THE HANGAR PILOT

21ST YEAR OF PUBLICATION
ENTERVAS NON ES OMNIBUS

MIAMI INDOOR AIRCRAFT MODEL ASSOCIATION

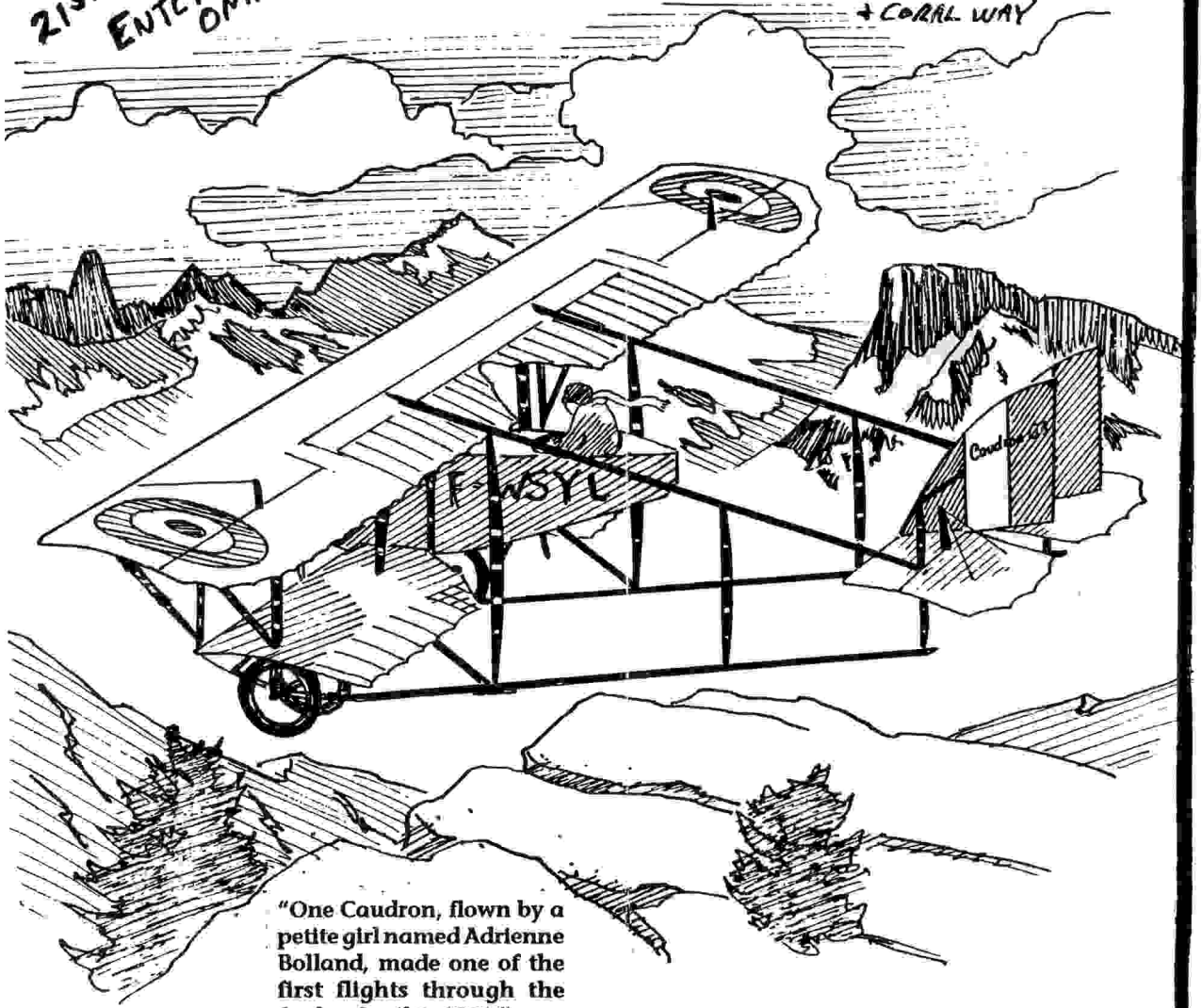
MIAMA

ISSUE 142

- RESULTS MIAMA MEET 6
- LIVING ROOM STICK FROM UK

NEXT EVENT: THIS SUNDAY APR 12
UNITED TILE WAREHOUSE - NW 87 AV + 13 ST

NEXT MEET: INTER-GNATS AND FART V - APRIL 25, 26 DADE YOUTH FAIR - SW 107 AV + CORAL WAY



"One Caudron, flown by a petite girl named Adrienne Bolland, made one of the first flights through the Andes, April 1, 1921."

©1992 Mark Allison



"LIKE A LETTER FROM HOME" Whelan

THE HANGER PILOT

The Hanger Pilot, edited by John Martin Jr., who is solely responsible for its content, is published 8 or 9 times a season for bunch of middle aged guys who refuse to grow up. MIAMA (Miami Indoor Aircraft Model Association) - AMA club 986. One of two active all indoor free flight clubs in AMA. For a mere $12.50 you will receive all of the published issues that year. We encourage reader contributions because, frankly, we need the material. Letters, plans, p-views, complaints, gripes and compliments to: Dr.John Martin Jr., President / Editor, 2180 Tigertail Ave., [redacted] Miami, FL 33133 USA. phone: 305-858-6363.

DADE LOCAL SCENE - GREAT CAT II SITE !

A fine turn out at our first fly in at the United Tile CO. Warehouse with many flyers we haven't seen in years. We're convinced we will see much more activity here now that we have such a great site.. Next meet is set for this Sunday April 12 at 9:30 AM. Corner of NW 87th Ave and 13th St.United Tile.

WILL ATTENDED MIAMA MEET 6

Look at page 2 if you don't think we have outstanding indoor meets. When there are seven or eight pilots in your event you just GOTTA enjoy the competition. I don't know what is currently meant by "FUN FLY" because I always thought that the best fun anyone can have is to fly your creation against the field, especially a field of your jeering peers.

MAY 9 & 10 is the last MIAMA meet. For winning awards for the 1991/92 season we will count points from the best 5 of 7 meets, and the best 5 of any number of events you can enter per meet. In addition to the Florida State Champion, there will be champs in Penny, Pistachio, Peanut, and every class of model we fly. Since the field has been so LARGE THIS YEAR, MIAMA will award class trophies for first, second and third places. A review of points tells usthat IT IS VERY CLOSE in most classes for these awards so we suggest you show up at meet #7 and put forth your best effort. The annual awards dinner is being planned for the Officers Club at MacDill next October.

PILOTS BEST (YOUTH FAIR)

THESE CAT. I RECORDS AT FARTI - APRIL 25,26

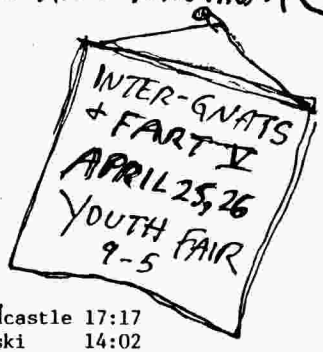
CATAGORY I: Set at Youth Fair	(Up to 26'3")	
FAC Scale: Doc Martin	116.4	(11/89)
CHOMUT : John LeBlanc	1:05	(11/89)
PISTACHIO: Millard Wells	1:23.1	(4/86)JetAlert
NO-CAL: Doc Martin	1:31	(11/89)
FAC SCALE: DOC Martin	116.4	(11/89)
INVICE PENNY Nancy Beitz	7:59	(5/89)
EAST R: Stan Chilton	12:43	(2/86)
M.L.Stick: Roman Szymula	14:35	(10/74)
RNC Stick:Walt Everson	5:23	(5/83)
FED. ROC : Doc Martin	2:46.7	(11/89)
PAPER STICK: Gary Myers	8:25	(4/73)
MANHATTAN: Walt. Everson	3:54	(4/84)
M.L.GLIDER:Don Dal	1:12.4	(2/83)
HISTORIAN: Carl Nedley	135.8	(11/89)
EMBRYO : Walt Everson	175.0	(11/89)

ALSO PISTACH. GNATS

FUN FLY. THIS SUN 9:30 APRIL 12 TILE WAREHOUSE

THE PISTACHIO INTER-GNATS HAS BEEN RESCHEDULED FROM APRIL TO APRIL 25,26 AT YOUTH FAIR + CAT. I ANNUAL RECORD TRIALS

RESULTS MEET 6 MAC DILL AFB MARCH 21,22 1992, CD DAVE LINSTRUM (2)



PEANUT SCALE EVENT	STATIC	BEST 2 Flights		TOTAL
1.Doc Martin Astra Kapferer	97.2	63.9	69.8	164.0
2.George Nunez Sopwith Tripe	108.0	50.9	54.4	160.6
3.Sidney Gilbert Lacey M-10	76.8	72.8	69.8	148.1
X. George Nunez Hanriot HD-1	92.4	54.4	56.0	147.6
4.Millard Wells Sopwith Tripe	94.0	46.2	42.9	139.3
X, " " " Fokker Tripe	92.0	39.6	40.0	131.8
X. " " " Curtiss P-40	93.0	36.9	34.2	128.5
5.Walt Schlesinger Cougar	69.8	25.2	24.8	94.8
6.Bob Eskridge Ganagobie	62.0	12.2	16.4	76.3

FAC SCALE	Static	Best Flight		Total
1.George Nunez Rumpler C-6	75	54.0		129.0
2.Dave Linstrum Daphne	50	1:40	(77.5)	127.5
3.Doc Martin Waco Hydro	77	47.0		124
4.Millard Wells Fokker D-7	74	38.0		112.0
5.Bill Criss Pilatus Porter	46	1:10	(65)	111
X George Nunez Devastator TBD	64	40.0		104.0
6.Walt Schlesinger Leopard Moth	50	42.5		92.5
X.Millard Wells Stinson Detroiter	46	42.0		88.0
7.Jake Larson Rumpler Taube	60	25.0		85.0

EASY B:

1 Dick Hardcastle	17:17
2.Dick Obarski	14:02
3.Wayne Trivin	12:54.8
4.John Barker	11:51
5.Millard Wells	8:23
6.John LeBlanc	8:20
7.Bob Eskridge	2:46

NO-CAL SCALE

1.Wayne Trivin Farman Postale	3:31
2.Dave LinstrumFarman Postale	2:35
3.Doc Martin Dayton Wright	2:25
4.Tom McCoy Wittman Tailwind	2:02
5.Walt Schlesinger Kieth Rider	39.0

NOVICE PENNY PLANE:

1.Wayne Trivin	9:45
2.Dick Hardcastle	7:57
3.Dick Obarski	7:10.4
4.John Barker	7:04
5.Barbel LeBlanc	6:59.3

PISTACHIO SCALE:	Stat	Time	Pts	Total
1.Doc Martin Messerschmitt	2	49.5	1	3
2.Millard Wells Jenny	1	30.9	3	4
3.Dave Linstrum Martin MO-1	2	24.8	4	6
X.Doc Martin Windham Tandem	3	35.4	2	5

MINI(LIVING ROOM) STICK:

1.Dick Obarski	6:47.4
2.John Barker	6:15.5
3.Dick Hardcastle	5:46
4.John LeBlanc	5:37.4
5.Wayne Trivin	5:19.4
6.Doc Martin	4:36.6
7.Millard Wells	3:42.5
8.Bob Eskridge	3:06

COCONUT SCALE:

1.Doc Martin Junkers Strato	1:21.6
2.Millard Wells Ford 2-AT	1:06.9
3.Dave Linstrum Dornier	1:05.9

FROG-Federation ROG

1.Dick Obarski	4:27.0
2.Wayne Trivin	4:10.9

BOSTONIAN:	Charisma			
1.Wayne Trivin Flying Colors	1.11	3:12	3:00	409.2
2.Dick Obarski GEN	1.10	2:55	2:59	389.4
3.John Barker Scimitar	1.11	230.5	2:51.0	356.8
4.George Nunez Lorax	1.12	2:14.6	2:05	291.4
5.Millard Wells Wee Bost	1.12	1:54	1:55	256.4
6.Sidney Gilbert 7-Up	1.10	1:29	1:29.7	196.5
7.Doc Martin Dr Pepper	1.14	1:15	1:28	188.1
8.Walt Schlesinger Pup	1.10	32.5	40.2	79.9
9.Bob Eskridge Pup	1.10	33.4	31.9	70.5

EMBRYO ENDURANCE

1. Dave Linstrum DNA	345.1
2.Bill Criss Prarie Bird	203.3
3.Sidney Gilbert Hornet	200.3
4.Wayne Trivin	107,0
5.Walt Schlesinger	78.3

World War I Mass Launch:

1.George Nunez Rumpler 4. Millard Wells SE-5
2,Doc Nieuport 10 5..?
3.Jake Larson Taube 6.Walt Schlesinger Ansaldo SVA

MIAMA ANDREASON TEAM, FINALS

Outdoor: Jim Miller 74 sec
Indoor: Millard Wells 42.8
Doc Martin 34 sec

LAST MIAMA MEET - MACDILL MAY 9,10
FAC MASS LAUNCH - RACEPLANES

(3) Once more, Hangar Pilots, we bring you a feature from the English AERO MODELLER, and exort those of you who arenot subscribing....GET IT !! One of the astonishing features is that this publication brings you ONLY free flight and control line... NO RADIO CONTROL articles or ads.!! Sign Up.

USEFUL INDOOR TOOLS - AN OFFER NOT TO BE MISSED:



February 28, 1992

Dear John,

Enclosed you will find several items useful to model builders especially those of the indoor persuasion.

Three different types of eye scalpels are enclosed which I find useful when slicing ribs etc. The small point and small blade sizes seem to cause less distortion than other blades that I have used. The discovery of the self healing cutting board that Exacto produces has also been a big help.

Also enclosed is a battery operated micro cautery that is useful in cutting film either the Harland or Microfilm. I have made the proper incisions in the case that makes battery replacement easy.

These items are available from me; Larry Loucka and Ray Harland. The monies generated from the sale of these items will be donated to the AMA Indoor Fund.

Micro Cautery	$5.00
3 Scalpels	3.00
Handling & Postage	2.00
	$10.00

If you could give this program some publicity it would be greatly appreciated. At present I plan to be at the USIC in June and will have the above items available.

Sincerely yours,

Vernon D. Hacker

(216) 486-4990

Vernon D. Hacker, M.D.
25599 Breckenridge Drive
Euclid, Ohio 44117

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Advertisement Offices: Argus Specialist Publications, Argus House, Boundary Way, Hemel Hempstead, Herts HP2 7ST. Tel: 0442 66551.

Postmaster: Send address changes to Aeromodeller, c/o Mercury Airfreight International Ltd Inc, 2323 Randolph Avenue, Avenel, NJ 07001, USA.

Subscriptions: Direct subscription rate: Home £23.40, Europe £28.20, Middle East £28.40, Far East £30.20, Rest of the World £28.70 or US $53.00. Airmail rates upon application from Select Subscriptions Ltd, 5 Riverpark Estate, Billet Lane, Berkhamsted, Herts HP4 1HL. Tel: 0442 876661/4.

Overseas Availability: Second class postage paid at Rahway, N.J. USA. Postmaster: send address corrections to Aeromodeller, c/o Mercury Airfreight International Ltd Inc, 10B Englehard Ave, Avenel, NJ07001. Distribution to news stand sales by Eastern News Distributors Inc, 1130 Cleveland Road, Sandusky, Ohio 44870. Distribution to North American hobby and craft stores, museums and bookshops by Bill Dean Books Ltd, 166-41 Powells Cove Blvd, Post Office Box 69, Whitestone NY 11357, USA. Tel: 1(212) 767-6632. USA Subscription agent: Joseph D Daileda, Wise Owl Worldwide Publications, 4314 West 238th Street, Torrance CA 90505. Tel: (213) 375 6258.

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"The rules are quite simple, in keeping with the fun, low pressure nature of the event"

1. Scale models with wing spans of at least 36" for monoplanes and 30" for multiwings.
2. Model minus rubber must weigh at least 1 ounce.
3. Flight score is the best time of 3 official flights. All flights are R.O.G.
4. Mooney-type scale ranking is done from a distance of ten feet.

"Interest seems to be high and growing, with a wide variety of scale aircraft types being built - not just the usual high wing cabin monoplanes. In a large site the models are majestic in flight and great fun for both contestants and spectators."

MIAMA COCONUT SCALE RULES



[PLEASE - DON'T CALL THEM MINI-STICKS!]

THE LIVING ROOM* STICK

A highly successful postal contest, described by John O'Donnell

It all started with a chance remark by Tom Vallee to me at the Mini Dome, Johnson City, USA during the F1D World Championships last year. "How about having a postal contest between your Norwind club and mine?" he said. "I will send you details of a class of model we fly."

Back in the UK the rules for this class duly arrived at the same time as my copy of "Hangar Pilot" the newsletter from the M.I.A.M.A. Club of Miami, Florida, USA. In this newsletter was published an article on a ceiling height "Fudge Factor", written by that well known American flyer, Charlie Sotich. Also at about the same time I was due to attend a BMFA Indoor Technical Committee meeting and it was at this point that I realised that by running a postal event it would be something for the indoor modeller to put their minds to over the Cardington closed season.

The contest rules were formulated and sent out to all BMFA clubs who said that they have an interest in indoor flying. Laurie Barr produced his design and published it in Free Flight News. I wrote to Tom Vallee to invite his club to compete and he in turn wrote to Shigeyoshi Nonaka in Japan, unbeknown to me, suggesting that he may like to take part.

The Contest Rules (1991)

The rules for the contest were as follows:

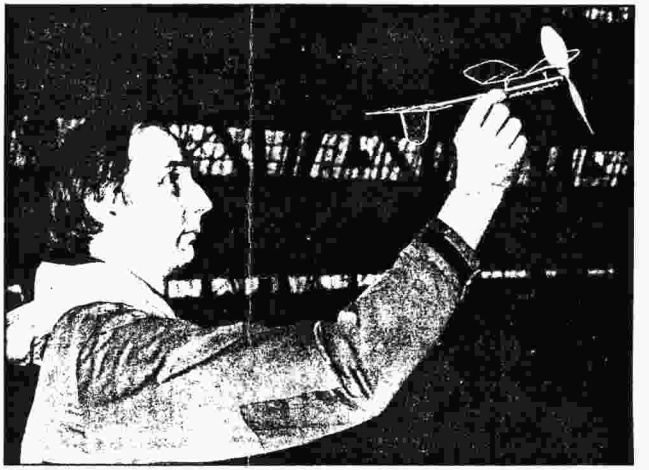
1. The contest is open to Indoor models that comply with the Living Room Stick Rules.
2. Contest flights are to be made between 1st Nov. 1990 and 31st March 1991.
3. Any number of flights can be made at any number of sites.
4. All contest flights to be timed by someone other than the flyer.
5. All contest flights to be recorded on an official Results Form (extra copies can be made).
6. Best single flight time wins, after the flight time has been corrected for different ceiling heights.
7. Prizes will be awarded dependent on the number of contestants.
8. All Results Forms to be returned to the above address no later than 10th April 1991.
9. Entry is FREE to all contestants. (A club sticker sent to the organiser would be appreciated.)
10. Results will be sent if an SSAE is included with the Results Forms.

'Living Room Stick' rules

Model	
Monoplane. Max. Span (projected)	7.0 inches
Max. Wing Chord.	2.5 inches
Stick Length.	5.0 inches
Max. Model Length. (Less Prop)	10.0 inches
Stab. (Tail) Area	Max. = 50 per cent of wing
Covering	Plastic/Paper NO microfilm
Propeller	Wood Prop.
Minimum Weight	(0.43 gms) 0.015 Ounces
Note:	The paper clip with this letter has a weight of 0.47 gms
Flying	
Steering	4 Ten Second Steers *
Attempt	Fifteen Seconds or More"*
Winding	All Winding done in Kitchen *

* Special flying rules for very small rooms only! (Living room flying only.) Rubber lube on rug leads to divorce.





Chris Hutchinson launches his model at Cardington; high ceiling not advantageous.

The Ceiling Fudge Factor

This is designed to try and make the results more common no matter what ceiling height the models are flown under. As used it is based on all models flown under the 116 feet ceiling of the Mini Dome at Johnson City.

The correction formula is as follows:

$$\sqrt{\frac{116}{\text{Height in Feet.}}} \times \text{Actual time flown in seconds} = \text{corrected time in seconds}$$

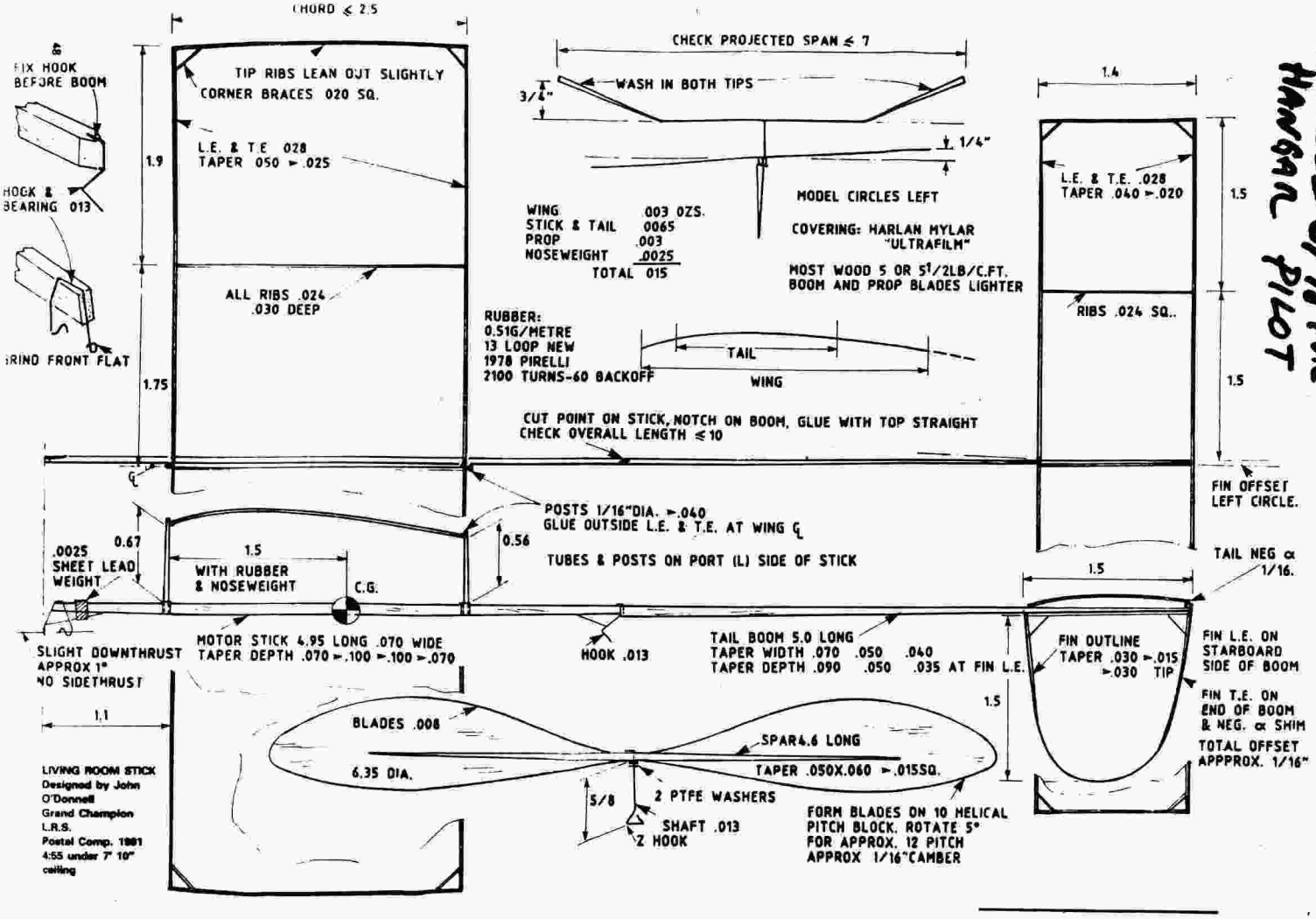
The contest

Obviously with a postal event I cannot give a blow by blow account of the flying. All flights were independently timed. The top time per contestant at a site on a particular day is recorded. If the contestant posted another time from the same site on another date or from

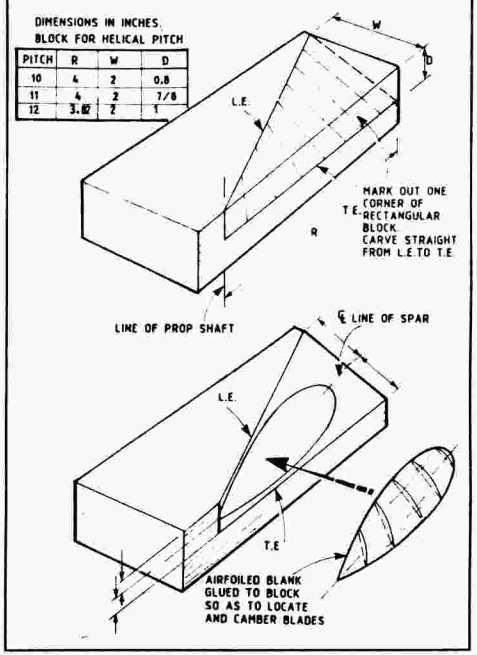
*PLEASE DON'T CALL THEM JELLY!

(5)

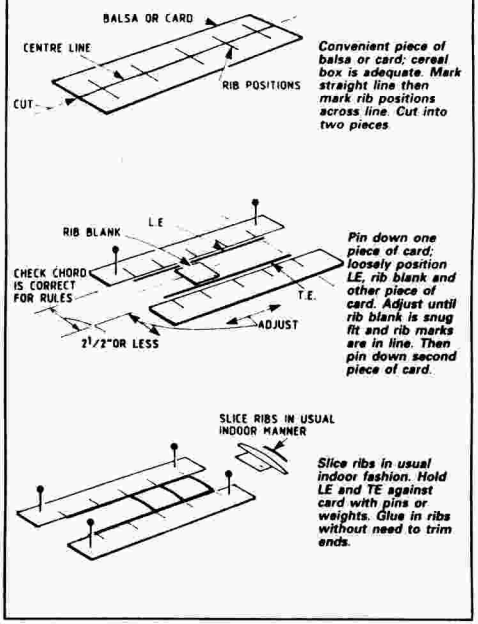
John O'Donnell's Winner
Reduced 67% for Hangar Pilot



Form sheet blades on carved block then assemble on spar. Model used in 1991 contest had blades formed on 10" pitch block ('Cagebird') but set on spar at 12" pitch. Result is non-helical; suggest use 12" helical pitch for high ceilings.



LIVING ROOM STICK
Aids to construction



another site that was also recorded. The real surprise was to receive the results from Japan, where 15 entries posted flights all from one site on one day. The British contestants tended to put their flights in, inbetween doing other things at local contests. Whilst at least two put their flights in at home.

Summary of results

41 contestants posted a total of 209 flight times flown in 20 different sites.

There were 21 contestants from the UK, 14 from Japan and 6 from the USA.

The maximum ceiling height flown under was 48 feet and the minimum ceiling height flown under was 7.75 feet.

Conclusion

This indoor class, as the results show, can be flown any where and is not hard to build or fly. The only difficulty is getting rubber strip of a thin enough section. Also a small change in the section from motor to motor makes a big change in performance.

This contest, with this "Fudge Factor", lends itself to a low ceiling that is smooth, being the best place to fly. In Britain indoor duration has centred around Cardington during the warmer parts of the year with flyers going off into small groups, in small sites during the winter months. There are also a large number of flyers that only fly indoors in the winter, flying outdoors in summer.

This contest was planned to draw those small groups together and also to provide international participation. Personally I found it FUN to run and participate in, even though the results show that I did not come anywhere near the top. Will we be running the event next winter? You bet we will, so how about joining in the FUN!

LIVING ROOM STICK 1991 POSTAL CONTEST – FULL RESULTS

	Contestant	Country	Flight time in mins & secs	Ceiling in Feet contacy	"normalised" Time to 28'	
1	J. O'Donnell	UK	4:48	7.82	9:28	Overall Champ
2	P. Staehling	USA	9:10	18.75	9:40	1st Int
3	T. Vallee	USA	9:02	18.75	7:30	2nd Int
4	C. Hutchinson	UK	8:18	11.08	8:54	1st UK
5	J. Godden	UK	8:37	28.5	8:41	2nd UK
6	D. Yates	UK	5:09	19.74	9:10	3rd UK
7	R. Heywood	UK	5:09	22.26	5:53	
8	D. Beliff	USA	4:23	18.75	9:27	3rd Int
9	J. Barter	UK	5:03	28.0	8:27	
10	T. Faulkner	UK	4:38	28.5	8:21	
11	C. Bekir	UK	4:57	25.0	8:20	
12	S. Nonaka	Japan	3:01	9.8	5:15	
13	M. Aoshima	Japan	3:09	9.8	5:13	
14	D. Richards	UK	4:01	18.5	5:02	
15	L. Minoru	Japan	2:53	9.8	5:01	
16	M. Misawa	Japan	2:52	9.8	4:58	
17	B. Roberts	UK	3:55	18.5	4:54	
18	L. Bew	UK	3:10	48.0	4:54	
19	S. Kionishita	Japan	2:49	9.8	4:54	
20	R. Parham	UK	3:48	18.5	4:43	
21	C. Hedland	UK	3:00	48.0	4:40	
22	W. Biggs	USA	2:55	18.75	4:28	
23	Y. Tanaka	Japan	2:32	9.8	4:24	
24	B. Finch	UK	2:59	13.5	4:23	
25	F. Ikaigami	Japan	2:28	9.8	4:17	
26	G. Axbey	UK	2:18	7.75	4:16	
27	P. Lee	UK	3:11	17.0	4:10	
28	R. Kleinert	USA	3:07	18.75	3:53	
29	Y. Sugi	Japan	2:12	9.8	3:50	
30	T. Yatabe	Japan	1:50	9.8	3:11	
31	C. Coolen	UK	3:07	30.0	3:04	
32	K. Hashimoto	Japan	1:43	9.8	2:59	
33	Y. Takeuchi	Japan	1:42	9.8	2:58	
34	O. Heyselin	Japan	1:36	9.8	2:52	
35	K. Sherbonda	USA	2:18	18.75	2:49	
36	M. Colling	UK	2:34	25.0	2:48	
37	R. Herada	Japan	1:32	9.8	2:40	
38	R. Boor	UK	1:24	8.5	2:35	
39	M. Jekal	Japan	1:26	9.8	2:30	
40	T. Searle	UK	2:07	30.0	2:06	
41	M. Rodkin	UK	1:00	11.08	1:37	

(7)

Thoughts for the future...

The preceding report on the first "Living Room Stick" Postal contest should set the scene for 1992 – and, hopefully, encouraged an even better response.

It would seem fitting to offer some guidelines to those likely to participate in this event. Few modellers with any pretence to an interest in Indoor flying can have missed the announcements about these postal events – so the specification and rules should hardly need repetition yet again. What would seem needed by would-be winners is appreciation of the *problem*, and hence a logical approach to the required solution.

The fudge factor

This postal differs from normal Indoor events (flown as some specific venue) in that flights may be made anywhere, and that subsequent correction will be made to allow for differing ceiling heights. In essence this means that flight durations will be "corrected" to some standard height by means of a "fudge factor". Fairly obviously, scores made under a low ceiling will be *increased* compared with those flown in a higher site.

This much did seem understood by last year's entrants, but it appears I was the *only* participant actually to ask for details of the calculation involved. The method used last year was that derived many years ago in the U.S.A. for comparing hand-launch glider scores, and is attributed to the Sotch brothers. To adjust scores from height 1 to height 2 involved the following:-

Calculated time for height 2 = time under height 1 x $\sqrt{\frac{\text{Height 2}}{\text{Height 1}}}$

Or, if you like symbols: $t2 = t1 \sqrt{\frac{h2}{h1}}$



Japanese competitor Y. Takeuchi



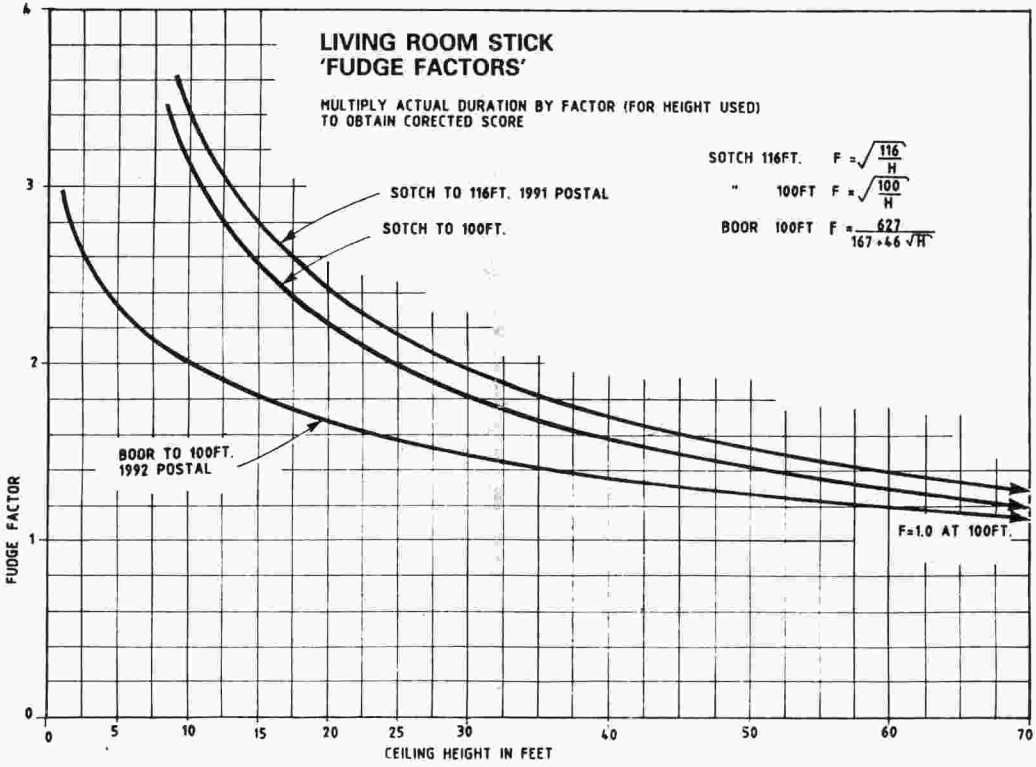
A happy S. Nonaka; top-placed Japanese entrant.

Those readers with mathematical inclinations will appreciate that adjusting scores to some "standard" height merely involves treating "height 2" as a constant. Whatever the chosen standard height, it has no effect on the outcome of the contest only on the *magnitude* of the corrected (or "normalised") scores. Last years scores were adjusted to a standard height of 116 feet, which is the accepted height for Johnson City, site of the U.S. (and world) Indoor Championships. *Halving* the official normalised scores would give values appropriate to a quarter of the height, i.e. 29 feet – or nearly that of Crawley. (Most other sports halls are a little lower, usually 24 or 25 feet clear to the girderwork).

The basic concept works well for adjusting scores within a small range of heights, say from 20 to 30 feet. Unfortunately it does not cope so well with large variations. It took me very little calculation and variation to realise that the formula favoured the use of low ceilings.

Using a low ceiling

Those who have studied last years results will have noticed that I did indeed fly under a low ceiling of only 7.82 feet. It was not quite the lowest on the list, but it was significantly lower than the 9.6 feet of the Japanese venue – and well below that of nearly everyone else. This situation did not arise by accident as I went looking for a room with a low, flat, and "clean" ceiling as well as sufficient floor space.



The place eventually used was rather marginal (at 18 feet wide), but it seems well worth the tryout. A little over 4 minutes would have beaten the British scored that I know about from other sites – but I managed just short of 5 minutes by dint of a lot of "ceiling-scrubbing" and a certain amount of "pole-steering". The latter proved surprisingly difficult in such a confined space.

My result was gratifying – but it was not so well received elsewhere. The American response was loud and clear – "We was robbed", even if not in those words! They seemed to consider that the longest flights (in high sites) *should* have won. There were also irrelevant digressions on the merits (or otherwise) of "no touch" rules.

An as aside, it appears inconsistent to produce a specification for a very small model, intended for very small sites – and then want to fly "for real" in the largest venue available! Yes, we have flown the class competitively in Cardington at out Indoor Nationals! Surely the very name "Living Room Stick" says it all.

New rules required

To be fair, some change to the "fudge factor" was required for the future. After all, the basic idea is to *equalise* different sites, not to favour the extremes in either direction. So, by popular demand, changes have been made for 1992.

Since few other people seem happy with



Only picture we have from the US; Tom Vallee who came 3rd.

maths, Reg Boor and I were asked to produce a more equitable factor. Whilst I preferred to restrict the range of *allowable* heights, Reg derived an improved factor that should provide the requested and universal "cure-all". Effectively, it equalises my winning score with that of the best American, and hence gives a much flatter curve when the factor is plotted against height. This is shown quite clearly on the accompanying graph.

Critical measurements

Unfortunately, the graphs cannot read to the accuracy required to resolve close competition, and the underlying formula will have to be used for official purposes. It became apparent last year that ceiling heights needed to be measured to the same accuracy as flight durations. Half an inch in 15 feet is the same percentage as one second in 6 minutes! Indeed a revised (one inch in ceiling height in re-measurement) was enough to reverse the relative positions of Chris Hutchingson and myself when we compared our results part way through the period of the Postal.

Another related topic was that of determining the correct height to be used for buildings with roof girders and the like. The F.A.I. (and hence S.M.A.E.) rules were no help, with measurement being to "the highest point at which a circle of 15 metres can be inscribed, below the primary structure of the building". This might well be satisfactory for Championship – calibre sites, but it hardly helps when the hall being used is less than 15 metres across! Effectively measuring the "bottom of the girders" is required – and this has been formalised by using the F.A.I. Wording, but with a 5 metre *diameter* circle. This means you measure the bottom of beams and girders if they are closer than 5 metres – and go higher if further apart. Oh yes, you had better measure both sides and both ends of you site as well as the centre! Then you will need to work out the average!

L.R.S. models should present few problems to anyone who has tried Indoor models before. Residual offcuts from previous models should prove useful at last, but select what you do use! Due to the small size, construction is a little fiddly – but, the results are likely to be too floppy. Just remember that plastic film of the microlite of certain varieties is a lot lighter than condenser paper.

I build flying surfaces between a couple of card templates – see accompanying sketches – and incorporate dihedral *before* covering. If the plastic film is crumpled up (and smoothed out again) beforehand, it will handle like tissue. Overlaps should be trimmed off with a sharp razorblade. Contrary to published advice, solvents do not cut these films.

Rubber is a subject in itself. I have been flying on L.R.S. on Pirelli, but others have had good results from Tan F.A.I. It should be appreciated



The Japanese team in all its glory!

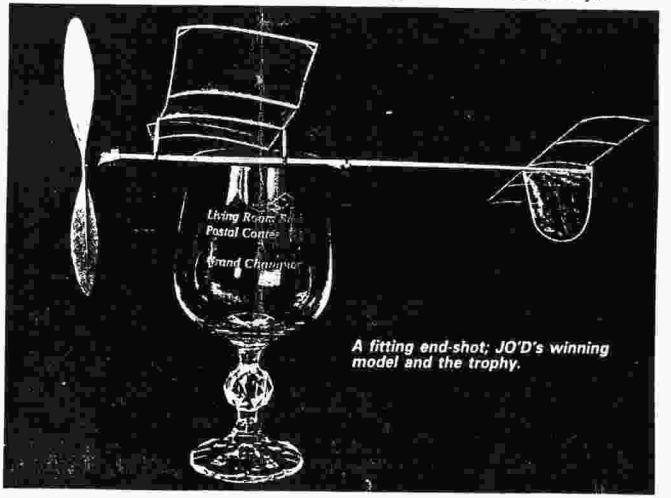
The proof of the pudding is, of course, what matters – and this remains to be seen. I still reckon that low ceiling is the "way to go" – and this makes suitable venues potentially available to almost anyone who cares to look around. The sort of rooms available for social functions are worth inspecting. Just beware of the model traps masquerading as fancy fittings. Works clubs with canteen facilities would seem to "have it made". Certainly the English Electric and Avro clubs have flown on the premises in years goneby!

Even the best site is no good without an adequate model. The one I flew last year is presented on the accompanying full-size drawing. This is detailed enough for near-duplicates to be produced if anyone wished to do so.

that all rubber varies from batch to batch, and sample to sample. Moreover, small variations in cross-section (size) are proportionally larger with rubber of such small size.

Trimming follows the usual Indoor procedures. Beware of large amounts of offset thrust-line or tail setting, as such should not be necessary. If the model is reluctant to respond – or does strange manoeuvres between power-burst and cruise – then move the C.G. *forward*. My models needed this adjustment, perhaps due to the propeller diameter being almost equal to the wing span.

One final point – please don't call the class Mini-Stick, a nondescript appellation that could apply elsewhere. The specification started as "Living Room Stick" and the term is unambiguous. Let's leave it that way!!



A fitting end-shot; JO'D's winning model and the trophy.

The WAY to use TAN RUBBER.

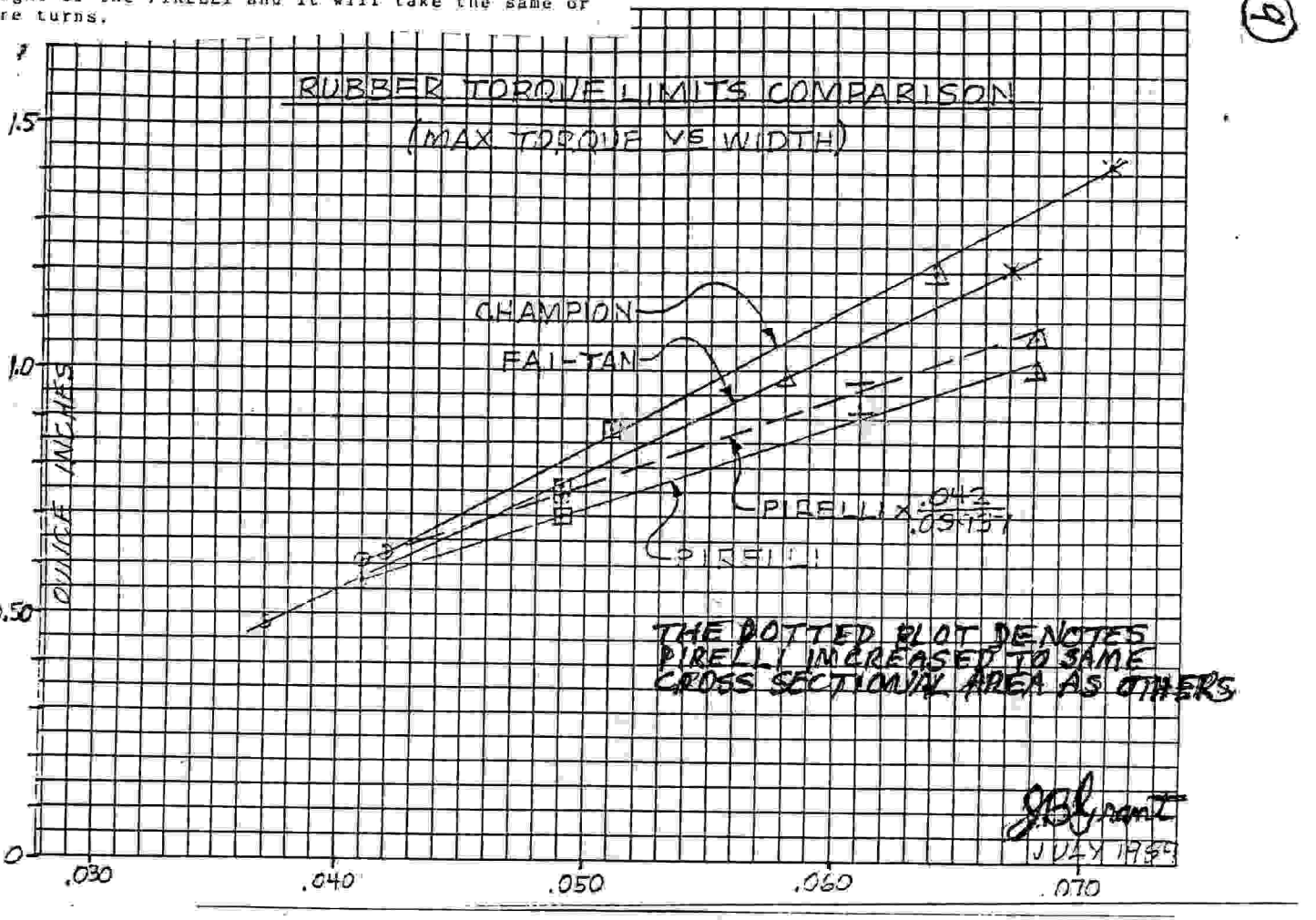
One of our local engineer modellers has come up with a formula to compare TAN to PIRELLI.

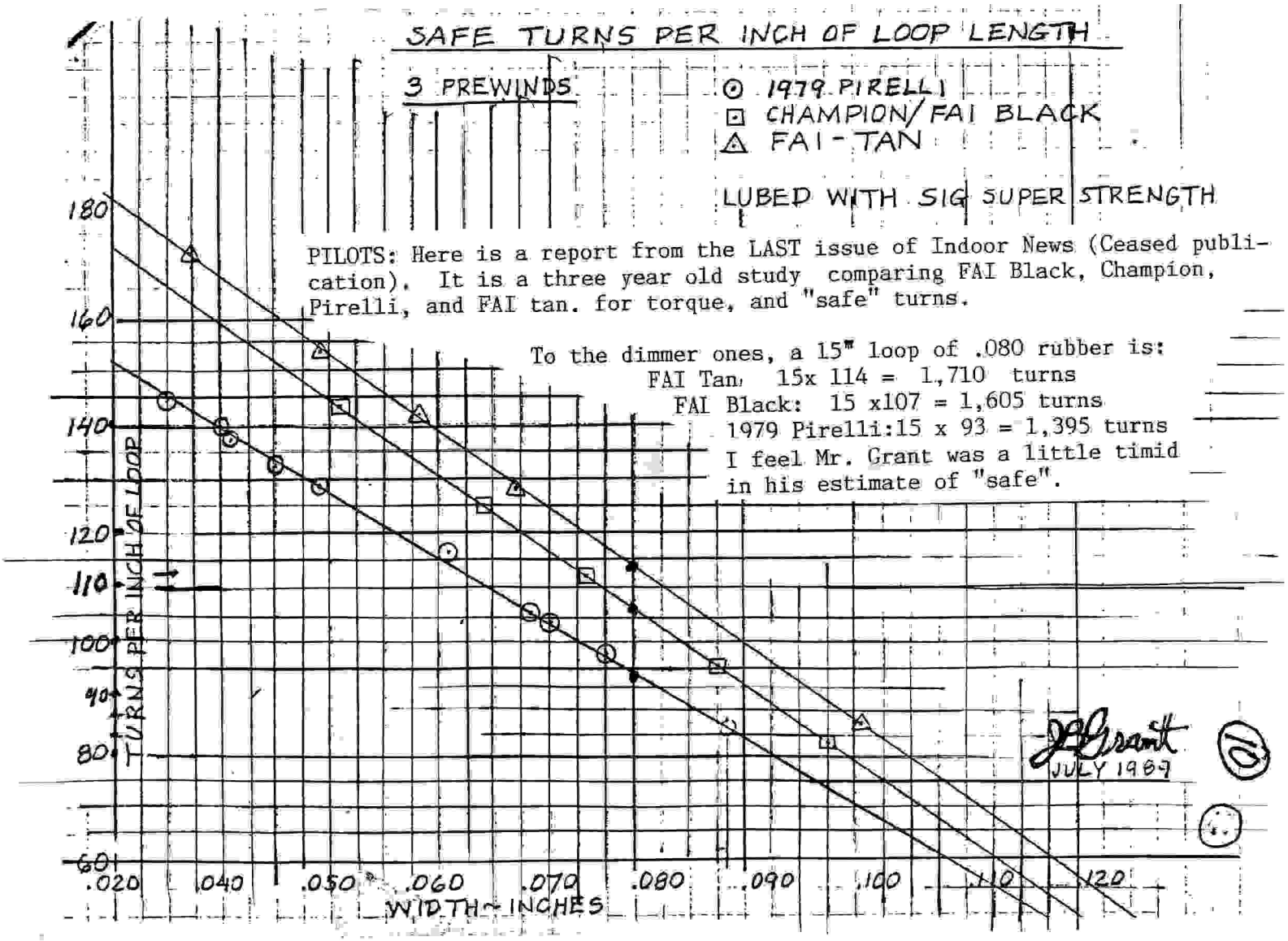
1. Cut the TAN 18% wider or heavier per unit length.
2. Make motor lenght 85% of PIRELLI motor.

This will give you a TAN motor of about the same weight of the PIRELLI and it will take the same or more turns.

THE FAI TAN EQUATION

(1)




SAFE TURNS PER INCH OF LOOP LENGTH
3 PREWINDS
1979 PIRELLI
CHAMPION/FAI BLACK
FAI - TAN
LUBED WITH SIG SUPER STRENGTH
PILOTS: Here is a report from the LAST issue of Indoor News (Ceased publication). It is a three year old study comparing FAI Black, Champion, Pirelli, and FAI tan. for torque, and "safe" turns.
To the dimmer ones, a 15" loop of .080 rubber is:
FAI Tan, 15x 114 = 1,710 turns
FAI Black: 15 x107 = 1,605 turns
1979 Pirelli:15 x 93 = 1,395 turns
I feel Mr. Grant was a little timid in his estimate of "safe".
J.L. Grant
JULY 1989
TURNS PER INCH OF LOOP
180
160
140
120
110
100
90
80
60
.020
.040
.050
.060
.070
.080
.090
.100
.110
.120
WIDTH - INCHES

(11) FLYING ACES AT JOHNSON CITY, + MIAMA GRAND PRIX

EVENTS:

- Hi WING MONOPLANE
- BIPLANE
- GOLDEN AGE
- FAC P-NUT

} ALL P-NUTS

All models will be judged using the Flying Aces Judging system, WITH ONE EXCEPTION: NO BONUS POINTS WILL BE AWARDED.

A model may be entered in one event only.

Entry fee for each separate event will be $4.00.

Winners in each event will receive a Kanone. Medallions for first 3 places will be awarded by NFFS.

Golden Age flight time will be the total of 3 official flights. (2 min. MAX per flight). Other events will be the best flight out of 3. (2 min. MAX)

All scale flying is scheduled for Saturday, June 6 from 7^{30} TO 3^{00}.

Scale judging will be done on Friday, June 5 from 12^{00} until finished

ALSO FOR MIAMA COCONUT + PISTACHIO

Bring your Coconut and Pistachio models to J.C. on Sat. June 6.

Participate in these events and fly in the memorable and famous mass launch.

Unlimited Pistachio flying is permitted any day at all times whenever you can get in a flight back in the basketball area.

DO NOT DESPAIR DUCO USERS. The Duco Cement that was produced by DUPONT is now on the market by DEUCON. Same green and yellow 1 3/4 Oz. tubes..looks almost the same. Sells for $1.17 at K-Marts. There was a brief panic when news of DUCO's demise was spread about. This information from Ron Ganser, Snowbird Squadron.

MAY 9,10 LAST MEET OF 91/2 SEASON
MAC DILL AFB. BRING OUT YOUR AIR FORCE
ALL CLASSES ARE CLOSE.... GET SOME POINTS
SPECIAL EVENTS: FAC MASS LAUNCH RACEPLANES
ALSO MASS LAUNCH - ANY PEANUT
- ANY COCONUT
AWARDS DONATED BY SIDNEY GILBERT

THE HIGH COST OF FLYING TOY AIRPLANES — AMA STYLE:

Peanuts are the old ¢10 scale kit models and AMA Scale are more like the old ¢50 jobs.

HOW ABOUT THE $135.00 entry fee to fly them at the AMA NATS ?

AMA Entry fee... $35.00
Indoor P-nut entry $25.00
Same P-Nut(Outdoors) $25.00
Indoor AMA Scale $25.00
Same plane,outdoors $25.00

Total of one hundred thirty five bucks to fly two stick and tissue rubber models in four events.. However,if you only want to fly indoors, this will only be $85.00 to fly 8 to 12, A TOTAL OF FOUR HOURS FOR BOTH EVENTS.

At Johnson City the sme two indoor events will cost twenty five bucks for NINE HOURS of flying.

Is there something wrong here? Is this a commie plot to prove free flighters don't support the NATS? I am predicting a VERY LOW turn out. I've been told the high cost of scale entries is because the judges will be paid!! SINCE WHEN? I've never got a dime for the thousands of models I've judged and neither have you.

What have they done to my hobby,Ma??

FLY IN - THIS SUNDAY
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A "BEST BUY" FOR YOU NEWSLETTER FREAKS. Interesting monthly reading from Fla. Aviation Historical Soc. A sample below

"OUTSTANDING" - DOC



The above cartoon was submitted by the British artist Jack Follows, RAFLET Projects Officer, 51 Hugh Gaitskell Court, Bilston, Wolverhampton, WV146HE. He wants to know if *Anyone out there got any aviation postcards to trade? My club has many hundreds to spare....Jack Follows.*

FLORIDA AVIATION HISTORICAL SOCIETY

Membership Application Form

Membership: Individual, $5; Contributing, $25; Life, $100; Benefactor, $500 and up.

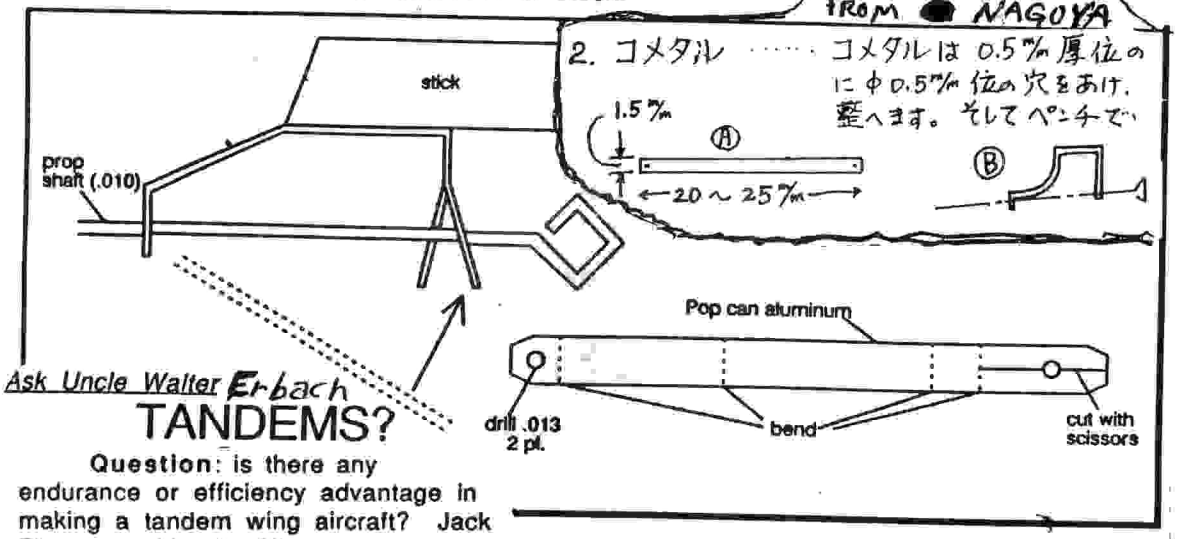
Member-at-Large, send minimum check $5/yr; **Canadians**, $10/yr; **Those with Winter-Summer 2 address**, $10/yr. Send to FAHS, P.O. Box 127, Indian Rocks Beach, FL, 34635. For **Jacksonville Chapter**, send $10/yr to FAHS Box 577, Ponte Vedra Beach, FL, 32082.

Enclosed find $_____to cover my membership in the FAHS.

Name.....
Address.....
..... Phone: (AC)
Interests.....

(13) FROM BOING HAWKS

From Gene Stubbs is this idea for mini stick thrust bearings - could be applied to the other indoor events as well with heavier stock.



Ask Uncle Walter Erbach

TANDEMS?

Question: is there any endurance or efficiency advantage in making a tandem wing aircraft? Jack Thompson, Lincoln, NE

Answer: No. The wing at the rear has to be at a lower incidence angle to get the set-up stable, and is doomed to move through the air at less than its optimum angle. What you gain in area you lose in efficiency.

Question: When the rules limit the span, as in P-30, or F1-D, how small can you make the aspect ratio before the added inefficiency outweighs the added area? Tom Winter, Lincoln.

Answer: 2.5.

(Editor's note: This month's *ask Uncle Walt* was overheard at the Modeler's Lunch. But here in *Nebr-Nebr-land* is a world-class resource that we might as well use. Send your rubber-powered questons to the *Winding Stooge* at1010 Eastridge, Lincoln, NE 68510, and the editor will put them to Walt at the next Modeler's Lunch. Uncle W, as you know, is a retired engineering professor, NFFS Hall of Famer, and holder [still, I think] of many world records. He has done engineering studies of many of the things gumband modelers want to know. He had published the answer to my question about 30 years ago.)

1919-1939

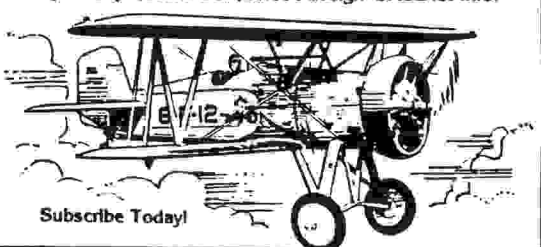
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GONE, GONE! WHAT HAVE THEY DONE TO MY HOBBY, MA? MODEL AVIATION---------- DROPS JR FLIGHT

MORE LITERARY NEWS, MODEL BUILDER: GONE - EDITOR BILL NORTHROP IN - EDITOR PHIL BERNHARDT LOOK FOR: FREE FLIGHT ARTICLES BY DAVE LINSTRUM!

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NEW ZAIC "YEARBOOK"

by FRANK ZAIC

BILL''S GOT ANOTHER ISSUE OUT. No, not another volume of tips on how to cover a model with goldbeaters skin without a lot of wrinkles. Rather a book about views on our beloved hobby, and how it relates to the world we live in. Tired of the old "how to"? Try this one from Hannan.



NEW!

by Frank Zaic

FRANKLY SPEAKING is the latest "Orange Book" from famed aeromodeller Frank Zaic. A departure from his traditional Yearbooks, this volume is nearly an autobiography, with reminiscences of Frank's fascinating lifetime. Although there are references to model and full-size aircraft, the thrust of the book is philosophical musings to inspire and amuse us as we follow our own pathways through life. We found it both enlightening and uplifting! Cover illustration by Otto Kuhni.

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APRIL 25,26 Combined PISTACHIO INTER-GNATS, and CAT. I State Record Trials.YOUTH FAIR
April 25,26- Palm Bay,FL SAM 46 Spring Meet CD Bob Nolan (813) 734-4755
MAY 9,10 TAMPA,MACDILL AFB LAST MIAMA INDOOR MEET OF 1991/92 SEASON. 9 to 5
Mass Launch, Race Planes. Also Mass launch for Coconut and Peanut
CD Doc Martin Call indoor Hot Line the night before: (305) 858-6363

MAY 23-24 Rimert's Rally CD Terry Rimert 904-266-4759
JUNE 20-21 PENSACOLA,FL. Fiesta of Five Flags, SE FF Model Champs. 904-438-5372
JUNE 4 to 7 JOHNSON CITY TN, The indoor BIGGIE. BEST INDOOR MEET OF THE YEAR.
JUNE 20,21 PALM BAY. One Designer Event CD Dave Platt 407-724-2144
JUNE 20 to 23: WESTOVER,Mass. AMA NATS
JULY 4,5 PALM BAY, FL. FLORIDA STATE FF CHAMPS. Lots of FAC. CD Dan McCall 813-763-7020

JULY 10,11 GENESEO,NY. The Bi-annual FLYING ACES NATS.
AUGUST 1. ISLAMORADA, FL KEYS: The annual Millard Wells ROW Meet
AUGUST 1,2: DIXIE NATS Outdoor FF. Palm Bay CD Ron Sharpton 904-767-6138

THE HANGAR PILOT

EDITOR: DR JOHN MARTIN, JR
2180 TIGERTAIL AVE MIAMI FLA.
33133



