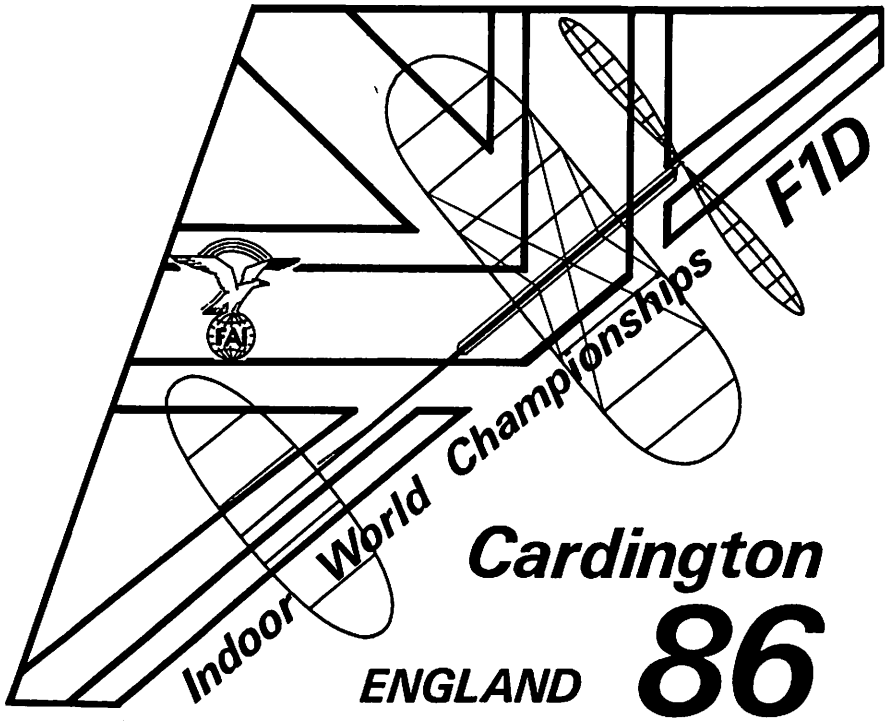


51 competitors from 17 countries. The biggest and greatest champs ever seen .....

3 flights over 45 minutes and 17 flights over 40 min. 101 flights exceeding the 30 min. mark !!!

The Americans win all and everything again ...

Pete Andrews and Manny Radoff were there, also Dave Linstrum and Dr. John Martin.

No aggreement on new rules ..

Not really any use of VP or VD props.

The Pirelli is drying out ...

INDOOR NEWS 3/86

At the 1986 World Championships' Banquet, Jury Member Pierre Chaussebourg said:

"Sir Bernard, Ladies and Gentlemen,

In the good old days, there has been a Gliding World Championship in England, not far from here. At the opening ceremony, Lord Brabazon of Tara said, "With their intelligence men do what birds do with their instinct". Indoor models fly like butterflies, but with so much more intelligence in their flying: the intelligence of their builders. They fly the way we have trimmed them to fly.

So many times I had the opportunity to explain what Free Flight is to spectators, the way we build the models, the way we fly them, our competition rules .... At the end the question comes, always the same, "Is it useful?" or "What does it prove?"

Nothing. It is not useful. It does not make money. It proves nothing. They would be disappointed if we do not add that this is life. There are still people who spend thousands of hours, putting together small pieces of balsa wood, microfilm, small wires, and winding rubber bands, just to meet in old balloon hangars, salt mines or famous halls, only for the pleasure to BE there and fly their models together.

"Yes, it is a sport: "Our gold medalists are the aviation's Olympic Champions", said Erv Rodemsky in Ron Williams' book, but when a sport reaches such a high level of skill, it becomes an ART."

"On behalf of FAI and the FAI jury I want to thank the organisers for such a successful World Championships. I want to thank the competitors for their sportsmanship, for the very high level of flying, for the improvements noticed since the last World Championships in Cardington 1978. Thanks to the timekeepers and their chief, George Lynn. Thanks to Ian Dowsett at the processing and thanks to Butch Hadland, the contest director, for a very well run competition and an excellent team managers' meeting. - Thanks to all those who did their best at all levels to make these World Championships so successful. I want also to add a special thanks to Mike Smart and Bob Smith for the very dangerous rescues in the catwalks.

"Now, there is another one I want to mention. You have met him everywhere during these days, carrying boxes, teaching steering during practise days, rescuing models, doing so many things for evryone, with all his best and all his heart.

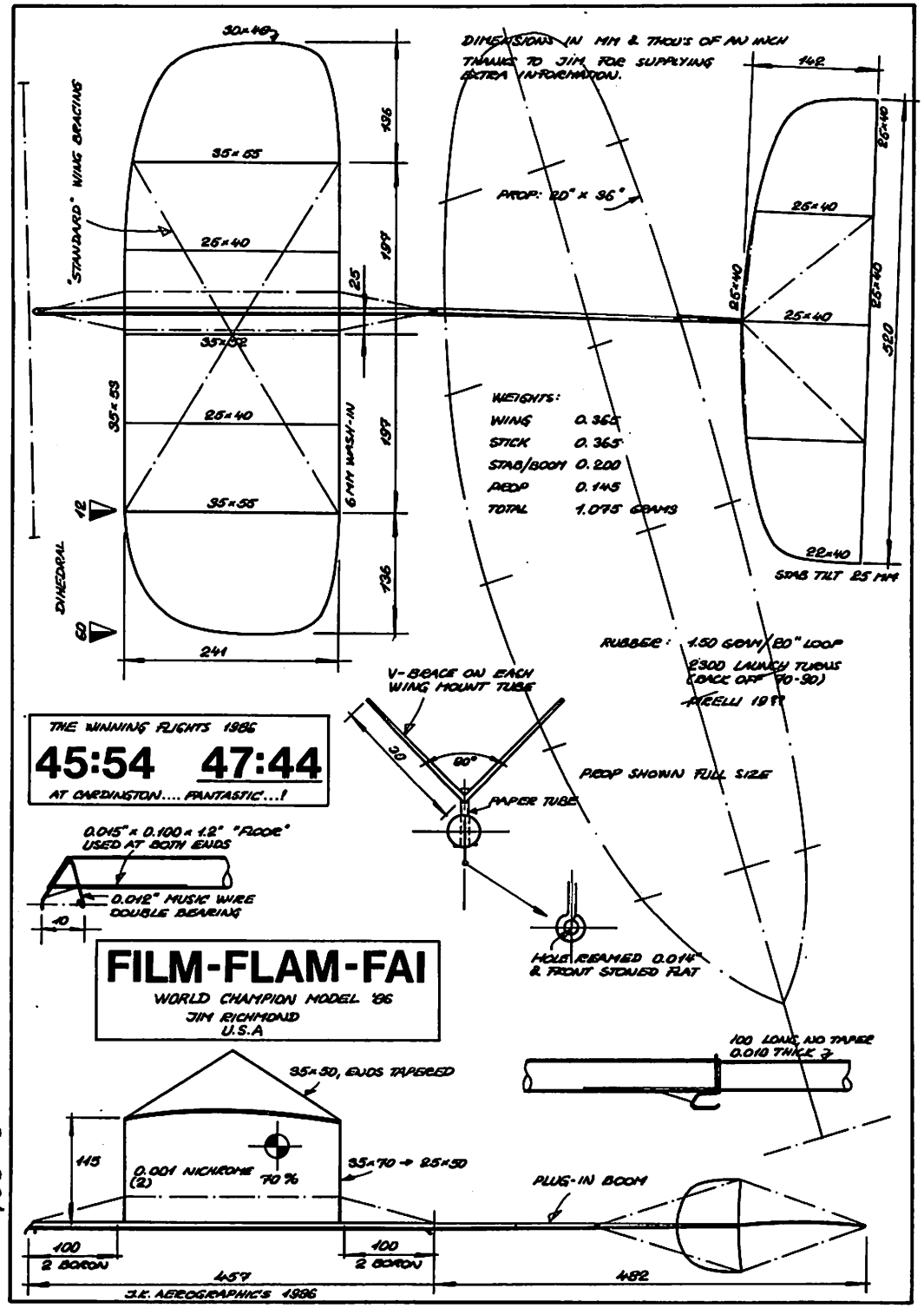
"Laurie, I'll not thank you for that, it is impossible to thank somebody for doing so much and so well. Simply, I'll say, "Please, sometime, do it again!"

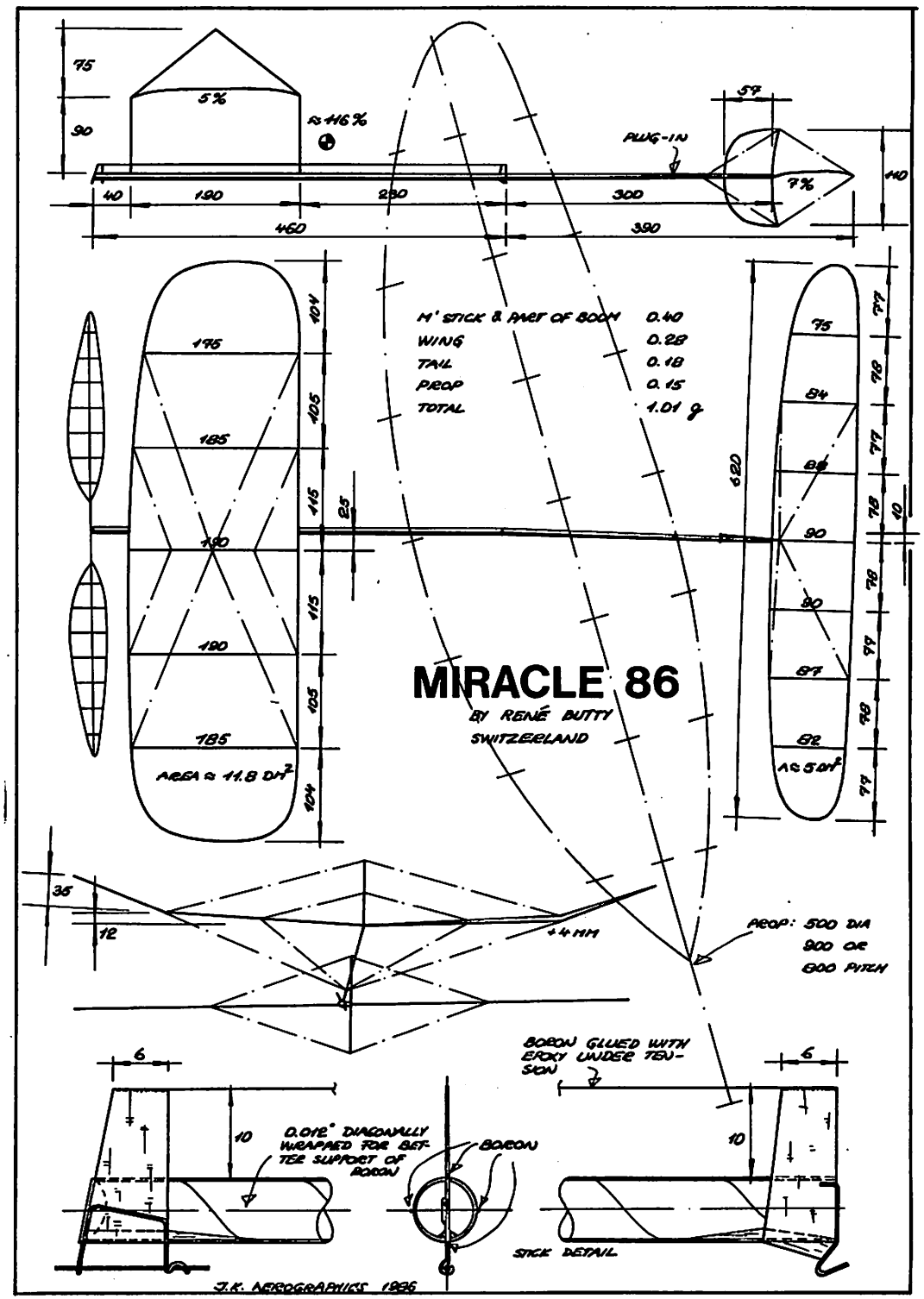
EDITOR ETC.,ETC.

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.
Airmail outside Europe 60,- Dkr.


DIMENSIONS IN MM & THOU'S OF AN INCH
THANKS TO JIM FOR SUPPLYING EXTRA INFORMATION.
"STANDARD" WING BRACING
30×46
35×55
26×40
35×52
35×53
35×55
25×40
PROP: 20" x 36"
142
26×40
25×40
22×40
320
STAB TILT 25 MM
6 MM WASH-IN
DIHEDRAL
12
60
241
WEIGHTS:
WING 0.365
STICK 0.365
STAB/BOOM 0.200
PROP 0.145
TOTAL 1.075 GRAMS
RUBBER: 1.50 GRM/20" LOOP
2300 LAUNCH TURNS
(DACK OFF 70-90)
ARELLI 19
V-BRACE ON EACH WING MOUNT TUBE
30
60°
PAPER TUBE
PROP SHOWN FULL SIZE
THE WINNING FLIGHTS 1986
45:54 47:44
AT CARDINGTON.... FANTASTIC...!
0.015" x 0.100 x 1.2" "FLOOR" USED AT BOTH ENDS
0.012" MUSIC WIRE DOUBLE BEARING
10
HOLE REAMED 0.014" & FRONT STONED FLAT
FILM-FLAM-FAI
WORLD CHAMPION MODEL '86
JIM RICHMOND
U.S.A
100 LONG, NO TAPER 0.010 THICK
35×50, ENDS TAPERED
115
0.001 NICHROME (2)
70 %
35×70 → 25×50
PLUG-IN BOOM
100
2 BORON
100
2 BORON
457
482
J.E. AEROGRAPHICS 1986


75
90
5%
≈ 116 %
PLUG-IN
57
7%
110
40
190
230
300
460
390
195
185
180
185
104
105
115
115
105
104
25
620
M' STICK & PART OF BOOM 0.40
WING 0.28
TAIL 0.18
PROP 0.15
TOTAL 1.01 g
AREA ≈ 11.8 DM²
MIRACLE 86
BY RENÉ BUTTY
SWITZERLAND
75
84
90
90
87
82
AC 5 DM²
35
12
+4 MM
PROP: 500 DIA
900 OR
600 PITCH
6
10
0.012" DIAGONALLY WRAPPED FOR BETTER SUPPORT OF BORON
BORON
BORON GLUED WITH EPOXY UNDER TENSION
6
10
STICK DETAIL
J.E. AEROGRAPHICS 1986

IMPRESSIONS BY CEZAR BANKS...

Herewith, my observations and comments on the '86 FID W ch:

COMPARISON TO SANTA ANA: The Cardington sheds are not unlike Santa Ana in volume and height. Opportunities for hang-up at the top are roughly comparable although Cardington's flatter roof allows more side drift leeway. Cardington's floor obstructions are much worse and are second only to Akron in my experience. Drift severity and patterns are tough to compare based on only one weekend and considering the extremes of weather encountered (to put it mildly!). Even so, on practice day and first contest day, the air seemed more stable for a longer part of the day than a typical day at Santa Ana. Here, we often encounter mild to strong side drift and some ground turbulence until maybe 3:00 P.M. when equilibrium is reached. After that the air stays really good until past sundown when cooling finally seems to induce fairly strong lengthwise drift. Almost all of Santa Ana's long flights are made during that really good late afternoon period. Rubber sizes, weights and lengths used at the W ch were about the same as Santa Ana which surprised me. Absolute mid range rubber torque showed less on the torquemeter as expected due to the 10-15°F colder temperature at Cardington. What was unexpected was that the models seemed to sustain with this lower torque at cruise. Average RPM of a known prop/model combination was lower at Cardington. Why? I don't know. Perhaps air density, viscosity or even mild thermals were responsible. Remember, I'm talking about the first contest day, not the second.

SECOND CONTEST DAY: The weather? Well, it was raining, windy and cold (it was pretty bad outside too!). Still, the fourth round air wasn't all that bad, spotty perhaps, but rewarding if you caught it just right. Bob Randolph (43:17) and I (45:48) both did for our best flights of the contest. Richmond folded a wing on steer during his fourth round and this set the stage for his fifth round heroics. I guess my biggest claim to fame was doing well enough in the fourth round to force Jim to fly at all the second day. And fly he did! His astonishing fifth round flight of 47:44 will have to go down in the lore of this hobby as one of its most dramatic events. Collisions with obstacles, updrafts and downdrafts, severe side drift, turbulence, rain avoidance, more than three minutes of steering; this flight had it all. Lucky? Well, maybe, but as Jim has demonstrated so many times now, his models in his hands are superbly capable. Just awesome, and without that capability, it couldn't have happened - so there you have it. Meanwhile, the weather slowly continued to deteriorate until about mid fifth round when the storm really shifted into high gear and essentially wrote "paid" to the contest. When my turn to fly the fifth round came, I launched into a strong side wind. The model clawed its way up to about 50 feet and then encountered a series of gusts that literally beat it slowly but relentlessly into the ground for a total of 3:58. Definitely not the way to catch Richmond. The sixth round was even worse. Picture team manager Bud Romak with a Kleenex tissue dabbing at half a dozen rain drops that found a home on my stab while I try to figure a launch pattern that will skirt the rain puddles and avoid the worst ground turbulence. All I needed was about 48 minutes to win. Ludicrous - right? And so it was - I fell short by only 46 minutes as the model never got over ten feet high before staggering into the concrete in under two minutes. And that was that. Another way to view the second day weather is to look at the distribution of flights with times over 30 minutes for the two days as shown below. Interesting - what?

	1ST CONTEST DAY			2ND CONTEST DAY		
DURATION (MIN)	RND 1	RND 2	RND 3	RND 4	RND 5	RND 6
45 PLUS	0	0	1	1	1	0
40 - 45	3	4	8	2	0	0
35 - 40	11	7	13	3	4	0
30 - 35	11	12	12	6	1	1
TOTAL FLIGHTS OVER 30 MINUTES	25	23	34	12	6	1

CONTEST ORGANIZATION: The Brits get an "A" plus here. Organizer Laurie Barr left nothing to chance that I could see. The cartage and storage of model boxes to and from Heathrow Airport to accommodate God knows what variety of arrival and departure times was especially appreciated. Thanks again, Laurie! Housing and food accommodations were much more than adequate. The serving girls in the dining hall were always smiling and courteous, full of hustle and bustle, competent and efficient. The food was wholesome, plentiful and for the most part tasty considering the variety of palates present. I did see Jim Richmond and Joe Hervat wishing they'd chosen the turkey instead of the beef curry one night, but they survived just fine anyway.

Contest director Butch Hadland and his staff ran a tight ship. With 18 countries and 51 contestants, their hands were full. They kept the processing and timing flow going smoothly and efficiently - no jam ups, Well done to Butch and company.

My only comment on the conduct of the contest is really more of a preference than a criticism. And that is; when only three days are available, I would much rather dispense with a full practice day in favor of two rounds per day for three days. Practice could be from say 9:00 A.M. till noon every contest day. A random poll of this idea seemed to indicate agreement. Something to think about for next time.

GENERAL COMMENTS: This was my third W ch now and they seem to get better and tougher each time. Each presents its own unique set of problems and surprises. Absolute solutions are as elusive as ever and maybe that's what makes the game so fascinating. There was not yet much sentiment expressed for rules changes which tells me our present rules, although they may be arguable, are certainly durable. Conventional planform tractors are still the ships to beat. Tandems, biplanes and canards have not yet made the inroads sometimes projected for them although the jury is still out on variable geometry props. I myself, would like to see them outlawed for several reasons: 1) FID could eventually become like FIA, B & C where incredibly complex and sophisticated gadgetry (almost none of it built by the flyer) is no longer a choice but a requirement; 2) These props tend to make record keeping by height categories meaningless; and 3) I think our hobby is purer art form without them. I realize these thoughts could be construed as "resisting progress" and I recognize the penchant of many modelers to develop "new things". I just think we should look down the road and carefully consider what direction we want our hobby to take. Well, so much for that. Besides, if we really want something to worry about in Indoor, worry about the vanishing supply of decent Pirelli. Now, there's a problem!

CONTESTS:

16th Nov. Schorndorf, Bavaria Contact A. Klinck
30th Nov. Lemgo, Niedersachsen Phone 06831-81902

8th March: Offenburg, F1D-Beginner, TH and Pl. Contact U. Bundesen, Phone 0781-58282

9-10th May: Danish Nationals, Flensburg. Contact Jorgen Korsgaard

Other dates for arrangements are invited as soon as possible .....

Results:

1	J Richmond	W/Ch	41:05	32:15	45:54	17:51	47:44	-----	= 93:38
2	C Banks	USA	41:36	13:06	41:37	45:38	3:58	1:40	= 87:25
3	P More	SF	30:35	41:36	44:01	7:36	8:38	-----	= 85:37
4	B Randolph	USA	41:40	34:17	39:36	43:17	1:09	1:33	= 84:57
5	D Orsovai	HUN	31:20	40:36	43:47	-----	24:04	-----	= 84:13
6	D Pymm	GB	19:02	41:57	42:03	38:00	-----	0:53	= 84:00
7	T Andre	NL	32:59	39:19	44:01	21:25	9:41	-----	= 83:20
8	D Stebenmann	CH	38:08	11:48	42:33	20:00	27:04	-----	= 80:41
9	B Hunt	GB	17:25	13:42	41:27	37:00	-----	0:29	= 78:27
10	A Ree	HUN	35:57	8:33	42:06	28:40	14:55	-----	= 78:03
11	O Rodenburg	NL	32:22	36:27	37:34	40:11	-----	0:04	= 77:45
12	L Englund	SF	35:27	36:58	37:56	8:51	37:39	1:45	= 75:35
13	R Butty	CH	32:55	42:30	31:37	15:39	14:47	12:39	= 75:25
14	A Popa	ROM	37:55	30:18	36:48	10:43	4:19	3:10	= 74:43
15	E Lies	NL	36:34	37:47	36:41	26:08	6:21	-----	= 74:28
16	L Caillieu	USA	34:01	19:33	39:16	11:36	3:02	0:46	= 73:17
17	S Kujawa	PL	35:10	30:05	37:54	32:18	-----	6:37	= 73:04
18	E Ciapala	PL	25:11	35:03	37:55	23:48	16:51	1:01	= 72:58
19	H Enomoto	J	35:14	36:33	34:50	25:00	35:54	-----	= 72:27
20	P Keller	CH	30:50	34:54	16:00	16:53	37:06	3:47	= 72:00
21	B Aslett	GB	36:36	15:38	27:02	30:49	34:17	7:30	= 70:53
22	L Ree	HUN	35:12	35:27	28:36	33:35	28:24	2:18	= 70:39
23	R Champion	F	32:07	32:18	31:51	25:34	37:21	16:58	= 69:39
24	N Bezman	ROM	33:42	33:24	34:28	22:08	-----	-----	= 68:10
25	J Korsgaard	DK	18:39	31:40	36:19	-----	18:05	4:14	= 67:59
26	I Zagar	YU	34:55	33:00	32:34	31:38	-----	32:31	= 67:55
27	M Mastnak	YU	26:14	28:55	36:36	31:08	27:25	10:28	= 67:44
-	W Nimpsch	DFR	26:04	24:03	38:19	29:25	17:20	0:18	= 67:44
29	K Kihara	J	25:11	29:52	37:00	15:07	16:56	1:39	= 66:52
30	C Cotugno	I	32:39	33:06	32:54	25:59	-----	-----	= 66:00
31	C Schueler	CDN	36:18	29:15	8:06	21:30	2:06	6:08	= 65:33
32	M Thomas	CDN	29:11	32:02	31:35	0:18	13:53	0:09	= 63:37
33	G Cognet	F	25:35	33:08	30:26	19:41	1:28	0:57	= 63:34
34	R Czechowski	POL	26:45	7:27	26:01	36:19	15:19	16:08	= 63:04
35	R Higgs	CDN	27:04	-----	6:29	34:26	21:56	14:57	= 61:30
36	E Grippo	ARG	29:38	26:37	30:58	14:34	16:38	0:11	= 60:36
37	F Dahlin	DK	18:46	28:22	31:43	24:22	19:22	3:49	= 60:05
38	J Chabot	F	13:43	28:57	30:32	16:28	20:50	-----	= 59:29
39	O Velunsek	YU	28:57	26:37	30:06	13:34	9:48	0:54	= 59:03
40	R Lotz	FRD	35:17	20:37	19:15	22:50	8:16	8:00	= 58:07
41	S Pontan	S	28:15	27:44	14:43	21:29	-----	11:27	= 55:59
42	P Comet	S	19:14	21:58	25:53	13:35	29:46	10:11	= 55:39
43	N Begiatti	ARG	15:19	26:28	26:56	16:50	12:50	1:30	= 53:24
44	A Moraru	ROM	12:33	15:30	37:15	10:39	12:40	-----	= 52:45
45	G De Angelini	I	23:30	-----	-----	2:39	27:25	-----	= 50:55
46	B Miehe	FRD	7:04	24:52	25:25	13:33	3:22	-----	= 50:17
47	H Ernst	DK	11:49	20:24	29:24	7:42	3:40	-----	= 49:48
48	K Ohta	J	17:21	20:42	-----	28:04	-----	-----	= 48:46
49	C Edmundo	ARG	26:30	15:33	22:02	8:40	-----	0:30	= 48:32
50	H Erofejeff	SF	1:24	1:28	26:14	14:16	-----	2:57	= 40:30
51	L Masciullo	I	12:29	25:16	13:33	13:10	4:22	0:09	= 38:49

Team results

1 USA	USA	245:39	10 France	F	192:42
2 Netherlands	NL	235:33	11 Canada	CDN	190:40
3 Great Britain	GB	233:20	12 Japan	J	188:05
4 Hungary	HUN	232:55	13 Denmark	DK	177:52
5 Switzerland	CH	228:06	14 FR Germany	FRG	176:08
6 Poland	PL	209:06	15 Argentina	ARG	162:32
7 Finland	SF	201:43	16 Italy	I	155:44
8 Romania	ROM	195:38	17 Sweden	S	111:38
9 Yugoslavia	YU	194:42			

INDOOR INTERNATIONAL, CARDINGTON, 30-31 Aug. 86

This event took place the weekend after the F1D World Championships. A number of contestants were attracted, also John O'Donnell who was not satisfied with the organisation of the contest. I (the editor) hope that the things and the problems now have been solved.....

Results by Bob Bailey:

F1D, SMAE Aeromodeller Trophy ... 6 entries

1.	Dave Pymm	41:20 + 40:03	= 81:23
2.	B. Hunt	36:59 + 40:04	= 77:03
3.	L. Barr	35:58 + 34:45	= 70:43
4.	D. Morley	34:13 + 34:46	= 68:59
5.	D. Wolstenholme	28:51 + 28:45	= 57:36

EZB, SMAE Houlberg Silver .... 8 entries

1.	B. Hunt	22:34 + 23:46	= 46:20
2.	R.L.B.	21:30 + 19:11	= 40:41
3.	D. Wolstenholme	17:54 + 17:34	= 35:28
4.	B. Wude	15:19 + 14:30	= 29:49
5.	R. Jones	14:24 + 15:01	= 29:25

CO_2, SMAE Sparklets Trophy

1.	I. Dowsett	9:56 + 9:53	= 19:49
2.	M. Groome	7:53 + 5:06	= 12:59

In addition to the SMAE Trophy events an index event was held on each day. Superb acrylic blocs displaying the World Champs logo designed by Ian Dowsett were awarded as prizes.

Saturday, index for CO_2, Peanut Duration, EZB and Novice Pennyplane. 13 entries.

1.	B. Hunt	EZB	106.2 %	
2.	Bob Bailey	EZB	96.05	
3.	D. Barber	NP	88.06	USA
4.	P. Andrews	EZB	80.71	USA
5.	J. O'Donnell	PND	78.99	

Sunday, index for F1D, 35 cm microfilm and opn microfilm. 11 entries.

1.	R. Butty	42:10	93.08 %	Switzerland
2.	T. Andre	41:45	92.20	Holland
3.	D. Pymm	41:20	91.20	
4.	A. Robertson	23:03	85.30	35 cm
5.	B. Hunt	36:59	81.60	

A letter from the World Champion.....

9-22-86

Dear Jorgen

Hope the enclosed details answer all of your questions. You do beautiful work.

The subject of rules has been brought up by yourself, Rodemsky and maybe others. My feeling is that they aren't bad "as is" (the plane design that is). Things such as steering need some attention. I also feel that the design of the planes should be as unrestricted as possible and that they should represent the ultimate in the art. If we should add more restrictions we will end up with a one-design competition - or an international Penny Plane event (Heaven forbid). We have proven for years now that the one gram rule does nothing but force us to make long distorted airplanes. I agree with Boyd Felstead that we might as well dispense with that rule so we can have more design freedom. Increasing the wing span to 30" would also be desirable in my opinion. But, please, no heavy clunkers. There are plenty of beginner's events with planes of this type.

Best regards, Jim

Ornithopter records:

Ray Harlan, USA, put up new ornithopter records in September. On the 3rd he did 11:19 in Akron, He also did 11:15 with a Manhattan, both are Cat. IV records.
On the 26th he did 5:25 in MIT, Cat.I. record. He did also a Manhattan record in the same place with 6:43.
(MIT)= Michigan Institute of Technologi

51 POLISH FAI F1D CHAMPIONSHIPS '86

28÷29 JUNE 1986 • WROCŁAW • HALA LUDOWA • POLSKA • POLEN • POLAND •

JUNIORS • COMPETITORS 15

1	MAREK NAWROCKI	ŚLĄSKIE	27:21	27:08	54:29
2	MAREK GRĄBKA	POZNAŃSKIE	25:10	24:22	49:32
3	RAFAŁ SYKUTERA	BYDGOSKIE	23:50	24:50	48:40

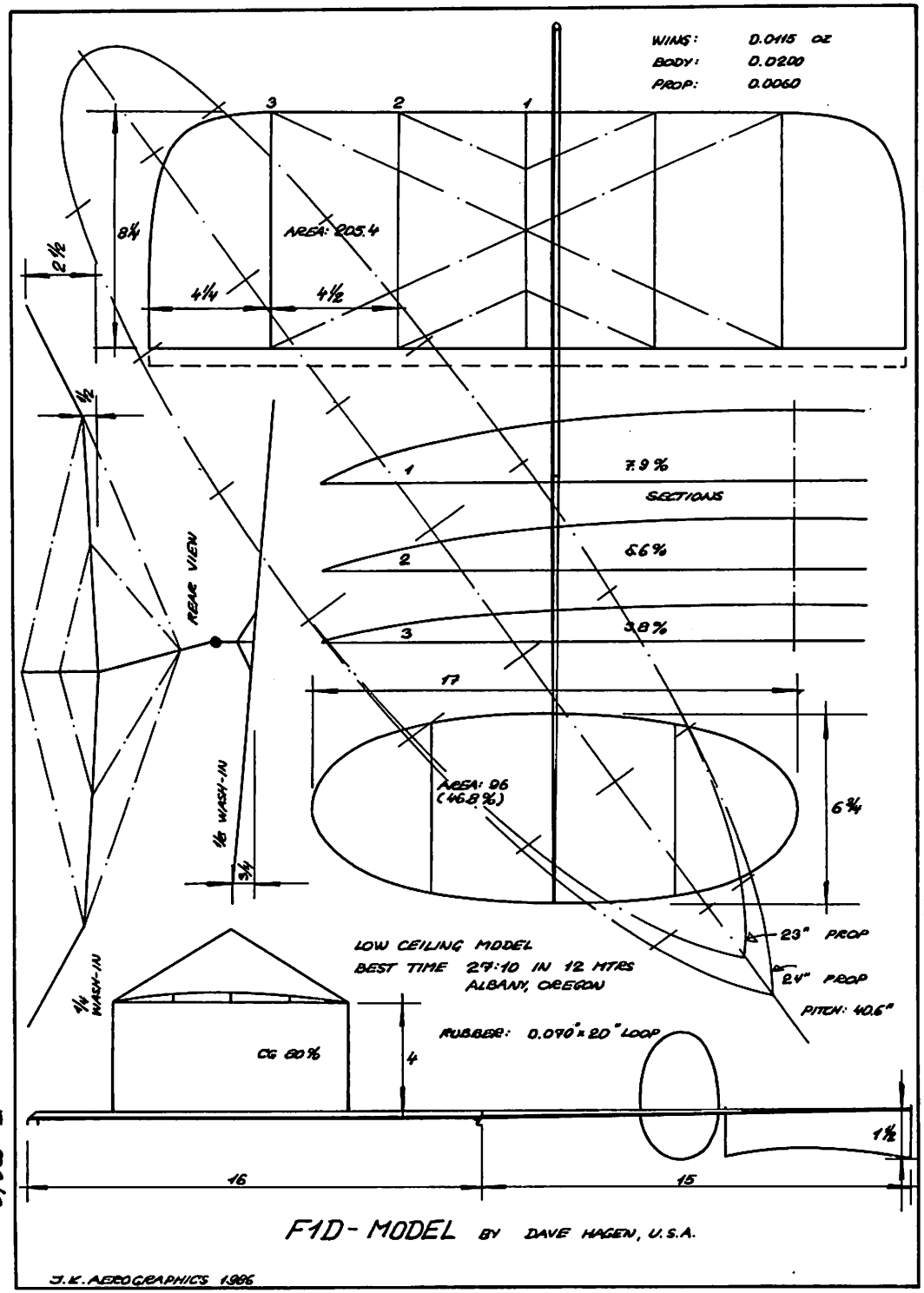
SYLWESTER KUJAWA'S NEW RECORD IN HALA LUDOWA 37:22

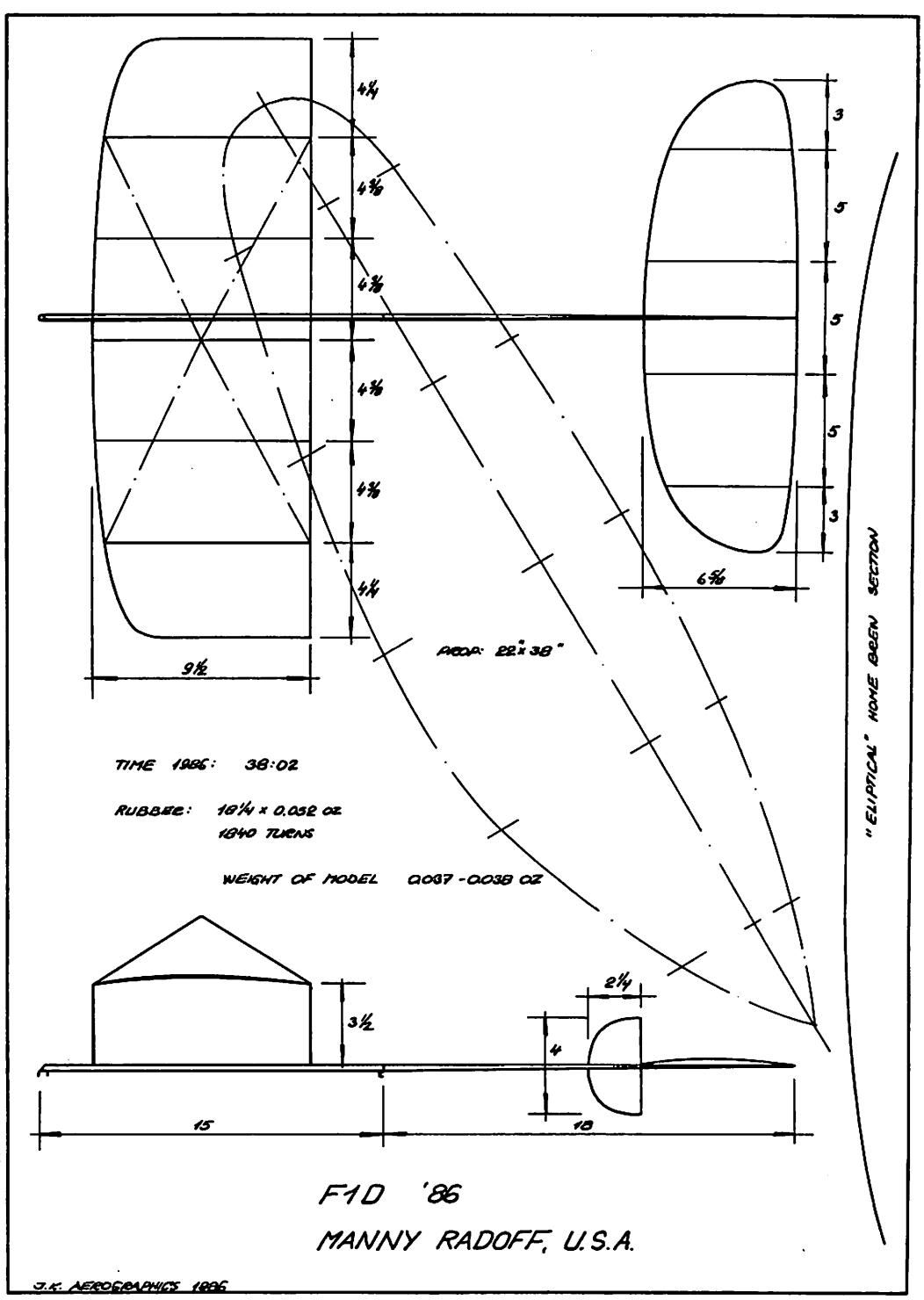
POLISH INDOOR MODEL TEAM FOR WORLD CHAMPIONSHIPS IN CARDINGTON : SYLWESTER KUJAWA, EDWARD CIĄPAŁA, RYSZARD CZECHOWSKI

SENIORS • COMPETITORS 21

1	SYLWESTER KUJAWA	POZNAŃSKIE	32:40	37:22	70:02
2	EDWARD CIĄPAŁA	ŚLĄSKIE	32:34	35:22	67:56
3	LEOPOLD WÁLEK	CSSR-KARVINÁ	31:48	35:57	67:45
4	BUD ROMAK	USA	32:54	33:38	66:36
5	RYSZARD CZECHOWSKI	KRAKOWSKIE	32:36	32:15	64:51
6	AUREL POPA	RUMUNIA	31:21	31:37	62:58
7	VÁCLAV WÁLEK	CSSR-KARVINÁ	31:13	29:34	60:47
8	JAN DEHM	KRAKOWSKIE	30:33	30:14	60:47
9	STANISŁAW GARLICKI	KRAKOWSKIE	29:24	28:47	58:11
10	PAWEŁ FRĄCKIEWICZ	WROCŁAWSKIE	29:18	28:16	57:34
11	KAREL BRANDEJS	CSSR-TÝNIŠTĚ	27:15	28:53	56:08
12	JÓZEF WÓJTOWICZ	CZĘSTOCHOWA	25:44	29:53	55:37
13	AUREL MORAR	RUMUNIA	28:24	27:04	55:28
14	NICU BERMAN	RUMUNIA	27:40	26:15	53:55
15	MAREK ANIOŁA	POZNAŃSKIE	25:11	25:37	50:48

FOR • INDOOR NEWS • DRAWN BY JERZY Z. KACZOREK - MIKI - OLD BOY - AEROCLUB WIELKOPOLSKI


WING: 0.0115 OZ
BODY: 0.0200
PROP: 0.0060
3
2
1
8¼
2½
AREA: 205.4
4¼
4½
½
REAR VIEW
1
7.9%
SECTIONS
2
6.6%
3
3.8%
17
AREA: 96
(46.8%)
6¾
½ WASH-IN
¾
½ WASH-IN
LOW CEILING MODEL
BEST TIME 27:10 IN 12 MTRS
ALBANY, OREGON
23" PROP
24" PROP
PITCH: 40.6"
RUBBER: 0.090" x 20" LOOP
CG 60%
4
1½
16
15
F1D - MODEL BY DAVE HAGEN, U.S.A.
J.K. AEROGRAPHICS 1986


4¼
4⅛
4⅛
4⅛
4⅛
4¼
9½
3
5
5
5
3
6⅝
PROP: 22" x 38"
TIME 1986: 38:02
RUBBER: 18¼ x 0.032 OZ
1840 TURNS
WEIGHT OF MODEL 0.037 - 0.038 OZ
"ELLIPTICAL" HOME BEEN SECTION
3½
2¼
4
15
18
F1D '86
MANNY RADOFF, U.S.A.
J.K. AEROGRAPHICS 1986

5-86/3

EASY B - JR/SR

1.	R. Skrjanc	12:01
2.	D. Slusarczyk	10:24
3.	R. Smith	9:14

EASY B - OP

1.	G. Nolin	16:36
2.	M. Andrews	14:22
3.	W. Van Gorder	14:05
4.	C. Markos	13:37
5.	R. Cbarski	13:07
6.	L. Garber	13:00
7.	K. Groves	12:53
8.	A. Becker	12:45
9.	G. Skrjanc	12:09
10.	D. Barber	12:09
11.	J. Marett	12:03
12.	J. Miller	11:56
13.	J. McGillivray	11:47
14.	C. Slusarczyk	11:46
15.	W. Henderson	11:38
16.	G. Underwood	11:34
17.	G. Wisniewski	11:29
18.	A. D'Alessandro	11:24
19.	J. Clem	10:48
20.	J. Voorhees	10:47
21.	D. Steeb	10:22
22.	A. Mkitarian	9:21
23.	H. Phillips	8:51
24.	J. Krush	8:47
25.	D. Erbach	8:41
26.	M. Colling	7:51
27.	A. Italiano	7:37
28.	L. Cailliau	5:49
29.	D. Krupp	5:34

R.O.G. CABIN

1.	L. Loucka	20:11
2.	R. Ganser	17:42
3.	D. Belieff	15:01
4.	R. Doig	13:09

AUTOGIRO

1.	L. Loucka	10:18*
2.	D. Slusarczyk	1:10

UNLIMITED RUBBER SPEED

1.	R. Higgs	14.55
2.	C. Markos	10.12
3.	J. Voorhees	9.88
4.	C. Slusarczyk	8.14
5.	H. Phillips	6.02
6.	W. Henderson	5.46
7.	H. Stewart	5.10

PEANUT RUBBER SPEED

1.	J. Martin	17.11

INTERMEDIATE STICK - JR/SR

1.	R. Skrjanc	8:09
2.	R. Smith	7:45
3.	D. Slusarczyk	:05

INTERMEDIATE STICK - OP

1.	D. Belieff	19:31
2.	L. Loucka	19:24
3.	J. McGillivray	18:56
4.	R. Cbarski	18:25
5.	M. Andrews	17:05
6.	D. Barber	16:45
7.	R. Ganser	16:44
8.	G. Nolin	14:51
9.	G. Skrjanc	13:57
10.	W. Van Gorder	13:06
11.	J. Krush	13:00
12.	B. Boehm	11:03
13.	K. Groves	6:06
14.	A. D'Alessandro	4:10

HAND LAUNCH GLIDER - JR

1.	D. Slusarczyk	63.4

HAND LAUNCH GLIDER - OP

1.	R. Kluiber	131.4*
2.	B. Boehm	128.6
3.	R. Higgs	113.6
4.	W. Schlarb	107.4
5.	C. Slusarczyk	102.0
6.	D. Belieff	96.6
7.	H. Phillips	57.6
8.	H. Stewart	55.4

HAND LAUNCH STICK - JR/SR

1.	D. Slusarczyk	12:44
2.	R. Skrjanc	5:02

HAND LAUNCH STICK - OP

1.	R. Higgs	33:56
2.	R. Doig	33:32
3.	D. Belieff	33:29
4.	W. Van Gorder	25:56
5.	L. Loucka	25:30
6.	R. Ganser	25:29
7.	D. Barber	17:12
8.	B. Boehm	13:48
9.	J. Voorhees	5:29

ORNITHOPTER

1.	F. Kieser	8:16*
2.	J. Kortenbach	6:21
3.	L. Garber	5:28
4.	R. White	4:26
5.	H. Phillips	2:12
6.	J. Krush	1:33

* New records set.

NOVICE PENNYPLANE - JR

1.	D. Slusarczyk	7:13
2.	R. Smith	5:17

NOVICE PENNYPLANE - OP

1.	K. Groves	11:46
2.	C. Markos(10:37)	11:12
3.	D. Steeb (7:07)	11:12
4.	M. Andrews	10:53
5.	J. Marett	10:45
6.	J. Clem	10:39
7.	R. Miller	10:20
8.	G. Nolin	10:17
9.	W. Henderson	10:06
10.	D. Barber	9:48
11.	F. Kern	9:25
12.	A. D'Alessandro	9:15
13.	L. Garber	9:06
14.	B. Boehm	8:56
15.	L. Leifer	8:30
16.	A. Becker	8:28
17.	J. Jones	8:15
18.	D. Ogren (7:52)	8:01
19.	J. Hankes (5:46)	8:01
20.	J. Voorhees	7:44
21.	E. Burke	7:39
22.	W. Schlarb	7:15
23.	W. Van Gorder	7:11
24.	M. Colling	6:45
25.	J. Brown	2:59
26.	J. McGillivray	2:06

PENNYPLANE - JR

1.	D. Slusarczyk	6:05
2.	R. Smith	5:41

PENNYPLANE - SR

1.	R. Skrjanc	7:55

PENNYPLANE - OP

1.	G. Wisniewski	13:01
2.	W. Van Gorder	11:37
3.	R. Miller	11:17
4.	C. Sotich	11:02
5.	G. Nolin	10:31
6.	D. Belieff	10:29
7.	M. Andrews	10:23
8.	D. Barber	10:22
9.	K. Groves (9:37)	10:10
10.	L. Loucka (8:55)	10:10
11.	J. Clem	10:09
12.	C. Slusarczyk	10:04
13.	J. Krush	9:41
14.	J. Jones	8:50
15.	H. Phillips	8:19
16.	J. Hankes	4:49
17.	J. Voorhees	:33

MANHATTAN CABIN - OP

1.	C. Markos	8:45
2.	W. Van Gorder	8:37
3.	R. Ganser	7:56
4.	H. Phillips	7:42
5.	L. Loucka	7:33
6.	W. Henderson	6:54
7.	A. D'Alessandro	6:40
8.	K. Fulmer	6:15
9.	H. LaClair	5:55
10.	D. Steeb	5:17
11.	J. Miller	5:14
12.	D. Erbach	4:42
13.	J. Krush	4:13
14.	M. Colling	2:21

FAI INDOOR (F1D)

			At-large Regional Points
1.	R. Higgs	32:37 + 32:41 = 65:18	- *
2.	R. Doig	33:47 + 30:15 = 64:02	100.00
3.	M. Andrews	26:27 + 26:14 = 52:41	82.27
4.	L. Cailliau	25:36 + 26:32 = 52:08	81.39
5.	W. Hulbert	21:39 + 28:49 = 50:28	78.81
6.	L. Loucka	27:45 + 20:40 = 48:25	75.59
7.	W. Van Gorder	24:23 + 23:40 = 48:03	75.04
8.	D. Beileff	23:51 + 23:33 = 47:24	74.02
9.	D. Godfrey	19:53 + 15:33 = 35:26	-
10.	J. Chizmadia	14:48 + 15:50 = 30:38	-
11.	R. Skrjanc (Jr)	5:02 + 0 = 5:02	-

* not eligible for U.S. Team program (Canadian)

BOSTONIAN

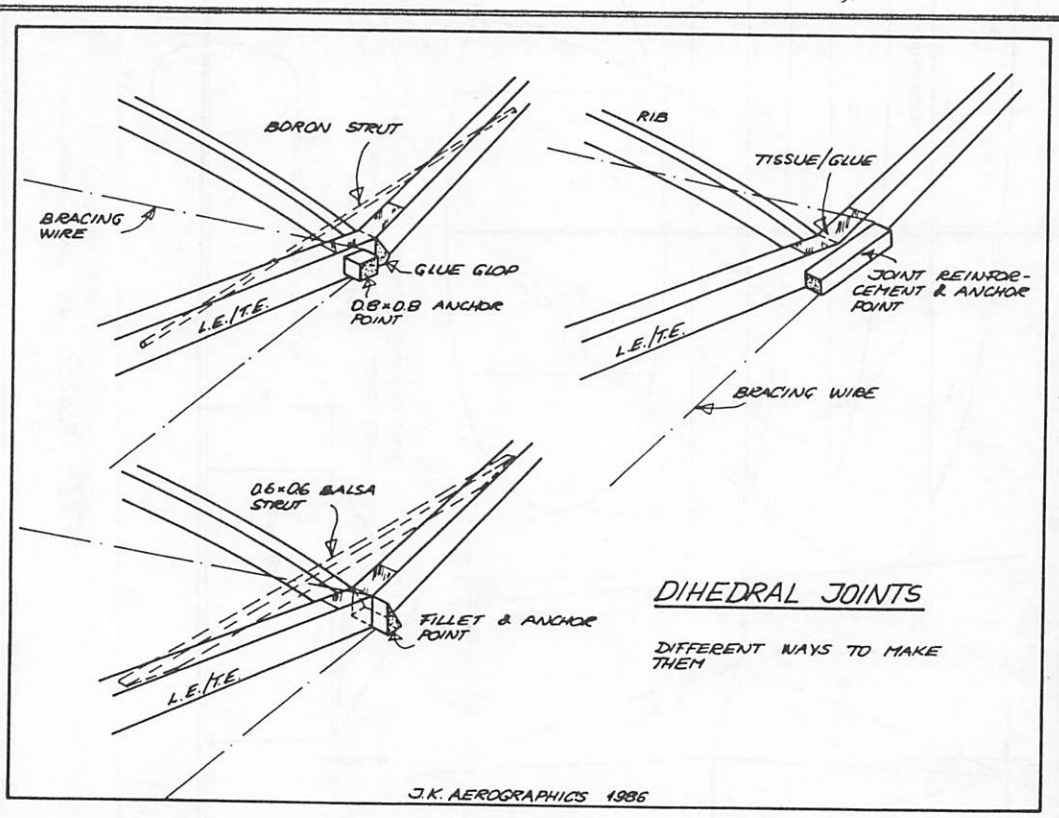
		Time	Charisma	Total
1.	J. McGillivray	396 sec.	1.18	467.28
2.	K. Groves	372	1.20	446.40
3.	R. Clemens	316	1.20	379.20
4.	H. Phillips	309	1.10	339.90
5.	D. Steeb	246	1.18	290.28
6.	J. Miller	253	1.14	288.42
7.	J. Marett	245	1.11	271.95
8.	D. Ogren	211	1.15	242.65
9.	H. Stewart	183	1.15	210.45
10.	D. Erbach	170	1.18	200.60

PEANUT SCALE

	Subject	Flight Ave.	Scale Points	Total
1. J. McGillivray	SE 5	94.85	28.65 106.425	201.3
2. J. Miller	Santos 14 Bis	89.95	23.8 107.1	197.05
3. D. Steeb	Pike E	92.25	20 92.25	184.5
4. K. Fulmer	Lacey M 10	90	20 90	180.0
5. K. Groves	Pike Dreame E	76	19 76	152.0
6. J. Kortenbach	Langley Aerodrome	47.95	22 99	146.95
7. J. Martin	Voisin Hydroplane	43.5	21 94.5	138.0
8. D. Steeb	Wright Flyer	23.9	24.5 110.25	134.15
9. L. Garber	Lacey M 10	64.8	18 64.75	129.55
10. W. Henderson	Piper Pawnee Brave	38.25	18 81	119.25
11. J. Martin	Ambrosini SAI 207	63	16 56	119.0
12. D. Barber	Fred	47.1	16 64	111.1
13. L. Leifer	Volksplane VP1	53	18 54	107.0

A.M.A. SCALE

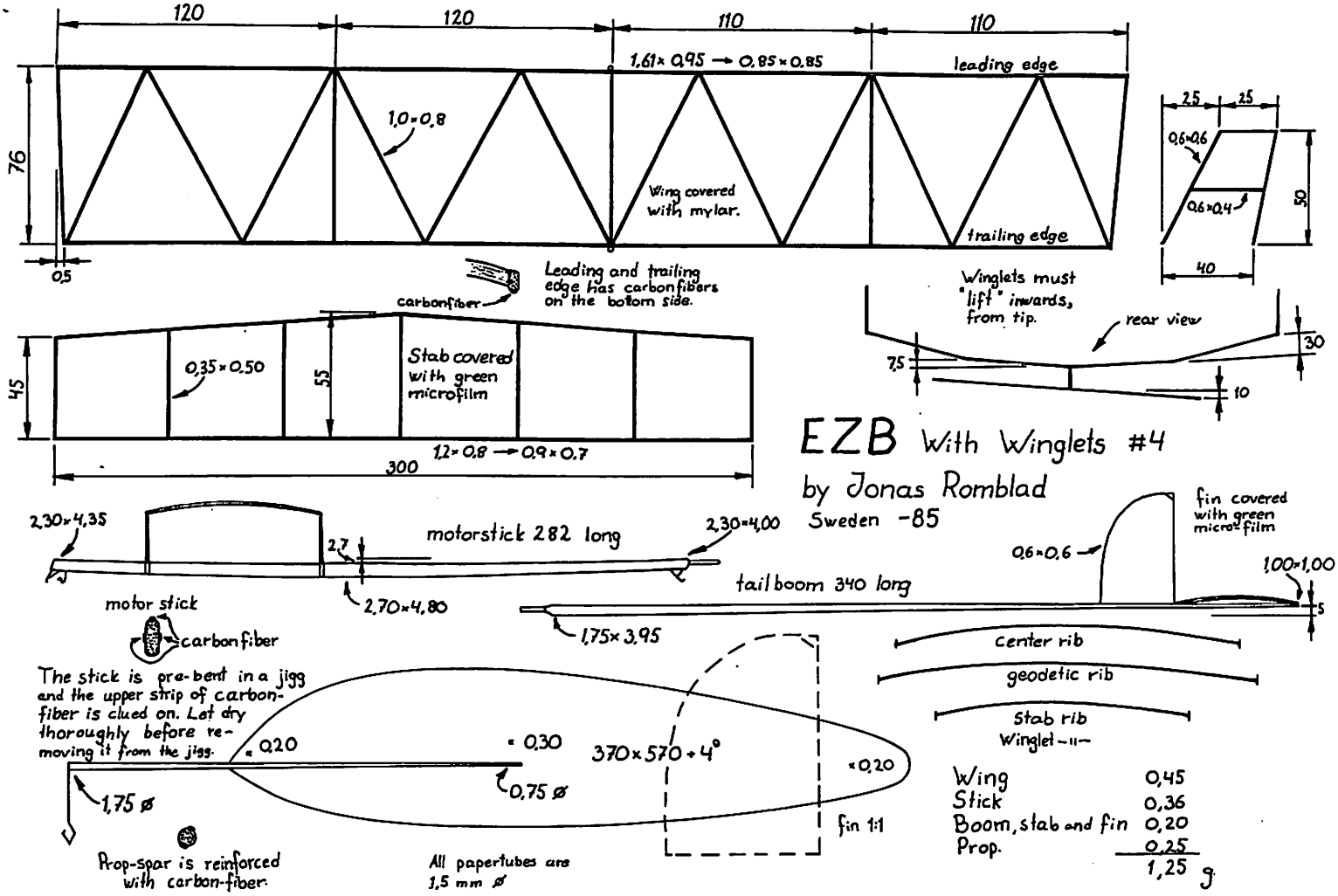
	Subject	Flight Ave.	Scale Points	Total
1. J. McGillivray	SE 5	87	84	171.0
2. K. Groves	Dreame Pike	86.5	84	170.5
3. L. Garber	Pike	90	71	161.0
4. J. Kortenbach	Langley Aero.	62	80	142.0
5. R. Clemens	Sop Sparrow	43.5	84	127.5
6. J. Miller	Pike E	40	79	119.0
7. J. Kortenbach	Neuport 11	51	67	118.0
8. J. Martin	Voisin	31.5	76	107.5
9. H. Stewart	Pilatus	6.5	83	89.5
10. M. Colling	Arro 560	15.5	68	83.5
L. Loucka	DH 6		55	
D. Steeb	Alco		42	



REG. PARHAM, U.K., A BUSY MAN DURING THE 1986 F1D W/C'S. HERE SEEN LECTURING ON INDOOR FLYING.



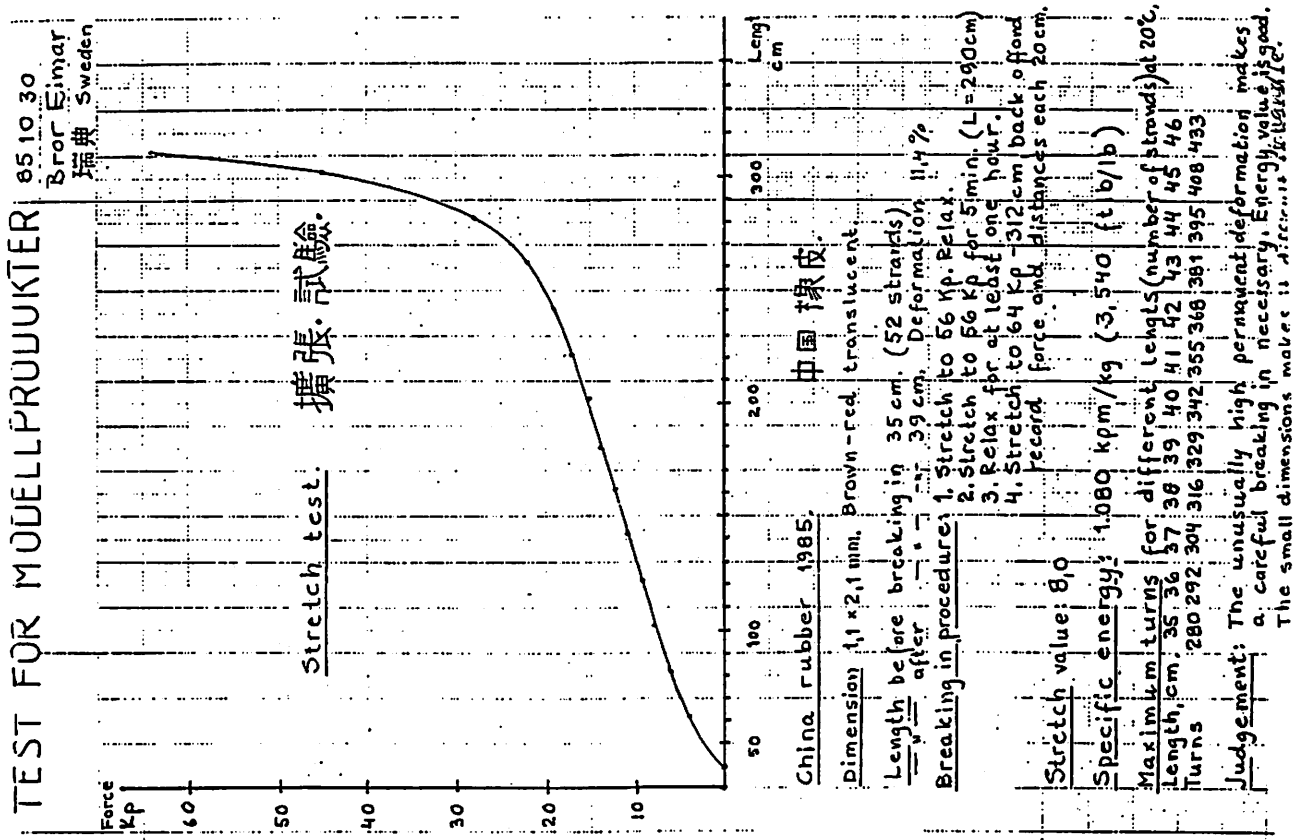
6-86/3



SEE PICTURE ON LAST PAGE.

A NICE DWG BY J. ROMBLAD, S.

A SWEDISH TEST OF SOME CHINESE RUBBER (F1B MOTOR)



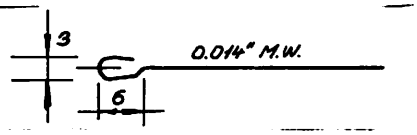
7-86/3

A letter from Richard V. Ganslen, USA.

..... You have never seen my name on the international F 1 D scene, but I have been building Microfilmmodels since 1934! I compete irregularly in the trials due to extensive foreign travel since 1976 and my extensive activities in sports (athletics and sports medicine).

My main claim to fame is perhaps the fact that I was the original discoverer of the technnique of removing microfilm from the tank by coating the wooden frame with rubber cement or nowadays, spray cement. Before that time many people got discouraged taking microfilm off the water from underneath and gave up without ever building a model.

I'm sending you a sample of a prop shaft with excellent "anti-climb" up the shaft tendencies. The prop shaft should be credited to Walter Kulzer of Texas. ....



Ganslen also included a drawing of Dave Hagan's model which has been exceptional in low ceiling sites having done over 27 min.

He also sent some hints and tips:

Use of teflon tubing:

I have made all of my wing post paper tubes for over 22 years on pieces of teflon tubing stretched over a piece of wire, a large pin or needle. This eliminates, for most of the time for hurrying the process, the polishing of the usual wire etc. If you want to add a little extra slickness I spray the teflon surface with a pure silicone spray just before use. My motor sticks are all made on teflon coated glass rods so that when I am glueing a seam they NEVER STICK TO THE FORM. How many sticks have been broken trying to free them from the form before you stop to think, Gee, I should have loosened the whole stick with acetone before I pulled on it!!

Fast slacking/deadening of microfilm:

To deaden film for fast covering, when the film ageing process has been a week or less, I use a woman's hair dryer as follows:

Assuming the film frame is ½ inch high and 12-15 mm thick and laid, in my case over a piece of black double waxed paper. This paper can be had in printing shops where it is used to separate the thin aluminium printing plates one from the other in shipping and storage.

The procedure. With the microfilm ½" above the surface I draw my hair dryer steadily across the film form one end tothe other sweeping back and forth more than once if necessary. I pay special attension to the corners so there are not tight areas. This procedure blows the film down to the table/the waxed paper, slacks the film and THINS THE FILM beautifully for immediate use. The heat of these dryers is about 50-80 degrees (C) and will not burn the film even if you pass within 12-15 mm of the film surface.

Ganslen's way of covering...

I cover all my mike wings as simply as possible. About 5 minutes! My microfilm is suspended between a couple of books with the film on top of frame. I now drop my wing frame on top of the film, upside down. Now.. to prevent movement of the frame I put drops of water at each wing tip and opposite all future dihedral breaks with a soft (very soft) brush. As soon as this is accomplished I now run water around the frame, starting near the middle until the wing is completely in contact with the film. I often add food colouring dyes to the water to identify different wings e.g. green ship, orange ship, blue ship etc. If you insist on all ribs making contact with the water (I don't) you need only to tilt the microfilm frame slightly and let a generous drop of water run down just inside the frame in alignment with the rib. I like slack film wings for most flying and travel protection where we have very high temperatures to deal with.

I do one trick which may seem bizaarre ... When the film and the frame are in complete contact all around and not dry, I swing the whole thing around in the air with the wing facing the rushing air... This seems to smooth out and tighten the film somewhat over the whole frame quite evenly. This last step is not necessary since I often just tilt my frame up at an angle and this lets the excess water run off. Then I lay the film frame and wing back on the books and let it dry.

All slight deviations in the wing frame will cancell out in bracing. This covering technique is facilitated by dead slack film achieved by my "hair dryer" technique. I even stretch old well aged film before use as a matter of routine. ....

Thanks to Ganslen for his tips. By the way he was a world ranking stab hoch springer in 1937-1949. (pole vault).

Complete list of F 1 D World Champions:

1961:
Cardington, U.K.: Joe Bilgri, U.S.A.
Team: U.S.A.

1962:
Cardington, U.K.: K.H. Reike, W. Germany
Team: West Germany

1966:
Debrecen, Hungary: Hans Beck, West Germany
Team: West Germany

1968:
Rome, Italy: Jim Richmond, U.S.A.
Team: Czechoslovakia

1970:
Slanic, Romania: Jiri Kalina, Czechoslovakia
Team: Czechoslovakia

1972:
Cardington, U.K.: Pete Andrews, U.S.A.
Team: Czechoslovakia

1974:
Lakehurst, U.S.A.: Ryszard Czechowski, Poland
Team: Poland
Longest flight: Karol Rybecky

1976:
Cardington, U.K.: Bud Romak, U.S.A.
Team: U.S.A.
Longest flight: Bud Romak

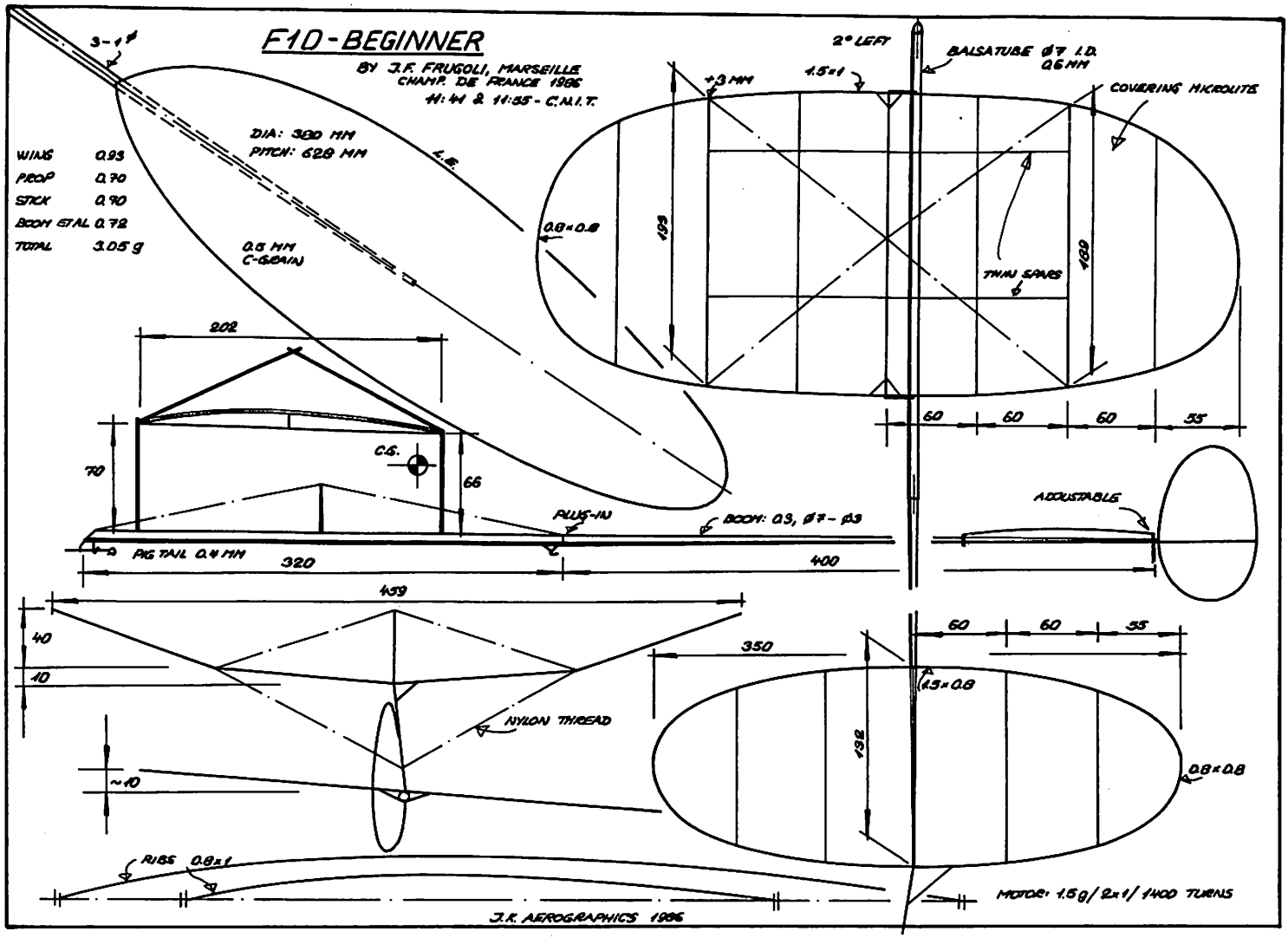
1978:
Cardington, U.K.: Jim Richmond, U.S.A.
Team: U.K.
Longest flight: J. Richmond

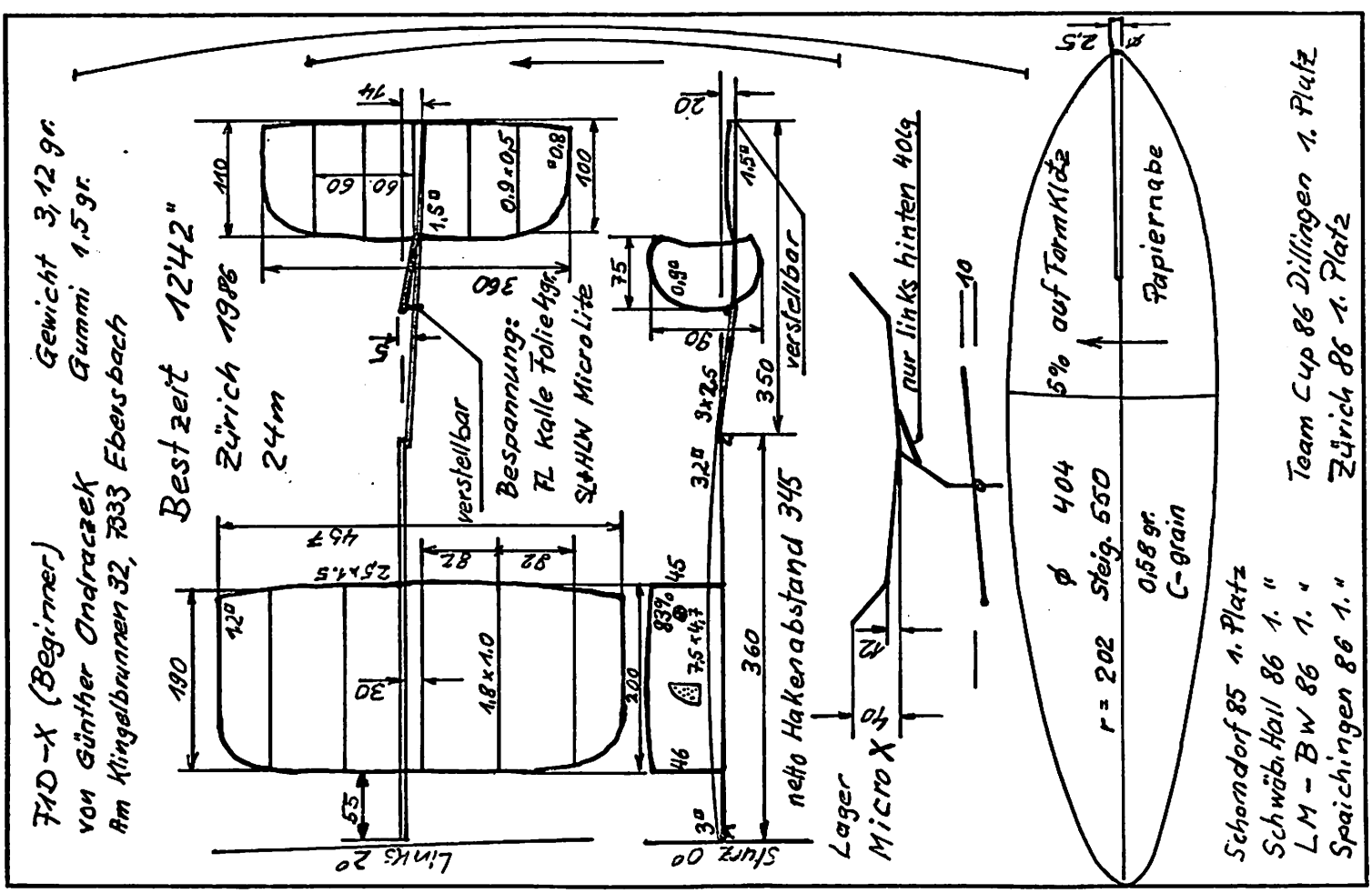
1980:
West Baden, U.S.A.: Erv Rodemsky, U.S.A.
Team: U.S.A.
Longest flight: J. Richmond

1982:
Slanic, Romania: Aurel Moraru, Romania
Team: Romania
Longest flight: Aurel Moraru

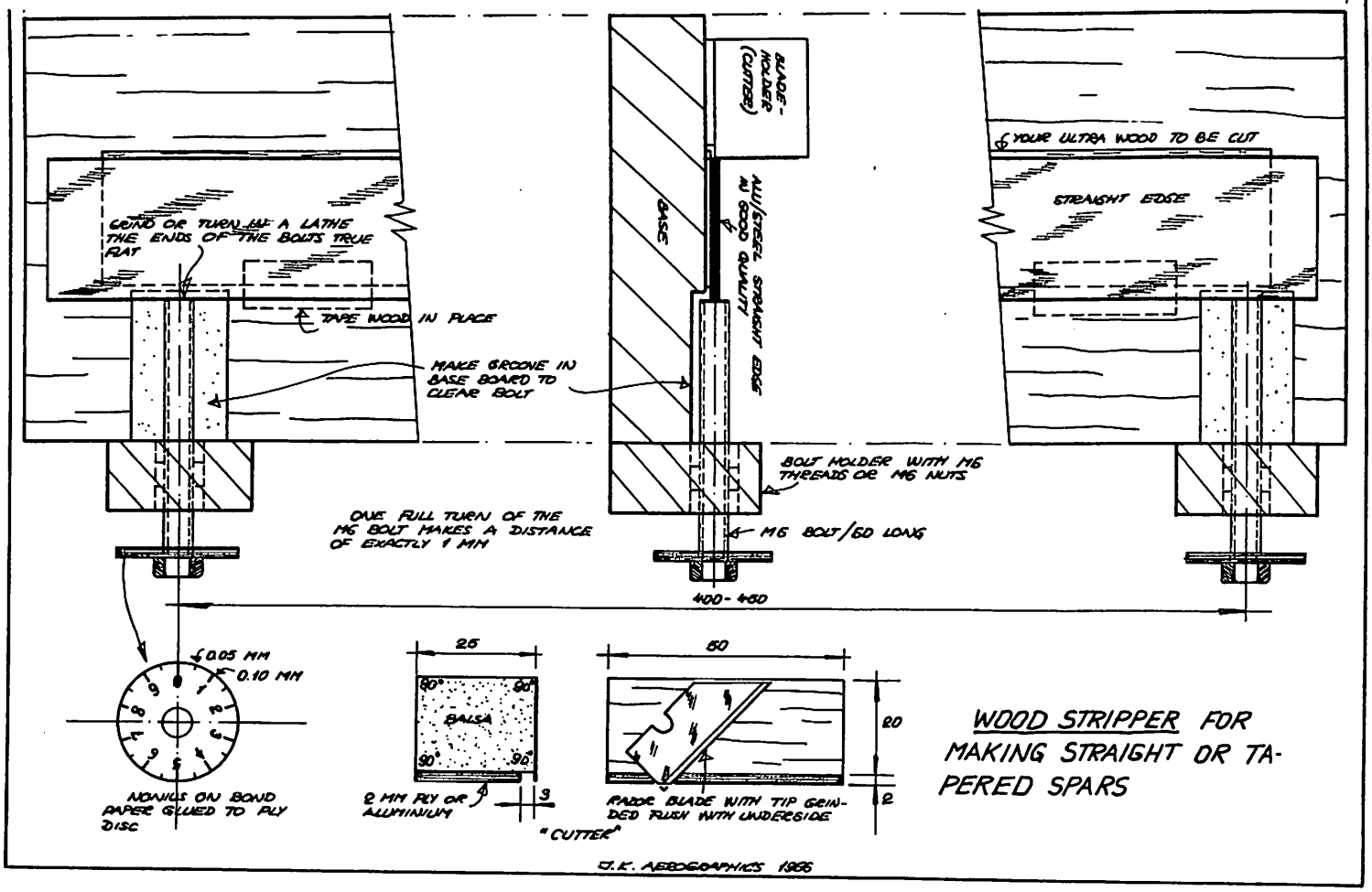
1984:
Nagoya, Japan: Jim Richmond, U.S.A.
Team: U.S.A.
Longest flight: J. Richmond

1986:
Cardington, U.K.: Jim Richmond, U.S.A.
Team: U.S.A.
Longest flight: J. Richmond


F10-BEGINNER
BY J.F. FRUGOLI, MARSEILLE
CHAMP. DE FRANCE 1986
11:44 & 11:55 - C.M.I.T.
WING 0.93
PROP 0.70
STICK 0.90
BOOM STAL 0.72
TOTAL 3.05 g
DIA: 380 MM
PITCH: 628 MM
0.6 MM C-GRAIN
3-1
2° LEFT
BALSATUBE Ø7 I.D. 0.6 MM
COVERING MICROLITE
+3 MM
1.5×1
THIN SPARS
0.8×0.8
193
459
60 60 60 35
202
70
C.G.
66
PLUG-IN
BOOM: 0.3, Ø7 - Ø3
PAG TAIL 0.4 MM
320
400
ADJUSTABLE
459
40
10
350
60 60 35
NYLON THREAD
~10
1.5×0.8
132
0.8×0.8
RIBS 0.8×1
MOTOR: 1.5g/2×1/1400 TURNS
J.F. AERODRAPHICS 1986

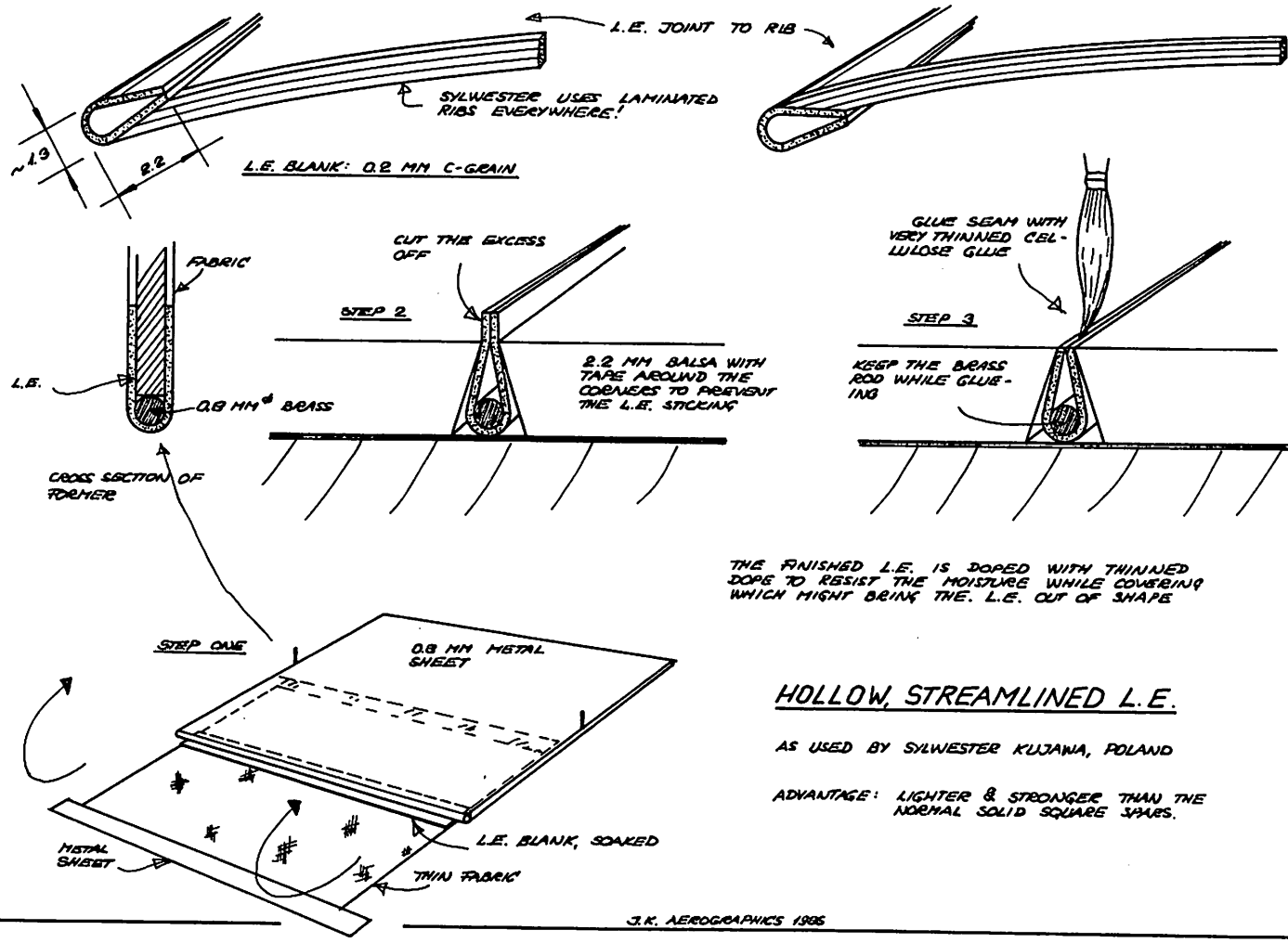

F1D-X (Beginner)
von Günther Ondraczek
Am Klingelbrunnen 32, 7333 Ebersbach
Gewicht 3,12 gr.
Gummi 1,5 gr.
Bestzeit 12'42"
Zürich 1986
24m
Bespannung:
FL Kalle Folie 49gr.
SLAHLW MicroLite
verstellbar
verstellbar
1,5°
1,5°
0,9°
0,8°
110
100
60 60
74
20
360
75
90
350
versstellbar
32°
3×2,5
nur links hinten 40lg
10
45°
25×1,5
82 82
45
83%
7,5×4,7
120
190
30
1,8×1,0
200
360
46
55
3°
netto Hakenabstand 345
Lager
Micro X
Links 20
Sturz 0°
2,5
Ø
5% auf Turmklotz
Papiernabe
Ø 404
r = 202
Steig. 550
0,58 gr.
C-grain
Schorndorf 85 1. Platz
Schwäb. Hall 86 1. "
LM - BW 86 1. "
Spaichingen 86 1. "
Team Cup 86 Dillingen 1. Platz
Zürich 86 1. Platz

9-86/3



WOOD STRIPPER FOR MAKING STRAIGHT OR TAPERED SPARS

J.K. AEROGRAPHICS 1986



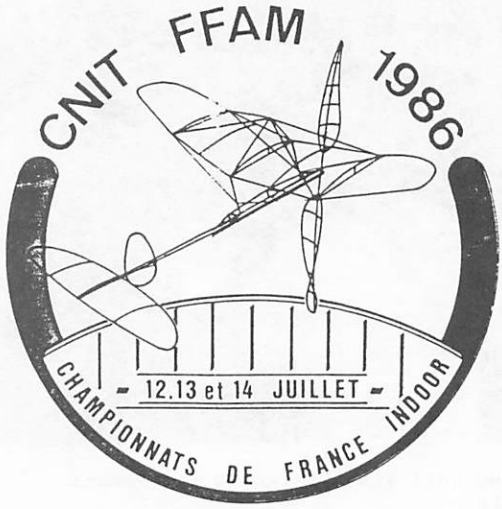
HOLLOW, STREAMLINED L.E.

AS USED BY SYLWESTER KUJAWA, POLAND

ADVANTAGE: LIGHTER & STRONGER THAN THE NORMAL SOLID SQUARE SPARS.

J.K. AEROGRAPHICS 1986

10-86/3



BY JEAN FRUGOLI

CHAMPIONNATS DE FRANCE DE VOL D'INTERIEUR 1986

CNIT LES 12 13 ET 14 JUILLET 1986

MICROPAPIER 35 CADETS

1	BONNOT NICOLAS	UA ORLEANS	8'34	8'22	16'56
2	CHABOT ISABELLE	CA TOURAINE	7'28	8'19	15'47
3	CARRE STEPHANE	CA TOURAINE	5'46	5'35	11'21
4	CHAUVEAU SEBASTIEN	CA TOURAINE	4'20	5'45	10'05

MICROPAPIER 35 SENIORS

1	CHAMPION ROBERT	CA TOURAINE	13'14	14'26	27'40
2	DUCHENNE FRANCOIS	AC POITOU	13'16	14'06	27'22
3	BESSE ALAIN	UA ORLEANS	12'31	12'24	24'55
4	COGNET GUY	AC POITOU	12'07	11'50	23'57
5	DELCROIX JACQUES	UA ORLEANS	11'29	12'08	23'37
6	TRACHEZ BERNARD	AZAY LE BRULE	11'25	10'10	21'35
7	HUA-NGOC TRUNG	ASCPA	10'36	10'42	21'18
8	BRAUD HENRI	AC POITOU	10'37	10'29	21'06
9	FRUGOLI JEAN	MAC MARSEILLE	9'47	10'22	20'09
10	BRIERE GAUTHIER	AC POITOU	10'50	9'06	19'56
HC	KLINCK ALFRED	RFA	14'31	13'51	28'22

RECORD DE FRANCE : ROBERT CHAMPION 14'26

For the first time, the french indoor modelers could afford a higher and spacious site, the "Palais du C.N.I.T.", la Défense, in Paris. A real flying volume. The hall, ± 35 meters high is an arch of beton and the roof is sleek. The perfor. mances have improved and all the records of France broken. But Robert Champion has done better since in Cardington, during the Indoor W.C.

MICROFILM 35

1	COGNET GUY	AC POITOU	18'52	18'38	37'30
2	CHAMPION ROBERT	CA TOURAINE	18'06	17'35	35'41
3	DUCHENNE FRANCOIS	AC POITOU	13'53	17'37	31'30
4	FRUGOLI JEAN	MAC MARSEILLE	14'42	13'11	27'53
5	MARTIN PHILIPPE	AC POITOU	13'58	13'51	27'49
6	BRIERE GAUTHIER	AC POITOU	11'59	11'38	23'37
7	TRACHEZ BERNARD	AZAY LE BRULE	9'31	10'58	20'29

RECORD DE FRANCE : GUY COGNET 18'52

E.Z.B.

1	CHABOT JEAN-MARIE	AC THOUARSAIS	14'44	14'06	28'50
2	DELCROIX JACQUES	UA ORLEANS	13'46	13'54	27'40
3	CHAMPION ROBERT	CA TOURAINE	13'00	13'30	26'30
4	TRACHEZ BERNARD	AZAY LE BRULE	12'40	13'25	26'05
5	DUCHENNE FRANCOIS	AC POITOU	9'35	10'06	19'41
6	BESSE ALAIN	UA ORLEANS	9'26	10'07	19'33
7	BRAUD HENRI	AC POITOU	9'17	9'36	18'53
8	MARTIN PHILIPPE	AC POITOU	8'59	8'22	17'21

RECORD DE FRANCE : JEAN-MARIE CHABOT 14'44

BEGINNER

1	FRUGOLI JEAN	MAC MARSEILLE	11'55	11'41	23'36
2	VALERY JACQUES	AC LANDES	9'55	10'26	20'21
3	CHABOT JEAN-MARIE	AC THOUARSAIS	9'08	10'11	19'19
4	DELCROIX JACQUES	UA ORLEANS	8'59	9'13	18'12
5	HUA-NGOC TRUNG	ASCPA	8'50	8'45	17'35
6	BRAUD HENRI	AC POITOU	9'02	8'18	17'20
7	BESSE ALAIN	UA ORLEANS	8'22	8'31	16'53
8	DUCHENNE FRANCOIS	AC POITOU	8'34	8'16	16'50

RECORD DE FRANCE : JEAN-FRANCIS FRUGOLI 11'55

F 1 D

1	CHAMPION ROBERT	CA TOURAINE	26'46	31'01	57'47
2	GRONNIER XAVIER	UA ORLEANS	26'50	28'32	55'22
3	TRACHEZ BERNARD	AZAY LE BRULE	24'01	23'11	47'12
4	DUCHENNE FRANCOIS	AC POITOU	21'24	21'27	42'51
5	COGNET GUY	AC POITOU	20'50	20'30	41'20
6	BRIERE GAUTHIER	AC POITOU	17'40	23'26	41'06
7	FRUGOLI JEAN	MAC MARSEILLE	25'30	14'32	40'02
8	CHABOT JEAN-MARIE	AC THOUARSAIS	20'49	18'45	39'34
9	MARTIN PHILIPPE	AC POITOU	18'03	18'21	36'24
10	BESSE ALAIN	UA ORLEANS	16'44	19'20	36'04
11	BRAUD HENRI	AC POITOU	11'59	12'56	24'55
HC	KLINCK ALFRED	RFA	28'43	29'10	57'53

RECORD DE FRANCE : ROBERT CHAMPION 31'01

Hungarian logbook page/András Reé

day	hour:min											
Nº	°F	%										
MODEL	W: sign / ⊄											
	S: sign											
	P: sign/ϕ/P											
RUBBER	Sign/W.Nº											
	g/m /length											
FLIGHT	max: R/T											
	st: R/T											
	t. force											
	rem: R/T											
	ceiling ↑/↓											
	char. level											
	10 prop. rev.	min	1	3	6	1	3	6	1	3	6	
		sec										
		min	12	20		12	20		12	20		
		sec										
	Flight time											
	Remarks											

11-86/3

Flemalle 1986:

By Jurgen Weil.

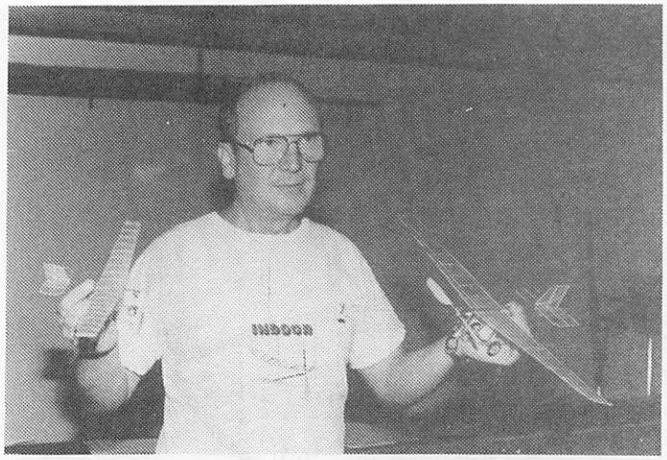
This year's contest was quite an experience in international atmosphere - and it was the 10th contest. Unfortunately this event collided with the World Champs at Cardington, so the F1D class had only one competitor. But else there were 37 contestants from B, NL, F, CH, USA, JPN, UK and W. Germany.

For the first time a new class, Micro 35, was flown - max 35 cm span, no weightlimit and no Microfilmcovering. (I think we indoor flyers have a dangerous illness: TOO many classes - Editor). The class was won by Alfred Klinck with a very good model which also had some "hang-ups".

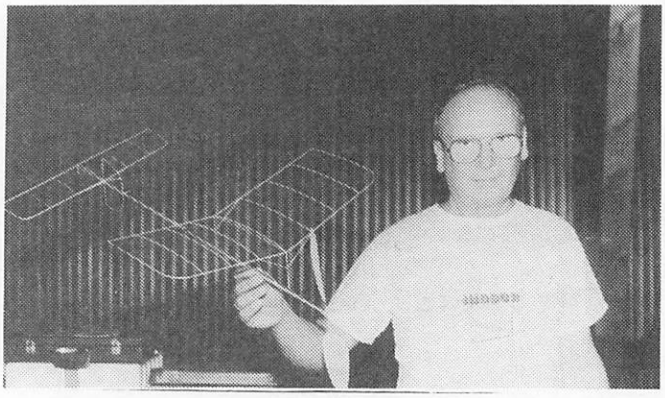
The Pistachio class is scale models with max span of 20 cm or max length of 15.2 cm. Last year only had three entries, but this year saw a big increase up to 11 models. The class was won by Jurgen Weil, D.

Peanut Scale was won by Emanuel Fillon with beautifully built models. Jurgen Weil won F1D-Beginner and Jaques Delcroix the EZB class with nice flights.

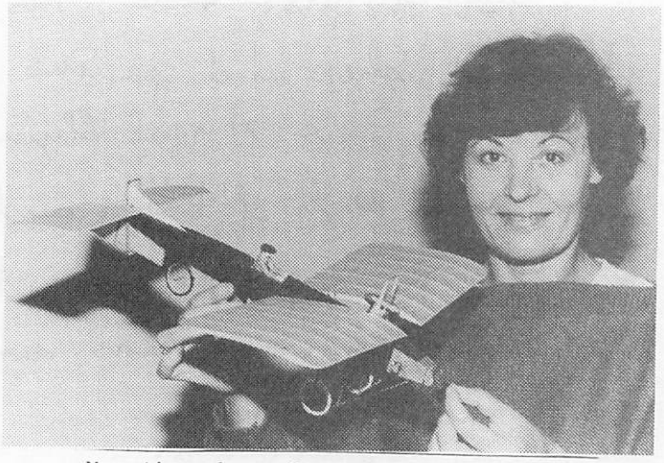
The contest 1987 will take place in August 21, 22 and 23 .... look forward to it.



Jurgen Weil with Pistachio and Peanut models



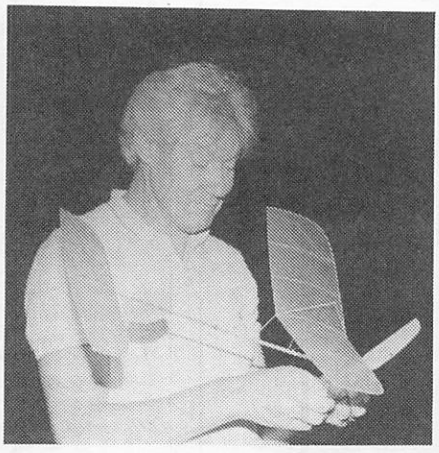
The winning model in F1D-Beginner by Jurgen Weil, D.



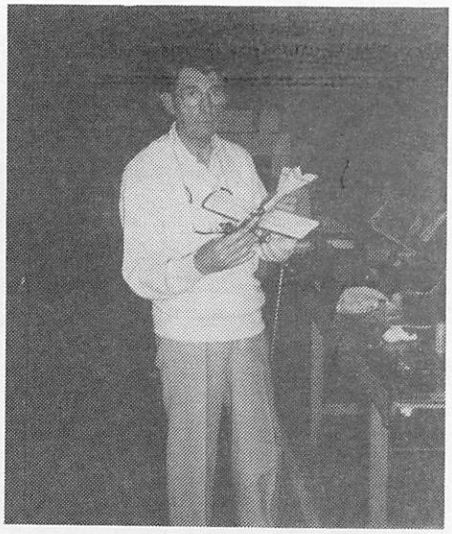
Mrs Aime shows the Peanut model from Benno Sabel, W. Germany



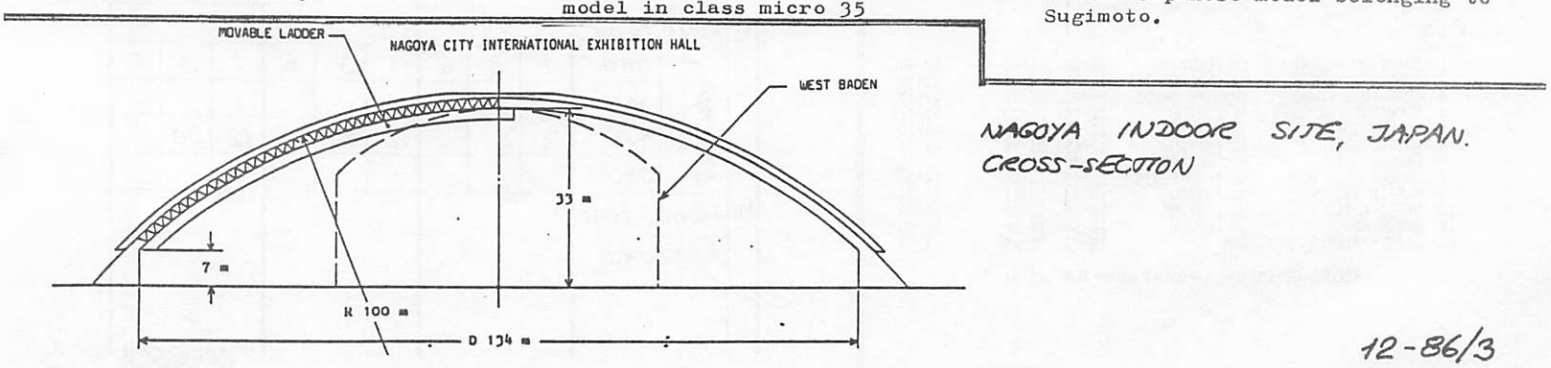
Siegfried Glockner, D, second place in Peanut Duration.



Alfred Klinck, D, with his winning model in class micro 35



Contest organiser F. Van Hauwaert with a Japanese model belonging to Sugimoto.



NAGOYA INDOOR SITE, JAPAN.
CROSS-SECTION

CLUB DE PETITE AVIATION

MJ LES TRIXHOSAURES

FLEMALLE 1986

10ème Concours International pour Modèles Réduits d'Avions de Vols d'Intérieur

22 - 23 et 24 Aout 1986

PALMARES

F 1 D - MICRO FILM

L	NOM	PAYS	VOLS						TOTAUX
1	KLINK A.	RFA	1002	905	1181	256	336	407	2183
	VANHAEREN J.P.	BELG							

F 1 D "BEGINNER"

L	NOM	PAYS	VOLS						TOTAUX
1	WEIL Jurgen	RFA	444	572	431	571			1143
2	TROBS	RFA	473	475	472	354	215	468	948
3	DELCROIX Jacques	FR	377	341	412	450	475	427	925
4	PROOST Joseph	BELG	359	357	371	140	407		778
5	WALGRAEVE	B	216	317	315	107		86	632
6	JANSEN Albertus	NL	313	308	186	245			621
7	GREGOIRE	FRA	299	249	312	288			611

E.Z.B.

	NOM	PAYS	VOLS						TOTAUX
1	DELCROIX Jacques	FR	543	614	540	642	615	435	1257
2	PROOST Joseph	BELG	530	557	631	390	367		1188
3	WEIL Jurgen	RFA	530	510	496	494	654		1184
4	GRUNEWALD Richard	RFA	516	448	514				1030
5	PROOST Erik	Belg	498	451	433				949
6	JANSEN Albertus	NL	402	433	271	443			876
7	KLENK Karl	RFA	150	328	287	65			615
8	GREGOIRE	FRA	262	207	247				509
9	WALGRAEVE	B	283						283
	VANHAEREN J.P.	BELG							

CACAHUETES DUREE - SENIOR

	NOM	PAYS	TYPE APPAREIL	STAT.	VOLS					TOTAUX
1	DELCROIX Jacques	FR	POTTIER 100 TS	527,0	82	103	84	93	108	1135,0
2	GLOCKNER Siegfrie	RFA	VOLKSPLANE 2	429,0	118	112	83	70	99	1087,0
3	FRAIKIN Henri	Belg	POTTIER 100TS	456,5	94	99	100	101	83	1056,5
4	DELCROIX Jacques	FR	SK 1 TREMPIK	547,0	85	82	83	83	60	1049,0
5	WEIL Jurgen	RFA	CLOUBUSTER	461,5	91	84	91	80	82	993,5
6	GENTHER Alfred	CH	POTTIER 100TS	340,5	99	94	108	105	109	984,5
7	GLOCKNER Siegfrie	RFA	VOLKSPLANE 1	468,0	75	74	47	78	74	922,0
8	GENTHER Alfred	CH	PIPER COLT	365,5	82	89	88	88	100	919,5
9	GLOCKNER Siegfrie	RFA	CRANWEL C.L.A.3	462,0	58	45	29	57	100	892,0
0	GENTHER Alfred	CH	SCHEIBE FALKE	500,0	79	56	59	48	21	888,0
1	WEIL Jurgen	RFA	SKYRAIDER	488,0	62	15	58	67	69	884,0
	DELCROIX Jacques	FR	ZIPPY SPORT	506,0	59	57	62	60	67	884,0
	BOURDEAUD'HUI J-C	FR	RACEK	423,0	75	81	66	70	62	875,0
	FILLON Emmanuel	FR	PREST BABY	461,5	59	57	51	68	61	837,5
	GENTHER Alfred	CH	JAK 55	472,5	40	60	56	42	51	806,5
	FILLON Emmanuel	FR	BOISAVIA	420,0	34	35	61	87		786,0
	FRAIKIN Henri	Belg	PUSS MOTH	466,5	48	46	32			718,5
	BRICHLER DENIS	F	POTTIER 100 TS	416,5	58	32	32	30	53	702,5
	SABEL Benno	RFA	KOECHLIN 1908	471,5	25	35	26	35	38	687,5
	KINON Jean	BELG	LS 60	408,0	20	34	33	34	37	618,0
	KINON Jean	BELG	LACEY M 10 2	366,0	67	50				600,0
	KINON Jean	BELG	POTTIER 100 TS 3	373,5						373,5
	KINON Jean	BELG	POTTIER 100 TS 2	366,5						366,5
	KINON Jean	BELG	POTTIER 100 TS	356,0						356,0
	KINON Jean	BELG	LACEY M 10 1	347,5						347,5
	BOURDEAUD'HUI J-C	FR	LS 60	335,5						335,5
	VANHAEREN J.P.	BELG	SUNRAI							
	KINON Jean	BELG								
	KINON Jean	BELG	LACEY M 10 3							

MICRO 35

	NOM	PAYS	VOLS						TOTAUX
	KLINK A.	RFA	484	579	646	619	667		1313
	TROBS	RFA	385	540	623	210			1163
	DELCROIX Jacques	FR	442	36	539	450		400	989
	WEIL Jurgen	RFA	379	116	370	399			778
	GRUNEWALD Richard	RFA	345	42	256	159	136	292	637
	GREGOIRE	FRA	278	148	266	299	331	251	630
	KLENK Karl	RFA	234	271	70	240	259	301	572
	HAELEWYN Michael	BELG	284	235	166	247	272	265	556

SAINTE FORMULE (+de2gr) SENIOR

	NOM	PAYS	VOLS						TOTAUX
	FRAIKIN Henri	Belg	210	209	211	195	212		633
	GLOCKNER Siegfried	RFA	81	173	127	205	191		569
	DELCROIX Jacques	FR	149	199	201	80	82		549
	LESUISSE J	B	135	198	177	164	147		539
	FILLON Emmanuel	FR	138	169	170	172	175		517
	FILLON Emmanuel	FR	147	158	162	154	159		479
	KINON Jean	BELG	62	119	130	141	153		424
	GREGOIRE	FRA	90	123	136	76	159		418
	LESUISSE J.	B	119	119	119	151	113		389
	KINON Jean	BEL	85	97	123	133	69		353
	WEIL Jurgen	RFA	140	130					270
	ROEST Jan	NL	63	49	46	83	99		245

CACAHUETES DUREE - JUNIOR

	NOM	PAYS	TYPE APPAREIL	STAT.	VOLS					TOTAUX
1	ORSINI Pascal	FR	RACEK 2	440,0	36	49	42	47	32	716,0
2	ORSINI Pascal	FR	POTTIER 100 TS 1	393,0	44	50	46	45	46	677,0
3	ORSINI Pascal	FR	RACEK 1	424,0						424,0
4	ORSINI Pascal	FR	POTTIER 100 TS 2	388,5						388,5

PISTACHIO

	NOM	PAYS	TYPE APPAREIL	STAT.	VOLS					TOTAUX
	WEIL Jurgen	RFA	CLOUBUSTER	536,0	50	54	49	53	48	850,0
	DELCROIX Jacques	FR	POTTIER 100 TS	497,0	32	47	43	50	38	777,0
	FILLON Emmanuel	FR	GOTHA 145	415,0	21	51	54	25	55	735,0
	HANNAN Bill	USA	FARMAN MOUSTIQUE	569,0	19	35	22	23	23	731,0
	ALLISON M.	USA	PILATUS T.PORTER	463,0	28	8	32	33		649,0
	GENTHER Alfred	CH	PIPER SUPER CUB	407,0	30	32	33	31	31	599,0
	GENTHER Alfred	CH	C-3603	455,0	23	17	25	17	17	585,0
	UCHIDA Shoichi	JAP	VOLKSPLANE	412,0	24	24	25	27	25	566,0
	TAKEUCHI S.	JAP	CHUPAROSA	426,0	15	14	15	15	17	520,0
	MARTIN J.	USA	DRZEWIECKI 1912	291,0	26	3	31	32	36	489,0
	HADLAND B.	GB	ALCO SPORT	398,0	40					478,0

From Aurel Popa I got the results of the Romanian Nationals 1986 which were held in two sections, semifinals and finals. There were 37 seniors and 18 juniors. Impressive!

The finals:

1.	Bezman Nicu	34:53 + 33:50	= 68:43
2.	Popa Aurel	33:30 + 34:25	= 67:55
3.	Morar Aurel	33:33 + 33:09	= 66:42
4.	Mangalea Cornel	33:07 + 33:11	= 66:18
5.	Amoraritei D.	32:41 + 32:15	= 64:56
6.	Nicoara Vasile	27:55 + 31:10	= 59:05
7.	Sukosd Zoltan	28:57 + 29:20	= 58:17
8.	Chinga G.	29:20 + 28:15	= 57:35
9.	Vincze A.	28:00 + 27:47	= 55:47
10.	Fratean Daniel	26:59 + 26:30	= 53:29

Juniors:

1.	Fulop Zsolt	24:56 + 25:23	= 50:19
2.	Pirvu Iulian	23:17 + 22:55	= 46:12
3.	Alexe Irina	17:27 + 27:38	= 45:05

The whole contest was held from 7-12th April.

13-86/3

INSPIRATION FOR BUILDERS OF SMALL-SCALE FLYING MODELS



Peanuts & Pistachios

A concise booklet of inspiration for builders of small scale flying models, compiled by Bill Hannan. Featured are brief articles covering the history and philosophy of tiny flying models, model photos from many parts of the world, and five full-page three-view drawings.

International in scope, Peanuts & Pistachios displays the works of modelers, photographers and artists from countries including Belgium, Czechoslovakia, England, France, Germany, Japan, Switzerland and United States.

Dedicated to the idea that small can be satisfying, Peanuts & Pistachios is ideal for enthusiasts hampered by lack of time and/or short attention-spans.

HIGHLIGHTS OF THIS BOOKLET:

Articles review the heritage of tiny scale flying models, their attractions and detractions, nostalgic appeal, and universal acceptance.

Photographs gathered from eight different countries display a wide variety of Peanuts & Pistachios ranging from very simple to ulta-complex.

3-View Drawings by Otto Kuhni, Emmanuel Fillon and Bill Hannan are useful items of documentation suitable for projects of almost any size model ranging from Pistachios to Pachyderms...

Featured are: 1924 Bristol Brownie (Short wingspan version)
1926 Farman Sport "La Carte Postale" (Post Card)
1932 Gee Bee R-1 racer "Flying Barrel"
1935 Farman F.450 "Long Nez Moustique" (Mosquito)
1935 Corben Super-Ace

FORMAT: 8½" x 11" size, 70 lb. stock;
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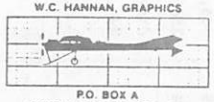
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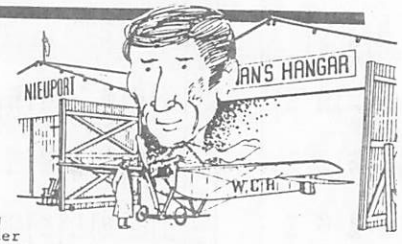
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14-86/3

Scale Staffel Profile

BILL HANNAN

Number 2 in a series



Bill Hannan is probablly best known for his popular column in Model Builder magazine, which dates back to August, 1972. He also is a frequent contributor to Model Aviation and many other aviation journals. An exacting writer, as well as model builder (as those who have seen his models will attest)Bill is one of those individuals who seems to get as much enjoyment out of research as the end product.

His boyhood was spent in Montana, not exactly a state known for its aviation pioneers. He was fortunate to have a grandfather who owned a strip of land ajacent to the Billings airport, and the comings and goings of both planes and pilots stimulated his interest at an early age. Also fortuitious was the fact that a model builder lived across the street from his grandfather's house and patiently steered Bill toward stick and tissue flying models, the first of a long line of projects being a Phantom Flash and about the same time a Comet ten-cent Fokker D-VII.

World War II introduced Bill to solid models(he was only 11) through the government's wooden model identification program. He says he was too young to take active part, but was "issued" the construction plans which enabled him to become proficient in solid model building skills. This sharpening of skills has paid off in a number of ways.

All scale modelers are familiar with the superb line of Williams Brothers plastic kits; the Gee Bee R-1 and 2, the Wedell-Williams racers, the Martin B-10, Boeing 247, Northrop Gamma and Corben Super Ace to name only a few. Bill constructed all the "master models" which were converted to dies by Granger Williams. If you've ever looked closely at the remarkable detail incorporated in the models, you know that it takes truly uncompromising craftsmanship.

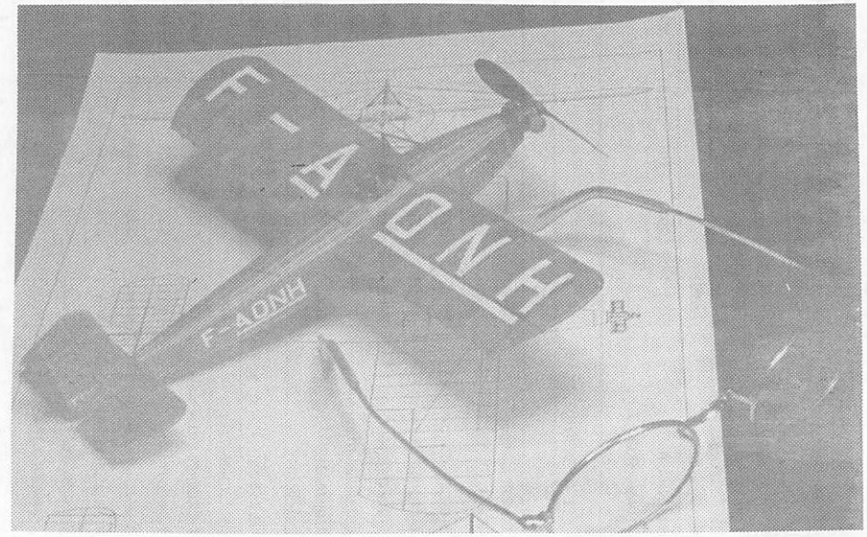
Bill Hannan has been one of the major enthusiasts supporting Peanut Scale, and his fine book "Peanut Power" has been considered one of "the bibles" of the building and flying of the 13" wonders.

He has been an active member of the Flightmasters since 1964 and a charter member of the Scale Staffel. He attributes a great deal of his enthusiasm for scale modeling to periodicals like the old Model Airplane News and Flying Aces, and the contemporary publications like Model Builder, Model Aviation and Flying Models.

Bill sees a circular sequence to his interest in the hobby: a start with simple models, growing increasingly complex through the years, and now returning to the less complicated flying models. The satisfaction is in knowing that what ever is undertaken, it upholds the highest standard of sensitive craftsmanship.

A BILL HANNAN PAGE.....

PISTACHIO SCALE... 8" SPAN!!



WRINKLES....

by Manny Radoff....

POURING AND LIFTING MICROFILM

Microfilm solutions have come a long way since I put some castor oil in my clear dope. After I dropped some in the middle of my filled bath tub I would grit my teeth and hope it would spread. These days I buy it ready made and it usually spreads to my satisfaction. At first I poured from the bottle cap, then from from a teaspoon, and later a tablespoon as I had need for more solution in order to make larger sheets.

With the advent of the soft plastic bottle with the pointed nozzle cap, I turned to that. The latest technique is to put a hole in the middle of that plastic bottle and and use a gravity feed instead of squeezing to force out the solution. The gravity feed permits the solution to fall gently onto the water, whereas the squeeze system frequently resulted in a fast pressure feed-out. As a result, the solution would would be forced under the water causing uneven and split sheets.

Now I don't just drop the film into the middle of the tank and hope it spreads. I help it spread. Initially, I pour it in a steady stream for the full length of the tank. If it doesn't spread in width, I add amyl acetate, just a little at a time. If that is insufficient, then I help the film spread by immediately pulling on the edges. If you have to use the amyl acetate, be warned that it retards the drying and curing of the film, besides making it more tacky, so my advice is to use it sparingly. Friends who use home brew microfilm say that adding acetone will also make their's spread better.

The thickness of microfilm is indicated by the color. If it is colorless, it is too thick. Usable colors are green, blue, gold, named in order they get thinner, with the next thinner colors, straw brown and silver suitable only for experienced indoor modelers. Such film is used on models built for record trials, lately. With FAI models that must weigh one gram, indoor men have not used the ultra light films.

You will have to learn to control the rate at which you pour the solution on the water. I would recommend using the plastic bottle with the gravity feed system. Stay with a comfortable speed at which you you move your hand along the tank when pouring, and change the pouring hole size to give you more or less flow rate. As the film dries on the water surface it will begin to wrinkle at the outer edges. You may blow on it to help it dry. Three to five minutes of drying time is sufficient.

I use water-moistened hoops to lift the film from the water. The spray gluing of the hoops is expensive, a possible health hazard, and unnecessary, so why use it? Before you do anything else after the sheet has dried, carefully check the film on the water. Look for weak spots, creases, dirt, and any possible flaws in the film. Select the largest hoop you can use, wet it, and gently lay it on the sheet of film. Now gently move the hoop and film to each side of the tank in order to push the film outside the hoop to about one inch from each edge. Next start at one corner and lift that bit of film on the outside, over the side of the hoop, onto the top. Repeat this procedure about every two inches until you are done. If your hoop is wet and doped as recommended in my microfilm hoop article, you will find that the film adheres very well. As you put the edge of the film onto the hoop you will notice that one long side is occasionally weaker than the other. Choose the stronger side to start the lifting out of the water. Grip the ends of the strong side in a comfortable manner, and lift that edge out of the water with tender loving care. After the edge is out of the water, continue to lift with both a forward and upward motion. When you get to the rear edge your hoop should be almost vertical. As the rear edge leaves the water continue that type motion until the microfilm sheet is upside down. Then slowly change the hoop to a vertical position and let the water run off. If you have built a microfilm storing cabinet as I recommended with v slot catches in the rear, you can place your sheet of film in there right away. If you have a cabinet with guides on top and bottom, let your sheets dry before sliding them in. Before I had a cabinet I used to insert bent pins on the end of the hoops and hang them on a line of string stretched across my cellar.

It is desirable to have some newspaper around onto which to discard sheets of film which are not suitable to pick up or those that break in the lifting procedure. Check your water temperature. Most articles I have read, have recommended 68 to 70°F. Have patience. You may pour a dozen sheets before you have learned to pour at a proper rate, or develop a technique of lifting the sheets out of the water. All of a sudden things will get coordinated. In an hour or so, you can have 15 or 20 sheets of film and finding yourself wishing you had more hoops to fill, or more storage place.

INDOOR PROPELLER JIGS

by Manny Radoff

The best place to start when making propeller building jigs is with the pitch formula. For the helical true-pitch propeller the formula is . P= Pitch. = 3.14. R= Radius. h-height. w= width. In selecting the height and width of the block, make sure that the surface is wide enough to accomodate the width of the blade. Blade widths average 10% of the diameter.

When Joe Bilgri first showed us his new single-spar prop, we all made them on jigs carved from a solid block of balsa. Fig. 1 is such a jig. The right front and top have utilized only a portion of the block. The rear left and top used the full length, height and width. Many modelers did not have the tools nor the technique of carving the jig, so other methods were sought.

Fig. 2 shows a built-up prop jig. It consists of triangle ABC and upright ACED. It is capped at the end with triangle BCE and the angle at C is 90°. This base can be used in two ways. The simplest way is to put cross pieces over edges AB and DE. Most people using these cross pieces place them at the same place their prop ribs would be. Modelers like myself cover the whole top in order not to poke and break the prop outline. When covering the whole jig, start at EB and make the cross pieces all as long as EB to the center of the prop and then gradually decrease cross piece lengths till they are same size as AD when they meet. The jig base can be made of anything available. To cover the whole top I use one sixteenth flat balsa. I cut the sheet in pieces as long as EB and the accumulated cut width to equal half the jig length. I then cut this into pieces one sixteenth square and glue these on. Then I cut more of the one sixteenth flat decreasing width to meet AD and proceed as before. After the glue has dried for the cross pieces, smooth the surface by sanding with sandpaper rolled around a dowel. CAUTION. Ifyou pin the outline in place, run a center support for the cross pieces before you cover the base. This is a piece of one sixteenth balsa which would be half the height of AD and runs from AD to the center of BC.

Fig. 3 shows a simple jig. It consists of a base ABC. The triangles are all of the same height, and the width at the bottom is the same as their position on the base triangle. Square AFED is held upright on the back side of the first triangle and end AD is edge which supports the center of prop shaft. Pete Andrews has recently improved this type jig. At the triangle positions he has substituted balsa discs, with flattened edges, attached so that they can rotate and yet be locked in position, and properly marked so that each may be positioned for a desired pitch at its station. The result is a variable pitch jig.

Fig. 4 is a construction which is new to me and I was introduced to it by Aurel Popa of Romania. It consists of a layer of balsa strips pinned at one end and spread out at the other much in the same way as a Japanese fan. After it is spread to proper width, it is glued together.

All of these jigs are inconvenient to work with as they stand naturally. Add necessary supports underneath so that the curved surface is in a position to suit you. ■

Drawings by Bill Booth, Jr.

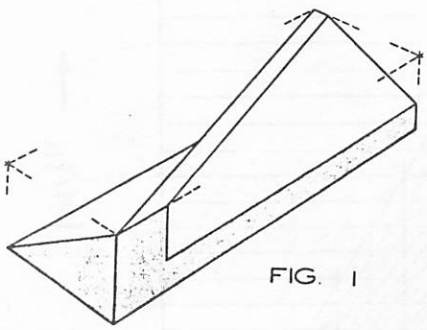


FIG. 1

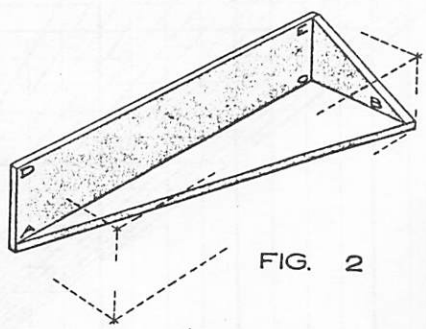


FIG. 2

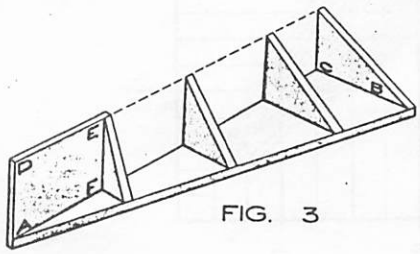


FIG. 3

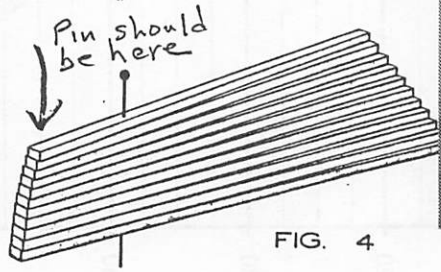


FIG. 4

INDOOR REAR HOOKS



FIG.1



FIG.2

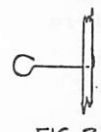
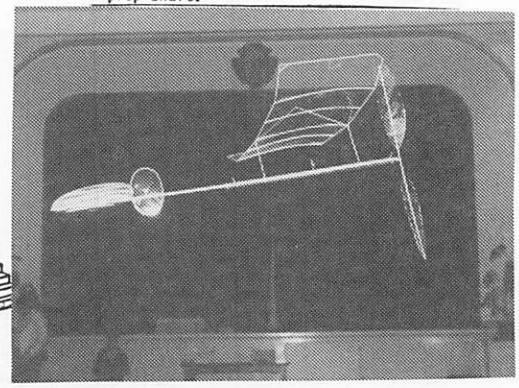


FIG.3



FIG.4

The above shapes are relatively simple and are all that are required for contest flying. If a model is properly flown, it will come down with a half-row of knots or less, and so there will always be tension on the rubber to hold it on the rear hook and prop shaft hook. If it is dead-stick in the air where motor can fall off hooks, then it is out of the running anyway. Therefore rear hooks -- Fig. 1, Radoff version, Fig. 2, Triolo-style -- are sufficient and make it easy to put on a fully wound motor plain or with "O" rings. The prop shaft, Fig. 3, is the style I use because it also permits easy insertion of a fully wound rubber motor, with or without "O" rings, when winding off the model. Fig. 4 shows a small balsa triangle between the hook and the motor stick. It helps to support the wire, but I think the biggest benefit from it is that it keeps the motor from twisting up over the bend, and it enables one to remove a motor with ease when it is wound up. If you use a double thrust bearing, there is no need to concern yourself with prop wobble if the motor should climb up the prop shaft.



BOYD FELSTEAD'S FULL COROM PROP MODEL

15-86/3

THEORY.....

Estimation of the Neutral point of indoor models by the method of Ciapala/Czechowski.

Ciapala and Czechowski of Poland have in their book "Modele Halowe" given some methods to find the neutral point and thereby the centre of gravity. One of the methods is called DS where you only need the following data from the model:

Wing area
Stab area
Average wing chord
Average stab chord
Moment arm (the distance between the quarter average chords of wing and stab)

See the sketch for these datas.

Otherwise only the "experience" factor K is needed. K is found to have a good value of 1,5, where the flying speeds and the aspect ratios have been considered.

You have the formula:

$$SA = 25 + \frac{\frac{100 \cdot L_H}{l_K}}{1 + K \frac{S_K}{S_H}}$$

where SA is the position of the neutral point in % of the average wing chord.

This formula is drawn in the graph

Definition of the formula figures:

L_H = moment arm in dm
l_K = average wing chord
S_K = wing area in dm^2
S_H = stab area in dm^2

It is recommended with a position of the CG of about 10%-20% in front of the neutral point in order to achieve sufficient longitudinal stability

IF YOU HAVE CASH.....

SAMS Indoor Wood

Cut by Ron Green, all sizes and cuts, 1,25 £ for best quality.

SAMS
2, The Drive, Blackmore End, Wheathampstead, Herts. AL4 8LF, England

Erv Rodemsky's film solution:

Airmailed bottles, approz. 110 grams/3.8 oz.

1 bottle 8,- ddlars
2 bottles 15,-
3 bottles 21,-

More bottles in the same batch 6,- each.

1600 Rockspring Pl., Walnut Creek, CA. 94596, USA.

Sylwester Kujawa Mechanisms:

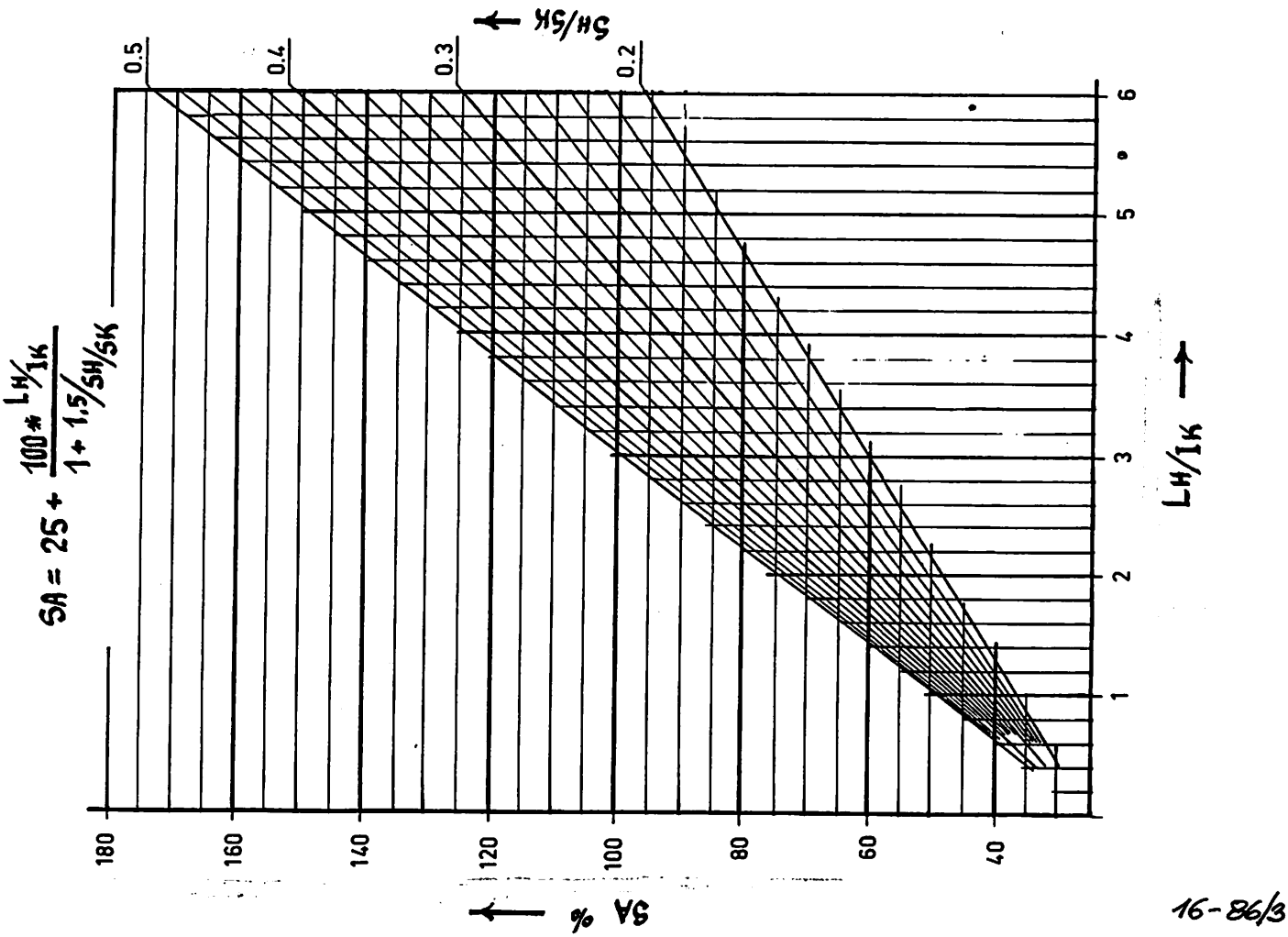
1:20 winder with counter	70,- dollars
Torquemeter	50,- "

Super variable pitch prop hub just ready for mounting the prop blades, ~~see sketch~~.
Price: 35,- dollars.
Str. Swierczewskiego 114 B/15, PL-60-397 Poznan Poland.

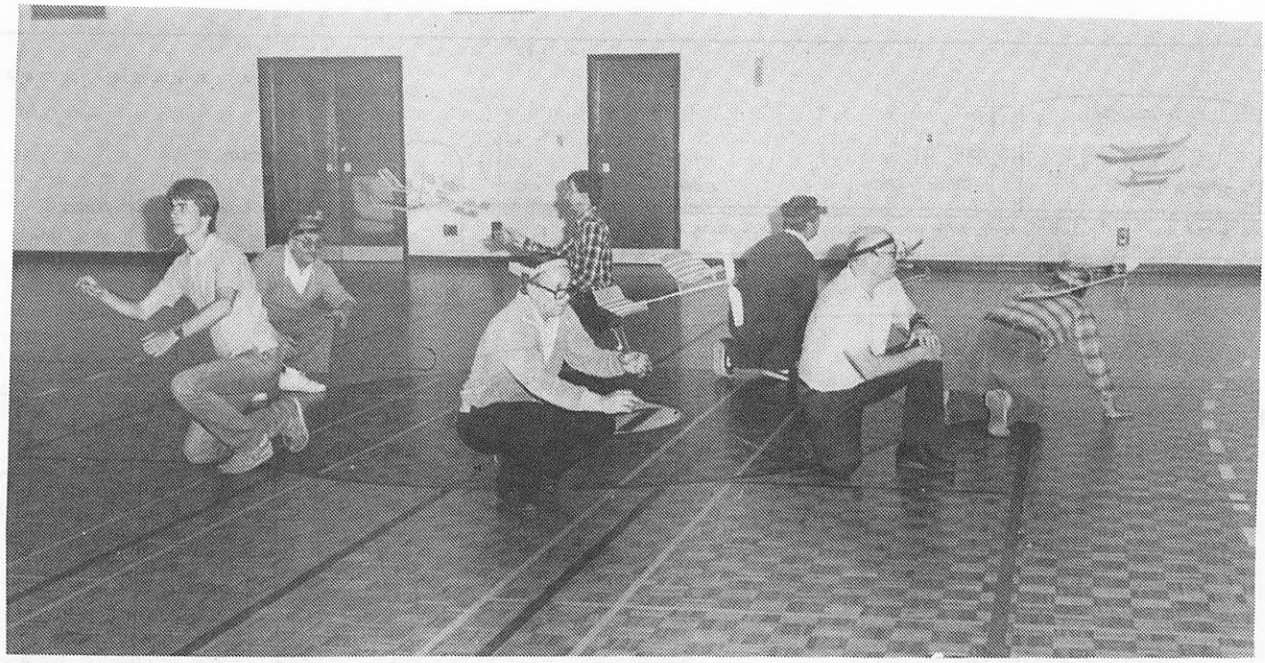
Rubber stripper:

Ryszard Czechowski makes again a batch of his very fine rubber strippers, sells at 50,- dollars each.
Ryszard's address: Str. Dietla 44 M. 11
PL-31-039 Krakow
Poland

Note: When you want to buy something from the Polish just send a cheque (international money order) made by your local bank. Then you will get the things



16-86/3



Pennyplane combat in which all competitors launch their models from a circle in the centre of the hall at the same moment using the same number of turns on their motors. The first person down is eliminated as are any modellers who collide and come down entangled. Once the motor is installed on the model it cannot be changed, so that a broken motor eliminates that modeller(retying shortens the motor). We organize the rounds so that each round has a reduced number of turns from the previous one. We tend to start with 1000 motor turns, then reduce to 600, then to 400 and finally to 250. The last plane in the air in the last round is the winner, it is also the only model to be timed, reducing the need for many timers. It is strictly a fun event but it is amazing to see a NPP doing well over 2 minutes on 250 turns. The group photo enclosed shows the start ~~of the start~~ of the first round of one of these contests. Starting from the left with the modeller facing left and moving around the circle counterclockwise the competitors are; Jorgen Kortenbach, Ken Groves, myself, Bob Gorden, Jack McGillivray, Carl Schuler, and Lou Liefer.

FROM BILL HENDERSON, TORONTO, CDN.

PENNY PLANE COMBAT

INDOOR MODEL SUPPLY
BOX 39
GARBERVILLE, CA 95440-0039



OBS!

Scandal ..... stigma!!!

Indoor flyers are scarce, a mere handful in each country.... Nevertheless each country does a lot to prevent too much international cooperation! They make their own rules to each indoor class except for F1D. Perhaps they think they are wise, but I DON'T. Pennyplanes, F1D-Beginner and the Swedish 25-øres are all about the same machine, but they cannot be flown together as there are small deviations in the rules. The same applies to the EZB class. An EZB in Denmark is not the same as in UK for instance.
These classes mentioned here attract a lot of flyers, especially newcomers, and I think the rules for them must be standardised within Europe if not the World, so you can go anywhere to compete without building new models for every event/country you decide to go to.
Pennyplanes and 25-øres MUST be eleted and changed into an international F1D-Beginner model class which can be flown ANYWHERE. This should also be the case of the more fragile EZB class.

How do we get on with these problems??

Your editor.

— — — — — — —

Uwe Bundesen, W. Germany, has been thinking about this subject, too. He is sorry that in his country the F1D-Beginner class now is:

Min. weight 3 grams, max span 460 mm, max 1.5 gram rubber. No tube sticks, no microfilmcovering and no high-tech materials. Solid balsa prop and no wire bracing.

He would rather see some liberation:

Min. weight 3 grams, 1.5 gram rubber, max span 460 mm, wood struts allowed. Solid balsa prop. No restriction on covering materials.

With this issue enclosed a renewal formula which can be used by those NOT listed here ... if they would like to continue subscribing .....
The numbers after the names is the last issue to be received by their running subscription.

Boyd Felstead 87/1	Pentti Nore 87/2
Steve Brown 87/3	Edmund Liem 89/2
Uwe Bundesen 87/1	Leif Englund 87/3
Martin Weist 88/3	A. Zetterstrom 87/1
Bengt Lindquist 87/1	T. André 87/1
Lew Gitlow 89/2	Alfred Klinck 87/1
Ian Kaynes 87/3	Geoffrey Lefever 87/1
Mastnak Milan 87/1	Bernard Aslett 87/1
András Reé 87/3	Kai Halsas 87/1
S.-O. Linden 87/1	Orjan Gahm 87/1
Finn Nielsen 87/1	Bernard Hunt 87/3
B. Kenny 87/3	Ole Torgersen 87/1
Alain Besse 88/3	G.J. Weekenstroo 88/2
Dave Yates 88/2	J.M. Fullarton 87/2
Jack Carter 87/2	W.P. van Gorder 87/2
Robert Champion 87/2 x 2	G. Underwood 87/2
Doug Barber 88/2	Mike Colling 88/3
SAMS Models 87/2	Alan Bungey 87/3
Kari Heikkala 88/3	Bud Romak 89/3
Kmoch Vilim 88/3	John O'Donnell 87/2
Pete Andrews 87/2	Reg. Parham 87/2
W. Beekmeyer 87/2	G. Ondraczek 87/3
S. Nonaka 87/3	Kurt Vogler 87/3
Stan Chilton 88/3	René Butty 87/3
R.V. Ganslen 87/3	FRUGOLI 87/3
	LOTZ 88/1

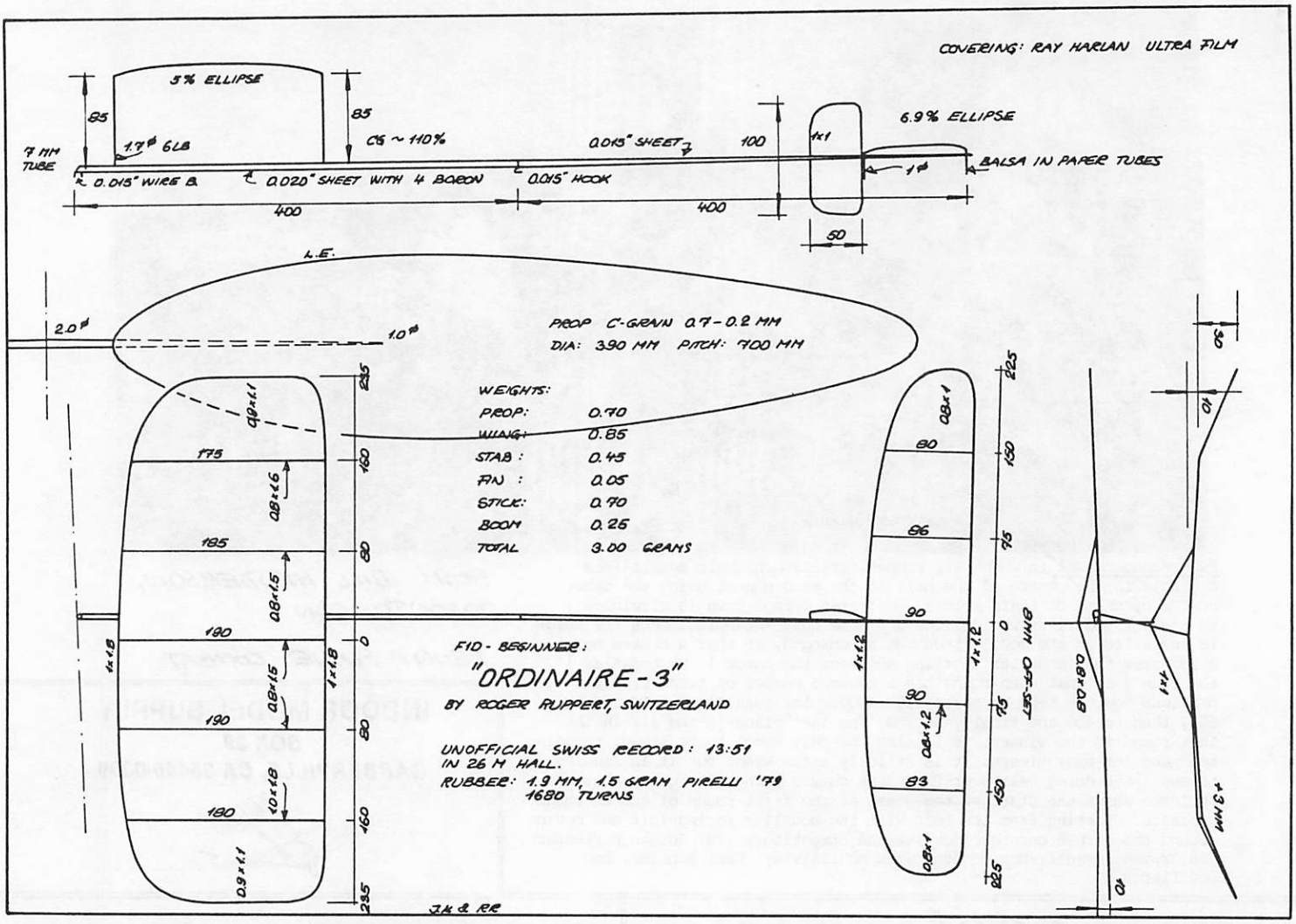
If this list is not according to your files/ accounts, please complain ...!

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F1D PLANBOOK 1986.

This booklet made to the 1986 F1D World Championships contains some 40 F1D designs/details of the models actually flown at Cardington .... It also contains the programme of the Champs.

Only very few left ... If you want a copy please send Dkr. 30,-, 9,- DM or 5,- dollars to the editor, Jorgen Korsgaard, and he will send you one.



Swiss Indoor Nats 1986

F1D
11/10/86 half motor

R.Butty	22'09"	23'01"			= 45'10" !
D.Siebenmann	18'45"	19'48"			= 38'33"
R.Lotz	19'04"	9'07"	14'55"		= 33'59"
P.Keller	5'06"	16'30"	14'03"		= 30'33"
T.Urban	8'56"	16'06"	11'53"		= 27'59"
W.Heise	7'23"	11'32"	12'37"		= 24'09"
R.Ruppert	2'00"	7'59"	11'02"	6'33"	= 19'01"

F1D
12/10/86 full motor (BAD CONDITIONS. schlechte Bedingungen)

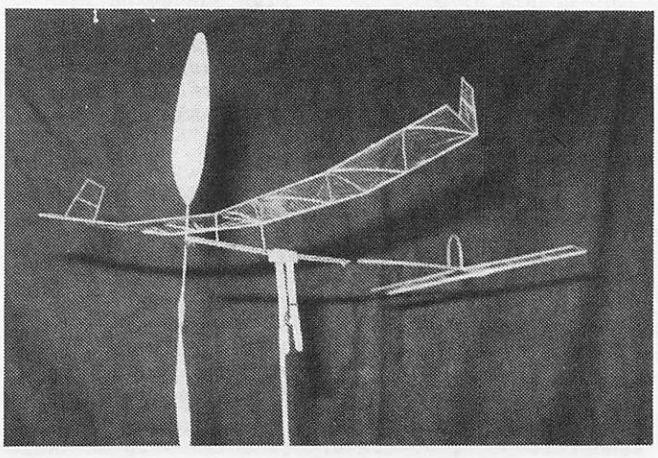
R.Lotz	24'40"	3'16"	5'54"	= 24'40"
T.Urban	11'49"	21'31"		= 21'31"
R.Butty	2'25"	13'32"	21'20"	= 21'20"
D.Siebenmann	2'56"	18'52"	15'45"	= 18'52"
W.Heise	13'42"	17'19"	2'36"	= 17'19"
R.Ruppert	13'15"	9'34"	12'17"	= 13'15"
P.Keller	10'44"	3'08"		= 10'44"

total F1D

1.	René Butty	66'30"
2.	Rainer Lotz	58'39"
3.	Dieter Siebenmann	57'25"
4.	Thomas Urban	49'30"
5.	Werner Heise	41'29"
6.	Peter Keller	40'17"
7.	Roger Ruppert	32'16"

F1D-Beginner (6 flight)

1.	Günther Ondracseck	24'21"	(12'42" + 11'39")
2.	Rainer Lotz	20'44"	(11'05" + 9'39")
3.	Benno Schlosser	19'54"	(9'46" + 10'08")
4.	Peter Pronath	19'25"	(8'20" + 10'05")
5.	Hans Franke	17'37"	(8'48" + 8'49")
6.	Thomas Merkt	17'10"	(8'39" + 9'31")
7.	Roger Ruppert	16'51"	(7'54" + 8'57")
8.	Alex Tschallener	15'29"	(7'35" + 7'54")
9.	Rudolf Trumpf	11'42"	(5'51" + 5'51")



EZB with winglets by Jonas Romblad, Sweden.

EDITORIAL .....

This issue has 18 pages - the biggest ever - but nevertheless pictures from the 13th Indoor World Champs are missing as my pictures are still at the editor of the Danish modelling magazine ... Anyway you have found reports in other mags and newsletters ... The English AEROMODELLER has one page in the November issue and announcing a full comprehensive report in the December issue ..... Perhaps somebody could tell me if there is a report in Model Aviation and in Model Builder .... and also send me a copy of these mags .....

The Danish Indoor Team had a marvelous trip to the cathedrals of Cardington, except for missing the medals everything was perfect. We found out that practise in steering is a good thing though Pentti Nore of Finland did not steer at all on his flights for third place! It was surprising to learn that Jim Richmond very long model with the big stab still has the centre of gravity at 70%! How come???
Sylwester Kujawa showed me how to make his hollow streamlined leading edge which you can see on a page in this issue. And I'm looking forward to hear more about the Swiss spiral wound motorstick.

I would also like to mention the Danish airline Maersk Air who transported the Danish team at special fares and with an excellent service with our boxes and in the cabin.

Well, thanks to all readers and contributors for making this issue possible.....

J.K.