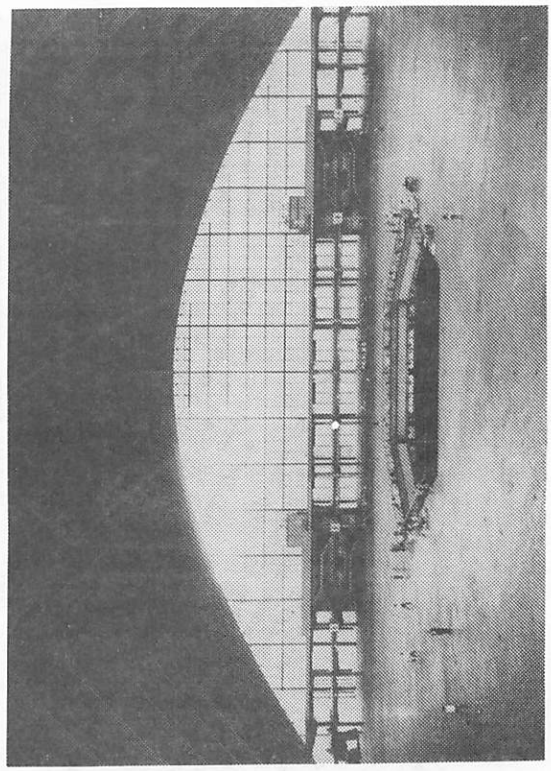


PHOTOS: EDWARD VIEN

8-2/87

The next flight was a demonstration flight at a school which I used to test a new wing and at the same time to have a look at the cruise pattern of the model. This looked very slow with the model really hanging on the prop. I could not give sufficient down at the stabilizer to cure it. One of the causes of the problem were the centre wing ribs being too thin and cambering too much in flight. I decided to build a stabilizer with 5% camber which together with a CG at 90% would just give a positive static stability margin at 2% (I am using a derivation of Jean Wantzenriethers SSM method, see Vol Libre 26). I also built a new and lighter fuselage and a new prop. This combination flew for the first time at the Butterfly Meeting: within 7 flights a world record! I was shocked! When you look at my flight data you will see that I did not intend to fly competitively at all. I did not really stress the motor. Also I was not feeling very well, with a headache and an upset stomach and I did not fully realize the very good flight pattern of my model. Only when I saw Otto Rodenburg cranking in as much turns in his motor as he dared (at least it looked like that) I finally came awake and there it was: 28'54!

A few additional notes of interest:
The total surface loading came out at 0,103 gram/dm^2!! The descent phase of the flight lasted 12-13 minutes, a lot longer than the other models. Low wing loading is of importance, at least in low ceiling halls. Is Bernard Hunt right by flying a bomber or is Richmond with his floater? I wish someone could compute the difference. By the way, Bernard, the story of the cobweb is true (just kidding).
A word of warning on the design. The motorstick has only been tested by a pull force between the bearing and rear hook of 200 gram. I do not know how it behaves under high torque and of course neither how the model as a whole responds.
Also, don't take the hollow wing spar as the new weapon. Though it is not difficult to build with the right jigs, the time involved does not balance against the limited improvement in bending strength.
Finally a remark to all who were not at the Butterfly Meeting. You really missed a quality contest in one of the very best low ceiling halls. At the first International Butterfly Meeting the Polish, German, Belgian and Dutch records were improved in most of the classes. This time also the Danish and once again the Dutch records were broken. I hope to see you at the next meeting.



THE C.N.I.T. HALL IN PARIS. 38 M HIGH BUT THE FUTURE OF IT UNCERTAIN!

PHOTOS: EDMUND LIEM



YOUR HUMBLE EDITOR IN NIJMEGEN

BUTTERFLY-MEETING 1987.

Regrettably this fine contest in such a fantastic low-ceiling hall was not well attended. But those who were there had a beautiful weekend. The GOFFERT hall in Nijmegen is 40 x 60 m with a 7.80 m flat and very smooth ceiling. The best in Europe. Please attend next time!
The weather outside was terrible with strong winds and low temperatures while things inside were pleasant. The hall record for F1D was improved from 26:54 to 28:54 by Thedo André - a new CAT I world record! - see Thedo's model and report on another page in this issue.
The editor and his wife were there and had the pleasure of taking some good placings.
Thanks go to Edmund Liem and his staff for making this event memorable at all levels.

Results:

F1D

1. Thedo André, NL	25:46	+ 28:54	54:40
2. Otto Rodenburg, NL	26:15	+ 26:36	52:51
3. Jorgen Korsgaard,DK	24:40	+ 24:59	49:39
4. Bernd Miehe, D	22:49	+ 23:02	45:51
5. Edmund Liem, NL	18:54	+ 18:59	37:53
6. Wim Beekmeyer, NL	17:37	+ 18:16	35:53
7. Jan Lintsen, NL	11:52	+ 13:38	23:30
8. Frank Romijn;NL	10:28	+ 12:13	22:41

Easy B

1. G.J. Weeknstroo,NL	11:44	+ 12:25	24:09
2. Jorgen Korsgaard,DK	11:25	+ 11:11	22:36
3. Joseph Proost, B	8:54	+ 9:56	18:44
4. Erik Proost, B	8:18	+ 8:35	16:53
5. Albert Jansen, NL	6:48	+ 6:51	13:39
6. Erik Walgrave, NL	3:50	+ 2:19	6:09

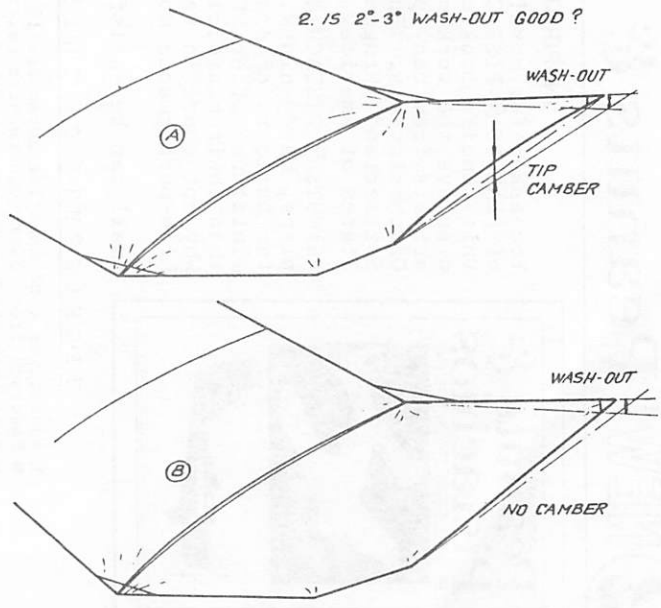
F1D-Beginner

1. Jorgen Korsgaard, DK	7:42	+ 7:31	15:13
2. Otto Rodenburg, NL	7:34	+ 7:36	15:10
3. Martijn Aarts, NL	6:16	+ 6:35	12:05
4. Piet Dibbets, NL	6:05	+ 6:27	12:32
5. Albert Jansen, NL	4:09	+ 2:46	6:55
6. Walter Zaalberg, NL	3:00	+ 3:47	6:47

AERODYNAMIC QUESTIONS.....?

1. WHAT TIP IS BEST? A OR B

2. IS 2°-3° WASH-OUT GOOD ?



ALL THOSE AERODYNAMIC "FREAKS" ARE INVITED TO GIVE ANSWERS TO THE QUESTIONS ABOVE.....

9-2/87

2 NEW! Peanuts & Pistachios 2



INSPIRATION FOR BUILDERS

You asked for more! So here is the second volume of PEANUTS & PISTACHIOS. Compiled by Bill Hannan, this concise booklet of truly international scope, displays the work of modelers, photographers and artists from many parts of this world, including: Czechoslovakia, England, France, Germany, Japan, Switzerland, Uruguay, and various of the United States of America.

PEANUTS & PISTACHIOS features articles, 3-Views & plans, handy-hints, suggestions and encouragement for builders of small scale flying models. These miniatures offer FUN in much larger proportions than their miniscule size may lead you to think. Why not share in the pleasures of these low-cost, high-performance model aircraft?

Small can be satisfying!



HIGHLIGHTS OF THIS BOOKLET:

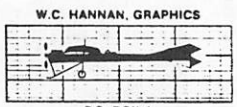
- Advantages (and negative advantages!) of PEANUTS & PISTACHIOS
- Feedback from Volume One readers (extracts from letters)
- Pistachio Pointers ■ Peanuts & Pistachio Pointers
- Peanuts & Pistachios Photography in a Nutshell (Say cheesc!)
- The Peanut Gallery & The Pistachio Presentation (photographs)
- Peanuts & Pistachios Producers (who build these things, anyhow?)
- 3-View drawings by Emmanuel Fillon (France), Harry Robinson (England), Jim Alaback (California) and Bill Hannan (Ditto)
  SUBJECTS: 1911 Caudron monoplan avec 3 cylindre moteur
  1928 Mignet Avionette parasol monoplan
  1936 Mauboussin Hemiptere tandem
  1985 TEAM miniMAX Proof-Of-Concept ultralight
- Pistachio construction plans by Donald Mace (Oklahoma) and Ken Johnson (California)
  SUBJECTS: 1948 Bebe Jodel low-winger
  1921 Waterman Gosling racer parasol

FORMAT: 8½" x 11" size, two-color glossy 10 pt. card-stock cover; 16 80-lb.-stock pages. 32 photos, 6 line drawings plus sketches and cartoons. NO ADVERTISING. ISBN 0-9611652-4-3

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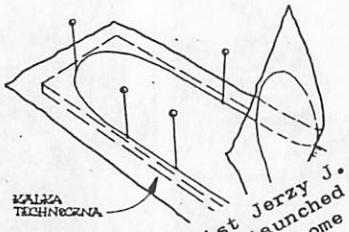
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10-2/87

POLISH INDOOR BOOK 1987

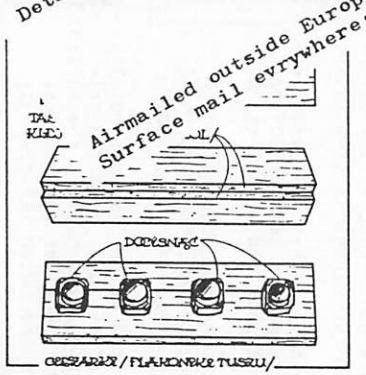


Schoolteacher and artist Jerzy J. Kaczorek just sent me 10 of his new book on Indoor Hand Launched Gliders, Penny-Planes and EZB's. He wants to swap them with some ink drawing material from ROTRING. If you buy some of these books from me I can help him with this.

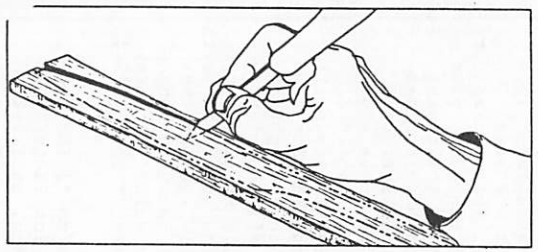
THE EDITOR!

Details of the book:

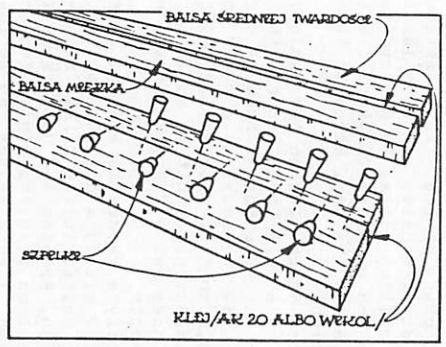
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Jerzy J. Kaczorek
67 pages, DIN A4 size
Loaded with illustrations, about 160 and only little text in Polish.
Airmailed outside Europe: 10,- US dollars
Surface mail evrywhere: 8,-



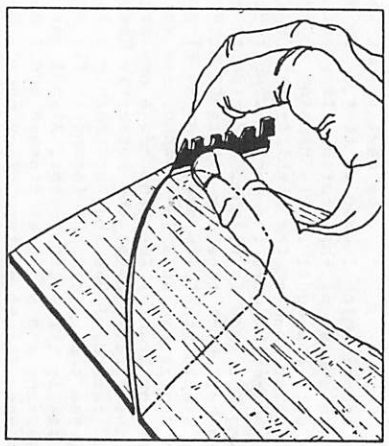
RYS. 4.3.



RYS. 4.5.



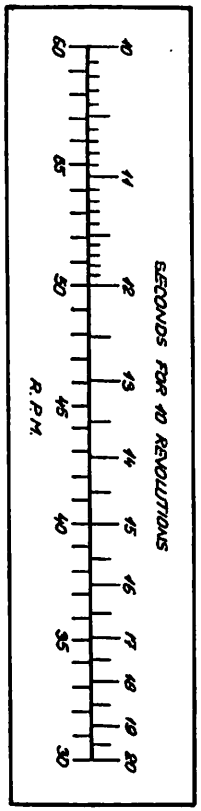
RYS. 4.4.

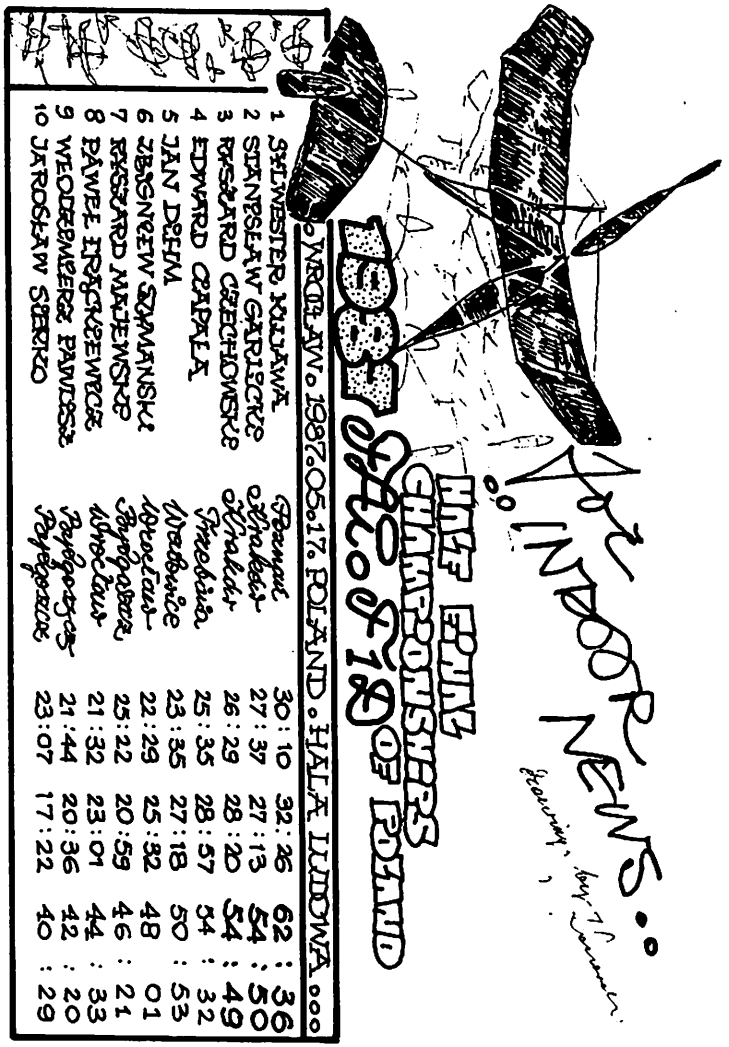


RYS. 4.6.

Aby osiągnąć dobre lot- -zeba cierpliwości i wielu treningów. - gdy przejście z lotu wznoszą- -dowało lot nurkowy, cz- -dzierał przód i leci- -nim wichrze- -ych oraz prze- -ści, czyli skrę- -no dokonanym powoduje zakręt -yskujemy żądane

-okonać regulacji do -m tutaj, że zawodnicy wysoko — biegają (w -) jak oszczepnicy tzw. -o ćwiczą wiele godzin, by -z wyników. Do pierwszych nawet duża sala gimnasty--o szkolne (siła wiatru nie powin--ększa niż 0,5 m/s).





1	SYLWESTER KUJAWA	Poznań	30:10	32:26	62:36
2	STANISŁAW GARLICKI	Kraków	27:37	27:13	54:50
3	RYSZARD CZECHOWSKI	Śląsk	26:29	28:20	54:49
4	EDWARD CIAPAŁA	Wrocław	25:35	28:57	54:32
5	JAN DEHM	Wrocław	23:35	27:18	50:53
6	JERZY SZMAŃSKI	Wrocław	22:29	25:32	48:01
7	RYSZARD MAJEWSKI	Bydgoszcz	25:22	20:59	46:21
8	PAWEŁ IRAGUERRA	Bydgoszcz	21:32	23:01	44:33
9	WOLFGANG PAWLISZ	Bydgoszcz	21:44	20:36	42:20
10	JAROSŁAW SIERKO	Bydgoszcz	23:07	17:22	40:29

WROCŁAW • 1987.05.17. POLAND • HALA LUDOWA

5th POLISH FAI FID INDOOR CHAMPIONSHIPS 1987

03-05 JULY 1987 • WROCŁAW • POLAND HALA LUDOWA

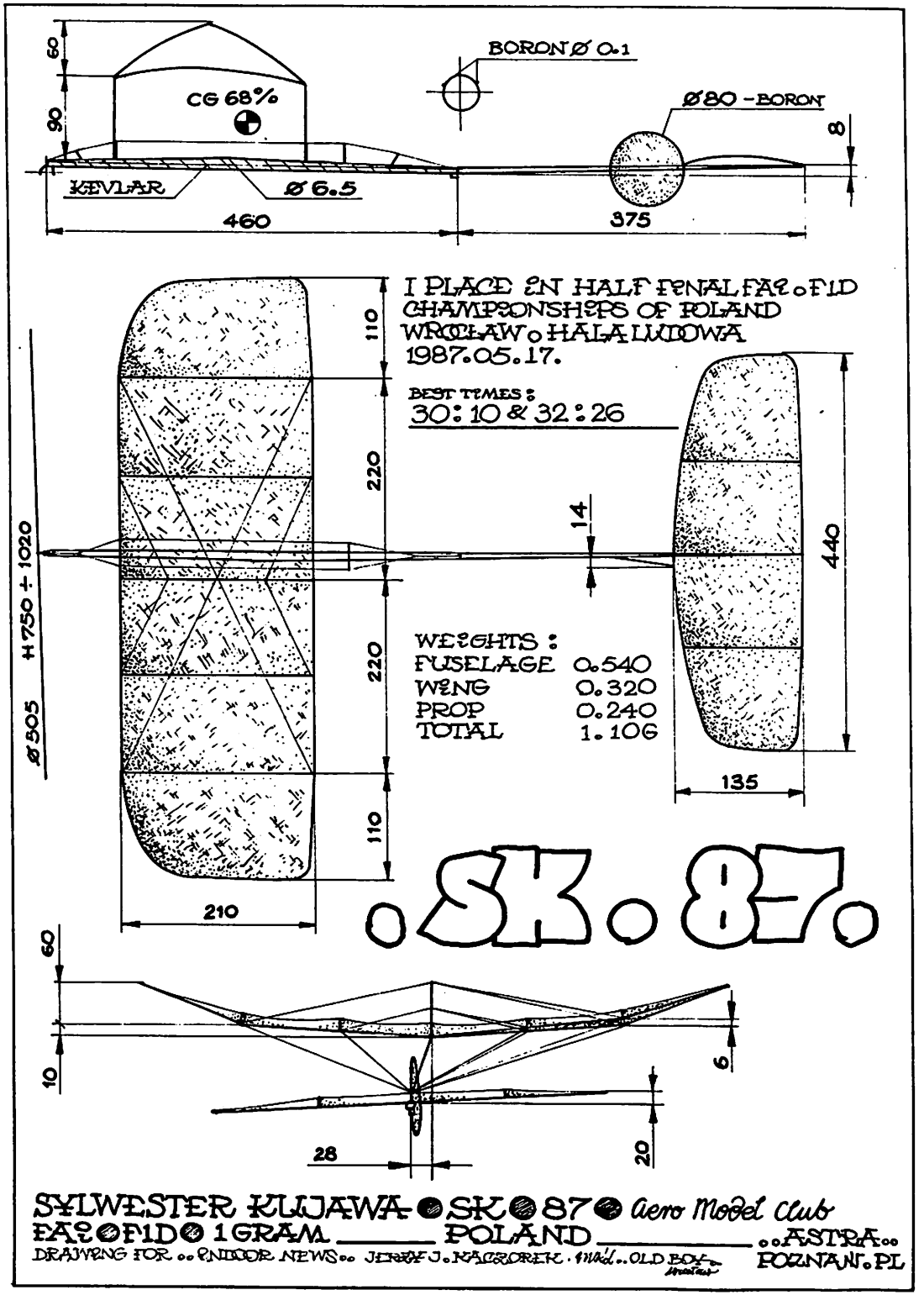
SENIORS

1	SYLWESTER KUJAWA	POZNAŃ	33:55	36:55	70•50
2	EDWARD CIAPAŁA	ŚLĄSK	34:00	33:35	67•35
3	RYSZARD CZECHOWSKI	KRAKÓW	32:02	32:33	64•35

JUNIORS

1	MAREK NAWROCKI	ŚLĄSK	31:12	31:53	63•05
2	RAFAŁ SYKUTERA	BYDGOSZCZ	27:21	27:16	54•37
3	RAFAŁ COLTA	POZNAŃ	26:15	27:02	53•17

11-2/87



MANNY'S WRINKLES

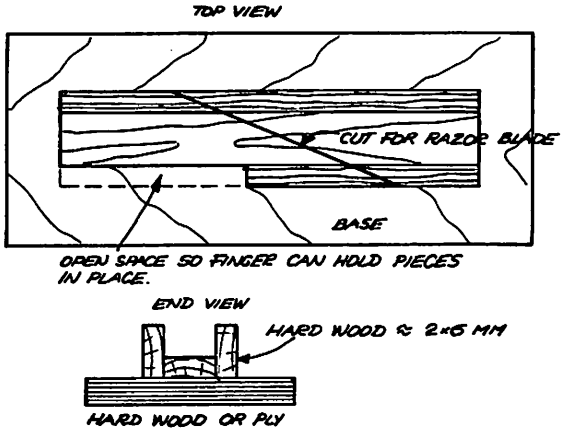
SPLICING .... .

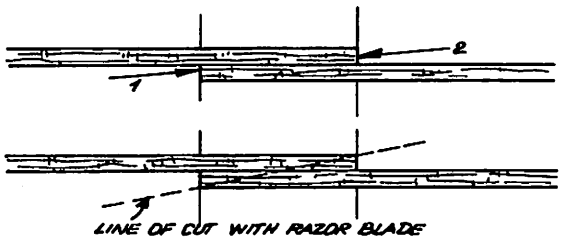
The mitre box is made from 1/16 x 1/4" hard wood. The base is another piece of hard wood a bit wider and longer than the mitre box.

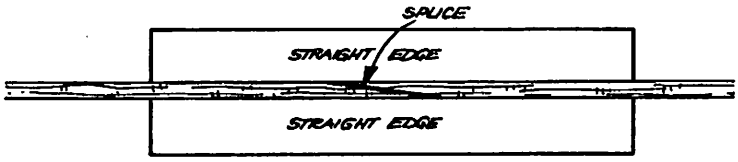
To fabricate the shown jig, make the mitre box, then saw the cut through the sides and the bottom. Use an angle for the cut to make the cut as long as your razor blade in order to make the scarf splice as long as possible. After the mitre box is cut glue the two parts together on the base using a razor blade in the cut for correct spacing. This jig is used for comparitively large pieces of balsa like prop spar sizes. To mitre small sizes I use another method for pieces like prop outlines. I draw a set of vertical lines about 3/4" apart on my piece of plate glass (working surface) and then lay my outline pieces horizontally across those lines as shown on the FIG.

Put a tiny drop of thin cellulose cement where arrows are. When dry with a razor blade cut as per dotted line from bottom of left piece of balsa - arrow 2 - to top of right piece of balsa - arrow 1.

I glue all pieces, prop spar and prop outline, together between two straight edges on either side, on my glass work base. When the glue is dry I cut between the balsa and straight edge on both sides and underneath, too. Because of the fine pieces of balsa used for prop outlines, they may shift a small amount but the untrue mitre cuts will be just fine when held between the straight edges when glueing.







MANNY'S WRINKLES

SHARP BENDS .....

When making sharp bends around a jig using balsa strips, always make sure your wood is well soaked and squeeze the balsa into the jig with your finger while pushing the balsa with your finger around the sharp bend. If the balsa looks badly crimped or cracked apply a very small drop of thinned out cellulose cement and rub into the poorly bent section while still wet.

MANNY'S WRINKLES

Small but useful tips ....

I don't like sticky tapes, masking or plastic, to hold pieces of balsa in place because when removing it, many times it breaks thin pieces. Instead I use scrap tissue that I cut into 1/8" wide pieces which I adhere to my jigs with thinned cellulose cement.

.....

I use wide sanding blocks, about 2" x 5". I find that with the wide blocks, with my fingers over the edge I sand the pieces more level than with a narrower block. Also with a long block the thickness is more uniform. Attach the sanding paper to the blocks with contact glue.

.....

If you use a hyperdermic needle or a syringe for a glue gun, use stainless steel wire as a stopper and needle cleaner. Plain steel or music wire will rust because of the acetone used in most cellulose cements has an affinity for water.

.....

RUBBER QUALITY can be decided by RICHMOND's formula:

$$\frac{\text{Max. turns just before breaking} \times \text{middle torque}}{\text{weight of rubber}}$$

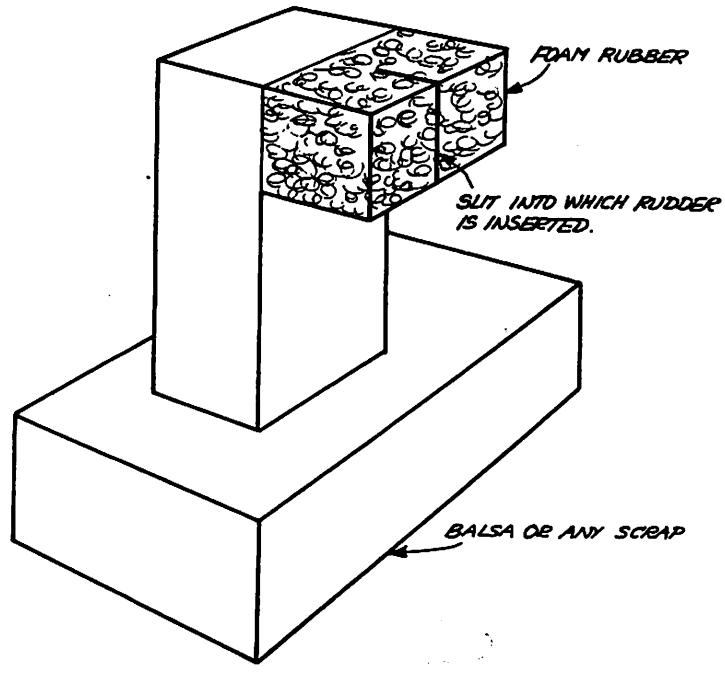
The best value of course is the best rubber. Cezar banks told me he uses that formula and likes tthe rubber with values of 600-650 - of course using inch/ounces for torque and ounces for rubber weight.

MANNY'S WRINKLES

ROUND WING POSTS....

Instead of sanding the bottom of your wing posts to a round shape which often results on tapered or uneven shape, cut your wing posts to a square shape of the diameter you want. Then using a drill gauge, push the bottom through the hole two sizes larger, then the next smaller and lastly through the final size you want to fit in your tissue tube. Then sand the upper part to its final shape. Rounded this way the bottom shape is straight - and best of all it always fits tightly in your tissue tube.

RUDDER MOUNTING DEVICE!
(ONE OF MANNY'S WRINKLES)



RUDDER HOLDER FOR GLUING RUDDERS ONTO BOOMS, REAR OR SIDE. HOLDS RUDDER STEADY INSTEAD OF IN SHAKEY HAND

12-2/87

TORONTO INDOOR GROUP 1987 SUCCESSES

The Toronto Indoor Group has just finished a very successful flying and competition season. Regular flying sessions are held every Friday evening at Markham District High School during the school year (mid-September to mid-June) and this must be one of the few places that RC modellers, control-line flyers and free-flight enthusiasts all get together to fly similar models and talk the same language. The attendance varies between 10 and 40 fliers on any given evening flying anything from Peanut through No-Cal to Easy-B and Pennyplane. Microfilm is occasionally flown in a different gym at the same site, but the ceiling height of 22ft.(6.75 metres) is a bit of a limitation.

The Group has flown in several other sites this year and, in particular, at the end of May at the University of Guelph demonstrating indoor scale models to the Canadian Aviation Historical Society Annual Conference. It was here that Jorgen Kortenbach managed to trim out his model of the Silver Dart to a round of applause from the spectators. One of them was so suprised that he spilt his drink from the balcony onto the main floor. A few days later the Group demonstrated indoor models at the two day Fun'n Fly show at the International Centre near the airport. A section of the exhibit hall was roped off and the air-conditioning units in the area turned off to allow us to fly many different indoor models. This was the first time that many of the public had seen this type of model and they created a great deal of interest, especially when duration type models flew out of the area over the off-road RC car track and into the air jets from the operating air-conditioners.

Several members of the group have been flying in indoor competitions quite far from Toronto, including Detroit, Chicago and Tennessee. As usual Jack McGillivray, Ken Groves and John Marrett picked up their share of places and in Chicago, Ken Groves became meet Champion. The grand finale of the season was the U.S. Indoor Championships in Johnson City, Tennessee held in the 122Ft.(37.5 metres) high Mini-dome of the E.Tennessee State University. Six members of the Toronto Group turned up to compete with 90+ entrants from the U.S. and did so with great success. A brief listing of their placings follows;

Richard Smith (our 11 year old junior !) did better times than the Senior class entries in the following events;

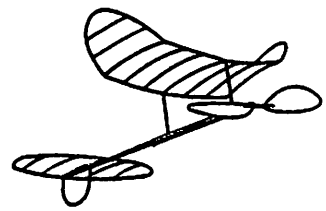
	1st. Novice Pennyplane junior	9:49
	1st. Open Pennyplane junior	9:24
Jorgen Kortenbach	3rd. Ornithopter	6:44
John Marrett	1st. No-Cal Profile Scale	
	2nd. Bostonian	374 sec. 2 flight total
		1.15 charisma factor.
Bill Henderson	1st. Peanut Speed	9.82 mph (15.8 km/hr)(Piper Pawnee Brave)
	2nd. Peanut Duration	106.45 sec. 2 flight average
		107.5 scale points (Bleriot VII)

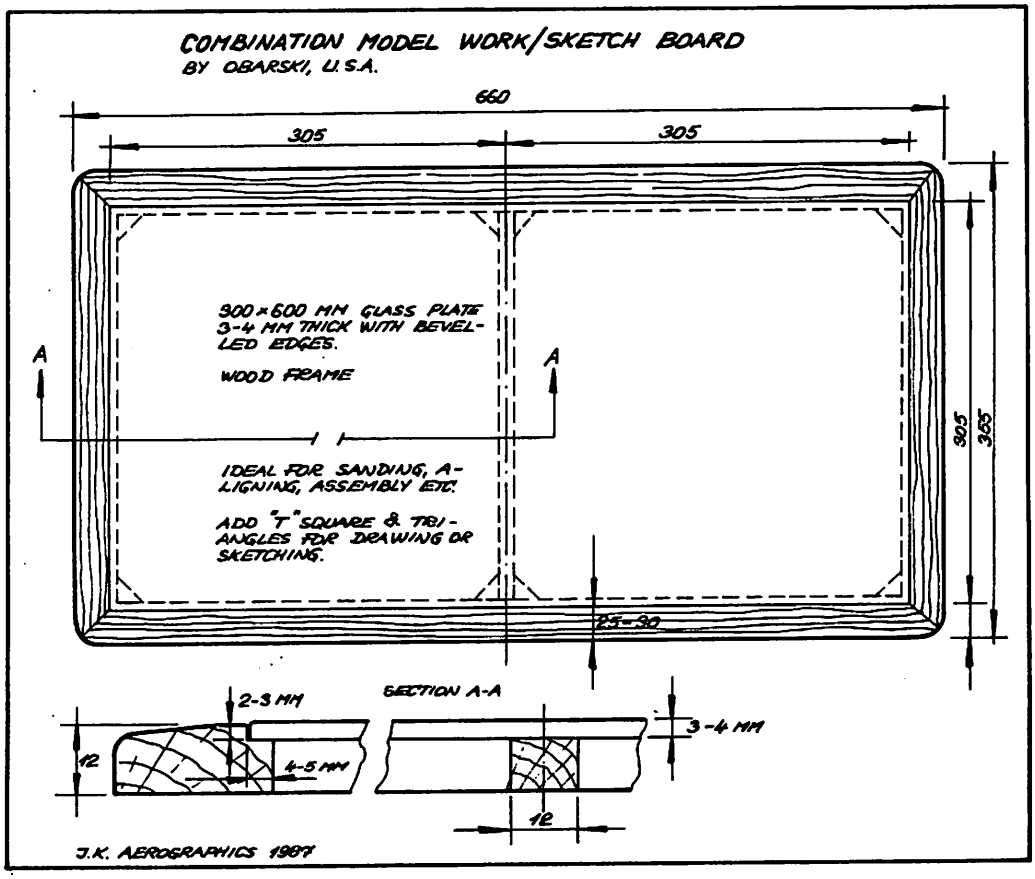
Jack McGillivray	2nd. AMA Scale	83.00 sec. 2 flight average
		93 scale points (SE-5)
	1st. Bostonian	368 sec. 2 flight total
		1.2 charisma factor.
	3rd. Novice Pennyplane	12:19
	2nd. Intermediate Stick	24:57
Ken Groves	1st. AMA Scale	77.05 sec. 2 flight average
		96.5 scale points (Dream Fike)
	3rd. Peanut Duration	103.65 sec. 2 flight average
		107.5 scale points (Dream Fike)

Ken Groves placed in the top ten in 7 events and took the meet Grand Champion award. C.Markos of Chicago was runner-up in the Championship followed very closely by John Marrett. Another Peanut Duration event is also run during the USIC by Doc Martin of Miami called the MIAMA (Miami Indoor ~~Model~~ Aircraft Model Association) Grand Prix and in this event Bill Henderson took 1st. in scale points and 1st. in duration using his Bleriot VII model.

One of the most successful seasons so far for this group of devoted modellers who have been treated very well wherever they have gone, but especially by our friends south of the border.

THESE CDN NEWS SENT BY BILL HENDERSON





REMINDER

The 11TH INTERNATIONAL INDOOR CONTEST of FLEMALLE

Entry to:	F. Van Hauwaert	
	Grand'place 1	
	Box 52	
	B-4110 Flemalle	
	Belgium	
Schedule:	Friday 21st August:	F1D, F1D-X, EZB Micro 35 paper
	Saturday 22nd	Peanuts and Pistachios, Ste formule
	Sunday 23rd	same as on Saturday

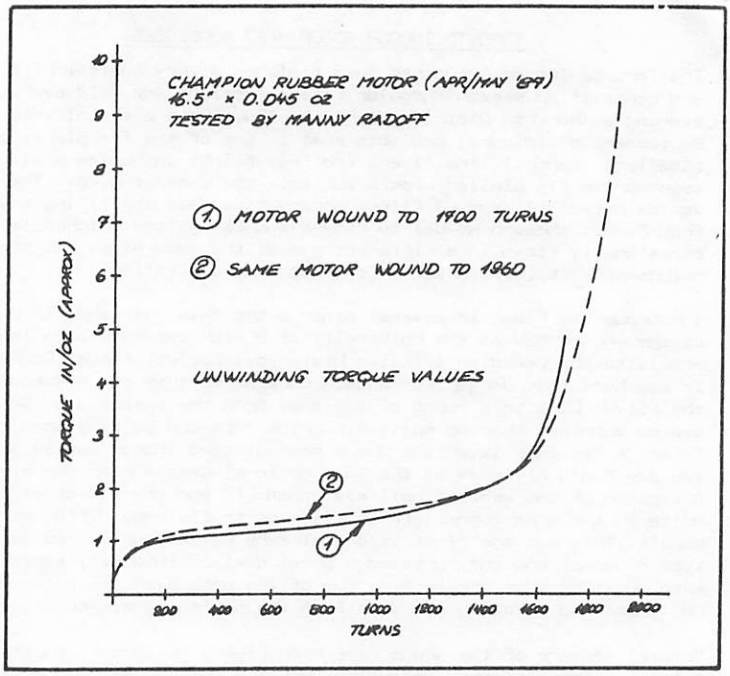
13-2/87

MANNY'S WRINKLES:

Back off turns ....

I'm going to point out a fact on rubber winding that you may or may not know already. If you will carefully check the torque values of the third winding - see the diagram - which I wound safely to 1960 turns rather than the 1700 turns for the two previous (one is not shown) you will see that the "cruise" torques at the equal number of remaining turns is GREATER than the torque at those same turns when I wound up the motor to the lesser - 1700 - turns, so you know or now realize that this is the reason indoor modelers wind all the way up and then let the prop unwind or turn back on the winder.

LESSON: Always give nearly max. turns and then back off turns to desired launch torque.



Microfilm, it's weight per area -

or making the best out of a mistake !

Some time ago, I looked for some good microfilm frames - few enough - in my storage, a part of a wardrobe, to finish new F1D-models.

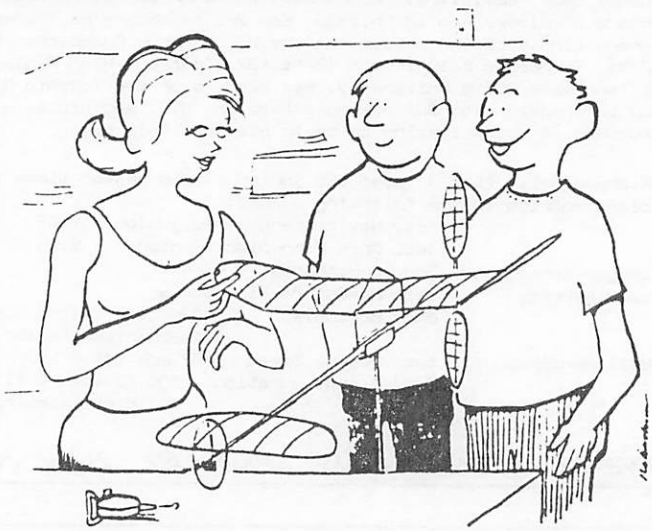
I put aside two frames to the ground while looking at the stored precious items with beautiful colours, remembering the mysterious low success ratio of the last pouring session (1 : 2 ?).
Then a - friendly - call of my wife, a clumsy step back, and the blue/violet film of one broken frame stuck lightly to the carpet.

With two fingers I changed the film of 7.5 dm x 3.0 dm to a ugly grey mini-ball and weighed it.

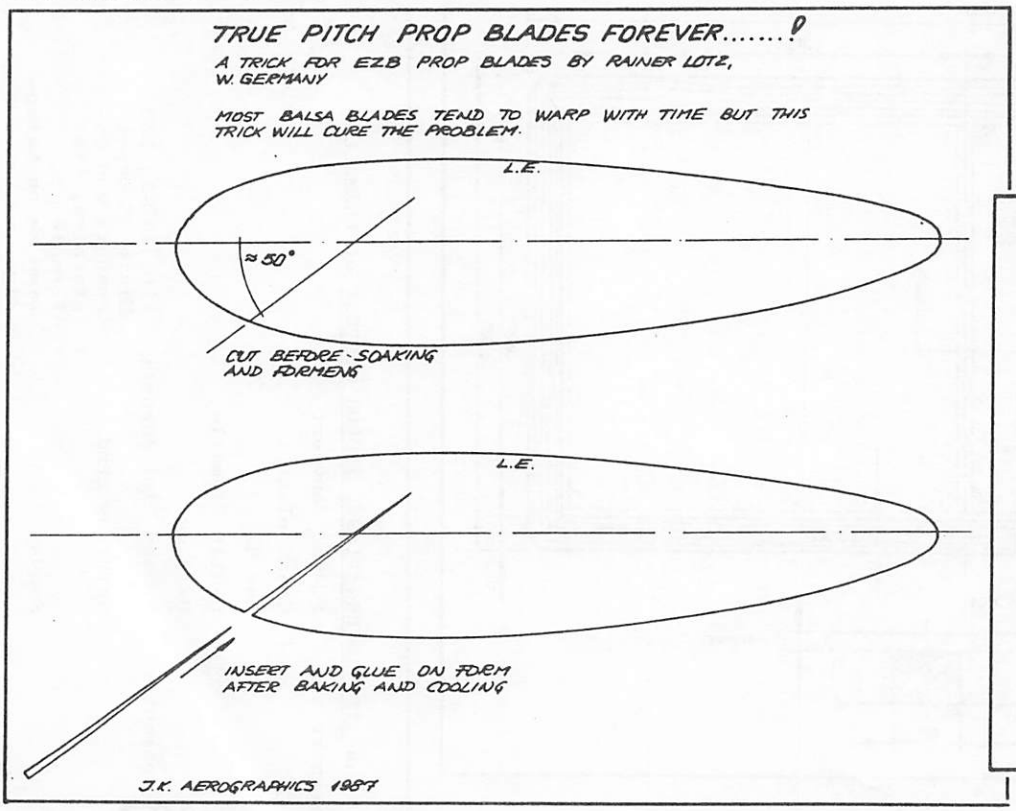
Now I have learned: the average weight per area of such a type of film is near 3.1 mg/dm^2.

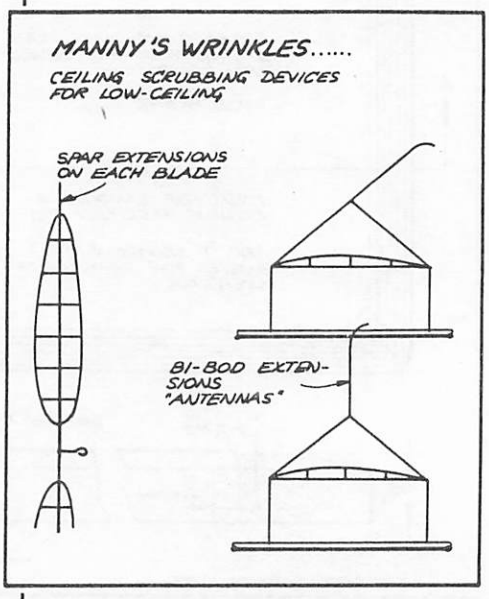
Assuming a specific weight of hardened film of 1.1 g/cm^3, the average thickness comes to 0,28 µm.

Bernd Miehe



Indoor flying gets more and more interesting .....





14-2/87

BUILDING INDOOR PEANUTS

December 11, 1986
Lester W. Garber PhD

1. SELECTING A DESIGN.

Selecting a good design is usually a compromise between scale points and flying characteristics. The best compromise is to select a good flying design, build the model as light as possible, and add as much scale detail as possible. Study the rules carefully!

A good flying peanut design should have a broad wing chord (2.5 in. or more), length about equal to span, large stab, and a long nose moment.

The Lacey and Fike are classic examples of designs with these features. It is possible to build the Lacey to 4 gms. and have flights of 3 minutes.

However the Lacey and Fike typically do not do well with respect to scale points. Several monoplane designs from pre-1935 are good flying designs and will score higher scale points.

2. WHAT IS A LIGHT PEANUT?

It is not unusual for peanuts to weigh 8 to 15 grams. I consider a peanut to be light if it is a good flying design, has good scale detail, and weighs less than 5 grams.

A design with a narrow wing chord, small fuselage, and weighing 4 grams is NOT a light peanut; it is a SMALL peanut. High aspect ratios (narrow wing chords) are undesirable because of the 13 in. span limitation. In other words, narrow wing chords result in small wing areas and higher wing loadings. This reduces flight times.

3. WHY BUILD LIGHT PEANUTS?

Three answers can be given to this question:

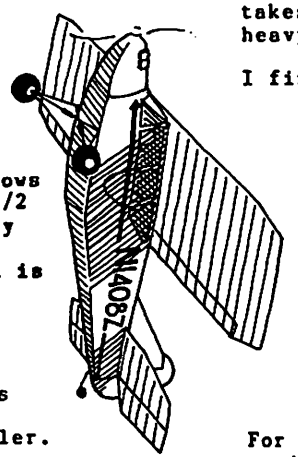
1. Light peanuts fly longer.
2. Light peanuts are easier to adjust.
3. Light peanuts don't break when they hit the wall.

With respect to the first point: A simple energy analysis shows that flight time is inversely proportional to weight to the 3/2 power. This means, for example, that decreasing the weight by 50% should increase the flight time by 84%. Decreasing the weight by 25% should increase the flight time by 40%. Weight is ever so critical!

With respect to the second point: Light peanuts require less power and fly at a lower speed. In other words, the forces (torque and aerodynamic forces) acting on the model are smaller. Since the model flies at a lower speed, the effects of small warps, drag, and other imperfections will be less. Light peanuts will also recover from stalls and other disturbances more quickly because of momentum considerations. The model will be less sensitive to thrust and other trim adjustments.

15-2187

PEANUTS



With respect to the third point: Aerodynamic considerations show that lift is proportional to velocity squared. To generate twice the lift, the model must fly 1.41 times the original velocity. In level flight, lift equals weight, therefore doubling the weight means the model must fly 1.41 times as fast!!

When a peanut hits the wall, whether or not it breaks depends on it's structural strength and the amount of kinetic energy it has when it hits. The structure must absorb the kinetic energy by bending and/or breaking.

Kinetic energy is proportional to velocity squared. If the model is flying 1.41 as fast, it possesses twice as much kinetic energy! The bottom line is this; a model having 1/2 the weight will fly at 71% the velocity and will possess 25% the kinetic energy when it hits the wall. Therefore light peanuts are much less likely to break.

4. HOW TO BUILD LIGHT PEANUTS.

In the following comments I will use as an example a 1918 Hergt monoplane design from Walt Mooney. This is a good flying design; 13 span, 2.85 chord, 11 in. fuselage length, 1.7 in. nose moment. The Hergt has spoked wheel, some rigging, and a nine cylinder radial engine for scale detail. My finished model weighs 4.75 grams and makes flights in excess of two minutes.

To build light peanuts with sufficient strength requires Burt Rutan's construction criterion: Check every piece for lightness by throwing it up in the air. If it comes down, it's too heavy!

Lightness and strength considerations should be applied to EVERY piece. Making one small piece half as heavy will not reduce the weight by much, but making every piece half as heavy will result in a light peanut.

Construction methods should be based on lightness and strength considerations, not on building time. In other words, if it takes you twice as long to build a component that is half as heavy, do it. The Hergt required 52 hours of construction time.

I find the following tools to be very useful:

1. Scale for accurate weighing to .001 grams. (Ray Harlan 15 Happy Hollow Rd., Wayland, MA 01778 Ph 617-358-4013)
2. Micrometer wood stripper for making all strip stock (Harlan stripper).
3. Notebook for recording weights and other construction data (a valuable learning tool).
4. Carbon steel razor blades for clean cuts.
5. Tweezers made of bamboo to hold small parts without crushing the wood.

For cement I use Duco cement thinned with three parts acetone. A syringe with a .010 ID needle is used to apply cement.

The balsa I use is indoor wood purchased from Indoor Model Supply (Box 39, Garberville, CA 95440) and Micro-X Products (Box 1063, Lorain, OH 44055). The cost of materials for peanuts is minor relative to the amount of building time. Therefore always use the best available materials.

Although it is hazardous to work with, I use boron fibers to reinforce longerons, cross pieces, wing LE's and TE's, etc.. To apply boron, I use the following procedure:

1. Break boron fibers to correct length using flat nose pliers. Be very careful not to get any splinters and keep careful inventory of all fibers.

2. Using a fine brush and thinned Duco cement, hold the fiber vertically and brush on a thin coat of cement. The cement will form tiny beads spaced about .03 in. apart. It doesn't require much glue as the coating is very thin. Let cement dry.

3. Position one end of fiber onto balsa substrate. Using a fine brush and acetone, brush the end of the fiber. This will dissolve the cement and glue the fiber to the wood.

4. Continue to position the rest of the fiber and adhere to balsa using acetone.

5. After the fiber is attached, check for adherence over it's entire length. If necessary apply more acetone or cement to assure that it is firmly attached to the balsa substrate.

Boron is applied after all frame are finished and before they are covered. I add one fiber to each fuselage longeron and one fiber to each cross piece that is highly stressed (next to landing gear, etc.). Wing LE's and TE's have one fiber on top and one on the bottom.

Boron fibers greatly increase the strength and stiffness with only minor weight increases (about .001 gm per inch of fiber). However be fully aware of the safety hazards and exercise extreme safety precautions. Boron is brittle and splinters easily and small pieces stuck in your body are a serious health hazard. Boron fibers can be purchased from Ray Harlan (see previous address).

For the Hergt, the following weight data were recorded on the basic components:

	Ready to Cover(gm)	Covered (gm)
Fuselage frame	0.528	0.875
9 cylinder radial engine and cowl	0.710	0.710
Prop and nose plug	0.970	0.970
Wheels (2)	0.272	0.272
Undercarriage (3 pcs)	0.177	0.177
Wing frames (Left and right)	0.423	0.913
Stab frame	0.065	0.242
Fin frame	0.024	0.107
TOTAL	3.169	4.266
Misc. detail		0.484
FINISHED WEIGHT (Ready to fly)		4.750

Total Paper weight: 1.019 gm
Weight of dope applied to frames to adhere paper: 0.131 gm

These measurements can be considered typical for a light peanut.

16-2/82

Fuselage longerons and cross pieces were cut from 7 lb/ft3 balsa. With the exception of stab and fin frames and other non-load bearing pieces, using 4 or 5 lb/ft3 wood for strip stock is false economy because of low strengths. The longerons and front cross pieces were .040 square reinforced with boron fibers. Remaining cross pieces were .040 by .030. The turtledeck was constructed with 5 lb/ft3 strips (.025 sqr.). Additional diagonals were added near the front. Some 30 small gussets (5 lb/ft3 .020 sheet) were added at all stress points.

Considerable weight can be saved during the construction of scale details. Plastic is quite dense relative to balsa and styrofoam. Do not use plastic wheels and engine cylinders, they are too heavy for indoor peanuts. The spoked wheels on the Hergt were constructed from foam and balsa with small brass hubs (.025 OD, .015 ID, .075 long). The engine cylinders are tubes rolled from .012 in. balsa. Paint (dope, etc.) is heavy, felt tip pens can be used to color most details.

Sliced ribs (5 lb/ft3, .022 X .030) were used in the wings. The LE and TE were 7 lb/ft3 .040 sq and .040 X .030 respectively and were reinforced with boron fibers (top and bottom) . A single wing spar (5 lb/ft3, .020 X .093) was located between the sliced ribs. Diagonals (5 lb/ft3, .025 sq) were located between the LE and spar for additional LE strength. Wing tips were formed from .025 X .030 bamboo.

Stab and fin frames do not need much strength and can be constructed from 5 lb/ft3 .040 X .025 strips. Keeping the tail light can not be overemphasized. Adding weight to the nose is a poor solution for an overweight tail. If the tail is too heavy, make a new tail and, if necessary, rebuild the fuselage. If the tail is 0.10 gm heavy, you will typically have to add 0.40 gm to the nose -- now you've added an additional 0.50 gm to the model!!

5. COVERING LIGHT PEANUTS.

The typical procedure used to cover a peanut is this:

1. Cover the model attaching tissue with some type of adhesive.

2. Spray the model with water or alcohol and hope that it doesn't warp too badly!

3. Apply one or two coats of thin dope again hoping that the model doesn't warp too badly!

It is very exasperating to spend 40 hours building and then have the model turn into a pretzel while being covered!

Gerry Wagner of Southington, CT gave me the following method for covering light peanuts. It is vastly superior to the above method. Prepare the tissue by the following procedure:

1. Make an 18 X 24 in. rectangular frame from pine strips 3/8 X 3/4 in. or larger. The frame must be strong to prevent twisting as the tissue shrinks.

2. Paint the frame with two coats of thick dope.

3. On a HUMID day, tape an 18 X 24 in. sheet of tissue to the frame. Try to minimize wrinkles. Use small pieces of masking tape.

4. Using a brush and acetone, brush the tissue around the frame to dissolve dope and adhere the tissue to the frame. Try to minimize wrinkles. The tissue must be firmly attached to the frame at every point.

5. Using a spray bottle (Windex, etc.) and water, spray the tissue and let it dry. The tissue will shrink, removing all wrinkles, and become tight as a drum on the rigid frame.

6. Repeat step 5 at least ten times over one or two weeks.

7. Leave tissue on frame until you are ready to cover.

The type of tissue is very important. From a weight point of view, the difference between light and heavy Japanese tissue can be as much as 50%. Such weight differences can only be detected by weighing sheets of tissue with a good scale, they cannot be 'sensed' or 'felt'. On the Hergt, the total tissue weight on all surfaces was 1.019 grams.

To cover the model, use the following procedure:

1. On all frames, make sure there are no bumps or other protrusions that will prevent the tissue from laying flat against the frame. Sand if necessary.

2. Using dope thinned 50% and a small brush, brush one coat of dope on the frames. Apply dope only where tissue will touch and use as little dope as possible. This will add between .1 and .2 gms to the model.

3. On the day you cover the model, be sure that the humidity is VERY LOW. This is very important, if you cover the model on a high humidity day, later when the humidity is low, the model will warp.

4. Cut pieces of tissue from the frame to match the model frames being covered. The tissue pieces should overlap the model frames by no more than 1/8 inch. A sharp carbon steel razor blade works best to cut tissue. Be very careful that you do not wrinkle the pieces of tissue during the cutting and fitting.

5. Remember that tissue must wrinkle if it is curved in two directions (compound curves). No single piece of tissue should have to follow a large compound curve. If necessary, cover a particular frame with two or more smaller pieces. For example, on the Hergt the upper surface of each wing was covered with three pieces of tissue to accommodate compound curves at the wing tips.

6. Lay pieces of tissue on model frames. They should lay flat against the frame at all points with no wrinkles. There should be no more than 1/8 in. overlap at any point, if necessary trim tissue. If the tissue doesn't lay perfectly flat against the frame at all points, don't try to force it -- that never works. Try to understand why it doesn't conform to the frame. Perhaps it should be covered with two or more smaller pieces instead of one larger piece. Remember, you cannot force the tissue to fit a frame. When laid on the frame it should fall into place.

7. When the tissue matches the frame, dip a small brush into acetone and carefully touch the tissue at several points on the frame. The acetone will soak through the tissue, dissolve the dope on the frame, and adhere the tissue to the frame. Continue to do this until the tissue is attached at all points. Let dry and trim with a sharp carbon steel razor. Continue this procedure until all frames are covered.

8. At this point all frames are nicely covered. The tissue is wrinkle free but not tight and that's the way it should be. Do not do anything else. Do not spray the covered frames with water or alcohol, that will only cause wrinkles. Do not dope the tissue, it is not necessary, adds great amounts of weight (as much a 1 gm with two coats) and may cause warps.

9. Aileron outlines and other trim should be cut from colored tissue that is pre-doped. Position trim on covered frames and attach with acetone. If you try to directly dope trim to the frame tissue, it will cause wrinkles.

Models covered by this method will not warp. On a very humid day they may develop some wrinkles but that is never a serious problem. Because this method results in warp free structures, the model will perform consistantly. I have a Lacey built and covered by these methods three years ago. The model weighs 4.5 gms and has flown for 2 min 55 sec. Flying trim has not changed significantly since the model was first trimmed.

6. FLYING LIGHT PEANUTS.

Trimming peanuts is a whole other subject. If the model is light, warp free, and not tail heavy (properly balanced) it should be relatively easy to trim.

In general I try to make my models fly against torque (to the right) because I want the circle to tighten as power decreases. This prevents diving under the initial power burst and stalling during the latter part of the flight. Right and down thrust are built into my models with a bit (1/16 in.) of washout in the right wing. The decalage and CG location should be adjusted so that the model is not pitch sensitive.

As with all indoor models, peanuts should be trimmed to fly close to the stall speed. When the model stalls, the wing on the inside of the turn should stall first. This causes the model to fall into the turn which quickens recovery and prevents wandering.

Experiment with propeller shapes, diameters, and pitches. Do not use plastic propellers, they are too heavy. I use balsa (5-6 lb/ft3) blades that are warped on a carved pitch block. The warped blades are glued to bamboo pegs and plugged into a hub made of plastic tubing (Bic ball point pen ink tube). The blades can be twisted at the hub to vary pitch. I use props that are 6 to 7 in. diameter and have blades that are about 1 in. wide. Prop blades wider than 1 in. do not work well because they present too much frontal drag.

After spending 50 hours building a masterpiece, nothing is more depressing than to have a motor explode and destroy your creation. Design a GOOD winding tube for your model and use it EVERY time.

Take good notes while flying, measure the weight and lengths of motors. After each flying session, study these notes.

7. CLOSING COMMENTS.

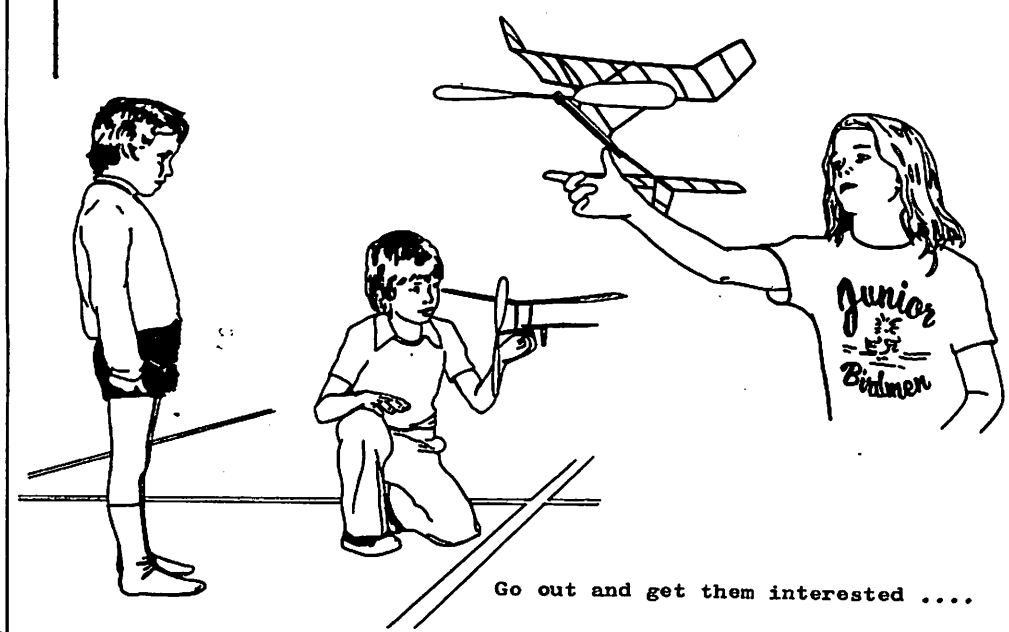
Professionally I am an engineer and building and flying model airplanes is a microcosm of engineering. The best general advice I can give is to measure things (weights, time, strengths, etc.), take good notes while building and flying, make rational experiments, study what you and others have done so that you can improve in the future.

Some will disagree with many of my statements, I build peanuts that are first of all light and fly well. Other prefer to emphasize scale considerations and are less concerned about weight (I have seen many excessively heavy masterpieces explode as they hit the wall at a terrific rate of speed!)

A fool learns from his own mistakes while a wise man learns from the mistakes of others. This fool has learned much from others and makes no claims of originality for all the techniques described herein. Nor does he claim that these are the only correct techniques. In the end there are no great secrets and most modelers are enthusiastic about sharing their knowledge and experiences. That is the way it should be and that is why we are a close group.

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Go out and get them interested ....

