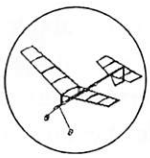
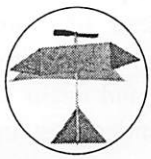
Indoor Flight International
#55
AUG 02
THE LATEST NEWS AND INFORMATION ON INDOOR MODEL AVIATION.

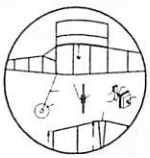
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A Word from the editor

Hello everybody, here's the new IFI issue - this time it's rather late, much later than I had in mind when I started editing this issue. This was due to lack in material; in order to be able to keep my word and publish 6 up to 8 issues a year I really need all the material I can get.

Especially, I'm looking forward to receive drawings/sketches of duration models like F1L, F1M and F1D, although I like to publish the occasional Peanut, Pistachio or No-Cal Scale model.

Furthermore, if you have any building hints or tips, or if you're doing your own research before you design your own models, I would be really glad if you would allow me to publish it in Indoor Flight International.

Thanks again to those who have contributed to this issue, and I hope you enjoy reading it!

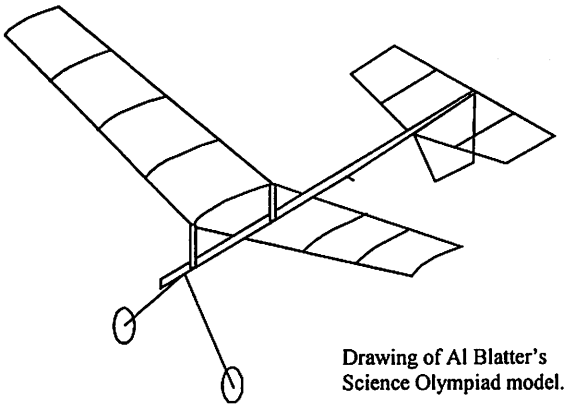
Contest Calendar

What & When	Where	Info
Flemalle International Contest 22-25.8.2002	Flemalle, Belgium	F1M, F1D, F1L (ezb), Micro 35, Saint Formula (+3gr), Bostonian (Juniors), F4D, F4E, F4F and Pistachio. Contact: Bernard Delhalle, email: Bernarddelhalle@skynet.be
BMFA Indoor Duration Nats 24-26.8.2002	Cardington, UK	Program: Friday 24th: Practise/ LPP & No-Cal & Catapult Glider Saturday 25th: F1L & F1M Sunday 26th: F1D & Mini-Stick
Interscale 2002 6-8.9.2002	Prostejov, Cz. Republic	Open Indoor Scale F/F. Contact: Ing. Tonda Alfery, email: alfery@cbox.cz
Cardington Indoor Contest 8.9.2002	Cardington, UK	F1L & No-Cal
German Open Championships 14-15.9.2002	CargoLifter, Brand, Germany	German Open Nationals in all FAI Classes. Contact Gerhard Woebbeking at woebbeking@t-online.de for more details.
Cardington Indoor Contest 22.9.2002	Cardington, UK	General reserve date
World Championships F1D 7-12.10.2002	Romania	Indoor World Championships F1D, Seniors and Junior. Contact: Zanciu Mihail, Str. Parcul Tineretului camera 210, Bucuresti, Sector 4, Romania, tel: +40 1 330 40 40 ext 224, fax: +40 1 330 40 40 ext 224, email: frm@radiotel.ro
Butterfly Meeting 2.11.2002	J.Massinkhal, Nijmegen, The Netherlands	F1M small, F1M large, (F)looper and Bostonian Contact: Thedo Andre, email: Thedo.Andre@net.HCC.nl
Baden-Württembergische Saalflug-Meisterschaft 10.11.2002	Schorndorf-Schornbach, Germany	F1M contest, F1M-x, Ministick Contact: Roland Braun, tel. 07181/23650, or Bernhard Schwendel at BeSchwende@aol.com
Florence Open Indoor Contest 26.01.2003	Florence, Italy	Gruppo Aeromodellisti Fiorentini, PO BOX 18250, 50100 Firenze, Italy email: jacopopesciolini@hotmail.com

Method to trim a SciOly model for maximum performance

By Bill Gowen

This is the method that I use and teach to trim a SciOly model for maximum performance. I've described this method of trimming to many people in bits and pieces, so I decided to try to write the whole process down in one document. The same general technique could be used for other types of indoor duration airplanes, but the advice is specific for SciOly models. If your mentor has a different approach to this process, then by all means do as he suggests - unless you think it's not working for you.



Drawing of Al Blatter's Science Olympiad model.

This process assumes that you are driven to win and are willing to work at achieving this goal. This process also assumes that you have built a model that flies well and flies consistently. The airplane should have washin on the left wing panel, stab tilt for turn (high on the inside of the turn) 2 to 3 degrees of left thrust in the motor bearing and possibly a little washin on the left stabiliser panel.

There are two parts to this process – trimming the airplane and selecting the motor. We'll start with trimming the model to fly the best it can.

I am very opposed to having models where there are a lot of places to make adjustments. On the models that my kids fly, all of the adjustments described above are built into the airframe or locked in later by whatever means necessary. The desired turn circle should be adjusted before beginning this process. The only adjustment used here will be changing the stab incidence.

Take a well broken-in motor and wind it to some number of turns - say 40 winder turns (600 real turns). This should be enough to hold the airplane in a cruise condition or very slight climb after launch. Launch the plane as carefully as you can to put it into steady state flight - in other words no stall or dive at launch. Time the flight until touchdown and write the time down. Do several flights this way until you have a few with nearly identical times. Throw away the times that are a lot better or a lot worse than average. Change the tailplane incidence by about 1/16 inch in either direction and repeat the whole process. Your times should show a tendency to be either better or worse. If better, try another 1/16 in the same direction. If worse, back up to the original setting and then go a sixteenth in the opposite direction. Continue until you have found the stab incidence where further adjusting in either direction will cause your flight time to fall off.

When you do this test, be sure to keep using the same motor every time. When you are winding to very low torque, the motor properties won't be changing much at all from flight to flight. When the airplane is doing all it can do to keep flying you are ready to go on to the next part of the process.

Repeat a flight as described above but try to put in enough winds so that the airplane will climb very slightly and not reach an altitude beyond your reach. Watch the airplane carefully and when you are sure it has stopped climbing, catch it and stop the prop. Take the airplane back to your winding stooge and remove the motor from the rear hook and put it back on the torque meter. Read the torque shown on the meter and write it down. Do this several times and again look for a few nearly identical readings. This number is what I call the "transition torque" – the torque at which your airplane stops climbing and begins the cruise and descent phase. It should be noted that if you don't change anything about the prop or the airframe, this number will be the same for ANY 2 gram motor that you put on your airplane. If this doesn't make sense to you, then read this paragraph a few more times until it does.

Wind a motor to its maximum capacity and back off turns until you are around .1 in-oz above the transition torque. Make a flight and observe the model. If it gets close to the maximum altitude that you are looking for, let it land and again stop the prop and take a torque reading. If it doesn't reach your target altitude, wind again but back off to a slightly higher number. When you are making

Colophon

Indoor Flight International is published 4 to 6 times a year and covers all types of indoor models from peanut to microfilm. Texts can be sent in English, French or German and word processed documents can be sent on floppy disks in any text format. Computer drawings should be in Autocad .dwg (saved as Autocad v14 compatible) or .dxf formats and if you are no drafstmen, I can do the drawings.

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a flight that is close to optimum altitude, the torque remaining in the motor when the plane lands is the "landing torque". Landing torque is not as constant number as the transition torque and can be influenced by other factors. It is however a useful number to narrow down your selection of an optimum motor. Next we will apply this information to find the motor that will give you the longest possible flight time.

Take a pencil and paper and a motor that has performed well for you. Put the motor on your winding stooge and wind it to its maximum capacity (without breaking!). Start unwinding the motor and count turns as you go. When you reach a torque that is a little above your normal launch torque, start recording the total unwinding turns at .05 in-oz intervals – in other words at .40, .35, .30, .25, .20, etc. Sometimes when I get down to cruise range I will record at smaller intervals like every .01 in-oz. You can plot this info on a graph or you can just look at the numbers. Visualise how your airplane flew on this motor and find all of the relevant points in the data you've collected – launch torque, transition torque and landing torque. All of the turns between launch torque and transition torque represent the climb portion of the flight. All of the turns from transition torque to landing torque represent the cruise and descent portion of the flight.

Now choose a different motor. It can be thicker, thinner or a different batch of rubber, but it must be the same weight as your first motor. I use 2 gram motors made exactly as if I were flying them in competition. Wind the second motor and write down the unwinding data exactly as described above. Compare this data to your first set. Mark the launch, transition and landing torques on the new motor data. If you see more turns available from transition to landing, you have an excellent chance of getting a longer flight with this motor.

Here is an example of how this works. The airplane was a 10 gram Finny Plane and was to be flown in a site with a dangerous ceiling of about 24' height. Launch torque was to be about .4 in-oz. Transition occurred at about .3 in-oz. Landing torque was about .2 in-oz. Here are the test results from several motors:

Based on the above tests (and others) the May 1998 .096 motor was chosen. A flight of 2:39 and a Middle School State Championship was the result. The method was also used by the first place finisher in the High School state finals.

If you do the above testing, you will zero in on the best trim for your airplane and the best motor for your flying site in much less time than if you just go out and spend a day putting in full wind flights. Get everything close to ideal and then spend your flying time fine-tuning and enjoying flying!

	IN-OZ TURNS	UNWINDING TURNS (15 to 1 winder turns)	WINDER FROM .3 to .2 in-oz
June 2001 .104"	.40	14	
	.35	21	
	.30	28	45
	.25	44	
	.20	73	
	.15	93	
June 2001 .092"	.40	13	
	.35	18	
	.30	23	27
	.25	28	
	.20	50	
	.15	95	
June 2001 .110"	.40	13	
	.35	15	
	.30	24	
	.25	45	42
	.20	66	
	.15	74	
May 1998 .096"	.40	17	
	.35	22	
	.30	30	53
	.25	51	
	.20	83	
	.15	103	

Here are some other general rules:

A higher ceiling lets you use thinner rubber because you have a longer descent after transition and a lower landing torque.

A lower ceiling requires thicker rubber because you have less vertical height for descent and need to spend as long in the cruise phase as possible. Your landing torque will be relatively high.

Higher pitch props are generally doing better times than lower pitch props. A Peck prop cut to 20 cm. but otherwise unmodified has a blade tip angle of about 25 degrees. This needs to be increased to somewhere in the 33 to 38 degree range. Higher pitch means you will need heavier rubber. .100" rubber is a good starting point on 10 gram models. 8 gram models can get by with a little less depending on site conditions.

Drafty flying sites require more power. If your plane gets knocked down 5' by air currents, it needs to climb an additional 5' to recover. In a 35' site with a lot of moving air, you may have to use enough power for a climb of 50' or more.

2002 International Postal Contest Results

By Abram Van Dover from the Brainbusters

The year 2002 has been a trying one. The after effects of the September 11th terrorist attacks has reached down to the modelling community. Loss of sites, increased costs of the sites left has been hard on all of us. As our club flies on an Air Force Base, we have been required to turn in an access roster to get on the base and someone has had to stay at the gate and identify the personnel as they came in. We have overcome all of this and had a decent indoor season. I'm sure your club has like experiences. We have had a slight drop in A-6 and Ministick. Easy B was a disaster: there were only two entrants. The restriction of having a site under 28 feet is not the best rule in the world. We make put in a higher ceiling rule, or some sort of handicap system, or we may just drop the whole event. We would appreciate any ideas you may have to increase participation. Please feel free to write me or contact me on the internet at csmvan@msn.com with any ideas you may have.

As with last year our big winner for 2002 is Akihiro Danjo, from Japan. Akihiro won all three events and with really good scores. Do we have anyone out there that can stop or slow this man down? We want to offer congratulations to all the winners and to all that participated.

The Brainbusters will run this contest for one more year and then hope to turn it over to some other club or group. The year 2004 is wide open for volunteers.

Below is a list of all the winners and their scores. We wish to thank all those that participated and hope to have you back for 2003. Information on the 2003 contest will be out in November to all groups and individuals that were with us this year.

Ministick Winners

	Corrected Time	Country
First Overall		
Akihiro Danjo	1212.57	Japan
First International		
Fabio Manieri	1052.06	Italy
Second International		
Toru Onishi	1007.58	Japan
Third International		
Shigeru Fujita	846.40	Japan
First Place USA		
Walt Colltns	1086.31	
Second Place USA		
Bob Platt	993.86	
Third Place USA		
Andrew Tagliafico	870.44	

For Ministick there has been a correction made from the list published in the may issue of the brainbuster newsletter. Ed Berray has been moved up one position due to a higher score that had been left out being added. The change dropped Shinsuke Miura one position. No others were affected.

A-6 Winners

	Corrected Score	Country
First Place		
Akihiro Danjo	475.56	Japan
Second Place		
John Lenderman	456.67	USA
Third Place		
Walt Collins	456.00	USA

EZ-B Winners

	Score	Country
First Place		
Akihiro Danjo	1530	Japan
Second Place		
Aubrey Beaton	422	UK

There is no correction factor for EZ-B. However, the ceiling height cannot exceed 28 feet.

A-6 RESULTS - 2002 INTERNATIONAL POSTAL RESULTS

	Name		Country	Corrected time in seconds	Actual time in seconds	Ceiling height in feet	Correction factor
1	Danjo	Akihiro	Japan	475.56	457	42.16	18.56
2	Lenderman	John	USA	456.67	434	36	22.67
3	Collins	Walt	USA	456.00	456	70	0.00
4	Tagliafico	Andrew	USA	442.67	420	36	22.67
5	Hodson	Gary	USA	427.00	398	26.5	29.00
6	Kopriva	Tom	USA	422.67	400	36	22.67
7	Berray	Ed	USA	395.67	373	36	22.67
8	Johnson	Tem	USA	384.00	355	26.5	29.00
9	Beaton	Aubrey	UK	372.00	342	25	30.00
10	Hark	Ken	USA	354.67	332	36	22.67

A-6 RESULTS - 2002 INTERNATIONAL POSTAL RESULTS Continued

	Name		Country	Corrected time in seconds	Actual time in seconds	Ceiling height in feet	Correction factor
11	Diebolt	John	USA	342.00	342	70	0.00
12	Powell	Jerry	USA	341.67	319	36	22.67
13	McCrory	Bruce	USA	339.67	317	36	22.67
14	Sullivan	Ed	USA	311.00	311	70	0.00
15	Borland	Chris	USA	278.67	256	36	22.67
16	Stalick	Tom	USA	254.67	232	36	22.67
17	McDow	Bill	USA	250.67	228	36	22.67
18	Kocherberger	Bob	USA	250.00	221	26.5	29.00
19	Singer	Len	USA	250.00	250	70	0.00
20	Van Dover	Abram	USA	218.00	218	70	0.00

2002 MINISTICK INTERNATIONAL POSTAL CONTEST RESULTS

	Name		Country	Corrected time in seconds	Recorded time in seconds	Ceiling height in feet	Correction factor
1	Danjo	Akihiro	Japan	1212.570	584	8.61	2.076
2	Collins	Walt	USA	1086.315	517	8.16	2.101
3	Manieri	Fabio	Italy	1052.067	477	6.5	2.206
4	Onishi	Toru	Japan	1007.583	670	29.52	1.504
5	Platt	Bob	USA	993.863	473	8.16	2.101
6	Tagliafico	Andrew	USA	870.440	615	36	1.415
7	Fujita	Shigeru	Japan	846.404	510	21	1.660
8	Deangelini	Giacomo	Italy	797.143	437	14.76	1.824
9	Berray	Ed	USA	775.420	548	36	1.415
10	Miura	Shinsuke	Japan	771.366	513	29.42	1.504
11	Sano	Yasuhito	Japan	720.346	479	29.52	1.504
12	Person	Lee	USA	718.607	342	8.16	2.101
13	Tanabe	Nacki	Japan	696.285	463	29.52	1.504
14	Oshima	Syukhi	Japan	687.081	414	21	1.660
15	Kaneko	Shoji	Japan	651.169	433	29.52	1.504
16	Akahoshi	Akio	Japan	649.665	432	29.52	1.504
17	Hashamoto	Kenjiro	Japan	647.250	390	21	1.660
18	Tamai	Seizou	Japan	592.103	351	19.8	1.687
19	Schutzel	Emil	USA	591.598	381	26.5	1.553
20	Powell	Jerry	USA	585.955	414	36	1.415
21	Tomita	Sadayosi	Japan	585.355	347	19.8	1.687
22	Higuchi	Hiroshi	Japan	564.269	340	21	1.660
23	Sullivan	Ed	USA	550.512	262	8.16	2.101
24	Hodson	Gary	USA	537.252	346	26.5	1.553
25	Tsuji	Kunio	Japan	515.822	343	29.52	1.504
26	Van Dover	Abram	USA	504.286	240	8.16	2.101
27	Borland	Chris	USA	484.050	342	36	1.415
28	Ikeda	Youichi	Japan	478.226	318	29.52	1.504
29	Pianigiani	Franco	Italy	426.678	276	26.9	1.546
30	Ishizu	Katsuyuki	Japan	425.591	283	29.52	1.504
31	Negri	Vittorio	Italy	424.948	272	25.95	1.562
32	Lemaitre	Daniel	Belgium	408.196	230	16.4	1.775
33	Tabellini	Renzo	Italy	406.581	263	26.9	1.546
34	Beaton	Aubrey	UK	404946	244	21	1.660
35	Kelly	James	USA	397.125	189	8.16	2.101
36	Bertolani	Mariella	Italy	367.142	235	25.95	1.562
37	Toschi	Adriano	Italy	343.708	220	25.95	1.562
38	Bertolani	Benito	Italy	338.560	219	26.9	1.546
39	Hiquet	Franck	Belgium	283.963	160	16.4	1.775
40	Sagnotti	Maurizio	Italy	245.804	159	26.9	1.546
41	Sighelle	Nello	Italy	234.346	150	25.95	1.562
42	Leveque	Jean-Claude	Belgium	191.675	108	16.4	1.775
43	Stalick	Tom	USA	183.995	130	36	1.415
44	Bastin	Cedric	Belgium	166.828	94	16.4	1.775
45	Delannois	Carine	Belgium	150.855	85	16.4	1.775
46	Delannois	Jean-Marie	Belgium	149.080	84	16.4	1.775
47	Melice	Marie-Lyne	Belgium	149.080	84	16.4	1.775
48	Melice	Joel	Belgium	145.531	82	16.4	1.775
49	Regniers	Michel	Belgium	124.234	70	16.4	1.775
50	Caufriez	Xavier	Belgium	94.063	53	16.4	1.775
51	Mondron	Luc	Belgium	83.414	47	16.4	1.775

Indoor Duration Flying at Cardington – new information.

I've printed the Cardington dates in the May 2002 issue (#54) of Indoor Flight International, but since then the schedule has changed slightly. Please take a look at the new schedule, which is printed below. Furthermore, I've received this accompanying information about contests in Cardington Hanger No 1.

From Laurie Barr, 28.04.2002.

I am delighted to inform you that after surmounting many hurdles, we have the use once again of Hanger No 1. Although the roof is somewhat 'perforated', there is much more room to fly in and because we have 'bought' flying time, and are repairing some broken windows! We are sought after guests and not prisoners.

However, the front end of the shed houses some small airships and there is an invisible line across the floor that we MUST not offend our hosts by crossing. This would risk losing the chance to reinstate our presence in our 'ancestral home'.

The entry fee remains as £10.00 per person and this will also include spectators. This year, we will also charge £1.00 per contest entry to generate a bit more income.

Access is by the A600 South of Bedford. Drive between the hangers and turn left. Along the rear end of the hanger are 2 doors, both of which will be locked after 10.45/11.00 a.m. The doors will open again at approximately 6.00p.m. This procedure is to ensure stable air and to stop anyone (including non B.M.F.A. people) not on the list from trespassing.

The following list shows all the dates as scheduled. This is subject to airship operational demands, in which case we shall give way if there is a conflict of interests.

Best of all, is that the big main doors, WILL BE SHUT!!! and I expect the whole experience of flying here, will be relaxed and enjoyable.

Requirements for entry. All are mandatory.

You must be a current B.M.F.A. member, and you will be expected to show your card if requested.

There is so much space, that all kinds of scale and fun flyers are welcome, so long as you are on my list! (But no R/C or engine powered flight). No one, except our safety personnel, is allowed to climb any staircases, for any reason. Small children who cannot be controlled are not recommended at this site.

This is a hard hat area, and although there are a few hats available, you are urged to buy your own 'Bob The Builder' type hat which you can get at builders yards, or B&Q etc, for under £5.

You must send a post card to Laurie Barr, giving all the dates you will attend, well before your arrival. Also state your full address, E-Mail address, B.M.F.A. number and phone number, in case we are given short notice to cancel any date. An s.a.e. would also be very helpful.

This information is for all previous members, but we also want more BMFA members to attend, and we are advertising all dates, but there is an upper limit to the numbers allowed at any meeting. We would also be very happy to welcome flyers from abroad.

Send your dates ASAP to:
Laurie Barr FSMAE
Herries Cottage
Winter Hill Road
Pinkneys Green
Maidenhead,
Berks SL6 6PJ
England
Tel 01628 487544
E-mail: lgbarr@tiscali.co.uk

Remaining Schedule

May 26th	F1M & LPP **Note:** This new date replaces the one scheduled for the 1st/2nd of June, to avoid clashing with the reinstated outdoor Nationals
June 16th	F1D & Mini-stick
June 30th	F1L & No-Cal
July 13th	F1D first Euro trials
July 14th	F1D second Euro trials
July 28th	F1M & LPP also reserve date for Euro trials
Aug. 11th	F1L & No-Cal
Aug 24th	Practise/ LPP & No-Cal & Catapult Glider
Aug 25th	F1L & F1M **Indoor Nationals**, over 2 days
Aug 26th	F1D & Mini-Stick. 2nd day **Indoor Nationals**
Sept 8th	F1L & No-Cal
Sept 22nd	General reserve date

F.1.D. Indoor Supplies - rectification

I have by mistake misquoted the prices for the K&P adjustable nose buttons in the last issue (IFI #54). I'm sorry for any inconvenience. Here are the correct prices (including postage):

- $4 each
- 2 for $6

Send your cash to John tipper at:

F1D Indoor Supplies
John Tipper
23 Green Lane
Chichester
West Sussex
PO19 4NS
England

Denny Dart Mark II – A Beginners Model

By Neil Dennis

The Denny Dart MarkII is a balsa stick & tissue model airplane that is suitable for 12 year olds and up. It is an easy to build and fly rubber powered model that can be flown either indoor (school gym) or outdoors in calm conditions. It will fly many hundreds of feet so a large open space is needed. As a razor blade is needed, adult supervision is recommenced.

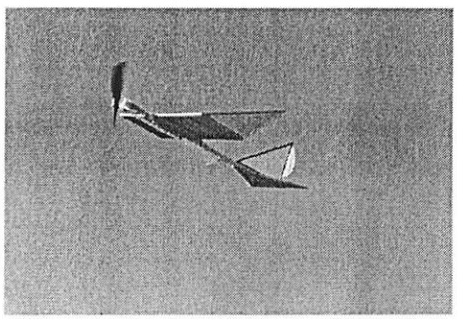
Instructions

Tools required

- Razor blade (single edge) or model knife
- Several straight pins
- Wood glue (Duco or household cement recommended)
- A glue stick to assemble sticks
- A glue stick to assemble sticks
- flat surface to work on that can be pinned
- A small piece of fine sandpaper

Materials

- 1/16 in. x 1/8. in by 36 in. balsa strip (3)
- A plastic propeller (7 in) and plastic bushing
- 1/8 in. x 1/8. in by 36 in. balsa strip
- 8 to 10 inch loop of 3/32 or 1/8 inch wide rubber band
- small rubber bands (orthodontic) Note: masking tape may be used
- Copy of plan printed on light paper



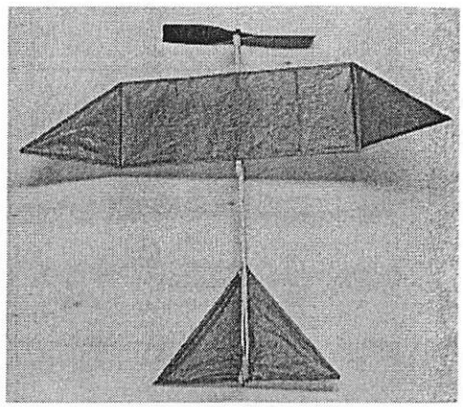
The paper of the plan sheet may shrink in hot weather and warp the wing (which is bad) so I suggest that you wad it up into a tight ball, then flatten it out and smooth it with a clothes iron set to "cotton". This will break the paper fibres and make it a little stretchy so it won't warp. Carefully cut the two parts of the wing plan from the sheet, trim off the excess at the wing centre, leave about 1/4 inch overlap and glue together being careful to keep the front and back spar (stick) lines straight in line.

Place the plan sheet, both for the wings and also for the fin and stabiliser on the building board so that the lettering is on the under side.

Carefully lay out and cut the 1/16 x 1/8 sticks so they will fit between the lines on the edges of the wing and tail outlines. Starting with the longest sticks on the wing, lay a stick on a flat surface, carefully wipe the glue stick from the middle outward each way on the side that will be glued to the paper, then put it in place and smooth it down with your fingertip. If you don't have a glue stick, carefully wipe a very thin layer of glue on the stick with your fingertip. The best way I've found to make the stick to stick glue joints is to put several drops of the wood glue on an old plastic bottle top, then dip the end of the stick that is to be glued into the puddle. Carefully place the glued end against the other stick - do not leave any gaps. NOTE: do not glue the dihedral break points (marked x & y) at this time.

After all sticks are glued in place. Let things set up (dry) for a bit, then using the razor blade very carefully, cut around the outside of each part of the wings and tail to free them from the plan.

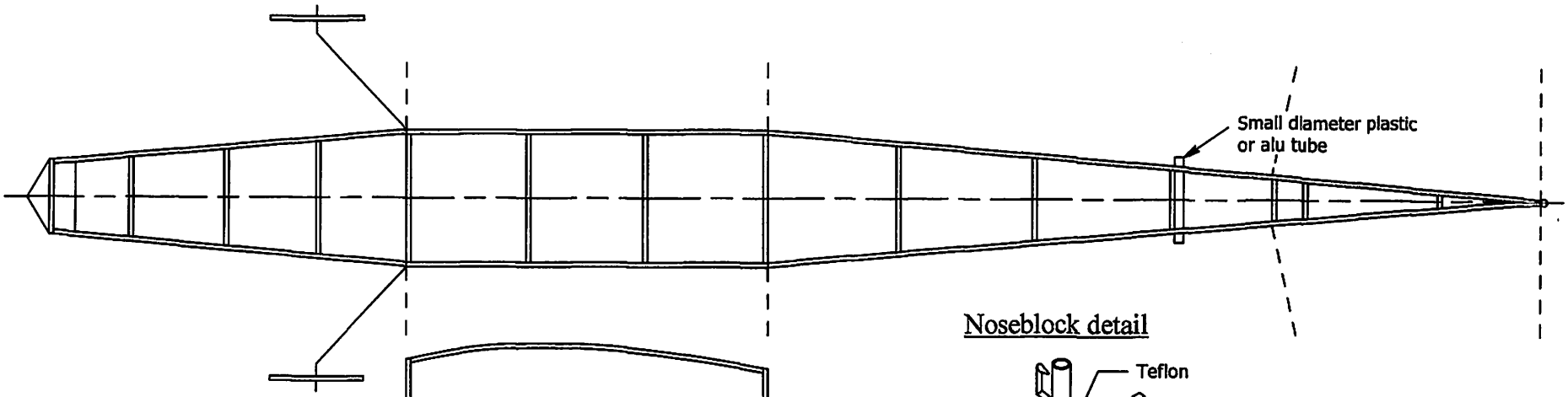
To build the motorstick, cut one each 12,10 1/2 and 9 in. piece from the 1/8 sq stick. The leftover 5 in. will be used to mount the wings later. Wipe a light coat of wood glue on one side of the 10 in. strip and assemble it to the 12 in. piece being careful to keep one end even, smooth the two together so they make good contact all the way. Do the same thing with the 9 in. stick. Let this assembly dry thoroughly. Cut the taper on this stick as shown on the plan starting at 5 in. from the end to the lower edge of the 1/8 sq stick at the end, be careful to keep the cut square, at 90 degrees from the side of the glued up motor stick. This taper (angle) is very important to the models flying ability, it causes the stabiliser (tail) to be a negative angle to the wing (this is called decalage and is needed to make the model stable in flight.



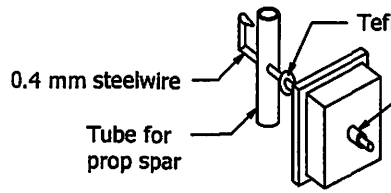
To assemble the wing line up each of the "x & y" joints, prop up each wing tip 1 1/2 inches, and carefully glue these 4 joints - Let this joint dry. Pin the 5 in. piece of 1/8 sq only at the very ends. Put a drop of glue on the under side of the wing spars at the arrowhead marks and place the wing carefully lining up these marks on the top of the 1/8 square piece. When dry remove the pins, take up the wing assembly and carefully sand a taper on each end of the 1/8 square so that it comes to a sharp point. Note: when assembled, the left wing is longer.

To assemble the tail, put the stabiliser paper down (sticks up) on the board, put some glue on the middle strip and carefully put the tapered part of the motor stick down making sure that it contacts both front and rear of stab. Use something square, like a small clamp to hold the motor stick at 90 degrees to the stab and at the correct angle. The nose end will be up off the table about 1/2 in; then glue the rudder to the top of the stick, making sure that it is square and straight.

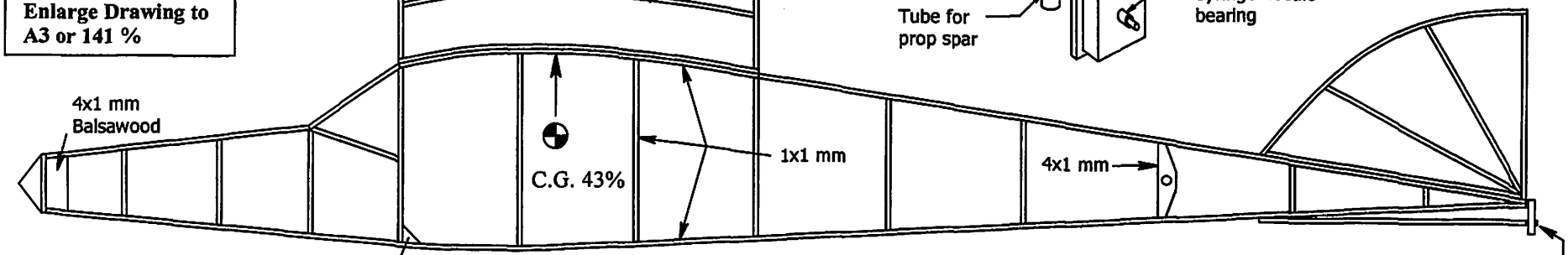
(Continued on page 15)



Noseblock detail

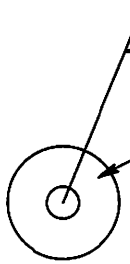


Enlarge Drawing to A3 or 141 %

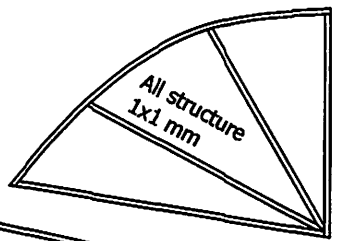


Tissue tube on stab for easy tail incidence adjustment

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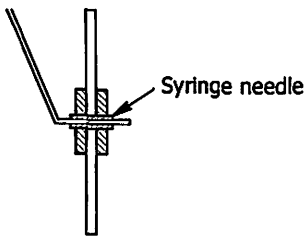
Glue stabiliser to fuselage with leading edge only

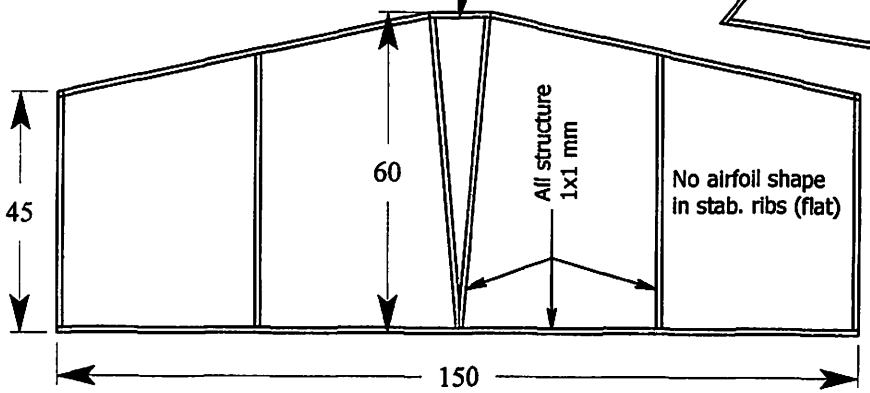


Wing Airfoil Template

Wheel detail

(Not to scale)

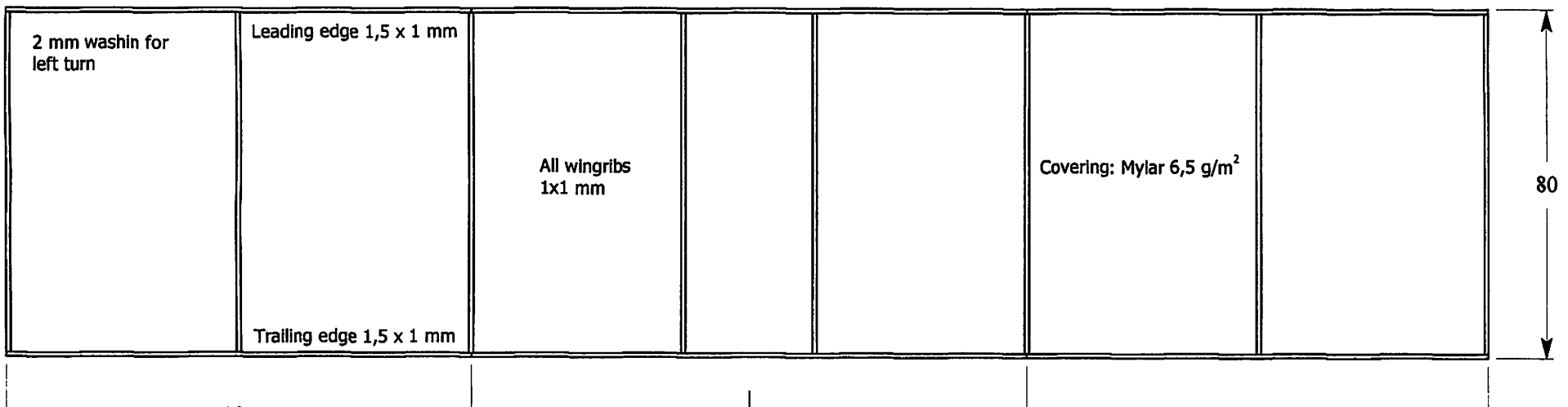


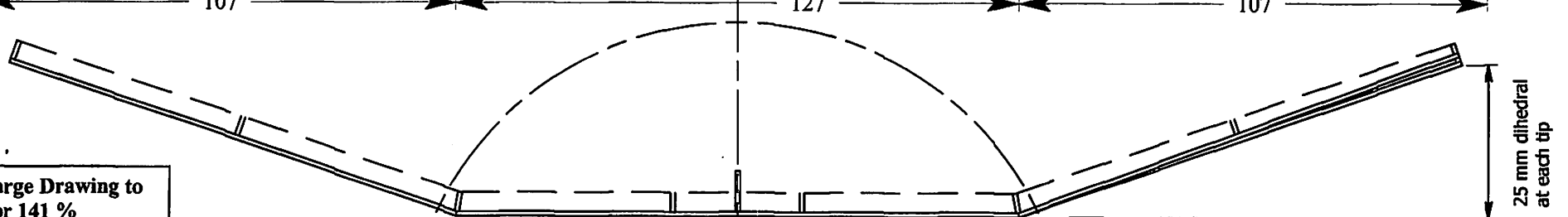


Miniform

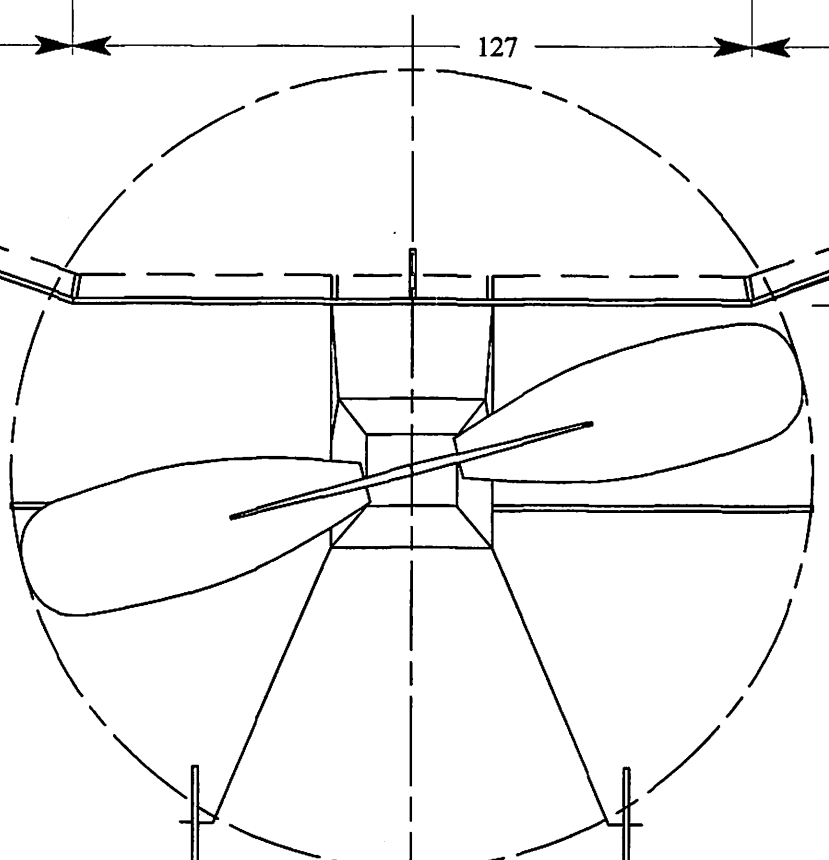
A Sainte Formule design

Original design by J.F. Frugoli	Redrawn on: 23-07-2002 By: Gert Brendel
Scale 1:1.41	All measurements in mm	Page 1 of 2





Enlarge Drawing to A3 or 141 %



Rubber Motor: Tan2 1,11 gram of 1,11 g/m
(50 cm rubberloop).
Best time: 3 min 41 seconds in a 7 meter hall
(min. weight 3 gram)

Part	Uncovered	Covered
Fuselage	0,50 gram	0,78 gram
Wing	0,22 gram	0,44 gram
Prop	0,65 gram	0,65 gram
Rudder	0,04 gram	0,05 gram
Stabiliser	0,07 gram	0,12 gram
Wheels	0,23 gram	0,23 gram
Ballast		0,73 gram
Total	1,71 gram	3,00 gram

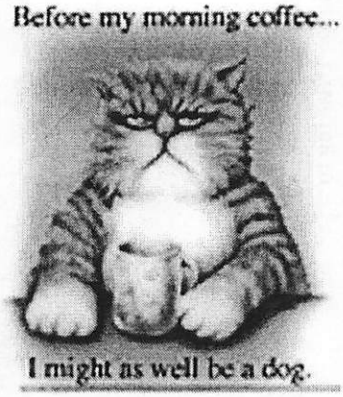
Prop is 150 mm dia x 220 mm helical pitch.
Blade Camber 4%, chord 25 mm.
Blades are made of 0.5 mm light balsa.
Prop spar is made of a tapered cocktail pin.

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Miniform
A Sainte Formule design

Original design by J.F. Frugoli	Redrawn on: 23-07-2002 By: Gert Brendel
Scale 1:1.41	All measurements in mm | Page 2 of 2

MARK II



Front & rear spars one piece from "x" to "y"

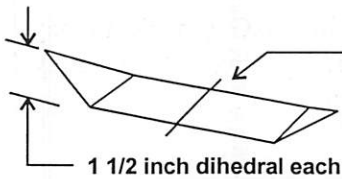
DENNY DART

Built by: _____

_____

All framing sticks
1/16" x 3/32" or 1/8"

Dihedral break here both wings
raise each tip 1 1/2 inches
and glue securely



Glue 1/8" square under wing offset
1/2" towards right end - left wing should
be 1" longer than right - sand taper
towards motor stick on ends

1 1/2 inch dihedral each tip

12 inches overall length

Wing mounts about here

Insert pin for rear motor hook -
glue securely

Taper last 5 inches

Laminate 1/8" square
into 1/8" x 3/8" stick
as shown

Mount stabiliser on bottom (tapered side) of motor stick with sticks facing up, paper covering on bottom, mount rudder on top of stick at rear.

Carefully cut wing patterns from sheet and join by glueing at centre making sure that front and rear spar (stick) are in straight line trim wing centre to leave 1/4" overlap for glueing

Correst size is 3 1/2" wing chord and total 14" span

Ranglistenwettbewerb 1st and 2nd June 2002 CargoLifter Hangar

Results from www.thermiksense.de; report by Gerhard Wöbbeking

On June 1st and 2nd 2002, an F1D was held at the CargoLifter Hangar in Brand - Briesen. A total of 6 German F1D pilots were present to try to qualify for the national 2003 F1D-team; they were joined by one F1D-novice (Uwe Bundesen) and 2 Hungarians. Additionally, there were 3 participants who only flew F1L, F1M and F1M-L. Contest directors were Thomas Weimer and Gerhard Wöbbeking.

Because of the difficult economical situation of the CargoLifter AG, it took some time before the proposed dates could be confirmed. At the moment the firm reduces the production activity, but the hall manager will keep his area of responsibility. He explicitly confirmed the dates of 14th and 15th September 2002 for the German Open Nationals.

This time, the space at the West entrance (probably the best place for us to fly) was reduced because of a balloon secured with ropes – a danger for highflying models, but luckily no F1D got stuck or was damaged. Again, good weather outside provided a good indoor climate. Temperatures inside and out were approximately the same. An unpleasant draft in the morning probably originated from the nocturnal cold, and at the northern side of the hangar there was a gusty wind. Both days, small drifts remained, correlated with the prevailing outdoor wind direction during the day (the hall is not totally enclosed). Evenings, models could almost be released from the tables around the steel construction of the west entrance, because it's heat radiation pushed the models into the hall.

Performances were first-class. Peter Kuttler consolidated his world record, by flying another 20 seconds longer (35 minutes and 56 seconds). Karl Schönfelder flew with 33 minutes and 41 seconds the second best flighttime, but he had to be satisfied with 3rd



place behind Lutz Schramm in the classification. Lutz Schramm's F1D remained in the air for more then 33 minutes during 3 of its flights and the best 2 flights count for the ranking. These three fliers will form the national German 2003 team for this year's World Championships. Marian Krause, their team manager, became 4th best German. Both Hungarian fliers flew much longer than their current national record. Uwe Bundesen's start in F1D was successful with a best flight of 29 minutes and 9 seconds.

Results CargoLifter Contest 1st and 2nd June 2002

F1D

	Name, First name	Country	Flight 1	Flight 2	Total
1	Kuttler, Peter	GER	35:56	34:31	70:27
2	Schramm, Lutz	GER	33:33	33:19	66:52
3	Karl Schönfelder	GER	33:41	32:30	66:11
4	Orsovai, Dezso	HUN	31:49	31:43	63:32
5	Sukosd, Zoltan	HUN	30:54	30:32	61:26
6	Krause, Marian	GER	30:37	30:23	61:00
7	Lotz, Rainer	GER	30:10	29:07	59:17
8	Bundesen, Uwe	GER	29:08	28:29	57:37
9	Klinck, Alfred	GER	22:44	21:45	44:29

Indoorcontest 1. / 2. Juni 2002 CargoLifter Werft

F1L

	Name, First name	Country	Flight 1	Flight 2	Total
1	Bundesen, Uwe	GER	22:51	22:26	45:17
2	Bruno Wächter	GER	21:47	20:13	42:00
3	Viezens, Ekkehard	GER	12:20	12:09	24:29

F1M

	Name, First name	Country	Flight 1	Flight 2	Total
1	Uwe Bundesen	GER	19:05	18:45	37:50
2	Wächter, Bruno	GER	15:57	15:14	31:11
3	Viezens, Ekkehard	GER	07:32	07:16	14:48

F1M ltd.

	Name, First name	Country	Flight 1	Flight 2	Total
1	Wächter, Bruno	GER	15:35	14:48	30:23
2	Viezens, Ekkehard	GER	08:52	08:43	17:35
3	Leopold, Edgard	GER	05:33	05:02	10:35

35 cm (P1)

	Name, First name	Country	Flight 1	Flight 2	Total
1	Klinck, Alfred	GER	19:14	17:56	37:10

Recent news about CargoLifter AG

Collected from www.cargolifter.com by Gert Brendel

Halfway through June, CargoLifter AG (unable to pay anymore) has applicated for the opening of insolvency proceedings. The company continues it's operative business, and the visitors' centre on the hangar site in Brand also remains open for the public. More recent is the news that a reorganisation is hardly possible any more (news article on 11/08/2002).

Therefore, I doubt if the planned airship assembly and maintenance facility (announced in 2000 for $120 million) - proposed for Craven and Jones counties in eastern North Carolina, USA – will ever be build. That would be quite a pity for our fellow American indoor duration fliers - it would be nice for them to have such a flying facility in their country as well.

In Europe, we'll have to wait and see what CargoLifter AG will bring the indoor community in the future.

3rd Concours International de Bordeaux - 29th and 30th June 2002

This year's Concours International de Bordeaux took place on June 29th. and 30th. As you can see, there has been quite a domination by British fliers in this contest (and also by Spanish fliers in some classes).
There has even been an Italian participant this year (Fabio Manieri). He realised quite excellent flighttimes - especially if you know he only started to fly indoors two years ago.
If you want to fly well in this kind of hall, a VP prop as well as rubber motors with a big cross section are quite necessary.
More about the building: the velodrome at Bordeaux is 30 m. to the underside of the pyramid roof structure (that is just under 100 ft - 90 ft of it is usable). The structure comprises eight deep glue laminated beams inclined at approximately 30 degrees. These timbers are fairly forgiving and contact tends to centre a model. According to some competitors, this is one of the best sites available. Why not come over and enjoy it next year?

F1D

	Name, First name		Best 2 Flights		Total
1	Bailey Bob	UK	0:29:12	0:28:50	0:58:02
2	Tipper John Kevin	UK	0:28:08	0:28:01	0:56:09
3	Lefever Geoffrey	UK	0:28:31	0:25:44	0:54:15
4	Medina Mangas Daniel	Spain	0:25:48	0:25:32	0:51:20
5	Aikman Nick	UK	0:24:30	0:23:10	0:47:40
6	Manieri Fabio	Italy	0:23:41	0:23:34	0:47:15
7	Frugoli Jean Francis	France	0:23:31	0:23:21	0:46:52
8	Diaz Manuel Angel	Spain	0:24:17	0:20:37	0:44:54
9	Dao Cong Thang Jo	France	0:20:09	0:17:19	0:37:28
10	Pailhe Pierre	France	0:13:07	0:13:01	0:26:08
11	Carles Maurice	France	0:11:24	0:10:18	0:21:42

F1M Beginner

	Name, First name		Best 2 Flights		Total
1	Lefever Geoffrey	UK	0:17:38	0:17:37	0:35:15
2	Green Mike	UK	0:16:26	0:16:10	0:32:36
3	Hua Ngoc Trung	France	0:16:30	0:16:04	0:32:34
4	Manieri Fabio	Italy	0:16:13	0:15:31	0:31:44
5	Medina Mangas Daniel	Spain	0:14:17	0:13:26	0:27:43
6	Darrouzes Jean Pierre	France	0:13:28	0:13:10	0:26:38
7	Dao Cong Thang Jo	France	0:13:31	0:12:12	0:25:43
8	Roch Edmond	France	0:13:00	0:12:16	0:25:16
9	Carles Maurice	France	0:13:04	0:12:11	0:25:15
10	Yronde Francois	France	0:12:12	0:12:12	0:24:24
11	Neraudeau Francis	France	0:11:04	0:10:56	0:22:00
12	Pailhe Pierre	France	0:10:29	0:09:12	0:19:41
13	Delcroix Jacques	France	0:09:50	0:09:19	0:19:09
14	Bluck Alain	France	0:08:51	0:08:45	0:17:36
15	Harmand Sebastien	France	0:09:48	0:06:26	0:16:14
16	Denaud Dany	France	0:07:35	0:06:40	0:14:15
17	Denaud Anthony	France	0:01:20	0:01:09	0:02:29

Micro 35 Juniors and Cadets

	Name, First name		Best 2 Flights		Total
1	Denaud Anthony	France	0:09:00	0:08:40	0:17:40
2	Fortage Emilie	France	0:08:22	0:08:12	0:16:34
3	Bergeon Suzanne	France	0:04:45	0:04:00	0:08:45
4	Bergeon Lucille	France	0:04:30	0:04:15	0:08:45
5	Tandille Pierre	France	0:04:04	0:03:41	0:07:45
6	Lamourette Quentin	France	0:04:08	0:03:30	0:07:38
7	Vallee Yves	France	0:03:26	0:03:11	0:06:37

F1L (EZB)

	Name, First name		Best 2 Flights		Total
1	Bailey Bob	UK	0:22:10	0:21:56	0:44:06
2	Lefever Geoffrey	UK	0:20:05	0:19:19	0:39:24
3	Medina Mangas Daniel	Spain	0:19:33	0:18:03	0:37:36
4	Diaz Manuel Angel	Spain	0:18:44	0:18:20	0:37:04
5	Tipper John Kevin	UK	0:17:40	0:17:02	0:34:42
6	Roch Edmond	France	0:16:53	0:16:24	0:33:17
7	Hua Ngoc Trung	France	0:15:42	0:15:10	0:30:52
8	Aikman Nick	UK	0:15:32	0:15:10	0:30:42
9	Carles Maurice	France	0:15:55	0:14:24	0:30:19
10	Denaud Dany	France	0:15:05	0:14:26	0:29:31
11	Green Mike	UK	0:15:32	0:13:55	0:29:27
12	Frugoli Jean Francis	France	0:14:45	0:14:03	0:28:48
13	Yronde Francois	France	0:15:06	0:10:59	0:26:05
14	Grange Yannick	France	0:13:00	0:11:57	0:24:57
15	Fortage Bruno	France	0:12:11	0:09:46	0:21:57
16	Sorese Laurent	France	0:11:01	0:09:35	0:20:36
17	Delcroix Jacques	France	0:09:22	0:08:50	0:18:12
18	Stichbury Bryan	UK	0:09:14	0:08:38	0:17:52
19	Roy Richard	France	0:06:55	0:06:55	0:13:50

Micro 35 Senior

	Name, First name		Best 2 Flights		Total
1	Bailey Bob	UK	0:30:19	0:27:57	0:58:16
2	Aikman Nick	UK	0:28:31	0:25:00	0:53:31
3	Frugoli Jean Francis	France	0:23:36	0:22:03	0:45:39
4	Tipper John Kevin	UK	0:24:28	0:12:00	0:36:28
5	Green Mike	UK	0:18:19	0:17:39	0:35:58
6	Roch Edmond	France	0:16:33	0:16:15	0:32:48
7	Lefever Geoffrey	UK	0:19:53	0:11:44	0:31:37
8	Yronde Francois	France	0:15:43	0:15:28	0:31:11
9	Sorese Laurent	France	0:14:06	0:13:13	0:27:19
10	Dao Cong Thang Jo	France	0:13:21	0:11:56	0:25:17
11	Denaud Dany	France	0:10:16	0:08:29	0:18:45
12	Neraudeau Francis	France	0:09:41	0:07:34	0:17:15
13	Fortage Bruno	France	0:08:51	0:08:08	0:16:59
14	Roy Richard	France	0:07:38	0:07:09	0:14:47
15	Bluck Alain	France	0:08:20	0:04:22	0:12:42
16	Hua Ngoc Trung	France	0:01:14	0:00:00	0:01:14
17	Medina Mangas Daniel	Spain	0:00:00	0:00:00	0:00:00

Italian contest Results

By Carlo Pesciolini

Here are the results of 2 'open' contests, that is to say without a FAI licence requirement – a type of contest that has been approved of lately in Italy.

11th Florence Indoor Open International Contest, 20th January 2002

The 11th Edition of the "FLORENCE INDOOR" contest was one of the best ever regarding flighttimes – all preceding flighttimes in the rubber duration categories have been exceeded by far.

Peter Keller, who has participated already twice in previous versions of this contest, was not able to come this time. As a result, since no other foreigners showed up, there were no foreign participants this year – this might have been an after effect of the "Twin Towers" attack.

There was much respect for the achievement of a young girl in the class "TH", in which there was a fierce battle going on for top places. With it's characteristics, the TH class is quite appropriate for those who wish to start in the indoor hobby.

The many beautiful flights of the gliders (CLG or HLG) were nice to be seen. The class really forms a nice contrast to the classic constructions of indoor rubber duration models.

The next edition of this contest will take place at 26th of January 2003.



This young girl, Silvia Vaccaro, amazed all by flying her very neat model to third place in the "TH" rubber class. Photo by C. Pesciolini.

Results

F1M Modified

	Name	Fl. 1	Fl. 2	Total
1	Fabio Manieri	12'47	13'30	26'17
2	Giacomo De Angelini	9'33	9'24	18'57
3	Tabellini Renzo	8'03	9'04	17'07
4	Giu1iano Pizzi	7'58	8'37	16'35
5	Vittorio Negri	8'12	6'31	14'43
6	Franco Pianigiani	5'11	4'56	10'07
7	Licio Fanfani	4'06	3'00	7'06
8	Alberto Tallarico	2'28	0'29	2'57

TH

	Name	Fl. 1	Fl. 2	Total
1	Fabio Manieri	9'26	9'15	18'41
2	Giacomo De Angelini	8'36	8'52	17'28
3	Silvia Vaccaro	5'21	6'47	12'08
4	Benito Bertolani	5'17	4'14	9'31
5	Claudio Bartoli	3'58	4'54	8'52
6	Adriano Toschi	4'10	4'25	8'35
7	Renzo Tabellini	4'28	4'00	8'28
8	Loris Romagnoli	2'58	2'54	5'52
9	Franco Pianigiani	2'27	2'16	4'43

Ministick

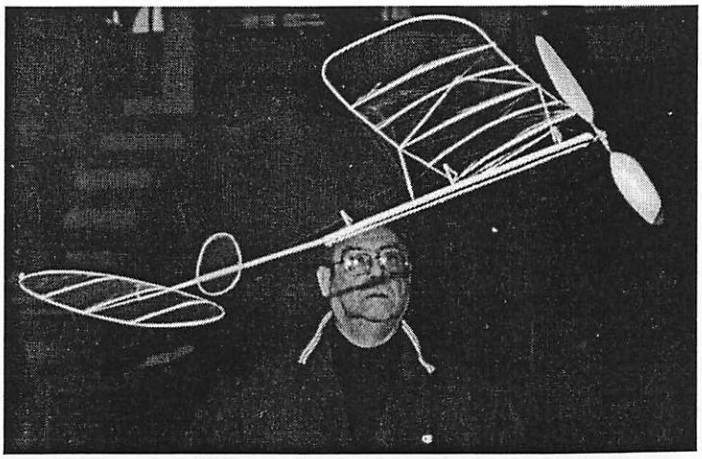
	Name	Fl. 1	Fl. 2	Total
1	Fabio Manieri	8'23	8'02	16'25
2	Giacomo De Angelini	5'37	5'51	11'28
3	Franco Pianigiani	4'11	4'36	8'47
4	Vittorio Negri	4'16	4'30	8'46
5	Renzo Tabellini	3'55	4'23	8'18
6	Benito Bertolani	3'36	3'39	7'15
7	Maurizio Sagnotti	2'12	2'39	4'51

Hand Launch Gliders (F1N)

	Name	Fl. 1	Fl. 2	Fl. 3	Total
1	Urs Schaller	37	38	37	112
2	Marco Zamperini	32	32	32	96
3	Jacopo Pesciolini	26	26	26	78
4	Benito Bertolani	25	24	24	73
5	Vincenzo Franceschi	23	23	24	70

Catapu1t Gliders

	Name	Fl. 1	Fl. 2	Fl. 3	Fly-	Off	Total
1	Bertolani Benito	26	26	27			79
2	Franceschi Vincenzo	27	25	21	14	11	73 + 14
3	Zamperini Ezio	26	23	24	3	1	73 + 3
4	Sagnotti Maurizio	21	20	22			63
5	Pesciolini Jacopo	2	3	2			7



Giacomo De Angelini, one of the most experienced Italian indoor fliers, with his "F1M/modified" model during his best flight: 9'33. Photo by C. Pesciolini.

1st Garfagnana Indoor Trophee "Ai Canipai", 2nd June 2002

The first Trophy "Ai Canipai" took place in a small mountain village in the Appennino, 50 km from Lucca, where there's a good indoor flying site that has more than 12 meters space under its roof structure.
The place is really suitable for an indoor competition, because the air inside is quite steady. And moreover, 50 meters away from the hall there's a really good hotel-restaurant where dinner is excellent and also very price-worthy!
There weren't too many participants who had travelled to this contest; for various reasons, some people who usually participate were absent this time. An extraordinary flight of 35 seconds was made in the category 'Catapult' (there has never been flown a better time indoors in Italy!) by Benito Bertolani – he's famous in the world of radio-control acrobatics and has participated several times to the Tournament of Las Vegas. Today, he also flies indoor!

Results

F1M Modified

	Name	Fl. 1	Fl. 2	Total
1	Fabio Manieri	13'11	13'00	26'11
2	Giacomo De Angelini	9'58	9'13	19'17
3	Vittorio Negri	10'03	9'07	19'10
4	Silvano Tonetti	8'06	8'49	16'55
5	Licio Fanfani	7'56	7'37	15'33
6	Mariella Bertolani	9'20	6'07	15'27

TH

	Name	Fl. 1	Fl. 2	Total
1	Fabio Manieri	9'00	8'02	17'02
2	Franco Pianigiani	6'42	6'27	13'09
3	Benito Bertolani	5'26	4'42	10'08

Ministick

	Name	Fl. 1	Fl. 2	Total
1	Giacomo De Angelini	5'31	5'35	11'06
2	Franco Pianigiani	4'37	5'22	9'59
3	Mariella Bertolani	3'50	3'36	7'26

Hand Launch Gliders (F1N)

	Name	Fl. 1	Fl. 2	Fl. 3	Total
1	Bertolani Benito	26	26	27	79
2	Franceschi Vincenzo	24	22	23	69

Catapult Gliders

	Name	Fl. 1	Fl. 2	Fl. 3	Total
1	Bertolani Benito	33	33	35	101
2	Franceschi Vincenzo	27	26	27	80

Miniform – a Saint Formulae Model

Building tips by Gert Brendel – original design by J.F. Frugoli

About he model

The Miniform is a Saint Formulae Model, which means that it has to comply with a set of rules. The most important ones are a 33 cm wingspan and an 8 cm wing chord, a minimum weight of 3 grams and the model needs to have wheels in order to be able to R.O.G. The original Miniform was designed and drawn by J.F. Frugoli. The model as presented here differs from the original in that it is more suitable for beginners. Compared to the original design, the rear rubber anchorage point was brought forward almost 3 cm, and the wing was placed back 2 cm. These changes were made to avoid problems with getting the centre of gravity in the indicated place. The Miniform has been successfully flown by me and several others for the last couple of years. Flight times of up to almost 4 minutes have been achieved.

Construction Tips

The model is of straightforward construction, basically from "hobby-shop" balsawood (0,10 to 0,15 g/cm^3). Most sticks are 1x1 mm, the only exception being the wingspars. Since the model flies to the left, the left wing is built with some wash-in. The stabiliser is built without camber; this way, it is easier to construct and the model will be less difficult to fly.

Covering

The model is covered with Mylar, although one might choose to cover the fuselage with condenser paper or tissue to add some torsional rigidity. Mylar can be easily glued with well-thinned Bison kit or similar contact glue. The Mylar can be trimmed using a soldering iron, or just with a sharp razor blade. All parts were covered before building the model together, and the wing was covered after dihedral was glued in. To make this easy, I've constructed a styrofoam form (with rib curvature sanded in the topside) to cover the underside in 3 pieces. Start covering with the middle part; by doing so you'll be able to trim that section on all four sides in the easiest way. Lay the Mylar down on the styrofoam form and apply glue to the underside of the wing frame. Lay the wing on top of the Mylar and gently press the structure on the Mylar. I use the same technique to cover the other two pieces of the wing.

Flying

Put in some down and side thrust if necessary and try to achieve a stable flight pattern in left-hand circles. I favour a long rubber loop, and for this model I use a rubber loop of 50 cm (even though the front to rear anchorage point is only 25 cm).

(Continued from page 7)

Flying the Denny Dart Mark II

Carefully sand the front of the motor stick until it is a snug fit inside the plastic propeller bearing, push a straight pin into the bottom of the motor stick just in front of the stabiliser (rear motor hook). Put a drop of glue around this pin to strengthen the balsa, you may want to put a few wraps of thread around the stick there also. Assemble the propeller, hook motor between hooks and find balance point by resting stick on side of pencil and moving it back and forth until you find where it stays level. Mark an x on the motor stick at this point.

To assemble the model, take off the propeller assembly, put the two small rubber bands on the stick, one just ahead of the rear peg, one just behind the propeller bushing. I recommend that each band be put on with a double loop, this will hold the wing more solidly. Place the wing mounting stick (1/8 sq) flat on the top of the motor stick with the cg letters (on the wing) in line with the x and slide the bands over the ends of the stick to hold the wing in place (you can use a bit of masking tape here if bands are not available). Looking from the front, the wing and stabiliser should be parallel, if not, carefully sand the bottom of the wing mounting stick until they are.

Hook up the rubber band, lubricate it first with a little baby oil or silicon lube, the model is ready to fly. Wind the propeller (clockwise from front) about 50 turns, hold the model at shoulder height and level, let go of prop and give a gentle push as you let go. The model should fly in a slight right turn and at a smooth angle. If it swoops up and then drops, move the wing back a little (only about 1/8). If it dives down move the wing forward the same amount. When it is flying smooth and level, keep increasing the turns wound in; you should be able to get up to 800 safely without breaking the rubber. By removing the plastic nosepiece from the stick and stretching the rubber to about 3 times its normal length as it is wound, you can put in more turns safely.

As you put in more turns, if the model stands on its tail at first, carefully twist the plastic bushing so the propeller points slightly to the right, this will make the model climb in a right hand spiral. If the circle is too large, put a tiny bit of clay on the right wing tip. If you do this you will have to move the wing forward a little to correct for the extra turn causing the model to nose down.

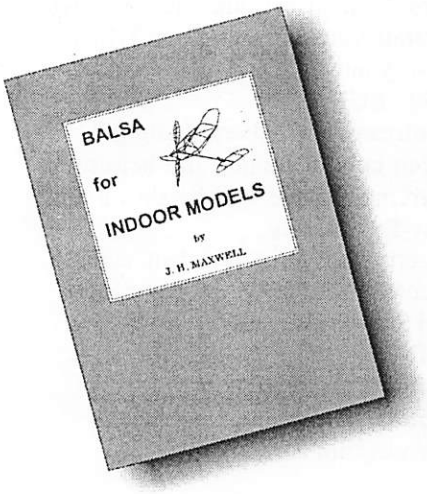
Enjoy your model, if you want to build bigger and better models, many kits are available, but take a word of advice, do not try to build a scale model of a real airplane for your second try. Look for a beginners stick and tissue design.



Best flight indoors 1:09 - on an earlier flight the plane had become stuck on a high ledge at 44 seconds. At that point I knew that breaking one minute indoors was easily within reach. But it took several more flights before breaking a minute because of bad hits to the ceiling.

Balsa for Indoor Models back in print

This fine booklet is back in print, now with new printing with better quality pictures. Balsa for Indoor Models was originally published at the end of 1999, but was soon out of print.



Contents

Forword
Introducing Indoor balsa; acknowledging Frank Zaic's influence.
1. Sheets
How and why Indoor sheets differ in many ways from run-of-the-mill balsa stock.
2. Density
Low-density balsa is essential but scarce, and why sheet markings are not always reliable.
3. Grain
The origins and properties of A, B and C grains. How they differ, and why C grain is not the same as quarter grain.
4. Strength and Stiffness
Stiffness is more important than strength. Two ways of testing stiffness, how it varies with density, and its influence on structural design.
5. Sawing
Produce your own Indoor sheets, a description of the methods used.
6. Measuring
Recommended apparatus for weighing and measuring Indoor sheets.
7. Sources
Balsa trees grow on both sides of the Pacific Rim so why is it so difficult to get good Indoor balsa?
8. The Background
An account of the experiences which, he believes, qualify the author to write this book.

Ordering Information:
Balsa for Indoor Models
A5, 48 pp, GBP 9.00 in the UK, 17.00 Euros in notes for Europe, GBP 10.00

in notes (US$ 15.00 in bills) elsewhere in the world (includes postage). The easiest way to get a copy is to send bills (not a check). Sorry I don't take credit cards.

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Empire State Indoor Champs 2002

The Fifth annual Empire State Indoor Championships will be held on September 21 and 22, 2002 at the Ralph C. Wilson Jr. Fieldhouse, indoor practice facility of the Buffalo Bills football club, located near Orchard Park, New York. This premiere site has a floor area of 200 x 400 feet with an arched ceiling height of 128 feet.

On the two-day schedule will be ten FAC and nine AMA events. Added this year will be F.A.I. F1D indoor stick, with the competition serving as an F.A.I. regional contest.

Also included will be Science Olympiad Wright Stuff events for both middle and high school students, plus a special competition for youngsters featuring the Ikara "Butterfly" ready-to-fly model.

In addition to a full slate of free flight events, the two-day meet will also feature a special indoor radio control session on Saturday night.

Entry fees are as follows:
Open Free flight only: $25 (all events)
Open Radio Control only: $20
Open Free Flight & Radio Control: $35
Juniors: FF contest, $5.00; RC $5.00

Valid AMA or MAAC licenses are required for entry. No food or beverages may be brought into the building.

Butterfly model packages, including the model and a winder, can be purchased on site if needed. There will be two Butterfly competition age groups: 11 & under and 12-17.

There will be 3 events with a Junior/Senior division: Limited Penny Plane, Standard Class Catapult Glider, and FAC No-Cal Scale.

The contest will begin at 1 PM on Saturday, Sept. 21, and runs until 6 PM. Access to the site begins at noon. The radio control session will run from 6 to 10 PM. Scale judging for FAC events will be done on both days. On Sunday the contest will run from 9 am to 5 pm.

Awards will be distinctive WNYFFS/ FAC plaques through 3rd place in each event.

Contest Director:
Vet Thomas
970 Clarkson-Parma Town Line Road
Hilton, NY 14468
(585) 392-5164
vthomas@rochester.rr.com

For a contest brochure contact:
Hugh Jones
314 Shore Acres Drive
Rochester, NY 14512
(585) 663-1489
hughster@rochester.rr.com

Events Schedule

Date	Class	Event
Saturday September 21	FAI	F1D (Best two of six, will be flown both days)
	AMA	Easy B, Limited Penny Plane*
	FAC	Dime Scale, No-Cal Scale (6.2 gram minimum)*, Thompson/Greve Race combined.
Sunday September 22	FAI	F1D
	AMA	Intermediate Stick, Mini Stick, Open Penny Plane, 7-gram Bostonian, Standard Class Catapult Glider*, AMA Electric Endurance.
	FAC	Scale, Hi-Wing Peanut, Peanut, Golden Age Scale, Power Scale, WWII Combat, Modern Civil Production Mass Launch.

*Events with Jr./Sr. combined classes

Indoor Championships of Baden-Württemberg (GER) 2002

Date: 10. November 2002, Training from 9 pm on, contest from 11 pm on, ending at about 6 pm.

Place: Brühlhalle in the Schornbach quarter of Schorndorf, Germany. Height of the hall 6 m. Drive from Schorndorf with direction Winnenden; in Schornbach at the end of the village on your left.

Classes: F1M (Beginner) and F1M-X (Beginner limited) – winners will be the champion and the youth champion of Baden-Württemberg. Additionally, there's an F1D-Mini-Stick contest.

Prices: Challenge cups for the best time of the day.
Current youth cup winner: Philipp Lotz
Current Senior cup winner: Rainer Lotz

Ranking: There are 4 up to 6 rounds to be flown, with separate youth classes (from 1.1.84)

Entry fee: EUR 5.-, youth EUR 3.-, second class EUR 2,50 / EUR 1,50.

Cont. Director: Heinz Hofmann and Albert Riedlinger.

Entertainment: In between contest rounds and before the award ceremony there will be shows with "RC-slow-fly" models.

Information: Drinks and food will be taken care of. Please access hall with sports shoes only!

Contact: Bernhard Schwendemann
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