INDOOR
NEWS and VIEWS
ISSUE # 108

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The Prime Osborn Center, Jacksonville, FL

September, 2002

From The Editor's Desk

As I write this, we still don't know how much will go in this issue, but July and August are busy contest months. The UK Team Trials at Cardington Air Dock were held July 13-14, Kibbie Dome was July 27-30, and then there's the new site-on-the-block, the Prime Osborn Convention Center in Jacksonville with their trials and Fun Fly July 28, almost in my neck of the swamp. The Canadian Indoor Nats and West Baden Fly Me to the Moon Part II happened August 2-4. Nick Aikman was at Cardington, Tim went to Kibbie and myself to West Baden, so we have that much covered.

Many wonderful things are in the works at INAV. Thanks to Laurie Barr, John O'Donnell and John Taylor, we have collected all the issues of the discontinued Norwind News, and will be offering them with several other out-of-print indoor newsletters in a second archive CD. You may remember that the great articles on stiffness testing came from there, and more is featured this month. We start an indoor scale column called Scale Matters by veteran writer Dave Haught, whose models also appear on the Kibbie photo page, and a new series by yours truly on Great Indoor Sites. And still more: Tim's latest masterwerke is a book called The Best Of Indoor News and Views, now in draft form and soon to be offered for sale. Keep checking www.indoorduration.com for updates. - Carl Bakay

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Can't get enough of Indoor News And Views? Then get the INAV Archive CD. This CD includes over 250 complete issues of INAV along with a custom viewer program that allows you to print all the issues, articles, and plans. Order your Archive CD today by sending US$45.00 plus shipping (USA US$3.00 all others US$5.00) to Tim Goldstein at the above address. Proceeds from the Archive CD go to support Junior indoor flying.

Indoor News and Views is an open forum presenting ideas, opinions, model designs and techniques for the indoor community. Unless specifically stated, INAV does not offer any opinion as to the merit of published work, nor does it endorse any products or services advertised herein.

Sample ad copy should be sent to Tim Goldstein at the above address for publishing details.

Cover art by Bill Carney.

Publishers Desk

Thanks to everyone's help INAV is continuing to grow and expand. With this issue we are breaking the 350 subscriber mark. Now that INAV is back on a reliable schedule we are seeing a number of past subscribers joining us again. We are also getting a number of new subscribers joining by using the convenience of online sign-up via PayPal. This service is hosted at www.IndoorDuration.com and can also be used by current subscribers to renew. There is an additional charge when subscribing/renewing this way to offset the fees we pay for the service. The additional cost is about the same as that for an envelope, check, and stamp and it is sure hard to beat the convenience especially for our non-USA subscribers.

We are looking for ways to increase INAV's circulation. The web has certainly shown that people are interested in learning more about indoor if they are exposed. Now we just need to figure out how to expose them. As a test we are placing a classified ad in Model Aviation hoping to attract some modelers that my have read the indoor column, but did not know where to find more information. Anyone that has some ideas how we can help INAV expand please feel free to contact me.

As is normal we are always interested in articles, plans, and contest listing for future issues. We are currently in need of drawing for the cover. Anyone that wants to help on either a one time basis or an on going basis can contact either myself or Carl.

Tim

NFFS Sympo Call for articles.

2003 Sympo Papers Needed

The National Free Flight Society Symposium 2003 needs your help. We are looking for technical papers on the science of Indoor flight as well as for articles on Indoor design, construction, and flying. If you have a possible topic and are interested in sharing your knowledge with modelers around the world, please contact 2003 Sympo Editor Louis Joyner.

Louis' e-mail address is joyner28@comcast.net. A short (25 to 50 word) outline of the proposed paper is all that's needed at this time. Please include this in the body of the e-mail, not as an attachment. The mailing address is: 6 Saturday Rd., Mt. Pleasant, SC 29464.

Lee Hines will be the chairman of Models of the Year committee. His e-mail is sweepettelee@earthlink.net.

THE REST OF THE STORY

An Editorial by Indoorsman Joe Kehr
Tulsa, OK

John Kagan's great article in INAV (Issue # 103) covers the techniques and the reasons for steering. Reading his article and following the guidelines will produce excellent results. (Watching John steer is a lot like seeing Tiger Woods putt). However, on the other hand, knowing the rules and the definition of inappropriate steering should be an event official's major concern. Steering according to the rule book should be required reading for our Indoor Event Director's. It's time to address the issue.

Watching the experts steer their models to more favorable environs will give you a quick idea of the problem. The advantage lies with the contestant that takes the time to develop these skills (even I have been able to do a limited but successful number of flight adjustments). The problem is the growing number of departures from the intent of the rule(s). The intent of the rule(s) is to take your model out of harms way. In the AMA Competition Regulations, 2002 - 2004, page 26 under the heading "FAI Steering Rule", paragraph a. "Steering must only be used to avert collision with the structure of the building, it's contents, or other models. Movements of the model must be primarily in the horizontal plane". This is a pretty precise description of the intent. At the USIC 2002 1 witnessed many of the contestants involved in steering for improved locations when I believe their models were in no imminent danger of any of the above. The timekeepers responsibility is to observe and warn of any potential infractions. (Friendly timekeepers rarely take that responsibility seriously). In the Akron Airdock you could justify steering almost anytime because of the floor clutter but you probably know what the limits should be.

Many indoor modelers appear not to have bothered to read or perhaps have ignored the rules. Then there are the problems of evolution where Event Directors have allowed contestants to do whatever they choose as long as they don't interfere with other contestants models. This has led to some very loose definitions of the rules and steering that only puts the model in a favorable position when there was no eminent danger as listed in the rules. It is predictable that a number of top modelers will drag their steering gear with them as they follow the drift and as soon as it "appears" their model may fly to an undesirable location ... up goes the balloon.

Having sailed boats for a number of years I'm aware that any object moving through a fluid will displace a considerable amount of that fluid. This is in the form of a bow wave. A balloon is an object moving through a fluid called air. Any horizontal or vertical movement (up or down or sideways) will displace air and set up a wave action that will disturb any object in or near it's path. (Throw a rock into a smooth surfaced pond and witness the effect). I watched one such incident at USIC 2002 where a balloon dragging contestant was advised that he was close to a model that was descending close by and his response was "yeah I see it". The balloon's "bow wave" rippled the model in question. (Sometimes a second or two can win or loose an event).

I believe the indoor modeler should want to do what is right and that every contestant should be given the same chance. Therefore, every participant should expect and support the Event Director as they define and enforce the intent of the steering rule. He (the Director) should be ready to set aside the intimidating aurora of the top modeler and. enforce the rude on an equal basis for all that are flying. Which brings up another point. Balloons should be tethered in such a way or in a place where their presence will not interfere with any model's flight pattern. In Johnson City the balloons should be kept under the overhang of the seating around the circumference of the floor. This would provide a clear flying space for any model entering the area. Some attempt was made to clear the air space of balloons this year but the Director's words were largely ignored.

Ignoring the rules that govern our competition and the people that must enforce them will only lead to winning by deception which authors the question - Is winning by manipulation worthy of the prize? Enforcing the rules is not the most pleasant task that the Event Director must face ... but face it he must. And that is THE REST OF THE STORY.

Editor's Note:
There were two real hazards to duration flying at Johnson City: one came from putting up or winding in a balloon too rapidly in crowded airspace, the other from a few modelers who left the balloon up at the end of a hundred foot line, "just in case" it was needed. Mr. Kehr's plea is only for simple consideration of others at a contest.

‘A Tale of Two Sites’.
The French Open International Contests, held at Orleans and Bordeaux. June 22n^{d}/23rd and June 29th and 30th.

The contests at Orleans and Bordeaux are annual events and the highlights of the French indoor duration calendar. The national championships alternate between each venue and this year Orleans hosted this event. Both competitions take place over two days and the classes flown are identical,

35 Centimetres, F1L, F1M, and F1D. The 35 Centimetre class has separate categories for juniors and cadets because the small size of these models is seen as a good way to get younger flyers to start to compete and engage with more advanced building techniques.

Having decided to make the trip several months earlier, Geoffrey Lefever and I left Norwich at about 5.00 AM on Friday the 28th and headed South to catch the Dover/Calais ferry. Our enthusiasm for the trip was slightly dented by the car radio commentary describing the England football teams’ ignominious exit from the World Cup, but our spirits soon picked up as we entered France and Geoffrey drove on around Paris and down to Orleans. We arrived at our hotel in time to meet Bob Bailey for Dinner.

The following morning, we were first to arrive at the sports hall in the middle of historic Orleans. The hall is a good size and has a ceiling height of 45 feet. However, cunningly positioned boxes, each armed with a fearsome array of lights hang downwards at regular intervals and restrict the usable height considerably. Luckily, these lights can be lowered between rounds on payment of a small penalty fee, allowing the retrieval of trapped models. The early morning was given over to trimming on both days before short rounds of about an hour and a half followed for each class. F1D was given ‘top billing’, with longer rounds of two hours in late afternoon. This format also applied to the Bordeaux contest but such short rounds made flying in up to four separate events something of a scramble. Previous experience of the sites was a great help in trimming and selecting correct rubber sizes. Throughout our trip there was a heatwave and the constant temperatures and humidity made competing at both events something of an obstacle course for some.

The only other flyer from abroad at Orleans this year was the experienced Swiss flyer Peter Keller and so this was not a truly international event. Attendance was generally lower than in previous years although with such a low ceiling, it is possible that some French flyers waited until the following weekend where Bordeaux offered a higher site.

In 35 Centimetres, Bob, Geoffrey and I all had VP equipped models. After wrecking one model trying to retrieve it from the ceiling, Bob eventually won by managing to get his prop tuned in to the site/conditions. I managed second by adopting the ungentlemanly tactic of slowly climbing up to the roof and clattering around on the ceiling for several minutes. I got away with this twice but on the final day, a big tail-slide off the lights lost a lot of altitude and time on my last flight.

Peter Keller won F1D and F1M and I believe he had to get above the lights to record winning times, although he had well built VP props for both classes. Bob Bailey claimed another victory in F1L but British success in F1D was limited by the fact that we were all trying out new layouts.

The next day, we headed South in convoy with Bob and spent several days exploring France, stopping at Perigeux, Limoges and other towns and villages. Bob repaired a damaged F1D tailplane and we visited the ruins of Oradour sur Glane, the site of a Second World War Nazi atrocity, where the entire village population was rounded up and shot or burned to death, as the village was gutted. The entire area has been left exactly as it was on that day.

Arriving in Bordeaux, we met up with the other British flyers. John Tipper, Bryan Stichbury and Mike Green had travelled to Bordeaux independently and completed the UK contingent. Other flyers from abroad were Fabio Manieri from Rome and The Spanish competitors Daniel Medina and Manuel Diaz. French participation was greater than in Orleans and the site is the national velodrome, a modern building with a wooden beamed ceiling structure that is surmounted by a square pyramid, peaking at just over 100 feet. This site is far more benign than Orleans, with a bigger floor area. The structure of the pyramid tends to centre models as they climb and circle high up and hang-ups are rare.

In 35 Centimetres, john Tipper flew his latest, very light (0.37gram) tandem, but a mid-air and then a high altitude steering mishap caused repairable breakage before John compounded this further by more extensive damage caused during balloon retrieval from an unlucky hang-up in the pyramid. On the second day I managed to extend the hall record to 28.31, before Bob Bailey extended it further to win with 30.19 with a back up of 27.57.

Bob Bailey also won F1L and F1D although the winning times in both classes were slightly lower than last year. Geoffrey Lefever won F1M using a venerable fixed pitch model that bounced around in the roof for two late flights on the second day, thus relegating Mike Green to second place.

As in Orleans, the competition ended with a short, informal get-together and prize-giving, with a presentation of awards to juniors, cadets and seniors and a chance to meet the French flyers in a more relaxed atmosphere.

On behalf of all the British flyers, I would like to thank our most amiable French hosts and particularly the competition organisers, Jacques Delcroix in Orleans and Jean Pierre Darrouzes in Bordeaux. I certainly enjoyed both contests and would happily make a return trip. The Bordeaux velodrome in particular is an excellent site for indoor duration flying and it is a shame that there weren't more competitors from other countries.

Nick Aikman.

Bob Bailey 35 cm

Geoffrey Lefever

Bordeaux Velodrome

Orleans Sports Hall

Bordeaux Velodrome Contest Results 2002

F1D (55cm 1.2g)

PRENOM NOM	58:02
BOB BAILEY	56:09
JOHN TIPPER	54:15

F1M BEGINNER

PRENOM NOM	35:15
GEOFFREY LEFEVER	32:36
MIKE GREEN	32:34

F1L (EZB) (1.2g)

PRENOM NOM	44:06
BOB BAILEY	39:24
GEOFFREY LEFEVER	37:36

MICRO 35 SENIOR

PRENOM NOM	58:16
BOB BAILEY	53:31
NICK AIKMAN	45:39

MICRO 35 JUNIORS ET CADETS

PRENOM NOM	17:40
ANTHONY DENAUD	16:34
EMILIE FORTAGE	8:45

WEST BADEN CONTEST RESULTS

There were approximately 15 AMA and 2 FAI Cat. III records set 8/3 & 4/2002 at West Baden, Ind..

Senior LTD PennyPlane	13:30 Brian Johnson
Open LTD PennyPlane	14:46 Walt Van Gorder
Open LTD PennyPlane	13:35 Wayne Johnson
Open Ministick	12:34 Walt Van Gorder
Senior Ministick	8:15 Doug Schaefer
Junior Ministick	7:46 Josh Mersal
Senior HL Stick	31:49 (F1D55, 0.59 gram rubber) Doug Schaefer
Open HL Stick & FAI	47:? Jim Richmond
Open ROG Cabin	time? Larry Loucka
Senior Easy Bee	21:49 Doug Schaefer
Senior F1D	30:25 Doug Schaefer
Open F1D & FAI	33:47 Jim Richmond

I believe there were a couple Glider records set too by someone with large group from California. That is what we could remember. A single flight was not allowed to count for two records. The Senior Pennyplane might have been broken with Brian's Limited flight and Senior F1D record placed higher at HLS level.

-Sandy M. Schaeffer

INAV Tests Tan Sport Rubber From FAI Model Supply

John Clapp was kind enough to send three different widths of his Tan Sport Rubber, dated May 2002. This product is aimed at SAM, scale and sport flyers who don't require the performance of Tan II competition rubber strip. We have finished testing and found it to as good as many batches of Tan II in the past.

All samples were stripped to 1/8 inch and made up in 7 inch loops. We broke five or six loops before starting, so all these tests were done to about 95% of the breaking point.

Elongation of all samples was 71 inches max, or 10.1 x when fresh, and 75 inches or 10.7% when retested the following day. Calculated energies by the Gibbs method are adjusted to 70 degrees Fahrenheit.

Size	Thickness	Energy, fresh	Energy, re-run	Hysteresis loss
1/4"	0.039"	4100 ft-lbs/lb	4380	25%
3/16"	0.038"	4040	4390	26%
1/8"	0.038"	4040	4420	26%

Contact John at FAI Model Supply for prices and availability.
www.faimodelsupply.com

Carl Bakay

“2 Days in the Hangar – 2002”

Reported by: H. Bruce McCrory

This was my second trip to Everett, Washington’s Big Boeing Hangar. I was prepared, with two new planes that would work well in a unique and exciting environment, the assembly building for the World’s largest planes. Two would be plenty to fill 11 hours on Saturday and another seven on Sunday. There would be time to fly, between dodging AMA Darts and getting others back into business. I had extra rubber for anxious fliers, all my construction equipment, and extra wood for emergency field repairs.

Saturday came early, and so too, big plumps of white. Snow in the Puget Sound is a rare thrill on the weekend. An inch will paralyze traffic and shut down everything, turning a work day into a holiday. This was not a welcome greeting for a very popular and superbly managed event that had already been postponed by tragedy. But the excitement of hundreds of youngsters beaming the way I had only two years earlier when I launched my first free flight plane was too impelling to cancel for a sloshy forty-mile trip. The main roads were nearly bone dry.

The planes were there, 767’s and a new 777 sharing “our” flying space. The crowd was lighter than 2001 but certainly no less eager to fly. Many familiar fliers from Oxbow had parked their tables and gear at the edge of about the biggest open room in the World. A thousand fliers would be dwarfed by the space. I missed several faces of Northwest flying legends I had grown to rely on for guidance. There were many people that I guessed were Everett fliers. We exchanged cards and shared information. And, we flew planes. There was no lack of assistance for young fliers.

A mother of two fliers brought me HER plane, for repair. A beautiful Limited Penny Plane she had built during one of the building seminars. She confided that building one was a lot harder than coaching. If she could start over, she would have six years of experience, instead of a few months.

I spent most of Saturday testing several wing and stabilizer combinations with my new A6 motor stick. I’ve learned to use tissue sockets and plugins where they count, at prop hub, the wing, boom and trailing edge of the stab. A series of standard dimension connections expands the possibilities of improving flight exponentially. I make a lot of mistakes, flying time is limited and the enjoyment of experimental design bears a price tag with failure written on it. Rule number 1: Use a lot of plugin sockets. They are indispensible for replacing sections and for adjustments.

The day raced by. It was 3pm and I hadn’t posted a single flight. A few of us took a break and hiked over to the cafeteria for lunch. Wright Stuff and Science Olympiad fliers were into a round of competitions with no losers. I remembered to cover my box of planes. Several Darts had already tried to land in it. A group of workers was quizzing a student and adult from the second floor mezzanine separating our section from another, just as large. My next flight would be for real.

I wound and backed off to the standard .11 inch ounces of torque for my 720 milligrams of .039” strip of Tan II. Jo Higgins would be the time keeper. “Do you want a short time or a long time?” That’s Mrs Higgins. “Long, of course!” I launched south, into the air drift. Planes in their foam cradles will weathercock if able. I knew all my A6 flight characteristics. They struggle to 50’ and spin in tight 15’ circles as minutes pass. In the Hangar they drift south, in the return air current, toward the United Emirites 777. Gordon Dona, from Minnesota, had just retreived his nocal from the cargo bay. Charlie Higgins intercepted me before I got the table to record flight data.

“Bruce, I can’t see your plane. I think it’s at the roof and the colors blend.” What!!? There, in dim shadows, a natural grey Esaki moth was bouncing off the ceiling at 110 feet, among 20-foot girders and conduit, above the lights and vents. Then it dissapeared. We stopped the clock at 1:42. At their table, Jo quipped “I promised you a long flight. But not like this.”

My report to Keith Varnau included column number and section. The crane crew would pick up the A6 later. But Sunday night was after the contest and I had a plane that would take a smaller section motor, and more turns, which meant more duration, and…. And…I needed it to win!

The image of one of his hundreds of kids out on the floor loomed in my mind. Keith’s expression reflected my own realization. “Write it down. Here’s some paper. Don’t worry. We’ll get it.” I was embarrassed. By the time I reached my table I was laughing. He’d seen it before. The excited panic. Many, many times.

Mine was to be the only plane in two days to get stuck in the girders. There was even an award for that. He got to keep it for a momento and teaching aide for his construction classes. A6-5B could never win a bigger prize. The next one will be an improvement. They always are, for beginners.

Hangar Days is for young people and not so young children. But no way around the matter, I feel young while I fly there and know I will close my table at the end of the event having drunk from the Fountain of Youth and learned more from the experience.

Good flying. hbm

Ranking Contest F1D

1st. and 2nd. June 2002 CargoLifter Hangar Brand – Briesen

A total of 9 F1D pilots used the opportunity to train in the best indoor flying hall, and to qualify for the national F1D-team 2003. Six German "ranking contest" participants were joined by one F1D-novice (Uwe Bundesen) and 2 Hungarians. Additionally, there were 3 participants who only flew F1L, F1M and F1M-L **(Einlagewettbewerb).** Thomas Weimer (freeflight reporter Brandenburg) and the indoor reporter of the freeflight committee, Gerhard Wöbbeking, were contest directors. Access to the CargoLifter hangar on Saturday as well as on Sunday was from 8 a.m. to 8 p.m.

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 has reduced the production activity, but the hall manager will keep his area of responsibility. He confirmed explicitly the dates of 14th and 15th September 2002 for the German Open Nationals. Because indoor fliers never misused the company's trust in them, the CargoLifter Teams abandoned protection with barriers of installations and airships, or by having colleagues guard the scene during the weekend.

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 high flying models. But no F1D got stuck or was damaged. The hall space that remained was nevertheless much bigger than in any other airship hangar in the world.

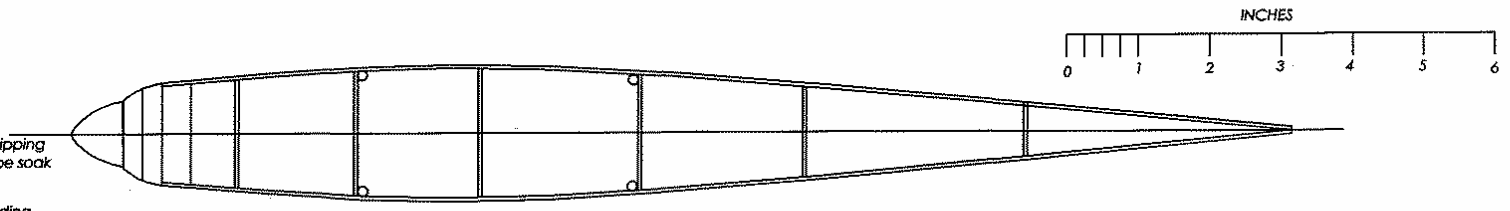
Again, good weather outside provided a good indoor climate. Temperatures inside and out were approximately the same. An unpleasant draft in the morning probably originated from the nocturnal cold, at the Northern side of the hangar however a gusty wind blew. Both days, small drafts remained - they correlated 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 in to the hall. Remarkable was the spectacular flight of Dezso Orsovai's F1D model around a small freight balloon high around, encircling it without ever touching it.

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 flight time, 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 in Romania. Marian Krause, their team manager, became 4th. best German. Both Hungarian fliers outflew their national records considerably. 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.

Editor's Note: Many thanks to Gert Brendel of the Netherlands for translating this from German. Several words in boldface do not have an English equivalent. The title, Rangliste translates to Ranking Contest, similar to time trials to establish team standings in America. Einlagewettbewerb is made up of two words, 'payment' and 'contest', and is most likely where one pays on the spot to participate. Enough people can thus fly an event even if it wasn't arranged. By consolidated is meant that Peter already had the record, but now bettered it.

The reference to the reduction of the Cargolifter company is worth commenting on. The hangar and the single construction crane balloon were built on an abandoned Russian fighter base entirely on speculation. It was hoped that advanced orders for Cargolifter blimps would pay for continued growth and expansion to other countries like the U.S.A. This has not happened, and the company's future is in doubt. Gert has also provided us with more details on this. Read on.

1. Model is covered with Japanese tissue
2. Balsa is 6# to 8# wood unless noted
3. Prop blades are cut from large drinking cup
4. Spinner is turned from balsa on .065 mandril
5. Landing gear wire is .015
6. All up weight is 16-24 grams
7. Model is designed to use 1/8" rubber without stripping
8. One coat nitrate dope on fuse tissue to stop tube soak
9. Circle to the right using thrustline adjustments
10. Prop pitch 11" for heavy model, 13" for light
11. Wing may be double or single covered depending on the airframe weight. Keep it light.



model is designed to allow motor changes without CG shift ruining trim.

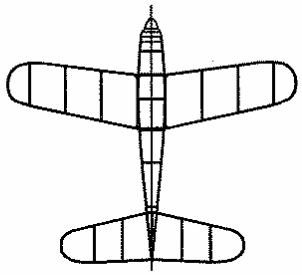
Paper tubes used to mount wing
Make tubes with 6+ layers of tissue for strength

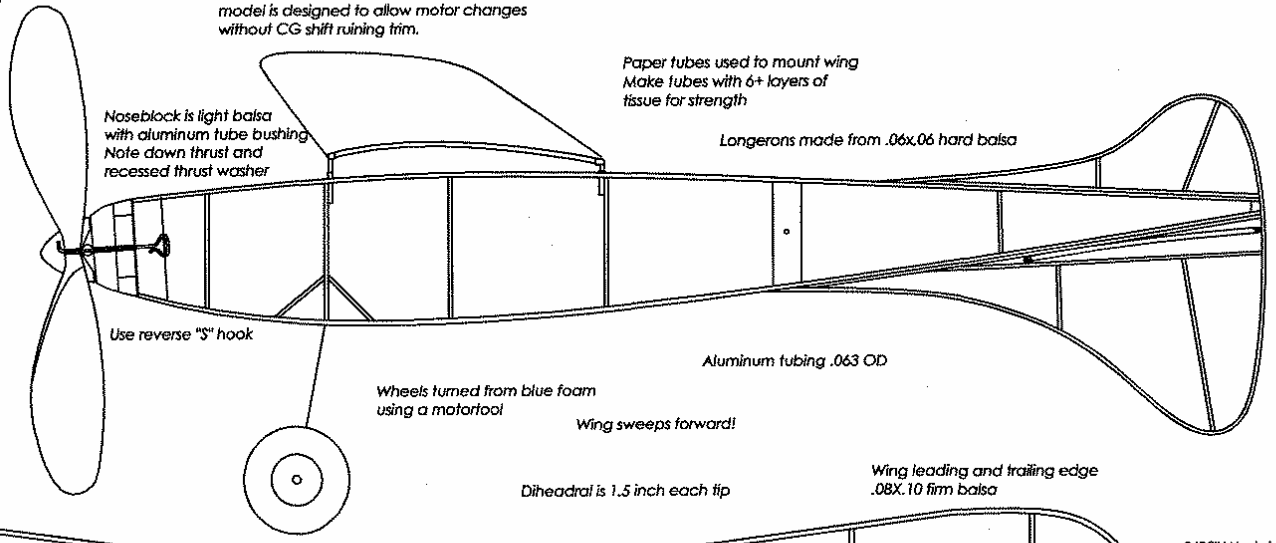
Noseblock is light balsa with aluminum tube bushing
Note down thrust and recessed thrust washer

Longerons made from .06x.06 hard balsa

Stab slot uncovered to allow pitch adjustment

TOP VIEW





Fin outline is laminated from three .02X.07 balsa strips

Use reverse "S" hook

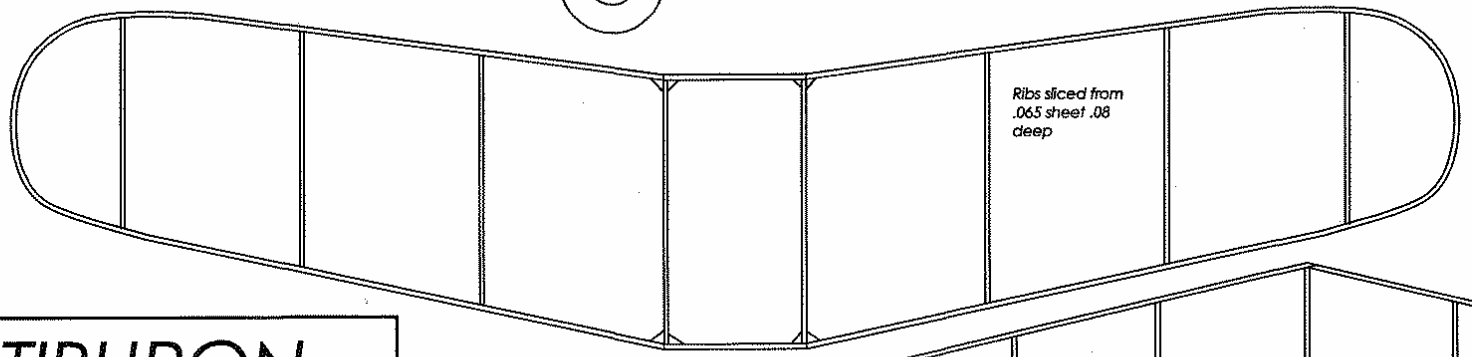
Aluminum tubing .063 OD

Wheels turned from blue foam using a motortool

Wing sweeps forward!

Diheadral is 1.5 inch each tip

Wing leading and trailing edge .08X.10 firm balsa

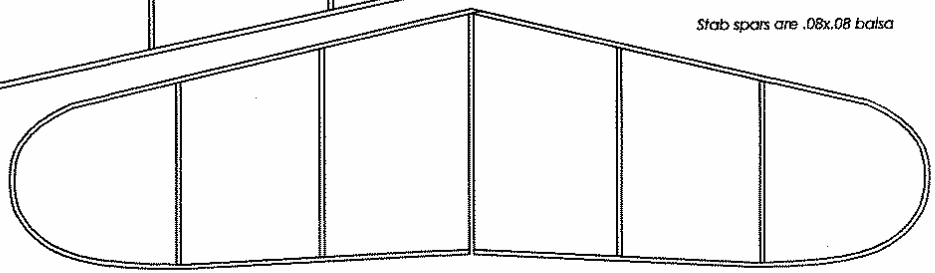


3/32" Wash-in under right wingtip

Ribs sliced from .065 sheet .08 deep

Stab ribs sliced from .065 sheet balsa .08 deep
Stab sweeps back!

Stab spars are .08x.08 balsa



TIBURON

Indoor sport model

Designed and drawn by Steve Gardner

model is a good scale training model teaching prop, wheel, and laminated outline making as well as trimming unusual configurations.

Balsa Testing revisited
by John Taylor, originally printed in the February 1995 Norwind News

In the April 1994 Newsletter I described a method for testing balsa to established quality in terms of stiffness/weight. At that time I suggested that standard 36"x 3" sheets should be cut into four 18"x 1-1/2" in order to localize any variations in density and stiffness. I have subsequently realized that variations that can exist within sheets of this size are still sufficient to invalidate the results. I have therefore completely revised my testing methods using much smaller specimens.

Having experimented with various sizes l have standardised on a nominal size of 12"x .125"x .062". I usually cut nine test pieces from a standard sheet; three from each edge and three from the centre line.
The rig I use is shown in the sketch. The dimensions are not critical unless you choose to use the formulae I use to establish "Stiffness Criterion". You should aim at deflections of 15-20mm. and you will need loads of 1, 2, 4 & 8gm. to cover the most flexible soft wood and the most rigid hard wood. If you use an excessive load on very flexible wood you may find that the specimen becomes torsionally unstable and buckles with a twisting motion. This is more likely if you make the rig longer than shown in the sketch.
Stiffness Criterion

In my previous note the output from the test was "Young's Modulus" E. This was plotted on a graph against density in pounds per cubic foot and an average line drawn. Wood was selected on the basis that its 'E' was above the line. I realized that balsa defined by this average line had 'E' proportional to $(\text{density})^2$. This means that a simple formula can be developed which calculates a "Stiffness Criterion" without plotting a graph.

\The formula is as follows:
"Stiffness Criterion" = $(16 \times b \times W)/(d \times w^2 \times y)$
where:- b = width of specimen in inches
d = depth of specimen in inches
W = load in grams
w = weight of specimen in grams
y = deflection in millimetres
Please excuse the mixed units??

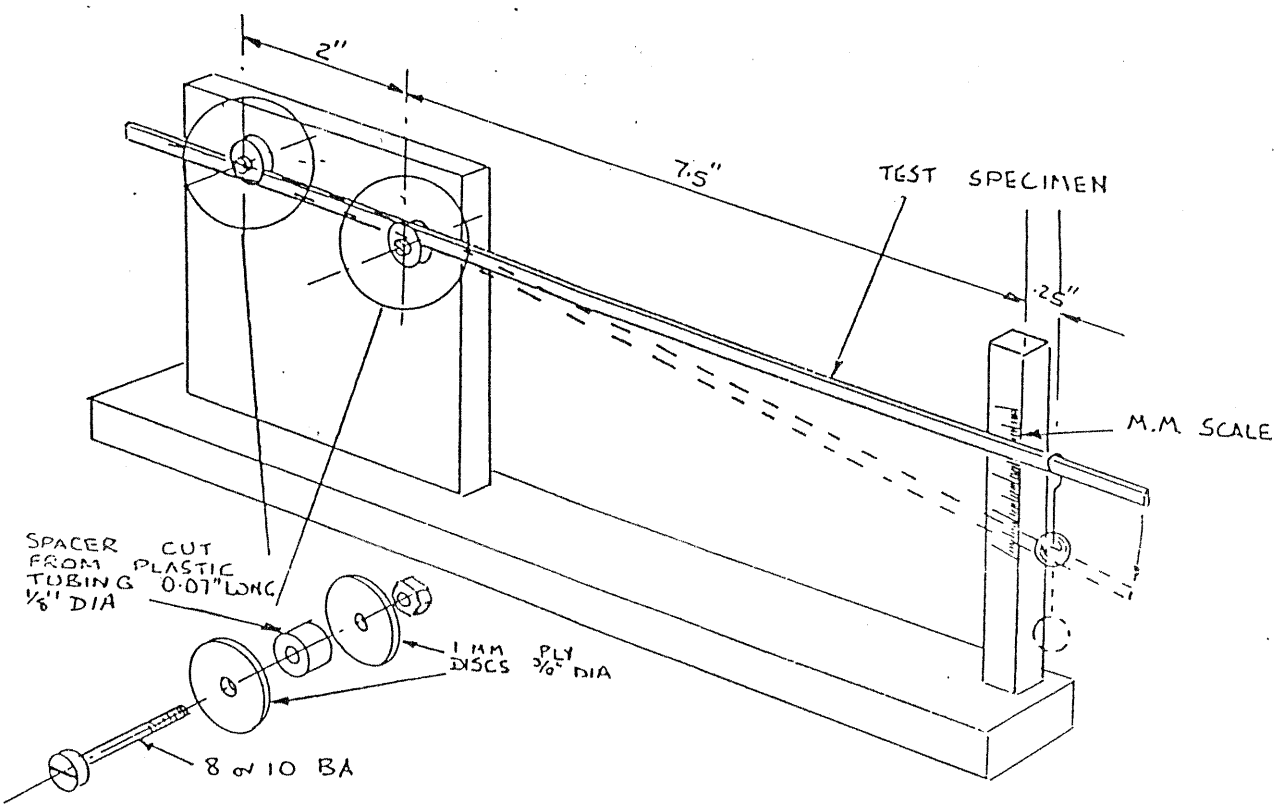
The number 16 is merely a constant chosen so that reasonable good quality wood gives a criterion of 100. The worst wood I have tested produced 48 and the best produced 123. Note this formula only applies for 12" long specimens tested on a rig with the dimensions shown.

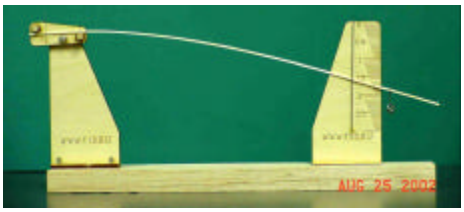
We can also see that:- Density = $(0.317 \times w)/(d \times b)$ lbs / cub ft.

Again for 12" long specimens with b and d measured with a micrometer.
example:- Specimen dimensions:- Length 12"
Width 0.062"
depth 0.125"
Specimen weight 0.14gm.
Applied load 4gm.
Deflection 16mm.
"Stiffness Criterion" = $(16 \times 0.062 \times 4)/(0.125 \times 0.14^2 \times 16) = 101$
Density = $(0.317 \times 0.14)/(0.062 \times .125) = 5.7$ lb/cub ft.
Other Specimen Sizes:
Specimens down to .062"sq. could be tested on the rig as drawn, however, it would be necessary to place a spacer under the support boss remote from the loaded and to ensure that the reading does not go off the scale.

Furthermore, replacing the 0.07" long support spacers by others 0.26" long it would be feasible to test a typical motor stick say, 12"x 0.25"x 0.125" in lateral bending. A load of around 16gm. would be required. It would not be possible to test for longitudinal bending since the deflections would be too small over such a short length.

Designing for minimum weight
Consider two nominal motor sticks each 12"x 0.25"x 0.125"
Stick 'A' 4 lb/cub ft. "Stiffness criterion" 100
Stick 'B' 6 lb/cub ft. "Stiffness Criterion" 120
Stick 'A' weight = 0.394gm., Deflection under 16gm. load = 33mm.
Stick 'B' weight = 0.591gm., Deflection under 16gm, load = 12mm,
If we now 'reduce stick 'B' from 0.25"x 0.125" to 0.204"x 0.102", stick 'B' now weighs 0.394gm. - ie. equal to stick 'A', however, the deflection of the slimmed stick under a 16gm. load is now 27.5mm. - ie. stiffer than stick 'A' at the same weight.
This shows that it is more important to choose wood with a high "Stiffness criterion rather than minimum density.





Product Reviews
By Marty Sasaki

www.F1D.biz Prop Pitch Guage.

My prop pitch guage consisted of some pieces of balsa (too heavy to use for models) held together with a bit of glue and tape. I used a Harlan prop bearing to hold the prop. It made threading the prop onto the guage a pain and I would often use the guage before bending the hook.

The jig was a pain to use, was extremely fragile, and non-portable, but it worked. I couldn't see spending money for something that I could easily make and I was too lazy to make a good guage. Besides, I really didn't like the design of the one inexpensive guage that I knew about.

Tim Goldstein at www.F1D.biz changed that.

Tim has an inexpensive prop pitch guage "kit". Calling it a kit is a little silly though. Assembly consists of finishing the laser cut plywood (a little sanding and applying a clear finish, entirely optional), and screwing the prop shaft holder to one of the plywood uprights and screwing the pointer/indicator to it's upright. The chart that maps the angle of the indicator to the prop pitch is applied to the plastic base.

Ignoring the time it took for the finish to dry, everything was ready to go in 5 minutes. The only tricky thing about this is having a 1/16 inch hex head wrench to tighten the screws.

The plastic base has holes drilled in it which match pins on the uprights. It's a friction fit which makes disassembly and assembly easy. There are three sets of holes so you can set the distance between the prop holder and the indicator at two, four, and six inches.

The guage works really well. The prop shaft holder is quick and easy to use and holds the prop well. The angle of the indicator is easy to set and easy to read. Once you have the angle you look at the chart

for the pitch.

A pitch guage is a tool which is easy to forget about, but being able to set the prop pitch is an important part of maximizing performance of duration models. Tim's pitch guage is a quality tool. Highly recommended.

Ray Harlan's Double Spring Scale

I like simple things that work. This inexpensive spring scale works very well.

First the basics. You hang the item you want to weigh on the end of a wire. The other end of the wire is anchored. The wire bends and you read off the weight from a printed scale. Ray's spring scale is

actually two scales, one goes from 0 to 10 grams and the other goes from 0 to 1 gram.

The problem with most scales of this type is their accuracy. Calibrating this type of scale is usually pretty painful. You start with a set of calibrating weights, hang them in various combinations

on the wire and mark how far the wire bends down.

It's not possible to have a pre-printed scale because the amount the wire bends is very sensitive to it's diameter. Very small changes in diameter will result in noticeable changes in how much the wire will

bend.

Ray has a very clever method to calibrate the scale. The scale comes with two calibration weights, one for each side of the scale, and a set of printed labels. At first glance the labels all look the same, but they are each sligthtly different.

To calibrate you carefully mark the zero point, then you put on the appropriate weight and place a mark there. You then find the label which exactly matches the two marks you have made and you attach this label to the scale.

The scale works very well and could be used for making penny planes or science olympiad models. I use it to make up rubber motors for F1M and F1D (I use the "official" scale to verify the weight before flying).

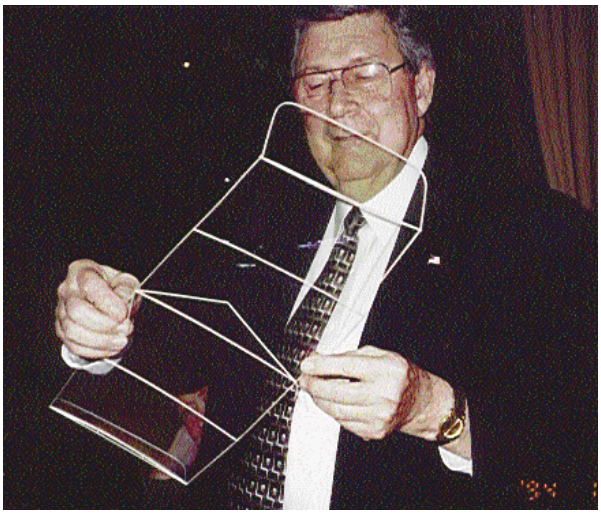
MAKING CURVED PARTS THE EASY WAY
By "Indoorsman" Joe Kehr (The Joker)

One of the more frustrating building requirements of indoor modeling is making curved wing tips, sabilizers and rudders. When returning to modeling some five or six years ago, I read several articles coving the subject. At that time there seemed to be a lack of information available on curved construction techniques, and what I could find was not very explicit in content. After struggling with suggested carboard templates, tape, pins and a burned up microwave, I decided there must be a better way. This article is about my solution. (It woks for me.)

Some of most esthetically beautiful film covered models and the majority of scale models have curved wing tips, stabilizers and rudders. Technically I'm told curved tips have something to do with aerodynamics that fool the model into reacting as though it has larger flying surfaces than it does. Of course you know that a curved wing tip is stronger (and lighter –ed) than a square one (unless your name is Bernard Hunt.) Well, I found out the hard way that cardboard templates get wet, warped and mushy, tape gets sticky and messy when exposed to heat, pins crease the wood causing a curve to become a hexagon, and a microwave will set a balsa template on fire. (All the rationale you can muster will fail to convince your wife or mumzie that you are <u>not</u> stupid.) There is a better way. I have developed a method that is almost poainless and even fun when you find out how easy it can really be to make curved outlines.

First; I study the plans and map out all of the curved parts and figure in overkill, so that when the wood (being curved) relaxes after you remove it from the form will come back to the plan shape. This is really guess work because of various wood densities and cellular differences. Second; I cut a $^{3}/_{8}$ or ¼" rectangular plywood base about 1 inch larger than the curved outline requires. Third; I use $^{1}/_{8}$, $^{3}/_{16}$ or ¼" balsa sheet to cut the calculated overkill curve size required for the part being formed. It is important to eliminate any sharp creases along the edge, as this will tend to break the surface of the spar being formed. They can't be salvaged and should be tossed. I use my disc/belt sander to get as smooth, 90 degree edge. This is the surface on which you form your curved parts.

Once shaped, the sheet balsa form is glued to the plywood base. Only use cellulose glue or one that will not soften on contact with water. (CA will work) Now we are coming to the most important part…WEDGES. You cut two wedge shapes as in Figure 1, that's two for each end of the curve. One is glued to the base in a position that will tighten on the spar when pulled. This is marked as A-1. Mark its wedge as A-2. Repeat on the other end and label as B-1. Mark the wedge as B-2. Glue B-1 to the base so that B-2 tightens against the pull of the spar being baked. Now you are ready to test your skill.



I generally let the wood soak overnight in a solution of water treated with a softener such as granular diswasher soap. I keep this mixture in a plastic milk carton that's handy in the workshop. My soak tank is nothing more than two 1" x 1" x 30" pieces of wood glued together with a 1" x 2" x 2" spacer at each end. Using aluminum foil I form a tank inside the slot. When you've finished your project, the water is easily diposed of. Dumping it on the floor is not cool.

Now, take the soaked spars from your clever tank – insert them in the slot formed by A-1. Move the wedge, A-2 into place and gently tighten. (It is a good idea to make your form longer than you need because the wedge will sometimes flatten the end.) Mark the spars (ala Larry Coslick) so that you don't inadvertently twist it as you pull it into shape. This also helps to keep track of which surface you want on the outside, top or bottom. Which brings up another, rather important, sometimes controversial subject which could lead to fist fights and brawling.

Generally speaking, I pull my spars around the form. This is easily done by turning the plywood base with one hand and applying a gentle pull with the other. If you hesitate, cough or giggle, you'll probably induce

a break point in the spar and it won't be useable. Some indoorsmen push the spar around the form and thus eliminate any pulling problems.

Set the wedge B-2 to hold your spars in place while they are baking in the oven, not your microwave. Check and make sure the spar has not crawled up on the form. If it has, relax the tension slightly and use a ¼" x 1/16" x 1" stick to urge them in place. (fingernails are only used to scratch your head.) Set the oven temperature for 215° and bake for 15 to 20 minutes.

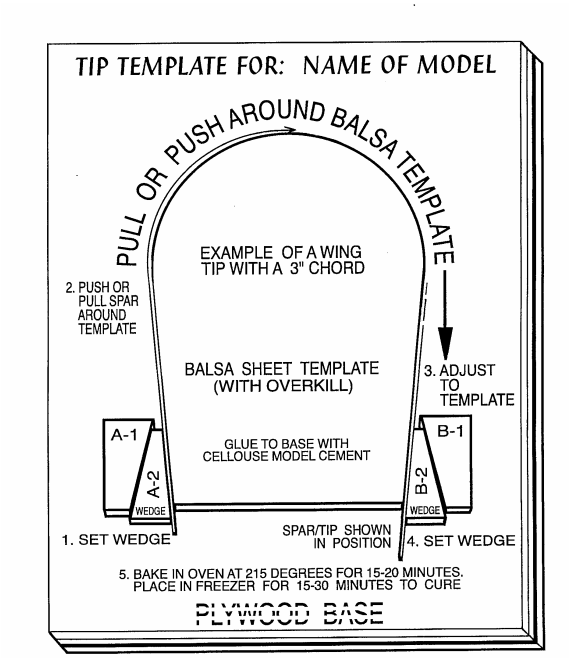


FIG 1. MAKING CURVED PARTS THE EASY WAY

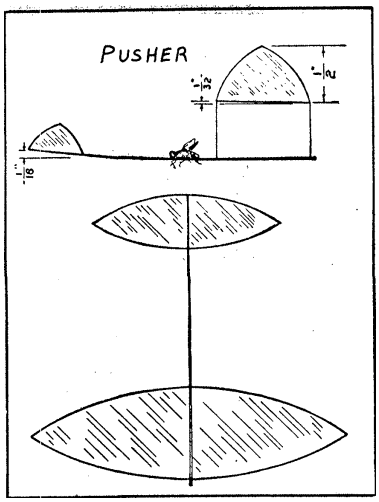
It is a good idea to make two spars at a time so you'll have a matched set from the same piece of balsa. Pay attention to your marks on the wood so you'll get the grain and size the same. Don't use a pen with water soluble ink. Bad!

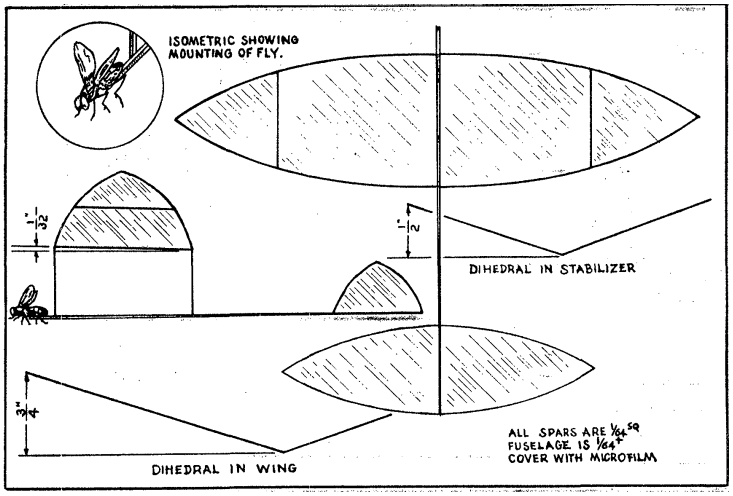
After baking I place the whole shebang in the freezer to cool and cure. In 20 or 30 minutes they'll come out the same as if dumped overnight on your workbench, Gently remove the wedges. If you find them sticking to the spar(s) carefully move them up and down and they'll separate. Making several sets at a time will cover future breakage, and since you're having so much fun, you'll have a big time doing it (I have hundreds.) When you cut your wood to a specific size, they look a little larger after being soaked and baked, because they are. Don't fret, they swell a little. Trim to plan size and you're in business. Use a pen to label the form, and be sure to include the wedges when you file it away. Now go find your wife or mumzie and show them how smart you are with all your perfectly formed wings, stabs and rudders.

Hey! Is something burning?

Fly Powered Models from an early INAV

At least twice in past history (so I'm told), M.A.N. has had articles on microfilm models which were powered by flies. Apparently any kind of fly is satisfactory, as long as it is an active specimen. The drawings shown here have been reproduced from the August 1940 M.A.N., and the article was "Models On The Fly" by William B. Schwab and Joe Elgin. Model construction is conventional and the author suggests that test glides be made with an inactive fly or a 1/8" cube of balsa as weight. The flies are glued in place, but it probably would be a good idea to limit the amount of glue. I have noted that some modern thinners and solvents are effective insecticides when in contact with the varmint and glue might be too. Thanks to Edgar Seay for the loan of the magazine.





Greetings all.

I can't help but add some personal comments to recent stuff about changes to the F1D rules. When contemplating a return to duration flying after a 14-year lapse, I was initially very skeptical about the rule changes which I thought would de-stroy the class completely. I went to Cardington, saw the first UK models built to the new specs and decided to have a go anyway. After 2 years of building and flying to the new rules I have changed my mind for a variety of reasons.

The changes have revitalized the class, certainly in the UK and also from recent observations, in some other parts of Europe. Indoor duration modellers and others from different areas of our sport are not so daunted by the prospect of at least having a go at F1D. the class is seen as being more accessible.

These models are easier to build and handle than 65 cm aeroplanes. Wood selection is not so critical for most parts and the advent of Y2K2 and the availability of boron make covering/assembly/handling/repairing and flying far, far easier. I don't understand why some find it difficult to use Y2K2 - it is so much more durable than microfilm and doesn't need such lengthy and arcane strategies to produce good sheets - you just unroll it, stick it to the covering frame and get on with it. On Saturday, I hung an unbraced F1D across a girder, right at the top of the shed and eventually managed to balloon it down. The retrieval and subsequent aerobatics would have shredded an old braced, microfilm covered model but with 2 drops of cyano and a small patch, the model was ready to fly again half an hour later. Only the flexibility of the flying surfaces and toughness of the covering made this possible. Bracing microfilm models was often cited as one of the most difficult of skills and one that put many people off.

The limit of 0.6 grams of rubber has taken out some of the guesswork regarding rubber sizes. Everyone has the same amount of rubber and it is hardly arduous to process motors, you just hang them on a scale or stick them in a pan! This has changed the way we use a motor and the energy it contains. We now wind harder and back off less, attempting to get everything we can from a piece of rubber. VP props or other similar devicesare necessary for most sites, but they were before anyway and the use of these devices has become commonplace in recent years, not just in F1D, but in other classes too. VP props and smaller models allow meaningful competitions in low ceiling halls.

The rubber limit has also reduced the flight times and this must surely be a sensible thing. The availability of really high sites is diminishing, both in the USA and elsewhere. As I understand it (and please correct me if I'm wrong,) the only truly high American venue that is used regularly is Lakehurst. Yes, in the UK we do still have Cardington and the salt mine is still in use in Eastern Europe. The German 'Cargo lifter' hanger will host a meeting in September and hopefully the Eurochamps in 2003, but as the company is in financial trouble, this may be in doubt. If the rubber weight restriction were removed, the times would soon be back where they were a few years ago and in high sites, models would spend much longer at high altitude and therefore be in danger of hanging up. High altitude steering

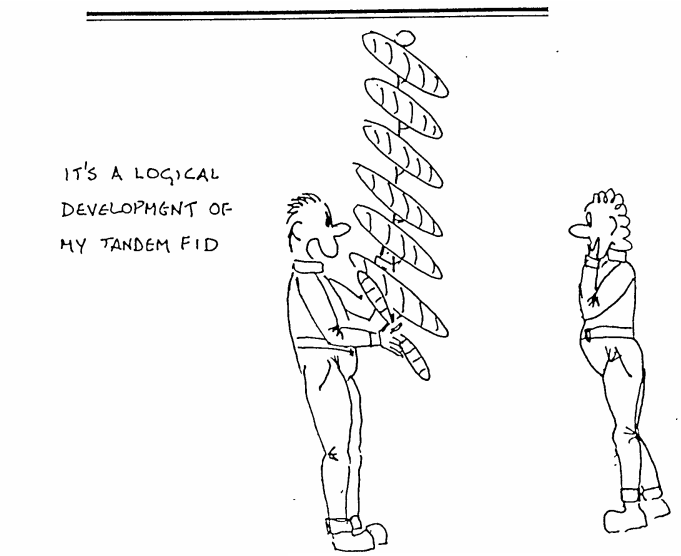
ability would become more important, but there would be little opportunity to practice it. Even with only 0.6 grams of rubber, it probably won't be too many years before 40 minutes is reached.

I believe that the new rules should be seen in totality as a challenge, not a hindrance. Changing the rules has meant that new strategies and techniques are necessary for top performance. In the UK (and I'm sure, elsewhere,) a lot of innovative thought and experimentation is taking place to make the most of the opportunities that the rule changes have given.

I seem to have written a book. Oh well, I'll wait for the attempts to shoot

everything I've said down in flames.

Nick Aikman



(reprinted from Norwind News)

GREAT INDOOR SITES

PART I

West Baden Springs, Indiana

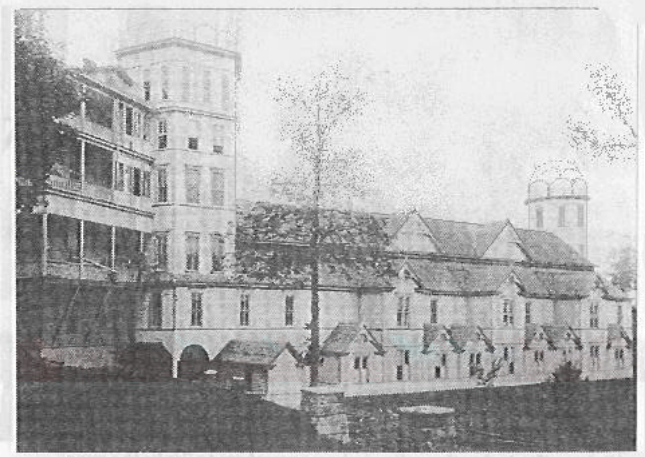
By Carl Bakay

This is the first in a series of articles that will relate the history of the best indoor flying sites in the world. We start off with a tale of Orange County, Indiana. The weekend of August 3-4 was my first ever foray into this remote resort area of southern Indiana. It came about largely from a comment by Walt Van Gorder, who told me, “Come and fly, or don’t fly, but don’t miss the experience.” He was right. It was quite a weekend. You see, going to the resort town of West Baden Springs is really a two-for-the-price-of-one deal. Only one mile south is the impressive French Lick Hotel, spa and resort, and the two are connected in history as well as geography.

For thousands of years before the pioneers came, herds of buffalo made a yearly migration from the western plains to the falls of Ohio. The salt deposits from the evaporating mineral springs made south Indiana a natural stopping point for these animals, and another treat was wallowing in the cool, muddy marshes that dotted the area. Indians followed the buffalo, then French trappers came for the furs, and were the first to write of the area’s existence, hence the name “French Lick”. This natural trail made by the buffalo was a perfect route for the wagon trains to follow on their trek west, and today it is paved Route 150 called the Buffalo Trace.

One of the early settlers in Orange County, Indiana was Dr. William Bowles. He saw economic potential in the area, bought a number of acres for $1.25 each, and built the French Lick House in 1845. In 1846 we declared war on Mexico, and Dr. Bowles was quick to join up, leasing the hotel to a certain John Lane during his absence. Returning from the war, William and John had words, and a rivalry sprang up that would define the area for generations to come. John Lane moved a mile down the creek, where there were also springs, and established his own Mile Lick Inn in 1852. Feeling that this name didn’t have the right ring to it, he changed it to West Baden, after the already famous springs in Weisbaden, Germany. As the rest of the century progressed, William and John kept trying to outdo each other in hotel size and attractions, and to lure more tourists to “take the waters” during the spring and summer “watering season”. Indiana winters were bitter, and the hotels were not heated.

The ownership of the property passed through the hands of a number of partners in the late 1800’s, and a Col. Lee Sinclair emerged as the sole stockholder. Under Col. Sinclair’s guidance, the hotel flourished with the addition of an opera house, gymnasium, casino, swimming pool, and a bottling works to sell the spring water across the land. He called it Sprudel Water, again taking the German name for spring. Attendance really grew with the extension of a railroad to the valley in 1887, bringing up to 14 trains a day the year round. Then in June of 1901, a fire started at 1 am in the kitchen of the West Baden Springs hotel, and quickly spread throughout the all-wood structure, burning the resort to the ground within an hour. There were no injuries or loss of life, but the hotel was a total loss.



The orginal hotel after Sinclair began improvements

Only ashes remain after the great 1901 fire

The French Lick Springs Hotel at this time was owned by a Thomas J. Taggert, who seized upon the Colonel's misfortune to announce a major expansion at *his* resort. But rather than give up and retire at the age of seventy, Mr. Sinclair released to the press his intention to construct a new, larger, and completely fireproof hotel. Not only that, but it was to be completed within a year of the date of the fire. You see, these two gentlemen were as fierce rivals as William Bowles and John Lane a half century earlier, and if the Colonel could pull this off, it would be the architectural coup of the century.

There was nothing impossible about his plans for an all-brick, six storey hotel, but Sinclair also envisioned a 200 foot domed atrium in the center, unsupported by pillars. A steady stream of architects told the old man what a visionary he was and how pleased they were to meet with him, but that his demands were ridiculous - such a structure could not be built. Then he found a young, unproven architect from West Virginia who agreed to the challenge. This young fellow was named Harrison Albright, and he wisely subcontracted a bridge engineer to design a 200-foot steel span, which for a bridge builder is a piece of cake. The finished dome would consist of six bridges arranged in a circle. To allow for the extreme temperature changes of the Indiana seasons, which could be fifty degrees a day, the trusses would not be fastened to columns, but sit on a series of rollers to allow movement.

The building was completed in a little over 270 days. It was an octahedron with six floors of inside rooms facing the perfect circle of the atrium in the center. It had 708 guest rooms (compared to Taggert's measly 610 rooms at French Lick), each of which had its own bath, hot and cold running water, steam heat and Edison electric lights. The finished hotel opened to the public on September 1, 1902. It was called "the Eighth Wonder of the World" and the guest list read like a Who's Who of the rich and famous. The prosperous times lasted all through the Roaring Twenties, up until the day of the stock market crash of 1929. The day after that, with family fortunes wiped out overnight, the hotel stood empty. To save it from decay, it was sold to the Jesuits in 1934 for one dollar for use as a seminary. They stayed for 30 years, until the cost of maintaining the building, plus falling enrollment forced them to close the seminary in 1964.

Fortunately for the modeling community, the next tenant was the Northwood Institute, a private college based in Midland, Michigan. They offered degrees in business, hotel management, and the culinary arts, among other things. The first indoor meet was held in the atrium in 1976, thanks to Buckey Servaites, the main contact with the Institute, and Doc Martin who did all the paperwork and publicity. West Baden proved to be an excellent Cat. III flying site, just about four to six inches shy of Category IV. Not only was the flying a great success, but the culinary arts students provided an evening gourmet banquet in the dining hall, and even insisted on taking leftovers to determined flyers still in the atrium.

A Hand-Colored Postcard Shows the Resort in It's Heyday

Off the Beaten Path, But Centrally Located

Our luck held in keeping this site for eight years. They proved to be glory days for the indoor hobby, recovering from previous years at the Lake Charles Civic Center in Lousiana. The atrium saw the likes of Jim Richmond and Bob Randolph, Erv Rodemsky, Stan Chilton, Wally Miller, Roy White, and on and on. They will tell you it was, and still is, some of "the best air" you will ever find. The lavish banquet turned out to be a one time deal, but there was still a lot the area had to offer. The steam train still ran for visitors on a ten-mile track, French Lick still offered a host of spa amenities and a world-class restaurant. Then there were antique markets in Paoli, and German beer festivals in nearby Jasper. Just walking around the grounds and taking pictures would involve a half day at the least.

But the Northwood Institute, like the Jesuits before them, could not afford the staggering cost of upkeep, and closed their doors at the end of 1983. This turned out to be good for the Nationals in the long run, because after one year each in Detroit, Niagara Falls, and Lake Charles, the organizers secured the wonderful East Tennessee State Mini Dome in Johnson City in 1987, where we still fly the Nationals today. However, it was a sad time for the West Baden resort, which would sit vacant for ten years of neglect. Conditions became so bad that a hundred foot section of the outer wall collapsed in a pile of rubble from freezing water and a weak foundation. Structural analysis of the cement slab found sections that were hastily poured on poorly compacted soil, with compressive strengths less than 1500 psi. One engineer commented, "You wouldn't pour a sidewalk today with less than 3000 psi."

In 1996 the Historic Landmarks Foundation bought the building for $250,000, and with additional financial backing from preservationists William and Gayle Cook, began the long process of restoration. Photos in this issue and #104 attest to their success. While the inner atrium and outer walls were still cluttered with scaffolding and artisans, and the grounds covered with volunteers replanting the gardens, Walt Van Gorder met with William and Gayle, and son Carl, and proceeded to do a flying demonstration in the crowded atrium. He later met with Tina Conners and her assistant, Andrea Hill of the Foundation to see about securing the site again. The deal was struck, and on August 11 to 12, 2001, we were invited to put on an AMA sanctioned Fly Me To The Moon. Dave Thomson was the CD. It was a grand homecoming, especially for veterans like Walt and others who began indoor in the 1970's, and perfected their craft over the years in that magical space.

We were invited back for August 3 to 4 this year, and I was fortunate enough to be there. About 25 contestants set 14 records or more, and even yours truly broke ten minutes in F1L for the first time. Maybe you remember the day you did the same thing. As far as we know, there will be a meet next year. I hope there will be many more.

UPCOMING CONTEST CALENDAR

Fifth Annual Empier State Indoor Championship, Sept 21-22, 2002. Contest site is the Ralph C. Wilson Jr. Fieldhouse, near Orchard Park, New York. Co-sponsored by WNYFFS and FAC.
Saturday: F1D, EZB, LPP, FAC Dime Scale, No-Cal Scale, combined Thompson Greve Race.
Sunday: Int. Stick, MiniStick, Open PP, Cat Glider, Electric Endurance, FAC Scale, Peanut, Golden Age, Power scale, WWII Combat, Modern Civil Production Mass Launch.
CD: Vern Thomas, 970 Clarkson-Parma Town Line Road, Hilton, NY 14468. (585) 392-5164 or e-mail vthomas@rochester.rr.com.

Wichita BEAMS 3rd Annual Free-Flight Championship Wichita, KS
October 19, 2002 Awards will be given for first and second place.
EZB; Limited Pennyplane; F1D;5gm ROG; OT Wakefield No-Cal; FAC No-Cal Scale, 7gm Bostonian; Peanut Scale
CD: Lauren Rezac
lauren.j.rezac@boeing.com
(316)526-5304

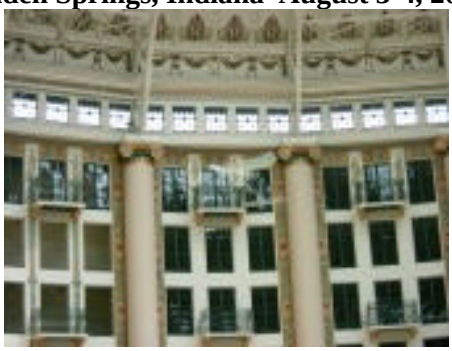
International Contest Calendar

Thanks to Gert Brendel, Indoor Flight International

What & When	Where	Info
Coppa Citta dio Anzio 10-11.08.2002	Italy	F1D Contact P.Vittori at 0039/06558 4817
Cardington Indoor Contest 11.8.2002	Cardington, UK	F1L & No-Cal
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
Indoor 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
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

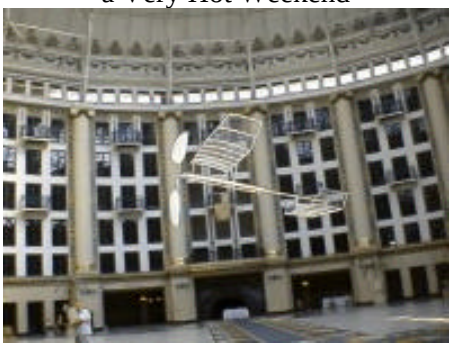
Fly Me To The Moon
West Baden Springs, Indiana August 3-4, 2002

West Baden from the Front Lawn on a Very Hot Weekend

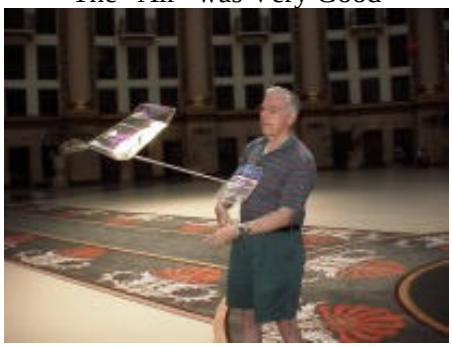


Can You See, The F1D? The "Air" was Very Good

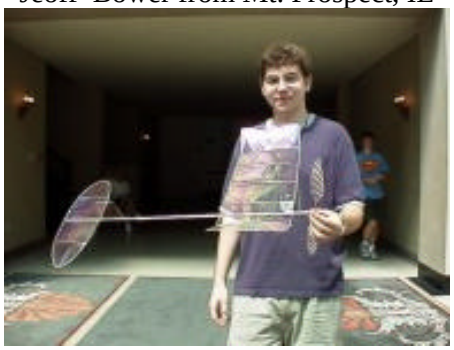
Aeronautical Engineering Student Jeoff Bower from Mt. Prospect, IL



Penny Plane was the Popular Event



Jim Richmond Launches for a Record



Ben Saks Looks Happy with His F1D

A Partial List of Records Set

Walt Van Gorder

I Stayed in an Ideal Bed & Breakfast

The Fountains and Grounds Have Been Restored by Volunteers

Scale was in Evidence on Saturday

KIBBIE DOME ANNUAL
MOSCOW, IDAHO JULY 27-30, 2002
Report by John Lenderman

We arrived at Moscow the day before the competition began, and upon entering the dome, we found workers trying to take down the plastic sheets covering the scoreboard in the center of the dome. The sheets hung down more than halfway to the floor, and would present a hazard to any model in that area. The scoreboard was supposed to be higher up towards the roof and our organizer and contest director, Andrew Tagliafico, was working diligently to have it done properly. It was later in the afternoon that it was finally corrected, but the plastic sheets still hung down ninety feet from the floor. I observed several models that hit the plastic near the ceiling, and they just slid down to the bottom of the sheet and fell off, sometimes recovering, and continuing to fly, but losing considerable time off the flight. The two nets across the top of the building appeared to be higher this year, but still managed to snag quite a few of the models. Fortunately the net was able to be lowered occasionally, and the models retrieved mostly intact.

The outer roof of the dome had been recovered in the past year, and this apparently alleviated the jet stream which had plagued us in the past. We had gusty winds outside for several days, and this resulted in some wandering flights, but nothing like the jet stream that took you from one end of the building to the other during the flight. Conditions during the flying times were varied, with some dead spots, and then a period of buoyant air that lasted several hours.

Visiting this year for the first time was a group of flyers from Kansas: Gary Hodson , Emil Schutzel, and Tem Johnson, They were the busiest guys I had ever seen, and all during the competition they were testing, cutting rubber, stretching rubber motors, and occasionally doing some repairs. This dedication really paid off, as Gary set a site record in the A-6 event of 10:07, which I believe is the first over 10 minute flight in that event. This group was quite friendly, and willingly shared any information that was asked of them. Stan Chilton, of Wichita, Kansas, also set a site record in the Mini-stick event. His flight of 13:14 was a scary one, with the model being very close to the ceiling a good part of the flight, and drifted a bit to the side. Stan showed us his winder, which had an enclosed attachment of electronics and a nine volt battery, that registered the turns on a reader next to his torque meter. Quite ingenious.

There were several new modelers at the dome, and all were impressed with the site. John Lovins, of Denver, came with his father, who is not a modeler, but came to support John, and appeared to enjoy himself. It was heartening to see the turnout of F1D flyers. There were eleven entries, and all flew very well. Among them were two who were new to the event, and had their models doing well. Chris Borland, who built his F1D in three days, and Bruce McCrory, were new flyers in that event, and I observed them making good flights. Jake Palmer, who was a National Record holder in Limited Pennyplane, had a beautiful model that had great potential, but was not in the top three places.

There was a good turnout of F1L models, and most of the flyers had figured out the secrets to make them fly well. During the meet, the management of the dome had someone up on the top to try and find some of the models which had gone over the tiles and stayed there over the years. There were around fifteen models which were recovered. Some of them in good shape, and others which were damaged. Andrew Tagliafico got his back intact, and began flying it again this year. It was his new design Mini-stick. Wouldn't you know it--he put it right back over the tiles during the last day of flying. We noticed that both Limited Pennyplane and regular Pennyplane entries were down this year. Perhaps one of the reasons was the Dona family not attending, due to the recent passing of Doc Dona., the father and grandfather of that clan.

It was good to see Jim Richmond there, and as usual, he went about his business quietly, putting up two excellent flights, one of which was over 30 minutes. He truly reflects the mark of a champion, with his attention to details, and calling on his past experiences. It was also nice to see Earl Hoffman

and his daughter; Earl had some very good flights, and he shows no signs of slowing down. There was some talk during the flying days, and some suggestions about having this competition for five days instead of four, or having an additional day for a fun fly. Andrew said he would take that into consideration, and perhaps discuss this during the next year. Darryl Stevens brought his two young daughters to the meet, and they behaved quite well. They said they would like to come back again next year. Wally Miller flew into Spokane with his model box, and told of the inspections he went through at the airports. He carries seven or eight models in his box, and it is red in color. At both inspection points, they made him take the lid off the box, and were amazed at what was inside. He had sent his tools ahead to Ed Berray, so they wouldn't have :to go through inspection.

During the competition there were quite a few spectators that wandered in, and you could see from the expression on their faces that it was something they hadn't seen before. Some asked quite a few questions, and the modelers answered them patiently. There was some talk about a possible indoor symposium at the meeting next year at the dome. We 'll have to wait and see what happens. Chris Borland began using the Caesar Banks wing on his Science Olympiad model, and increased his flight times by quite a bit. He stated that wing takes less rubber, and floats quite well. He proved that this year, because he turned in a fantastic flight of 6:25, coming down dead stick from about 20 feet. Chris also used that wing section on his Limited Penny, and EZB models, and experienced improved times in both classes.

The A-6 event has seen a few new developments that help improve flight times. One of the problems that vexed the flyers was the rubber bunching around either the prop shaft or the rear hook. The Kansas group tried rutting small portions of soda straws or shrink tubing on the motor at those critical spots and it seemed to help with that pesky problem. They collect straws from the fast food places, and try them out for size. The dome was open to 8 P.M. each night, and quite a few opted to stay and fly until that time.

The Flying Aces group were there, and did quite a bit of flying. Dave Haught, who is the leader of that group, had a four motored B-17, which was beautifully detailed in such a way that it had the appearance of being real. F1D had eleven entries, and Jim Richmond won with two flights of 25:59 and 31:54. It was real nice to see how well all these competitors flew. They work very well as a group, helping each other, and discussing problems. As mentioned previously, Mini stick was won by Stan Chilton, with an exceptional flight of 13:14. This is the first over 13 minutes in the dome. Andrew Tagliafico was second with a very nice 12:35 on his new design. A-6 was dominated by the Kansas group, including Stan Chilton. However, Gary Hodson put up a great flight of 10:07, after working for 3 days on rubber and prop combinations. Stan tried very hard, and came up a bit short with his 9:46. Emil Schutzel also had an excellent flight of 9:44. All these models had really good flight patterns and were quite stable.

Limited Pennyplane found the Thrush again showing good flight characteristics, for a decent time of 15:32. Wally Miller flow a Thrush also, and put up his best ever time of 14:21. Wally really works hard at improving his models, and does a great job of building, with no flaws. Chris Borland, using the Banks wing, had his best ever time of 14:11. He is not afraid to try new ideas. Andrew Tagliafico Flew early, and set the pace in EZB with a graceful flight of 26:15. In second, with a 26:01, was John Lenderman, with a flight that was almost into the east wall several times, but worked its way out. Wally Miller, flying his .5 gram model, was third with 24:55. The F1L, or 1.2 EZB was won by Wally Miller, the originator of the event, with two great flights of 22:02.5 and 22:15, for a total of 44:17.5. In second was John Lenderman with 42:59, and third was Jerry Powell, last years winner, with 41:17. The Intermediate stick event was dominated by Stan Chilton, with an outstanding flight of 37:01. Jake Palmer, flying again after taking time for college and finding work, is back again, and flying well. He was second with a good 30:29, and Earl Hoffman was third with 24:10.

AMA stick was won by Herb Robbins, with a beautiful flight of 41:47, and again Earl Hoffman flew to second place with a 24:10. P-24 had only four entries, and Ed Berray won with a nice flight of 6:04. Tem Johnson was: in second place with a 4:23. A-R.O.G. was a battle between Andrew Tagliafico and Ed Berray, with Andrew topping Ed with a 17:27 to Ed's 16:48. Both models were beautifully constructed, and flew very well. In the regular Pennyplane event, John Lenderman flew his Thrush plus 10 for a very nice, steady flight of 17:07. Second was Jon Sayre, flying a pretty biplane for 13:25.

In Bostonian, Emil Schutzel flew steadily for two days, and improved his times on each flight, ending up with a pretty 5:13.4. 1 would guess that Emil flew at least 18 or more flights in practice. The format of this competition encourages that, so if you like to fly lots of flights with no restrictions, come to Kibbie Dome next year! Jerry Powell had a good 3:59.6 with his Yrekan for second place. Science Olympiad was won by Chris Borland with an outstanding flight of 6:25, using the Banks wing. Std. Catapult was a battle between Ed Betray and Tem Johnson, with Tem winning by a little more than 2 seconds. Hand Launch glider was won by Jon Sayre with a 155.02 total of two flights. Unlimited catapult was won by Tem Johnson, after the flight time calculator, (me) added the scores incorrectly. Ed Berray was again second. Jon Sayre easily won the Ornithopter event with a graceful flight of 8:20 and Emil Schutzel won the Manhattan event with a very high time of 11:06. His model does very well.

Here are the complete results.

* Site Record

F1D (2 Flights)

1. Jim Richmond 57:53
2. Herb Bobbins 54:52
3. Tim Goldstein 53:36

MINI-STICK

1, Stan Chilton 13:14*
2. Andrew Tagliafico 12:35
3. Wally Miller 12:17

A-6

1. Gary Hodson 10:07*
2. Stan Chilton 9:46
3. Emil Schutzel 9:44

LIMITED PENNYPLANE

1, John Lenderman 15:32
2. Wally Miller 14:11
3. Chris Borland 14:11

EZB

1. Andrew Tagliafico 26:15
2. John Lenderman 26:01
3. Wally Miller 24:55

F1L 1.2 EZB (2 flights)

1. Wally Miller 44:17.5
2. John Lenderman 42:59
3. Jerry Powell 41:17

INTERMEDIATE STICK

1. Stan Chilton 37:01
2. J ake Palmer 30:29
3. Earl Hof fman 24:10

AMA STICK

1. Herb Robbins 41:47
2. Earl Hoffman 24:10

P-24

1. Ed Betray 6:04
2. Tem Johnson 4;23
3. Dave Haught 4:11

A R.O.G

1. Andrew Tagliafico 17:27
2. Ed Berray 16:48
3. John Lenderman 11:47

PENNYPLANE

1. John Lenderman 17:07
2. Jon Sayre 13:25
3. Ten Johnson 10:43

BOSTONIAN

1. Evil Schutzel 5:13.4 *
2. Jerry Powell 3:59.6
3. Dave Haught 1:45.9

SCIENCE OLYMPIAD

1. Chris Borland 6:25*
2. John Lenderman 4:35
3. Ed Betray 3:36

STD CATAPULT GLIDER (2 FLTS)

1. Tem Johnson 2:23.05
2. Ed Betray 2:21.31
3. Herb Bobbins 2:06

HAND LAUNCH GLIDER (2 FLTS)

1. Jon Sayre 155.02
2. Ed Betray 78.89
3. Gene Stubbs 68.47

UNLIMITED CATAPULT (2 FLTS)

Tem Johnson 2:30.17
2. Ed Berray 2:22.04

ORNITHOPTER

1. Jon Sayre 8;20
2. Herb Bobbins 2:58

MANHATTAN

1. Emit Schutzel 11:06

There was also a F1D team selection regional held during the 4 days at Kibbie Dome. Results are:

1. Tim Goldstein
2. Jake Palmer
3. Lew Gitlow

KIBBIE DOME ANNUAL, JULY 27-30, 2002, MOSCOW, IDAHO

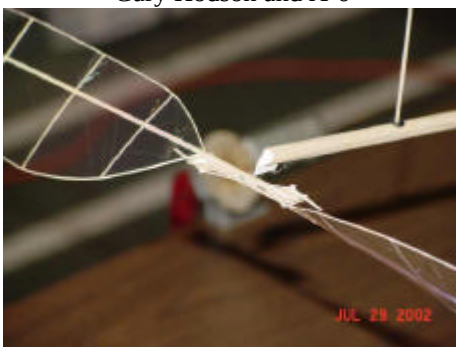

Kibbie Flight Line


Ed Berray from Vancouver, Washington

Gary Hodson and A-6


Lew Gitlow

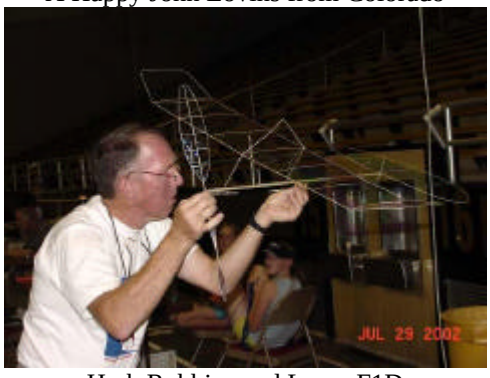

Tim Goldstein's 55 cm F1D

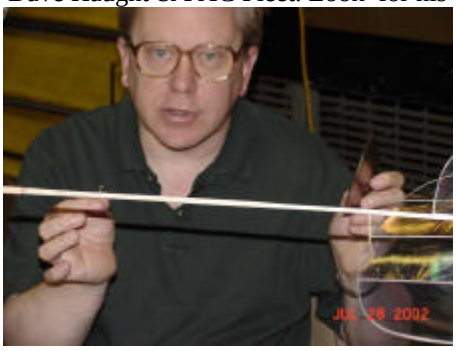

Jim Richmond's VD Prop

A Happy John Lovins from Colorado


Dave Haught & FAC Fleet. Look for his


Scale Column in INAV from Now On


Herb Robbins and Large F1D


Nice Motorstick, Steve!


Al Yuhasz Looks At All That Air!

PRIME OSBORN CENTER TRIALS, JULY 28, 2002, JACKSONVILLE, FL

The Center's Uncluttered Space

Limited Penny Plane and Arch

F1D Against the Window

Flight Line – Dave Reed and Bill Hedge

Bill Carney's Limited Penny

Norm Blitch PC Support, Phil Thibodeau CD, Jim Cassidey Field Marshall

Above and Left: Dick Obarski and his record setting Legal Eagle

Flight Line: Newt Bollinger, Dick Obarski, unidentified, Joe Nuszer, Scott Prince seated on Floor

Bill Carney Congratulates Dick Obarski

Joe Nuszer and Open PennyPlane

Joe Nuszer's EZB

F1d Motor Stick Construction – An Update
By Steve Brown, with input from Bernard Hunt and John Kagan

The Editor asked me to update my F1d Motor Stick Construction article to reflect current practice for 55cm / 1.2gm models. There is very limited experience with the new rules so the optimum designs and construction methods have yet to be fully established.

The 0.6g motors are short and fairly tightly stretched between the hooks. Ideally, the models are flown with little or no back off and run down to a deadstick condition to use all the energy from the limited motor. This means a very large range of input power and this makes trimming more difficult as compared to the old 65cm models. There is a tendency to stall / mush on the climb or alternatively to be underelevated on the letdown. The turning pattern is also problematical with a tendency to crab to the right or even roll. Because of these trimming problems some fliers (particularly British) prefer sticks which bow and twist much more than for 65cm models.

Stick diameter – in 65cm days most sticks were rolled on .250 diameter rods. These days there seem to be two schools of thought. Some fliers are still using .250 i.d. sticks because they provide increased durability. Others use smaller diameter sticks (typically .220 i.d.). The idea is to have a stick that will bend controllably under load, as well as twist enough to induce a large amount of wing wash at launch.

Boron – whether you use a large or small diameter, you can reduce the number of boron filaments. Three boron filaments on a stiff stick may, in fact, not allow enough bending under load. Two .003 or .004 boron located at 4 and 8 o'clock, or 3 filaments located 180 degrees apart, will work on short sticks (10"). Three boron filaments are enough for any stick. The boron should extend the full length of the tube and any stick extension. Boron on top of the stick seems to dramatically reduce stick bending.

Bracing – Short (10") sticks with 3 or 4 boron may be flyable without any bracing wire or post. This may be scary at first, but my experience is that if there is going to be a problem it is more likely to be that the stick doesn't bend enough under load. At the most, a short post (1-1.25") and a single .001 tungsten wire is enough. It is common for these designs to be adjusted so that the stick bracing wire is slack when no motor is present.

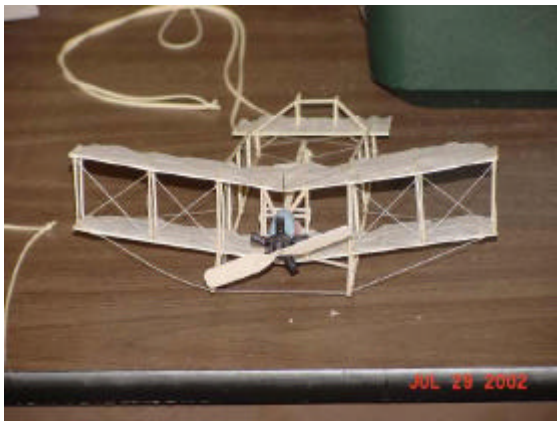
For beginning flyers I'd recommend a 1.25" post and single wire for any design, until you get some "feel" for stick strength. For anyone who is weary of the stick bracing post being accidentally broken off, try basswood about .040 X .040. The weight penalty over balsa is negligible (.005gm or less) and the strength is much greater.

Wood selection – Immediately after the rule change there was discussion of how much easier it would be to find appropriate wood due to the increase in the minimum model weight. This is true, but my experience is that sticks made of .014 or .015 wood are often too stiff.

.012-.013 balsa of about 4.0 - 4.3 lbs is about right. I you are building an "English" stick you may wish to experiment with thinner in your search for flexibility. For .012 - .013 balsa, a weight of .27 - .31 grams (for a 1.125 X 18 sheet) seems right. Contact me at stbrown@hotmail.com if your have any questions or comments.

Scale Matters! By Dave Haught

DHaught042@aol.com



Most kids growing up get to play on jungle gyms and swing sets, take a spin on the merry go round, muster up the courage to ride the breath taking trip down a ten foot slide. I was not so underprivileged. My slide was the wing root of a TBM fire tanker, my tree house was a ball turret of a B-17, and my clubhouse office was in the cockpit of a B-25. I grew up with a father who loves airplanes, who spent winters converting World War Two bombers into fire tankers and summers flying to exotic forests to keep them flying.

Airplanes and model airplanes have always been a part of my life. For my sixth birthday I received a drawing table complete with t-square, triangles and with what my parents thought was a life time supply of tracing paper. By seven I was tracing three-views and carving solid models, by eight I was learning to fly the control line stunt pattern. Of all my fondest model memories I will never forget my first scratch designed and built rubber scale model. It was a Curtiss Robin, 16" wing span, covered with 000 silkspan, no dope, and no windows. I wound it up, and let it roll. It hurtled itself into the sky in wonderful spiral, right into the top of our apple tree! I was hooked. I still have the plans tucked away in my archives.

Forty some years later I am still building models, but in the last few years I have narrowed my focus to indoor scale. For me the attraction to this corner of our hobby is a strange mixture of history, real people's efforts, dreams, and designs that are mystically blended, explored, and recreated in each model I build. I spend hours researching an aircraft that has caught my attention, its designer, the times, the details of its design. Then I select a particular ship and start the plans sequence. That involves finding or recreating a decent set of four views, cross sections, a stack of research photos, and a lot of coffee. Only when I am in my drawing mode I do I start to contemplate the practicality of the model. Some would pick an event, then study the performance parameters required to be successful in competition, then they select the most promising aircraft for their efforts, design the model and build it. Most times they are quite successful. I have never had such a practical approach.

That is why you will see me winding four motors for a B-17 or an Avro Lancaster or something so strange and fragile you would never guess it could fly. My passion is the art of designing a scale airframe light and strong enough to sustain flight. I try to shoot for the glorious two minute flight, but I often settle for a minute. To me joy is in getting any design to fly. If it flies, then I proceed to massage it until I have its max flight.

Indoor scale modeling is an art. Some have an instant gift, others of us have to work at our craft. Designing, building, finishing, trimming, detailing, and presenting are some of the topics I hope to explore with you in this series of articles. Many of the ideas and techniques I have researched - stolen- over the years will be common knowledge, some may be new to you. That is another one of the great aspects of this hobby we have, sharing. Let me hear any input from you along the way, these hallowed pages of Indoor News and Views have mentored many of us over the centuries, and by contributing a bit here and there you can help us spread the enthusiasm for this wonderful hobby or obsession-as my wife calls it.

A first foray into the scale mist is best done with the proverbial "good" kit. In the past twenty years-yes it has been even longer-the free flight scale kits have been more numerous and much better than the previous twenty year's products. Peck Polymer offers a wonderful line of kits that can be built right from the kit wood and plan with good success. I remember watching spell bound as a bright

yellow Bob Hoover P-51 peanut model did and R.O.G. and put in a magnificent 90 second flight indoors at Taft.

After watching a television special on the Red Tail Squadrons of WWII, I was inspired to build one. There lurking on my shelves was a Peck kit. I took it down and gave it good going over, the wood was pretty good, a few parts would be traded out for lighter balsa, a few stringers added to the nose top to preserve a more scale contour, but yes it would do the job. The model came out at 6 grams, a bit heavier than I would have liked, I did add a foam pilot and a few more details than I should have. Bottom line was it was mostly built right out of the kit. It will fly a very predictable 85 seconds. There are many such kits out there that are adequate for a first try or two. Stay away from the models that require a top and bottom keels with mostly solid formers-these are semi-deadly! I say semi because there are a few exceptions out there. One gentleman in our local club, John Robison, has had remarkable success with them, more on his unique approach later. These kits tend to be very heavy and have discouraged many aces from becoming hopelessly hooked on this hobby.

Another line of scale kits I have not mentioned yet are the indoor scale kits put out by many of our fine suppliers of indoor items. I have had mixed success recommending them to new modelers since they often lack the skills required to build these exquisite kits. A peanut is not a peanut is not a peanut. The 1/16" square lumber used in an outdoor peanut will be the demise of the peanut built for indoor flight. Not only wood sizes and weights are different for indoor, but the type of construction for the lighter materials requires better fits at joints, even different types of joints. Then there is the logarithmic spiral of weight caused by enough glue to join the lumber together. With the indoor kits out there you will easily use a 10th the cement and half the structure you would on a typical peanut scale model. While this sounds petty, I built a Micro X Porter from the kit and the same model using outdoor size contest grade balsa. The kit came in at 4.5 grams while its outdoor twin came in at 15.2 grams. Both flew great in their appropriate environments, however both met their demise in each other's airspace. I flew the indoor model outdoors to demonstrate how much better a lighter model flew outdoors, and it flew out of sight in a thermal! The outdoor model flew very well indoors, quite a bit faster than its twin, climbing fast, it sifted itself through the girders and made a spectacular crash.

All of this brings us to a point, I think. Ah yes, one needs to be a bit practical with the first indoor scale model or two if you want success. If you have some experience with indoor duration, go the indoor kit route. If you are making the transition from outdoor to indoor, you might pick up where you are most comfortable and try making the model as light as you can. In both cases keeping the model as simple as possible will pay big dividends. Select something with few struts, wings, and fragile looking appendages at first. The more complex the more perplex!

I'll end this first installment with an idea that might be new. I have struggled with a source of tubing for nose blocks on my peanut and pistachio sized models. The neat Peck Polymer thrust buttons have a hole too big for the size wire I use for the prop shafts, plus they do add some weight. I have been cutting them down a bit in length and diameter. The smallest size of aluminum tubing has a sloppy 1/32" diameter hole through it-way too big as well. As I was looking around for a source of smaller tubing the glue syringe I use caught my eye. I buy disposable plastic syringes at the local farm supply store that have replaceable needles. The needles come in a wide range of sizes all with handy diameters. At around a dollar each they are a good buy. The steel they are made of is soft and can be cut with a fine file of utility knife. Give them a little roughing up with 400 sandpaper and they can be pressed into your nose blocks, a touch of cement and you have a great bearing. I have experienced a lot of variation in a model's perfomance due to a sloppy prop bearing. I have even successfully bushed a worn nose bearing with the steel tube and given new life to an old model. Give it a try!

Well enough for this episode. Next issue a few insights into common problem areas in scale model construction with a few new ideas and some thoughts on props. Remember its not just a hobby! Now back to my B-24 . . .

The UK Team Trials for the 2003 European F1D Championships.
Held at Cardington, 13th and 14th of July.
By Nick Aikman

This was rather a low-key event considering the importance of the European Championships. Perhaps this was due to the fact that although the championships are scheduled to take place at the magnificent 'Cargo Lifter' hanger near Berlin, they have been put in doubt by financial difficulties within the company. Also, although there are now around twenty F1D flyers in the UK, only eight or so compete in major events. Top flyer John Tipper was unable to attend, and UK team member Derek Richards could only fly on the second day. The field was therefore reduced to six and a half.

This was the first major F1D competition in this hanger for some years. Holes in the roof meant that recent rain left the atmosphere slightly damp and although the weather was fine, the times were not as high as had been expected. The air never really became dry and the biggest holes have the nasty habit of giving a 'Venturi' effect that rapidly sucks models upwards, either into the suspended mesh netting that is draped below each bay of the roof, or more unluckily, above the nets and into the girders. For these reasons, well set up VP props were vital to control altitude and keep models well below the netting and those with most knowledge and use of them topped the list.

Bob Bailey had the best of the luck, his longest flight drifted rapidly sideways at high altitude and then hit the end wall, sliding down a long way before Bob was able to successfully catch it with a balloon and steer it to safety. The VP prop then gave a very slow letdown for his longest flight of 32.02. Conversely, Ron Green had the worst luck of the weekend as several breaking motors and uncharacteristic steering mishaps did damage to his models. His best flight of around 32 minutes was not official. I managed to hang right at the top of the shed at the end of the first day, when the up-draught from the biggest hole sucked my model twenty feet upwards in less than two minutes. After a circle or two above the nets, the model roosted on a catwalk but was successfully retrieved with a balloon

So, a contest with few surprises and Derek Richards managed second place even though he missed half the contest. Now the chosen team will wait to see if the contest actually takes place. Most of us plan to attend the open international event at the 'Cargo Lifter' hanger this September, so maybe we'll find out more then.

Results.

1.	**Bob Bailey.**	**32.02 + 31.31**	**Total.**	**63.33**
2.	**Derek Richards.**	**31.37 + 30.39**	**"**	**62.16**
3.	**Bernie Hunt.**	**31.40 + 30.27**	**"**	**62.07**
4.	**Ron Green.**	**28.26 + 27.16**	**"**	**55.42**
5.	**Geoffrey Lefever.**	**25.53 + 27.22**	**"**	**53.15**
6.	**Nick Aikman.**	**25.24 + 27.18**	**"**	**52.42**
7.	**Laurie Barr.**	**22.14 + 24.06**	**"**	**46.20**

Wart

By Gary Hodson

Tem Johnson, Emil Schutzel & I made the long trek (1770 miles) from Kansas City to the Kibbie Dome in Moscow, ID. Along the way, we picked up Al Yuhasz in Denver. Al & Tem were roommates in college, 50 years ago. They both were members of the Perdue University Aeromodeller's Club, but after college they lost contact with each other. Al recently returned to Free Flight after a long absence from the hobby. He contacted the AMA to see if by chance Tem was also a member. The AMA forwarded Al's letter to Tem & they began to renew old acquaintances. This trip was the first time they had seen each other since college.

If you have never flown in one of the large indoor sites like the Kibbie Dome in Moscow, ID, or the Mini Dome in Johnson City, etc., you owe it to yourself to attend one of the these events. You do not have to fly competitively to enjoy the thrill of flying in a site where you do not have to worry too much about hitting the walls & ceilings. The thrill is comparable to the first time you flew a rubber powered airplane successfully. There is lots of room for everyone to fly no matter how serious you are & you will get lots of suggestions & ideas from the other fliers.

The Kibbie Dome Contest Directors, **Andrew Tagliafico (duration) & Dave Haught (FAC scale)** did a great job & deserve our thanks for making this event so successful. The contest format is designed to maximize the amount of flying time available. Four days of non-stop flying from 8:00 AM to 8:00 PM. Hand launched & catapult gliders get the floor from 8:00 AM to 9:30 AM all four days. The rest of the time is open flying. In other words, there are no fixed time slots during which you must post your official flights.

Last year the **Heart of America Free Flight Association** (Kansas City area) selected the A6 to be its "official event" for the annual club championship. As a result, we all have been focused (some would say obsessed) on improving our A6 times. We fly a lot of ¼ motor flights & share information on what works & does not work. Our times have risen rapidly from eight minutes to over nine minutes & now, to over ten minutes in a little over two years. Tem won the HAFFA club championship, Emil was first at the USIC this year & I was first (& broke ten minutes) at the Kibbie Dome this year. Competition can be fun & it improves the breed!

Wart

Best time: 10 minutes, 7 Seconds
Date: 7/28/02
Location: Kibbie Dome, Moscow, ID
The plans contain most of the details you need to build a competitive A6.
Following are a few details of the construction not shown on the plans:

Thrust bearing: I order thrust bearings from **MicroX (part #TBR-1)** unbent (flat). This allows me to bend them to suit my requirements. I want a relatively large stand off (7/32") between the prop shaft & motor stick in an effort to prevent the knots that form as the motor unwinds from snagging on the motor stick. The rear hook is also 7/32" from the motor hook for the same reason.

Motor Stick: The large stand off mentioned above results in a lot of bending force so the motor stick needs to be very stiff. I test my motor sticks for bending as described by **Larry Coslick** in his EZB articles in **INAV**.

Motor: The 10 Min., 07 Sec. flight was made on an 18" loop of **March 2002 Tan II** rubber that weighed 0.91 grams. I did not get involved in rubber powered free flight in time to own any of the legendary 5/99 rubber. I know **John Clapp of FAI Model Supply** has been working very hard to get us the very best possible rubber & it appears that his efforts are paying off.

Wing Ribs: You could eliminate some of the wing ribs to save weight, but they help me maintain the airfoil shape when I cover with wrinkled condenser paper.

Covering: The flight surfaces are covered with wrinkled condenser paper to minimize warping as the paper shrinks over time. The condenser paper is wadded up into a tight ball, flattened out & ironed between two sheets of newspaper. It is attached to the flight surfaces with rubber cement diluted approximately 50% with naphtha. The rubber cement is brushed onto the frame. If necessary, the cement can be reactivated with naphtha until the paper is positioned to your satisfaction.

Wood Selection: I find the stiffness rating of **Tim Goldstein's Tru-Weight Indoor Balsa** to be particularly helpful in selecting wood for specific applications. Light, stiff wood for the 1/16" wing & stab spars keeps the surfaces warp free & allows more weight to built in to the motor stick where it is required for stiffness. Also, a stiff, light tail boom is essential. Light weight prop blades are important, but their stiffness can be lower. In order to build down to the 1.2 gram minimum weight, it is important to have a reliable source of excellent wood.

Correction notice on Micro-B article in 107

The gremlins just would not leave us alone on this one. In the chart of wood sizes and dimensions on page 24 there was an error. The titles in the left most column of the chart starting with T/E WING SPAR and through PROP SPAR were transposed down one line. So, the dimension given under size in the line above is the proper dimension for the item named below.

Sorry for any confusion and thanks to Larry Coslick for pointing this out.

USA Jr Team Change

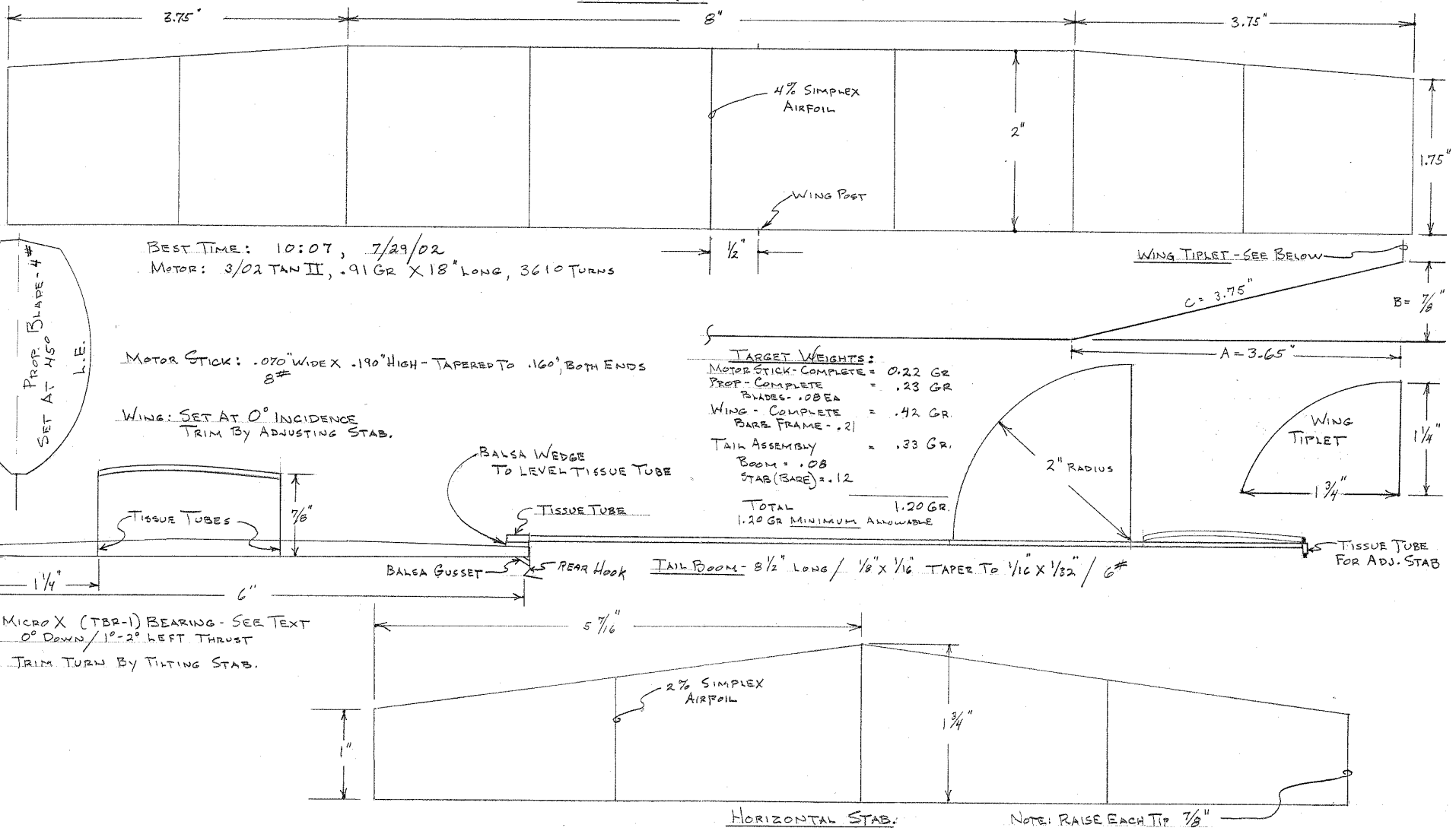
After much consideration Parker Parish decided that his commitments would not allow him to fill his berth on the Jr. World Championship team. Team Manager Ray Harlan then contacted Matt "my plane flew out of the hanger" Chalker who was 4th in the team trials to fill the spot. After a little fast talking to his dad Matt accepted the opportunity to represent the USA at the Champs.

Here is a little of what Matt had to say about it on the Indoor list on Yahoogroups:

"First, I'm excited to be able to go, but I wish Parker could be going, since he was the one who earned his right to be on the team. I have a lot of work to do to be able to go, since the only half-way suitable components that I have are 2 wings, which leaves a lot to be built. The largest thing that I could use everyone's help with is rubber. The only rubber I have is 3/02 and only about a half of a pound at that."

"WART"

A-6 By Gary Hodson



Bud and Jody Tenny

LOOKING BACK

by Bud Tenny

Many modelers who should know, have said that we would not have indoor modeling as it is today, perhaps not at all, if it weren't for Ralph 'Bud' Tenny. Certainly, there would be no Indoor News and Views. With Tim as an interviewer, here is how it started, in his own words.

In 1960, The Navy-sponsored NATS was held at Dallas NAS in Grand Prairie and Indoor was flown in the Will Rogers Coliseum in Ft. Worth. The following March the Cliff Model Club (Kit Bays, Don Chancey, and Jerry Murphy now chairman of FFCB) were some who kept flying. The club members had indoor models left over from the NATS and held a contest in the Drill Hall at Dallas NAS.

At the time I was working with several young boys at UC. I told them "This is something all model builders should see." At age 17 I was very active in stunt and combat and my sponsor took me to Kansas City Memorial Auditorium where indoor was flown; he told me the same thing. Just to be in the swing of things I lightened a JETCO ROG and covered it with very crude microfilm. I came home hooked.

Very shortly, I circulated about 50 copies of Issue #1 of INAV; in an editorial comment I suggested that regular indoor events could be held year-round "by scheduling meets at times that would not conflict with outdoor FF" (which I also was flying. Jerry Murphy replied "If you scheduled meets for the men's room at the Statler-Hilton, summer events would still conflict with FF schedules."

I went ahead anyway, and Jim Clem and I and a few others began monthly meetings at a city recreation center in North Dallas and other similar sites.

The very first few issues of INAV were typed on bond paper using orange carbon paper facing the back of the sheet. This gave me a dense image that would easily reproduce on a blueline machine. At first, these were bootlegged in a machine at work. When that privilege went away, I did one or two at a commercial printer. When I got a computer and printer I shifted to that format, printing oversize pages that were photo-reduced to 8.5 x 11 size. That may have been the October or November issue in 1961.

>So far we haven't asked about NIMAS.

I don't remember which of the 10 or 12 co-founders suggested the concept of NIMAS, but it was an idea whose time was ripe.

>Was it essentially the first AMA Special Interest Group?

NIMAS was founded long before SIG's were heard of. It was never formally named and became a de facto special interest group. But like many organizations, everyone was happy to have special services, but no one was wiling to help, so the only real NIMAS benefit was INAV.

>I think you took it back over at some point to rescue it.

Not true. As I remember, when it got too much for me, one guy offered to take over and lasted for two issues. At that point, Rich and Melody took over. I have lost track of who followed them.

>I also know you have written the Model Aviation column for how many years?

For as long as MA has been in existence. I think I had a couple of columns in whatever magazine AMA teamed with (Air Trails?). Then AMA decided to do it in-house as they do now.

>I also know you are on the contest board and have been involved with quite a bit of the behind the scene effort to make indoor what we have today.

In the mid-'60s I was chairman of the FFCB until Cliff Weirick forced me into a ruling I knew was contrary to AMA tradition. I told him I would do it if he took the heat when the s--t hit the fan. It did, he didn't and I resigned from the FFCB. When the ICB was formed I was chairman, and pretty well hand-picked the members from the other AMA Districts. Except for an early resignation (Dist. 11, Taglifico took his place) and later Charlie Sotich resigned in that District, the ICB has remained stable in membership until Doc Martin and Rich Doig died. I still have no replacement for Doig.

> I would love to have the details on what you have done and how long you have done it.

When F1D participation began, I served as Team Manager in 1966 (Debrecen, Hungary) and the first WCh held in Cardington. I managed both those Team Selection programs. I also managed the third Team Selection; until then, the team members chose the chairman. That time, the AMA Rep to CIAM made the choice. That removed any chance of my going at AMA expense and I was never able to afford to attend overseas WCh events. Since then, my AMA activity has been limited to IVAV, ICB and Dist. VIII administrative tasks.

>How about hearing a little bit about what you have done career wise, family related, and other hobbies and interests?

After we married, Jody typed the labels for each issue until I was able to get them onto self-adhesive labels, which I typed the master images for. Later, I was able to computerize the operation, as did Doig and all following editors.

At the time we married I was a Senior Instrumentation Tech at Texas Instruments and that continued until I retired from TI after 16 years when I was eligible. Since then, I did various test instrument design jobs until I had to retire to finish recovering from cancer. After that, I did various things such as telephone computer support. I don't remember what else until I can get Jody to help me. I continued to fly indoor until all the good sites evaporated. Since then, I have been associated with the Dallas Personal Robotics Group (mostly elder statesman and advisor, since I've never completed my own robot).

We are both very active at the First Methodist Church in Richardson; both of us have served on the Administrative Board and Jody was very active in the women's group. We met when she started the Parents Without Partners and I attended (my first wife moved out unannounced taking our infant son. I never saw him again until he looked me up after he was grown.)

But, in Texas parlance, 'I married a family'. I helped her raised three young children. Kevin is now nearly 50, Kristi was 44, and Kerry is 18 months younger. We are very regular in Church and Sunday School, and Kevin drives in from Farmersville (25 miles) to attend church with us. Kristi and her husband were active in their church, but Kerry, a very well-known mathematician, remains an agnostic, struggling with some theological questions.

Now in retirement, Bud continues to write the Indoor Column for Model Aviation magazine. He tells us he is looking for high quality photos, articles and other material relating to Indoor. Write to him at P.O. Box 545, Richardson, TX 75083.

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